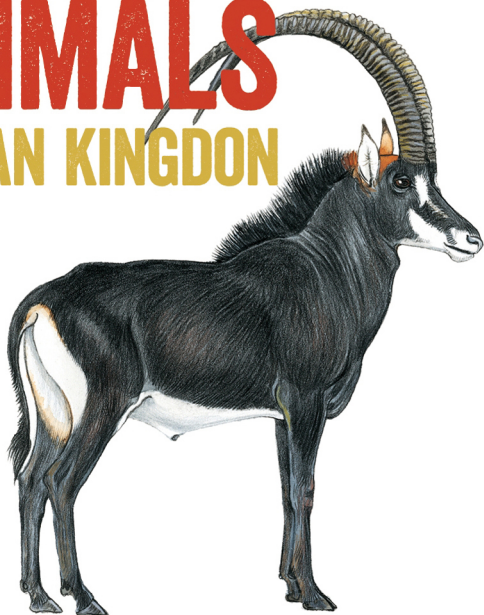
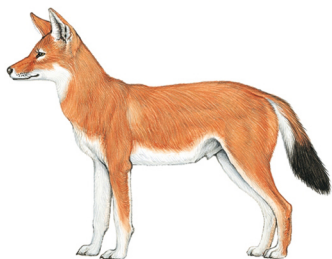


SECOND EDITION



THE KINGDON
POCKET GUIDE TO
AFRICAN
MAMMALS
JONATHAN KINGDON



B L O O M S B U R Y

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About the author

Jonathan Kingdon was born in Tanganyika and has spent the better part of his life in Africa. He taught at Makerere University, Kampala, for many years and is now a Research Associate at the Department of Zoology, University of Oxford. He has been acclaimed as both a leading academic and a prominent artist, and awarded several prizes and medals. The millennium issue of *American Scientist* named his seven-volume *East African Mammals: an Atlas of Evolution in Africa* as one of the 'One Hundred Books that Shaped a Century of Science'. Richard Dawkins describes him as 'a world-class zoologist, ecologist and writer... a Living World Treasure... an artist with words and a poet with images'. First published in 1997, the *Kingdon Field Guide to African Mammals* was characterised as 'a work of almost heroic proportions... an extraordinary fusion between science, natural history and art' (Tim Flannery). The second edition of this guide greatly augments that work, incorporating much information accumulated over the intervening years. Kingdon was also founder and senior editor of the six-volume *Mammals of Africa*, which was awarded the prestigious Dartmouth Medal in 2014 by the American Library Association. Many of his 16 books (totalling 5,000 pages) have been translated into languages other than English and he has published numerous papers, articles and chapters. Exhibitions of his work have been shown in museums and galleries in Africa, Australia, Europe, Asia and the USA.

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PREFACE

Africa is different. We now know, with absolute certainty, that the ecological matrix that is Africa provided that extraordinary cascade of opportunities that culminated in human beings. Africa is our mother continent. That makes Africa fundamentally different from any other continent. The mysteries of human existence are rooted here, in Africa. To know yourself you must get to know Africa. To catch glimpses of your ancestors' world you must seek out some of the animals they knew so well. What better reason to become interested in the mammals of Africa?

The larger mammals, particularly those in well-protected national parks, are generally easy to view (sometimes on foot, but more usually from a vehicle or hide). Outside protected areas they can usually only be seen at some distance. The great majority of African mammals are small, very shy, mainly nocturnal species. Scientists employ sophisticated methods to study such species, including tailor-made traps, electronic sensors, radio- and spool-tracking, bat-detectors and hidden recorders. However, for both the amateur naturalist and scientist alike, a good pair of eyes, a pencil and notebook can be all that are required. To augment the naked senses and provide permanent records of momentary events binoculars, a tape-recorder and camera are useful adjuncts.

Anyone interested in mammals should keep notes and records. Every human/animal encounter has some significance, even apparent 'accidents', such as an otter shrew in a fishing net, a Wild Dog killed by a speeding lorry, or a tomb bat drowned in a school cistern. Indeed there are aspects of the biology of such animals that might never have been discovered but for such mishaps.

Most mammals are encountered indirectly, most commonly by their tracks, diggings, excreta and feeding sites. Bones and skulls are occasional finds but, sadly, some of the richest sites for animal remains, often of rare and little-known species, are on town market stalls. This plunder is a growing menace in those African countries that permit unregulated exploitation of 'bush-meat' for urban markets. Campaigns against this highly damaging trade deserve the widest possible support.

Yet 'bushmeat' still commands premium prices because indigenous foods are sensed as superior. Of the massive investment in mono-specific animal husbandry, effectively none has been spent on the potential for Africa to be fed using its own resources. This is because the beef is mainly for export, while the 'experts' are mostly non-African imports with no knowledge of African ecology.

We owe to amateur naturalists most of what we know about mammals in Africa, much of it collected from keen African observers. From the earliest foreign explorers to contemporary civil servants, naturalists have recorded countless interesting details. The collators of this accumulated knowledge have, for the most part, been non-Africans writing for non-African audiences. Today this is changing. Fireside gossip is no longer the preferred medium for communicating indigenous knowledge about local animals. African naturalists and scientists increasingly publish for an international audience and this is the context for a new generation of field guides.

The authority for this book lies in an African childhood and lifetime of research, travel, university teaching and writing on various aspects of evolution in Africa. Most publishing projects rely on author, studio artist and graphic workshop to supply the texts, illustrations and maps for their co-operative enterprise. The dislocations are obvious to any careful analyst of the end result. This book breaks new ground in that the author is also illustrator, cartographer and designer. I trust that the results speak for themselves. My qualifications for the task lie with several previous works, most notably with *East African Mammals: An Atlas of Evolution in Africa, Island Africa*, and as founding editor of *Mammals of Africa*. I hope this pocket guide will accompany the solitary naturalist on his or her mammal-watching excursions through the African landscape. I also hope it will reach new potential audiences in schools and cities. Here there are new demands for a working knowledge of wildlife. Rapid growth of economically vital tourist industries (mostly founded on wildlife) ensures that the new enthusiasts and wildlife experts are teachers, rangers, couriers and drivers in schoolrooms and minicabs or on park outings. I hope that my work will help these new persuaders to convince both locals and visitors alike of the enormous value and significance of Africa's natural heritage.

INTRODUCTION

This pocket guide derives from the second edition of my more extended *Field Guide to African Mammals*, which, in turn, owed much of its material to the still earlier volumes of my *East African Mammals* and, more recently, from *Mammals of Africa*.

African mammals have featured in books for over 500 years and such books have an interesting history that reflects changing ideas and an ever enlarging list of species. At first, information tended to derive from travellers' tales and these early 'guides' were known as 'bestiaries', volumes in which facts and fables were inextricably mixed. With Europe's global expansion and the rise of colonialism, Africa's mammals, no less than those of other continents, became the playthings of the privileged and guides from this period were 'records of big game', primarily designed for hunters.

In the middle years of the last century there was a change in vocabulary. 'Game' became 'wild-life' as vast urban audiences received natural history stories and vivid images of animals in their homes and schools via books and television. The life histories of some popular species became familiar through the work of talented film-makers, naturalists and scientists. This phase coincided with the growth of mass tourism and the declaration of many magnificent national parks. Most current field guides are oriented to this period of expanding tourism and the growth of natural history as a major form of recreation.

Now we have begun a fourth era, marked by our self-discovery as mammals that have created their own extraordinary niche. It is a niche in which consciousness and technological power have brought responsibility for the fate of our own and all other life on earth. Space travel and satellite photography have given us a new awareness of our cosmic fragility and biological limitations, while problems created by pollution and environmental degradation have led to a new concern for the health of the biosphere. As we are ever more frequently reminded of the finite nature of natural ecosystems and their fragile complexity, Africa's uniquely rich 'biodiversity' has become a by-word. That biodiversity happens to include us. The ecology that nurtured our ancestors and helped shape our intellect and character demands that Africa's biodiversity receives global respect and support.

It is with this deeper sense of involvement and intensity of interest that the work of homegrown authors, such as myself, has begun to appear, but our efforts are part of an urgent effort to understand and interpret the richest and most complex array of mammals in the world. Much of this urgency is driven by the need to conserve species and communities that are being needlessly exterminated. Any intelligent view of Africa's past, present and future needs to include our fellow mammals, survivors of the very communities that once embraced almost every grade of human ancestry.

For example, an ancient and uniquely African radiation of mammals, dubbed the 'afrotheria' was discovered less than 20 years ago and has only recently begun to receive the recognition it deserves. The afrotheria includes seven very different classes of animals, ranging from the very largest, elephants, to the near smallest, golden moles. That such astonishing contrasts should exist within a single radiation can be partially explained by afrotheria's near-monopoly of Africa during the earliest years of mammalian evolution and the absence of competing mammal lineages during our continent's prolonged geological isolation.

We live in a time of unprecedented accumulation of knowledge. Each year we learn more about living and extinct animals, about pre-history, human origins and processes that govern our past, present and future. From this cascade of new discovery has come the awareness that the survival of other animals is not entirely detached from our own. As more people gain the ability and leisure to see African wildlife, their pleasure, interest and awe may be heightened by an awareness that what they are seeing would have been a familiar aspect of the existence of their ancestors, from ancient hominins to recent hunter-gatherers. As we come to understand how human beings have evolved within African natural communities we can gain a perspective on ourselves as an inextricable part of mammalian life on earth. This, surely, adds a new incentive to the joys of learning about African mammals.

HOW TO USE THIS GUIDE

This pocket guide is essentially visual in nature, with colour illustrations the primary clues as to what animal you might be seeing. Plates are labelled with their English common names (as used in the *Kingdon Field Guide to African Mammals*, second edition) and face a brief text and coloured map of their distribution.

The text provides measurements (HB head and body length; SH shoulder height; T tail; W weight; and FA forearm for bats). There is a brief **DESCRIPTION** of each species (or for some small mammals, the genus); this is followed by summaries of **HABITAT**, **FOOD** and if space permits **BEHAVIOUR**.

Correct identification of an animal depends upon the nature of the encounter. In the field the great majority of clues are indirect but, in a guide to a fauna of well over 1,000 species, an inventory of tracks, outlines of burrows, forms of excreta, etc., would be impractical. This guide is therefore limited to concise verbal descriptions and detailed full-colour illustrations.

Mammal books that emulate bird books with an item-by-item enumeration of colour patches, long or short crests, etc., are not well suited to the more subtle variation and complexity of most mammals. Comparisons with familiar animals, such as dogs, cats, sheep, etc., are rendered useless by the sheer diversity of African mammals. Therefore, the colour plates in this guide aim to assist identification by illustrating something of a species' 'jizz'. Jizz is the naturalist's word for the total sum of form, colour, stance, silhouette and movement that allows an accurate assessment of a species-specific shape. Ritualised displays often serve to emphasise a species' peculiarities. Some plates illustrate these postures.

While I hope the 'once-in-a-lifetime' visitor to Africa will find this guide useful, it is intended as a celebration of the great diversity of mammalian forms. The guide includes summary descriptions of behaviour but readers seeking more detail on the behaviour of African mammals should refer to my *Kingdon Field Guide to African Mammals* and to Richard Esté's excellent *Behaviour Guide to African Mammals*.

Much mammal life is accessible to quiet observation but any serious contemplation of mammals can only be a humbling experience. In their world we are like deaf-mutes. We can neither register nor interpret the most important dimension of their existence: scent. For a few species (mostly primates like us) scent may be subordinate to vision but for the majority, scent is a central regulator of their social life, a major mechanism for orienting themselves and a source of what we would call 'exquisite sensations'.

If mammals have been shaped by the way they make a living they also shape the lives of their prey and of the plants they eat. One example centres on the fact that many plants protect themselves by developing poisons to deter damage from animals. To deter its own predators, one African rodent, the Crested Rat (see pp.124–5), borrows a particularly lethal plant poison by lathering masticated *Acocanthera* bark into the most specialised 'toxic fur' known among mammals. As a herbivorous rodent the Crested Rat has the advantage of a long evolutionary history of exposure to plant protective compounds, which its carnivorous predators lack. This rodent has found an 'Achilles' heel' in its predators. Another example is my own discovery of a unique relationship between bark-eating anomalures and the awoura (*Julbernardia*) trees on which they feed (see p.114). This interdependence between gigantic, slow-growing forest trees and small, short-lived, gliding rodents is so specific that it must go back millions of years. In keeping their flight paths to the tree trunks clear, the anomalures prune (and eventually kill) the tree's competitors, thereby compensating them for wounding their bark. Mutually beneficial relationships are known among bats and the flowering plants that they pollinate, and among primates and the tree seeds that they disperse, but many, much subtler relationships await discovery and study. The inter-relatedness of mammals and all other organisms in natural communities is a compelling reason why we should strive to conserve ecosystems intact, as well as the entire range of mammal species, not just the ones we find attractive or agreeable.

THE AFRICAN ENVIRONMENT

VEGETATION

African vegetation is dominated by an equatorial belt of rain-fed forest and three principal desert areas: the Sahara, the Horn (Somalia) and SW Africa (Namibia). Between these extremes are moist forest–savanna mosaics, woodlands (dominated by leguminous trees, called Miombo in the south-east and Doka in the north-west), various wooded grasslands or savannas, often dominated by *Acacia* bush or scrub, and verging on subdesert or semi-desert in places. The desert graduates from bare sand dunes (erg) and rocky pavements or screes (hammada) through various conditions in which ephemeral grasses or herbs, scattered shrubs and small trees modify the desert sufficiently to permit various mammals to survive.

Montane areas also range from nearly bare screes on the top of Mt Kilimanjaro through various Afro-alpine habitats to montane grasslands, moorlands and forests. In the Cape and Karoo there are unique shrublands, moors, grasslands and semi-deserts subject to frequent summer fires and sustained by winter rains. There are few places where these vegetation communities have not been affected by human settlement, felling, frequent fires and large herds of livestock. Nonetheless, national parks have often succeeded in maintaining relatively healthy and representative communities of indigenous animals and plants.

The gross vegetation zones listed above break down into subtypes that often define the habitats of particular mammal species. Some major types and categories are:

A. FOREST

1. Lowland rainforests (wetter and drier types)
2. Dry evergreen forests
3. Swamp forests (palms, mangroves, etc.)
4. Montane forests (afromontane, Mediterranean, etc.)
5. Mediterranean oak and conifer forests
6. Various mosaics and transitions

Partially cleared rainforest,
Yekepa district, Liberia.

PHOTO M. COE





Afromontane rainforest, Parinari mist forest, Mount Nimba, Liberia. PHOTO M. COE



Forest-savanna transition, Pare Mountains, Tanzania. PHOTO J. KINGDON

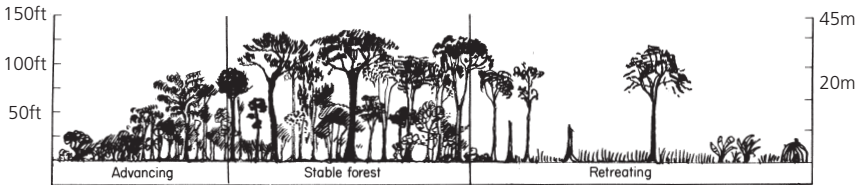


Diagram of forest profile, showing changes in ground cover.



Swamp forest, *Phoenix*, *Marantocia*, *Pseudospondias*, *Elaeis*, *Mitragyna*, *Calamus*.



Montane forest, *Podocarpus*, *Cyathea*, *Ocotea*, *Aningeria*.

B. WOODLANDS

1. Miombo (*Brachystegia*/*Julbernardia* dominant)
2. Sudanian doka (*Isoberlinia* dominant)
3. Mopane (*Colophospermum* dominant)
4. Various mosaics

Mopane woodland, Zimbabwe.

PHOTO M. COE





Woodland, *Brachystegia*, *Terminalia* spp.

C. SAVANNAS, BUSHLANDS AND THICKETS

1. Various *Acacia* dominant (evergreen to very dry)
2. Bushlands and thickets (often *Commiphora* dominant)
3. Mosaics (from moist to very dry)

Open Acacia savanna,
Nyambeni, Kenya.

PHOTO M. COE



Acacia Savanna, *Acacia* spp.



Thicket, *Commiphora*, *Combretum*, *Acacia*, *Teclea*, *Maba*.



D. GRASSLANDS AND MARSHES

1. Fire-induced grasslands (*Themeda*, etc.)
2. Valley-bottom grasslands (some semi-aquatic)
3. Montane grasslands
4. Various mosaics and secondary types

Acacia/Commiphora/Combretum
thicket, Mkomazi, Tanzania.

PHOTO J. KINGDON

Fire-induced grassland, Samburu,
Kenya. PHOTO B. WHITE





Swamp, *Pistia*, *Nymphaea*, *Phragmites*, *Papyrus*, *Miscanthidium*, *Phoenix*.



Swamp vegetation, Okavango, Botswana. PHOTO M. COE



Giant Groundsel, Afro-alpine zone, Mount Kenya. PHOTO M. COE

E. MONTANE AND AFRO-ALPINE

1. High-altitude alpine types
2. Bamboo (plus forest/grassland mosaics)
3. Undifferentiated (from arid to humid)

Juniper-hagenia forest/grassland mosaic, Bale Mountains, Ethiopia.
 PHOTO J. KINGDON



Alpine zone, *Lobelia*, *Carex*, *Senecio*.



Subalpine or ericaceous zone, *Erica arborea*.



Bamboo, *Arundinaria*.

F. SHRUB, SCRUB, MOORLAND AND SEMI-DESERT

- 1. Semi-arid shrublands
- 2. Succulent Karoo types
- 3. Cape fynbos
- 4. Desert margins scrub and mosaics

Cape Fynbos.
PHOTO J. KINGDON



G. DESERTIC

- 1. Absolute desert
- 2. Sand deserts (ergs)
- 3. Stone deserts (hammada, reg)
- 4. Subdeserts (graded or mosaic)
- 5. Semi-deserts (graded or mosaics)

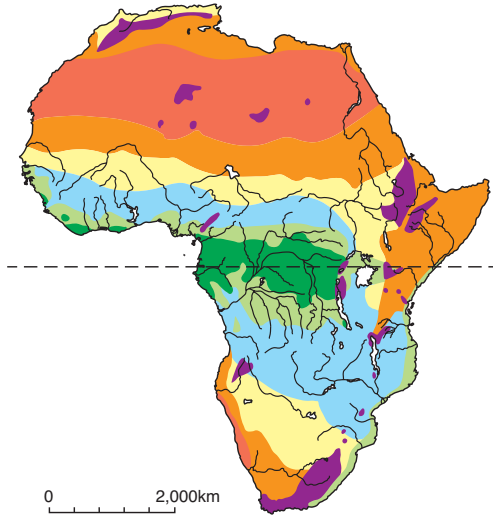
Subdesert,
Namaqualand,
South Africa.
PHOTO M. COE



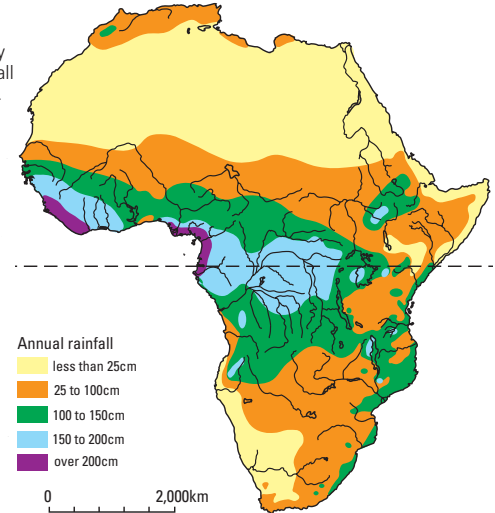
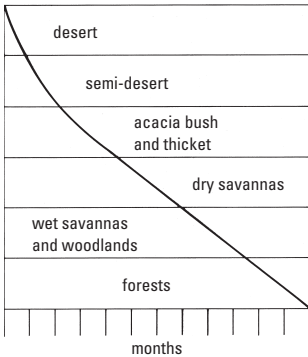
Semi-desert, *Aloe*, *Calotropis*, *Sansevieria*, *Commiphora*, *Balanites*, *Euphorbia*.

Principal vegetation zones in Africa.

- Mountain and Cape vegetation
- Lowland forest
- Forest mosaics
- Moist woodlands and woodland mosaics
- Acacia savannas (also Mediterranean)
- Sub-desert, semi-desert and dry bushlands
- Desert



Rainfall and vegetation: the diagram below correlates the duration of humidity (in months) with vegetation zones. Rainfall exceeding 5cm indicates a humid month.



- less than 25cm
- 25 to 100cm
- 100 to 150cm
- 150 to 200cm
- over 200cm

EVOLUTION IN AFRICA

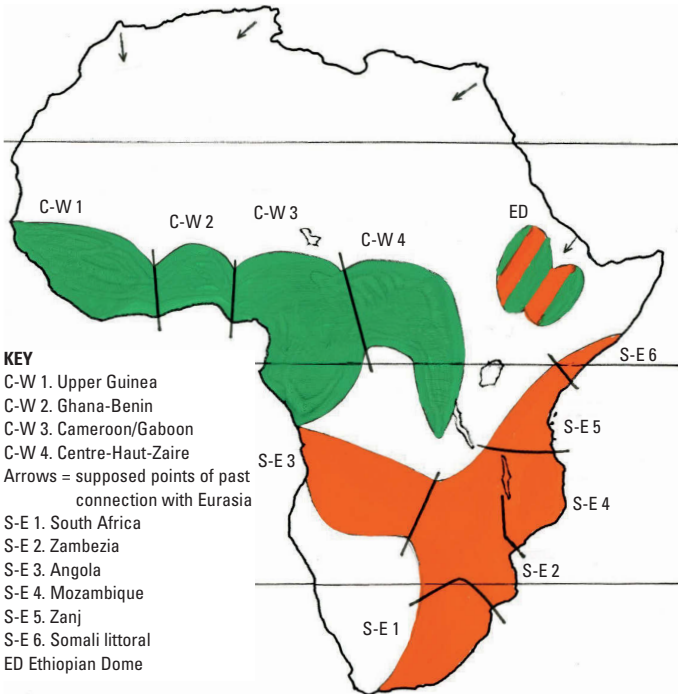
HABITATS

The broad outlines of modern habitats were already well developed many millions of years ago. However, their relative importance has fluctuated widely, following huge swings in global climate that go back more than 15 million years, but are best known for the last 1 million years. Africa has very frequently been a dry continent and today's extensive rainforests and warm savannas are exceptional and we live in a period close to the wetter and warmer end of the scale.

The last major spell of cold, dry weather peaked in Africa about 19,000 years ago, coinciding with the last global Ice Age. This was the most recent of more than 20 Ice Ages, each of which brought dry weather to most of Africa. At such times lowland rainforests would have retreated to especially favoured spots in Liberia, Cameroon, E Zaïre and Tanzania, all close to the equator. The communities of animals and plants that are now restricted to cool, relatively dry belts on African mountains would then have spread over very extensive areas and mammals that are now restricted to temperate or cool areas (like Springbuck in South Africa or Gelada in Ethiopia) are known, from fossils, to have once been abundant in tropical areas.

The gross pattern of climate change is a simple one. Dry habitats have tended to expand or contract from north to south and vice versa. Warm, wet periods on the other hand cause forests to pulse on an equatorial east–west axis. The result has been repeated fragmentation of both wet and dry habitats and with that fragmentation, populations of animals and plants have suffered repeated bouts of isolation. While relatively stable species have simply pulsed with their habitats many others have made local adaptations and speciated or subspeciated.

To explain the evolution of such species and subspecies we can observe that there are two major 'realms', effectively ecological 'islands', within this big, blobby continent. Africa's 'up-ended-L' shape has generated two axes, or biogeographic realms. One is an east–west axis that is dominated by latitudinal bands, from forests to Sahelian steppes. The other is a north–south longitudinal axis running from Horn to Cape.



Division of sub-Saharan Africa into two major evolutionary realms. 1. Humid, latitudinal 'Centre–West' (C–W). 2. Drier longitudinal 'South–East' (S–E). It is postulated that populations originally confined within either realm may extend into intervening areas (most notably to the Ethiopian Dome) or may eventually spread more widely as new species. Past changes in climate, augmented by geographic barriers, have subjected each realm to further (and changing) subdivisions or conjunctions.

SPECIES

Subdivision of sub-Saharan Africa into two realms or 'islands' helps to explain the extraordinary diversity of species and subspecies, especially among equatorial mammals. Correlating the distribution patterns of many primates, squirrels and small carnivores with their phylogenetic trees suggests how climatic changes drove speciation. Many now isolated populations belong to earlier branches of their lineage: they now live in corners of their previous range. These localities are often identifiable as refuges, sometimes high on cool uplands, sometimes in enclaves within much more extensive, but newly grown forests.

Amid all the changes there have been identifiable areas of stable climates. Somalia has always been a hot, dry spot, Namibia a cool one, Cameroon consistently warm and wet, Ethiopia high and dry, and Rwenzori high and wet. The coast and mountains of equatorial East Africa have always caught rain from the Indian Ocean while Liberia and Cameroon have caught it from the Atlantic. At the centre, the Rwenzori Mountains are moistened all year from both east and west.

Where major variables meet along consistent boundaries many biological niches become possible. Wet meets dry, high meets low, cold meets warm. Faces of hills, mountains or escarpments tilt towards rain or rain-shadow, towards moist or desiccating winds. Many localised species survive in these narrow zones, which are found on mountain slopes in southern and south-west, north-east, eastern and central Africa.

These narrow corridors and the stable foci, both wet and dry, are 'centres of endemism' and they give a special interest to areas such as the Cape, the equatorial coasts and mountains, Ethiopia and Somalia as natural 'reserves' or refuges for rare and conservative species. The details of their morphology or physiology, even their localised presence and survival, are only comprehensible in terms of their past, their 'natural history'.

The roots of Africa's mammalian diversity must be traced back in time, and a combination of fossils and genes reveals many surprises. For example, zebras, now exclusively African, found their way here from North America. Their immediate ancestors were once common in both America and Eurasia. Eurasia has been the ultimate source of very many groups that are now thought to be typically African: antelopes, giraffes, most of the carnivores, pangolins, hares, squirrels and rat-like rodents. In exchange, Asian species, such as elephants, apes and monkeys, all have African ancestors.

The elephants are part of a newly discovered, uniquely African division of mammals, the Afrotheria, whose relationships were revealed by new genetic techniques. The Afrotheria embraces the elephants, sea-cows, hyraxes, Aardvark, sengis (or elephant-shrews), otter-shrews (with Malagasy tenrecs) and the minuscule golden-moles. Their common ancestor became established in Africa long before the dinosaurs became extinct, was almost certainly quite small in size and, because no trace of such animals has ever been found in South American deposits, must have radiated after south America broke away from Africa, roughly 100 million years ago. Thus the Aardvark has the most ancient ancestry, in spite of looking superficially like a pig.

In Africa the fossils of countless extinct species await excavation and, doubtless, many surprising finds await discovery. Few students of mammalian biology will escape the fascination of these new discoveries, but it is as well to remember that a great many living species, including so-called 'living fossils' (I prefer to call them 'ecological elders') are heading for extinction. The rate of extinctions caused by human activities now threatens to take on apocalyptic proportions unless urgent action is taken on a global scale.

MAMMALS

Every user of this pocket guide is a mammal and, as doctors, drug-manufacturers and physiologists have always known, the study of human kinship with other mammals offers us many fundamental truths about ourselves. Take warm blood for example. Internally stable temperatures are central to what mammals are. A naked human freezes to death within hours in a northern winter and, likewise, quickly dies of heatstroke if exposed to a desert midsummer. This is because *biologically* we are still equatorial primates. While we have developed technical solutions to both these extremes of climate (i.e. clothes or air conditioners), other mammals have biological techniques that enable them to survive both extremes, relying on fur for insulation against extremes of temperature, and sweating or panting in order to cool down.

It is glands similar to sweat glands, mammae, which have been modified to produce the milk that give mammals both their common and their scientific name – mammals are animals whose mothers have mammary glands.

Mammal mothers are unique, not only in nursing their offspring on milk but in nurturing them *before* birth through a placenta that grows into the wall of the uterus. The placenta allows the foetus to plug into its mother's circulation and so share in her respiratory and excretory systems and in the nutrients she carries in her blood. It also stops the mother rejecting the foetus as an alien body.

A mammal is not only sheltered as a foetus in the womb, maternal care also shelters it after birth. Whereas emergence from an egg exposes a newly hatched invertebrate fish or reptile to predators, competitors, changes in climate and the need to find food, newborn mammals escape these rigours through maternal care. Mammals are also relatively independent of the environment for the duration of their infancy and adolescence. This trait is unique to mammals and is most prolonged in primates, especially hominid apes. Among hominids, humans have extended this central mammalian characteristic the furthest. Not only has our childhood been extended biologically, contemporary humans continue to extend its environmental dimension – detachment from ecological systems. Because much of our technology plays a role analogous to maternal protection we have, in a limited sense, become permanent youngsters, the most mammalian of mammals.

Mothering is also the key to social life in mammals. The physical costs of bearing and suckling offspring are so great for the females that they go to elaborate lengths to fit the timing of reproduction to the best time of year to ensure access to the best resources both for themselves and for their offspring. To achieve this, some species share or enter the territories of prime male land-holders. Others seek out the protection of dominant males at the top of a strict hierarchy while still others choose males that will help raise offspring.

Different patterns of male competition and female choice have dramatic consequences for the external appearance and anatomy of males. Weaponry, in the form of horns, tusks or antlers, has been developed to defend territories or rank. Age-graded gigantism has evolved in the males of hierarchical species, such as gorillas, elands and giraffes. Long-term pair-bonding is usually matched by the sexes being of similar size (typified by wild dogs).

Diversity of size and form is built on those most fundamental of faculties: finding and processing food. Major groupings within the mammals are often named and defined by the shape and form of their teeth (such as *rodents*, *scandents*, *tubulidents*). Furthermore, mammals as a whole have uniquely modifiable teeth and lower jaws. Although these derive from structures similar to those in other vertebrates, the jaw consists of a single mandibular bone anchored in and powerfully hinged onto the skull. Reptiles by contrast have jaws that are a weaker assemblage of bones.

The senses play a very precise role in the life of all mammals. Sight, hearing, scent and touch are balanced in permutations that are unique to each species and that balance finds a gross expression in the shape of animal heads. For example, a Serval Cat's huge ears, a Fishing Genet's moustache of face whiskers, a bushbaby's bulging eyes and an Aardvark's nose tube each manifest unique techniques for finding food. All possess a full set of faculties but the Serval Cat must pick up sound waves from tiny mice in dense grass, the genet senses waves from small fish

in water, the bushbaby receives optical wavelengths in near total darkness and the Aardvark locks onto molecular traces of scent emanating from termites hidden deep in the soil. All these faculties had to be developed by stages from the less specialised conditions that preceded them.

The overall shape and proportions of a mammal are therefore the end-products of its lineage and its progressive adaptation to an exact and exacting ecological niche. Much of the fascination of observing animals lies in matching such expressions of form to function. Form is not only anatomical; mammals act, behave, occupy habitats and have habits that are all expressions of their total adaptation. Every species manifests a unique way of making a living.

In this book, species have been grouped on the main branches of the mammal tree; these are 'orders' such as primates, bats or carnivores and families such as dogs, cats and mongooses.

In any branching structure that tries to reflect genealogy there are trunks, branches, lesser branches, fronds and twigs, while species can be visualised as leaves.

The condensed format of a pocket guide, where well-defined species are the primary subject, necessarily ignores some subdivisions of Linnaean systematics such as suborders, infraorders, superfamilies, subfamilies, tribes and subgenera. However, it should be remembered that nomenclature is actively changing as the system first published by Linnaeus in 1758 is being continuously refined to accommodate new discoveries in genetics and evolutionary genealogy.

Today more and more naturalists and scientists are studying the life histories, genes and fossil antecedents of living animals and plants. We are fortunate to be witness to an explosion of new knowledge about the mammals of Africa. They are proving to be important characters in a central chapter of the evolving story of life on earth.

AFROTHERIA

During the nearly 20 years since the first edition of this guide was written and published, an entirely new supercohort of mammals has been recognised. We owe this recognition to the science of molecular phylogeny, which has clarified relationships within and among virtually all mammal groups through detailed comparison of their genetic profiles. About 80 species of extant afrotheres are currently recognised, these include three elephants (two of which are African species), four sea-cows (two African), nine hyaxes, one aardvark, 18 sengis (elephant-shrews) and 21 golden-moles (all African) and three otter-shrews, which have some still poorly understood affinity with Madagascan tenrecs.

The afrothere radiation in Africa is tied in to the central question of just where modern placental mammals arose. Are these animals modern derivatives of the very earliest placental mammals or are they a later product of a chance over-sea rafting during the continental isolation of Afro-Arabia? If the Afro-Arabian continent was as decisively isolated as is currently thought, its placental afrotherian colonist must have had some tolerance for exposure at sea. Whether this implies semi-aquatic habits remains a conjecture. Both placental mammal and afrotherian origins continue to be matters of ongoing debate. Nonetheless, the reality of Afrotheria is but part of a global effort to construct genealogical trees for all biota – ultimately the single Tree of Life. Several mammal lineages from outside Africa and members of the Afrotheria share many similar or convergent adaptations, such as ant-eaters with sengis, large-scale aquatic whale and hippo-like mammals resembling afrotherian sea-cows and, on a miniature scale, true shrew-like moles converging with afrotherian golden-moles.

The oldest, undisputed members of afrotherian orders appear as fossils in north-west Africa. No other group of placental mammals is known to have existed in Africa before the Afrotheria and they represent a continuous presence for at least 65 million years and perhaps as much as 90 million years. Outrageously, but also sadly, environmental and biological ignorance among contemporary policy-makers, economists and 'developers' renders them indifferent to the survival of Africa's fauna, including Afrotheria, our most ancient indigenous mammals.

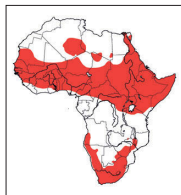
The six orders of Afrotheria have been divided, quite recently, into two cohorts: elephants, sea-cows and hyaxes comprise Paenungulata, while the new cohort, Afroinsectiphilia, embraces the Aardvark, sengis, otter-shrews and golden-moles.

HYRAXES Hyracoidea

Small, woolly animals with no visible tail and blunt 'hoofed' digits. Although superficially similar to rodents, they are more closely related to sengis and elephants, and are placed in their own order.

HYRAXES Procaviidae

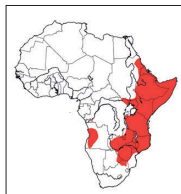
Three genera show few easily observable external differences: all are rabbit-sized, woolly and brown, with large-mouthed, deep-jawed heads and rubbery, blunt-fingered hands and feet. Skull and teeth remain the most reliable guide to genera, but each occupies a different niche with a distinct diet and each species has loud and highly distinctive vocalisations. Mainly diurnal.



ROCK HYRAXES *Procavia* (5 species)

SIZE HB 38–60cm. W 1.8–5.5kg. **DESCRIPTION** These blunt-faced hyraxes vary in colour both regionally and individually but are generally brown with a paler underside. Species: **Cape Rock Hyrax**, *P. capensis* (S and SW Africa): black dorsal patch. **Ethiopian Rock Hyrax**, *P. habessinica* (NE Africa and Arabia): variable dorsal patch. **Black-necked Rock Hyrax**, *P. johnstoni* (central and E Africa): variable dorsal patch. **Kaokoveld Rock Hyrax**, *P. welwitchii* (Kaokoveld): pale cream dorsal patch. **Red-headed Rock Hyrax**, *P. ruficeps*

(S Sahara): orange dorsal patch. **HABITAT** Mainly rock outcroppings, often in areas where the rocks themselves assist the growth of vegetation by trapping moisture or nutrients. **FOOD** Mainly grasses and herbs within easy reach of shelter. Shrubs and trees are also browsed. **BEHAVIOUR** Territorial, with single male territories containing up to 25 females and offspring.



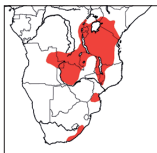
BUSH HYRAX *Heterohyrax brucei*

SIZE HB 32–57cm. W 2–3.5kg. **DESCRIPTION** Relatively small with conspicuous pale 'eyebrows', a white or off-white underside and a greyish, pepper-and-salt agouti body colour. The snout is more pointed than that of rock hyraxes and the animal is altogether more lightly built. Subspecies: More than 20 described, based on variation in coat colour. **HABITAT** Wooded localities on riverbanks, escarpments and rock outcrops. Normally shelters in rocks but may resort to trees or old burrows. **FOOD** Leaves, fruits, stems, twigs and

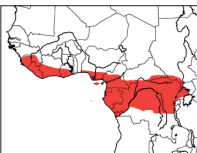
bark. **BEHAVIOUR** Single colonies can number up to 34 individuals. They utter sustained 5-minute bouts of loud calls, less resonant and deep than that of other hyraxes.



D. validus



D. arboreus



D. dorsalis

TREE HYRAXES

Dendrohyrax (3 species)

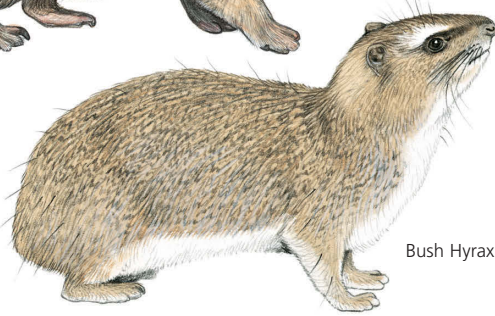
SIZE HB 32–60cm. W 1.5–4.5kg. **DESCRIPTION** Densely furred, arboreal hyraxes with elongated hands and feet, mostly dark (although pale, cream-coloured morphs are

known). Species: **Eastern Tree Hyrax**, *D. validus* (eastern mountains, islands, coast): naked patch 20–40mm long and dorsal fur russet-coloured. **Southern Tree Hyrax**, *D. arboreus* (S, E and central Africa): naked patch 23–30mm long and dorsal fur cream-coloured. **Western Tree Hyrax**, *D. dorsalis* (W and central Africa): naked patch 42–72mm long and dorsal fur white. **HABITAT** Forests, moist savannas, evergreen thickets and mosaics. In higher mountains partially diurnal, in lower forests they are nocturnal and more solitary. **FOOD** Leaves, fruits and twigs in the canopy, grasses and sedges on screes. Giant groundsel and numerous aromatic leaves and herbs. **BEHAVIOUR** Often live at very high densities. Territorial and aggressive during the mating season.

Black-necked Rock Hyrax
(Mt Kenya race)



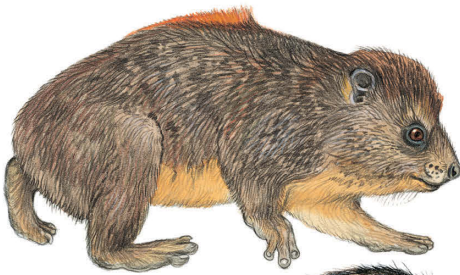
Detail of Black-necked
Rock Hyrax
(*Procavia johnstoni*) skull



Bush Hyrax

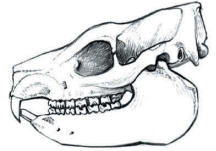


Detail of Bush Hyrax
(*Heterohyrax brucei*) skull

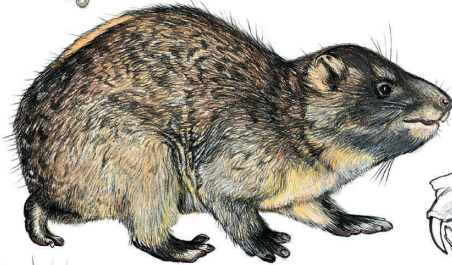


Eastern Tree
Hyrax

Detail of Eastern Tree
Hyrax (*Dendrohyrax
validus*) skull



Southern
Tree Hyrax



Detail of Southern
Tree Hyrax
(*D. arboreus*) skull



Detail of Western Tree Hyrax
(*D. dorsalis*) skull

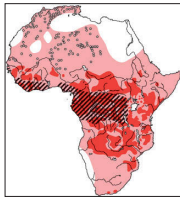


Western
Tree Hyrax



PROBOSCIDS Proboscidea

ELEPHANTS Elephantidae



- *L. africana* (1975)
■ Former range
▨ *L. cyclotis*

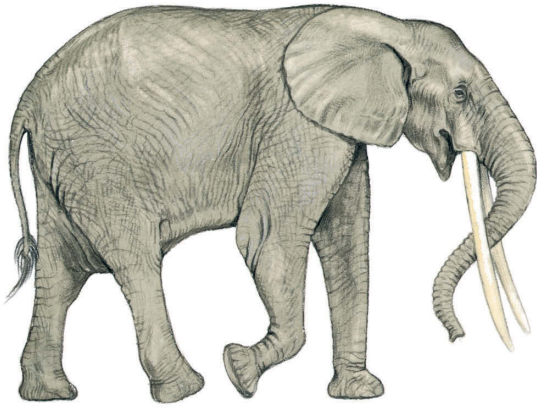
FOREST ELEPHANT *Loxodonta cyclotis*

SIZE SH 1.6–2.4m (female), 1.7–2.8m (male). T 0.5–1.2m. W 900–3,000kg (female), 1,200–3,500kg (male). **DESCRIPTION** Tall, long-legged, large-eared, short-necked grey animal with trunk and tusks. Forest Elephants differ from Bush Elephants in overall size, in more rounded ears and more slender tusks (of harder ivory). Feet tend to differ in retention of more nails in Forest Elephants (five nails on forefeet, four on hindfeet). **HABITAT** Originally throughout western and central African forest zone. Now vestigial populations are being eliminated completely as sophisticated firearms fall into the hands of unsophisticated poachers. On current projections Forest Elephant range will continue to shrink and no mapping of its range is likely to be accurate for very long. **FOOD** Originally able to subsist on fruit for much of the wet season.

Up to 70 species of fruits have been recorded. Distribution and periodicity of fruiting largely determined elephant movements within the forest during the rains. Foliage and bark are mainly eaten in the dry season. Grasses are only grazed at marginal times and in marginal habitats. **BEHAVIOUR** Forest Elephants form groups ranging from 2–20 individuals, and family groups average out at about three individuals. Groups centre on a female and her offspring, with males leaving the maternal group earlier and more consistently than female offspring. Females mature at 12–14 years. There is a strong preference for diurnal activity. Individuals are highly 'talkative' with both audible and ultrasound signalling frequent and varied. Forest Elephants maintain conspicuous paths in the forest, a habit that facilitates their killing by poachers.

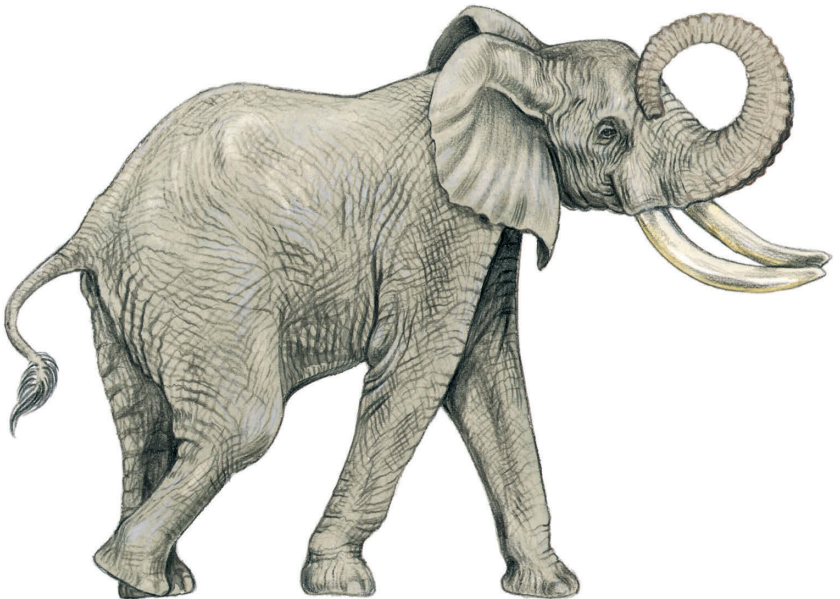
BUSH ELEPHANT *Loxodonta africana*

SIZE SH 2.4–3.4m (female), 3.0–4.0m (male). T 1.0–1.5m. W 2,200–3,500kg (female), 4,000–6,300kg (male). **DESCRIPTION** The largest land animals, Bush Elephants are easily identifiable in having a trunk, tusks, large ears and pillar-like legs (see also Forest Elephant). Their thick skin is only superficially pigmented and the intensity of the melanin layer varies from a dense black to pale grey, brown or, in rare instances, depigmented pink (in patches or overall). Newborns are often very hairy and adults retain coarse, short bristles on the trunk, chin and, as abraded remnants, in the crevices over much of the rest of the body. The tusks are modified incisors and their presence or absence, size, shape, orientation and microstructure are subject to much variation. The feet are columnar, with the original five toes bound into a hoop of tissue, skin and nail above a cushion of elastic tissue. Nails vary from five on both fore- and hindfeet to four on the forefeet and three on the hindfeet, the latter being the norm in Bush Elephants. Tracks, frequent boluses, occasional urine puddles and extensive harvesting of plants are the most commonly seen signs of elephants. 25 subspecies have been proposed. **HABITAT** All major vegetation types, usually more than one being included within the annual cycle. The Bush Elephant's dependence on shade and water is well illustrated by the pattern of dry-season retreat into forests and swamps (shown for East Africa). **FOOD** Grass and browse are taken in different and changing proportions by season. Elephants consume about 5% of their body-weight (i.e. up to 300kg) in 24 hours and vegetation takes about 12 hours to pass through the animal. The bush-bashing that is typical of many male ungulates has a nutritional byproduct for the elephants. Trees are most frequently felled by young or solitary males, so obtaining out-of-reach fruits, leaves, pith or branches may not be the only reason for such behaviour. The crash of a felled tree sometimes attracts families or other solitary males and the arrival of the latter may precipitate chases and contests. **BEHAVIOUR** The central social unit is the mother and her offspring. Bush Elephants find it easier to forage, find one another and travel in larger groups but even here the nuclear family tends to split by the time there are 10 daughters and grandparents. Female elephants are frequent 'talkers', using rumbles, growls, roars, snorts, squeals and trumpets to convey a variety of signals, conditions and emotions.



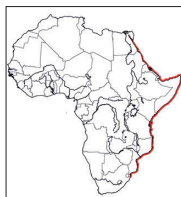
Forest Elephant

Bush Elephant



SEA-COWS Sirenia

The name Sirenia derives from the legendary 'sirens', so-called 'mermaids'. Fossil forms are known to have grown up to 10m in length. They share terrestrial origins with elephants and, unlike most other aquatic mammals, they subsist almost entirely upon flowering plants growing in rivers, estuaries and the sea. There are two extant families of sirenians: Dugongidae (Dugongs), along Indo-Pacific shores, and Trichechidae (Manatees), in waters surrounding the tropical Atlantic.

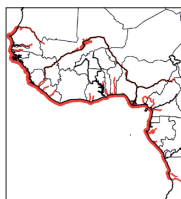


DUGONG *Dugong dugon*

SIZES HB 2.4m (2.2–3.31m) (male). Flippers 30–42cm. W 250–420kg.

DESCRIPTION Entirely aquatic, large, grey, torpedo-shaped animal with horizontal, whale-like tail-flukes. No suggestion of neck or upper arm externally. The forearm and hand form simple paddles that have a stabilising function and are occasionally used to free food plants in sand. Small lidless eyes are embedded in blubber. Ears appear as minuscule openings. Anus and genitalia surface in a single, elongated aperture in females but the penis

extrudes in males from an aperture midway down the lower belly. Testes are abdominal. While lactating, the mammary glands resemble human breasts. The second upper incisor develops a tusk-like form within the sharply down-turned maxilla in mature males and occasional old females. Valvular nostrils lie just behind the lip-mass and are often all that can be seen of a surfacing Dugong. **HABITAT** In Africa, in coastal waters with preference for protected bays and the lee of islands with extensive, seasonal, beds of sea-grass. Seasonal movements occur between off-shore and in-shore pastures off the Kenyan coast. **FOOD** Sea-grass grazers and 'rootlers'. Dugongs yank up entire plants, leaving bare patches of rooted mud or sand in sea-grass swards. Crabs have been found in Dugong stomachs and Dugongs have been reported eating molluscs, but it is possible that such foods are incidental 'by-catch'. **BEHAVIOUR** The only known long-term association comprises a cow and her calf (only very rarely twins); most sightings are of one or two animals. Small groups have been seen surfacing simultaneously. Dugongs spend most of their time in shallows less than 3m deep. On average they dive for 2.6 minutes, and dive about 11 times per hour.

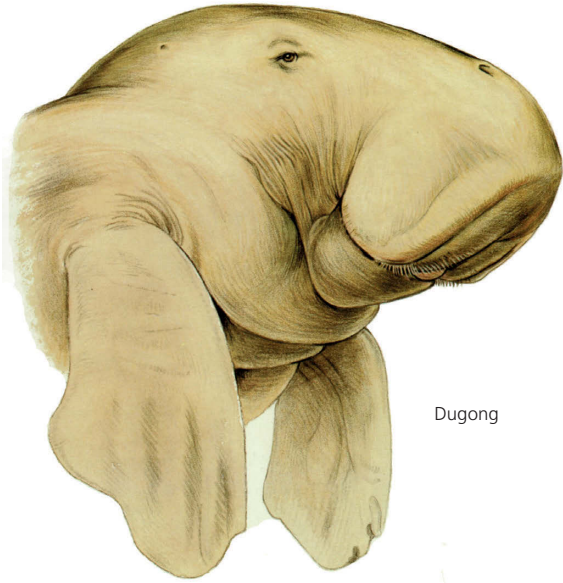


WEST AFRICAN MANATEE *Trichechus senegalensis*

SIZE HB 2.59m (2.25–3.03m) (female), 2.56m (1.77–3.34m) (male). W (est.) 166–

640kg. **DESCRIPTION** Effectively wholly aquatic, with rotund body, blunt flippers and a single, very large and rounded tail, a broad back and small head, and a thick layer of blubber and fat effacing all underlying anatomical features. Like Dugongs, they have sphinctered lidless eyes and no external ears. The small, relatively short rostrum of the muzzle bends slightly downwards. Body colour influenced by local epiphytic algae, varying from greenish, brown or black

to grey: in coastal waters barnacles may find a purchase. Textured skin covered by sparse, very fine and evenly distributed hairs. Females have two axillary mammae and a genital slit adjacent to the anus. The male penis is generally concealed within an aperture in the middle of the lower belly. Maxilla and premaxilla of the carunculated skull are less downwardly deflected than in the Dugong. **HABITAT** Mainly riverine, but also coastal lagoons, estuaries and bays where sea-grasses and other aquatic vegetation grow. Some populations have become wholly isolated inland by natural changes in river courses or by dams. They may make seasonal or periodically forced movements downriver. **FOOD** Consume a wider range of plants and their parts than Dugongs, mainly as mouthparts are more versatile. Both species prefer sea-grasses, but manatees also take items such as floating vegetation, plants that overhang banks and eyots, floating fruits and nuts. Manatees enfold a plant with their lips and tug or twist until the item tears away. Such broken vegetation in amongst untouched bank plants signals recent manatee browsing. Manatees mostly feed at night. **BEHAVIOUR** In general, both sexes are predominantly solitary, but females maintain a close link to their current offspring. Females in oestrus often attract a following of males and aggregations may form at choice pastures or safe refuge sites. Births and mating peaks occur just before the onset of the wet season.



Dugong



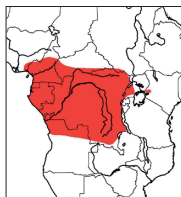
West African Manatee

AFROSORICIDS Afrosoricida**OTTER-SHREWS** Tenrecidae, Potamogalinae

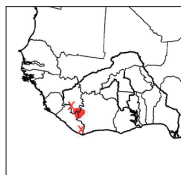
These are aquatic animals whose distribution is very restricted. They differ from many small mammals in lacking collar bones. They have a flattened muzzle in which very numerous and stiff vibrissae are embedded. Each whisker is served by nerves and most food is thought to be found by touch, while hunting underwater. Two fused toes on the hindfoot act as combs and are used in frequent and thorough grooming of their waterproof fur.

Of the three potamogales the Giant Otter-shrew has adapted furthest towards a wholly aquatic existence. The tail vertebrae and muscles are larger and more powerful than those in the lumbar area. It is also quite clumsy on land. When harassed it hisses and strikes rather like a snake, and this resemblance may well protect it from some enemies. A metallic lustre to the fur also enhances its reptilian appearance. All species make short but frequent dives with very small animals eaten in the water, but larger prey is brought onto land for killing and eating.

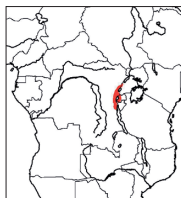
Potamogales are the last relics of a very ancient group of mammals. The exploitation of very peculiar or localised niches seems to have saved them from direct competition from more advanced mammals, such as otters or mongooses. Any appreciable modification of their habitats, whether natural or artificial, is likely to result in their extirpation.

**GIANT OTTER-SHREW** *Potamogale velox*

SIZE HB 29–35cm. T 4.5–9cm. W est. 300–950g. **DESCRIPTION** Aquatic mammal with a brown back and white underside. The broad, flat snout is covered in bristles. Flat shields cover the nostrils. The fur is generally very dense and soft but is short and silky on the bladed tail. Vertical flattening of the tail allows a fish-like, side-to-side swimming motion. **HABITAT** Rivers within the main forest block from Nigeria to W Kenya. The Giant Otter-shrew occurs in large, fast-flowing rivers, as well as streams, sluggish coastal rivers and swamps. It retreats to burrows and crevices on the riverbank to rest and breed. **FOOD** Freshwater crabs, fish, frogs, insects and water molluscs caught in the water at night.

**MOUNT NIMBA OTTER-SHREW** *Micropotamogale lamottei*

SIZE HB 12–15cm. T 10–20cm. W est. 60–90g. **DESCRIPTION** A small, soft-furred, aquatic mammal, uniformly grey-brown in colour, with a slender, rat-like tail. The feet lack any trace of webbing. **HABITAT** Waters in the vicinity of Mt. Nimba; montane streams, small rivers, swamps and ditches in surrounding forests, forest-savanna-cultivation mosaics. **FOOD** Crabs, fish and insects, mostly hunted at night in the water.

**RWENZORI OTTER-SHREW** *Mesopotamogale ruwenzorii*

SIZE HB 12.3–20cm. T 10–15cm. W est. 130–150g. **DESCRIPTION** Soft-furred, aquatic mammal with a broad, whiskered nose and minuscule eyes and ears. It is dark brown above and white below. Hands and feet are partially webbed. The tail is slightly flattened vertically. **HABITAT** Waters flowing off the Rwenzori and Kivu massifs; also likely to occur in Itombwe and has been recorded from montane and lowland streams flowing through forest, savanna and cultivation. Digs burrows in riverbanks. **FOOD** Worms, insect larvae, small crabs, fish, frogs and tadpoles caught at night in water.



Giant Otter-shrew



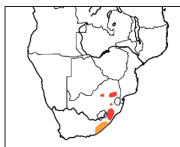
Mount Nimba Otter-shrew



Rwenzori Otter-shrew

GOLDEN-MOLES *Chrysochloridae*

A very ancient and little-known group of subterranean mammals with shiny coats of very dense fur and streamlined, formless appearance. All have a blunt, bare nose, digging forelegs, with one or more greatly enlarged claws, and less developed hindlegs. No visible eyes, ears or tails. Skulls provide reliable clues for identification. In palatal aspect, muzzles and zygoma form variably angled wedges (broadly correlated with soil tractability) enclosing genus-specific palates. They live in various habitats. Most species obtain the greater part of their invertebrate diet underground. They make various types of molehills. They should not be confused with root-rats, or blismols, which are rodents.

**GIANT GOLDEN-MOLES** *Chrysoxpalax* (2 species)

SIZE HB 148–230mm. W 125–538g. **DESCRIPTION** ‘Double-hull’ structure over brain-case caused by expanded cheekbones. Cranial wedge = 47 degrees. Claws: 3 = long and broad, 2 = long and narrow, 1 = near-vestigial. **HABITAT** Deep soils in E Cape (*C. trevelyani*). Borders of marshes in SE Africa (*C. villosus*).

■ *C. villosus* ■ *C. trevelyani*

**YELLOW GOLDEN-MOLES** *Calcochloris* (2 species)

SIZE HB 97–108mm. W 20–30g. **DESCRIPTION** Long-bodied with variably coloured upper surfaces but yellow underfur. Cranial wedge = 53 degrees. Claws: 3 = medium, 2 = slender, 1 = slender, rel. long. Species: *C. obtusirostris* (see map). *C. tytonis* of uncertain affinity, Somalia. **HABITAT** For *C. obtusirostris*, light sandy soils and dunes in S Mozambique and vicinity.

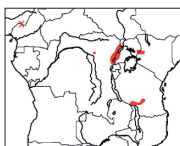
**DESERT GOLDEN-MOLE** *Eremitalpa granti*

SIZE HB 76–86mm. W 16–30g. **DESCRIPTION** Pale silvery fur and disproportionately large head. Cranial wedge = 60 degrees. Claws: 3, 2 and 1 thin and of approximately equal length. **HABITAT** Sand dunes along the Namib coastline, preferring areas of dune-grass.

**CRYPTIC GOLDEN-MOLES** *Cryptochloris* (2 species)

SIZE HB 79–90mm. W est. 20–30g. **DESCRIPTION** Rounded forehead and skull. Silvery sheen with grey, white and fawn hairs. Cranial wedge = 45 degrees. Claws: 3, 2 and 1 of nearly equal length (with large pads on the inner sides of the palms). **HABITAT** Sand dunes at Port Nolloth and Companies Drift, W Cape.

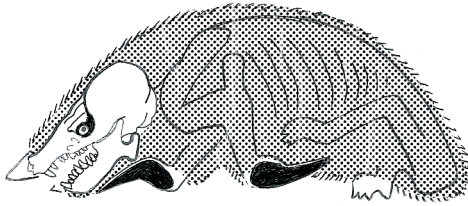
1. *C. wintoni* 2. *C. zylfi*

**STUHLMANN'S GOLDEN-MOLE** *Kilimatalpa stuhlmanni*

SIZE HB 98–110mm. W (est.) 25–35g. **DESCRIPTION** Small, metallic-coloured animal with an expanded, rounded back to the skull. Cranial wedge = 38 degrees. Claws: 3 = longest, 2 = shorter and slighter, 1 = very short. **HABITAT** East and Central African montane highlands, 800–3,500m.

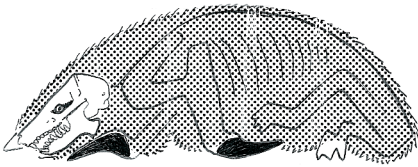
**CAPE GOLDEN-MOLES** *Chrysochloris* (2 species)

SIZE HB 98–110mm. W est. 25–35g. **DESCRIPTION** Expanded, rounded back to skull. Cranial wedge = 50 degrees. Claws: 3 = longest, 2 = shorter and slighter, 1 = short. Species: *C. asiatica* (? *C. visagei*, species status uncertain). **HABITAT** Cape Province.

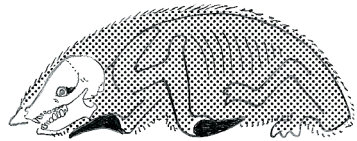


Giant Golden-mole
Chrysofalax villosus

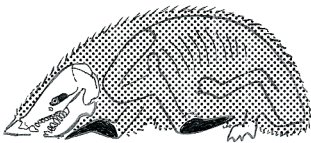
**Golden-mole skull
shapes and proportions**



Narrow-headed Golden-mole
Amblysomus hottentottus (see p.33)



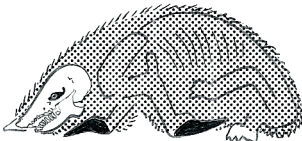
Cape Golden-mole
Chrysochloris asiatica



Yellow Golden-mole
Calcochloris obtusirostris



Cryptic Golden-mole
Cryptochloris wintoni



Forty-toothed Golden-mole
Chlorotalpa duthiae (see p.33)



Desert Golden-mole

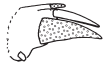
KEY TO GOLDEN-MOLES (not to scale)

PROFILE VIEW

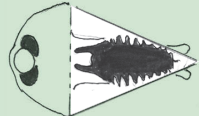
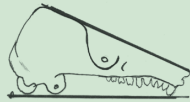
CLAWS

LATERAL SKULL

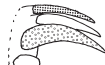
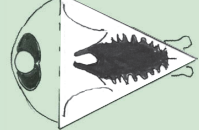
CRANIAL WEDGE
(palatal view)



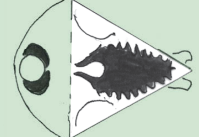
Chrysothalpa



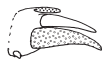
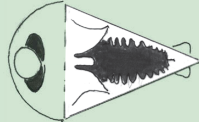
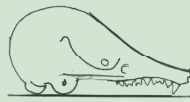
Calcochloris



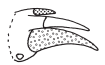
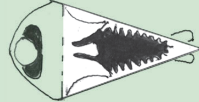
Eremitalpa



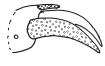
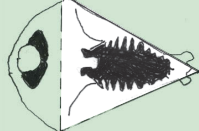
Cryptochloris



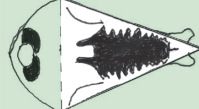
Kilimalalpa



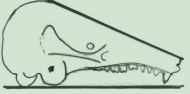
Chrysochloris



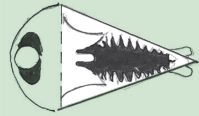
Huettia



Chlorotalpa



Carpalpa



PROFILE VIEW



CLAWS

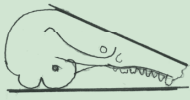
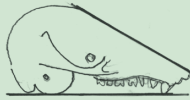


Neamblysomus

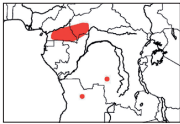
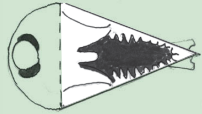
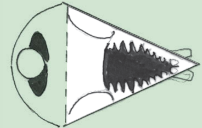


Amblysomus

LATERAL SKULL

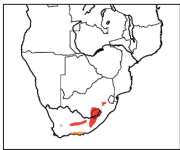


CRANIAL WEDGE
(palatal view)



CONGO GOLDEN-MOLE *Huetia leucorhinus*

SIZE HB 63–126mm. W (est.) 15–30g. **DESCRIPTION** Small, grey/brown, metallic-tinted animal with an expanded, rounded back to the skull. Cranial wedge = 45 degrees. Claws: 3 = long, 2 = long and closely aligned with 3, 1 = short. **HABITAT** Equatorial forest zone, both north and south of Congo R.



FORTY-TOOTHED GOLDEN-MOLES *Chlorotalpa* (2 species)

SIZE HB 95–138mm. W 40–75g. **DESCRIPTION** Compact, rounded skull and metallic sheen. Cranial wedge = 42 degrees. Claws: 3 = long, 2 much shorter than 3, 1 = very short. **HABITAT** Very varied, mostly dry sandy soils.

■ *C. sclateri* ■ *C. duthiae*



ARENDS'S GOLDEN-MOLE *Carpitalpa arendsi*

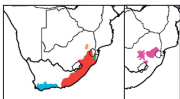
SIZE HB 115–141mm. W 43–70g. **DESCRIPTION** Medium small, metallic sheen to generally very dark fur. Cranial wedge = 42 degrees. Claws: 3 long, 2 = thin and much shorter, 1 = short. **HABITAT** Restricted to Manica uplands (Mozambique and Zimbabwe) in loam soils in mosaics of open and wooded, mostly montane habitats.



LESSER NARROW-HEADED GOLDEN-MOLES *Neamblysomus*
(2 species)

SIZE HB 100–132mm. W 26–70g. **DESCRIPTION** Medium small, brown. Claws: 3 = long, slender, 2 = medium and very slender, 1 = well developed and very slender. **HABITAT** NE uplands of South Africa. *N. gunningi* is known only from one montane locality. *N. julianae* is also localised in drier uplands.

■ *N. gunningi* ■ *N. julianae*



NARROW-HEADED GOLDEN-MOLES *Amblysomus* (5 species)

SIZE HB 100–130mm. W 21–75g. **DESCRIPTION** Long body and a small, narrow head. Hair bases are grey. Cranial wedge: 42 degrees. Claws: 3 = robust, 2 = shorter, less robust, 1 = short. **HABITAT** Except for very localised *A. marleyi* and *A. robustus*, *Amblysomus* species common and widely distributed in S Africa.

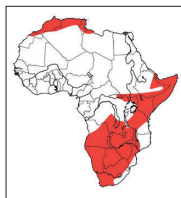
■ *A. hottentotus* ■ *A. robustus* ■ *A. marleyi* ■ *A. corraie* ■ *A. septentrionalis*

SENGIS (ELEPHANT-SHREWS) Macroscelidea

Mouse- or rat-sized animals with large eyes and ears, slender limbs and a long, bare tail. They have a long, tubular snout protruding from a strongly tapered skull bearing 50–60 teeth. Most species are brownish and some have bold markings on the face or back.

SOFT-FURRED SENGIS (SOFT-FURRED ELEPHANT-SHREWS) Macroscelidinae

Characterised by long, dense, silky fur, a mass of long, fine whiskers, a fine, narrow proboscis, naked rump and large, very dark eyes with vertical pupils. They have a relatively uniform sandy colouring (except around the eyes). These are superficial surface-gleaners of small invertebrates (also fruits and seeds) in shaded but dry environments.

**LESSER SENGIS** *Elephantulus* (11 species)

SIZE Total length 21–28cm. W 25–70g. **DESCRIPTION** Mouse-sized, naked-tailed with large eyes and ears, a fine-pointed proboscis and long hindlegs. There are rings of white or paler fur around the eyes. Coat colour often closely matches local soil colour. Species: There are four distinct subgroups: Mahgreb Sengi: *E. rozeti* (anatomically and genetically intermediate between *Elephantulus* and *Petrodromus*). Short-nosed sengis (formerly 'Nasilio'): *E. brachyrhynchus*, *E. fuscipes*, *E. fuscus*. Rock sengis: *E. rupestris*, *E. edwardii*, *E. intufi*, *E. myurus*, *E. pilicaudus*. Lesser sengis: *E. rufescens*, *E. revoili*. **HABITAT** Relatively dry but seasonal, bushy or scrubby habitats are preferred. All species minimise exposing themselves to predation by remaining under vegetation and rocks and only crossing open ground at high speed. Some species (*E. rupestris*, *E. intufi*) dig burrows; others (*E. rufescens*) maintain conspicuous paths that are daily cleared of litter by scuffling with the legs; yet others (*E. brachyrhynchus*) make use of vacant rodent holes. **FOOD** A wide range of invertebrates, pounced upon in leaf litter (and near the dung piles of herbivores). Some species occasionally eat fruits and seeds. Rapid daily traverses along pathways in small, well-known territories serve to exclude trespassers and rehearse rapid escape from predators. However, the main function of such runs is to gather food. **BEHAVIOUR** Both males and females exclude their own sex from territories but may tolerate adult-sized offspring in home ranges of 0.25–0.6ha. Territorial displays involve fluffing out the fur and strutting on tip-toe (which displays the white or contrasting colour of the legs and underside). Very intense, rapid activity is followed by long periods of quiescence in well-concealed, shady observation posts. All species are predominantly or wholly diurnal and several sun-bathe before becoming fully active. Communicate with squeaky calls and by drumming the hindlegs.



Sketches of Rufous Sengi *E. rufescens*



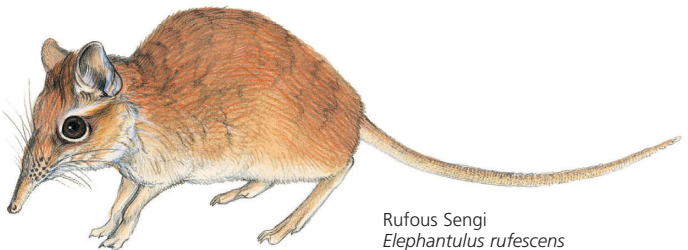
Elephantulus rozeti



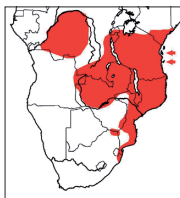
*Elephantulus
brachyrhynchus*



Elephantulus myurus



Rufous Sengi
Elephantulus rufescens

**FOUR-TOED SENGI** *Petrodromus tetradactylus*

SIZE HB 16.5–22cm. T 13–18cm. W 150–280g. **DESCRIPTION** Brown, rat-sized with a large head and ears and conspicuous facial markings. Legs are light coloured and very slender, with only four toes. **HABITAT** Mainly in dense evergreen undergrowth in caesalpinoid forests, woodlands and thickets. **FOOD** Mainly ants and termites; also crickets, grasshoppers and other litter invertebrates. **BEHAVIOUR** Most active in the early morning and evening, scuffling litter to find food. Rapping of the hindlegs is presumed to be a territorial advertisement and alarm signal.

**ROUND-EARED SENGI** *Macroscelides proboscideus*

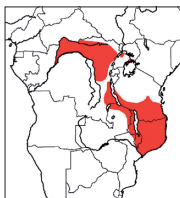
SIZE HB 10.5–11.5cm. T 11.4–13cm. W 31–47g. **DESCRIPTION** Grizzled, mouse-sized with rounded, hairy ears, small eyes and a short muzzle. Colour varies from grey to buff or brown. **HABITAT** Areas of low Karoo scrub in SW African arid zone. **FOOD** Ants and termites.

GIANT SENGIS (GIANT ELEPHANT-SHREWS) *Rhynchocyoninae*

Elegant, long-legged animals the size of a large rat with a long, naked, white-tipped tail and a very long, tapering snout. The proboscis protrudes well beyond the mouth (which is inconspicuous, as are the very rapid movements of the long, tapered tongue). Their pungent smell derives from a gland behind the anus. They favour moister habitats where they feed on relatively cryptic invertebrates (larvae, termites, ants, beetles, spiders, myriapods and earthworms), which they find by noisily turning over litter and soil with their paws and well-reinforced but flexible nose.

They require relatively well-drained soils and abundant dry leaf litter in order to construct their 1m-wide leaf-mound shelters, which are piled over shallow, body-sized scoops in the soil. Each animal makes and maintains 10 or more such retreats in its territory. They serve as the night-rests of these exclusively diurnal animals, as nurseries for the young and occasional day-time refuges. Constructed in the early morning, when leaves are damp, limp and compressible (and the sound of raking and tamping them is muffled), they provide concealment from a variety of predators. The presence of the right conditions for the building of dry, comfortable leaf mounds is probably the single most important requisite for giant sengis. Territories average 1.7ha.

A broad, compressed skull and ground-hugging crouch allow these animals to occupy very little space within their leaf mounds, where they sleep in a posture that leaves them ready for instant action. Physiologically they appear well adapted to digest toxic or difficult foods, such as ants and myriapods. However, some millipedes may be taken less frequently or avoided.

**CHEQUERED GIANT SENGI** *Rhynchocyon cirnei*

SIZE HB 23.5–31.5cm. T 19–26.3cm. W 408–440g. **DESCRIPTION** The back is marked with a complex pattern of longitudinal dark bands on an agouti-grizzled background with pale (even white) spots or flecks. In the humid Zaïre basin and mountains north of L. Nyasa (formerly L. Malawi) this pattern becomes difficult to see because the overall colour becomes very dark. In SE Tanzania and Mozambique the pattern is very variable, with suffusions of orange-red and black that could suggest long-term hybridisation with

the Black-and-rufous Giant Sengi. **HABITAT** Forests and gallery forests at low, medium and high altitudes. *R. c. reichardi* (with colouring that closely resembles a grass-mouse) inhabits grassland during the wet season, only retreating into galleries or relict forest patches in the dry season. **FOOD** As other species but grasshoppers and caterpillars are important for some races.

Four-toed Sengi



Round-eared Sengi



Chequered Giant Sengi

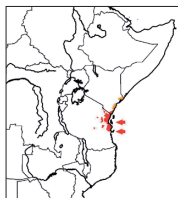


UDZUNGWA GIANT SENGI *Rhynchocyon udzungwensis*

SIZE HB 25–35cm. T 19–29cm. W (est.) 420–475g. **DESCRIPTION** Intensely black rump graduating into rich russet shoulders and thorax. Two rows of red-orange spots, of very variable visibility, are perceptible on each flank. Forehead and face greyish agouti. Tail mostly black above, off-white below, but black-tipped after conspicuous wholly white section. **HABITAT** Confined to two forests in the Udzungwa Mts where it survives in spite of presence of the much more widespread and common *R. cirnei reichardi* in adjacent forests. There is very serious concern for the survival of this species. **FOOD** Grasshoppers and crickets, beetles, spiders, millipedes, ants, centipedes, earthworms and termites.

MANDELA'S GIANT SENGI *Rhynchocyon* sp. nov.

SIZE HB (est.) 23.5–31.5cm. T (est.) 20–30cm. W (est.) 400–450g. **DESCRIPTION** Black rump with paired black lines along each side of a mahogany dorsal stripe that begins with a very pronounced deep red crest between the ears and tapers off before it reaches the tail; face and cheeks tawny agouti. Vestigial traces of a spotted pattern. **HABITAT** Confined to the Boni and Raas Kaamboni forests, close to Kenya's coastal border with Somalia in dry evergreen thickets. The minute range of this species renders it exceptionally vulnerable to any ecological change. Its habitat straddles a border between conflicted nations, and this species has been named to honour a great African leader and peace-maker. **FOOD** Supposedly similar to *R. chrysopygus*, ants and termites being particularly important.

**BLACK-AND-RUFIOUS GIANT SENGI** *Rhynchocyon petersi*

SIZE HB 23.5–31.5cm. T 19–26.3cm. W 408–440g. **DESCRIPTION** Forequarters orange, graduating to deep red with black rump. Tail orange with white tip. **HABITAT** Coastal and montane forest and thickets in E Tanzania and the Kenya coast. **FOOD** Cryptic invertebrates in leaf litter.

■ *R. petersi* ■ *R. chrysopygus*

GOLDEN-RUMPED GIANT SENGI *Rhynchocyon chrysopygus*

SIZE HB 23.5–31.5cm. T 19–26.3cm. W 408–440g. **DESCRIPTION** The dark body graduates to a metallic yellow rump. The neck is russet and the forehead and face are tawny agouti. Vestigial traces of a spotted pattern similar to that of the Chequered Sengi are obvious in juveniles and just perceptible in some adults. Thickened skin under the golden rump suggests that damaging bites or slashes inflicted during territorial fights and flights may be targeted on this rump shield. **HABITAT** Confined to two very small areas of the Kenya coast where it lives in dry evergreen thickets. There is great concern for the survival of this species. Domestic dogs have seriously depleted it in the Gedi NP in recent years. A vast sea-port in the vicinity may hasten its extinction. **FOOD** Grasshoppers and crickets, beetles, spiders, millipedes, ants, centipedes, earthworms and termites (in order of preference).



Udzungwa Giant Sengi



Mandela's Giant Sengi



Black-and-rufous
Giant Sengi

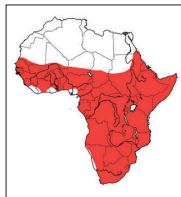


Golden-rumped Giant Sengi

AARDVARK *Tubulidentata*

The modern aardvark is distinguished by many peculiarities, notably in the teeth, which lack enamel and are composed of densely packed tubules surrounded by columns of dentine, the whole tooth being contained in a sleeve of dental cement. These peg-like molar teeth are at the back of a slender, toothless snout.

AARDVARK *Orycteropodidae*



AARDVARK *Orycteropus afer*

SIZE HB 100–158cm. T 44–63cm. H 58–66cm. W 40–82kg. **DESCRIPTION**

The Aardvark's long nose, squared-off head and tapered tail are rather delicately built extensions in comparison with the massive body and the muscular limbs, which are armed with great, nailed digits. The fur on many old individuals can become heavily abraded but young animals are well furred. The Aardvark is a shy nocturnal animal and rarely seen. Its burrows, spade-like scratchings and tracks are more commonly seen than the animal itself. The snout is not at all pig-like, being soft, mobile, rounded and furry, with dense hair around the nostrils (*see* detail opposite). **HABITAT** Patchily distributed in a large part of sub-Saharan Africa with past extensions down the Nile valley and Hoggar/Tassili Mts. The Aardvark is normally rare or absent in rainforest. It is found in areas with a year-round abundance of ants, termites and beetle larvae. The earth that is preferred for digging warrens may be some distance from foraging areas so nightly walks between the two are normal in some localities. Very hard or stony soils and regularly flooded areas are avoided. In highly stratified hills the Aardvark may select a particular stratum for its more regularly used warrens. Temporary 'camping' holes of only a few metres in length are more frequent than the much longer warren complexes, which can have 8 or more entrances and descend as deep as 6m. **FOOD** Termites, ants and larvae are foraged for at night, beginning an hour or two after dusk. Most food is found on or very close to the surface but subterranean termitaries, ants' nests and beetle caches may be extensively excavated. However, the colonies of social insects are seldom entirely destroyed (the deterrent is probably a critical concentration of defending soldiers). Insects are swept into the small mouth by the long, sticky tongue. **BEHAVIOUR** Solitary, but females sometimes accompanied by one or two young. Large warrens may be used by more than two or three animals. The only recorded sounds are a grunt and, in extreme fear, a bleat. The Aardvark lives up to 18 years.

PRIMATES *Primates*

All primates derive from, and to some degree retain, a primitive body plan which they share with other unrelated arboreal mammals, such as squirrels, tree shrews and possums. The common arboreal condition is long-backed and short-necked, with five-fingered, clinging hands and feet. The forearms are linked to the chest by collar bones (clavicles) and the compact head has forward-oriented eyes and a short, flexible neck.

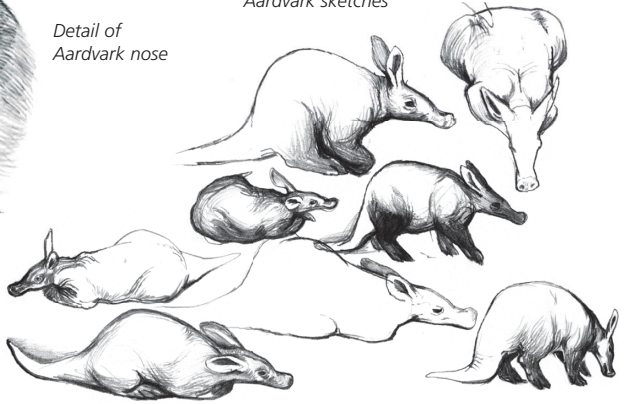
A great diversity of anatomical specialisations has developed in primates and these correspond to different climbing or locomotory techniques, e.g. relatively slow, careful climbers have specialised in extreme mobility in their limb joints and a powerful grip in their hands and feet, while fast branch-runners have long tails as balancers, long, flexible backs, limbs with narrow hands and fingers, small thumbs and well-developed bifocal vision to help them assess distance and space.

Judging from tooth structures in fossils, the arboreal mammals that gave rise to primates were mainly insectivorous. Earliest extensions in diet would have been small vertebrates and ripe, soft fruits. Some primates then tackled unripe or hard fruits, resins, flowers, nectar, buds, young leaves and, later, mature leaves. Trends towards consuming larger quantities of abundant but



Detail of
Aardvark nose

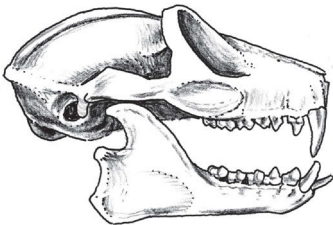
Aardvark sketches



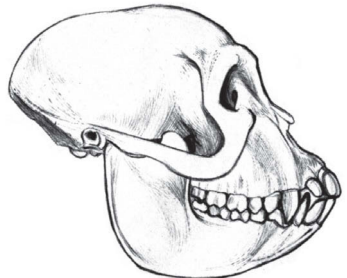
Aardvark



Otolemur crassicaudatus



Lophocebus albigena



Skulls of strepsirrhine *Otolemur crassicaudatus* and anthropoid *Lophocebus albigena*. There are simple rings surround strepsirrhine eyes whereas *Lophocebus* eye sockets are typical of all anthropoids in enclosing the eyes in bony cups.

more difficult foods (such as old leaves, resins, hard nuts and seeds) led to early specialisation in lineages.

Powerful big toes are known to have developed in fossil primates by at least 60 million years ago. Thumbs are less universal (some primates, notably colobus species, have lost them altogether). Naked, padded digits and palms on both hands and feet represent one of the very earliest adaptations of primates. Fossils reveal that some primates had begun to have a more forward orientation of the eyes by about 60 million years ago. This narrowing of the field of vision seems to have been compensated for by greater ability to rotate the head on a very short neck. Efficient rotation is helped by a compact, round head.

In Africa the Primates order has two major subdivisions: apes and Old World monkeys (Catarrhini) and the prosimian bushbabies and lorises (Strepsirrhini). The infraorder Catarrhini subdivides into two families: the Hominidae (apes and humans) and the Cercopithecidae (colobid or 'thumb-less' monkeys, and cercopithecids or 'cheek-pouch' monkeys). The Strepsirrhini also subdivides into two families: the Loridae (the Potto and its allies) and the Galagonidae (galagos).

OLD WORLD MONKEYS, APES AND HUMANS *Catarrhini*

All extant non-lemuroid primates except the platyrrhine South American monkeys.

APES AND HUMANS *Hominidae*

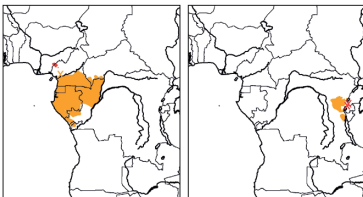
The continental origins of Hominidae remain uncertain.

WESTERN GORILLA *Gorilla gorilla* EASTERN GORILLA *Gorilla beringei*

SIZE SH 130–150cm (female), 140–185cm (male). W 68–114kg (female), 160–210kg (male).

DESCRIPTION Very large, barrel-chested apes with relatively even hair, a bare black face and chest, and small ears. The bar-shaped brows are joined and the nostril margins are raised. Females are much smaller than males. The belly of wild gorillas is much more massive than in captive specimens. The long blue-black coat of the Eastern Gorilla contrasts with the shorter and sparser brownish coat of the lowland forms. The small of the back, or 'saddle', of mature males becomes grey or white with age, hence the name 'silverback' for old males. Species: **Western Gorilla:** Western Lowland Gorilla, *G. g. gorilla* (S Cameroon to Congo R./R. Sangha): brownish with a broad face but relatively small jaws. Cross River Gorilla, *G. g. diehli* (Nigeria and Cameroon border): brown with a shorter, smaller head but broader face than *G. g. gorilla*. **Eastern Gorilla:** Mountain Gorilla (Eastern Mountain Gorilla), *G. b. beringei* (volcanic slopes of Virunga Mts): very black and densely furred, with a broad face and massive jaws. Grauer's Gorilla (Eastern Lowland Gorilla), *G. b. graueri* (Rift wall and lowlands of E DR Congo): short black fur, narrow face and very large body size. (Gorillas from Bwindi forest in Uganda could be a third race.) **HABITAT** Discontinuous. Lowland populations are found in lowland tropical rainforest; over part of their range in W Africa they inhabit mixed tropical rainforest where fruits play a larger part in the diet and the animals frequently climb trees to feed. The Mountain Gorilla is confined to mountain and subalpine environments. In most areas gorillas prefer old clearings, valley bottoms, landslides, etc., where there is a dense tangle of ground-

level herbaceous growth. **FOOD** Compared with the lowland gorillas, the Mountain Gorilla eats fewer plant species and feeds mainly on leaves, shoots and stems; *Galium* vines, wild celery and three or four other species make up a high proportion of the diet. The Western Lowland Gorilla eats more fruits but also relies on wild ginger (*Aframomum*) for a high proportion of its diet. **BEHAVIOUR** Gorillas form small, non-territorial harems dominated by a single, mature male. Females gravitate to solitary adult males and such primary pairs display the strongest bonds.

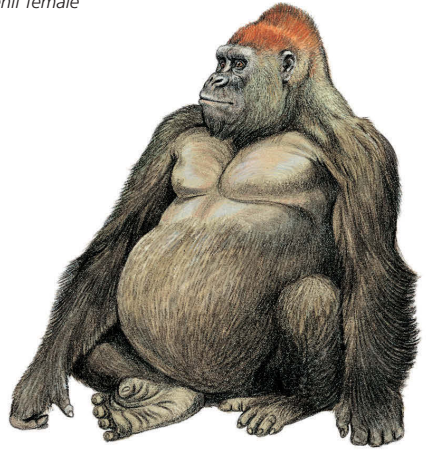


■ *G. g. diehli*
■ *G. g. gorilla*

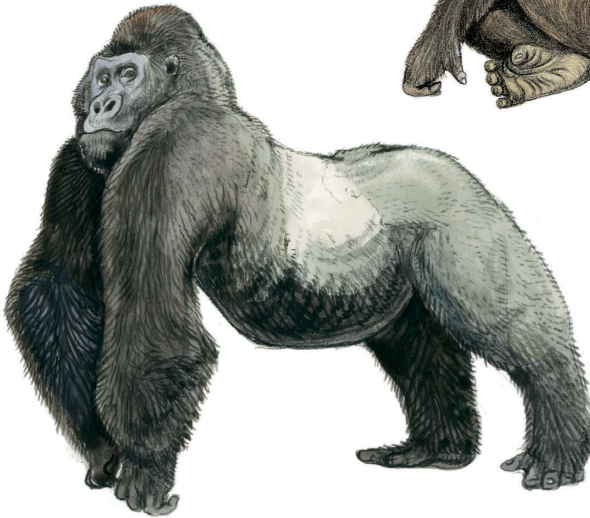
■ *G. b. beringei*
■ *G. b. graueri*



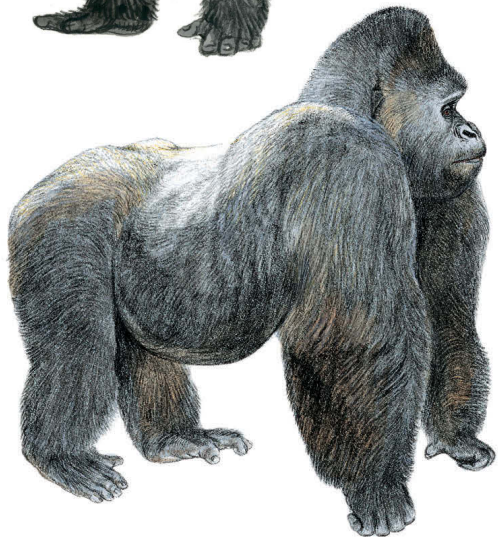
Cross River Gorilla
Gorilla gorilla diehli female



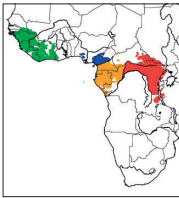
Cross River Gorilla
Gorilla gorilla diehli
adult male



Western Lowland Gorilla
Gorilla gorilla gorilla
adult male posturing in lateral
'head and shoulder display'



Mountain Gorilla
Gorilla beringei beringei
silverback male



- *P. t. schweinfurthii*
- *P. t. troglodytes*
- *P. t. ellioti*
- *P. t. verus*

COMMON CHIMPANZEE *Pan troglodytes*

SIZE HB 63.5–90cm. SH 100–179cm. W av. 30kg (female), 35kg (26–40kg) (male). **DESCRIPTION** A robust ape with long, somewhat tufted black hair, bare face, bare prominent ears and bare parts of the abdomen. The brows are rounded and the margins of the nostrils are scarcely raised. Females slightly lighter than males and develop pink swelling of the ano-genital skin which fluctuates in size according to the phase of their menstrual cycle. Subspecies: *P. t. schweinfurthii* (Ubangi R./Congo R. to W Uganda and Tanzania): light to dark face, dense dark fur, bearded. *P. t. troglodytes* (Sanaga R. to Congo R./Ubangi R.): pale, freckled face, darkening with age, and shows early balding. *P. t. ellioti* (Dahomey Gap to Sanaga R.): mainly recognised on mtDNA evidence. *P. t. verus* (W Africa to Dahomey Gap): dark mask, light muzzle, darkening with age, bearded. **HABITAT** Mainly rainforests

and forest galleries extending into savanna woodlands. Chimpanzees also frequent lowland and mountain forests, showing a preference for mixed and colonising communities. **FOOD** Highly variable according to individual population and season. Fruit comprises about half the diet but leaves, bark and stems are also important. Animal foods range from termites and other insects to birds, eggs and nestlings; small mammals are taken occasionally. While preferred foods, such as figs, are fruiting, Chimpanzees may spend most of their time feeding on a few species. At other times they may be forced to forage widely and have been recorded as taking up to 300 different food types and as many as 20 in any single day. **BEHAVIOUR** Chimpanzees form social communities of 15–20 animals within large territories that are defended by both sexes but mostly by males. Only females cross community boundaries. Groups vary in composition and size according to the seasonal distribution of food. Adult males are fiercely intolerant of their counterparts in neighbouring groups. Immigrant oestrous females are generally accepted into groups but their offspring may be attacked and killed.

Chimpanzees feed most actively during the early morning and evening and rest during the heat of the day. They build individual nests of branches. Adult males co-operate in hunting monkeys. Chimpanzees communicate vocally using more than 30 calls, and have a wide variety of facial expressions, suggesting almost human levels of subtlety, but which may also be part of very loud and active social displays.



BONOBO (GRACILE CHIMPANZEE) *Pan paniscus*

SIZE HB 55–60cm. SH 90–100cm. W 30kg (25–35kg). **DESCRIPTION** Looks like a juvenile Chimpanzee. The more obvious of its youthful characteristics are a rounder cranium, less pronounced brow ridges and muzzle and less tendency to go bald. Hair on the scalp is splayed and flat while that on the cheeks and chin is heart-shaped and surrounds a black face with pink-edged eyes and lips. All limbs, especially the legs, are long and fine. The narrow foot opposes an enlarged 'thumb'. Calls are higher and weaker

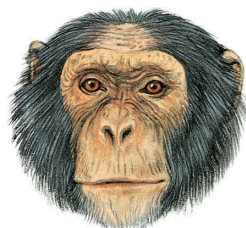
equivalents of those uttered by common Chimpanzees. **HABITAT** A mosaic of swamp, primary and secondary forests in a landscape of very mild relief, with a humid, stable climate. It is possible that to the far east of its range the Bonobo occupies montane forest. Leguminous trees are important sources of food. **FOOD** More than half the diet comprises fruits and seeds. Leaves, flowers and various other plant parts provide fibre and protein, as do smaller quantities of mushrooms, invertebrates, small vertebrates, honey and eggs. Some 150 foods are currently known but a few species, notably velvet tamarind, a liane and soap-berries, are staple foods for periods of a month or more. **BEHAVIOUR** Some differences from common Chimpanzees can be related to the bonobo's greater environmental affluence; for example, male defences are obsolete during frequent gluts of fruits. Other differences derive directly from the extension of juvenile traits in both sexes. Thus males remain close to their mothers up to adulthood. Reproductive behaviour has been diverted to social ends and seduction has overtaken male dominance as the main regulator in Bonobo society.



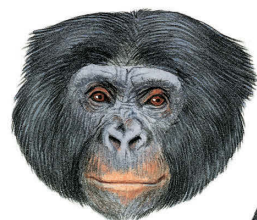
West African Chimpanzee



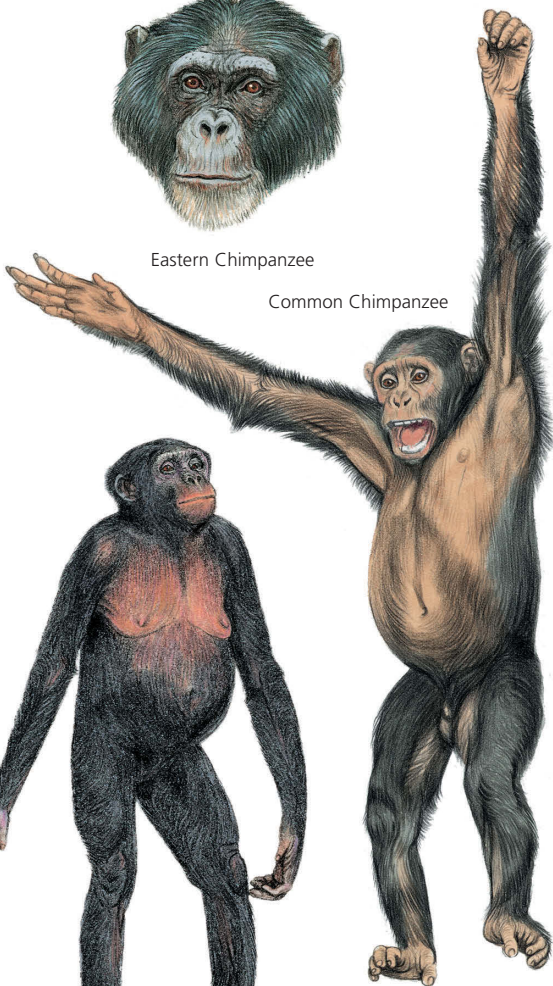
Eastern Chimpanzee



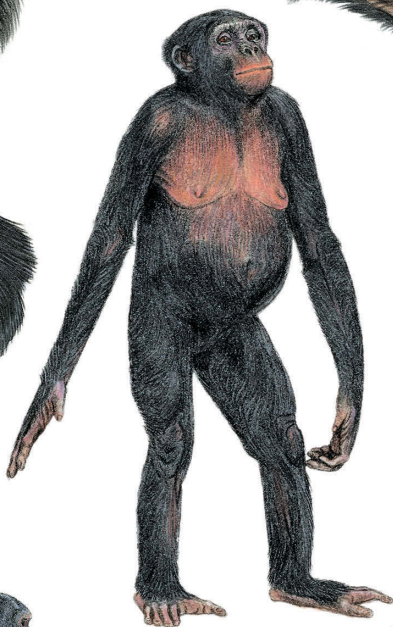
Central African Chimpanzee



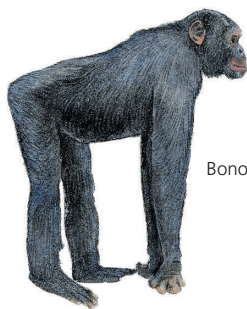
Bonobo



Common Chimpanzee



Bonobo



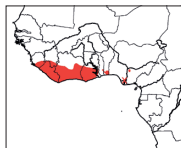
Bonobo



Common Chimpanzee

COLOBUS MONKEYS *Colobinae*

These are medium-sized arboreal monkeys with proportionally big bodies and small heads. The thumb is atrophied; the fingers are aligned in a powerful hook, enabling them to swing easily from branches. However, they have to take food directly into the mouth.



OLIVE COLOBUS *Procolobus verus*

SIZE HB 43–50cm (female and male). T 57–64cm. W 3–4.5kg (female), 3.3–5.7kg (male). **DESCRIPTION** The smallest colobus. Dull grey underside, olive upperside, graduating to brown on the back. **HABITAT** Secondary growth within high forest; also along the margins of the forest zone, as well as in swamp and palm forests. **FOOD** 70% young leaves, buds and flowers, only 10% old leaves. Preference for unripe fruits. **BEHAVIOUR** Groups of 5–15 animals tend to contain 1 adult male with several females and their young. Almost exclusively arboreal and extremely shy.

RED COLOBUS MONKEYS *Piliocolobus*

SIZE HB 45–62cm (female), 45–70cm (male). T 42–80cm. W 7–9kg (female), 9–13kg (male). **DESCRIPTION** Red colobus occur in numerous populations and species. All tend to be some permutation of red, white, black, brown and grey. They have exceptionally small heads on long-backed, pot-bellied bodies. **HABITAT** Only in moist, evergreen forest close to permanent water. Although most red colobus are found in lowland forest, some occur in montane areas up to 1,500m. **FOOD** Very selective of the plant types and parts that form the principal components of their diet but they eat many species. Groups can have a massive impact on the foliage of their food trees. **BEHAVIOUR** Troops number up to 100 animals and reside within a 25–150ha territory. The territory is vigorously defended against intruders and advertised by all group members calling with a variety of barks and chirps. Males remain in the territory throughout their lives but females may move.



■ *P. p. bouvieri*
■ *P. p. pennantii*

PENNANT'S RED COLOBUS *Piliocolobus pennantii*

DESCRIPTION Boldly coloured monkey with black back, temples, hands, feet and tail. The flanks, forearm, thigh rears and tail-tip are bright red. Underside and chest cream, and limb innersides off-white. The crown is grizzled grey. A stark white ruff contrasts strongly with black temples and dark face. A radial parting of hair on the forehead is distinctive. Overall tints are paler in the mainland form.



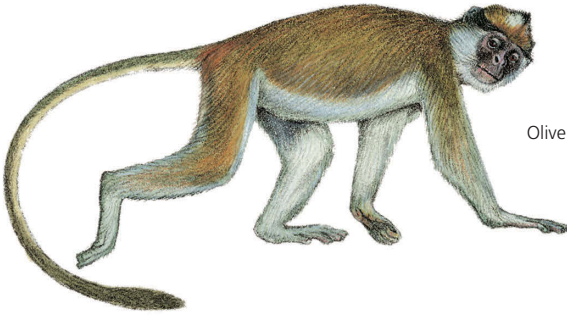
■ *P. epieni*
■ *P. p. preussi*

NIGER DELTA RED COLOBUS *Piliocolobus epieni*

DESCRIPTION Black and grey above with outer surfaces of hind legs, lower flanks and elbows red. Hands and feet black. Undersides, chest and cheek margins creamy or off-white. Brow and central cheeks black. Tail reddish brown with black tip. **HABITAT** This form, first noted in 1995, was allocated upon discovery to *P. pennantii*, its nearest Red Colobus neighbour. However, a recent study showed that its closest affinities are with red colobus species over 1,000km to the east. This has compounded the difficulties in interpreting the biogeography of red colobus monkeys. **FOOD** Not yet studied, likely similar to other red colobuses.

PREUSS'S RED COLOBUS *Piliocolobus preussi*

DESCRIPTION Tentatively treated as a distinct species, this colobus shares some features (colour) with *P. pennantii* while others (such as hair-growth patterns on the head and nose shape) are typical of the western *P. badius* group.



Olive Colobus



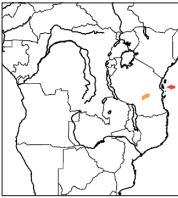
Pennant's Red Colobus



Niger Delta Red Colobus



Preuss's Red Colobus



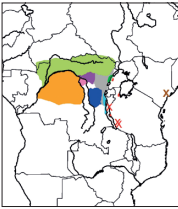
- *P. kirkii*
- *P. gordonorum*

ZANZIBAR RED COLOBUS *Piliocolobus kirkii*

SIZE See lower range of measurements. **DESCRIPTION** Has a ragged, tessellated coat of three colours: red, black and white, individually very variable. The vocalisations of this species are different from any other species. **HABITAT** Occurs in relict patches throughout Zanzibar I., but found mainly in the southern part of the island and also in scrub forest growing on waterless coral rag on the eastern side of the island. A small population has been translocated to Pemba I. **FOOD** Some groups feed almost exclusively on mangrove leaves and the populations on coral rag appear to subsist on a drier, coarser diet than any recorded for red colobus. More than 60 food plants.

UDZUNGWA RED COLOBUS *Piliocolobus gordonorum*

SIZE See lower range of measurements. **DESCRIPTION** A dark, tricoloured species (red, black and white) with a thin, shaggy coat, less tessellated than the Zanzibar species and with a tendency to darker tones. **HABITAT** Restricted to a few small forests on the Uzungwa Mts, where it survives in riverine and montane forest patches between 550 and 6,000m. The range is shared by Angola Colobus and other monkeys. **FOOD** About two-thirds leaf stems (petioles) from some 35 tree species. Both ripe and unripe fruits make up nearly 20% of the diet, with buds, flowers, new leaves and very small quantities of older leaves making up the balance.



- *P. rufomitratu*
- *P. tholloni*

Central African
Red Colobus

- *P. o. oustaleti*
- *P. o. parmentieri*
- *P. o. foai*
- *P. o. langi*
- *P. o. lulindicus*
- *P. o. ellioti*
- *P. o. tephroscelles*
- hybrid zone

TANA RIVER RED COLOBUS *Piliocolobus rufomitratu*

SIZE See lower range of measurements. **DESCRIPTION** Colobus with a dull, greyish brown back, paler greyish limbs and a grey-white underside. Head pattern is distinctive. In spite of resembling some *P. tephrosceles* in colour, it differs in size and skull shape. **HABITAT** Frequenting riverine and gallery forest, only on the levees of the R. Tana between Kipendi village and the mouth of the river, notably the Mnazini and Kinyadu forests. These forests are dominated by *Pachystela* and *Barringtonia*. **FOOD** On the R. Tana only 22 food trees are used by red colobus, fewer than in any other area where red colobus monkeys have been studied. Diet comprises a quarter fruits and seeds, two-thirds buds, flowers and young leaves, and just over 10% of old mature leaves. Dependent on the leaves and fruit of *Ficus sycomorus*.

TSHUAPA RED COLOBUS *Piliocolobus tholloni*

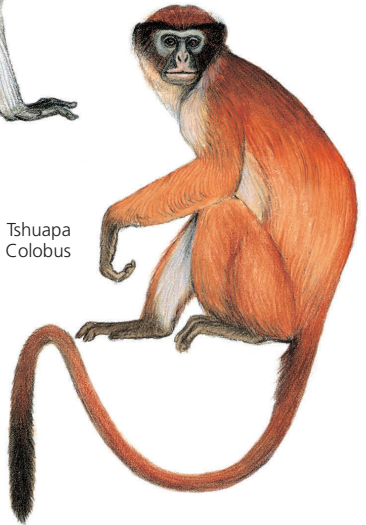
DESCRIPTION Of almost uniform foxy-red colouring, darkening to a deep brown on the shoulders and lighter on the underside. Long face, square muzzle.

CENTRAL AFRICAN RED COLOBUS *Piliocolobus oustaleti*

SIZE See upper range of measurements. **DESCRIPTION** Some populations are relatively uniform and others are highly variable at the individual level. Most have dark extremities to the limbs (often black hands and feet), with red markings especially on the cap. **HABITAT** Ranges between 300 and 2,500m, spanning a wide range of forest types from levee, swamp, lowland and mixed to montane forests. **FOOD** In Kibale (Uganda) young leaves and buds comprise nearly half and mature leaves a quarter of the annual diet. At Gombe, in Tanzania (a more markedly seasonal forest), these proportions are inverted. At both sites intense competition from frugivorous primates probably helps to explain their very minor consumption of fruits and seeds.



Zanzibar Red Colobus



Tshuapa
Red Colobus



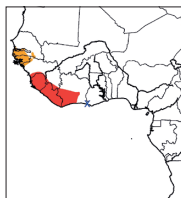
Udzungwa Red Colobus



Tana River Red Colobus



Central African Red Colobus



- P. waldronae*
- P. b. badius*
- P. b. temminckii*

WALDRON'S RED COLOBUS *Piliocolobus waldronae*

SIZE HB 47–63cm. T 52–75cm. W 5.5–10kg. **DESCRIPTION** Formerly common in Ghana and Côte d'Ivoire east of R. Bandama, but now probably extinct from over-hunting. Genetic profiling has confirmed that this form merits species status. Distinguished by its flat, not-raised nose margins, all-black tail, rich red brow and forehead and red-tufted ears, red outer thighs, males with white scrotum. **HABITAT** Rain forest and cultivation mosaics in area of high rainfall. Thought extinct; if so, represents the first permitted extinction of a distinctive primate in spite of authoritative warnings. **FOOD** Diet likely to have been fruits and seeds, young leaves, buds and flowers.

WESTERN RED COLOBUS *Piliocolobus badius*

SIZE HB 47–63cm. T 52–75cm. W 5.5–10kg. **DESCRIPTION** Black or dark grey upperparts with lower limbs and underparts ranging from rich red to light orange.

(a) WESTERN RED COLOBUS *Piliocolobus badius*

The face is characterised by a very flat profile but with the nostrils forming a peculiar swollen structure arising from a saucer-like depression (less marked in *waldronae*).

(b) NIGER DELTA RED COLOBUS *Piliocolobus epieni*

A radial parting of hair on the forehead is distinctive. Overall tints are paler in the mainland form

(c) TANA RIVER RED COLOBUS *Piliocolobus rufomitratu*

The russet cap with cow-licks above each ear are prominent features.

(d) PREUSS'S RED COLOBUS *Piliocolobus preussi*

Red tinted black cap swept over ears and temples.

(e) CENTRAL AFRICAN RED COLOBUS *Piliocolobus oustaleti tephrosceles*

Distinct cow-lick in red fur behind ear. Black tuft above ear sometimes prominent.

(f) UDZUNGWA RED COLOBUS *Piliocolobus gordonorum*

Red cap separated from white cheek fur by black temporal streak.

(g) TSHUAPA RED COLOBUS *Piliocolobus tholloni*

Note longer face, with a prominent square muzzle and an overshot lower jaw.

(h) CENTRAL AFRICAN RED COLOBUS *Piliocolobus oustaleti foai* (montane race)

This form, with shaggy fur and freckled cheeks, may be a distinct species.

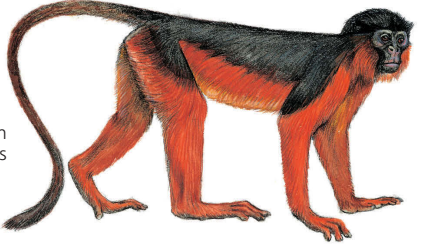
(i) ZANZIBAR RED COLOBUS *Piliocolobus kirkii*

The pink lips and nose form a strong contrast with the bare black skin on the rest of the face. The long, limp hair on the crown of the head is particularly characteristic.

A wide scatter of populations shows that Red Colobus once ranged all over the forested parts of Africa. However, much regional differentiation indicates that their present, very scattered distribution is of long standing, while wide gaps prove that they have been poor dispersers (unlike Pied Colobus).



Waldron's Red Colobus



Western Red Colobus



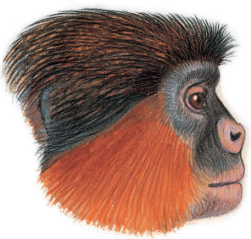
(a)



(b)



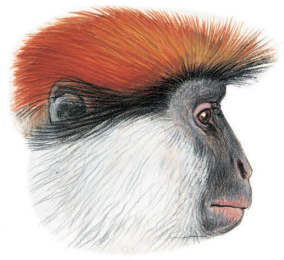
(c)



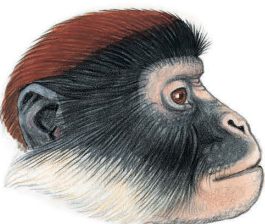
(d)



(e)



(f)



(g)



(h)



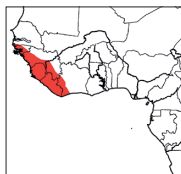
(i)

PIED (BLACK-AND-WHITE) COLOBUS MONKEYS *Colobus*

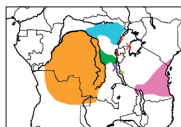
Pied colobus are long-fingered, agile monkeys. Each species has a distinctively shaped face but they are best distinguished by their colouring. Territories are smaller than those of red colobus. They can subsist on material that is less palatable to the red colobus and tend to feed from fewer tree species.

**BLACK COLOBUS** *Colobus satanus*

SIZE HB 50–77cm. W 9–15kg. **DESCRIPTION** All-black, without tassels or a tufted tail, and most like the Angola Colobus in general morphology. It has a shorter nose, thicker incisors and lacks the loud, reverberating calls of other species. **HABITAT** Limited to high-canopy forests between SW Cameroon, Bioko I. (formerly Fernando Po) and the R. Zaïre. **FOOD** A very high proportion of seeds and unripe fruits. Shows a marked preference for the leaves of lianes. **BEHAVIOUR** Exists at lower densities and has quieter vocal repertoire.

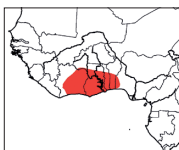
**KING COLOBUS** *Colobus polykomos*

SIZE HB 50–61cm (female), 50–67cm (male). T 63–90cm. W 6.6–10kg (female), 8–11.7kg (male). **DESCRIPTION** Black body and legs, tail wholly white, bonnet of straggly silver hair and long white epaulettes. **HABITAT** Rainforest and forest galleries are preferred. **FOOD** Selective in their feeding habits, taking only about one-third of their total diet from the 20 dominant species of trees and lianes available.

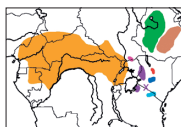
**ANGOLA COLOBUS** *Colobus angolensis*

SIZE HB 50–61cm (female), 50–67cm (male). T 63–90cm. W 9–20kg. **DESCRIPTION** Black bodied with a white ruff and long epaulettes. Tail varies from all-white to black. **HABITAT** Montane and lowland forests. **FOOD** Diet combines about two-thirds of leaves with one-third fruits and seeds.

- C. a. angolensis*
- C. a. cordieri*
- C. a. cottoni*
- C. a. palliatus*
- C. a. prigoginei*
- C. a. ruwenzori*
- C. a. ssp. nov.*

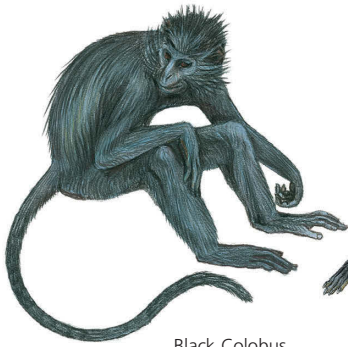
**GEOFFROY'S COLOBUS** *Colobus vellerosus*

SIZE HB 50–67cm. T 63–90cm. W 8–15kg. **DESCRIPTION** Black with a broad white ruff which completely encircles the face and is reminiscent of a nun's wimple. **HABITAT** Ranges between the R. Bandama to Dahomey and Togo in lowland rainforest and gallery forests. **FOOD** Tends to feed in more shaded, middle layers of the forest when mixed with red colobus.

**GUEREZA COLOBUS** *Colobus guereza* (syn. *C. abyssinicus*)

SIZE HB 48–65cm (female); 54–75cm (male). T 65–90. W 10–23kg. **DESCRIPTION** Black and white with shorter, thinner fur in lowland forests but very long and thick fur in mountain areas. **HABITAT** Wide ranging, from lowland tropical rainforest to the upper reaches of montane forest. **FOOD** In all areas where they have been studied, Guerezas have been found to be the most folivorous colobus species except for the Olive Colobus. About three-quarters of the diet consists of leaves. **BEHAVIOUR** Inhabits small territories where several related offspring live with 1 or more hierarchically ranked males. Mutual male intolerance forces males to disperse and promotes female cohesion.

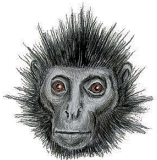
- C. g. guereza*
- C. g. gallarum*
- C. g. caudatus*
- C. g. percivali*
- C. g. kikuyuensis*
- C. g. occidentalis*
- C. g. dodingae*
- C. g. matschiei*



Black Colobus



King Colobus



Black Colobus facial details



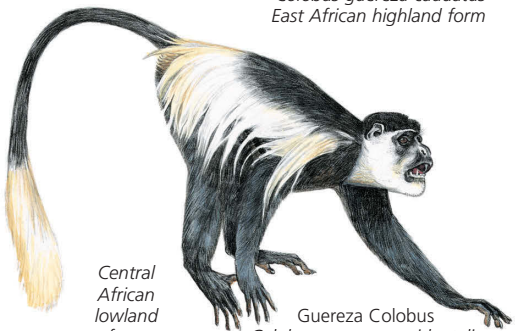
Angola Colobus
Colobus angolensis palliatus
Southern highlands form



Guereza Colobus
Colobus guereza caudatus
East African highland form



Geoffroy's Colobus

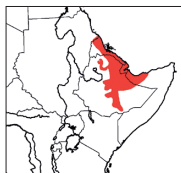


Central African lowland form

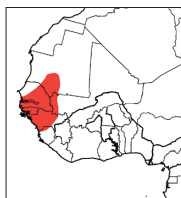
Guereza Colobus
Colobus guereza occidentalis

CHEEK-POUCHED MONKEYS *Cercopithecinae*BABOONS *Papio*

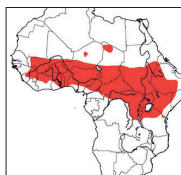
Large, terrestrial, predominantly quadrupedal, monkeys of open country. Adult males bigger and longer muzzled than females. Live in harems of a single male with one or more females.

**SACRED BABOON** *Papio hamadryas*

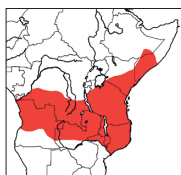
SIZE HB 50–65cm (female), 70–95cm (male). T 40–60cm. SH 40–50cm (female), 50–65cm (male). W 10–15kg (female), 15–20kg (male). **DESCRIPTION** Grizzled, greenish brown. Active harem males dove-grey, with lighter cheek ruffs, tail tip and callosity margins. **HABITAT** Arid subdesert, steppe, hillsides, escarpments and mountains bordering the Red Sea. **FOOD** Opportunistic omnivore. **BEHAVIOUR** Blood-related harems sleep together.

**GUINEA BABOON** *Papio papio*

SIZE HB 55cm (female), 75cm (male). T 35–60cm. SH 45cm (female), 60cm (male). W est. 12kg (female), est. 19kg (male). **DESCRIPTION** Grizzled, reddish brown with a sharply defined cape on adult males. **HABITAT** Woodlands, savanna and steppe within reach of water; gallery forests in south of range. **FOOD** Seeds, shoots, roots, fruits, fungi, invertebrates, small vertebrates and eggs. **BEHAVIOUR** Large aggregations of harem groups, numbering 10–200 (sometimes exceeding 500) individuals, may forage together.

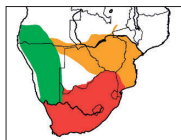
**OLIVE BABOON** *Papio anubis*

SIZE HB 50–114cm; est. 75cm (female), est. 100cm (male). T 45–71cm. SH est. 55cm (female), est. 70cm (male). W 11–30kg (female), 22–50kg (male). **DESCRIPTION** Grizzled, olive-brown. Adult males have cape over neck and shoulders. **HABITAT** Ranging throughout Sahelian woodland and forest-mosaic habitats. **FOOD** Grass is a principal food in open areas, and fruits in forests. **BEHAVIOUR** Males may co-operate in some feeding situations.

**YELLOW BABOON** *Papio cynocephalus*

SIZE HB est. 65cm (female), est. 98cm (male). T 45–68cm. SH est. 50cm (female), est. 66cm (male). W 11–15kg (female), 22–30kg (male). **DESCRIPTION** Slender, with brindled yellow-brown upperparts. Paler below, it lacks cape or mane. **HABITAT** Over a great part of its range it is specific to fire-climax Miombo (*Brachystegia*) woodland. It also occupies dry bushland, thickets, steppes and the coastal littoral. **FOOD** The seeds, flesh and pods

of leguminous trees are seasonal staples but Miombo fauna, such as mopane worms and various insects, are equally important. Young antelopes and hares are caught. **BEHAVIOUR** Forages in extended, well-spaced troops.

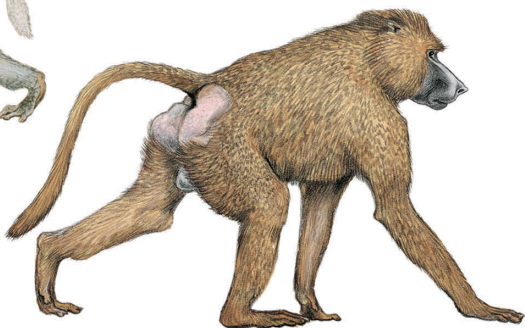
**CHACMA BABOON** *Papio ursinus*

SIZE HB 50–80cm (female), 80–110cm (male). T 50–85cm. SH 40–60cm (female), 50–75cm (male). W 12–30kg (female), 25–45kg (male). **DESCRIPTION** Grizzled khaki or grey to dark brown and black. Males have very long, narrow muzzles. **HABITAT** All types of woodland, savanna, steppes and subdesert, montane, Cape and Karoo flora. **FOOD** Omnivorous. **BEHAVIOUR** Troops average 20–50 animals but up to 100 is possible. Multi-male hierarchies normal.

- *P. u. ursinus*
- *P. u. griseipes*
- *P. u. ruacana*



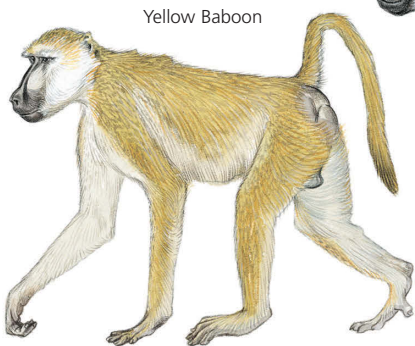
Sacred Baboon



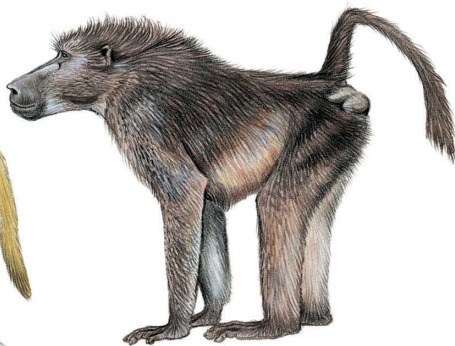
Guinea Baboon



Olive Baboon



Yellow Baboon



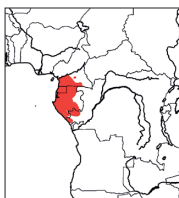
Chacma Baboon



- T. g. gelada*
- T. g. obscurus*
- T. g. ssp. nov.*

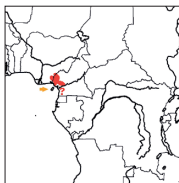
GELADA *Theropithecus gelada*

SIZE HB 50–65cm (female), 68–75cm (male). T 32–50cm (female), 45–55cm (male). SH 40–50cm (female), 55–65cm (male). W 13kg (10–15kg) (female), 20kg (15–22kg) (male). **DESCRIPTION** Brown terrestrial monkey with thick fur, giving the impression of a heavy body on short limbs. Outer fur tassels of adult males often have a bleached appearance, especially on the head, chest, tufted tail and lower hindlimbs. **HABITAT** Feeds mainly on the flat margins of high grass plateaus. Bands keep within 2km of the escarpment edges, where they retreat at night or at the least alarm. **FOOD** Almost entirely leaves of grasses, which are plucked blade by blade with strong, opposable thumb and fingers. **BEHAVIOUR** Gelada bands are social units, numbering between 50 and 250 animals, which consist of 2–30 harems (each led and controlled by a single adult male) and 1 or more bachelor groups. Bands cluster together on sleeping-cliffs and often feed and move in a single, dispersed scatter.



MANDRILL *Mandrillus sphinx*

SIZE HB 55–70cm (female), 70–95cm (male). T 7–10cm. SH 45–50cm (female), 55–60cm (male). W 10–15kg (female), 19–30kg (male). **DESCRIPTION** A heavily built baboon with a grizzled olive-brown coat, pointed orange beard, crested crown and dull white to grey underside. In males the bare face and posterior are bright red, white and blue. Males have two swollen nasal ridges, which are electric blue and grooved, giving the impression of a permanent snarl. White fur surrounds the red-lipped mouth and forms leaf-shaped flashes behind the flesh-coloured ears. **HABITAT** Primary evergreen rainforest, stretching between 100 and 300km inland from the Atlantic coast. In this forest the fruiting of trees and lianes is irregular, resulting in periodic shortages of fruits. **FOOD** Omnivorous, with fruits preferred whenever they are available. In the course of a year groups of Mandrills are thought to range over an area of about 50km². They forage very intensively in a succession of small subsections, exhausting local resources over variable amounts of time (but on average moving on about once a month). **BEHAVIOUR** The smallest social unit is the extended harem led by a single dominant male. In groups with two or more males, subordinate individuals establish size hierarchies. The mandrill can walk 5–15km in the course of a day and densities in undisturbed areas have been estimated at 5 to 7 animals per km². Single animals are uncommon, often old males presumably displaced by fighting. Small groups of Mandrills may forage silently but bands or clans are very noisy and emit a continuous chorus of two-phase barks, frequent 'crowing', grunts and squeals. The Mandrill sleeps in trees but always travels on the ground.



- M. l. leucophaeus*
- M. l. poensis*

DRILL *Mandrillus leucophaeus*

SIZE HB 45–60cm (female), 75–90cm (male). T 6–12cm. SH 45–50cm (female), 55–60cm (male). W 10–15kg (female), 15–20kg (male). **DESCRIPTION** A stocky, large-headed olive-brown baboon with an off-white underside and a broad, leaf-shaped white ruff surrounding a naked black face. A dense neck-cape serves to greatly enlarge the visual impact of the adult male's head and chest. **HABITAT** Evergreen forest on littoral and in Cameroun mountains up to 1,000m; also forest-savanna mosaics. Drills have also been noted in rocky areas within the forest. **FOOD** Omnivorous with reliance on fruit staple; also much herbaceous growth, roots, mushrooms, invertebrates (notably worms, termites, ants and spiders) and small vertebrates. **BEHAVIOUR** Social structure resembles that of the Mandrill. Groups travel on the ground but forage and sleep in the trees.

Gelada



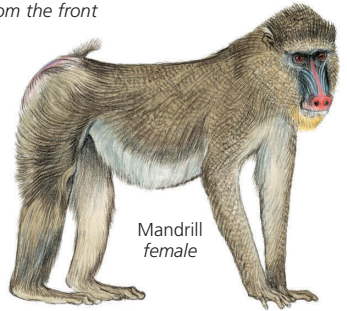
Gelada male demonstrating 'Gelada grin' display



Gelada female from the front



Gelada female showing sexual swellings

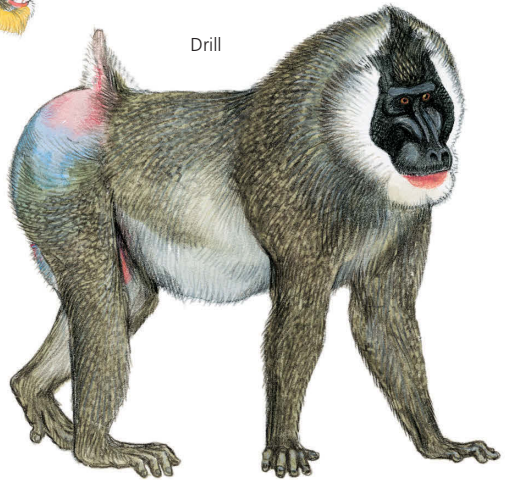


Mandrill female

Mandrill male



Drill



Drill head tilt



Mandrill grimace

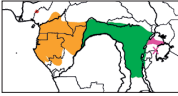


**KIPUNJI** *Rungwecebus kipunji*

SIZE HB 85–90cm (male, est.). W 10–16kg (male, est.) **DESCRIPTION** Cinnamon brown with very dark hands and feet, a grey-black face, and a pale-tipped long tail. Ears are invisible within a halo of long, dense fur. The sexes are similar in size and appearance. **HABITAT** Upper montane forests in the Southern Highlands of Tanzania. **FOOD** 98% plant foods and 2% insects. **BEHAVIOUR** Kipunjis utter very baboon-like grunts and males make a deep honking bark. All sexes and ages make stereotyped head-shakes.

BABOON-MANGABEYS *Lophocebus*

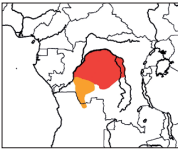
Black or brown monkeys with very long tails and ragged tufts on the crown or brows. Less riverine than drill-mangabeys. Species ranking uncertain.



- L. a. albigena*
- L. a. johnstoni*
- L. a. osmani*
- L. a. ugandae*

GREY-CHEEKED MANGABEY *Lophocebus albigena*

SIZE HB 43–61cm (female), 54–73cm (male). T 73–100cm. SH 38–43cm (female), 40–45cm (male). W 4–7kg (female), 6–11kg (male). **DESCRIPTION** Dark brown with long, ragged tail and tufted crown. Male loud call a very distinctive 'whoop gobble'. **HABITAT** Rainforest, both primary and secondary but with a strong preference for swamp forest. **FOOD** Mainly fruits and nuts. **BEHAVIOUR** Groups of 5 or 6 females and young with several adult males, one of which is dominant.



- L. a. aterrimus*
- L. a. opdenboschi*

BLACK MANGABEY *Lophocebus aterrimus*

SIZE HB 45–65cm. T 80–85cm. SH 40–45cm. W 4–7kg (female), 6–11kg (male). **DESCRIPTION** Long-limbed, all-black monkey with slightly prehensile tail. **HABITAT** Moist rainforest but especially swamp forests. Seldom descends to the ground. **FOOD** Mainly fruits. **BEHAVIOUR** Multi-male groups numbering 14–20 animals break down into smaller units while feeding.

DRILL-MANGABEYS *Cercocebus*

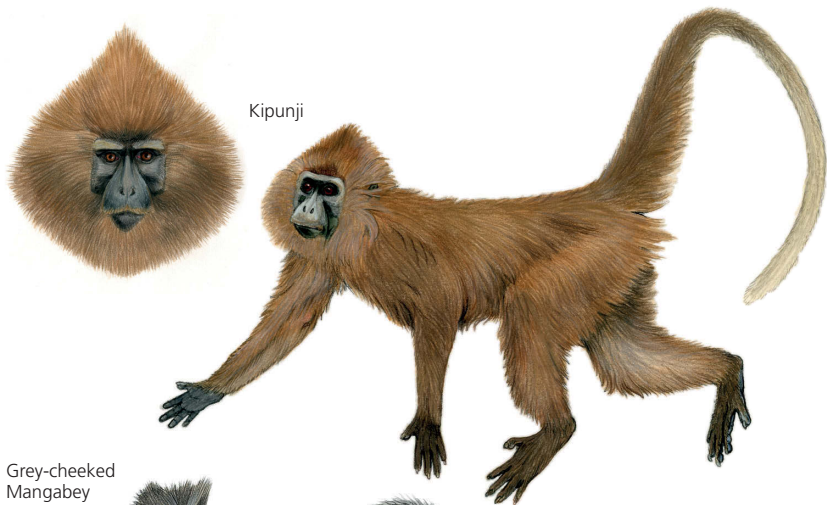
Sometimes known as 'eyelid monkeys', because of their white upper eyelids, these are large monkeys from riverine habitats. Live in multi-male, multi-female groups. Relatively terrestrial but able to swim.

**RED-CAPPED MANGABEY** *Cercocebus torquatus*

SIZE HB 45–60cm (female), 47–67cm (male). T 60–75cm. SH 38–42cm (female), 40–45cm (male). W 5–8kg (female), 7–12.5kg (male). **DESCRIPTION** Dark grey tail frequently held with white tip over the head. **HABITAT** Seldom far from swamp or valley forest. Occupies region between Cross R. to Ubangui/Zaire rivers. **FOOD** Mainly fruits and nuts, supplemented by the stems and roots of undergrowth plants.

**WHITE-NAPED MANGABEY** *Cercocebus lunulatus*

SIZE HB 52–56cm (female), 52–73cm (male). T 68–74cm. SH 38–42cm (female), 40–45cm (male). W 3.9–6.3kg (female), 7.1–11.8kg (male). **DESCRIPTION** Brownish-grey with an off-white underside and prominent white nape. Black midline down length of back. Facial skin brown on the muzzle and pinkish around the orbits; upper eyelids are white. **HABITAT** Once ranged between the Volta and Nzo-Sassandra rivers, now in a progressively more fragmented distribution. **FOOD** Fruits and seeds, mainly from the forest floor.



Kipunji

Grey-cheeked Mangabey



Black Mangabey



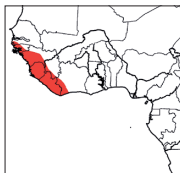
Red-capped Mangabey



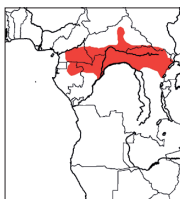
White-naped Mangabey


GOLDEN-BELLIED MANGABEY *Cercocebus chrysogaster*

SIZE HB 45–55cm (female), 52–66cm (male). T est. 50–75cm. SH 38–42cm (female), 42–46cm (male). W 6–8kg (female), 10–14kg (male). **DESCRIPTION** The most drill-like species, with a naked violet rump, bright fur and robust build. **HABITAT** The southern section of the Zaire depression swamp complex. **FOOD** Presumed to be mainly fruits.


SOOTY MANGABEY *Cercocebus atys*

SIZE HB 45–60cm (female), 47–67cm (male). T 40–80cm. SH 38–42cm (female), 40–45cm (male). W 4.5–7kg (female), 7–12kg (male). **DESCRIPTION** Smoky- or slate-grey. Orbits and muzzle rectangular in outline. **HABITAT** Restricted to Upper Guinea. Commonest close to swamp and palm forests. **FOOD** Fruits, including the flesh and kernels of very hard fruits and nuts, are the main staple.


AGILE MANGABEY *Cercocebus agilis*

SIZE HB 44–55cm (female), 51–65cm (male). T 45–79cm. SH 37–42cm (female), 40–45cm (male). W 5–7kg (female), 7–13kg (male). **DESCRIPTION** Drab, speckled olive colour with short, fine fur. **HABITAT** Endemic to regions north of the R. Zaire, especially extensive equatorial swamp forests from Atlantic to eastern Zaire. Seldom moves out of seasonally flooded swamp forest. **FOOD** Almost entirely certain dominant swamp-forest trees (notably dika nuts or Gabon chocolate, *Irvingia*, and sugar plums, *Uapaca*), but some 42 species of fruits have been recorded.


TANA RIVER MANGABEY *Cercocebus galeritus*

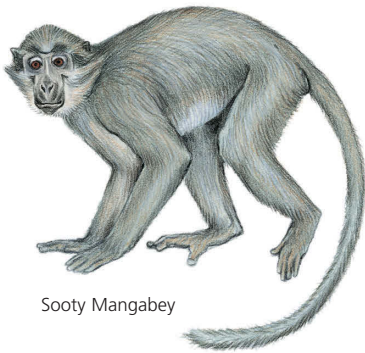
SIZE HB est. 42–53cm (female), est. 50–63cm (male). T 45–77cm. SH est. 35–41cm (female), est. 40–44cm (male). W est. 5–6.5kg (female), est. 8–10kg (male). **DESCRIPTION** Grizzled ash-coloured, limp, shaggy fur, prominent white eyelids, flash of paler fur on temples, white borders to the black face. **HABITAT** Restricted to gallery forests along the floodplain of the R. Tana in Kenya. Prefers levee forest. **FOOD** Mainly fruits; figs are especially important.


SANJE MANGABEY *Cercocebus sanjei*

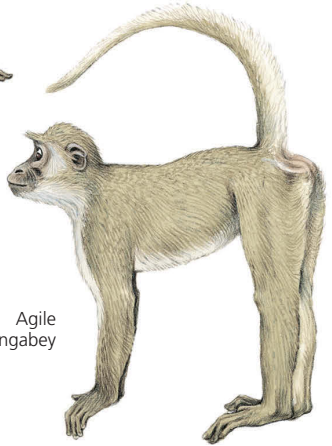
SIZE HB est. 50–65cm. T est. 55–65cm. SH est. 40–50cm. W est. 7–9kg. **DESCRIPTION** Fine ash-grey grizzle colour, with limp crown hair. **HABITAT** Valley forests on the Uzungwa massif. **FOOD** Fruits, mostly ripe, comprise 70% of the diet; foliage makes up most of the balance.



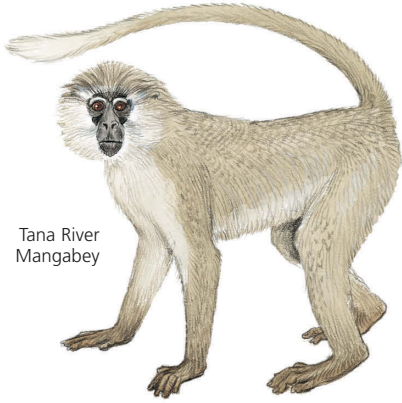
Golden-bellied Mangabey



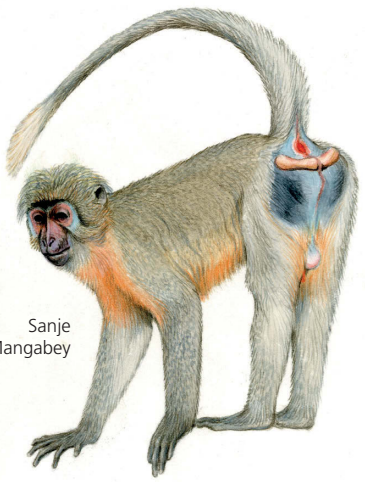
Sooty Mangabey



Agile Mangabey



Tana River Mangabey



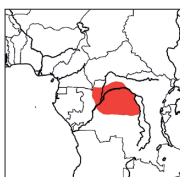
Sanje Mangabey

**BARBARY MACAQUE** *Macaca sylvanus*

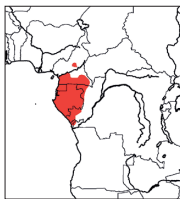
SIZE HB 55–65cm (female), 65–75cm (male). SH 45cm (female), 50cm (male). W 4–7kg (female), 7–10kg (male). **DESCRIPTION** Dull ochre-grey with variable intensities of orange tinting the crown, hands and feet. **HABITAT** Cedar forests at higher altitudes are preferred. **FOOD** Grass and cedar leaves are winter and spring staples. **BEHAVIOUR** 7–40 individuals (usually 10–30) maintain contact with one another by means of a wide range of vocalisations.

GUENONS AND ALLIES Cercopithecini

Guenons are medium-sized to small monkeys with long tails and grizzled fur on the back or limbs. Their colouring, particularly on the face, sometimes rivals that of birds for its brilliance and complexity of pattern. Although males of some of the more terrestrial species have relatively long muzzles and canine teeth, most have short faces and reduced molars.

**ALLEN'S SWAMP MONKEY** *Allenopithecus nigroviridis*

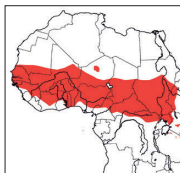
SIZE HB 40–45cm (female), 45–50cm (male). T 45–55cm. SH est. 30cm (female), est. 35cm (male). W 3.6kg (female), 6.2kg (male). **DESCRIPTION** Stocky, khaki-coloured, with shortish tail. **HABITAT** Swamp and levee forest bordering rivers and lakes. **FOOD** Omnivorous, taking fruits, leaves and invertebrates (including crabs). **BEHAVIOUR** Small groups of 2–8 individuals feed together.

**NORTHERN TALAPOIN** *Miopithecus ogouensis*

SIZE HB 25–37cm (female), 30–40cm (male). T 26–53cm. SH est. 19cm (female), est. 22cm (male). W 0.8–1.2kg (female), 1.2–1.9kg (male). **DESCRIPTION** Large-headed with a bright, grizzled yellow-olive crown and back. **HABITAT** Strictly equatorial, never far from a watercourse. Lives in very dense undergrowth. **FOOD** Nearly 80% of the diet consists of fruits. **BEHAVIOUR** Lives in groups of 12–20, which join other groups at night-roosts of up to 125 animals.

**SOUTHERN TALAPOIN** *Miopithecus talapoin*

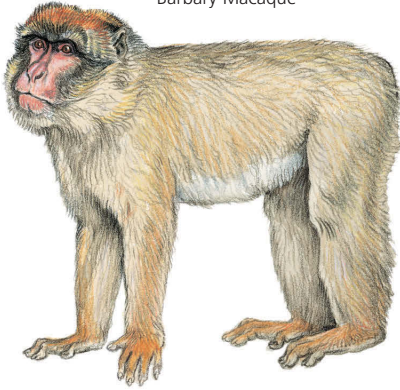
SIZE HB est. 26–45cm. T est. 25–50cm. SH est. 25cm. W est. 1–2kg. **DESCRIPTION** Grizzled, yellowish olive. Black face and ears. **HABITAT** Dense evergreen vegetation on the banks of rivers. **FOOD** Mainly fruits. **BEHAVIOUR** Continuous pigeon-like contact calls while moving or foraging.

**PATAS MONKEY** *Erythrocebus patas*

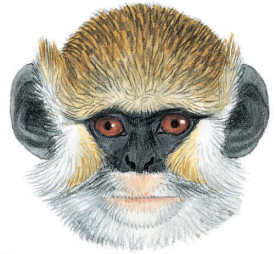
SIZE HB 48–77cm (female), 60–87cm (male). T 54–74cm. SH 28–45cm (female), 34–50cm (male). W 7–14kg (female), 10–25kg (male). **DESCRIPTION** Highly distinctive with long limbs and slender build. Females and young are the colour of dry grass, with shades of fawn, russet and grey. Males are larger and have russet tails, hindquarters and crowns. **HABITAT** Vegetation types ranging from open grassland to dry woodland; commonest in thinly bushed

Acacia-wooded grassland. **FOOD** Especially dependent on the pods, seeds, galls, young leaves, gum and flowers of *Acacia* and the fruits of common savanna trees and shrubs, such as torchwood (*Balanites*), *Euclea* and num-num (*Carissa*). **BEHAVIOUR** In confrontations between Patas groups all members of a troop display aggression towards the other troop (or solitary individual).

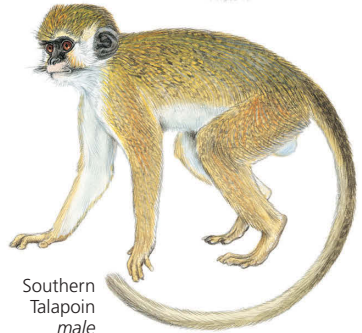
Barbary Macaque



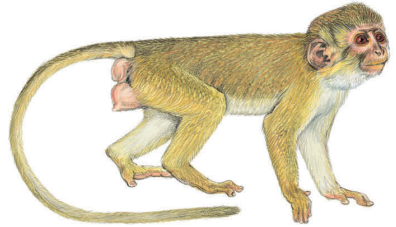
Southern Talapoin
facial detail



Allen's Swamp
Monkey *male*

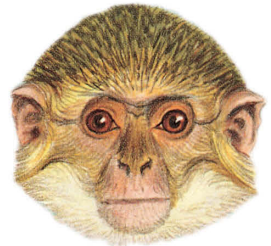
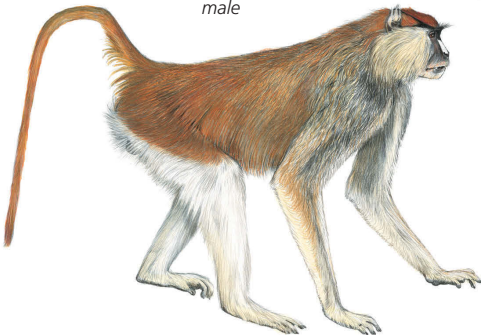


Southern
Talapoin
male



Northern
Talapoin
male

Patas Monkey
male

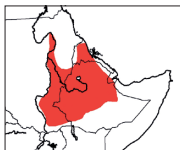


Northern Talapoin
facial detail

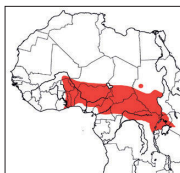
SAVANNA MONKEYS *Chlorocebus* group

Small, grizzled, grey, brownish or greenish monkeys with a black face mask and white ruff. They live in groups numbering 5–76 animals (mean 25). Both females and males follow a rank hierarchy but female coalitions modify the pecking order and deter male aggression towards the young.

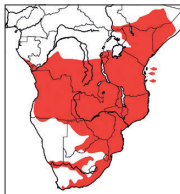
All young males leave their natal group (usually joining nearest neighbours) whereas females remain with their maternal group. Males only concert their actions during confrontations with other groups.

**GRIVET MONKEY** *Chlorocebus aethiops*

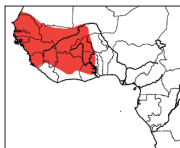
SIZE HB est. 40–60cm. T est. 42–70cm. W est. 5–8kg. **DESCRIPTION** Prominent cheek fur laterally elongated; narrow white band above brows. Often a fine white moustache. **HABITAT** Savannas, woodlands, riverine strips and cultivation mosaics. **FOOD** Heavily dependent on *Acacia* seeds, flowers, foliage and gum.

**TANTALUS MONKEY** *Chlorocebus tantalus*

SIZE HB est. 45–56cm. T est. 45–72cm. W est. 5.5–9kg. **DESCRIPTION** Largest of the savanna monkeys. **HABITAT** A most diverse range of woodlands, savannas and forest mosaics. **FOOD** Fruits, buds, seeds, roots, bark, gum and many cultivated plants. Insects, small vertebrates and eggs are also taken.

**VERVET MONKEY** *Chlorocebus pygerythrus*

SIZE HB 38–62cm (female), 50–65cm (male). T 48–75cm. W 3.5–5kg (female), 4–8kg (male). **DESCRIPTION** Dark tip to the tail. Tufts at the base of the tail are red. The white brow and cheeks join to frame the black face. **HABITAT** A wide variety of lightly wooded habitats. A significant part of the total range consists of Miombo (*Brachystegia*) fire-climax woodlands. **FOOD** Especially important are the seeds, flowers, foliage and gum of *Acacia* and *Albizia*, as well as the fruits of figs and buffalo thorn (*Ziziphus*).

**GREEN MONKEY** *Chlorocebus sabaeus*

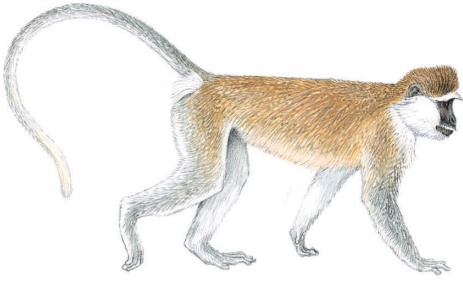
SIZE HB est. 38–60cm. T est. 42–72cm. W est. 3.8–7.7kg. **DESCRIPTION** Long-legged. The tip of the tail is pale orange. Yellowish cheek ruffs are deflected by a cow-lick which begins below the prominent black ears and sweeps up over the temples. There is barely a trace of light brow band. **HABITAT** Wide range of ecotypes, including dry Sahelian woodlands, rainforest margins and

mangroves. **FOOD** One local peculiarity is reliance on crabs and other seafoods, taken on mudflats at low tide.

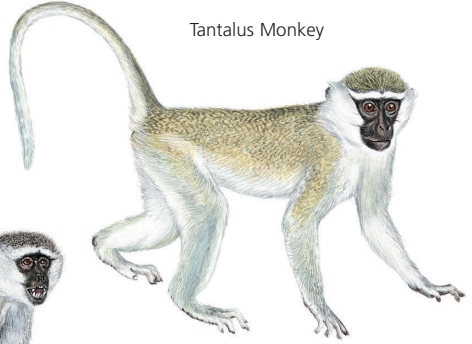
**BALE MONKEY** *Chlorocebus djamdjamensis*

SIZE HB est. 38–62cm. T est. 38–58cm. W est. 4–8kg. **DESCRIPTION** Relatively short-tailed with thick, long fur. The black face, brows and temples show no trace of white except for a fine white moustache. The short white chin and cheek ruff leave the ears exposed. **HABITAT** Has been recorded from the bamboo zone (between about 2,200 and 3,200m) and is known to be a

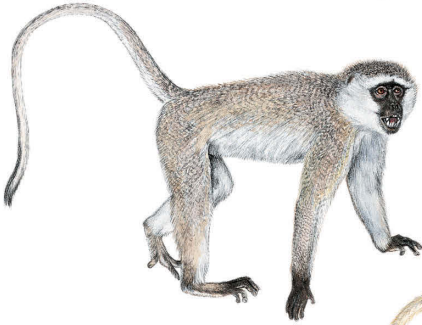
generally scarce forest-edge species. **FOOD** Not known but *Podocarpus*, *Hagenia* and many other montane trees produce edible fruits. *Acacia* and *Albizia* are likely staples in the lower reaches of the range.



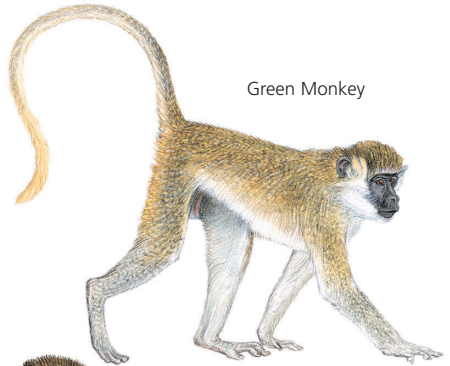
Grivet Monkey



Tantalus Monkey



Vervet Monkey



Green Monkey



Bale Monkey

MOUNTAIN MONKEYS *Allochocebus* group**L'HOEST'S MONKEY** *Allochocebus lhoesti*

SIZE HB 45–55cm (female), 54–70cm (male). T 46–80cm. SH est. 29–36cm (female), est. 34–46cm (male). W 3–4.5kg (female), 6–10kg (male). **DESCRIPTION** Long-legged, black-bodied with a brilliant white ruff and a russet 'saddle'. Tail is grey at its base and tapers to a black brush. **HABITAT** Montane and intermediate forest up to 2,500m from Itombwe to the Rwenzori Mts. It always travels on the ground but will climb to any level to feed. **FOOD** Fruits, young leaves and shoots of various trees, shrubs and herbs.

**PREUSS'S MONKEY** *Allochocebus preussi*

SIZE HB est. 45–66cm. T 53–61cm. W est. 3.5–7kg. **DESCRIPTION** Long-tailed, long-legged dark monkey with grizzled grey crown, cheeks, shoulder and flanks. A mahogany-red streak extends from the shoulders to the root of the tail. **HABITAT** Now found in the Oban hills and Obudu but mainly on the north-western flank of Mt Cameroon between 1,000 and 1,800m. **FOOD** Fruits, seeds, leaves and flowers. **BEHAVIOUR** Groups of 2–12 animals consist of a single adult male and one or more females with their young. Males utter a deep, 2-part booming in the morning and early evening.

- *A. p. preussi*
 ■ *A. p. insularis*

**SUN-TAILED MONKEY** *Allochocebus solatus*

SIZE HB est. 47–68cm. T est. 48–80cm. W est. 4–9kg. **DESCRIPTION** Limbs are long and black, the back grizzled brown and the grey and white tail tipped with bright orange. Prominent muffs over the ears. **HABITAT** Moist forest in a hilly area of about 10,000km² typified by frequent rivers and streams that dissect the terrain. **FOOD** Fruits that are abundant throughout the year. **BEHAVIOUR** Small single-male, multi-female groups travelling on the ground.

LONG-FACED MONKEYS *Cercopithecus (hamlyni)* group

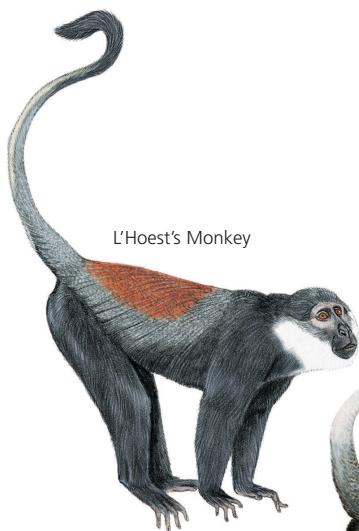
These monkeys have uncertain affinities that combine *Cercopithecus* and *Allochocebus* traits.

**OWL-FACED MONKEY** *Cercopithecus (hamlyni) hamlyni*

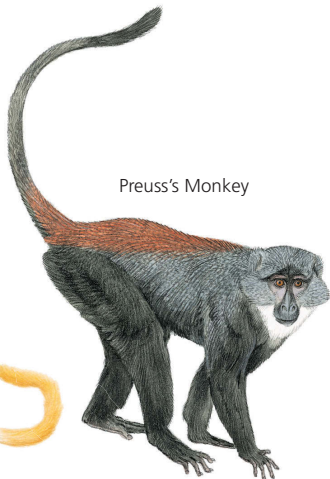
SIZE HB est. 40–55cm (female), est. 50–65cm (male). T 50–65cm. W est. 4.5–6kg (female), est. 7–10kg (male). **DESCRIPTION** Grizzled grey with black arms, feet, underside and tail tip. Face black or marked with white nose stripe and pale cream brow ridge. Male's loud call is a deep boom. **HABITAT** Primary habitat is dense montane forests, especially bamboo. **FOOD** Bamboo leaves are known to be eaten, along with leaves, shoots, pith and stems of several other trees, shrubs and herbs. **BEHAVIOUR** Diurnal. Lives in single-male groups numbering less than 10. Very wary. Travels and feeds on the ground.

**LESULA MONKEY** *Cercopithecus (hamlyni) lomamiensis*

SIZE HB (est.) 40–55cm (female), 47–65cm (male). T 40–65cm. W (est.) 4.5–5.5kg (female), 4.0–7.1kg (male). **DESCRIPTION** Grizzled grey and russet, with very dark grey arms, feet, underside and near-black tail. Centre line of nose white. Surrounding face is rather pale, pink, brown or purplish. Brow-ridge fur is pale yellowish grizzle and of very variable extent. Fur is fine and dense but relatively shorter. There is bare blue skin on the buttocks, scrotum and penis. **HABITAT** Mature, mixed lowland rainforest, including areas where leguminous *Gilbertiodendron* are dominant. **FOOD** Both ripe and unripe fruit, typically foraged on the forest floor. Also terrestrial herbaceous plants, notably seeking out the meristems of Marantaceae. **BEHAVIOUR** Diurnal, living in single-male groups of up to 5 individuals.



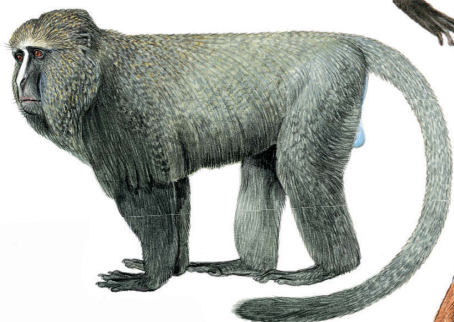
L'Hoest's Monkey



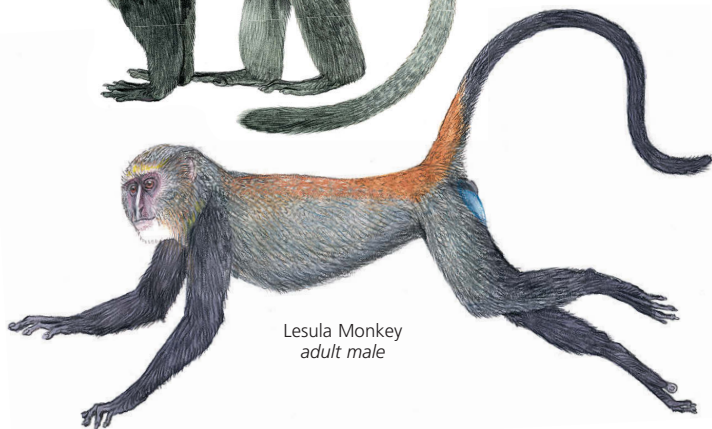
Preuss's Monkey



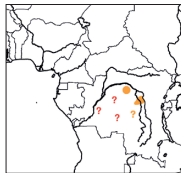
Sun-tailed Monkey



Owl-faced Monkey



Lesula Monkey
adult male

ARBOREAL GUENONS *Cercopithecus*

- *C. (d.) dryas*
■ *C. (d.) salongo*

DRYAD MONKEY *Cercopithecus (dryas) dryas*

SIZE (both forms of *dryas*) HB (est.) 36.5–40cm. T (est.) 48–52cm. W (est.) 2.0–3.3kg. **DESCRIPTION** Mahogany crown to root of tail with white buttocks, brow-patch, chest and chin. Orange throat and cheeks. Mature male buttocks and testicles are an incandescent blue. Tail varies from very dark to pale grey with a black tufted tip. Underside of tail is white but for a black strip that extends 50mm from the anus. **HABITAT** Thickets within secondary forest and swamp forest along small rivers. Never seen in the canopy or subcanopy. **FOOD** Fruits, young leaves and shoots of monocot ginger and arrowroots and fruits of low-level trees, shrubs and vines.

SALONGO MONKEY *Cercopithecus (dryas) salongo*

SIZE See *C. (d.) dryas*. **DESCRIPTION** Has a white brow band with elongated tufts above the temples separated from white or cream cheeks by a tapered black line. The crown, back, sides and upper limbs are speckled yellowish olive-grey. White underside, black lower limbs and black-tipped tail as in Dryad Monkeys but with a black spot on the white underside of the tail, well separated from the anus. For habitat and food see Dryad Monkey above.

**DIANA MONKEY** *Cercopithecus (diana) diana*

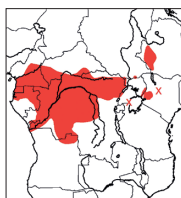
SIZE HB 40–48cm (female), 50–60cm (male). T 52–82cm. W 2.2–3.5kg (female), 3.5–7.5kg (male). **DESCRIPTION** Agile, long-limbed with strongly contrasting colours and pattern. Loud call of male is a volley of reverberating hacks ending in an explosive 'pyow'. Roloway race may be a full species. **HABITAT** Dependent on continuous canopy and with a strong preference for high-canopy primary rainforest. **FOOD** Primarily fruits and seeds. **BEHAVIOUR** Groups of about 6–8 females and their young are accompanied by 1 adult

territorial male, total 14 (10–50). Groups rally to male's loud calls, typically uttered in the morning, after resting and at any disturbance.

**ROLOWAY MONKEY** *Cercopithecus (diana) roloway*

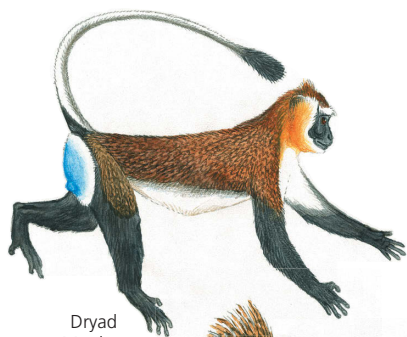
SIZE HB 42cm (female), 51–63cm (male). T 51–83cm. W (est.) 3–5kg. **DESCRIPTION** Lighter in colouring than *C. (d.) diana*, with similar black face but no goatee. Crown, anterior back, sides, shoulders and upper thighs freckled grey graduating to black down the outer legs and arms. White inner forearms, chest, beard, brow-band, outer cheeks and thigh-stripe. Lower back is russet to ochre. Back of thighs and inner legs vary from yellowish-cream to bright russet. **HABITAT** Primary and old secondary

high-canopy rainforest **FOOD** Ripe fruits, seeds, buds, fresh leaves and invertebrates **BEHAVIOUR** Territorial, one-male groups of 15–20 forage in a dispersed pattern.

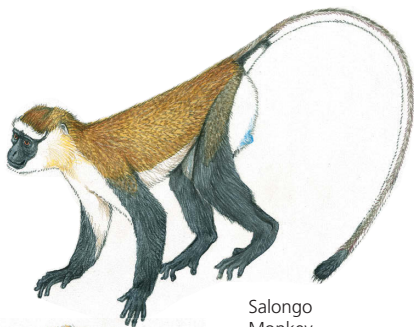
**DE BRAZZA'S MONKEY** *Cercopithecus neglectus*

SIZE HB 40–50cm (female), 50–60cm (male). T 53–85cm. W 4–5kg (female), 5–8kg (male). **DESCRIPTION** Grey-backed with orange brow and white beard. Habitually retreats at the least disturbance. Undisturbed, it is a quiet, exceptionally slow, deliberate and intensely observant monkey. **HABITAT** River-oriented, only moving more than 200m away from the river to visit a major food source. **FOOD** Half to three-quarters of diet is fruits and seeds. Shortfalls offset by taking leaves. **BEHAVIOUR** One or more females are

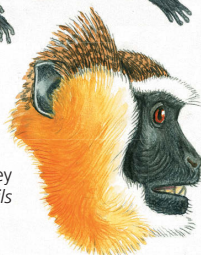
accompanied by an adult male. The male utters a deep, humming boom most frequently in the early morning, after any disturbance and whenever there is any change in the direction of travel.



Dryad
Monkey



Salongo
Monkey



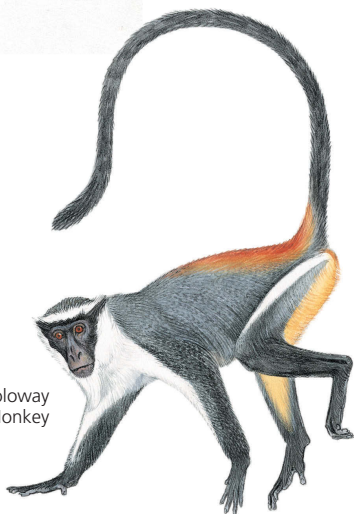
Dryad Monkey
facial details



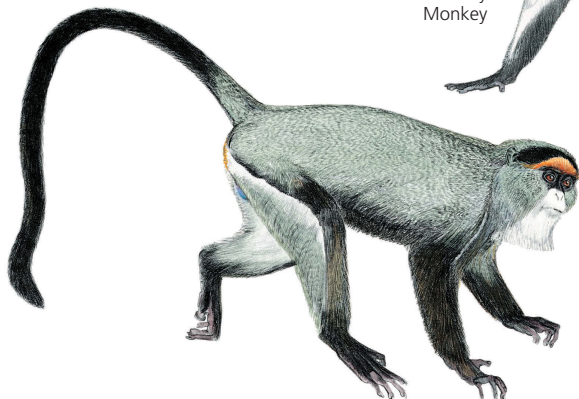
Salongo Monkey
facial details



Diana
Monkey



Roloway
Monkey



De Brazza's
Monkey

MONA MONKEYS *Cercopithecus (mona)* group

Medium-sized to small, arboreal monkeys with a grizzled back and small dark hands and feet. They rely on dense, relatively unbroken canopy in primary, secondary or well-developed gallery forests.

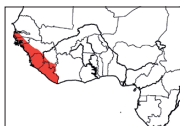
**MONA MONKEY** *Cercopithecus (m.) mona*

SIZE HB 40–50cm (female), 48–60cm (male). T 45–80cm. W 4kg (3–4.5kg) (female), 5kg (4–6kg) (male). **DESCRIPTION** Two oval patches of white fur on the hips are unique to this species and noticeable from a distance. **HABITAT** Lowland forest. Commonest monkey in mangrove forests of R. Niger delta.

FOOD Fruit, and also invertebrates. **BEHAVIOUR** Groups averaging 12 animals are accompanied by a single adult male.

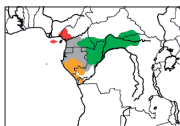
**LOWE'S MONKEY** *Cercopithecus (m.) lowei*

SIZE HB est. 40–58cm. T 54–75cm. W 3–5.8kg. **DESCRIPTION** Finely grizzled cheek fur contrasts sharply with eye mask. **HABITAT** Most forest types, but not common in marshy areas or mangroves. Less wholly arboreal. **FOOD** Mainly fruit. **BEHAVIOUR** Home ranges extend from about 1.5 to 3ha.

**CAMPBELL'S MONKEY** *Cercopithecus (m.) campbelli*

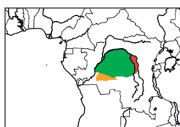
SIZE HB est. 40–58cm. T 54–75cm. W est. 3–5.8kg. **DESCRIPTION** Broad, circular, pale cheek ruffs, separated from white brow diadem by the narrowest of temporal streaks. **HABITAT** Wide range of forests. Also secondary growth fringing gardens and fields. **FOOD** Mainly fruits with flowers and insects.

BEHAVIOUR Resembles other mona species in having small, single-male groups and small ranges.

**CROWNED MONKEY** *Cercopithecus (m.) pogonias*

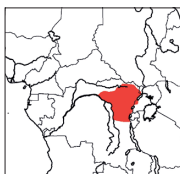
SIZE HB 45 (40–46cm) (female), 50cm (45–58cm) (male). T 50–87cm. W 3kg (2.8–3.6kg) (female), 4.5kg (3.6–4.8kg) (male). **DESCRIPTION** Black crest along centre of crown; ear tufts prominent. Exceptionally agile and vocal. **HABITAT** Commonest in mature forests and in upper strata. **FOOD** Fruits (80%) and invertebrates. Rarely leaves or buds. **BEHAVIOUR** The dominant male's booming call rallies group members after dispersal or a disturbance. Both sexes make the strange miaow that is the typical cohesion call.

- *C. p. pogonias*
- *C. p. grayi*
- *C. p. nigripes*
- hybrid zone

**WOLF'S MONKEY** *Cercopithecus (m.) wolfi*

SIZE HB est. 40–68cm. T 60–75cm. W est. 2–6kg. **DESCRIPTION** Hindquarters sharply differentiated (reddish or orange). Ears brightly coloured. **HABITAT** Lowland rainforests, with a preference for high-canopy primary and secondary forests. **FOOD** Fruits, flowers and invertebrates. **BEHAVIOUR** Typical stiff-legged, raised-rump posture forms an eye-catching angle with tail and lowered torso. It would appear that ear movements are important in communication.

- *C. w. wolfi*
- *C. w. elegans*
- *C. w. pyrogaster*

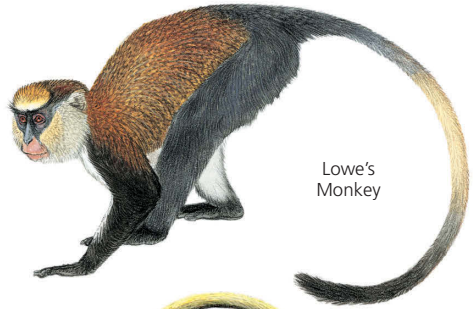
**DENT'S MONKEY** *Cercopithecus (m.) denti*

SIZE HB 40–70cm. T 70–90cm. W 3–6kg. **DESCRIPTION** Brilliant contrast between white belly and dark back. White inner limbs contrast strongly with black arms and grizzled brown legs. **HABITAT** Lowland forests with a preference for high-canopy mixed forest. **FOOD** Fruits, flowers and invertebrates (especially caterpillars). **BEHAVIOUR** When alarmed, will freeze in knots of vegetation for long periods.

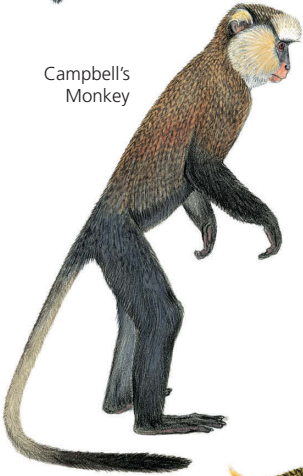
Mona
Monkey



Lowe's
Monkey



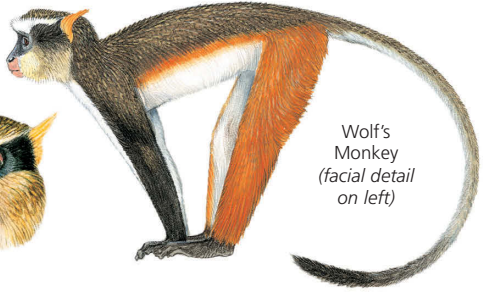
Campbell's
Monkey



Crowned
Monkey



Wolf's
Monkey
(facial detail
on left)

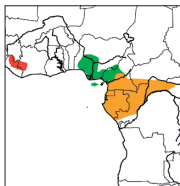


Dent's
Monkey



GENTLE MONKEYS *Cercopithecus (nictitans)* group

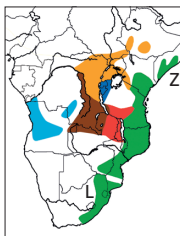
Large, long-tailed arboreal monkeys with grizzled back and crown. Coat patterns often have yellowish or reddish zones. Adult males make very loud and distinctive, explosive 'pyows'.



- *C. n. nictitans*
- *C. n. martini*
- *C. n. stampflii*

PUTTY-NOSED MONKEY *Cercopithecus (n.) nictitans*

SIZE HB 43–53cm (female), 55–70cm (male). T 56–100cm. W 4.2kg (2.7–5kg) (female), 6.6kg (5.5–8kg) (male). **DESCRIPTION** Dark, grizzled olive fur on the back, crown, cheeks and base of the tail. The limbs and distal half of the tail are black or dark grey. A brilliant white nose spot is the most striking peculiarity. Three subspecies. **HABITAT** Evergreen forests from lowland to montane, primary, secondary, narrow galleries and patches; not common in swamp or mangrove forests. **FOOD** Fruits, seeds, flowers, foliage and invertebrates. Both sexes take insects but males take a higher proportion of foliage. **BEHAVIOUR** Groups of 12–30 females defend a territory and are accompanied by a single adult male.



- *opisthostictus* cluster
- *mitis* cluster
- *doggetti* cluster
- *moloneyi* cluster
- *stuhlmanni* cluster
- *albogularis* cluster
- L *labiatus*
- Z *zamaranoi*

GENTLE MONKEY *Cercopithecus (n.) mitis* (inc. *albogularis*)

SIZE HB 43–52cm (female), 48–70cm (male). T 55–109cm. W 5kg (3.5–5.5kg) (female), 7kg (5.5–12kg) (male). **DESCRIPTION** Similar to Putty-nosed Monkey but without distinctive nose patch. Back and thighs grizzled, forearms, hands, feet and terminal half of tail are black. Underside relatively dark. Cheek fur grizzled. A grizzled brow patch in some species but undifferentiated in others. The arbitrary splitting of *mitis* into two geographic divisions (*mitis* and *albogularis*) obscures a more complex pattern of distribution. *C. mitis* can be divided into as many as six 'clusters' (each a potential species), and each embracing more than one subspecies: ***Cercopithecus (n.) opisthostictus* cluster:** the Mbebe Monkey cluster (*opisthostictus*, *heymansi*). Exceptionally soft, dense, light olive to steel-grey agouti body pelage, with long, drooping cheek-fur sometimes hiding ears. Restricted to low-lying, sometimes swampy forests. Seems to co-exist with *C. (n.) moloneyi* without interbreeding in a narrow region of overlap.

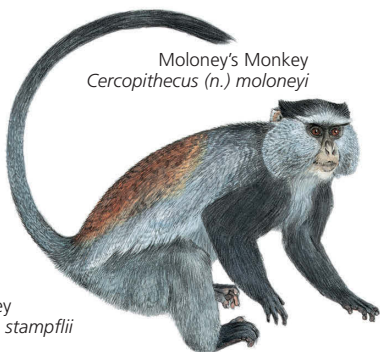
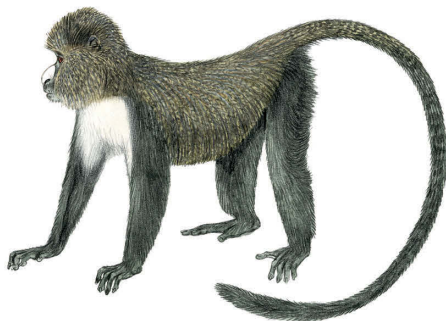
***Cercopithecus (n.) mitis* cluster:** the Pluto Monkey cluster (*mitis*, *maesi*, *pluto*). Pale diadems and chin. Cheek-fur graduates from paler near face to darker on margins. Sporadically distributed on western margins of Congo basin.

***Cercopithecus (n.) doggetti* cluster:** the Silver Monkey cluster (*doggetti*, *kandti*, *schoutedeni*). Isolated populations. Silver Monkey, *doggetti*, grizzled grey or golden back, black cap with sharply defined, grizzled diadem, high, rounded, grizzled cheek patches; Golden Monkey, *kandti*, is a high-altitude colonist on volcanic mountains near L. Kivu; Schouteden's Monkey, *schoutedeni*, a tiny population on Shushu I. in L. Kivu. Long muzzle in males.

***Cercopithecus (n.) moloneyi* cluster:** the Moloney's Monkey cluster (*moloneyi*, *francescae*). Dark, grizzled backs, flat, dark caps with pallid diadems, pale chins, broad and low, grizzled cheek patches. Longish muzzle in males. Montane areas.

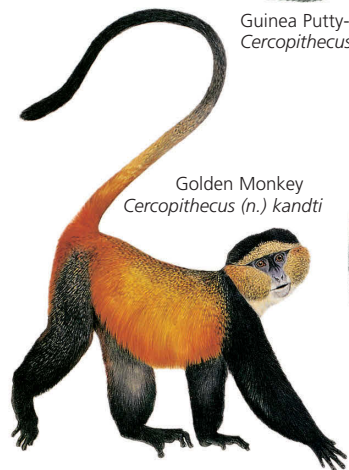
***Cercopithecus (n.) stuhlmanni* cluster:** The Blue Monkey cluster (*stuhlmanni*, *elgonis*, *boutourlinii*) – the latter an Ethiopian isolate. Very dark, grizzled back, black cap with sharply defined blue-grey grizzled diadem, high, rounded, grizzled cheek patches. Relatively short muzzle in males.

***Cercopithecus (n.) albogularis* cluster:** The White-throated/Sykes's Monkey cluster (*albogularis*, *labiatus*, *erythrarchus*, *monoides*, *kibonotensis*, *kolbi*, *albotorquatus*, *phylax*, *zamaranoi*). Grizzled back, grizzled cap and diadem not clearly differentiated. Populations from extreme outer margins of range, South Africa (*labiatus*) and Somalia (*zamaranoi*) are notably very dark coloured. Boundary between white or pale chin fur and grizzled cheek fur very variable. Medium-sized muzzle in males. *C. a. zamaranoi* is a dwarfed, almost black form (HB 39–43cm).

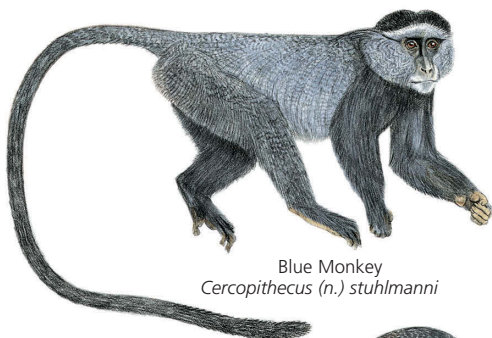


Moloney's Monkey
Cercopithecus (n.) moloneyi

Guinea Putty-nosed Monkey
Cercopithecus (n.) nictitans stampflii

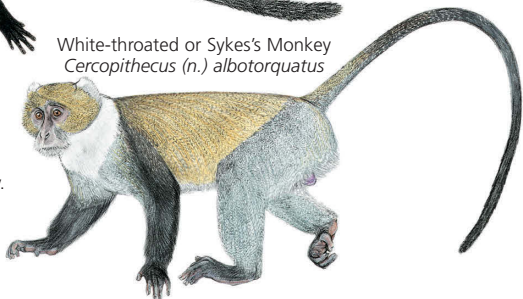


Golden Monkey
Cercopithecus (n.) kandti



Blue Monkey
Cercopithecus (n.) stuhlmanni

White-throated or Sykes's Monkey
Cercopithecus (n.) albatorquatus



Below: face details of gentle monkeys.
Top row, from left: Central African Putty-nosed Monkey, Pluto Monkey, Moloney's Monkey, Stuhlmann's Blue Monkey, Mount Kenya Sykes's Monkey.
Below, from left: Martin's Putty-nosed Monkey, Zaire Basin Gentle Monkey, Mbele Gentle Monkey, Silver Monkey, Tanganyika Sykes's Monkey



CEPHUS MONKEYS *Cercopithecus (cephus)* group

Long-tailed, arboreal monkeys with grizzled brownish backs and crowns and very diverse and brightly coloured face patterns. Tails are red in several populations and bicoloured in others. Very lively, active monkeys, they make jerky movements of the head and forequarters. Very staccato, chirping alarm calls are made by all species. Uttered in prolonged series by several or all members of a group, these volleys of sound are often a first indication of their presence. Found in equatorial forests from Sierra Leone to W Kenya and about 10° latitude north and south. Absent from colder latitudes and higher altitudes, and from strongly seasonal forests of SE Africa. *Cephus* monkeys favour lowland and medium-altitude forests. They traverse a very wide range of branches, lianas and tangles at all but the very lowest levels of the forest. Individuals forage in a wide scatter, covering up to 1.5km per day in a territory of about 35ha.

The *cephus* group appears in several respects to be a neotenus (juvenilised) form of gentle monkey (the two groups are known to be very closely related). In addition to being smaller and having a more juvenile-looking skull, these monkeys have a faster metabolism and are more active for a longer day than gentle monkeys. They are also highly visually oriented and in polyspecific groups often warn other species of danger. This visual specialisation is corroborated by optical physiology (their eyes have more short-wave cones, which are especially sensitive to both space and colour perception). In contrast to gentle monkeys, which forage in groups for hidden insects, *cephus* monkeys are visual hunters which independently scan foliage and branches for exposed insects. This visual bias is clearly linked with greater use of visual signals. All species have evolved striking facial patterns which correlate with ritualised head-flagging displays performed during courtship and appeasement. Sharp head movements are also typical of this species and include contact and greeting gestures.

At first sight the diversity of guenon facial patterns betrays little sense of a relationship between the different species. However, comparable elements can be established (*see* diagrams opposite below). Thus, for species that have developed facial signals an elaborate set of light and dark patches expands or contracts to generate an extraordinary array of signal patterns.

In spite of their apparent diversity, all face patterns in the *cephus* group are permutations and elaborations of a single facial format of the gentle monkey type. These patterns can be seen to arise through facial fur developing various pleats, deflections or tufts, through colour tinting of skin and fur, and through 'expansion' and 'contraction' of a limited number of dark or light patches (*see* figs on p.75). The radiation of *cephus* monkeys is likely to have started in W Africa (*erythrogaster* and *petaurista* as modern derivatives) with one eastward expansion no further than the R. Ogooué basin (*cephus* and *sclateri* as modern derivatives), and then a later one (*erythrotis* and *ascanius* as derivatives).

Species:

Moustached Monkey, *C. (c.) cephus* (between R. Sanaga, R. Zaïre and R. Ubangi): red or bicoloured tail, bright blue face, broad yellow cheek ruffs, black and white 'moustache'.

Sclater's Monkey, *C. (c.) sclateri* (eastern margins of R. Niger delta): off-white tail, blue face, yellowish cheek fur with sinuous border, pale muzzle.

Red-eared Monkey, *C. (c.) erythrotis* (between R. Cross and R. Sanaga): red tail, purplish face, cream cheek ruff with linear black border, red nose and ears.

Red-tailed Monkey, *C. (c.) ascanius* (from R. Zaïre/R. Ubangi east to Uganda and W Kenya, S Sudan to Angola and N Zambia): partly or wholly red tail, dark blue face, white or grizzled cheeks and temporal region with variable margins; colour of nose spot shows regional variation.

Lesser Spot-nosed Monkey, *C. (c.) petaurista* (NW Sierra Leone to Benin): bicoloured khaki/white tail, black face framed by a white ruff, white nose spot.

White-throated Monkey, *C. (c.) erythrogaster* (SW Nigeria): bicoloured khaki/white tail, dark grey face, very attenuated grizzled cheek patches, broad and conspicuous white ruff framing the face, black or white nose, red or slate-grey belly.

Opposite right: Guenon cheek-hair arrangement (left a–g) and tonal contrasts on facial masks (right 1–7) of *cephus* monkeys. Sclater's (b, 4), Lesser Spot-nosed (*buettikoferi*, c, 2) (*petaurista*, 1), Moustached (d, 6), Red-eared (e, 3), Red-tailed (*schmidti*, f, 5) (*atrinus*, g, 7), generalised guenon (a).

Left: Lesser
Spot-nosed
(*petaurista*)
Right: White-
throated
(*erythrogaster*)



Left: Lesser
Spot-nosed
(*buettikoferi*)
Right:
Red-tailed
(*schmidtii*)



Left: Sclater's
Right:
Red-tailed
(*whiteside*)



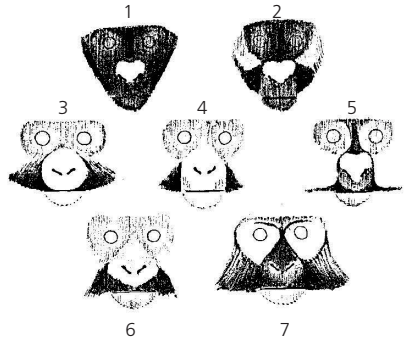
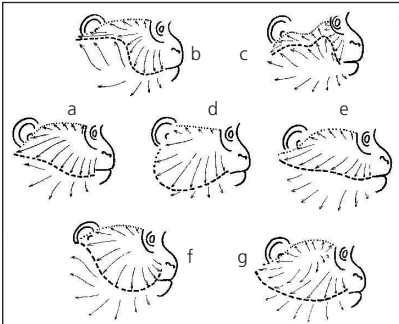
Left:
Red-eared
Right:
Red-tailed
(*atrinus*)

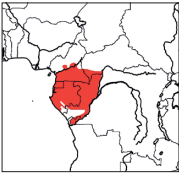


Left:
Moustached
Right:
generalised
guenon



Guenon facial patterns





MOUSTACHED MONKEY *Cercopithecus (c.) cephus*

SIZE HB 44–50cm (female), 50–58cm (male). T 66–99cm. W 3kg (2–4kg) (female), 4kg (3.8–5kg) (male). **DESCRIPTION** The facial skin is bright blue, with broad yellow cheek ruffs and a vivid white 'moustache' of very variable shape above the jet-black lips and very bristly black fur at the corners of the mouth. **HABITAT** Lowland rainforest between the R. Sanaga and R. Zaïre/R. Ubangi. Prefers dense foliage and liane tangles and will make use

of all forest levels except the lowest. Their distribution between that of Red-eared and Yellow-nosed Monkeys (very similar forms) suggests that they may have recently expanded their range out of an Ogooué basin heartland. **FOOD** Mainly fruits (and about 10% leaves, stems and shoots). Adult males have been found to eat much fewer insects than females, which suggests that social monitoring may be at the expense of time spent searching for insects.



SCLATER'S MONKEY *Cercopithecus (c.) sclateri*

SIZE HB est. 40–45cm (female), est. 45–55cm (male). T est. 45–75cm. W est. 2.5–3.5kg (female), est. 3–4.5kg (male). **DESCRIPTION** The tail graduates from light olive to off-white, with a deep russet suffusion on the underside close to the anus. The cap is peaked and encircled by a black margin. The facial skin is blue and there is yellowish cheek fur, with a sinuous dark-tipped border above the white throat and chin fur. Muzzle and ears are usually pallid

but animals from towards R. Cross valley have varying tints of red on the nose and ears. Putative hybrids with the Red-eared Guenon have led to it being classified with that species. Aside from this hybrid influence, Sclater's Monkey combines features characteristic of Moustached, Red-tailed and Lesser Spot-nosed Monkeys, suggesting that it is a conservative species illustrative of earlier forms of cephus monkeys. **HABITAT** Relict forests and swamps between the R. Niger delta and the Cross River south of Enugu. **FOOD** Likely to resemble that of other cephus group monkeys.



RED-EARED MONKEY *Cercopithecus (c.) erythrotis*

SIZE HB 40–45cm (female), 45–55cm (male). T 53–77cm. W 2.25–3.5kg (female), 3.5–4.5kg (male). **DESCRIPTION** Grizzled brown back, shoulders and crown, red tail and rump, and grey forearms, hindlegs, hands and feet. Underparts and inner limbs are white. The face is purplish blue, with cream cheek fur tapered to a point below the ear and with bold black margins. Nose and ears are red. The monkeys on Bioko I. (formerly Fernando Po) belong to a smaller, darker island race, *C. e. erythrotis*. Mainland population larger and less melanic, *C. e. camerunensis*.

HABITAT Lowland rainforests between the R. Cross and R. Sanaga and Bioko I. Today the Moustached Monkey inhabits the intervening country between the very small range of the Red-eared Monkeys and that of the Yellow-nosed Red-tail (some specimens of which resemble it very closely). It seems likely that the range of the Red-eared Monkeys has contracted. Their ecological niche resembles that of other cephus monkeys but they are reported to live mainly in lower forest strata and in regenerating secondary forest. Putty-nosed and mona monkeys frequently follow and associate with Red-eared Monkeys. Deforestation has destroyed a large part of this species' range and remaining populations are heavily hunted. It is common in Korup National Park and Douala Edea Reserve. Although it occurs in many smaller forest reserves it enjoys no practical protection and is in decline everywhere. **FOOD** Fruits and insects.

- *C. e. camerunensis*
- *C. e. erythrotis*



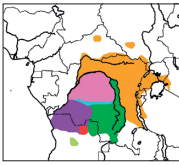
Moustached Monkey



Red-eared Monkey



Sclater's Monkey



- C. a. ascanius*
- C. a. katangae*
- C. a. whitesidei*
- C. a. atrinatus*
- C. a. schmidtii*
- C. a. ascanius/*
C. a. katangae
- C. a. whitesidei/*
C. a. katangae

RED-TAILED MONKEY *Cercopithecus (c.) ascanius*

SIZE HB 34–48cm (female), 48–52cm (male). T 54–92cm. W 3.5kg (1.8–4kg) (female), 4.5kg (3–6kg) (male). **DESCRIPTION** The tail is partly or wholly red and the face is dark blue. Cheeks and temporal region are white or grizzled, with variable margins above the off-white throat and chin. There are several subspecies and intermediate forms. The nose spot varies in colour and shape by region and subspecies. Subspecies: **Angola Red-tailed Monkey, *Cercopithecus a. ascanius***: broad black brow and temporal streaks, broad black boundary below white orbit-to-ear cow-licks, minuscule grizzled tawny patch below the orbits, blunt white nose-patch. **Katanga Red-tailed Monkey, *C. a. katangae***: black brow and temporal streaks, black boundary below white orbit-to-ear cow-licks, grizzled tawny patch below orbit, white nose-spot laterally elongated and tapering between nostrils. **Yellow-nosed Red-tailed Monkey, *C. a. whitesidei***: narrow black temporal streaks and narrow black boundary below white orbit-to-ear cow-licks, variable grizzled tawny patch below orbits, T-shaped nose-patch varying from white to russet

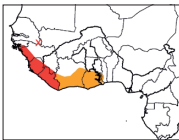
red, ears also white to red (see p.75). **Spectacled Red-tailed Monkey, *C. a. atrinatus***: very broad black brow and temporal streaks and very broad black boundary below white orbit-to-ear cow-licks, completely black muzzle and only a trace of grizzling in the black patch below bright blue orbits (see p.75). **Uganda Red-tailed Monkey, *C. a. schmidtii***: narrow black brow and temporal streaks, narrow black boundary around broad creamy-white cheek-ruffs, scalloped white nose-spot in narrow dark muzzle, blue facial skin (see p.75). **HABITAT** Lowland and submontane forests, riverine galleries and most stages of colonising, secondary or regenerating forest (except for those on poor soils). **FOOD** Fruits and insects. Flowers and flower buds are also important. Leaves and leaf buds become a significant part of the diet during seasons of shortage. **BEHAVIOUR** Disperses individually or in small family clusters during feeding and especially while hunting insects.



- C. e. erythrogaster*
- C. e. pockocki*

WHITE-THROATED MONKEY *Cercopithecus (c.) erythrogaster*

SIZE HB est. 40–45cm (female), est. 45–50cm (male). T est. 60–70cm. W est. 2–4kg (female), est. 3.5–4.5kg (male). **DESCRIPTION** Grizzled khaki-coloured back, shoulders and thighs, dark grey outer limbs, lighter inner limbs and a bicoloured tail. The very prominent white ruff frames the dark face, which has narrow, grizzled cheek patches. The cap is black with a broad triangle of pale grizzled fawn. The belly is grey or russet (the latter mostly towards the west of its range) and the nose is either black or white. The distinctive loud call of the male most resembles the grating hack of the Lesser Spot-nosed Monkey. **HABITAT** Widespread but very scattered in remaining lowland rainforests of SW Nigeria and S Benin. Also in secondary bush and old farmland, usually in dense vegetation between 2 and 15m. Foraging parties number about 5 but groups of up to 30 have been recorded. At the heart of its remaining range a spacing of 1 group per km² has been estimated. All forests in SW Nigeria are subject to intensive logging, clearing and hunting. This species is currently unprotected but a 67km² wildlife sanctuary has been declared in the Okomu Forest Reserve. This species also occurs in the Iflon and Omo Forest Reserves. **FOOD** Fruits and insects.



- C. p. petaurista*
- C. p. buettikoferi*

LESSER SPOT-NOSED MONKEY *Cercopithecus (c.) petaurista*

SIZE HB 40–44cm (female), 44–48cm (male). T 57–68cm. W 2–3.5kg (female), 2.5–4kg (male). **DESCRIPTION** The face is black and the tail is bicoloured. Adult males utter a peculiar grating hack and a high-pitched whistle of alarm. Two subspecies: *C. p. petaurista* (Benin–R Cavalry, white cheek stripe only below ear); *C. p. buettikoferi* (R Cavalry west to Guinea, white stripe from temple to ear). **HABITAT** Lowland primary and secondary forests, riverine and gallery forests, secondary regeneration and coastal bush. **FOOD** Highly frugivorous

and may eat less insects than other species in the cephus group. Flowers, flower buds and leaf buds are important while leaves and stems are minor items.

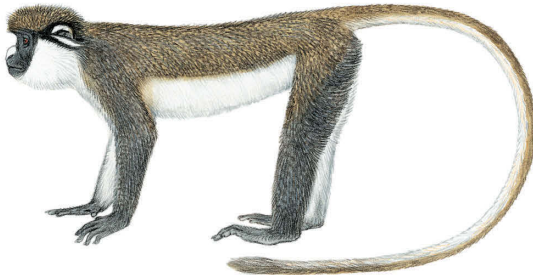


Red-tailed Monkey

White-throated Monkey



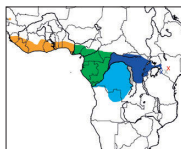
Lesser Spot-nosed Monkey facial details
(left, petaurista; right, buettikoferi)



Lesser Spot-nosed Monkey

LORISIDS *Loridae*

Pottos and angwantibos are woolly-coated, nocturnal, arboreal prosimians. They are slow-moving with very short tails.



- P. p. potto*
- P. p. edwardsi*
- P. p. faustus*
- P. p. ibeanus*
- P. p. stockleyi*
- P. p. ssp.*
undetermined

COMMON POTTO *Perodicticus potto*

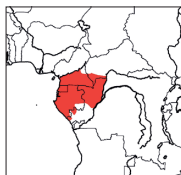
SIZE HB 30–40cm. T 5–10cm. W 0.8–1.6kg. **DESCRIPTION** Head round, with small, naked ears and protuberant golden-brown eyes. Hands have a rudimentary knob for an index finger. The spines of the neck vertebrae, enclosed in sleeves of skin, project from the surrounding tissue. Five subspecies (see map); some may be distinct species. **HABITAT** Lowland, swamp and lower montane forests; commonest in secondary and colonising forests and along margins. **FOOD** Gums are dominant during drier periods, and insects, snails and fruits during the rains. **BEHAVIOUR** Solitary. Females range over 3–9ha while males have a 9–40ha range overlapping that of one or more females.

MARTIN'S POTTO *Pseudopotto martini*

SIZE HB est 27–30cm. T est 8–12cm. W est 400–650g. **DESCRIPTION** Resembles a long-tailed Common Potto but smaller with less prominent muzzle and relatively long, tapered tail. **HABITAT** Uncertain. Possibly restricted to montane forests in the Cameroon highlands and, perhaps, to lower lying forests in the immediate vicinity. **FOOD** Its teeth imply a more insectivorous diet than the Common Potto. **BEHAVIOUR** Climbs vertically when disturbed, sometimes fleeing at quite a fast pace, in bursts of action.

**CALABAR ANGWANTIBO** *Arctocebus calabarensis*

SIZE HB 22.4–26.3cm. T (vestigial). W 230–465g. **DESCRIPTION** Almost tailless, very slender wrists, and tiny hands and feet. Rounded head has short, naked ears, large eyes and a pointed muzzle. Differs from golden species in colour, minor teeth, skull and anatomical structures. In both species the hands, in which the second finger is lost and the third is reduced to a stump, are unique. **HABITAT** Confined to areas of very dense, low undergrowth with abundant lianes and vines within primary, secondary and coastal rainforest. Particularly favours the leafy growth that occurs in clearings. **FOOD** Mainly caterpillars; also beetles and fruits. Also snails and small lizards. Caterpillars are found by smell in the course of carefully combing through liane tangles. **BEHAVIOUR** Solitary; young accompany their mothers for some months after weaning. When caught or attacked they growl.

**GOLDEN ANGWANTIBO** *Arctocebus aureus*

SIZE HB 22–26cm. T (vestigial). W 200–270g. **DESCRIPTION** Golden or russet-tinted upperside and creamy underside. Fine guard hairs on the back, shoulders and haunches have glistening, crinkled tips which give a 'frosted', form-dissolving appearance to the hunched body. **HABITAT** Confined to vine tangles and areas with abundant young (or slow-growing) leafy stems in moist evergreen, lowland rainforests. **FOOD** Caterpillars of all species, including hairy and distasteful species that are avoided by other insect-predators. Some of these caterpillars are colonial and many are abundant, especially on rank growth in clearings and on forest edges. **BEHAVIOUR** Defensive reaction is unique. The animal stands on widely spaced and fully extended limbs, the head tucked back on the chest. The hindquarters become the obvious focus for attack. If touched, however, the animal lunges at its attacker from between its legs with a quick, slashing bite.



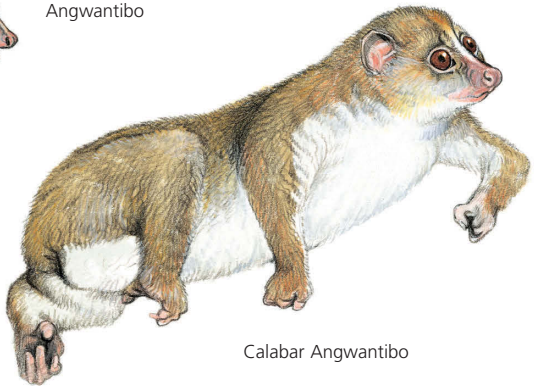
Common Potto



Martin's Potto



Golden Angwantibo



Calabar Angwantibo

NOTE: not to scale

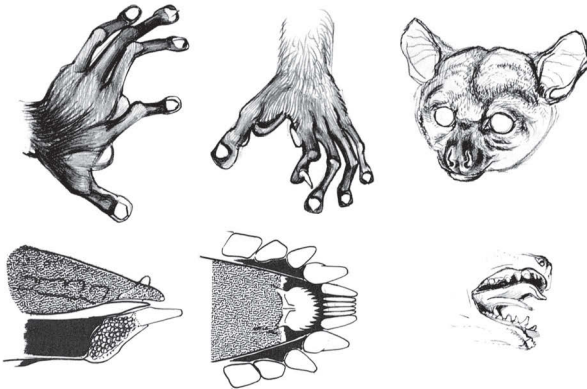
GALAGOS or BUSHBABIES Galagidae

Long-tailed, woolly, nocturnal primates with long hindlegs and elongated bases to the feet (tarsi). The head is rounded, with forward-facing eyes and large, naked ears which can retract into compact, folded structures. The moist nose is at the end of a pointed muzzle. The neck is very flexible. Lower incisors are modified to form comb-like structures, and a toothed pseudo-tongue, which serves as a specialised 'comb' cleaner, is situated between the tongue and the floor of the mouth. Hands and feet have five long digits with spatulate, padded tips. Genital glands are strongly scented in both sexes. The saliva, the lips and the chest are also scented in some species. Head-and-body lengths range from 10 to 45cm (W 60–2,000g). The baby-like cries of the largest (*Otolemur*) have given galagos their common name but each species has one or more loud calls. Many species are best identified by such vocalisations, which differ more than their relative sizes or colours.

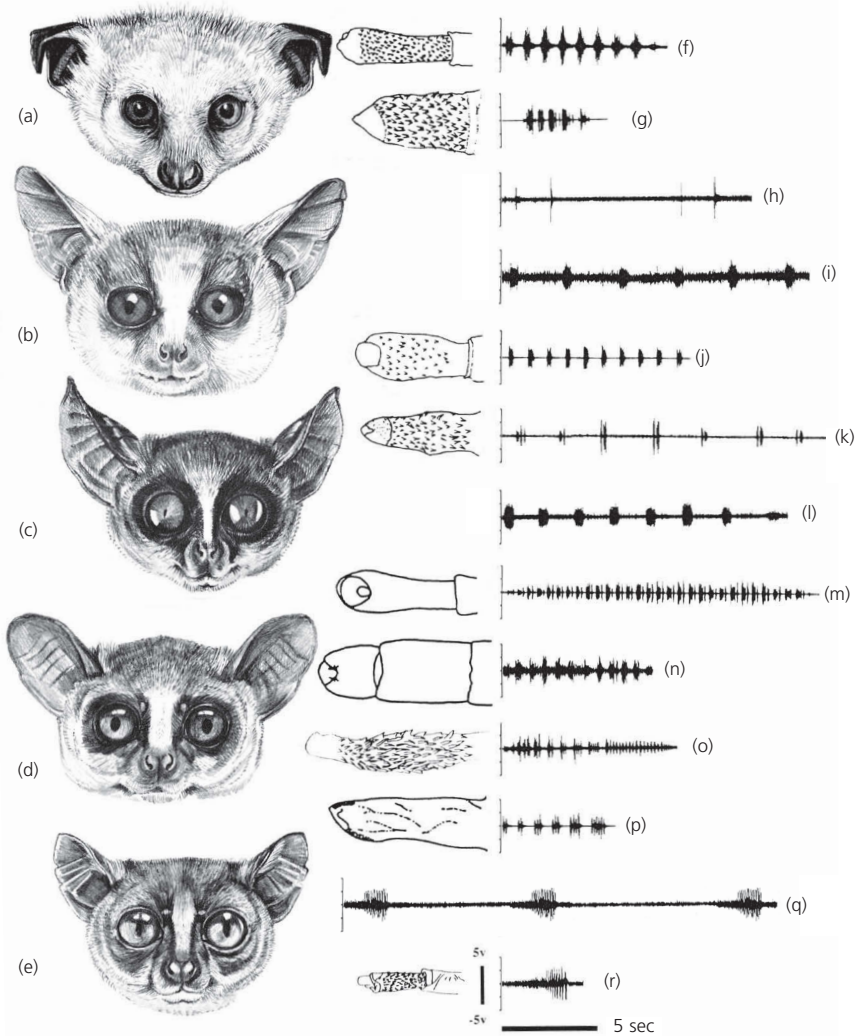
Galagos have been a distinctively African lineage for an unknown period of time but were already well differentiated by 20 mya. Recently a large team, initiated by Dr Simon Bearder, has examined galagos across six fields of research including: (a) molecular studies; (b) anatomical re-examination – notably penile structures; (c) behaviour – especially recorded vocalisations; (d) ecology – especially locomotory patterns and life-zones; (e) biogeography – notably new forms from newly surveyed areas, revised estimates of natural variation within populations and revised assessments of distribution limits; (f) taxonomic revision – notably redefinition of generic characteristics and correction of mistakes in allocation of names. These studies have revolutionised our understanding of the biology and evolution of this extremely difficult group.

Differentiation clearly began quite early on and has given rise to dwarf 'running' forms, small 'frog-jumping' forms, greater galagos, needle-clawed gum-gatherers and lesser galagos. All lines of evidence suggest that forest-dwelling *Galagoides* species are the most conservative and the open woodland-adapted *Galago* species, the most derived. The most recent, but still provisional, taxonomy lists five genera and 18 species.

Galagos are primarily an equatorial forest group that eventually extended into dry, seasonal woodlands in S and NE Africa. They seem to have evolved distinct structures and unique vocal (and probably olfactory) communication signals that inhibit interbreeding. A need for secure diurnal refuges and extreme vulnerability to predators (notably eagle-owls, carnivores and nest-raiding primates) helps to explain their confinement to woodlands and forests in sub-Saharan Africa. Some species have relict distributions, others have diverged by habitat and region. Multiple rainforest species co-exist by eating different foods, moving along different arboreal pathways by different locomotor patterns and embracing different life-zones. All species forage singly. Matriarchal groups are the stable units in galago society, with a family defending a territory within which more mature females have preferred home ranges.



Top row left and centre: Spectacled Galago hand and foot. Top row right: Small-eared Galago. Bottom row: three views of tongue denticle and procumbent incisors displaying how the denticle fits under the tongue.



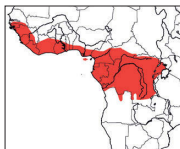
Faces, penile shapes and oscillograms of loud calls for some galagos.
(Courtesy of S. Bearder, L. Ambrose, M. J. Anderson and P. Honess.)

(a) Greater Galago. (b) Southern Galago. (c) Spectacled Galago.
(d) Zanzibar Galago. (e) Thomas's Galago.

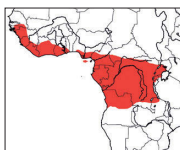
(f) Greater Galago. (g) Small-eared Galago. (h) Pallid Galago. (i) Allen's Galago.
(j) Senegal Galago. (k) Southern Galago. (l) Spectacled Galago. (m) Rondo Galago.
(n) Matundu Galago. (o) Zanzibar Galago. (p) Mozambique Galago.
(q) Thomas's Galago. (r) Demidoff's Galago.

DWARF GALAGOS *Galagoides*

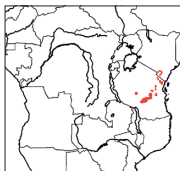
Diminutive galagos with greenish grey-brown coats, yellowish underparts and elongated, upturned noses. Primarily quadrupedal, they make short leaps rather than long hops.

**DEMIDOFF'S GALAGO** *Galagoides demidoff*

SIZE HB 12cm (7.3–15.5cm). T 18cm (11–21.5cm). Ear ave. 2.4cm. W 60g (44–97g). **DESCRIPTION** The smallest primate in Africa. Body colour is brown with paler yellowish underparts. Loud calls are very distinctive; a series of sharp chips that gather in speed and pitch to reach a crescendo in 2–4-second bouts. They also make an insect-like buzzing alarm call. At least five subspecies recognised. **HABITAT** Strong preference for dense growth on forest and road margins. **FOOD** Mainly beetles, moths, caterpillars and crickets. Fruits also eaten. **BEHAVIOUR** Overlapping home ranges of about 1ha. Often sleep in huddles.

**THOMAS'S GALAGO** *Galagoides thomasi*

SIZE HB 14cm (12.3–16.6cm). T 26cm (15–24cm). Ear ave. 2.7cm. W 100g (55–149g). **DESCRIPTION** Closely resembles Demidoff's Galago. Ashy brown with paler underparts. Call is a repetitive, shrill, rasping chink which increases in pitch and speed and lasts about 4 seconds. **HABITAT** High-canopy in primary forest in the regions shared with Demidoff's Galago. Where Demidoff's is absent Thomas's is also found in undergrowth and in secondary forests. **FOOD** Mainly insects, beetles, caterpillars, ants and termites, with some fruits and gum. **BEHAVIOUR** Thought to form localised populations with little contact with neighbouring groups.

**USAMBARA GALAGO** *Galagoides orinus*

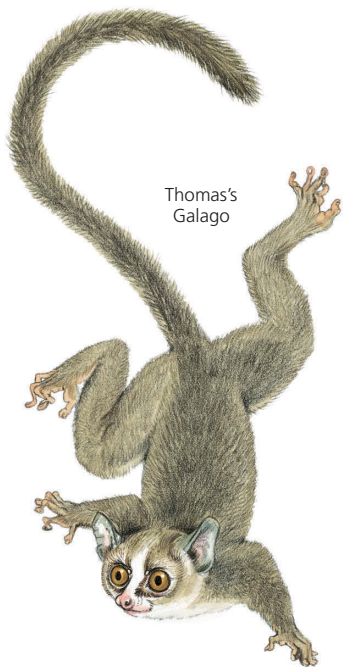
SIZE HB 12.5–13.8cm. T 16.9–19.9cm. Ear ave. 2.5–3.2cm. W 74–98g. **DESCRIPTION** Small, dark-brown galago with paler underside. A narrow white nasal stripe contrasts with dark brown and black surrounds to the eyes. Chin is yellowish white and inner ear linings are conspicuously yellow in younger individuals. Tail is very dark brown and bushy. Has a distinctive loud advertising call, a yapping alarm call and makes series of descending screeches. **HABITAT** The furthest limits of this species distribution await definition but it is possible that it occupies all montane areas between the Taita Hills in Kenya, along the Eastern Arc and southern highlands to highlands close to L. Malawi (L. Nyasa) (possibly on both sides of the lake). **FOOD** Gum (recorded from *Toddalia* vines), nectar (of wild banana), invertebrates and small vertebrates.

**MOZAMBIQUE GALAGO** *Galagoides granti*

SIZE HB 15.5cm (14–19cm). T 22cm (20–26.5cm). W 139–178g. **DESCRIPTION** Soft brown suffused with ochre on the shoulders, back and thighs. Yellowish brown extends down the tail, the terminal third of which becomes very dark. **HABITAT** Forest mosaics and coastal forests between the R. Zambezi and R. Rufiji. **FOOD** Insects and fruits.

**DIANI GALAGO** *Galagoides cocos*

SIZE HB 15.8cm (14.2–18.3cm). T 21.2cm (18.2–23cm). Ear ave. 2.3–4cm. W 117–172g. **DESCRIPTION** Brown body, limbs and tail with greyish-white underparts and inner limbs. Orbital mask prominent with short white inter-orbital stripe. Ears are inconspicuous and tend to be carried more horizontally than in *G. granti*. **HABITAT** Coastal forests of Kenya and extreme NE Tanzania.



Thomas's Galago



Mozambique Galago



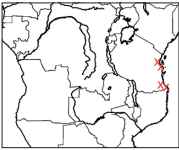
Demidoff's Galago



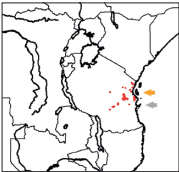
Usambara Galago



Diani Galago

**RONDO GALAGO** *Galagoides rondoensis*

SIZE HB 12cm. T 16cm. W 50g. **DESCRIPTION** Warm brown, with a long, dark reddish brown tail which becomes thicker towards its tip. **HABITAT** Known from remnant forest patches. **FOOD** Insects. **BEHAVIOUR** Main vocalisation is rather insect-like: a sustained vibrating call that rises in volume and is sustained for about 10 seconds.

**ZANZIBAR GALAGO** *Galagoides zanzibaricus*

Includes Matundu Galago '*G. udzungwensis*'.

SIZE HB 15.3cm (12–16.5cm). T 20cm (17–23cm). W 145g (104–203g). **DESCRIPTION** Dark brown with warm reddish tints on the crown, shoulders, back and thighs. Lower jaw is shallow and long. **HABITAT** Coastal lowland rainforests and thickets, riverine forests and secondary growth, including cultivation mosaics and gardens. **FOOD** Invertebrates, mainly insects (moths and beetles) and fruits. **BEHAVIOUR** Individual home ranges of about 2–5ha may be wholly or partially shared. Females are intolerant of other neighbouring females.

- *G. z. zanzibaricus*
- *G. z. udzungwensis*
- ssp.undetermined

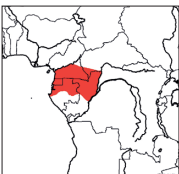
SQUIRREL GALAGOS *Sciurocheirus*

Squirrel galagos differ from most galagos by landing 'hands first' rather than 'feet first' or with all limbs simultaneously.

**ALLEN'S SQUIRREL GALAGO** *Sciurocheirus alleni*

SIZE HB 20cm (15–24cm). T 26cm (20–30cm). W 314g (200–445g). **DESCRIPTION** There are three or four regional forms of Allen's Galago, which differ in colour but are all medium-sized with narrow heads and rounded ears (3–4cm long). All have a boldly marked face mask around the eyes and pale nose stripes. The tail is long, bushy and of even thickness. All forms make a repetitive croaking loud call similar to that of the lesser galagos of the savannas but their whistles are very distinctive. **HABITAT** Found between R. Niger and R. Zaïre but may have a wider distribution; lives in the lowest levels of mature primary forest. **FOOD** Mainly fruits but insects also important.

- *S. a. alleni*
- *S. a. camerounensis*

**GABON SQUIRREL GALAGO** *Sciurocheirus gabonensis*

SIZE HB 20cm (18.5–20.5cm). T 25.5cm (23–28cm). W 260g (188–340g). **DESCRIPTION** Brown back with orange or red tinted thighs, flanks and outer arms. Off-white to grey underparts, sometimes with red streak. Greyish crown, dark-brown to slate-grey tail. Emits a deep croak and short, rapid whistles. **HABITAT** Lowland and piedmont forests between R. Sanaga and R. Ogooué. Eastern limits likely Congo R. and R. Ubangui. **FOOD** Fruit (73%) and small animal prey (25%).

**MAKANDÉ SQUIRREL GALAGO** *Sciurocheirus makandensis*

SIZE Not yet measured. HB (est.) 22cm. T (est.) 26cm. W (est.) 400g. **DESCRIPTION** Darker but similar to *S. gabonensis*. Very dark slate-grey back and tail. Black eye-masks. Outer limbs mahogany and underparts dull pinkish or orangey. Distinctive call starts with a loud, two-part whistle followed by up to four whistles in declining pulses. **HABITAT** Only recorded from Forêt des Abeilles. Probably ranges intermittently between the R. Ogooué and Congo R. **FOOD** Fruit and invertebrates.



Rondo Galago



Zanzibar Galago



Allen's Squirrel Galago



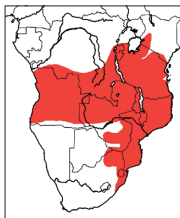
Gabon Squirrel Galago



Makandé Squirrel Galago

GREATER GALAGOS *Otolemur*

The largest and among the most primitive of living galagos. Generally move on all fours and resort to springing leaps only when alarmed or in order to get from one tree to another. Live at very variable densities strung out along river courses in the drier, more open savannas but continuously in coastal thickets and forests.

GREATER GALAGO *Otolemur crassicaudatus*

SIZE HB 32cm (26–46.5cm). T 41cm (29–55cm). W 1,100g (567–2,000g).

DESCRIPTION Large, brown or grey galago with exceptionally long ears (5–7.2cm), broad muzzle, large canines and relatively small eyes. Dense covering of long guard hairs on lower back. Walks and runs in preference to leaping. Subspecies: **Silver Galago**, *O. c. argentatus* (NE Tanzania and Kenya in riverine and other woodlands and lower montane forest to S and E of Kavirondo Gulf) is a large, silvery grey (sometimes black) galago with a very pale tail (sometimes black). A dwarfed form of *O. crassicaudatus* ('Mwera Galago') from Mwera, SE Tanzania, distinguished by its small size and by a pale brown, slender tail. Face is long and broad muzzled. **HABITAT** Dense vegetation in miombo (*Brachystegia*), coastal and montane areas. This is the common greater bushbaby of S and E Africa. **FOOD** *Acacia* gums, flowers and seeds; figs, ebony and other fruits; snails, slugs, insects, reptiles and birds.

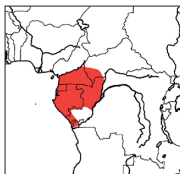
SMALL-EARED GALAGO *Otolemur garnettii*

SIZE HB 26cm (23–34cm). T 36cm (30–44cm). W 760g (550–1200g).

DESCRIPTION Relatively short ears, a pointed muzzle and relatively large eyes. The fingernails are unique in growing sharp, thickened points at their outer margins, which come into play when the galago climbs over large trunks. They are more active leapers. **HABITAT** Coastal and montane forests (often dry, low-canopy and florally impoverished) but also riverine galleries with numerous *Acacia*; also various cultivation mosaics and urban suburbs. **FOOD** Gums, flowers and seeds of *Acacia*; fruits and invertebrates.

NEEDLE-CLAWED GALAGOS *Euticus*

The sharp nails from which these galagos get their name, and the exceptionally broad span of their hands and feet, enable them to get a firm grip on tree trunks while feeding.

ELEGANT GALAGO *Euticus elegantulus*

SIZE HB 21cm (18–33cm). T 29cm (28–31cm). W 300g (270–360g).

DESCRIPTION Sometimes quite brightly coloured, very agile, long-limbed galago with white underparts sharply divided from the foxy-red back by an undulating border. Limbs are tawny, and the face and tail are ashy grey or brown. Eyes are pale and very prominent, and the voice is rather bird-like. **HABITAT** Between the R. Sanaga and R. Zaire in both primary and secondary forests, but more common in the latter. **FOOD** Gum of rain trees (*Albizia*) and other Mimosaceae, insects and some fruits.

PALLID GALAGO *Euticus pallidus*

SIZE HB 19 (17–20cm). T 28–33cm. W 200–260g.

DESCRIPTION Agile, dull-coloured galago with yellowish-grey underparts, grey shoulders, arms and tail, with a brown dorsal stripe. Calls are high in pitch. **HABITAT** Patchily distributed between the R. Cross and R. Sanaga, mainly in secondary forests; also on Bioko I. (formerly Fernando Po). **FOOD** Both needle-clawed species are thought to share a similar dependence on gums and insects.



Greater Galago



Silver Galago
Otolemur crassicaudatus
argentatus



Mwera Galago



Silver Galago



Small-eared
Galago



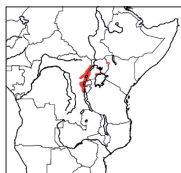
Elegant
Galago



Pallid Galago

LESSER GALAGOS *Galago*

Medium-sized, mostly savanna galagos with a grey or brownish back and a round head with large eyes and a short muzzle. All utter short phrases or single cries that have a regular timing repeated many times. They are agile bounders, landing feet first.

**SPECTACLED GALAGO** *Galago matschei* (syn. *G. inustus*)

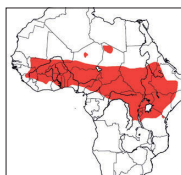
SIZE HB 16cm (14.7–20cm). T 25cm (19–27.9cm). W 210g (170–250g). **DESCRIPTION** Dark brown with very large amber eyes surrounded by almost black eye-mask patches. Well-defined ridge borders the eyes, especially at the brows. Lower incisors are sharply protuberant. Nails of hands and feet are keeled and sharply pointed. **HABITAT** Primary and secondary lowland forest and lower montane forests where *Parinari excelsa* is a dominant tree. **FOOD**

Insects, fruits and gums with seasonal changes in preference. Fruits may be a prime choice when available. Caterpillars and beetles are taken during rainy seasons while gums appear to be a dry-season food. **BEHAVIOUR** Loud calls are repetitive barks, 'grunt-yaps' and a long, yapping screech.

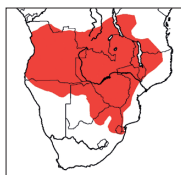
**SOMALI GALAGO** *Galago gallarum*

SIZE HB 17cm (13–20cm). T 25cm (20.5–30cm). W 250g. **DESCRIPTION** Sandy-coloured with a broad, round head, medium-sized ears (3–4cm), and large eyes only partially surrounded by narrow brown eye mask. **HABITAT** *Acacia*, *Commiphora* and *Combretum* deciduous bushlands and thickets; known from between the valleys of the R. Webe Shebelle and R. Tana. **FOOD** Presumed to be mainly gum and invertebrates. **BEHAVIOUR** Scattered bush

may require this galago to spend more time on the ground. Has been observed feeding and moving over the ground with long, high bounds.

**SENEGAL GALAGO** *Galago senegalensis*

SIZE HB 16.5cm (13.2–21cm). T 26cm (19.5–30cm). W 206g (112–300g). **DESCRIPTION** Long-limbed with a long, short-haired tail. Back is grey or brown-grey and underparts are yellowish (particularly where the two colours meet). Ears 2.5–5.5cm long. At least 3 races. **HABITAT** Woodlands dominated by *Acacia*, *Isobertinia* and *Julbernardia* between Senegal and E Africa; montane forest margins elsewhere. Densely grassed areas are avoided. **FOOD** Gums, invertebrates and fruits (seasonally). **BEHAVIOUR** The loud advertising call consists of a single, low-pitched note uttered persistently at a regular tempo. Insects are caught with great dexterity on the ground, in flight and on vegetation.

**SOUTHERN GALAGO** *Galago moholi*

SIZE HB 15cm (8.8–20.5cm). T 23cm (11–28cm). W 160g (95–245g). **DESCRIPTION** Relatively large ears (2–5cm) and large orange eyes. Eye mask and tail are dark brownish grey. Legs, feet, forearms and hands have a strong yellowish suffusion. (The eye-shine is red.) The loud advertising call differs from that of the Senegal Galago in being single-, double- and triple-unit cries of high pitch, mixed into series and repeated over long periods.

HABITAT Miombo belt from Angola to W Tanzania, Zimbabwe and the Transvaal. Within this zone inhabits Miombo (*Brachystegia*), *Combretum*, *Acacia* and Mopane (*Colophospermum*) woodlands, riverine galleries and forest margins. **FOOD** *Acacia* and other gums, invertebrates. Fruits are only occasionally taken.



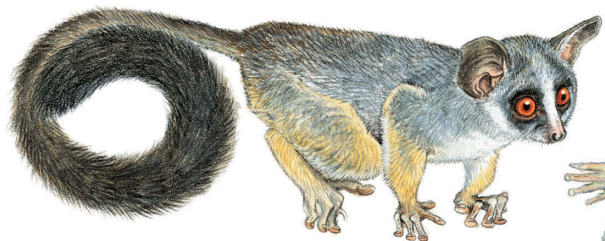
Spectacled Galago



Somali Galago



Senegal Galago



Southern Galago

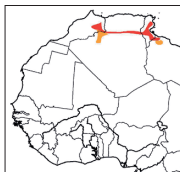
RODENTS Rodentia

Of all the mammalian orders, rodents contain the largest number of species. The most obvious common feature of rodents is their prominent gnawing teeth, two incisors in each jaw with a long space, or diastema, before the cheek-teeth. The body build of most rodents is that of conventional quadrupeds, but evolution of burrowing, bounding, climbing and gliding has given rise to more specialised body forms in a number of groups.

While many rodents have acute sight (especially squirrels) and some are extremely sensitive to sound, all rely heavily on scent (especially in the regulation of their social behaviour). Some rodents are well-known pests and a few can present a threat to human health (notably rats). Periodic population explosions among some species are a particular hazard for rural farmers. Rodents play important structural roles in ecosystems, for example, by pruning or eliminating vegetation types, spreading seeds, creating holes, competing with other animals and facilitating the spread of diseases.

GUNDIS Ctenodactylidae

Rock-dwelling herbivores that resemble guinea pigs. Diurnal, social animals, with whistling calls.



- *C. gundi*
- *C. vali*

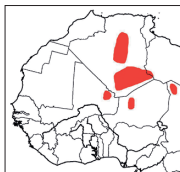
GUNDIS *Ctenodactylus* (2 species)

SIZE HB 15–21cm. T 3–5cm. W 175–180g. **DESCRIPTION** Reddish gundis with a minuscule tail and oval, white-fringed ear. A horny comb is present on the claw of the inner hindtoe. Diurnal, social animals, their whistling or chirping calls can be heard in the early morning. Species: *C. gundi* (near N African coast): chirps. *C. vali* (Sahara desert outcrops): whistles. **HABITAT** Rock outcrops with abundant crevices in which they shelter. **FOOD** Grass, leaves, stalks and flowers, generally grazed or browsed no more than 100m from rocks during morning and evening.



SENEGAL GUNDI *Felovia vae*

SIZE HB 15–21cm. T 3–5cm. W 200–210g. **DESCRIPTION** Long-haired, dark walnut-brown gundi with a paler reddish underside and short but bushy tail. There is an inconspicuous white tuft behind the ears. Incisors are weakly grooved, skull flat and broad. A loud harsh screech of alarm is repeated very persistently. **HABITAT** Rock outcrops in dry or semi-arid regions of Mauritania, Mali and Senegal. **FOOD** Various grasses, trees and herbs.



FRINGE-EARED GUNDI *Massouteria mzabi*

SIZE HB 17–24cm. T 3–4cm. W est. 200–220g. **DESCRIPTION** Pale tawny gundi with massively enlarged inner ear bullae opening into a fixed immovable outer ear with complex hair border fringes. Tail is frisked conspicuously. Quieter than other gundis, it only makes occasional chirps. **HABITAT** Very low-density species living among rocks in very arid areas. **FOOD** Grasses, *Acacia* and other desert plants.



PECTINATOR *Pectinator spekei*

SIZE HB 16–18cm. T 4–5cm. W est. 160–160g. **DESCRIPTION** Tawny gundi with prominent, frequently flicked tail. Muzzle longer and more pointed than in other gundis and ears are of a more conventional form. More crepuscular than other gundis, and lives in large, very vocal colonies that emit a variety of chirps and whistles. **HABITAT** Rocky outcrops. Home ranges may be extensive (3km²). **FOOD** Variety of grasses, *Acacia* and other desert plants.



Common Gundi
Ctenodactylus gundi



Senegal Gundi



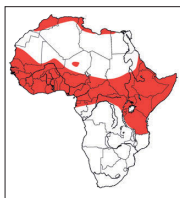
Fringe-eared Gundi



Pectinator

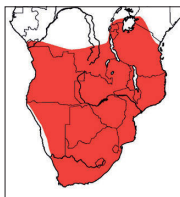
PORCUPINES *Hystriidae*

Large nocturnal rodents that rely on their spines to deter predators.



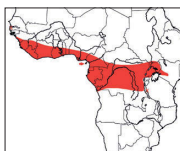
CRESTED PORCUPINE *Hystrix cristata*

SIZE HB 60–100cm. T 8–17cm. W 12–27kg. **DESCRIPTION** Very large, black-bodied rodent with long black and white spines and prominent crest. Black rump. Short rattle quills. **HABITAT** Savannas, woodlands, steppes and uplands. Sometimes found along forest margins or galleries. Prefers hilly or rocky country. **FOOD** Roots, bulbs, bark and fallen fruits. Root crops, maize and cucumbers. **BEHAVIOUR** Family groups often share a burrow or cave but foraging is solitary and animals can travel more than 15km in a night.



SOUTH AFRICAN PORCUPINE *Hystrix africaeaustralis*

SIZE HB 75–100cm. T 10–17cm. W 10–24kg. **DESCRIPTION** Very large rodent with a sweeping, erectile neck crest. White rump. Long rattle quills. **HABITAT** Found mainly south of the equator in most habitats from sea-level up to about 3,000m. **FOOD** Mainly roots, bulbs, tubers and bark, with occasional scavenging from carcasses or old skeletons. **BEHAVIOUR** Usually grunts while foraging.

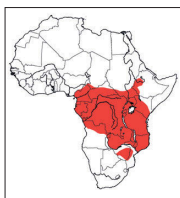


BRUSH-TAILED PORCUPINE *Atherurus africanus*

SIZE HB 36–60cm. T 15–23cm. W 1.5–4kg. **DESCRIPTION** Long-bodied, low-slung brown rodent with very bristly fur on the limbs and face, progressing to very sharp, thick quills on the back and shorter ones on the rump and tail. **HABITAT** Rainforests with a preference for valley bottoms. **FOOD** Fallen fruits, roots, tubers and stems. Oil-palm, crabwood and ginger fruit. **BEHAVIOUR** Groups of up to 20 animals (usually 6–8) inhabit an area of 2–5ha.

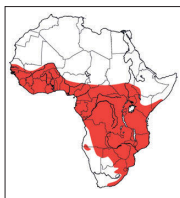
CANE RATS *Thryonomyidae*

Medium-sized to large, robust rodents with grizzled brown coats, prominent chisel-like orange incisors, short tails and short, strong legs with sharp digging claws. Exclusively African.



SAVANNA CANE RAT *Thryonomys gregorianus*

SIZE HB 35–51cm. T 6.5–14cm. W 2.6–7.5kg. **DESCRIPTION** Has a bulbous nose, short tail and deeply grooved incisors. **HABITAT** Mainly areas of reliable rainfall and rank grass growth in tropical Africa east of Nigeria. It is especially common in elephant grass (*Pennisetum purpureum*). **FOOD** Stems of elephant grass; also *Setaria*, *Hyparrhenia*, *Exothea* and *Melinis*. The ginger (*Aframomum*) is eaten in wet, well-wooded areas. Fruits, bark and roots are also eaten. **BEHAVIOUR** Mainly nocturnal. Uses habitual paths between feeding areas and shelter.



MARSH CANE RAT *Thryonomys swinderianus*

SIZE HB 43–58cm. T 17–26cm. W 4.5–8.8kg. **DESCRIPTION** Distinguished by its slightly larger size, longer tail, less protuberant nose and restricted fine grooving of the incisors. **HABITAT** Beds of *Setaria*, *Echinochloa*, *Sorghastrum* and *Hyparrhenia* in seasonally waterlogged valley bottoms throughout moister parts of Africa. **FOOD** Dominant grasses within its habitat. **BEHAVIOUR** Has a highly characteristic whistle. Mainly nocturnal.

Rattle quill
and rear view of
Crested Porcupine



Crested Porcupine



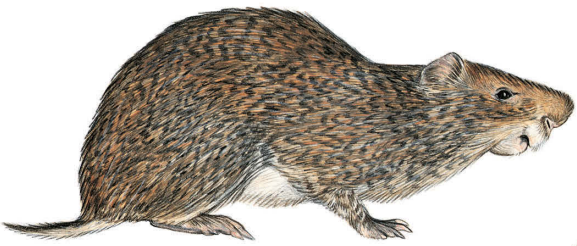
Rattle quill
and rear view of
South African
Porcupine



Brush-tailed
Porcupine



Savanna Cane Rat

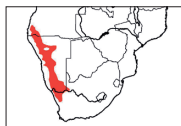


Marsh
Cane Rat



NOKI (DASSIE RAT) *Petromuridae*

The only living representative of this family. Closest relatives are cane rats.

**NOKI (DASSIE RAT)** *Petromus typicus*



SIZE HB 13.5–21cm. T 11.5–17cm. W 170–262g. **DESCRIPTION** Squat, coarse-furred rodent with flattened head. Grey or ochre through shades of brown to nearly black. **HABITAT** Rocky outcrops. **FOOD** Leaves, stems and heads of grasses. **BEHAVIOUR** Sun-bathes, shy and flees for shelter at any disturbance.

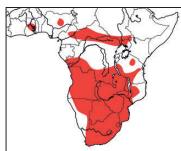
BLESMOLS *Bathyergidae*

Compact, subterranean rodents. The mouth closes behind the sharp white incisors.

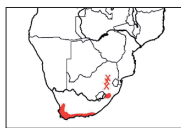
**DUNE BLESMOLS (DUNE MOLE-RATS)** *Bathyergus* (2 species)

SIZE HB 17–33cm. T 3–7cm. W 500–750g. **DESCRIPTION** Large blesmols with very long, pointed claws and grooved incisors. Species: **Cape Dune Blesmol** *B. suillus*, large, cinnamon; **Namaqua Dune Blesmol** *B. janetta*, slate grey. **HABITAT** Restricted to sandy habitats in extreme south-west of Africa. **FOOD** Roots, bulbs and grass stolons.

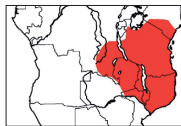
 *B. janetta*
 *B. suillus*

**COMMON BLESMOLS** *Cryptomys* (7 species)

SIZE HB 13–21.5cm. T 1–2.5cm. W 100–300g. **DESCRIPTION** Velvety-furred with broad palms and relatively small nails. **HABITAT** Drier soils outside main forest blocks. **FOOD** Roots, bulbs, grass and leaves. **BEHAVIOUR** Food-gathering is seasonal; burrows are extended in the rains and collected roots brought back to stores. Colonies vary in size and some species are solitary.

**CAPE BLESMOL** *Georychus capensis*

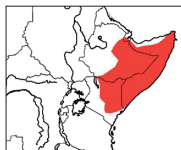
SIZE HB 14–20.5cm. T 2–4cm. W 124–360g. **DESCRIPTION** Cinnamon and orange back, black head and pale to white underparts. **HABITAT** Cape littoral and scattered upland areas, coastal sand dunes, and valleys with sandy soils. **FOOD** Stores roots and bulbs harvested from very shallow burrows.

**SILKY BLESMOL (SILVERY MOLE-RAT)** *Heliophobius argenteocinereus*

SIZE HB 10–20cm. T 1.5–4cm. W 142–168g. **DESCRIPTION** Coat is long, grey, sandy or reddish and paler below. **HABITAT** Well-drained, sandy soils on rocky hillsides, open plains or in woodlands. **FOOD** Roots and tubers, including lablab (*Dolichos*) and pulses (*Vigna*).

SAND-PUPPY *Heterocephalidae*

Closely related to the blesmols and is eusocial, a feature it shares with at least one blesmol.

**SAND-PUPPY (NAKED MOLE-RAT)** *Heterocephalus glaber*

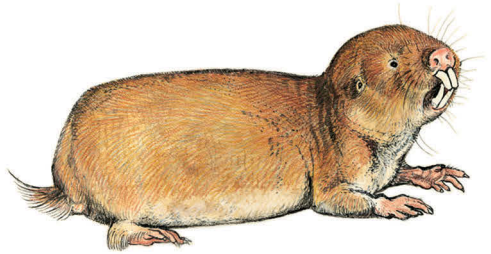
SIZE HB 8–10cm. T 2–5cm. W 30–80g. **DESCRIPTION** Hairless, like a newborn, even foetal, animal. Transparent skin goes pale or bright red depending on body heat and circulation. **HABITAT** Plains, thickets, dry savannas and open woodlands. **FOOD** The roots of dominant trees and the bulbs and tubers of other common plants. **BEHAVIOUR** The prime example of a highly social mammal.



Noki



Cape Dune Blesmol
Bathergus suillus

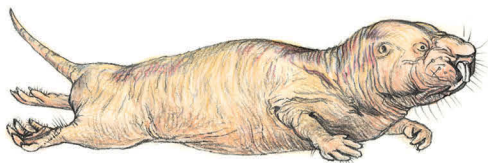


Common Blesmol
Cryptomys hottentotus



Cape Blesmol

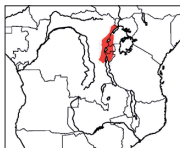
Silky Blesmol



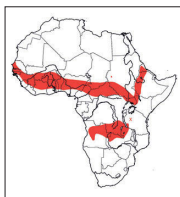
Sand-puppy

SQUIRRELS *Sciuridae*

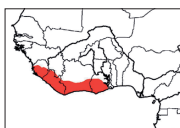
An exclusively African group of diurnal squirrels that are entirely tropical, although some species inhabit equatorial highlands.

**RWENZORI SUN SQUIRREL** *Heliosciurus ruwenzori*

SIZE HB 20–26cm. T 22–28cm. W 205–377g. **DESCRIPTION** Thickly and densely furred squirrel with a grizzled grey upperside contrasting strongly with white underside. Tail is boldly barred in grey and white. Tends to carry the tail in line with the body. **HABITAT** Montane forests between 1,600 and 2,700m in E Zaïre and W Uganda, Rwanda and Burundi. Has adapted to secondary growth and cultivation mosaics. **FOOD** Fruits of dominant trees. Insects and lichen have also been recorded.

**GAMBIAN SUN SQUIRREL** *Heliosciurus gambianus*

SIZE HB 17–27cm. T 18–26cm. W 250–350g. **DESCRIPTION** Variably coloured squirrel with a grizzled back and head and lighter underparts. Tail is boldly barred (about 14 rings) and there is a pale surround to the eyes. **HABITAT** Woodlands, savannas and montane habitats from Senegal to Ethiopia, Angola to Tanganyika, enclaves in forest areas. Descends to ground to visit isolated trees but prefers branch travel. **FOOD** Fruits, seeds and the pods of *Acacia*; animal foods are also taken.

**PUNCTATE SUN SQUIRREL** *Heliosciurus punctatus*

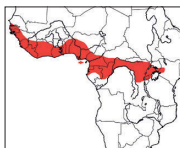
SIZE HB 22.3–29.4cm. T 11.2–23cm. W 109–256g. **DESCRIPTION** A dark, grizzled forest squirrel with a slender, ringed tail. **HABITAT** Secondary and primary rainforest in Upper Guinea. **FOOD** Seeds and fruits.

**ZANJ SUN SQUIRREL** *Heliosciurus undulatus*

SIZE HB 20–25cm. T 21–28cm. W est. 250–380g. **DESCRIPTION** Back is tawny grizzled and underparts are cream. Tail is barred in brown and cream. **HABITAT** Lowland and montane forests and thickets, and secondary growth, east of the Gregory Rift from Mt Kenya to R. Rufiji, and on Zanzibar and Mafia Is. **FOOD** Fruits and seeds, palm dates, leaves and buds. Insects are of seasonal importance.

**MUTABLE SUN SQUIRREL** *Heliosciurus mutabilis*

SIZE HB 20–28cm. T 17–20cm. W 200–380g. **DESCRIPTION** Upperparts are grizzled brown or orange, with tones from pale to nearly black. Underparts also vary from white to fawn or grey. Tail has a narrow, indistinct barring in similar tints to the body. **HABITAT** Lowland to montane forests and thickets, including riverine strips and cultivation mosaics. **FOOD** Various plant foods; occasionally insects and small vertebrates.

**RED-LEGGED SUN SQUIRREL** *Heliosciurus rufobrachium*

SIZE HB 20–27cm. T 18–30cm. W 250–400g. **DESCRIPTION** Upperparts are grizzled, graduating to warm reddish tints on the outer surfaces of the limbs. Underside is paler cream-coloured (often with sparse fur). Tail is barred with black and white (about 18 bands of each). Loud calls and a flicking tail are particularly noticeable. **HABITAT** Very common at low and medium altitudes from Senegal eastwards across the R. Zaïre basin to Uganda to the Gregory Rift. **FOOD** Fruits, palm dates, leaves, buds; occasionally animal material.

Rwenzori
Sun Squirrel

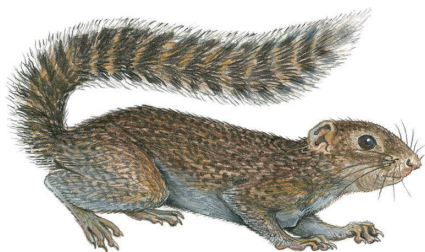


Gambian
Sun Squirrel

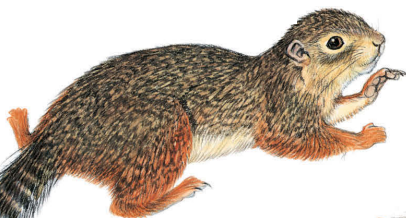


Zanj Sun
Squirrel

Punctate
Sun Squirrel

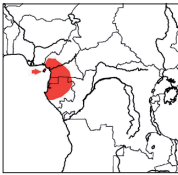


Red-legged
Sun Squirrel

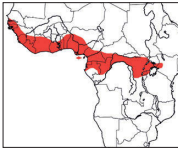


Mutable
Sun Squirrel



**AFRICAN PYGMY SQUIRREL** *Myosciurus pumilio*

SIZE HB 7–7.8cm. T 5.2–5.8cm. W 15–18g. **DESCRIPTION** Extremely small mahogany-coloured squirrel with pale underparts, cream-coloured fur around eyes and mouth, and white ears. The tail has a reddish base and a darker terminal bush. **HABITAT** Only found in the wettest area of the Bight of Biafra from the Cross R. to S Gabon. It lives on the trunks and larger branches of tall trees in primary forest and prefers tree communities that are dominated by caesalpinoid species. **FOOD** Mainly invertebrates (often collected from resin sites). Buds and young leaves and fruits are also taken. **BEHAVIOUR** Shy, tending to hide at any disturbance. It can move very fast.

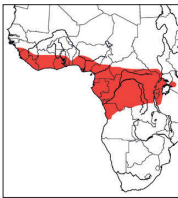
**WESTERN PALM SQUIRREL** *Epixerus ebii*

SIZE HB 26–29cm. T 27–31cm. W est. 450–700g. **DESCRIPTION** Large squirrel with a grizzled grey back and a warm orange to red underside. The very conspicuous black-fringed tail has black and white bars across the upperside and fine longitudinal stripes, fading into an orange brush, on the underside. The muzzle is more protuberant than in giant squirrels. **HABITAT** Palm forests and mature rainforest in mainly coastal areas from Sierra Leone to Ghana. **FOOD** Fruits and nuts are collected on the tree or from the ground.

- *E. ebii*
- *E. wilsoni*

BIAFRAN BIGHT PALM SQUIRREL *Epixerus wilsoni*

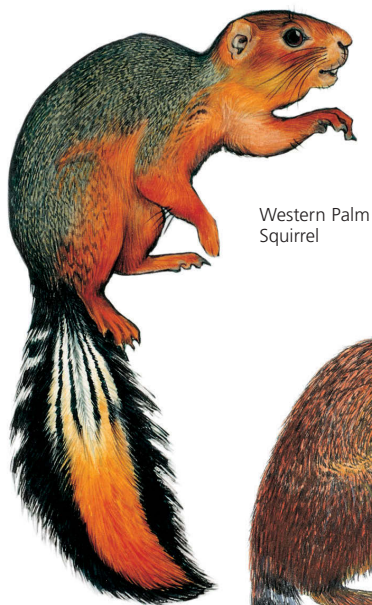
SIZE HB est. 26–29cm. T 27–31cm. W 500–620g. **DESCRIPTION** Large squirrel with a grizzled grey back. The face and underparts are cream, with warmer tints on the wrists and rump. The tail has a predominantly white upperside, with bold black bars or chevrons and a warm-coloured stem on the underside. The head is broad and flat, with a long robust muzzle. (It is distinguishable from the western species mainly by cranial differences.) **HABITAT** Lowland rainforests near the coast from S Cameroon to R. Zaïre. Areas with abundant palms are preferred. **FOOD** Fruits and nuts (98% in Gabon); occasionally animal foods.

**AFRICAN GIANT SQUIRREL** *Protoxerus stangeri*

SIZE HB 22–40cm. T 24–36cm. W 540–1,000g. **DESCRIPTION** Large grizzled squirrel with a disproportionately large, rounded head, which is predominantly grey. The back and limbs are of warm tints, very variable in colour and intensity. The yellowish underside is often semi-naked. Nose, ears and eyelids also tend to be naked. Tail has about 18 bars. **HABITAT** Equatorial rainforest and tall swamp forest at altitudes up to 2,000m. **FOOD** Mainly fruits, seeds and nut kernels of numerous rainforest trees (87.6% in Gabon, with 8.5% leaves, 3.5% mushrooms and traces of animal matter). **BEHAVIOUR** Distinctive breathy croak.

**SLENDER-TAILED SQUIRREL** *Allosciurus aubinnii*

SIZE HB 23–27cm. T 27–33cm. W est. 300–400g. **DESCRIPTION** A largish, very dark squirrel with a long, slender, tapered tail with very fine black and olive annulations. The short, dense coat is very fine and silky and covers upper- and underparts equally. **HABITAT** Moist high forests from Liberia to Ghana, with a marked preference for palms. **FOOD** Fruits, particularly palm dates. Unlike the Giant Squirrel, which prefers to eat only the kernels, this species has been recorded feeding on the husks.



Western Palm Squirrel

African Pygmy Squirrel



African Giant Squirrel

NOTE: not to scale



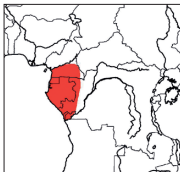
Biafran Bight Palm Squirrel

Slender-tailed Squirrel

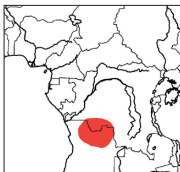


ROPE SQUIRRELS *Funisciurus*

Small, thin, soft-furred squirrels with a fluffy, rather flimsy tail. In spite of loud calls, rope squirrels are difficult to see and their main defence is to freeze or move behind the nearest tree. Rope squirrels subdivide into three sub-groups. The most terrestrial and insectivorous are the Ribbioned and Lunda Rope Squirrels. The Fire-footed, Red-cheeked and Thomas's Rope Squirrels are less insectivorous but also spend time on the forest floor. The third group, Lady Burton's, Kintampo and Congo Rope Squirrels are more arboreal and feed mainly on fruit and leaves. All rope squirrels make large nests of well-shredded plant material hidden in natural crevices.

**RIBBONED ROPE SQUIRREL** *Funisciurus lemniscatus*

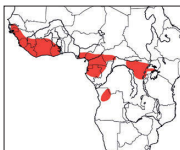
SIZE HB 15–18cm. T 13–19cm. W 100–150g. **DESCRIPTION** Olive-coloured with two dark and two pale stripes. **HABITAT** Ranges from R. Sanaga to R. Zaïre and R. Aruwimi. **FOOD** About 40% animal matter and 60% fruits and seeds. **BEHAVIOUR** Almost all food is collected on the ground.

**LUNDA ROPE SQUIRREL** *Funisciurus bayonii*

SIZE HB 16–19.5cm. T 13–17cm. W 110–160g. **DESCRIPTION** Back is greyish olive-green, with a fine black grizzle. **HABITAT** Mosaic of rainforest and moist woodlands in NE Angola and SW Zaïre. **FOOD** Not known.

**THOMAS'S ROPE SQUIRREL** *Funisciurus anerythrus*

SIZE HB 16–23cm. T 13–20cm. W 200–220g. **DESCRIPTION** Back is brownish olive, with variable pale flank stripes. **HABITAT** Margins of the R. Zaïre, R. Ogooué and other rivers. **FOOD** In Gabon, about 80% fruits and 20% animal matter. **BEHAVIOUR** Lives in the lower strata of dense secondary growth along the margins of rivers and swamps, spending much of its time on the ground.

**FIRE-FOOTED ROPE SQUIRREL** *Funisciurus pyrropus*

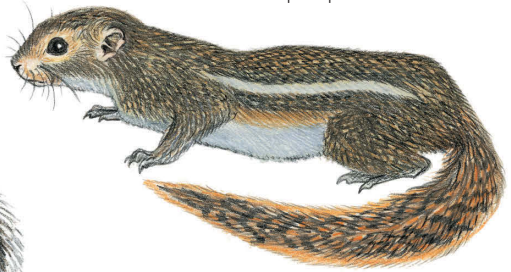
SIZE HB 13.5–26.6cm. T 10–20cm. W 160–300g. **DESCRIPTION** Velvety-furred with rich rufous limbs and face. **HABITAT** Undergrowth and especially palm groves under a closed canopy. **FOOD** In Gabon, about 75% fruits and about 18% animal matter. **BEHAVIOUR** Forages mostly on the ground. Often heard before it is seen: utters a series of strident, bird-like chirps or a loud 3-syllable call.

**RED-CHEEKED ROPE SQUIRREL** *Funisciurus leucogenys*

SIZE HB 17–21.5cm. T 13–20cm. W 200–300g. **DESCRIPTION** Olive-brown back is punctuated by a line of pale or orange spots. The face is usually orange-red. **HABITAT** Lowland and montane forests. Restricted to forest floor and low levels in old mature rainforest. **FOOD** Not known in detail. Mainly fallen fruits.



Ribboned Rope Squirrel



Lunda Rope Squirrel



Thomas's Rope Squirrel

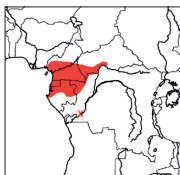


Fire-footed
Rope Squirrel

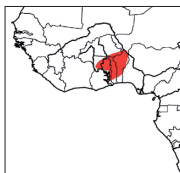


Red-cheeked
Rope Squirrel

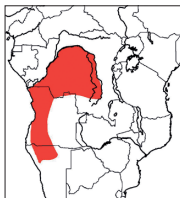
NOTE: not to scale


LADY BURTON'S ROPE SQUIRREL *Funisciurus isabella*

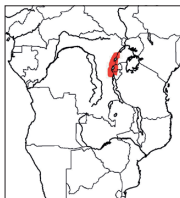
SIZE HB 15–18cm. T 13–18cm. W 100–115g. **DESCRIPTION** Dark with pale stripes delimiting four bold black stripes running from head to tail. **HABITAT** Occurs patchily between R. Zaïre and R. Cross in Gabon, lower Cameroon and in montane forest in the Highlands. **FOOD** In Gabon, fruits (80%) and leaves (about 10%). Also small quantities of animal matter and mushrooms. **BEHAVIOUR** Woven nests are sealed when occupied by the young.


KINTAMPO ROPE SQUIRREL *Funisciurus substriatus*

SIZE HB 15–18cm. T 14–20cm. W est. 100–150g. **DESCRIPTION** Olive-coloured with short, poorly defined light and dark stripes on the flanks. May be a rare or vulnerable species. **HABITAT** Woodlands and forest edges in the 'Dahomey Gap' area between Nigeria and Ghana. **FOOD** Not recorded.


CONGO ROPE SQUIRREL *Funisciurus congicus*

SIZE HB 14.5–15.6cm. T 16–17cm. W 108–113g. **DESCRIPTION** Back grizzled brown, with a long white side-stripe and a narrower dark line below it. **HABITAT** Ranges over a large part of Zaïre basin and W Angola. **FOOD** Spends about half of its time on the ground, foraging for fallen seeds and fruit. **BEHAVIOUR** Very vocal, often seen in groups numbering up to 4.


CARRUTHERS'S MOUNTAIN SQUIRREL *Funisciurus carruthersi*

SIZE HB 20–26cm. T 18–20cm. W 200–336g. **DESCRIPTION** Olive-green with cloud-grey underside and a black and yellow barred tail with a black tip. **HABITAT** Between 1,500 and 2,800m in the mountain chains of E Zaïre and W Uganda, especially in stands of African wild plums (*Prunus africanum*). **FOOD** Various fruits and seeds (e.g. *Bridelia* and *Strombosia*); occasionally insects. **BEHAVIOUR** Large, globular nests, lined with finely shredded bark, are constructed in dense tangles. This species represents a link between rope squirrels and bush squirrels.


DU CHAILLU'S ROPE SQUIRREL *Funisciurus duchailloi*

SIZE HB 18.5–21.2cm. T 19–23cm. W 180–220g. **DESCRIPTION** Olive-brown with light-grey underside and two white stripes on either side of a black mid-dorsal stripe. Formerly regarded as a subspecies of *F. isabella*. **HABITAT** Forest dominated by leguminous trees. Primarily arboreal. **FOOD** Fruit (*Dialium* and *Xylopia* noted).



Lady Burton's
Rope Squirrel



Kintampo Rope
Squirrel



Congo Rope
Squirrel



Carruther's Mountain
Squirrel

Du Chaillu's
Rope Squirrel



BUSH SQUIRRELS *Paraxerus*

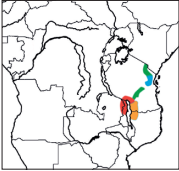
Short, thick fur, very variable colour patterns and typically longer ear pinnae.

**COOPER'S MOUNTAIN SQUIRREL** *Paraxerus cooperi*

SIZE HB 19–20cm. T 19cm. W est. 200–300g. **DESCRIPTION** Grizzled olive-green back and pale grey underparts mixed with a yellowish sheen. Hands, feet and thighs are of variable colour, sometimes deep russet. **HABITAT** Montane and intermediate forests in the Cameroon highland area. **FOOD** Fruits and flowers of the tallow tree (*Pentadesma*) have been noted.

**GREEN BUSH SQUIRREL** *Paraxerus poensis*

SIZE HB 14–18cm. T 14–19cm. W 90–150g. **DESCRIPTION** Grizzled green with yellow belly, grey chest and grizzled black tail. **HABITAT** Forest and forest fringes. **FOOD** In Gabon, palm husks.

TANGANYIKA MOUNTAIN SQUIRRELS *Paraxerus (lucifer) group*

- *P. (l.) lucifer*
- *P. (l.) laetus*
- *P. (l.) byatti*
- *P. (l.) vexillarius*

Four separate populations (*see* map) all have soft fur with warm tints on face, feet and base of the tail and silvery-tipped dove-grey undersides. All feed on fruit, nuts and seeds.

RED TANGANYIKA MOUNTAIN SQUIRREL *Paraxerus (lucifer) lucifer*

SIZE HB 20–33cm. T 16–27cm. W est. 650–750g. **DESCRIPTION** The largest species is richly red all over, with a black back and half-hidden black bars in the thick red tail. **HABITAT** Montane forests N and W of L. Malawi.

KIPENGERE MOUNTAIN SQUIRREL *Paraxerus (lucifer) laetus*

SIZE HB 23–26cm. T 16–26.5cm. W (est.) 650–700g. **DESCRIPTION** Tail more thickly haired with bold black-and-white bars. **HABITAT** Montane forests in the Kipengere range, on eastern side of L. Malawi (L. Nyasa). **FOOD** Fruits, nuts and invertebrates.

KILIMANJARO MOUNTAIN SQUIRREL *Paraxerus (lucifer) byatti*

SIZE HB 20–24cm. T 16–21.5cm. W (est.) 650–750g. **DESCRIPTION** Several separate populations, all with soft fur and warm tints on the face, feet and base of the tail and silvery-grey undersides. In *P. l. byatti* the tints are muted, back is grizzled olive and tail is barred with dark brown and fine cream cross-bars. **HABITAT** Montane forests of E Tanzania: Kilimanjaro, Pare, Uluguru and Udzungwa.

LUSHOTO MOUNTAIN SQUIRREL *Paraxerus (lucifer) vexillarius*

SIZE HB 24cm. T 21cm. W est. 650–700g. **DESCRIPTION** Bright orange hands, feet and tail tip, with a dark olive-green back, dove-grey belly and black and white barred tail. **HABITAT** Confined to montane forests of W Usambaras.

**VINCENT'S BUSH SQUIRREL** *Paraxerus vincenti*

SIZE HB 20.6–21.8cm. T 12–29.8cm. W (est.) 200–550g. **DESCRIPTION** Very dark grizzled squirrel with orange limbs, underparts and face. Tail particularly dark but with orange tips to the hairs and barely perceptible orange banding. **HABITAT** Only known in montane forest on Mt Namuli. **FOOD** Fruits, berries, seeds and various plant parts.



Cooper's Mountain Squirrel



Green Bush Squirrel



Red Tanganyika Mountain Squirrel



Kilimanjaro Mountain Squirrel



Kipengere Mountain Squirrel



Red Tanganyika Mountain Squirrel



Lushoto Mountain Squirrel



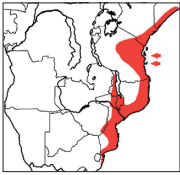
Red-bellied Bush Squirrel
Paraxerus palliatus ornatus
(see text p.108)



Vincent's Bush Squirrel



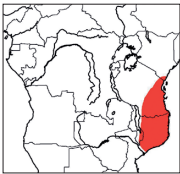
Tana Red-bellied Bush Squirrel
Paraxerus palliatus palliatus
(see text p.108)

**RED-BELLIED BUSH SQUIRREL** *Paraxerus palliatus* see plate 43

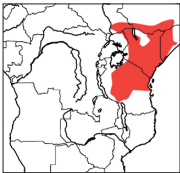
SIZE HB 17–25cm. T 10–27cm. W est. 200–550g. **DESCRIPTION** Pepper-and-salt grizzled with orange limbs, underparts and face. Subspecies: **Tana Red-bellied Bush Squirrel**, *P. p. palliatus* (centre of range): black and orange tail. *P. p. tanae* (north of range): orange tail. *P. p. ornatus* (south of range): dark red and black tail. **HABITAT** Coastal forests and evergreen thickets. **FOOD** Fruits, berries, seeds and various plant parts.

**ALEXANDER'S BUSH SQUIRREL** *Paraxerus alexandri*

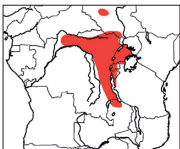
SIZE HB 9–12cm. T 11–14.5cm. W 37–72g. **DESCRIPTION** Very small, greenish squirrel with white ears and a medial tawny-yellow stripe flanked by thin dark and light stripes from shoulder to rump. The tapered tail is thinly haired, with indistinct, irregular ochre and dark brown barring. **HABITAT** Strictly equatorial lowland forests (below 1,500m). **FOOD** Insects, resin, micro-flora and plant matter.

**STRIPED BUSH SQUIRREL** *Paraxerus flavovittis*

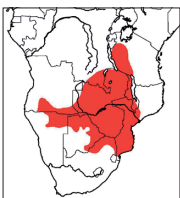
SIZE HB 16–20cm. T 14–18cm. W est. 120–200g. **DESCRIPTION** Grizzled with a white stripe down the side emphasised by dark lines above and below. Face also has indistinct 'bands' across cheek and eye regions. Tail marked with irregular bars. Feet pale with heavily clawed toes. **HABITAT** Savanna, forest, thicket and cultivated land, with a marked preference for groves of sugar plum (*Uapaca*) and Doum palm trees. Ranges from Zambezi east of L. Malawi to the Tanganyika coast. **FOOD** Fruits, seeds, buds, leaves and roots. Feeds on the ground and in trees.

**OCHRE BUSH SQUIRREL** *Paraxerus ochraceus*

SIZE HB 13–18.5cm. T 13–19cm. W 80–100g. **DESCRIPTION** Very variable, grizzled squirrel, with a pale off-white to yellow ochre underside. Subdesertic forms are very pallid; montane populations have darker olive backs. Tail has fine, irregular barring. **HABITAT** Dry forests and thickets at various altitudes; also, wooded riverine strips in very arid country from S Sudan to E African coast as far south as R. Rufiji.

**BÖHM'S BUSH SQUIRREL** *Paraxerus boehmi*

SIZE HB 10–15cm. T 9–20cm. W 40–100g. **DESCRIPTION** Olive-coloured with a yellowish dorsal stripe and conspicuous pale flank stripes in between bold black stripes running from shoulder to rump; barred tail. Underside is off-white. **HABITAT** Undergrowth and liane tangles in mixed, swamp, lowland and montane forests. Also (marginally) in wooded savannas from R. Zaïre eastwards to the R. Nile and L. Victoria. Appears to be the eastern ecological equivalent of the Ribboned Rope Squirrel (*Funisciurus lemniscatus*). **FOOD** Insects and resinous gums, mushrooms, fruits and seeds.

**SMITH'S BUSH SQUIRREL** *Paraxerus cepapi*

SIZE HB 13–18.5cm. T 12–18cm. W 100–260g. **DESCRIPTION** Pale, grizzled, very variable tints. Yellowish tints on the face, hindquarters and shoulders may be localised or more extensive. Underparts are white or yellowish. Tail is grizzled, with indistinct black bars and a broken pale-tipped 'halo'. **HABITAT** Miombo (*Brachystegia*) woodlands and associated woods and thickets from Angola to W Tanzania and Mozambique. **FOOD** Fruits, seeds, buds, flowers, roots, bulbs, *Acacia* gum. Occasionally some animal foods.

Alexander's Bush
Squirrel



Striped Bush Squirrel



Ochre Bush
Squirrel



Böhm's Bush Squirrel



Smith's Bush
Squirrel

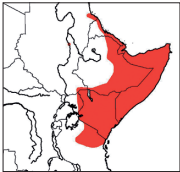


GROUND SQUIRRELS *Xerus*

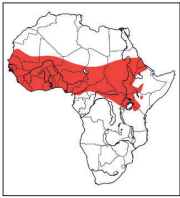
Coarse-coated terrestrial squirrels, with claws adapted to digging. Ground squirrels have little or no pinnae to the ears and all rely on self-dug burrows to escape predators and extremes of climate.

**BARBARY GROUND SQUIRREL** *Xerus* (previously *Atlantoxerus*) *getulus*

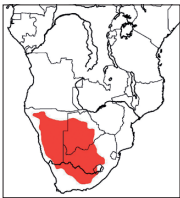
SIZE HB est. 30–45cm. T est. 20–25cm. W est. 50–1,100g. **DESCRIPTION** Boldly striped coat, prominent eye ring and bushy tail banded black and white. **HABITAT** Rocky areas with scattered foliage in the Atlas Mts. **FOOD** Nuts and seeds, including those of the commercially valuable argan (*Argania*), which produces an oil used for cooking. **BEHAVIOUR** Diurnal, shelters in burrows or among rocks during the night and during the heat of the day.

**UNSTRIPED GROUND SQUIRREL** *Xerus rutilus*

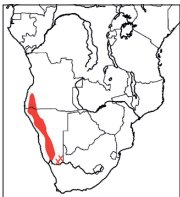
SIZE HB 20–26cm. T 18–23cm. W 300–335g. **DESCRIPTION** Ticked with white on a reddish ground, and with pale underparts. Tail is relatively sombre and often stained by earth. **HABITAT** Very dry steppe, savanna and subdesert country in the Horn of Africa. **FOOD** Roots, pods, seeds, fruits, stems, leaves and occasional insects.

**STRIPED GROUND SQUIRREL** *Xerus erythropus*

SIZE HB 30–46cm. T 18.5–27cm. W 500–1,000g. **DESCRIPTION** Lighter in arid areas, darker in the more humid southern parts of its range. **HABITAT** Open woodlands, Sudanic savannas and Sahelian habitats. **FOOD** Roots, grass seeds, fallen fruits, seeds and nuts, *Acacia* pods, leaves and various animal foods. **BEHAVIOUR** Lives in rock and tree-root crevices, in termitaria and in self-dug burrows.

**SOUTH AFRICAN GROUND SQUIRREL** *Xerus inauris*

SIZE HB 20–30cm. T 18cm. W 500–1,100g. **DESCRIPTION** Tawny-yellow, bristly-haired, with a very round, blunt head and large eyes. Incisor teeth are white. **HABITAT** Open country in S Africa, with a strong preference for compacted sandy areas where it digs communal burrows. **FOOD** Leaves and stems of grasses and shrubs, seeds, bulbs, and tubers; also leaves, buds and fruits of bushes, and various insects. **BEHAVIOUR** Diurnal and gregarious (with territorial groups based on a hierarchy of resident breeding females and more peripatetic males). Warrens very large and complex. Very vocal and playful. Sunning and sand-bathing are regular activities.

**DAMARA GROUND SQUIRREL** *Xerus princeps*

SIZE HB est. 20–33cm. T est. 20–34cm. W est. 500–1,200g. **DESCRIPTION** Has long bushy tail with three black bands terminating in a long white point that forms a conspicuous white 'halo'. Incisor teeth are orange. **HABITAT** Rocky hillsides and outcrops along the Kaokoveld escarpments from S Angola to S Namibia. **FOOD** Presumed to eat grass leaves, stems and seeds, roots, bulbs and tubers and the fallen fruits and seeds of bushes. **BEHAVIOUR** Takes refuge among rocks and crevices. Avoids flat, open land, preferring broken, hilly land.



Unstriped Ground Squirrel



Striped Ground Squirrel



Barbary Ground Squirrel



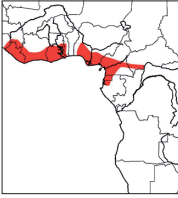
Damara Ground Squirrel



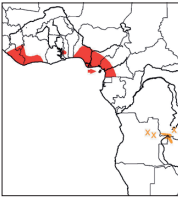
South African Ground Squirrel

DORMICE Gliridae (formerly Myoxidae)

Small, agile, climbing, nocturnal rodents. Their tails detach easily.

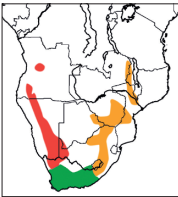
**WEST AFRICAN SMOKY DORMOUSE** *Graphiurus (Aethoglis) nagtaglasi*

SIZE HB 12–15.5cm. T 6.5–12.2cm. W 48–98g. **DESCRIPTION** The largest African dormouse, with soft, dense, grey-brown dorsal fur grading into grey on ventral surfaces variably washed with cream. The cheeks are off-white, in contrast with black eye-masks. Ears are relatively small and pointed. **HABITAT** Both primary and secondary growth, including farm-bush and banana gardens. **FOOD** Arboreal foragers for both cultivated and wild fruits and for insects. Probably broadly omnivorous.

**SMALL-EARED DORMICE** *Graphiurus (Claviglis) (2 species)*

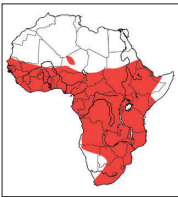
SIZE HB 8.3–16cm. T 5.5–13cm. W over 20g. **DESCRIPTION** Two small-eared brown dormice, *G. crassicaudatus* small (HB 92mm) and short-muzzled, *G. monardi* large (HB 160mm) and long-muzzled. Genetic analysis suggests that *G. (Claviglis)* might also derive from an early dormouse stock. Species: *G. crassicaudatus*, *G. monardi*. **HABITAT** *G. crassicaudatus* in both primary and secondary growth; *G. monardi* in Central African woodlands and savannas. **FOOD** Fruits and insects. Probably omnivorous.

■ *G. crassicaudatus*
 ■ *G. monardi*

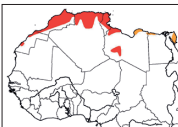
**AFRICAN ROCK DORMICE** *Graphiurus (Gliriscus) (3 species)*

SIZE HB 9.5–14.5cm. T 6.5–15cm. W 30–85g. **DESCRIPTION** Three small, large-eared dormice, two with somewhat flattened skulls and adapted to living among rocks with abundant crevices. All skilled climbers, grey or brown, with paler undersides, black eye-masks and furry tails. Species: *G. rupicola*, *G. platyops*, *G. ocellaris*. **HABITAT** Southern African wooded or rocky habitats under relatively dry seasonal climates. **FOOD** Seeds, green stuff and insects. Probably omnivorous.

■ *G. rupicola*
 ■ *G. platyops* ■ *G. ocellaris*

**AFRICAN DORMICE** *Graphiurus (Graphiurus) (8 species)*

SIZE HB 7.5–15cm. T 5–11cm. W 18–85g. **DESCRIPTION** Typified by the widespread *G. murinus*. African dormice are usually grey with white undersides, a dark eye-mask and prominent ears. They may also be brown or tawny. The tail is bushy and they are agile climbers, with sharp-clawed, dexterous fingers. Species: *G. murinus*, *G. angolensis*, *G. christyi*, *G. microtis*, *G. johnstoni*, *G. kelleni* (including *G. olga* and *G. parvus*), *G. lorraineus*, *G. surdus*. **HABITAT** Almost all habitats but with a marked preference for dense woodlands, thickets and forests. All species make nests. **FOOD** Omnivorous. Seeds, fruits, invertebrates and small vertebrates, including small birds, lizards, eggs and carrion.

**ORCHARD DORMOUSE** *Eliomys (2 species)*

SIZE HB 10–17cm. T 9–15cm. W est. 45–200g. **DESCRIPTION** Tawny forehead and a dorsal midline flanked by grey. Mask and jaw-line black. **HABITAT** Mediterranean N African littoral in woodlands, oases, sand dunes and rocky country. **FOOD** Fruits, nuts, buds, invertebrates and occasional vertebrates.

■ *E. munbyranus*
 ■ *E. melanurus*



West African Smoky
Dormouse



Thick-tailed African Dormouse
Graphiurus (Claviglis) crassicaudatus



Rupicolous African Dormouse
Graphiurus (Gliriscus) rupicola



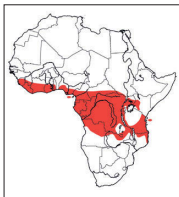
Graphiurus (Graphiurus) murinus



Eliomys melanurus

ANOMALURES *Anomaluridae*

Also known as 'scaly tails' because their tails are strengthened by pairs of pointed scales on the underside, these are mainly gliding rodents with slender bodies concealed by long, fine fur and (in the gliders) by the gathered membrane or 'patagium'.



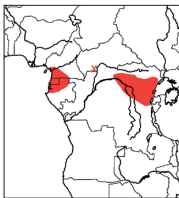
LORD DERBY'S ANOMALURE *Anomalurus derbianus*

SIZE HB 27–38cm. T 22–30cm. W 450–1,100g. **DESCRIPTION** Predominantly grey or brown with a rippling silvery grizzle to the tips of the very long, fine textured fur. The membranes are similarly coloured above but black bristle hairs reinforce the hem of the membrane behind the elbow strut. 16 subspecies have been named. **HABITAT** Moist rainforests to relatively dry woodlands at various altitudes. **FOOD** A specialist in certain barks and bark wound exudates (notably those of *Julbernardia*, *Newtonia*, *Cynometra*, *Pentaclethra* and *Dialium*). In addition, fruits, flowers, leaves, nuts and occasional insects. **BEHAVIOUR** Nocturnal and lives in vertical hollow tree trunks. It is possible that unique 'pruning' behaviour in this species results in a form of 'farming' of its preferred food trees. Pruning away of all growing shoots is especially severe around the bases of these trees. Thus, in keeping their flight paths clear, the anomalures eventually kill off potential competitors for their food trees.



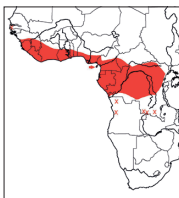
PEL'S ANOMALURE *Anomalurus peli*

SIZE HB 40–46cm. T 32–45cm. W 1,300–1,800g. **DESCRIPTION** Black back and face vividly outlined with pure white borders around the ears and on the muzzle. Underside and tail are also white, as are the borders to the flight membranes. **HABITAT** Moist high forests with numerous tall emergents and palm trees. **FOOD** Bark supplemented by fruits (especially oil and other palm dates), leaves and flowers. **BEHAVIOUR** Wholly nocturnal and emerges well after sunset. Contact calls described as deep hoots.



LESSER ANOMALURE *Anomalurus pusillus*

SIZE HB 18.5–24.6cm. T 13.8–20cm. W est. 200–300g. **DESCRIPTION** Back coloration varies from near black to mottled tan. The membrane adjoining the tail is usually yellower while the lateral membranes are dark grey. The head is grey without borders around the ears. **HABITAT** Has a strictly equatorial distribution. **FOOD** Probably bark and fruits including drupes of parasol trees (*Musanga*). **BEHAVIOUR** Has been found sheltering in hollow rain trees in lowland rainforest.



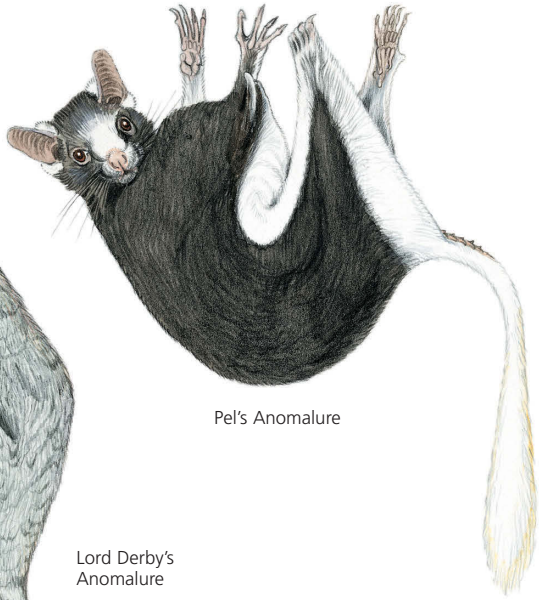
BEECROFT'S ANOMALURE *Anomalurus beecrofti*

SIZE HB 25–31cm. T 16–24cm. W est. 640–660g. **DESCRIPTION** Very variably coloured with a prominent, narrow snout. The underside is always yellow-orange to some degree and similar warm tints occur on the back in some populations. Often has a white spot on the forehead but does not have a dark 'mask' around the eyes. **HABITAT** Tropical rainforests from Sierra Leone to E Zaïre, from sea-level up to 2,500m. Marked preference for palm groves. **FOOD** Fruits, especially palm dates, bark, leaves and occasional insects. **BEHAVIOUR**

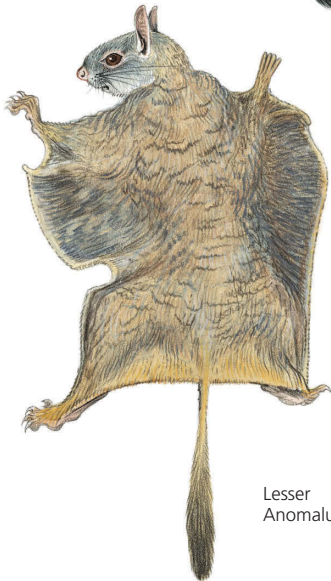
Rests in holes and will also hide in the junctions between palm fronds or cling to the sheltered underside of major tree branches close to the trunk.



Lord Derby's
Anomalure



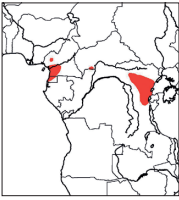
Pel's Anomalure



Lesser
Anomalure

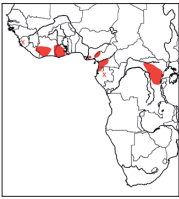


Beecroft's Anomalure

**ZENKER'S FLYING MOUSE** *Idiurus zenkeri*

SIZE HB 6.5–9cm. T 7–13cm. W 14–17.5g. **DESCRIPTION** A miniature scaly-tail resembling a very silky-furred, tawny-coloured, snub-nosed mouse, with a membrane like those of the larger anomalures. The very long tail is fringed on the underside by two rows of short stiff hairs. Zenker's Flying Mouse also has sparse, very long hairs on the upperside of the tail. It utters a shrill mouse-like squeak and is a very efficient, fast and agile glider. **HABITAT** Very moist equatorial rainforests, from Cameroon to the R. Zaïre, and between the R.

Aruwimi and R. Zaïre to the foothills of Rwenzori and Kivu. **FOOD** Oil-palm pulp, occasional insects and possibly exudates or nectar. **BEHAVIOUR** Roosts in hollow trees (more rarely under bark), sometimes in ones or twos but more usually in groups that may number up to 100. It has been suggested that Zenker's Flying Mouse may travel many km in a night to feed. However, nothing is known of its feeding behaviour. The notched upper incisors project from the mouth, which may mean that the food requires sharp chiselling.

**LONG-EARED FLYING MOUSE** *Idiurus macrotis*

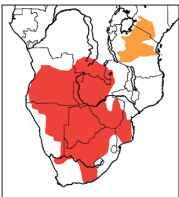
SIZE HB 8–11cm. T 13–19cm. W 25–35g. **DESCRIPTION** A small scaly-tail of slightly more robust build than Zenker's Flying Mouse and with darker fur. This species is pale grey in colour with a brownish sheen. The ears and the face are somewhat longer than Zenker's and the tail is proportionately shorter, with similar short, stiff hairs on the underside. Dense, short fur covers the rest of the tail. **HABITAT** Equatorial lowlands (like Zenker's Flying Mouse). The overall range is similar but the Long-eared Flying Mouse appears to be rarer than

Zenker's in the eastern part of their ranges. **FOOD** Not known. **BEHAVIOUR** This species sometimes shares hollow trees with Zenker's Flying Mouse (and with bats).

**CAMEROON SCALY-TAIL** *Zenkerella insignis*

SIZE HB 18–23cm. T 15–17cm. W est. 180–220g. **DESCRIPTION** Superficially resembling a large dormouse, this scaly-tail has no trace of a membrane (although its loose, woolly coat might cushion short, spread-eagled leaps). Head and body are a soft slate grey with ochre tints on the forearm, lower shin and cheeks. Underparts are very pale grey and the tail is black and bushy. The strip of paired scales on the underside of the tail resembles that of other scaly-tails and implies a similar degree of support while at

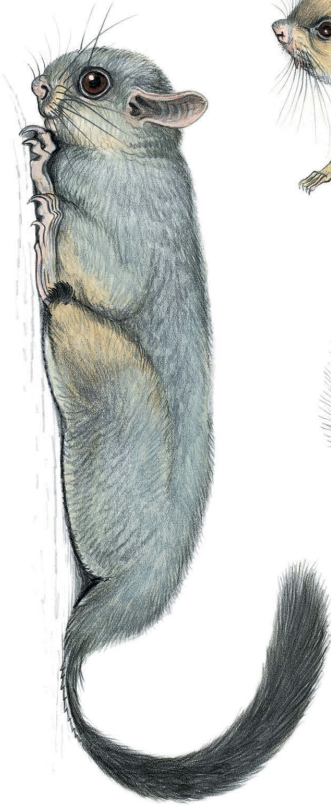
rest. The ankles have a brush of highly specialised 'spoon-hairs' over a glandular area. Their function and operation are not known. **HABITAT** Only known from Cameroon to Gabon. Animals thought to be scaly-tails have been seen moving among low-level vines by means of very fast springy leaps. May also inhabit understorey and canopy. **FOOD** Not known.

SPRINGHARES Pedetidae**SPRINGHARES** *Pedetes* (2 species)

SIZE HB 35–43cm. T 34–49cm. W 3–4kg. **DESCRIPTION** Long-tailed, hopping rodents with long, soft fur, varying from warm reddish tints to yellow-grey above and white to pale tawny underneath. The brush tip of the tail and sometimes the ear tips are black. The hindlegs have four toes. The short forelegs, often tucked out of sight, have five closely bunched, long, sharp, curved claws. The two species differ in numbers of chromosome but for all practical purposes are otherwise indistinguishable. Species: **Southern African Springhare** *P. capensis*; **East African Springhare** *P. surdaster*. **HABITAT** Sandy plains, with seasonal cover of grasses. **FOOD** Fresh grasses, stems, roots, bases of grasses and fruits.

■ *P. capensis*
 ■ *P. surdaster*

Cameroon Scaly-tail



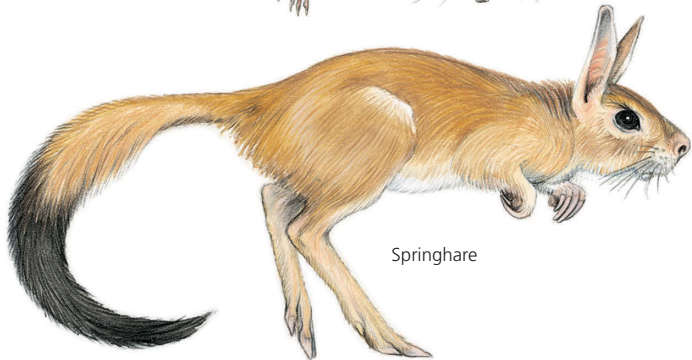
Zenker's Flying Mouse



Long-eared Flying Mouse



Springhare



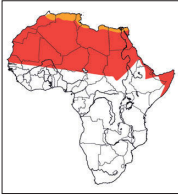
NOTE: not to scale

JERBOAS *Dipodidae*

Nocturnal, jumping rodents with long hindlegs. Efficient deep diggers in sandy soil.

**FOUR-TOED JERBOA** *Allactaga tetradactyla*

SIZE HB 24–30cm. T 15–20cm. W est. 20–40g. **DESCRIPTION** Sandy-coloured, with 4 toes, long ears and a snub nose. Long tail has a white tip. **HABITAT** Restricted to gravel plains that lie between Alexandria in Egypt and the Gulf of Sirte in Libya. **FOOD** Grass seeds and roots.

**DESERT JERBOAS** *Jaculus* (2 species)

SIZE HB 17–32cm. T 14–22cm. W 50–71g. **DESCRIPTION** Hindfeet elongated and hair-tufted. Three toes. Nose flat, used to tamp soil. Tail long and tufted, held in a curl and acts as tripod with hindlegs. **HABITAT** Arid environments. Species: *J. jaculus* (mainly sand dunes in Sahara); *J. orientalis* (mainly steppe on Mediterranean littoral). **FOOD** Seeds, stems and roots of desert grasses. **BEHAVIOUR** Deep burrows. Mainly solitary but form temporary groups of 4 or 5.

■ *J. jaculus*

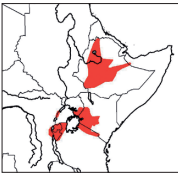
■ *J. orientalis*

MOLE-RATS AND ROOT-RATS *Spalacidae*

Cylindrical rodents with dense fur, very short legs, minute ears, blind or much reduced eyes and a broad nose. Projecting incisors and head movements are employed in digging.

**PALESTINE MOLE-RAT** *Spalax ehrenbergi*

SIZE HB 15–27cm. T 0cm. W 130–220g. **DESCRIPTION** A variably coloured mole-rat with a blunt, rounded head merging into the body with no obvious neck region. Fore- and hind-legs are short and weakly clawed. The small nasal area is horny and reinforced. The most obvious signs of the mole-rat's presence are the mole hills. **HABITAT** Areas of very low rainfall (absent from waterless desert) in N Egypt and Libya. Each mole-rat makes extensive burrows with a large winter breeding mound and small summer resting mounds. **FOOD** Roots, bulbs, tubers and rhizomes below ground; grass, seeds. Regarded as an agricultural pest; eliminated from commercial plantations.

**ROOT-RATS** *Tachyoryctes* (2 species)

SIZE *T. splendens*: HB 16–21.5cm. T 5–8cm. W 140–315g. *T. macrocephalus*: HB 22.5–31cm. T 4–6.5cm. W 330–1,000g. **DESCRIPTION** Chunky, subterranean, tunnelling rats with diminutive ears, small eyes and prominent orange incisors. Fur is soft, thick, russet, fawn or grey on the surface but always with a dark grey undercoat. Colouring, size and skull structure vary regionally, presumably in response to local soil conditions.

T. splendens

T. macrocephalus, the **Giant Root-rat**, a very large, golden brown species, is highly distinctive. Eyes project above the forehead (mole-hill 'periscopes' presumed to allow scanning while minimising exposure). Species: *T. splendens*, *T. macrocephalus*. (Until recently taxonomists had listed 11 regional species.) **HABITAT** Uplands (including very high-altitude afroalpine grasslands), where the root-rats make extensive tunnels and soil heaps. **FOOD** Various roots, tubers, stems and bulbs are indiscriminately taken underground within a short radius of the hole. Material is sorted and unwanted debris is expelled onto a large composting midden mound.



T. macrocephalus



Four-toed Jerboa

Jaculus jaculus



Palestine Mole-rat



Giant Root-rat
Tachyoryctes
macrocephalus

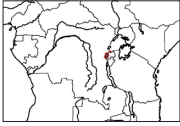


African Root-rat
Tachyoryctes splendens

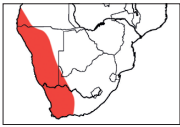


ARCHAIC MUROIDS *Nesomyidae*

Formerly allocated and reallocated to various, and confusing, families and subfamilies, the 12 genera that follow are here grouped under *Nesomyidae*. Further taxonomic subdivisions are possible but here genera are clustered without further nomenclature. Nonetheless, well-recognised vernacular groupings, such as 'pouched rats' or 'climbing mice' are retained.

**DELANEY'S MOUSE** *Delanymys brooksi*

SIZE HB 5–6cm. T 8.5–10.5cm. W 5g. **DESCRIPTION** Long hindlegs, 5 mobile fingers and a vestigial thumb. Long tail. **HABITAT** High-altitude (1,700–2,625m) marshes in E Zaïre and W Uganda, among sedges. **FOOD** Grass and sedge seeds (possibly unripe); perhaps also fruits.

**PYGMY ROCK MICE** *Petromyscus* (4 species)

SIZE HB 7.5–11.5cm. T 7.5–10.5cm. W 17–25g. **DESCRIPTION** Brown with broad, flattened heads and prominent ears and whiskers. **HABITAT** Arid regions of SW Africa from S Angola to the Cape. **FOOD** Mainly seeds.

**WHITE-TAILED MOUSE** *Mystromys albicaudatus*

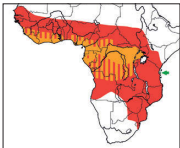
SIZE HB 10.5–18.4cm. T 50–97cm. W 75–111g. **DESCRIPTION** Plump, short-tailed, large-eyed, with soft grey upperparts and a white underside. **HABITAT** Savanna grasslands and scrub in the South African uplands and Cape region. **FOOD** Seeds, green vegetable matter and insects. **BEHAVIOUR** Lives in crevices and burrows where it makes a nest of shredded material.

POUCHED RATS *Cricetomyine nesomyids*

Sluggish, greyish brown animals, with large cheek pouches. All dig burrows. Strictly nocturnal.

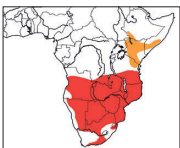
**LESSER POUCHED RAT** *Beamys hindei*

SIZE HB 13–18.7cm. T 10–15.5cm. W 55–150g. **DESCRIPTION** Grey or brown upperparts, white underparts and mottled tail. A climber, strictly nocturnal. **HABITAT** Sandy riverbanks in forest, thicket or dense woodland, from Kenya to Malawi. Subspecies: *B. h. hindei* (coastal), *B. h. major* (montane). **FOOD** Fruits and seeds; occasionally animal foods.

**GIANT POUCHED RATS** *Cricetomys* (5 species)

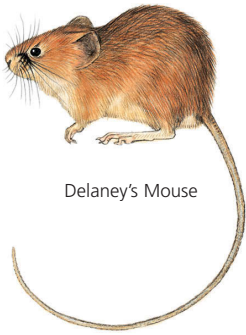
SIZE HB 28–45cm. T 36–46cm. W 1–1.4kg. **DESCRIPTION** Brown or grey, with large, naked ears. Terminal half of long tail is white. Good climbers. Strictly nocturnal. **HABITAT** Very varied (*C. gambianus*); only lowland rainforest (*C. emini*); Zanzibar island (*C. cosenzi*). **FOOD** Fruits, seeds, nuts, roots and leaves.

■ *C. gambianus/ansorgei* ■ overlap zones ■ *C. emini/kivuensis* ■ *C. cosenzi*

**POUCHED MICE** *Saccostomus* (2 species)

SIZE HB 11.5–19cm. T 3–8cm. W 40–85g. **DESCRIPTION** Grey or greyish brown with short, limp fur, enormous cheek pouches, and short legs and tail. Strictly nocturnal. **HABITAT** Savannas, woodlands and semi-arid habitats in S and E Africa. **FOOD** Seeds, fruits and occasionally insects.

■ *S. mearnsi* ■ *S. campestris*



Delaney's Mouse



Petromyscus collinus



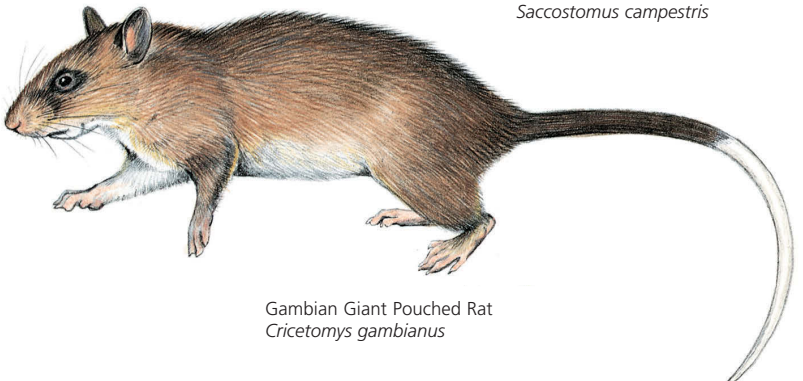
White-tailed Mouse



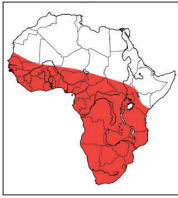
Lesser Pouched Rat



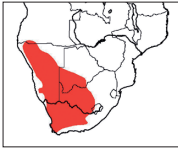
Common Pouched Mouse
Saccostomus campestris



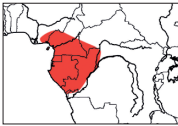
Gambian Giant Pouched Rat
Cricetomys gambianus

**FAT MICE** *Steatomys* (8 species)

SIZE HB 5–14cm. T 3–75cm. W est. 15–30g. **DESCRIPTION** Small mice with large ears and short limbs and tail. Upperparts are sandy brown and underparts white. They are often very fat and lethargic. **HABITAT** Savannas, woodlands and (marginally) semi-arid environments. Very local in distribution, fat mice are apparently absent over large intervening areas. They live in deep burrows where they store food and aestivate. **FOOD** Seeds, bulbs, roots, insects and grass.

**LARGE-EARED MOUSE** *Malacothrix typica*

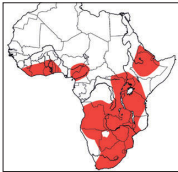
SIZE HB 7–8cm. T 3.2–4cm. W 10–20g. **DESCRIPTION** Small, prettily marked with ash-grey streaks on the back and flanks and a tawny face and shoulders. Nocturnal. **HABITAT** Areas of short grass and Karoo bush growing on or close to calcareous pans in dry SW Africa. **FOOD** Seeds and green plant parts.

CLIMBING MICE 'Dendromurine' nesomyids**BATES'S CLIMBING MOUSE** *Prionomys batesi*

SIZE HB est. 5.5–6.5cm. T est. 9.5–10cm. W est. 10–15g. **DESCRIPTION** Shrew-like. Velvet fur, tawny-brown. Eye mask. Forefeet lack a thumb. **HABITAT** Moist rainforest zone between the R. Dja and R. Zaïre. **FOOD** Not known.

**VELVET CLIMBING MOUSE** *Dendroprionomys rousseloti*

SIZE HB 7.7cm. T 10.8cm. W est. 10g. **DESCRIPTION** Velvety-furred, dark brown with tawny flanks and a white underside. **HABITAT** Only known from the zoological gardens on the banks of the R. Zaïre at Brazzaville. **FOOD** Thought to include insects.

**AFRICAN CLIMBING MICE** *Dendromus* (11 species)

SIZE HB 5–10cm. T 6.5–11.5cm. W 7–23g. **DESCRIPTION** Large-headed with long, semi-prehensile tails, long, extremely dextrous toes and a specialised, 'padded hook' hand structure. **HABITAT** Tall grass and shrubby secondary growth. **FOOD** Specialist grass-seed-eaters.

**GIANT CLIMBING MOUSE** *Megadendromus nicolausi*

SIZE HB 11–13cm. T 9–10.5cm. W 49–66g. **DESCRIPTION** Dark brown with pale underside. Tail long and fine. **HABITAT** High altitudes in the Bale massif in central Ethiopia. **FOOD** Probably grass seed.

CRICETID MUROIDS Cricetidae**MEDITERRANEAN VOLE** *Microtus guentheri*

SIZE HB 10.9–12.5cm. T 2–2.5cm. W 25–40g. **DESCRIPTION** A short-tailed, blunt-eared, tubby brown rodent with distinctive molar teeth. **HABITAT** The heights of the Cyrenaic plateau, where the lower temperatures favour its survival. Voles congregate in colonial burrows that are shallower in humid soils (5–10cm deep), and deeper (up to a metre) in drier soils. **FOOD** Roots, seeds and leaves.



Common Fat Mouse
Steatomys pratensis



Large-eared Mouse



Bates's
Climbing
Mouse



Velvet Climbing Mouse



Chestnut Climbing Mouse
Dendromus mystacalis

Giant
Climbing
Mouse



Mediterranean Vole

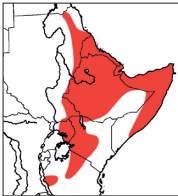
MURIDS Muridae

A diverse group numbering over 30 genera and 150 species. Murid rats and mice range from 2 to 170g in weight and may have a long or short tail, limbs, nose and ears. They manifest many ingenious rodent adaptations to living on a continent of extraordinary and challenging complexity.

CRESTED (MANED) RAT Lophomyiinae

This singular rodent is one of the most interesting and extraordinary of African mammals. Its isolated position among rodent taxa and a wide scatter of likely 'lophiomyine' fossils from the Miocene implies that this rodent's specialisations have very deep evolutionary roots. Interpretations of its affinities, morphology and behaviour are mostly very recent and learning that it is deadly poisonous has earned the Crested Rat a special claim to fame. Its poison is sequestered in a long, tapered tract of specialised hair running back from behind the ear across the flanks to the groin. Its skin is exceptionally dense, thick and resistant to being pierced. Likewise, its skull is roofed over with granulated bone to form a cranial helmet that resembles that of a turtle. Near-atrophy of the clavicles has effectively freed up the broad scapulae to shield the neck and thorax when the shoulders are hunched. Like a pair of turtle scutes, these 'floating shoulder-blades' are made all the more mobile by particularly well-developed attachment muscles. Vertebrae have enlarged and multiplied and their spines have shortened, which has made the entire vertebral column (especially the neck) unusually robust and flexible compared with those of other rats.

Lophiomyys has evolved an astonishing association with very toxic plants belonging to the Apocynaceae, most notably the celebrated 'poison-arrow trees' *Acocanthera* spp., which secrete a cardiac glucoside, ouabain, in their bark and roots. *Lophiomyys* seek out the tree, then chew up and carefully slaver a colloid of 'poison arrow' poison and saliva onto the flank hairs, which rapidly wick up the colloid. When dogs bite *Lophiomyys* they exhibit symptoms of extreme distress, sometimes foaming at the mouth almost instantaneously. In some cases poisoned dogs die with startling rapidity, apparently from heart failure. Local naturalists have reported finding cadavers of wild carnivores supposedly poisoned in similar fashion. There are abundant instances of insects (and some birds) using plant toxins to deter or poison their predators but this is the first instance of something comparable taking place among mammals.

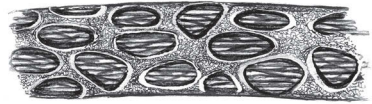
**CRESTED (MANED) RAT** *Lophiomyys imhausi*

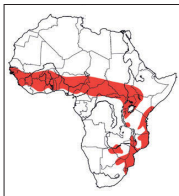
SIZE HB 18–36cm. T 14–21.5cm. W 590–920g. **DESCRIPTION** A normally inconspicuous, slow-moving, mainly nocturnal rodent with dense, woolly grey fur and black-and-white markings on the face. Muzzle and feet are the only areas of short fur. Long bicoloured hairs above and below the flanks are able to part to reveal a tract of hairs that resemble hemp string in texture and colour. As detailed above, these are among the most highly modified hairs of any mammal. The stomach has become weakly sacculated but the configuration is far short of the compartments of a typical ruminant. Nonetheless a complex digestive system is implied and both the processing of plant nutrients and neutralising of toxins are probably involved. Large salivary glands also suggest adaptation to metabolise plant toxins. Digestive fermentation in the large intestine and caecum is the norm in murids. The possible presence and activity of symbiotic microflora and microfauna in the foregut of Crested Rats would therefore be of special interest and invites research.

The Crested Rat is a skilful, but slow climber and uses its hands like a squirrel to manipulate foods while squatting on its haunches. **HABITAT** Mostly steep, rocky valleys within woodlands and montane forests under variable, but typically seasonal, rainfall. Especially noted from juniper forests with abundant poison-arrow trees, *Acocanthera* spp. Ranges from sea level to over 3,000m. Sometimes shares its habitat with rock hyraxes. Seldom seen, possibly common in isolated pockets of suitable habitat, but otherwise certainly in decline overall. Its survival is predicated upon *Acocanthera* trees continuing to be abundant. **FOOD** Mainly shoots and leaves for which its elaborate digestive system may be specially adapted.



Crested Rat: (above) External warning (aposomatic) pattern in defensive posture. Display serves to expose a specialised hair tract and focus attention on neck and shoulder. (middle) Vacuolated hair-shaft enclosing numerous fine filaments that 'wick' secretion. (below) Reinforced, 'helmeted' skull. The molecular and physiological details of this mammal's toxin-management systems have significant future implications for human health, making it potentially one of the most important and interesting rodents in Africa.

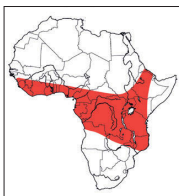


HAIR-MODIFIED RATS Deomyiinae**URANOMYS MOUSE** *Uranomys ruddi*

SIZE HB 8.5–13.5cm. T 5–8cm. W est. 30–60g. **DESCRIPTION** Chunky, short legs, brush-textured coat. Colour ranges from black to grey, fawn or russet. **HABITAT** Tropical species showing a preference for *Hyparrhenia* grassland with borassus palms (*Palmyra borassus*). Very disconnected records from Senegal to Uganda to Malawi. **FOOD** Omnivorous. Little known.

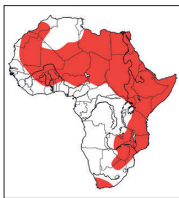
**LINK RAT** *Deomys ferugineus*

SIZE HB 12–14.5cm. T 15–21.5cm. W 40–70g. **DESCRIPTION** Long legs, pointed, narrow head, enormous ears. Nocturnal and crepuscular. **HABITAT** Seasonally flooded forest floors between Cameroon and the Victoria Nile. **FOOD** Mainly insects, crustaceans, slugs and some fallen fruits (notably palm-nut husks).

**BRUSH-FURRED MICE** *Lophuromys* (15 species)

SIZE HB 8.5–16cm. T 5.5–15cm. W 20–100g. **DESCRIPTION** Compact African mice with short legs and tails. The dark or speckled coats have a brush-like texture, probably designed to dispense obnoxious, deterrent secretions. These mice are omnivorous surface foragers, like shrews, and, like shrews, are strongly scented (possibly on a gradient of distastefulness). There are diurnal and nocturnal lineages. The most conservative (*woosnamii*) group are relict species restricted to patchy highland habitats in central Africa.

A second (*sikapusi*) group are long-clawed, nocturnal, sometimes sub-surface foragers with a strong preference for very moist, mainly forested, habitats. The remaining species are mainly diurnal, surface foragers of the *L. flavopunctatus* group. *L. flavopunctatus* is by far the most successful, widespread and adaptable of all the brush-furred species (possibly assisted by a notably repulsive scent). **HABITAT** Moist tropical Africa from sea-level to about 3,000m. **FOOD** Invertebrates, especially ants, carrion and plant material.

**SPINY MICE** *Acomys* (13 species)

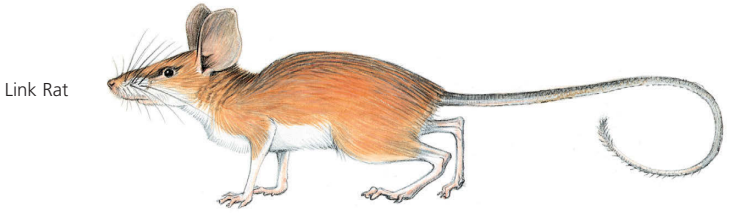
SIZE HB 7–12cm. T 4–10cm. W 10–40g. **DESCRIPTION** Mice with short limbs and tail and very spiny, coarse fur. Like porcupines, their spines are shed easily and thin skin is easily torn. Upperparts are rufous or fawn to grey or brown and underparts are white or tinted. **HABITAT** Deserts and dry areas from the Mediterranean to the Cape. Absent from all humid zones, and from the Namib and Kalahari. **FOOD** Opportunistic but preferences vary by species; seeds, leaves, dry plant matter and invertebrates.

TOGO MOUSE Leimacomyiinae**TOGO MOUSE** *Leimacomys buettneri*

SIZE HB 11.8cm. T 3.7cm. W est. 50–60g. **DESCRIPTION** Brown with short tapered tail, paler fawn flanks. **HABITAT** Not known but collected within the 'Dahomey Gap', a savanna-forest-mosaic region. **FOOD** Delicate muzzle suggests small, soft-bodied insects or unripe seeds.



Uranomys
Mouse



Link Rat



*Lophuromys
flavopunctatus*

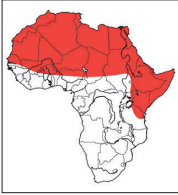
Acomys caharinus



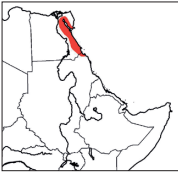
Togo Mouse

GERBILS Gerbillinae

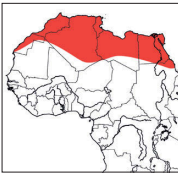
Nocturnal desert rodents with well-muscled and longer hindlegs and more slender forelegs. They have a drought-resistant physiology, dig extensive burrows and store food, usually grasses, seeds and roots. Some North African gerbils make communal food stores. These social species are of Asiatic origin and are adapted to strong seasonal fluctuations in resources. By contrast, some solitary species tend to forage for consistently scarce resources in hot, dry deserts.

**GERBILS** *Gerbillus* (36 species)

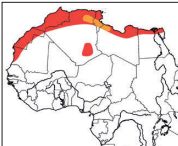
SIZE HB 7–12cm. T 8–15cm. W 15–25g. **DESCRIPTION** Small gerbils with very long hindlegs and short front legs. Soles of the feet are naked in some species, hairy in others. Most have white fur above the eyes or behind the ears. The majority of species are Saharan. Many species are gregarious. (The inner ear bullae are very large.) **HABITAT** Open dry and sandy habitats in N and NE Africa. **FOOD** Grass, roots, seeds and insects.

**BUSHY-TAILED JIRD** *Sekeetamys calurus*

SIZE HB 10–12.5cm. T 11–16cm. W est. 30–60g. **DESCRIPTION** Sandy-coloured with darker forehead and a mantle of brownish streaking. The tail is long and brown or black towards the end, with a white tip. **HABITAT** Broken rocky country in Egypt, where it burrows under rocks and slabs, often in hilly country or on slopes. It is an agile climber. **FOOD** Presumably seeds and leaves.

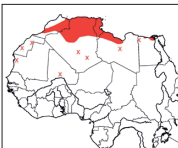
**JIRDS** *Meriones* (3 species)

SIZE HB 11–13cm. T 9–11cm. W est. 50–75g. **DESCRIPTION** Sandy-coloured, robustly built with relatively short, narrow feet and a tufted, dark-tipped tail. Capable of climbing trees and rocks. Social behaviour is flexible (social in some areas, solitary in others). They build complex burrows. **HABITAT** Various desertic and subdesertic habitats. **FOOD** Seeds, stems, leaves, roots and bulbs (often stored in burrows).

**SAND RATS** *Psammomys* (2 species)

SIZE HB 13–18cm. T 11–15cm. W est. 50–75g. **DESCRIPTION** Diurnal – unusual for a gerbil. Rotund and buff, with long, fine guard hairs. Ears are thick, short and oval. **HABITAT** Firm, compacted sands in valleys and on alluvial plains, salt-brush floodplains and neighbouring slopes in the Sahara desert from Morocco to Egypt. **FOOD** Specialised to feed on the leaves and stems of salty succulents, notably *Suaeda*, *Traganum* and *Salsola*.

■ *P. obesus*
■ *P. vexilaris*

**FAT-TAILED GERBIL** *Pachyuromys duprasi*

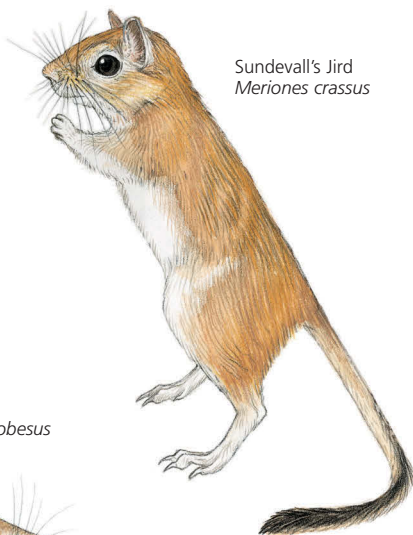
SIZE HB 105–135cm. T 45–61cm. W 30–65g. **DESCRIPTION** Pale, soft coat, pinkish buff sides and white underparts. Short, almost naked, fat-covered tail. **HABITAT** Deserts in N Africa with solid substrates. Populations are thought to fluctuate. **FOOD** Fruits, gathered as far as 2km from the burrows, in which they are stored.



Lesser Egyptian Gerbil
Gerbillus gerbillus



Bushy-tailed Jird



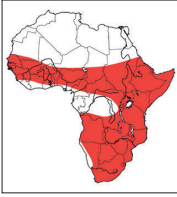
Sundevall's Jird
Meriones crassus



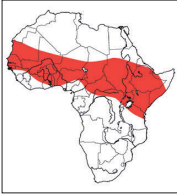
Fat Sand rat
Psammomys obesus



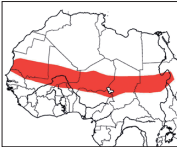
Fat-tailed Gerbil


ROBUST GERBILS *Gerbilliscus* (formerly *Tatera*) (12 species)

SIZE HB 12–16cm. T 14–17cm. W est. 60–125g. **DESCRIPTION** The African branch of a primarily Asiatic group of variously coloured gerbils with long hindlegs, naked-soled feet, large eyes and ears, and a prominent, hairy muzzle. **HABITAT** Most of sub-Saharan Africa (except rainforest areas) and margins of Sahara. *Gerbilliscus* gerbils inhabit well-drained, sandy areas. They commonly build extensive warrens. **FOOD** Seeds, stems and roots of grasses; also roots, bulbs and insects.


SLENDER GERBILS (TATERILS) *Taterillus* (8 species)

SIZE HB 10–14cm. T 14–17cm. W est. 50–80g. **DESCRIPTION** Eyes are particularly large. Skull has a very large cavity in the palate. **HABITAT** Mainly Sudanic and Sahelian savannas and steppes along the southern borders of the Sahara. **FOOD** Various plant foods and (probably) insects.


BRAUER'S DWARF GERBIL *Desmodilliscus braueri*

SIZE HB 5–7cm. T 3.5–5cm. W est. 8–15g. **DESCRIPTION** Fawn with white spots behind the ears, small hindfeet, tail shorter than body. Large cheek pouches. **HABITAT** Sahelian steppes from Mauritania to Sudan. **FOOD** Presumed to be grass seeds.


HAIRY-FOOTED GERBIL *Gerbillurus* (4 species)

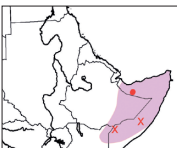
SIZE HB 8–12cm. T 10–13cm. W 22–40g. **DESCRIPTION** Small, pale-coloured gerbils with long tails and large, hairy hindfeet. **HABITAT** Arid areas of SW Africa, with a preference for sandy soils. Hairy-footed gerbils excavate warrens where they live in small groups. **FOOD** Seeds and probably insects.


NAMAQUA GERBIL *Desmodillus auricularis*

SIZE HB 10–14cm. T 8–10cm. W 39–70g. **DESCRIPTION** Variably coloured with short hindlegs. The tail is shorter than the body and there is white fur behind the flesh-coloured ears. **HABITAT** Open pans and compacted calcareous soils in SW African deserts. **FOOD** Seeds of grasses (mainly) and of shrubs and trees.


WALO (AMMODILE) *Ammodillus imbellis*

SIZE HB 10.5–11cm. T est. 13–15cm. W est. 40–60g. **DESCRIPTION** Reddish fawn with a long, hairy tail. The base of the ears and brows to the large eyes are white. **HABITAT** Recorded from sandy desert in Somalia. **FOOD** The very feeble jaw structure suggests that only soft foods are taken, possibly fruits and soft-bodied insects.


PEEL'S PYGMY GERBIL *Microdillus peeli*

SIZE HB 6.6–8.8cm. T 5–6.5cm. W (est.) 10–20g. **DESCRIPTION** Minute gerbil with fawn upperparts, extensively white below, very large eyes (for strictly nocturnal existence), and sometimes a fat-swollen, short tail. Rarely observed and little known. **HABITAT** Somali desertic, mostly sandy habitats. **FOOD** Probably grass seeds and other vegetable matter.

Probable range



Gerbilliscus leucogaster



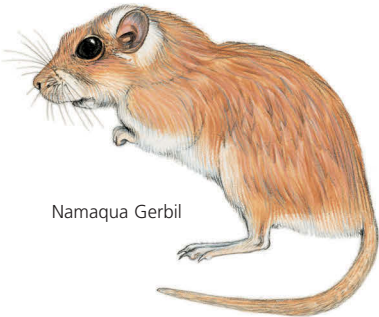
Emin's Gerbil
Taterillus emini



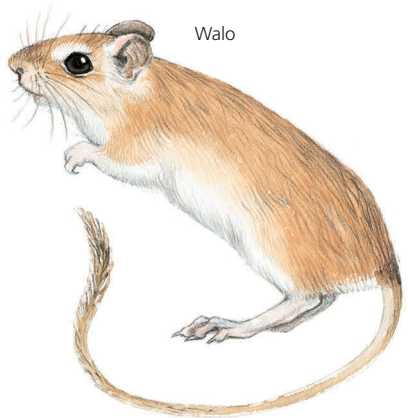
Brauer's Dwarf Gerbil



Bushy-tailed Hairy-footed Gerbil
Gerbillurus vullinus



Namaqua Gerbil

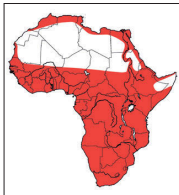


Walo



Peel's Pygmy Gerbil

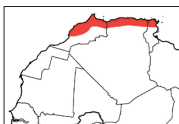
RATS AND MICE Murinae

**BLACK RAT** *Rattus rattus*

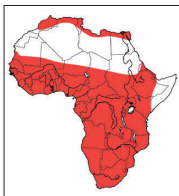
SIZE HB 13.3–18cm. T 18–20.9cm. W 100–186g. **DESCRIPTION** A long-tailed, coarse-haired athletic rat, usually black or dark grey with brownish tints on the back, but tints vary from population to population. Ears are large and mobile, face conical and deep-jawed. **HABITAT** Mostly in houses and stores but traps well away from villages are beginning to catch this species, implying that habituation to wild habitats is already under way. **FOOD** Wholly omnivorous.

**SHORT-TAILED BANDICOOT RAT** *Nesokia indica*

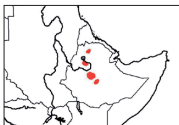
SIZE HB 16.5–19.7cm. T 11–13.4cm. W 205–280g. **DESCRIPTION** A hefty, dark-brown rat with shaggy hair and relatively small ears. Underside slightly lighter than upper, grey. Face blunt with prominent teeth. **HABITAT** Almost entirely fields and canal banks. **FOOD** Caches roots, seeds and vegetables in 'stores'.

**LONG-TAILED FIELD MOUSE** *Apodemus sylvaticus*

SIZE HB 8–10.5cm. T 7–11.5cm. W 13–30g. **DESCRIPTION** Large ears and eyes, long hindlegs. Upperparts brown, flanks sandy. **HABITAT** Mediterranean zone in N Africa; common in all wooded and bushy areas. **FOOD** Omnivorous: seeds, fruits, fungi, invertebrates.

**COMMON MICE** *Mus* (20 species)

SIZE HB 4.5–11cm. T 3.5–10cm. W 2.5–18g. **DESCRIPTION** All bear some resemblance to Common House Mouse. **HABITAT** Almost all vegetation types and all altitudes. **FOOD** Omnivorous but individual species are likely to be dietary specialists.

**WURCH MOUSE** *Muriculus imberbis*

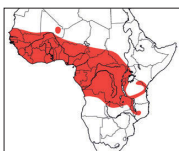
SIZE HB 7–9.5cm. T 4.5–6cm. W est. 12–25g. **DESCRIPTION** Short-faced, dense fur, blue-grey with yellow-brown tips. **HABITAT** Ethiopia between 1,900 and 3,400m in subalpine moorlands. **FOOD** Narrow, forward-pointing incisors imply mainly soft insects.

Wurch Mouse

AFRICAN OMNIVOROUS MURINES**MEADOW MICE** *Myomyscus* ('*Myomys*') (2 species)

SIZE (*M. fumatus*) HB 7.5–10.5cm. T 9.5–15cm. W 24–35g. **DESCRIPTION** Similar to multimammate rats, but mainly occurring from Senegal to the Horn of Africa. **HABITAT** Varied; scrub, forest margins, riverine habitats, rocky broken ground and grasslands. **FOOD** Omnivorous. Food is collected on the ground at night.

■ *M. brockmani* ■ *M. verreauxii*

**SOFT-FURRED RATS** *Praomys* (11 species)

SIZE HB 9–15cm. T 10–17cm. W 30–50g. **DESCRIPTION** Generalised rats, short soft fur, long tail, large round ears. **HABITAT** Tropical and montane forests, woodlands, moist savanna-forest, from Senegal and The Gambia to the Indian Ocean. **FOOD** Omnivorous: invertebrates, fruits, seeds and leaves.



Black Rat



Short-tailed
Bandicoot Rat



Mus minutoides



Long-tailed
Field Mouse

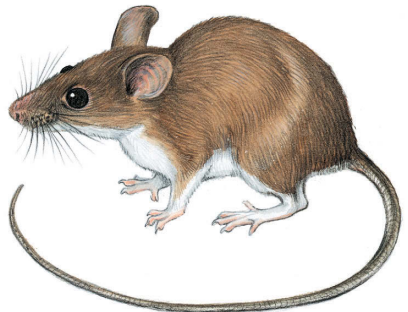


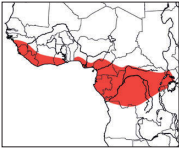
Wurch Mouse

Promys tullbergi

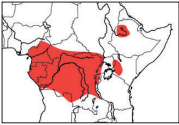


Myomys brockmani



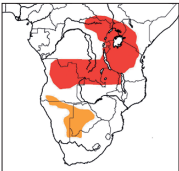
**LONG-FOOTED RATS (SWAMP RATS) *Malacomys* (5 species)**

SIZE HB 12–18cm. T 14–21cm. W 50–150g. **DESCRIPTION** Long-legged and short-furred, with large ears and a conical muzzle. Black eye-mask. **HABITAT** Very moist forest floor close to streams and swamps from Guinea to Uganda and L. Tanganyika. **FOOD** Invertebrates and vegetable matter (fruits, seeds and roots); occasional small vertebrates.

**VELVET RATS *Colomys* (2 species)**

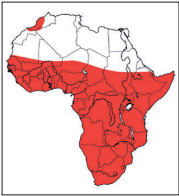
SIZE HB 11.5–14cm. T 14.5–18cm. W 50–75g. **DESCRIPTION** Long-limbed, long-tailed, swollen rhinarium, profuse whiskers. Dense, velvet fur brown above, pure white below. Species: *C. goslingi*, *C. plumbeus*. **HABITAT** Margins of forest streams and swamp forests among palms, gingers and arrowroots.

Ranges from Cameroon and Angola to L. Tanganyika. Also by streams in Kenya and Ethiopia. **FOOD** Aquatic insects, worms, slugs and crustaceans; occasionally vegetable matter.

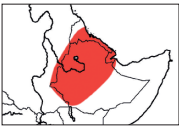
**BROAD-HEADED STINK RATS *Zelotomys* (2 species)**

SIZE HB 11.5–14cm. T 8.5–11.5cm. W 50–65g. **DESCRIPTION** Broad-headed mice with grey-brown or flecked grey upperparts and pale underparts and cheeks. Tail and limbs off-white. Upper incisors protuberant. Have a very strong smell. **HABITAT** S and E Africa, in arid and semi-arid (*Z. woosnami*) or grassy savannas and scrub dominated by sword grass, *Imperata*. **FOOD** Invertebrates, notably myriapods (*Z. hildegardeae*). *Z. woosnami* takes more seeds.

■ *Z. hildegardeae*
■ *Z. woosnami*

**MULTIMAMMATE RATS *Mastomys* (9 species)**

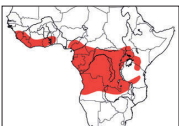
SIZE HB 6–16cm. T 5–15cm. W 12–70g. **DESCRIPTION** Typical unspecialised rats with short, soft fur, a grey, brown or yellow upperside and a pale grey underside. The tail is usually shorter than the body. Females have 8–12 pairs of mammae. They are exceptionally fecund (6–22 young have been recorded). **HABITAT** A relatively late but exceptionally successful spread through almost all the drier habitats of sub-Saharan Africa. **FOOD** Fruits, seeds, invertebrates and household debris.

**ETHIOPIAN MEADOW RATS *Stenocephalemys* (4 species)**

SIZE HB 17cm. T 14cm. W est. 100g. **DESCRIPTION** Very large-headed with flimsy limbs and long, soft fur. Species: *S. albipes*, *S. albocaudata*, *S. griseicauda*, *S. rupp*. **HABITAT** Ethiopian endemics. Afro-alpine meadows and moorlands. **FOOD** Omnivorous.

**DE BALSAC'S MOUSE *Heimyscus fumosus***

SIZE Unavailable. **DESCRIPTION** Long-tailed, soft-furred, resembles *Hylomyscus*. **HABITAT** Caught in rainforest in Gabon, S Cameroon and C A R. **FOOD** Invertebrates and seeds/fruits (in roughly equal proportions).

**AFRICAN WOOD MICE *Hylomyscus* (8 species)**

SIZE HB 7–12cm. T 10–17.5cm. W 8–42g. **DESCRIPTION** Arboreal. Large round ears, long thin tail. Strictly nocturnal. **HABITAT** Lowland and montane rainforests, Afro-alpine moorlands. **FOOD** Omnivorous: fruits, seeds and insects.



Malacomys longipes



Colomys goslingi



*Zelotomys
hildegardae*



Mastomys natalensis



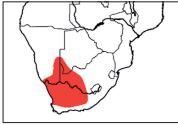
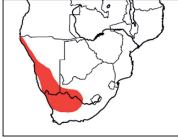
Stenocephalemys griseicauda

De Balsac's
Mouse

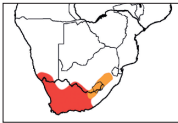


*Hylomyscus
stella*

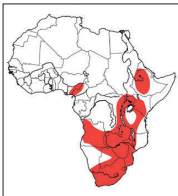
AFRICAN HERBIVOROUS MURINES (Southeast lineage)

*P. brantsii**P. littledalei***WHISTLING RATS** *Parotomys* (2 species)

SIZE HB 12–17cm. T 8–12cm. W 90–155g. **DESCRIPTION** Shaggy, large-eyed, short legged, diurnal rats of variable colouring from fawn to grey-brown (paler than *Otomys*). Often inhabit individual territories within quite tight clusters, where they whistle loudly, often from an upright, seated position at the burrow entrance. Locally abundant. Species: **Brants's Whistling Rat** (*P. brantsii*): upper incisors ungrooved. **Littledale's Whistling Rat** (*P. littledalei*): upper incisors grooved. **HABITAT** Dry, sandy environments in SW Africa where both species excavate burrows. **FOOD** Grass stems and seeds. Stems and leaves of xerophytic shrubs.

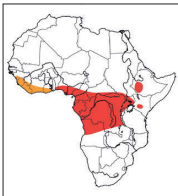
■ *M. sloggetti*■ *M. unisulcatus***CAPE ICE RATS** *Myotomys* (formerly *Liotomys*) (2 species)

SIZE HB 9.3–20.5cm. T 4.7–10.6cm. W 45–156g. **DESCRIPTION** Two rats from cold Cape habitats. Fine-coated rats with relatively large eyes and small ears. Species: *M. sloggetti*, *M. unisulcatus*. **HABITAT** Cape Fynbos and Karoo. **FOOD** Leaves and fruits. Food is eaten on the spot while abundant but stored in winter.

**GROOVE-TOOTHED RATS** *Otomys* (13 species)

SIZE HB 12–22cm. T 6–12cm. W 100–260g. **DESCRIPTION** Shaggy rats of very varied colouring (but usually dark) with a very blunt muzzle and large ears. Upper incisors are always grooved (similar *Dasymys* has plain incisors). Very placid, they give birth to precocious young. **HABITAT** Grasslands, marshes, dense secondary growth and savanna. **FOOD** Green grass and herb stems; bark; occasionally roots and seeds.

AFRICAN HERBIVOROUS MURINES (Centre-west lineage)

■ *O. hypoxanthus*■ *O. ornatus***RUSTY-NOSED RATS** *Oenomys* (2 species)

SIZE HB 13–18cm. T 14–21cm. W 50–121g. **DESCRIPTION** Shaggy brown with bright red or orange nose and rump. Fur is soft, with long guard hairs. Belly is white or pinkish, with a warm tinge to the margin with the darker fur. Semi-arboreal and nocturnal. Species: *O. hypoxanthus*, *O. ornatus*. **HABITAT** Forest belt. Not true forest species but favours secondary growth in clearings – road verges, chablis, clearings and margins of marshes, where they are commonest in sedge or elephant grass (*Pennisetum*) beds. Commonly nest in exotic Billy-goat Weed (*Ageratum conyzoides*). **FOOD** Green leaves, stems, shoots, buds and green seeds; also insects.

**MOUNT OKU RAT** *Lamottemys okuensis*

SIZE Unavailable. **DESCRIPTION** Shaggy brown, semi-arboreal rat related to the rusty-nosed rats and broad-footed thicket rats. **HABITAT** Secondary growth in montane habitats surrounding Mt Oku, Cameroon uplands. **FOOD** Thought to be herbivorous and to forage mainly on the ground.



Brant's Whistling Rat
Parotomys brantsii



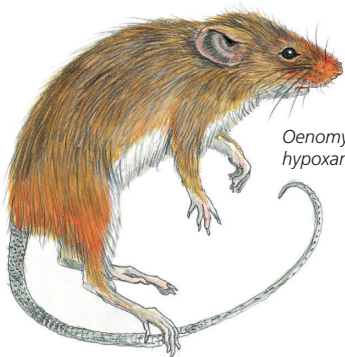
Myotomys sloggetti



Otomys tropicalis



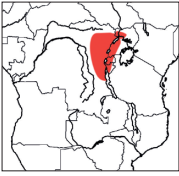
Otomys typus



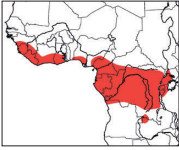
Oenomys hypoxanthus

Mount Oku Rat



**BROAD-FOOTED THICKET RATS** *Thamnomys* (3 species)

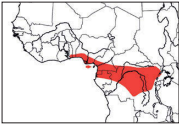
SIZE HB 12–16cm. T 18–22cm. W est. 50–100g. **DESCRIPTION** Arboreal; broad feet, long tail. Back is brown, dense grey underfur. **HABITAT** Montane forests in E Zaïre, Uganda, Rwanda and Burundi. **FOOD** Plant material, including leaves and seeds.

**HUMP-NOSED MICE** *Hybomys* group (6 species)

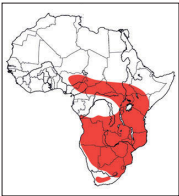
SIZE HB 10–16cm. T 8.5–13cm. W est. 40–80g. **DESCRIPTION** Inconspicuous dark mice with stiff-textured fur, some finely freckled with black. The underfur is grey or brown. The arched profile of the head reflects the 'humped' shape of the skull in most species. Several species have black shiny skin on the soles of the feet. These mice are both nocturnal and diurnal. Species: *H. basillii*, *H. eisentrauti*, *H. lunaris*, *H. planifrons*, *H. trivirgatus*, *H. univittatus*. **HABITAT** Equatorial forests between Sierra Leone and the Nile valley. **FOOD** Mainly fallen fruits. **BEHAVIOUR** Strictly terrestrial, preferring areas with abundant leaf litter and heavy shade, hump-nosed mice are known to shelter in rotting logs.

**DEFUA RAT** *Dephomys defua*

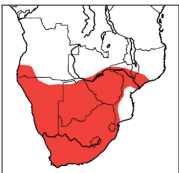
SIZE HB 11.5–13.5cm. T 18–20.5cm. W est. 40–65g. **DESCRIPTION** Arboreal; broad hindfeet, long tail, conical head. Fur has fine guard hairs on rump. **HABITAT** Secondary and swampy palm forests and scrub from Sierra Leone to Ghana. Nocturnal. **FOOD** Not recorded.

**TARGET RAT** *Stochomys longicaudatus*

SIZE HB 12–17.5cm. T 18.5–25cm. W 50–104g. **DESCRIPTION** Dark reddish. The long black bristles on its rump have been likened to arrows. **HABITAT** Equatorial lowland forests from the R. Cross (Nigeria) to W Uganda. **FOOD** Fruits, seeds and possibly some insects.

**BUSH RATS** *Aethomys* (9 species)

SIZE HB 12–19cm. T 12–21cm. W est. 50–150g. **DESCRIPTION** Generalised rats with streaky-looking, soft fur of very variable colour (by species and region). Underside is paler and the ears are large and rounded. Body and tail are about equal in length. Derived directly from the earliest herbi-murines and with some species having a marked association with termite mounds, few species are common. **HABITAT** Strong preference for rocky habitats in S and E Africa, with an outlying population in Nigeria (*A. stannarius*). Patchily common on cultivated land and close to termitaries, or on rough slopes. **FOOD** Grass, stems, leaves and seeds.

**NAMAQUA ROCK MICE** *Micaelamys* (2 species)

SIZE HB 12–19cm. T 12–21cm. W est. 50–150g. **DESCRIPTION** Streaky, soft fur of very variable colour (by species and region). Species: *M. granti*, *M. namaquensis*. **HABITAT** Fynbos, Karoo, high veld and other southern temperate habitats, very often on rocky ground. Distribution very roughly follows the 18° C Isotherm. **FOOD** Grass, stems, leaves and seeds.



Thamnomys venustus



Hybomys univittatus

Defua Rat



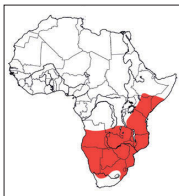
Target Rat



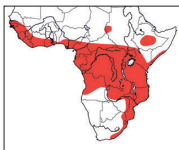
Aethomys kaiseri



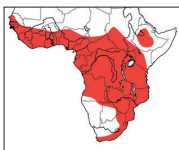
Micaelamys namaquensis

**ACACIA RATS** *Thallomys* (4 species)

SIZE HB 12–17cm. T 13–21cm. W est. 63–100g. **DESCRIPTION** Arboreal. Long, slightly hairy tail, large, round ears and sharp, curved claws on short feet. Bold black eye-mask. Some *Thallomys* species build thorned twig structures along branches and trunks and outside their nests. Such structures may be of seasonal occurrence. Presumably they function to deter predators and provide cover in an exposed and very dangerous savanna environment. **HABITAT** Dry *Acacia*-dominated woodlands and savannas of E and S Africa. **FOOD** Buds, leaves, seeds, gum; occasionally roots and insects.

**NARROW-FOOTED THICKET RATS** *Grammomys* (11 species)

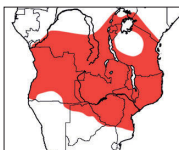
SIZE HB 8–14cm. T 12–22cm. W est. 28–65g. **DESCRIPTION** Arboreal. Slender; prominent, oval ears and long, finely haired tail. Guard hairs on rump. **HABITAT** Mainly moister vegetation types from Guinea to the Indian Ocean coast. **FOOD** Fruits, seeds, stems and other vegetable matter; occasionally insects.

**SHAGGY SWAMP RATS** *Dasymys* (5 species)

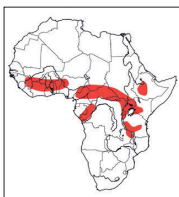
SIZE HB 12–19cm. T 10–18cm. W 80–165g. **DESCRIPTION** Robust, shaggy; somewhat flattened, disc-like face, and rounded pink ears. **HABITAT** Wetter grassy areas of sub-Saharan Africa in marshes, especially at higher altitudes. **FOOD** Stems, roots, shoots and flowers of plants in waterlogged habitats.

**DEGA RATS** *Desmomys* (2 species)

SIZE H 14.5cm. T 10.5cm. W 90g. **DESCRIPTION** A shaggy, blunt-faced rat which closely resembles the creek rat, *Pelomys*, but with bold ochraceous flanks and a pure white belly. The molar teeth are also mill-like but have their own pattern of lophs and cusps. **HABITAT** Ethiopian mountains between 1,500 and 3,000m (a zone locally known as Dega). It lives among grasses in degraded juniper, Podo and *Hagenia* forests and in upland *Acacia* savannas. **FOOD** Grass stems and leaves.

**CREEK RATS** *Pelomys* (5 species)

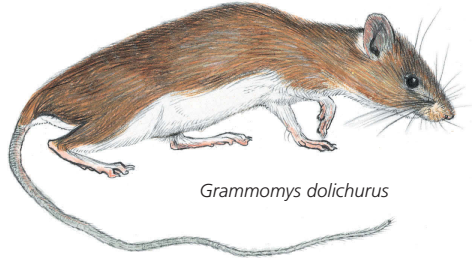
SIZE HB 10–16cm. T 10–17cm. W 50–100g. **DESCRIPTION** Creek rats resemble grass rats but have grooved incisors and a blunt face, with body and tail of similar length. They have a glossy brown coat of longish, coarse fur on which the ears are partly hidden. Mainly nocturnal. Species: *P. campanae*, *P. fallax*, *P. hopkinsi*, *P. isseli*, *P. minor*. **HABITAT** Associated with marshes, reed beds, damp valley bottoms, lakeshores and mountain bogs in central and E Africa. Creek rats excavate burrows. **FOOD** Grass and reed shoots, stems, leaves and seeds.

**MILL RATS** *Mylomys* (2 species)

SIZE HB 12–19cm. T 10–18cm. W 46–165g. **DESCRIPTION** Named after its mill-like grinding molars, this species is externally very similar to creek rats and grass rats. It has 3 functional digits on the forefeet, grooved incisors, shiny, streaked brown upperparts and a white underside. The tail is conspicuously bicoloured. **HABITAT** Tropical northern savannas from Guinea to W Kenya. Found in a variety of moist grasslands at altitudes of up to 2,500m, it is locally and discontinuously distributed. It is sometimes dominant in stands of sword grass (*Imperata*) and other mono-dominant grass types. **FOOD** Green grass stems and leaves.



Thallomys paedulcus



Grammomys dolichurus



Dasymys incomptus



Dasymys incomptus



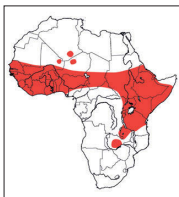
Pelomys fallax



Desmomys harringtoni

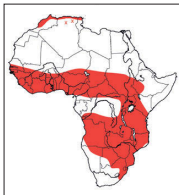


Mylomys dybowski



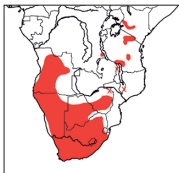
GRASS RATS *Arvicanthis* (7 species)

SIZE HB 9–21cm. T 22–32cm. W 48–130g. **DESCRIPTION** Robust grizzled grass rats with a harsh brown, ochraceous or greyish coat. They have smooth incisors and distinctive, mill-like molars. **HABITAT** Grasslands, steppe, moorland, all types of savanna and derived grasslands within forest belts. Ethiopia appears to be their evolutionary centre but these grass rats have now spread throughout the northern savannas and Nile valley. **FOOD** Seeds, leaves and shoots of grasses. **BEHAVIOUR** They are diurnal.



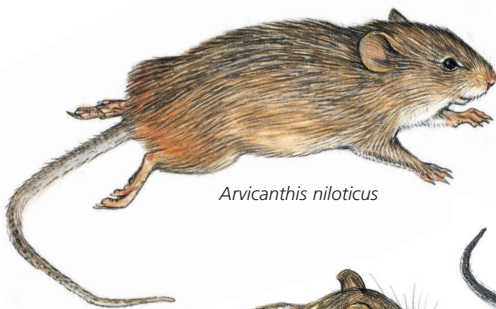
ZEBRA MICE *Lemniscomys* (11 species)

SIZE HB 9–14cm. T 9.5–15cm. W est. 18–70g. **DESCRIPTION** Grass mice with variable numbers of dorsal stripes, some with light unbroken lines, others fragmented into dashes. All have a near-black dorsal midline. Species: *L. barbarus*, *L. bellieri*, *L. griselda*, *L. hoogstraali*, *L. linulus*, *L. macculus*, *L. mittendorfi*, *L. rosalia*, *L. roseveari*, *L. striatus*, *L. zebra*. **HABITAT** African grasslands south of the Sahara (and one species, *L. barbarus*, in Morocco). The ranges of several species overlap and they partition the habitat in such areas but broaden their niches when free of competition. **FOOD** Grass stems, leaves and seeds. Insects are periodically taken. **BEHAVIOUR** Very fecund, a single pair can produce 4 litters of up to 12 (usually 4 or 5) young in less than 4 months.



FOUR-STRIPED GRASS MOUSE *Rhabdomys pumilio*

SIZE HB 9–13.5cm. T 8–13.5cm. W 30–40g. **DESCRIPTION** Grass mouse with four black stripes along its back, with two pale interstripes and a dorsal buff line in the centre. A compact mouse with relatively small ears, sometimes orange or red. **HABITAT** Limited to cooler grasslands in S Africa and in the E African mountains; very discontinuous distribution. **FOOD** Vegetarian: stems, leaves and seeds of grass.



Arvicanthis niloticus

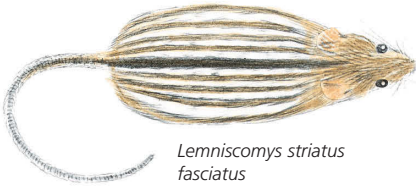


Four-striped Grass Mouse

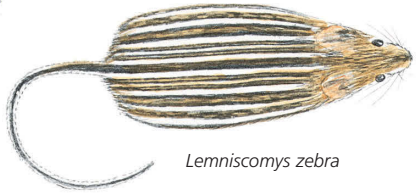


Buffoon Zebra Mouse
Lemniscomys macculus

Zebra and Grass Mice



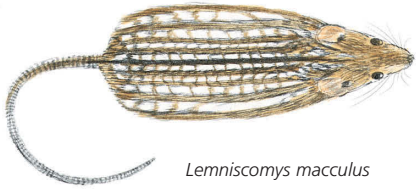
Lemniscomys striatus fasciatus



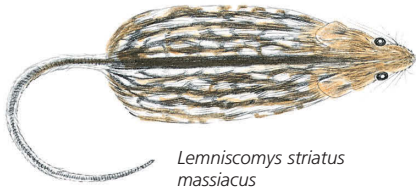
Lemniscomys zebra



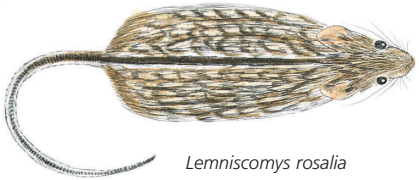
Lemniscomys striatus
(Bwamba dark form)



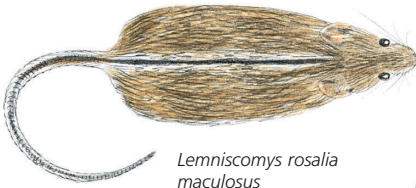
Lemniscomys macculus



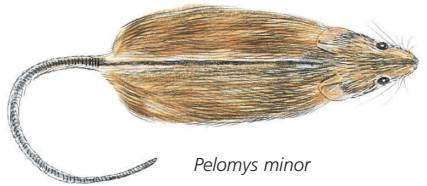
Lemniscomys striatus massiacus



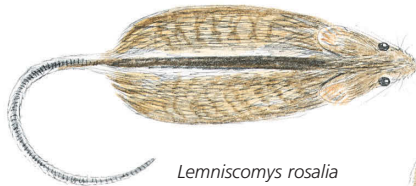
Lemniscomys rosalia



Lemniscomys rosalia maculosus



Pelomys minor



Lemniscomys rosalia dorsalis



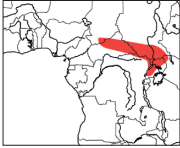
Four-striped Grass Mouse

HARES, ROCK-HARES AND RABBITS Lagomorpha

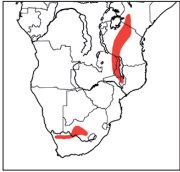
Hares specialise in feeding on coarse vegetation in unstable and often cold environments.

HARES, ROCK-HARES AND RABBITS Leporidae

This family consists of medium-sized, soft-furred animals with very short, furry tails, relatively large ears, small mouths and muscular hindlegs.

**BUNYORO RABBIT** *Poelagus marjorita*

SIZE HB 44–50cm. T 4–5cm. W 2–3kg. **DESCRIPTION** Resembles Common Rabbit but fur is coarser, the nose more protuberant and the hindfeet proportionately shorter. **HABITAT** Moist, wooded grasslands associated with rocky or broken ground. It shelters in dense vegetation, rock clefts and self-made 'scrapes'. **FOOD** Grasses (preferably short), grass seeds, herbs and, occasionally, cultivated crops. **BEHAVIOUR** Continuous breeders. The helpless young are born in a nest (blocked by the mother with a vegetation barrier). Mainly nocturnal and solitary or in very small groups.

**SMITH'S RED ROCK-HARE** *Pronolagus rupestris*

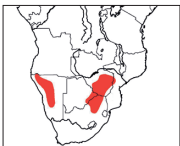
SIZE HB 38–53cm. T 5–12cm. W 1.3–2.5kg. **DESCRIPTION** Grey-headed with a bright russet rump and legs. The red tail normally has a black tip. The black colour is variable and the fur is soft and dense. **HABITAT** Stony country where dense bush, grass and rocks are intermingled. **FOOD** Mainly grazers.

**HEWITT'S RED ROCK-HARE** *Pronolagus saundersiae*

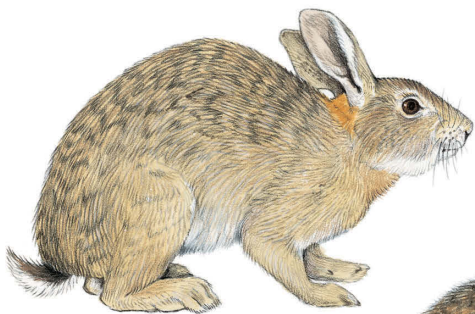
SIZE HB 38–53.5cm. T 5–11.5cm. W 1.35–2.05kg. **DESCRIPTION** Formerly described as a subspecies of *P. rupestris*, this population is now regarded as a distinct species. Distinguished by its relatively short ears, small head, rufous forelegs, pale-grey cheeks, brown throat-spot and fluffy, longish sandy or russet tail. **HABITAT** Steep, rocky hillsides at generally higher elevations than other red rock-hare species. Dominant plant communities are *Protea* fynbos, *Buddleja/Leucosida* scrub and afroalpine *Erica/Helicrysum* heath. **FOOD** Nocturnal grazer in highland grass-scrub mosaics. **STATUS** Common in ecologically suitable habitats.

**NATAL RED ROCK-HARE** *Pronolagus crassicaudatus*

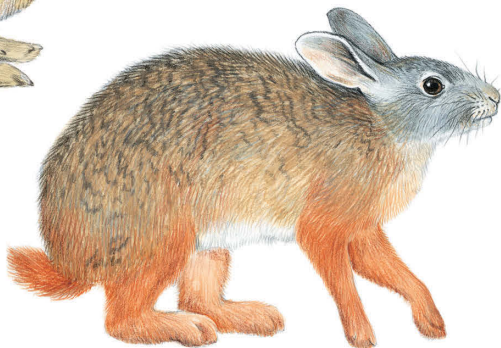
SIZE HB 46–56cm. T 3.5–11cm. W 2.4–3kg. **DESCRIPTION** Pale grey band across the cheek, russet fore- and hindlegs and rump, and an all-russet tail. Fur is dense, harsher than in other rock-hares. **HABITAT** Steep, grassy hillsides with scattered rocks and boulders along the eastern seaboard of South Africa and S Mozambique from East London to the R. Maputo, and from sea-level up to 1,550m. **FOOD** Grasses are grazed at night. Often moves to higher elevations to graze.

**JAMESON'S RED ROCK-HARE** *Pronolagus randensis*

SIZE HB 42–50cm. T 6–13.5cm. W 1.8–3kg. **DESCRIPTION** Light grey head with brownish flecks and a light, warm-coloured rump and back legs. The red-brown tail has a black tip. Fur is very soft and silky. **HABITAT** Rocky hills, valleys and gorges in 2 widely separate areas of S Africa (Zimbabwe–Transvaal and Namibia). Shelters among rocks and tussocks during the day. Very agile among boulders and able to run over very steep surfaces. **FOOD** Fresh green flushes of grasses are favoured and are usually grazed in proximity to rocks and koppies at night.



Bunyoro Rabbit

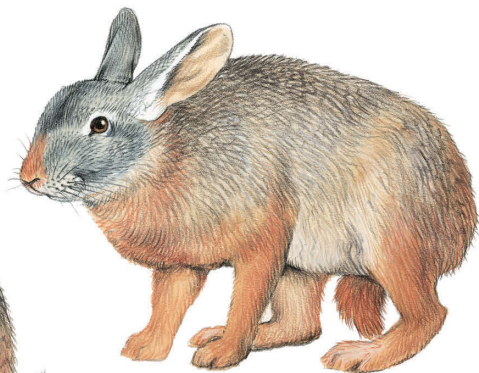


Smith's Red Rock Hare



Hewitt's Red Rock-hare

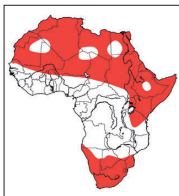
Jameson's Red Rock Hare



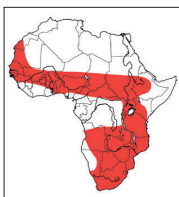
Natal Red Rock Hare

**COMMON RABBIT** *Oryctolagus cuniculus*

SIZE HB 30–50cm. T 3–8cm. W 0.8–3kg. **DESCRIPTION** Small, short-limbed, brown-coated rabbit or 'digging hare', with shorter ears and a rounder head than true hares. The tips of the ears are never black. **HABITAT** Bushy and broken country in N Morocco and NW Algeria, avoiding densely wooded land and desert. **FOOD** Grass and herbs; bark in winter. **BEHAVIOUR** Live on the surface when predators and the climate allow. The digging of dens, burrows or warrens is likely to represent a response to a combination of environmental pressures.

TRUE HARES *Lepus***CAPE HARE** *Lepus capensis* (includes *L. fagani* and *L. habessinicus*)

SIZE HB 40–68cm. T 7–15cm. W 1–3.5kg. **DESCRIPTION** Back is variable light shades of brown, buff or grey while the chest is normally sandy coloured. There are muted contrasts on face and nape of neck. Incisors are without deep grooves and a forehead spot is rare. Great regional variation. Over 30 subspecies named including the small, desert-dwelling *L. c. habessinicus* (Horn of Africa). **HABITAT** Prefers completely open grasslands, steppes and subdesert. Will move into cleared or regularly fired grasslands (only to be displaced by scrub hares if there is extensive woody regrowth) but is seldom found in montane areas. **FOOD** High proportion of herbs and fire-dependent grasses, cropped close to the ground.

**SCRUB HARE** *Lepus saxatilis* (includes *L. victoriae* and *L. crawshayi*)

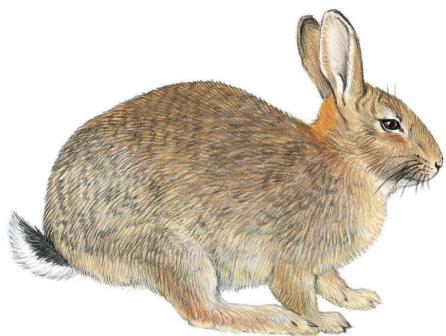
SIZE HB 41–58cm. T 7–17cm. W 1.5–4.5kg. **DESCRIPTION** Back is variable darker shades of brown to grey, with all-white underparts and well-defined pattern contrasts on the face. The nape of the neck is warm russet and a forehead spot is common. Incisors have deep grooves and the muzzle is more projecting than in the Cape Hare. There is enormous regional variation, especially in the length of the ears. Over 30 races have been named, including *saxatilis*, *whytei*, *crawshayi*, *victoriae*, *ansorgei*, *fagani* and *canopus*. **HABITAT** Prefers scrubby grasslands, grassy areas within woodlands, secondary growth, cultivation mosaics and stony, wooded steppes; common in upland and montane grasslands. **FOOD** Rank grass species, which are cropped less close to the ground. In E Africa takes fewer herbs than Cape Hare.

**STARCK'S HARE** *Lepus starcki*

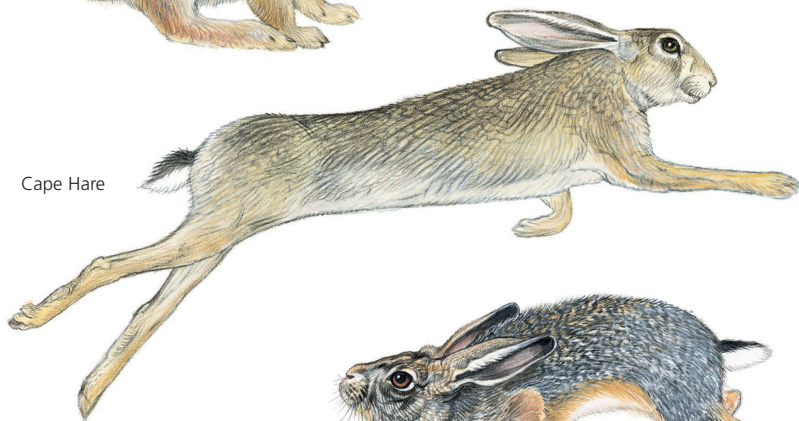
SIZE HB est. 42–60cm. T 7–12cm. W 2–3.5kg. **DESCRIPTION** Back is mottled tawny, becoming grey on the rump. Nape, sides, chest and legs are tawny and the underparts are white. Tail is all white or with black stripe. Ears have a prominent black tip. **HABITAT** High-altitude moorlands (2,500–4,000m) in Ethiopia. **FOOD** Common moorland grasses (*Agrostis*, *Eleusine*, *Festuca*, *Pennisetum* and *Poa*) are likely food plants.

**RIVERINE RABBIT** *Bunolagus monticularis*

SIZE HB 42–58cm. T 8–15cm. W 2–3kg. **DESCRIPTION** A long-eared, medium-sized hare with relatively short hindfeet, a brown tail and a very conspicuous dark line separating the white chin and bib from the darker muzzle and cheeks. There are conspicuous pale eye rings and white fringes along the upper edges of the ears. **HABITAT** Dense vegetation bordering seasonal rivers in the Karoo where salt-loving plants, such as *Salsola* and *Lycium*, predominate. Digs short burrows which it plugs with debris when not in use. **FOOD** Browses on common shrubs, i.e. *Salsola*, *Kochia* and the ubiquitous *Mesembryanthemum*. **BEHAVIOUR** Solitary, with male home ranges of about 20ha and female 13ha. Activity is nocturnal. Single young, weighing only 40g at birth, are reared in a fur- and grass-lined burrow.



Common Rabbit



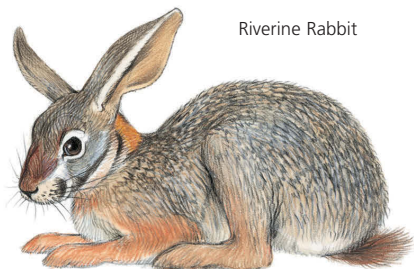
Cape Hare



Starck's Hare



Scrub Hare



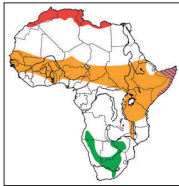
Riverine Rabbit

HEDGEHOGS *Erinaceomorpha*

Hedgehogs derive from late Cretaceous mammals that also gave rise to shrews and bats. Their most striking adaptation is their ability to curl up into a spiny ball. They are nocturnal omnivores with a preference for well-protected prey such as beetles, centipedes, crabs, snakes and snails.

HEDGEHOGS *Erinaceidae*

DESCRIPTION Hedgehogs have relatively short legs and tail, a sharply pointed face, small eyes and prominent ears. Primary senses are auditory and olfactory.



- *A. algirus*
- *A. albiventris*
- *A. frontalis*
- *A. sclateri*

AFRICAN HEDGEHOGS *Atelerix* (4 species)

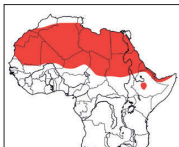
SIZE HB 14–25cm. T 1.5–5cm. W 250–1,600g. **DESCRIPTION** Small, spiny animals with short tails, pointed muzzles and short hairy legs with clawed, well-padded toes. Only active in evenings or at night. They trot with fast leg movements but hunch or roll into a prickly ball at any disturbance. Species: *A. albiventris* (sub-Saharan non-forest habitats to R. Zambezi), *A. algirus* (Libya to W Sahara), *A. frontalis* (S Africa), *A. sclateri* (Somalia). *A. sclateri* may be a race of *A. albiventris*. **HABITAT** Very widespread but sporadic in drier regions of Africa. A marked preference for relatively open, dry or seasonal habitats with sparse or patchy grass cover, especially overgrazed regions. **FOOD** Invertebrates, notably termites, beetles, earthworms, millipedes, small vertebrates, fungi and fallen fruits. African hedgehogs can locate hidden prey by scent and

sound, and can dig in soft, loose soils. **BEHAVIOUR** Nocturnal or crepuscular animals, they are solitary except females with young. They hibernate in temperate regions and may also aestivate in tropical dry seasons. Various vocalisations including a sniff, growl, twitter, spit, chatter and scream. They travel over a home range, sleeping in changing (but sometimes habitual) day-shelters. One to nine young are born seasonally. The spines are an effective protection, although eagle owls and some hungry carnivores appear to have little difficulty in killing and eating hedgehogs.



LONG-EARED HEDGEHOG *Hemiechinus auritus*

SIZE HB 14–27cm. T 1.3–5cm. W est. 150–250g. **DESCRIPTION** A small and variably coloured hedgehog, but generally pale with shorter spines and larger ears than other African hedgehog species. **HABITAT** The eastern Mediterranean littoral. Has a limited range in Africa, being a mainly Asiatic species. A moisture-dependent hibernator preferring cool deserts. **FOOD** Mainly invertebrates, notably insects and millipedes. Snails favoured in spring. **BEHAVIOUR** Only active at night (or on overcast, cool mornings or evenings), they often sleep in rodent burrows during day. Females squeal in defence of their young and butt with their head spines.



DESERT HEDGEHOG *Paraechinus aethiopicus*

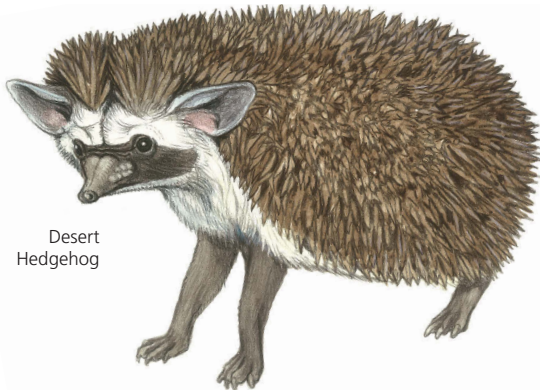
SIZE HB 16.9–21.7cm. T 1.5–2.2cm. W (est.) 500g. **DESCRIPTION** Variably coloured desert hedgehog with two distinctive 'coronets' of spines on either side of a narrow spineless peak to the broad white forehead. Anterior tooth-row more gracile than in other species and the external muzzle therefore visibly finer and sharper than in other African hedgehog species. Ears shorter than in *Hemiechinus*, longer than in *Atelerix*. Fast and long-legged, carrying its body well clear of the ground. Has physiological adaptations to minimise water-loss and increase metabolic efficiency. Sleeps in self-dug burrows or in natural retreats under vegetation or among rocks during the day. **HABITAT** Deserts. Aestivates in hot, dry hamadas as well as mountains of the Sahara desert. Prey to owls and jackals. **FOOD** Invertebrates and vertebrates such as small reptiles.



White-bellied Hedgehog
Atelerix albiventris



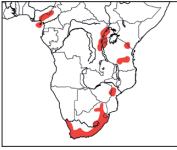
Long-eared
Hedgehog



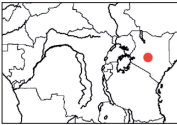
Desert
Hedgehog

SHREWS Soricomorpha, Soricidae

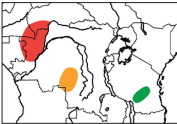
Mouse-sized mammals with a long, mobile nose and stout, cylindrical skull. They bulldoze insects out of plant debris. Bodies are powerful and tubular. Sensitive vibrissae detect invertebrate prey.

**MOUSE SHREWS** *Myosorex* (12 species)

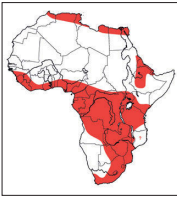
SIZE HB ave. 5–10cm. **DESCRIPTION** Small, dark shrews, with reduced eyes and ears, a short tail and well-clawed, slender toes. **HABITAT** Mostly temperate or high-altitude regions, often in swampy conditions. Most species are localised endemics. All are very poorly known. **FOOD** Small invertebrates, mainly insects and earthworms and some very small vertebrates (notably frogs).

**MOLE SHREWS** *Surdisorex* (2 species)

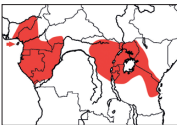
SIZE HB 8.9–10.8cm. T 2.4–3.4cm. W est. 8–10g. **DESCRIPTION** Small, brown shrews with dense short fur and no trace of external eyes or ears. Species: *S. novae* (Aberdare Mts), *S. polulus* (Mt Kenya). **HABITAT** Surface runways and subterranean tunnels in Afro-alpine and upper montane forest.

**CONGO SHREWS** *Congosorex* (3 species)

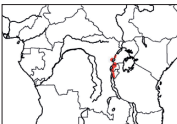
SIZE HB est. 9cm. T est. 6cm. **DESCRIPTION** Small brown shrew with a long tail and large ears. **HABITAT** Only known from Kasai, S Zaïre (fire-climax Miombo [*Brachystegia*] woodlands). **FOOD** Invertebrates.

**MUSK SHREWS** *Suncus* (9 species)

SIZE HB 5–12.5cm. T 3–8.5cm. W 3.5–9.5g. **DESCRIPTION** Very small shrews of various shades of brown or grey, with a paler underside. They have large rounded ears, a bewhiskered pink muzzle, thin limbs and a tapered tail. **HABITAT** Very patchy distributions. Apparently more common in S Africa than tropical Africa. Some species associated with termitaries. **FOOD** Insects (up to shrew size) and other small invertebrates.

**FOREST SHREWS** *Sylvisorex* (12 species)

SIZE HB 4.5–8.5cm. T 4.5–9cm. W 3–12g. **DESCRIPTION** Dark brown or black arboreal shrews with extended noses, long tails and mobile digits on the hands and feet. **HABITAT** Predominantly forest or riverine habitats from sea-level up to 4,000m. **FOOD** Invertebrates.

**RWENZORI WATER SHREW** *Ruwenzorisorex suncoides*

SIZE HB 9.2–9.5cm. T 6.1–6.2cm. W est. 18g. **DESCRIPTION** Greyish-black with rounded head, short snout and small (but protruding) ears. **HABITAT** Montane forests in central Africa (E Zaïre, Rwanda, Burundi and W Uganda). **FOOD** Aquatic invertebrates.

**HERO SHREWS** *Scutisorex* (2 species)

SIZE HB 10.5–15cm. T 7–10.9cm. W 70–113g. **DESCRIPTION** A large grey shrew with a long, tapered nose, shallow ears and thick woolly fur. Distinguished by its 'trotting', rather than 'crawling', gait and complex backbones. **HABITAT** Seasonally swampy forests between the R. Itimbiri, R. Lualaba and R. Nile; low and medium altitudes. **FOOD** Invertebrates.



Montane Mouse Shrew
Myosorex blarina



Mount Kenya Mole Shrew
Surdisorex polulus



Congo Shrew
CongoSorex polli



Greater Musk Shrew
Suncus lixus



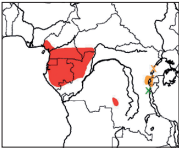
Grant's Climbing Shrew
Sylvisorex granti



Rwenzori Water Shrew



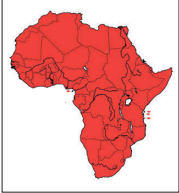
Hero Shrew
Scutisorex somereni



RODENT SHREWS *Paracrociodura* (3 species)

SIZE HB ave. 6.5cm. T ave. 3.5cm. **DESCRIPTION** Dark shrews with thin, short fur, dark skin and a short, broad muzzle. Limbs are short with miniscule claws. **HABITAT** Montane and lowland forests from Cameroon to W Uganda.

■ *P. schoutedeni* ■ *P. maxima* ■ *P. graueri*



WHITE-TOOTHED SHREWS *Crociodura* (over 100 species)

SIZE HB 4.5–14cm. T 4.5–9cm. W 11–40g. **DESCRIPTION** The commonest and most diverse group of African shrews. All have a long, whiskery nose, visible ears and small eyes. Most have some long, fine hairs growing very sparsely on the tail. The group can be divided into 3 subdivisions on the basis of tooth reduction (especially of the last molar). Further clustering into species groups is also possible on the basis of variations in size, colour, length of the hindfeet, and length and hairing of the tail. Certain identification requires

close inspection of the teeth but the plate opposite illustrates 14 common species that can be identified according to external characteristics, notably colour, the proportions of hind feet, length and shape of snout, tail length and the pattern of hairs or vibrissae on the tail or rump. **HABITAT** All vegetation types at all altitudes, mainly terrestrial, but able to climb and swim. Some species are highly restricted (particularly those in the 'primitive' category); others range very widely (notably some of the 'advanced' groups). **FOOD** A very wide range of invertebrates and small vertebrates.

Crociodura somalica



Schouteden's Rodent Shrew
Paracrociodura schoutedeni



Greater White-toothed Shrew
Crociodura flavescens



White-toothed shrews



Crocidura hirta



Crocidura flavescens



Crocidura silacea



Crocidura smithi



Crocidura fuscomurina



Crocidura hildegardae



Crocidura alleix



Crocidura somalica



Crocidura niobe



Crocidura maurisca



Crocidura turba



Crocidura luna



Crocidura fumosa



Crocidura nigricans

BATS Chiroptera

FRUIT BATS Pteropodidae

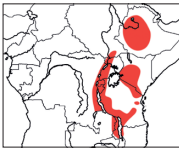
Large brown eyes in a long, lemur-like head, funnel-shaped ears and broad, crepe-textured wings (with claws on the first and second digits) are the most notable peculiarities of fruit bats. Entirely dependent on a year-long supply of fruits and flowers. Almost all disperse seeds by picking fruit in one tree and excreting its seeds in another.



■ *P. voeltzkowi*
■ *P. comorensis*

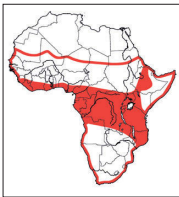
FLYING FOXES *Pteropus* (2 species)

SIZE HB 220–265mm. FA 150–161mm. W 400–650g **DESCRIPTION** Large, dark-winged fruit bats with yellowish or red heads and ‘fox-like’ faces. **HABITAT** Off Africa, restricted to Pemba I. (*P. voeltzkowi*) and Mafia I. (*P. comorensis*). **FOOD** Fruits and flowers. **BEHAVIOUR** Roost exposed in large trees, usually in large colonies.



MOUNTAIN FRUIT BAT *Stenonycteris lanosus*

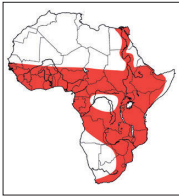
SIZE HB 114–173mm. FA 85–95mm. W 94–162g. **DESCRIPTION** Large with black wings, shaggy, dark grey fur, pointed ears and a long but blunt-ended muzzle. **HABITAT** Montane forest areas in E Africa, Ethiopia and Madagascar. **FOOD** Fruits, nectar and pollen. **BEHAVIOUR** A colonial cave-dweller in montane areas.



STRAW-COLOURED FRUIT BAT *Eidolon helvum*

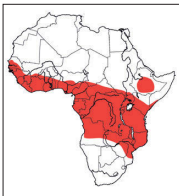
SIZE HB 150–195mm. FA 110–135mm. W 250–311g. **DESCRIPTION** Large, black-winged with pale tawny fur on the back, shoulders and underside. **HABITAT** Breeds in equatorial Africa but ranges all over sub-Saharan Africa outside the breeding season. Roosts typically sited near noise. **FOOD** Fruits, flowers, nectar, pollen, buds. **BEHAVIOUR** Roosts mainly in large groups in open trees.

■ Breeding range □ Migratory range



EGYPTIAN ROUSETTE *Rousettus aegyptiacus*

SIZE HB 109–192mm. FA 82–160mm. W 83–170g. **DESCRIPTION** Large, black-winged with brownish grey fur, dark crown, rounded ears. Vestigial webbing between fifth toe and heel-spur. **HABITAT** Sub-Saharan Africa, E Mediterranean and S Arabia. From cave flies long distances to sources of fruits. **FOOD** Fruits, flowers, nectar and pollen; occasionally leaves and buds. **BEHAVIOUR** A cave-dweller, often very vocal.



ANGOLA FRUIT BAT *Lissonycteris angolensis*

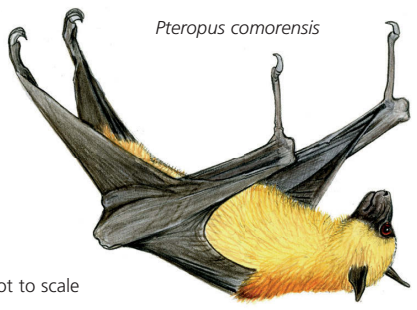
SIZE HB 105–135mm. FA 65–91mm. W 65–91g. **DESCRIPTION** Plain brown fruit bat with oval ears. Patagium is attached to second toe. **HABITAT** Tropical Africa, mainly in forests at low and higher altitudes. **FOOD** Fruits and flowers. **BEHAVIOUR** Roosts singly or in small groups in low, thick vegetation, in hollow trees or near the mouths of caves, and is quiet and cryptic.

Pteropus voeltzkowi



Straw-coloured Fruit Bat

Pteropus comorensis



NOTE: not to scale

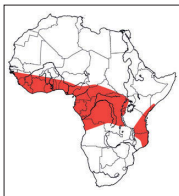
Egyptian
Rousette



Mountain Fruit Bat

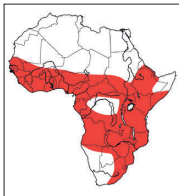
Angola
Fruit Bat





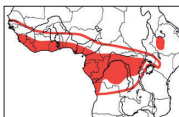
COLLARED FRUIT BATS *Myonycteris* (3 species)

SIZE HB 88–120mm. FA 55–70mm. W 35–80g. **DESCRIPTION** Brown or buff with broad shoulder ruffs, or ‘collars’, in males. Pointed ears resemble those of the Angolan Fruit Bat but are smaller. Species: *M. torquata* (Guinea–Uganda), *M. relicta* (coastal E Africa), *M. brachycephala* (São Tomé and Príncipe). **HABITAT** In or close to rainforest, including savanna/forest mosaics. **FOOD** Fruits and nectar. **BEHAVIOUR** Roost singly or in small groups in dense, low vegetation.



EPAULETTED FRUIT BATS *Epomophorus* (6 species)

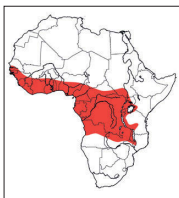
SIZE HB 96–170mm. FA 54–90mm. W 40–120g. **DESCRIPTION** Variably tinted, brown fruit bats of differing sizes. All have tufts of white fur at the base of the ears. Males have white ‘epaulettes’ on their shoulders. Utter chinking, frog-like calls. Species: *E. gambianus*, *E. labiatus*, *E. minimus*, *E. angolensis*, *E. grandis*, *E. wahlbergi*. **HABITAT** Mainly savannas, woodlands and forest mosaics. Some species occur in main forest zones. **FOOD** Fruits, flowers, nectar, pollen.



HAMMER-HEADED FRUIT BAT *Hypsignathus monstrosus*

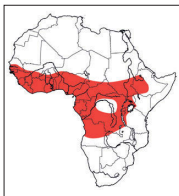
SIZE HB 195–200mm (female), 220–275mm (male). FA 118–128mm (female), 125–137mm (male). W 250g (218–377g) (female), 425g (228–450g) (male). **DESCRIPTION** The largest continental African fruit bat, with brown fur and membranes and a yellowish brown skin colour on the muzzle, ears and digits. Males are almost twice the weight of females and have inflatable sacs over the raised ridge of the nose and on each side of the neck. The male’s lips are also modified to control sound. Both sexes have tubular nostrils and white tufts at the base of the ears. Males make a very loud, explosive, blaring honk. The call carries several kilometres on a still night. **HABITAT** Roosts at low levels in heavily shaded forests of almost all types, including mangroves and swamp forest but not montane areas. Seasonal movements poorly known. **FOOD** Soft fruits, especially wild figs and the fruit of cabbage trees or forest fever trees (*Anthocleista*). Males may fly up to 10km in search of concentrations of ripe fruits; females forage within a much more localised area. **BEHAVIOUR** Competitive assemblies of calling males, or ‘leks’, provide a point of reference for all Hammer Bats within an 8–10km radius and attract females.

■ Breeding range
□ Migratory range



SINGING FRUIT BATS *Epomops* (3 species)

SIZE HB 103–195mm. FA 77–102mm. W 65–158g. **DESCRIPTION** Medium-sized brown fruit bat with white tufts at the base of the ears. Vocalisations very loud and ‘musical’. Species: *E. franqueti* (common and widespread), *E. buettikoferi*, *E. dobsoni*. **HABITAT** Forests and forest-woodland mosaics. **FOOD** Fruits and nectar.

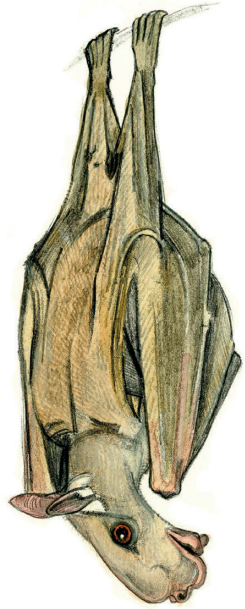


DWARF EPAULETTED FRUIT BATS *Micropteropus* (2 species)

SIZE HB 67–103mm. FA 46–67mm. W 25–40g. **DESCRIPTION** Small tawny fruit bats with white tufts at the base of the ears and white ‘epaulettes’ on adult males. The short muzzle has prominent nostrils. Males make a shrill, chinking call which they repeat monotonously. Species: *M. pusillus* (W & C Africa), *M. intermedius* (Angola and Zaïre). **HABITAT** Woodlands, savannas and forest mosaics outside the main lowland forest blocks. **FOOD** Fruits, nectar and pollen. **BEHAVIOUR** Roost singly or in small groups in shady vegetation.



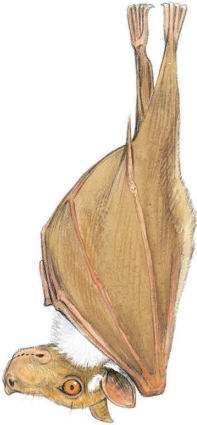
Little Collared Fruit Bat
Myonycteris torquata



Hammer-headed
Fruit Bat



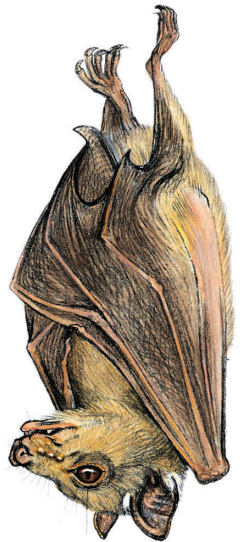
Ethiopian
Epauletted
Fruit Bat
*Epomophorus
labiatus*



Franquet's Singing Fruit Bat
Epomops franqueti, female

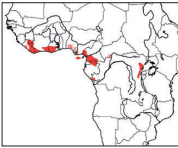


Franquet's
Singing Fruit Bat
male



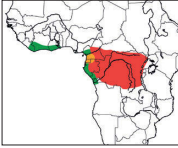
Peters' Dwarf
Epauletted Fruit Bat
Micropteropus pusillus

NOTE: not to scale



TEAR-DROP FRUIT BAT *Scotonycteris zenkeri*

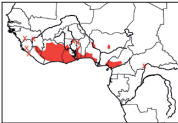
SIZE HB 65–85mm. FA 47–55mm. W 16–24g. **DESCRIPTION** Prominent, tear-like white spots occur on either side of the eyes and others over the upper lip. Fur is variably tinted and wings are dark brown. Roost singly in vegetation. **HABITAT** Lowland rainforests of W and C Africa; mostly at lowest levels in undergrowth. **FOOD** Fruits and flowers. Fruits are possibly gathered from the forest floor.



GOLDEN FRUIT BATS *Casinycteris* (3 species)

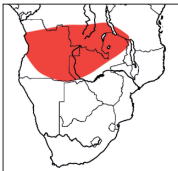
SIZE HB 90–95mm. FA 50–63mm. W 26–33g. **DESCRIPTION** Fruit bats with bold white margins to the mouth, eye and ear base. The hard palate is unlike other fruit bats' in not extending back behind the tooth row, implying that the fruit-squeezing action of the tongue and palate is modified in this genus. Species: *C. argynnis*, *C. campomaaensis*, *C. ophiodon*. **HABITAT** Known from the main lowland forest block between Cameroon and E Zaïre. Recorded from low dense undergrowth. **FOOD** Specialised feeding habits, in which fruits are processed mainly at the front of the mouth, would seem likely.

- *C. argynnis*
- *C. campomaaensis*
- *C. ophiodon*



FLYING CALF *Nanonycteris veldkampi*

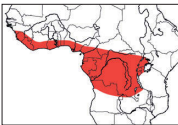
SIZE HB 65–75mm. FA 45–50mm. W est. 30g. **DESCRIPTION** Very small fawn-brown fruit bat with a slender muzzle and large eyes. Thick, soft fur covers the back and legs and extends onto the membranes. There is a short white 'moustache' and white tufts of fur at the base of the ears. Males have white 'epaulettes'. May congregate at feeding sites. **HABITAT** Senegal to E Zaïre in lowland rainforest and forest mosaics. **FOOD** Nectar and pollen.



BENGUELA FRUIT BAT *Plerotes anchietae*

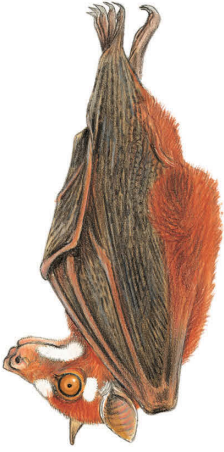
SIZE HB 87mm. FA 48–53mm. W est. 38g. **DESCRIPTION** Greyish brown fruit bat with rather long, crinkled fur on the lower back and legs. There are white spots at the base of the ears and it lacks a cartilaginous spur on the heel. The muzzle is unusually broad but flat and shallow with very rudimentary teeth. Pouches around the eyes of males could suggest an unusual loud call. **HABITAT** Southern margins of the Zaïre basin between the Atlantic and

L. Tanganyika. Probably forest mosaics and riverine strips. **FOOD** Not known, but probably nectar and pollen.



NECTAR BAT *Megaloglossus woermanni*

SIZE HB 64–82mm. FA 40–46.5mm. W 12–20g. **DESCRIPTION** A very small fruit bat with an extremely fine-pointed muzzle and a very long, thin, brush-textured tongue. The soft pale fur appears to be 'smoked' with brown or sepia. Males have a ruff of stiff, pure white hair, apparently growing from a glandular patch. It is apparently not very vocal. Two races have been described. **HABITAT** Main forest blocks from Guinea to Uganda. Roosts in dense forest foliage and has been caught under banana fronds and in huts or houses within the forest. Has been netted flying along forest tracks bordered by flowering trees (*Spathodea*). **FOOD** Nectar.



Tear-drop Fruit Bat



Casinycteris argynnis



Benguela Fruit Bat

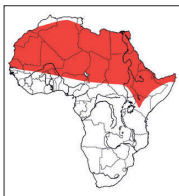


Flying Calf



Nectar bat

MOUSE-TAILED BATS *Rhinopomatidae*



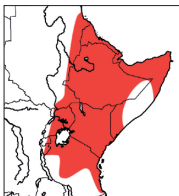
MOUSE-TAILED BATS *Rhinopoma* (3 species)

SIZE HB 50–63mm. T 48–68mm. FA 50–60mm. W est. 10–12g. **DESCRIPTION** Sandy-coloured with long, wispy tails and valvular nostrils set in a small, pad-like nose-leaf. A membrane joins rhomboid ears above prominent black eyes. Species: *R. hardwickii* (mainly true deserts from Morocco to Arabia), *R. microphyllum* (mainly subdeserts and Sahel from Senegal to Nile valley and South-East Asia). A third species, *R. macinnesi* (formerly regarded as a subspecies of *R. hardwickii* and illustrated here) seems to be a little-known

relict population from around the margins of the Ethiopian Dome. **HABITAT** Desert and subdesert. Unusual tolerance for low humidity, high temperatures and relatively unprotected shelters. **FOOD** The bats hunt small desert insects and beetles by flying in undulating swoops and glides at 5–10m. Fat deposits fluctuate, implying seasonal shortages of food. **BEHAVIOUR** Live in small, scattered groups of mixed sexes, but also in all-male and all-female groups.

LARGE-WINGED BATS *Megadermatidae*

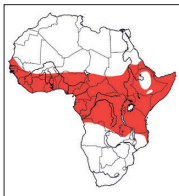
Broad-winged, large-eared, large-headed bats with ornate nose-leaves, thin, strut-like legs and long, silky fur. Restricted to Old World tropics and Australasia, these are large-eyed bats that often emerge before dark to hunt invertebrates from perches where they may be relatively conspicuous.



HEART-NOSED BAT *Cardioderma cor*

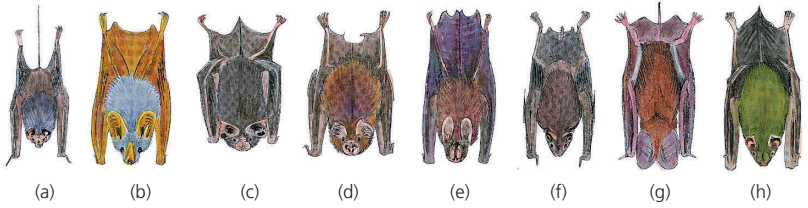
SIZE HB 70–77mm. FA 54–59mm. W 21–35g. **DESCRIPTION** Relatively large bat with long, pale fur and joined ears bearing sharp, two-pointed ear tragi. The prominent muzzle is surrounded by a heart-shaped nose-leaf. **HABITAT** Restricted to NE Africa from Eritrea to central Tanzania. The Rift Valley, dry *Acacia* bush and the coastal littoral are preferred habitats. Uses houses for shelter but is shy and prefers dry caves. Roosts in groups of 3–100 or more.

FOOD Invertebrates and, more occasionally, vertebrates (including other bat species), hunted from a limited number of lookout posts on the lower, outer margins of trees or bushes. **BEHAVIOUR** After forays, prey is brought back to be eaten at the perch or even to the daytime shelter where debris collects below the roost.



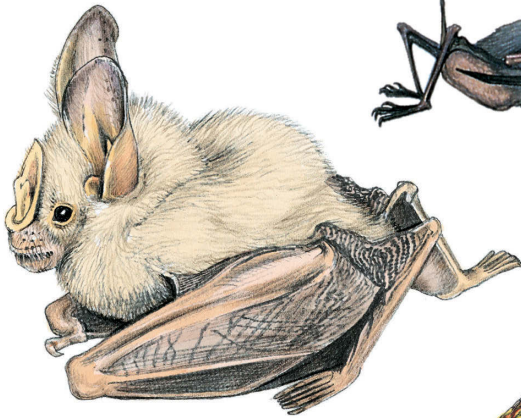
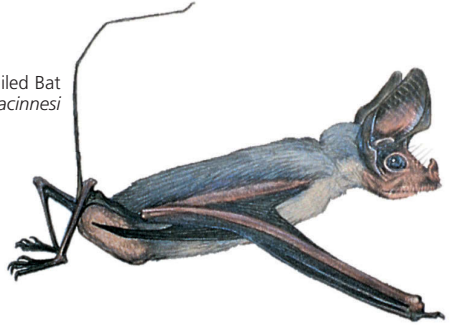
YELLOW-WINGED BAT *Lavia frons*

SIZE HB 63–83mm. FA 55–64mm. W 28–36g. **DESCRIPTION** Very colourful bat with large black eyes, pale blue-grey fur and bright yellow-orange membranes and ears. The wings are exceptionally broad and the ears are long, with a spiky tragus. The elongated nose-leaf also encloses a pointed sella, or spike, that runs down its centre. Often to be seen roosting in light shade in large savanna trees (especially *Euphorbia* in the dry season). It makes a bird-like contact call. **HABITAT** Low-lying savannas, open woodlands and narrow forest galleries in tropical Africa. **FOOD** Invertebrates, occasionally vertebrates; known to chase other bat species. **BEHAVIOUR** Apparently able to startle potential predators with its brilliant colouring. When hanging quite still it resembles a dead leaf.



Bat families: (a) Mouse-tailed, (b) Large-winged,
 (c) Horseshoe, (d) Leaf-nosed, (e) Slit-faced,
 (f) Sheath-tailed, (g) Free-tailed, (h) Vesper.

Piedmont Mouse-tailed Bat
Rhinopoma macinnesi



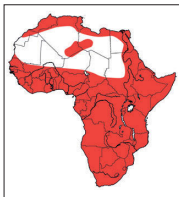
Heart-nosed Bat



Yellow-winged Bat

HORSESHOE BATS *Rhinolophidae*

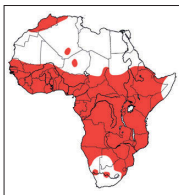
Elaborate nose-leaves and broad, leaf-shaped ears directed towards effective type of CF sonar.

HORSESHOE BATS *Rhinolophus* (27 species)

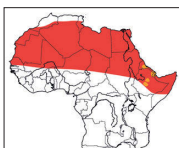
SIZE FA 38–68mm. **DESCRIPTION** All horseshoe bats have nose-leaves of a similar structure but the proportions and shapes are distinctive in each species. **HABITAT** All vegetation types. **FOOD** Varies from species to species. Mosquitoes, moths, beetles, spiders and scorpions are caught in flight, by foraging at low levels or by ambush on the ground. **BEHAVIOUR** Roost in caves, holes, buildings, hollow trees. Temperate species choose warm roosts when active but retreat to cool sites when torpid.

LEAF-NOSED BATS *Hipposideridae*

Predominantly tropical, close relatives of the horseshoe bats but with more diverse nose-leaves.

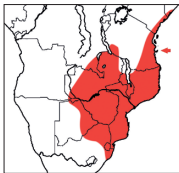
LEAF-NOSED BATS *Hipposideros* (13 species)

SIZE FA 28–116mm. **DESCRIPTION** Very diverse group with leaf-shaped ears and less elevated nose-leaves than horseshoe bats. Many have scroll-like folds and flanges above the eyes. Sides of the muzzle often bear shallow lappets 'stacked' outside rim of the main 'horseshoe'. **HABITAT** Forests, woodlands and savannas at low and medium altitudes. **FOOD** Beetles, cicadas, termites, moths, crickets, ants and woodlice. **BEHAVIOUR** Prey is caught in flight or is snatched off leaves or litter by quartering in slow, wavering flight close to the ground.

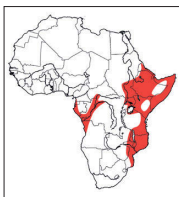
TRIDENT LEAF-NOSED BATS *Asellia* (2 species)

SIZE HB 50–62mm. FA 45–60mm. **DESCRIPTION** Pale with broad, pointed ears and a squat nose-leaf with three very blunt protuberances on its posterior margin. Species: *A. tridens* (Sahara to Pakistan), *A. patrizii* (S Red Sea). **HABITAT** Deserts and Sahelian subdeserts. **FOOD** Desert insects and scorpions. **BEHAVIOUR** Roosts in dark ruins, wells and caves, often in many hundreds.

- *A. tridens*
- *A. patrizii*

PERCIVAL'S TRIDENT BAT *Cloeotis percivali*

SIZE HB 33–50mm. FA 30–36mm. W est. 4–6g. **DESCRIPTION** Pale with orange and buff morphs. Ears very small and rounded. Nose-leaf has 3 prominent points on posterior margin. **HABITAT** Patchily distributed in SE Africa, often coastal. **FOOD** Small insects. **BEHAVIOUR** Roosts in the darkest recesses of caves and mines.

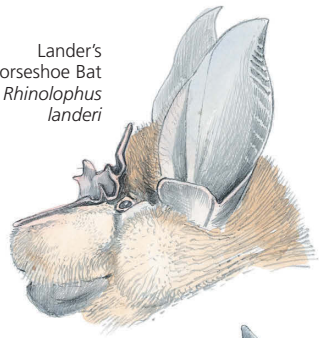
AFRICAN LEAF-NOSED BAT *Triaenops afer*

SIZE HB 50–57mm. FA 50–55mm. W 8–15g. **DESCRIPTION** Rounded ears half-buried in fur. Back of nose-leaf has 3 spear-shaped leaves. Deepset nostrils. Long, narrow head disguised by long, dense fur which may be grey, brown or a rich russet red. Wings dark brown. **HABITAT** Mainly coastal species of NW Indian Ocean littoral but ranges up large river valleys inland to uplands. **FOOD** Small insects caught in slow, moth-like flight. **BEHAVIOUR** Often found in large colonies where individuals hang close together.

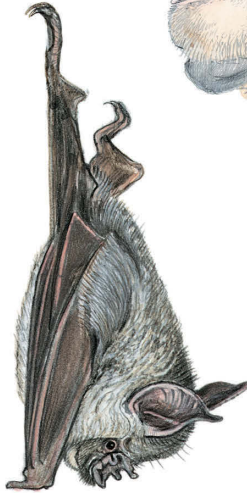


Hildebrandt's
Horseshoe Bat
*Rhinolophus
hildebrandti*

Lander's
Horseshoe Bat
*Rhinolophus
landeri*



Cyclops Leaf-nosed Bat
Hipposideros cyclops



Commerson's Leaf-nosed Bat
Hipposideros commersoni

Asellia tridens



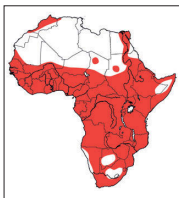
African
Leaf-nosed Bat

Percival's
Trident Bat



SLIT-FACED BATS *Nycteridae*

Immediately recognisable by their long ears and the foliated trench which runs from the forehead to the nostrils and upper lip. The tail terminates in a cartilaginous T- or Y-shape that is unique to this group. These bats are slow foragers, with a moth-like flight.

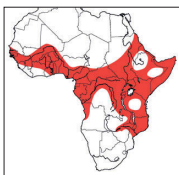


SLIT-FACED BATS *Nycteris* (10 species)

SIZE FA 32–66mm. W 5–36g. **DESCRIPTION** Large-eared, broad-winged bats with long, silky fur and a long tail fully enclosed in membrane with a T- or Y-shaped tip. The nose trench, or slit, is surrounded by a series of lobes and flanges, which probably modulate and control their high-frequency ‘whispers’. Prefer to roost in cool, dark and, ideally, moist retreats within caves, holes, hollow trees, buildings or culverts but some species will tolerate dense, dark foliage or tangled, shady thickets (notably on termitaries). Roost individually or in groups of up to many thousands. Flight is very acrobatic. **HABITAT** Found in a wide range of vegetation types but forage at low levels in areas of dense undergrowth, reeds, thickets, mangroves, etc., all over Africa except open desert. **FOOD** Crickets, grasshoppers, moths, flies, cicadas, flying termites. Various larger insects, spiders and scorpions are plucked off vegetation, the ground, or caught in flight. **BEHAVIOUR** Slit-faced bats emerge late and retire early.

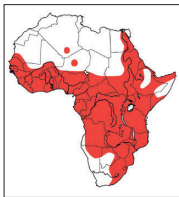
SHEATH-TAILED BATS *Emballonuridae*

Simple-nosed bats most easily identified by the half-sheathing of their tail within the interfemoral membrane. All species have large eyes and possess strong-smelling glands, usually enclosed in a throat sac. Throat scents are wafted during courtship rituals that include wing-fanning.



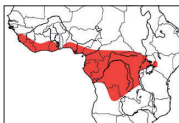
AFRICAN SHEATH-TAILED BAT *Coleura afra*

SIZE HB 52–66mm. FA 45–55mm. W est. 6.5g. **DESCRIPTION** Sooty brown with exaggerated head-up posture and unusually vertical tail. The ear tragus has a pimple on the outer edge. The nostrils overhang the lower jaw. **HABITAT** Ranges through savannas and woodlands in Africa and Arabia. **FOOD** Very small insects which may occasion seasonal migrations. **BEHAVIOUR** Roosts in caves, houses and on rocky outcrops, especially close to open water.



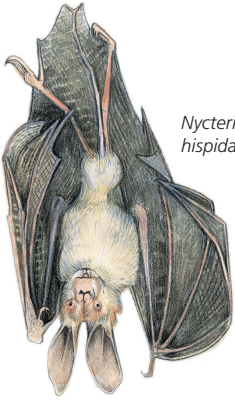
TOMB BATS *Taphozous* (5 species)

SIZE HB 70–93mm. FA 58–70mm. W 20–30g. **DESCRIPTION** Typical sheath-tailed bats with a skin pocket below the wrist (which can produce a whirring sound) and a concavity behind the swollen, tubular muzzle. **HABITAT** From arid to wooded habitats in subtropical Africa and S Asia. Favour roost sites among the ancient monuments of Egypt. **FOOD** Mainly moths hunted along habitual flight-paths. **BEHAVIOUR** May roost singly or in dense colonies. Tomb bats are alert while roosting but unwilling to fly if disturbed and will scurry sideways along vertical walls or trunks.



BLACK-HAWK BAT *Saccolaimus peli*

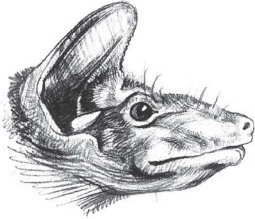
SIZE HB 110–157mm. FA 84–97mm. W 92–105g. **DESCRIPTION** Black with broad, flat head and shoulders, large eyes, small ears and short, greasy fur. Both sexes have a throat sac. Wings are pointed and flight is falcon-like. Often visible over forest clearings just before nightfall. **HABITAT** Rainforests from Sierra Leone to W Kenya. **FOOD** Beetles and other high-flying insects caught above canopy and along margins of forest. **BEHAVIOUR** Very active and acrobatic while feeding, making an audible ‘chuwee’ call.



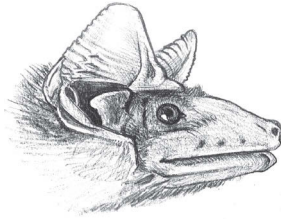
Nycteris hispida



African Sheath-tailed Bat



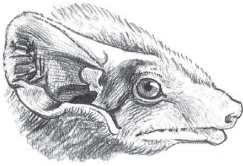
Taphozous nudiventris



Taphozous hildegardae



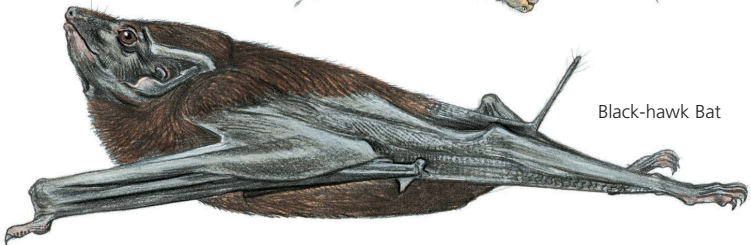
Taphozous perforatus



Taphozous mauritanus



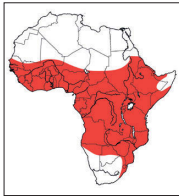
Taphozous mauritanus



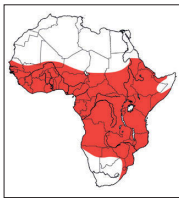
Black-hawk Bat

FREE-TAILED BATS Molossidae

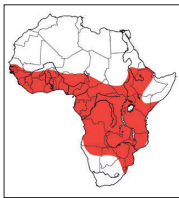
Easily identifiable by their tails, which are free beyond a narrow membrane, and by the crumpled lips, large nostrils and joined-up ears. Smell strongly. They are fast, long-distance fliers.

**GUANO BATS** *Tadarida* (5 species)

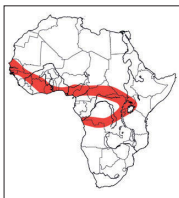
SIZE FA 45–66mm. **DESCRIPTION** Free-tailed bats with large 'square' ears that meet but are not quite joined across the nose. They have large margins to the palate and the third molar is not reduced. Species: *T. aegyptiaca*, *T. lobata*, *T. fulminans*, *T. teniotis*, *T. ventralis*. **HABITAT** All habitats, predominantly in Africa but also in Central America and S Asia. **FOOD** Insects.

**WRINKLE-LIPPED BATS** *Chaerophon* (10 species)

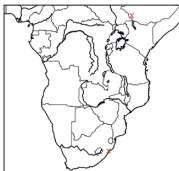
SIZE FA 34–53mm. **DESCRIPTION** Free-tailed bats with large ears joined above the bridge of the nose. The tuft of fur on the forehead is very long in some species. The skull is slightly flattened. Strong-smelling bats with an audible call not unlike the screaming of swifts in muted form. **HABITAT** Diverse distribution in various vegetation zones. *C. pumila* is found all over sub-Saharan Africa, Madagascar and S Arabia. **FOOD** Variety of small flying insects.

**MOPS FREE-TAILED BATS** *Mops* (12 species)

SIZE FA 27–66mm. **DESCRIPTION** Ears joined over the forehead (exposing the muzzle and nostrils). Compact, robust and very variable in colour. Emit sharp, audible clicks and like to fly in 'flocks'. **HABITAT** Forests, woodlands and savannas. Some species migrate. Some roost in small numbers, others in hundreds, in houses, caves, hollows and, occasionally, in shady vegetation. **FOOD** Small flying insects.

**WINGED-MOUSE BATS** *Myotis* (2 species)

SIZE FA 33–38mm. **DESCRIPTION** Free-tailed bats with widely separated ears, large tragi, pale wings and a greatly reduced third molar. Lips are unwrinkled but bristly along their upper margins. The nose is smooth, rounded and supposedly rat-like. Species: *M. whitleyi* (forest zone from Ghana to Uganda), *M. daubentonii* (Senegal to NE DR Congo). **HABITAT** Forest and forest-savanna mosaics. Solitary, roosting in vegetation or in trunk crevices. **FOOD** Insects.

**FLAT-HEADED BATS** *Mormopterus* (2 species)

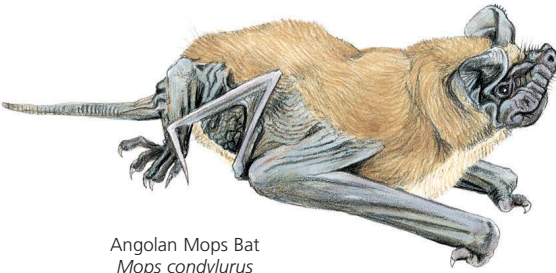
SIZE FA 38–45mm. **DESCRIPTION** Small, free-tailed bats with 'warty' muzzles and a main 'brush' of bristles above the nose. The head and body are flattened, the tail long, and ears pointed and separate. The third molar is not reduced. Skulls resemble *Sauromys*. Species: *M. acetabulosus*, *M. francoismoutoui*. **HABITAT** Far-ranging tropical bats, commonest on Indian Ocean islands (especially Madagascar), Pacific, Caribbean and neighbouring land masses. **FOOD** Insects.



Egyptian Guano Bat
Tadarida aegyptiaca



Little Wrinkle-lipped Bat
Chaerophon pumila



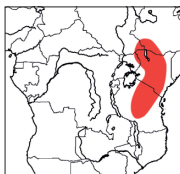
Angolan Mops Bat
Mops condylurus



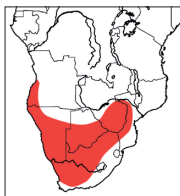
Bini Winged-mouse Bat
Myotis whitleyi



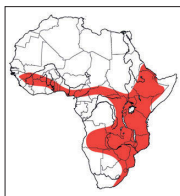
Natal Flat-headed Bat
Mormopterus acetabulosus

**EAST AFRICAN FLAT-HEADED BAT** *Platymops setiger*

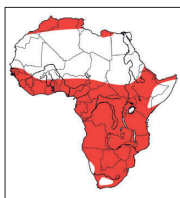
SIZE HB 50–60mm. FA 29–36mm. W est. 10–16g. **DESCRIPTION** A very flat, free-tailed bat with a distinct, very dense ‘moustache’ of strong, forwardly directed bristles under the nose. Forearms are very ‘warty’. Ears are blunt and laterally oriented. Small colonies roost in narrow horizontal crevices in rock outcrops and cliffs which are characteristically very strong smelling. **HABITAT** Dry, rocky habitats at various altitudes. **FOOD** Small beetles and other insects.

**ROBERTS'S FLAT-HEADED BAT** *Sauromys petrophilus*

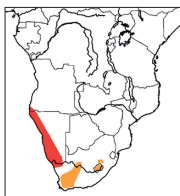
SIZE HB 60–82mm. FA 37–50mm. W 6–22g. **DESCRIPTION** Resembles *Platymops* in extreme flattening of body and head (to fit in narrow crevices). Simple ears separated by narrow gap. Upper lip smooth with a few stout, short hairs. **HABITAT** Rocky outcrops, mainly south of Zambezi R. **FOOD** Beetles, moths and other mainly hard-shelled insects.

**GIANT MASTIFF BAT** *Otomops martiensseni*

SIZE HB 88–110mm. FA 62–72mm. W 31–39g. **DESCRIPTION** Very long ears attached along the whole length of the head and very long, streamlined proportions. Upper lip has flanges. Notable for a circular pocket gland on the throat. Wings long, narrow and pointed. Flight fast and high. **HABITAT** Occurs in all ecotypes and at a range of altitudes. **FOOD** Beetles and large insects caught high above ground (or over water).

LONG-FINGERED BATS *Miniopteridae***LONG-FINGERED BATS** *Miniopterus* (4 species)

SIZE FA 35–50mm. **DESCRIPTION** Double folding of the wing digits (which are exceptionally long) is a distinctive feature. These bats have a high-domed cranium, a very small, pointed muzzle and are dark in colour. **HABITAT** Very varied habitats in Africa, Eurasia and Australia. **FOOD** Insects.

PIMPLE-WINGED BATS *Cistugidae***PIMPLE-WINGED BATS** *Cistugo* (2 species)

SIZE HB 40–55mm. FA 32–38mm. W 5.5–8g. **DESCRIPTION** *Cistugo* have one or two pimple-like glands on the web of each wing. Species: *C. lesueuri*, *C. seabrae*. **HABITAT** South-west African desert and Karoo region, usually near open water. **FOOD** Insects caught on the wing or snatched off leaves.

■ *C. seabrae*
 ■ *C. lesueuri*

East African Flat-headed Bat



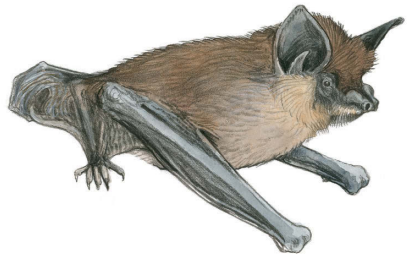
Roberts's Flat-headed Bat



Giant Mastiff Bat



*Miniopterus
schreibersi*

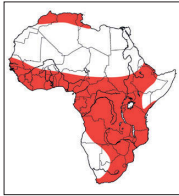


Cistugo lesueuri

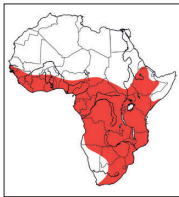
VESPER BATS *Vespertilionidae*

A very large and successful family of simple-nosed bats. At a casual glance most vesper bats look bewilderingly alike. Dental patterns and skull structures must be examined in order to distinguish some genera and species. The most obvious characteristics of this family are small eyes, separate ears, with noticeable tragi, and long tails enclosed in membrane. Most species have glands on the muzzle (which may swell and shrink in size).

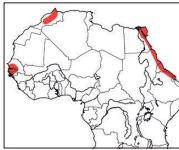
Primitive bat dentition is characterised by 38 teeth (2-1-3-3: 3-1-3-3) set in a long, slender snout. This formula occurs in the modern hairy bats, *Myotis*. Pipistrelles and twilight bats are thought to have derived from a *Myotis*-like stem while woolly bats and long-fingered bats branched off at a very early stage. In the more advanced genera faces are shorter and the teeth have become reduced in number. The family has a worldwide distribution and occupies all but the very coldest regions and habitats.

**HAIRY BATS** *Myotis* (11 species)

SIZE FA 31–40mm. **DESCRIPTION** Long, hairy muzzles and narrow ears with spike-shaped tragi. **HABITAT** A wide range of vegetation types and altitudes. Some species may be scattered, roosting singly or in small groups, while others form larger colonies. **FOOD** Small insects caught in slow flight within 5m of the ground. **BEHAVIOUR** Roost in hollow trees, deep caves or vegetation.

**WOOLLY BATS** *Kerivoula* (7 species)

SIZE FA 36–48mm. **DESCRIPTION** Woolly fur has a frizzled, frosty or 'crinkly' appearance. Funnel-shaped ears have a long, pointed tragus. The long, sharp muzzle and domed cranium are generally concealed by dense fur, as are the minute eyes. Membrane bears a fine fringe of short hair. **HABITAT** Well-watered but otherwise diverse habitats. Woolly bats emerge late and retire early. **FOOD** Very small insects caught at low levels in slow, dancing flight. **BEHAVIOUR** Roost among dead leaves, in lichen, old birds' nests, thatch or hollow branches.

**BARBASTELLE BATS** *Barbastella* (2 species)

SIZE FA 35–45mm. **DESCRIPTION** Very dark bats with blunt noses and upward-facing nostrils. The forward edges of the large, emarginated ears join forward of the eyes to give a very pinched, pug-nosed appearance. The tragus is triangular. All naked skin is black or deep brown. Utter audible chirps and hums. Species: *B. barbastellus* (Morocco to Senegal), *B. leucomelas* (Egypt). **HABITAT** Dry, open woodlands and temperate mountains. Occasional migrants (NW Africa and Egypt). **FOOD** Small, soft insects often caught over water or off foliage in slow but well-controlled flight. **BEHAVIOUR** Form small summer groups of 10–100, but roost in larger numbers in winter; known to travel nearly 300km.

Sub-Saharan vesper bat heads



Hairy bat sp.
Myotis



Woolly bat sp.
Kerivoula



Butterfly bat sp.
Glauconycteris



Serotine bat sp.
Eptesicus



Moloney's Flat-headed Bat
Mimetillus moloneyi



Pipistrelle sp.
Pipistrellus

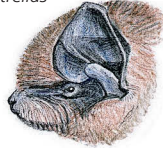
Tropical
Long-eared
bat sp.
Laephotis



Schlieffen's Twilight Bat



House bat sp.
Scotophilus



Long-fingered bat sp.
Miniopterus



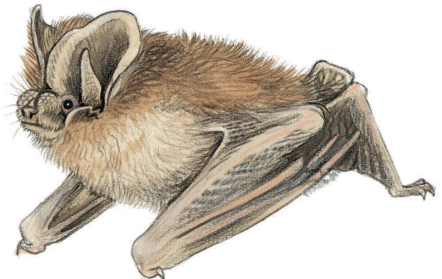
Evening bat sp.
Scotoecus

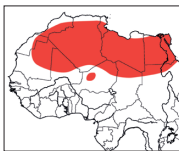
Welwitsch's Hairy Bat
Myotis welwitschii



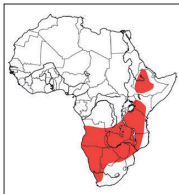
Damara Woolly Bat
Kerivoula argentata

Western Barbastelle Bat
Barbastella barbastellus

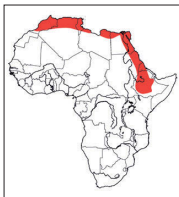


**HEMPRICH'S LONG-EARED BAT** *Otonycteris hemprichii*

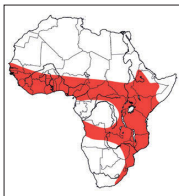
SIZE HB 70–130mm. FA 60–66mm. **DESCRIPTION** A widespread, large-eared, long-headed desert bat with long, silky pale fur and semi-translucent membranes. Flight is slow and erratic. Emits a buzz call when disturbed in roost. **HABITAT** Desert and subdesert steppe environments. **FOOD** Desert insects. **BEHAVIOUR** Roosts in rock crevices, cliffs or buildings.

**TROPICAL LONG-EARED BATS** *Laephotis* (4 species)

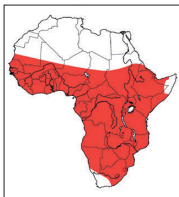
SIZE FA 35–39mm. **DESCRIPTION** The long ears have very large, curved tragi. These bats have a short face, long pale fur and a light underside. Roost in day-time under dead bark. Species: *L. angolensis*, *L. botswanae*, *L. namibensis*, *L. wintoni*. **HABITAT** Rare bats found in dry woodlands and savannas of S and E Africa. *L. wintoni* has the widest distribution. **FOOD** Insects. **BEHAVIOUR** Roost in day-time under dead bark.

**LONG-EARED BATS** *Plecotus* (3 species)

SIZE HB 40–58mm. FA 37–45mm. W 7–14g. **DESCRIPTION** Very long-eared, woolly bats with large, tapered tragi and a blunt face. The long fur has a dark base and a grey-brown surface tint. Claws and feet are small. Species: *P. balensis* (Ethiopian highlands), *P. christii* (Egypt, N Sudan), *P. gaisleri* (Morocco – Libya). **HABITAT** Dry, open Mediterranean landscapes. Roosts alone or twos and threes in caves, mines or buildings. **FOOD** Moths, beetles and other insects taken off foliage or in flight. **BEHAVIOUR** Chirps or hums if disturbed. Peripheral range in N Africa.

**EVENING BATS** *Scotoecus* (2 species)

SIZE FA 29–39mm. **DESCRIPTION** Broad-faced brown bats with a blunt tragus in the round ears. Teeth are robust, the canines flat-fronted. Males have an exceptionally long penis. Variable in colour. Species: *S. hirundo*: dark-winged. *S. albofuscus*: pale-winged. **HABITAT** Tropical bats inhabiting woodlands, savannas and dry *Acacia* country. **FOOD** Insects.

**HOUSE BATS** *Scotophilus* (6 species)

SIZE FA 42–80mm. **DESCRIPTION** Robust bats with blunt heads and long, tapering tragi. There are swollen glands in the corner of the mouth. Colouring varies from greenish olive and yellow to dark brown and off-white. **HABITAT** Very varied ecotypes, including uplands, forests and scrub-desert in Africa and Asia. **FOOD** Hard-bodied insects. **BEHAVIOUR** Emerge early for fast, sweeping flights along habitual flyways.

**BADGER BAT** *Niumbaha superba*

SIZE HB 49–63mm. FA 45–48mm. W (est.) 14g. **DESCRIPTION** A newly described genus extracted from *Glauconycteris* to accommodate a species (possibly a lineage) of particularly robust butterfly bats with brilliantly piebald contrasting pelage patterns. **HABITAT** Semi-deciduous forest and lowland rainforest. **FOOD** Not known.



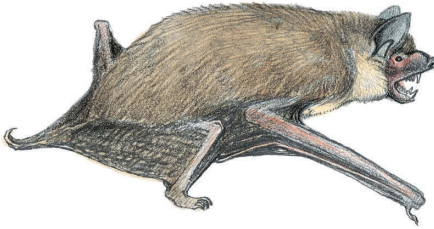
Hemprich's Long-eared Bat



De Winton's Long-eared Bat
Laephotis wintoni



Plecotus christii

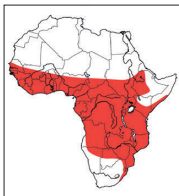


Dark-winged Evening Bat
Scotoecus hirundo

Schreiber's House Bat
Scotophilus nigrita

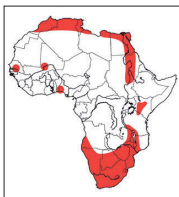


Badger Bat



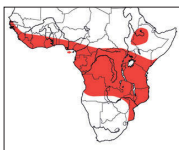
BUTTERFLY BATS *Glauconycteris* (11 species)

SIZE FA 36–50mm. **DESCRIPTION** Marked wings, broad, blunt faces, with widely spaced nostrils and rounded ears. Often reluctant to fly from day perches. **HABITAT** Woodlands, forests and moist savannas. May roost in clusters under large leaves or in thatch. **FOOD** Moths and other small, soft-bodied insects caught early in the evening. **BEHAVIOUR** Roost in trees or buildings, often attracted to lights, make audible squeaks.



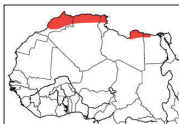
SEROTINE BATS *Eptesicus* (5 species)

SIZE FA 25–55mm. **DESCRIPTION** Relatively short ears and blunt tragi. Almost flat top to the skull. Flight resembles that of pipistrelles: erratic fluttering punctuated by fast swoops and dives. Tail membrane appears blunt and rounded. May make audible clicks in flight. **HABITAT** Both forest and non-forest species, low and high fliers. **FOOD** Small insects caught in flight. **BEHAVIOUR** Roost in vegetation, caves and houses.



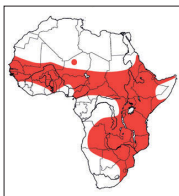
MOLONEY'S FLAT-HEADED BAT *Mimetillus moloneyi*

SIZE HB 50–60mm. FA 26.5–30mm. W 6–11.5g. **DESCRIPTION** Fast, short-winged, whirring flight; very direct with no sharp turns. Head and body flattened, forearms and wings short and compact. **HABITAT** Forest and moist forest–savanna mosaics in equatorial Africa. **FOOD** Flying termites and ants. **BEHAVIOUR** Roost under bark.



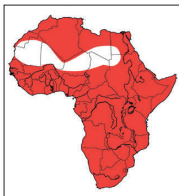
NOCTULES *Nyctalus* (2 species)

SIZE FA 38–69mm. **DESCRIPTION** Pug-nosed, with long, narrow wings. Flight fast, on angled wings. Metallic calls are very audible. Species: *N. lasiopterus*, *N. leisleri*. **HABITAT** Temperate and migratory bats with marginal extensions of range into N Africa. **FOOD** Large insects.



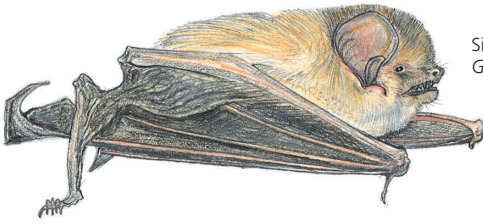
SCHLIEFFEN'S TWILIGHT BAT *Nyctecius schlieffeni*

SIZE HB 40–56mm. FA 29–35mm. W 6–9g. **DESCRIPTION** Variably coloured with dark membranes and bare, swollen muzzle. Emerges early. Erratic flight. **HABITAT** Very widespread in savannas and relatively arid habitats. **FOOD** Small insects. **BEHAVIOUR** Roosts alone in crevices in trees and buildings.

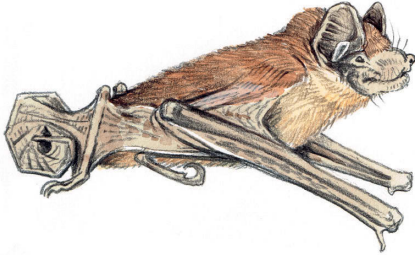


PIPISTRELLES *Pipistrellus* (28 species)

SIZE FA 20–38mm. **DESCRIPTION** Very small bats of variable colouring. Prominent nostrils bring the nose to a sharp point behind the swollen muzzle. The tragus shape is distinctive for most species. Flight is fluttering, with frequent angular turns and swoops. **HABITAT** All habitats. **FOOD** Insects.



Silvered Butterfly Bat
Glauconycteris argentatus



Eptesicus hottentotus



Moloney's Flat-headed bat



Leisler's Noctule Bat
Nyctalus leisleri



Schlieffen's Twilight Bat



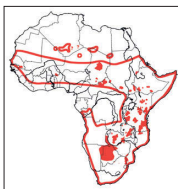
Banana Pipistrelle
Pipistrellus nanus

CARNIVORES Carnivora

A group of 'animal-eaters' comprising 8 families: Dogs, Mustelids, Seals, Nandinids, Cats, Viverrids, Hyaenids and Mongooses.

DOGS AND ALLIES Canidae

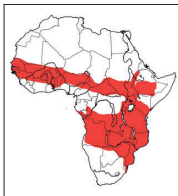
These relatively long-legged, long-muzzled carnivores are adapted to running down prey in relatively open and dry environments.



- Current range
- Former range

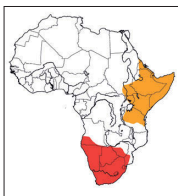
AFRICAN WILD DOG *Canis (Lycaon) pictus*

SIZE HB 76–112cm. T 30–41cm. W 18–36kg. **DESCRIPTION** Large, blotchy dog with prominent, round ears and a tufted tail. The tail tip is almost always white and the broad, powerful muzzle always black. Each individual's pattern of blotches is unique but there are family and regional resemblances. **HABITAT** Woodlands, savannas, grasslands and steppes at all altitudes. **FOOD** Exclusively mammals. Wild dogs prefer to feed on the commonest medium-sized antelopes not more than twice their own weight. Specialised pack-hunters, relying on an unconcealed fast chase of up to 5km at a steady 48kmh. Their strategy is to snap and tear at the rear and sides of running prey until it tires. **BEHAVIOUR** The social behaviour of a pack centres on a breeding pair, with non-breeding adults assisting in the feeding (by regurgitation) of litters that can number up to 16 puppies. All pack members are subordinate to the breeding pair.



SIDE-STRIPED JACKAL *Canis adustus*

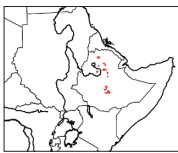
SIZE HB 70–80cm. T 35–45cm. W 7.3–12kg. **DESCRIPTION** Drabber, shorter legged and shorter eared than other jackals; can generally be distinguished by the white tip to its tail. Mainly nocturnal. **HABITAT** Various savanna and thicket types to the edges of forest. Common in various montane habitats up to 2,700m. **FOOD** Omnivorous. Invertebrates and small vertebrates, fallen fruits, unripe maize, carrion and organic rubbish. **BEHAVIOUR** May travel as family group, more frequently solitary. Wide repertoire of growls, yaps, whines and screams.



- *C. m. mesomelas*
- *C. m. schmidtii*

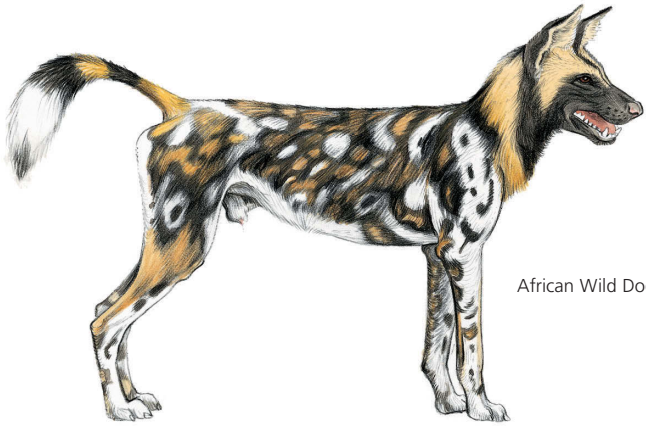
BLACK-BACKED JACKAL *Canis mesomelas*

SIZE HB 70–100cm. T 30–35cm. W 6.5–13.5kg. **DESCRIPTION** Slender, long-legged with large ears and a black back (streaked with white). Limbs and flanks are variously fawn to rufous. Tail black tipped. **HABITAT** Close association with dry *Acacia* savannas. In the southern part of its range it occupies most habitat types. **FOOD** Omnivorous but small and medium-sized mammals and carrion are taken. Food is bolted and regurgitated in response to the pups' begging. **BEHAVIOUR** Form hierarchical family groups. Vocal communication in South Africa (where they are the only jackal) includes howling. In areas of overlap, only the Golden Jackal howls.



ETHIOPIAN WOLF *Canis simensis*

SIZE HB 90–100cm. T 25–34cm. W 11.5kg (female), 14–18.5kg (male). **DESCRIPTION** Tall, large-eared, dog-like. Rich russet-red above, with white underparts and a black tip to the tail. **HABITAT** Mainly Afro-alpine meadows and *Helichrysum* moorlands in areas of high rodent density. **FOOD** Giant Mole-rats (*Tachyoryctes macrocephalus*) comprise nearly 40% of the prey captures (and the main mass of the diet) on Bale massif. Smaller rodents, hares and carrion make up the rest. **BEHAVIOUR** Cohesive, highly hierarchical packs live in regularly demarcated territories of 5–15km².



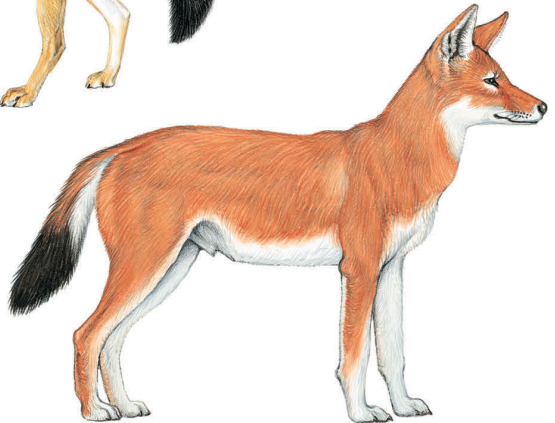
African Wild Dog



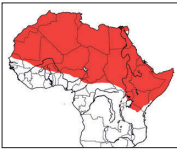
Side-striped Jackal



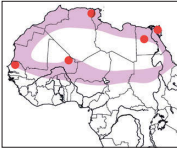
Black-backed Jackal



Ethiopian Wolf


COMMON JACKAL *Canis aureus* (African population *Canis anthus*?)

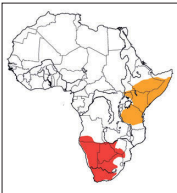
SIZE HB 65–105cm. T 18–27cm. W 6–15kg. **DESCRIPTION** Sand-coloured with black-tipped tail. Back streaky fawn. Active at night, in the early morning and evening. **HABITAT** Dry, open country from sea-level to over 3,000m. Depends on secure burrows or dens, especially on plains. **FOOD** Omnivorous. Invertebrates and small vertebrates. Bulbs, berries and fallen fruits. **BEHAVIOUR** Several families may form group territories where there is access to super-abundant resources (i.e. rubbish tips). The barks and yelps resemble those of dogs.


GREY WOLF *Canis lupus lupaster*

SIZE HB 83–110cm. T 31–45cm. W (est.) 8.0–16.5kg. **DESCRIPTION** Wolves are naturally variable but relatively frequent crossing with dogs and Common Jackals inserts hybrid wolves/jackals/dogs into a situation where confusion between the two species has reigned for more than a century. It has required contemporary genetics to justify treating *lupaster* as a wolf rather than an early type of desert jackal. Discoveries so far seem to suggest that African wolves are a mix of a genetically discrete clade of canid that first emerged as an African isolate and a later immigration of Asiatic *Canis*

aureus. Compared with the Asiatic *Canis aureus*, African wolves have a heavier muzzle, broader forehead, thicker neck, a 'hackle' over the shoulders and a grizzled dark-grey mantle above paler, more freckled, ochre flanks. Few fully authenticated localities in Egypt, Ethiopia, Senegal, Mali and Hoggar make any mapping of total range problematic. It is probably realistic to view their range as once nearly pan-Saharan but compromised by the later incursion of Common Jackals. The supposed distribution shown here is tentative, provisional and subject to future revision. **HABITAT** Adaptable to many habitats. Formerly likely to have ranged over many habitats now under settlement. Digs dens or uses natural holes or other refuges. **FOOD** Omnivorous. Takes many types of vertebrates but propensity to kill livestock has invited frequent retaliation. Can also survive on invertebrates and small vertebrates; fruits may also be eaten when available. **BEHAVIOUR** May hunt socially. Distinctions from jackals and degree of genetic input from dogs await further study.

Possible overall range

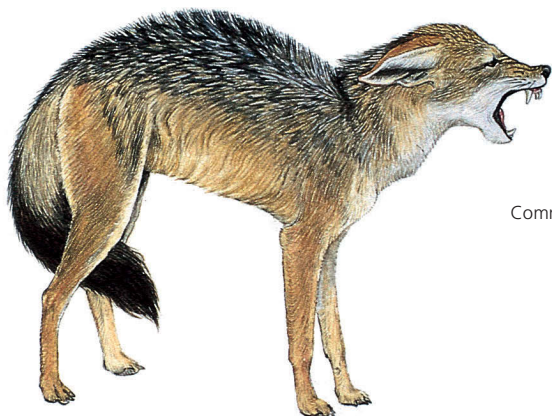

BAT-EARED FOX *Otocyon megalotis*

SIZE HB 47–66cm. T 23–34cm. W 3–5.3kg. **DESCRIPTION** Long-limbed, large-eared 'foxes' with a thickly furred, black-tipped tail and black-tipped ears, feet and muzzle. The eyes are contained within a dark 'mask'. Relatively quiet, they occasionally utter a series of thin, wailing howls. Contact calls among bat-eared foxes are bird-like mewings. **HABITAT** Dry, open country, especially *Acacia* savannas and associated plains, grasslands and steppes. **FOOD** Termites, especially harvester termites (*Hodotermes*), beetles and other invertebrates; also, marginally, small vertebrates and fruits. **BEHAVIOUR** A permanent pair is the basic social unit, often accompanied by up to 6 recent offspring.

■ *O. m. megalotis*
■ *O. m. virgatus*


ROYAL FOX *Vulpes cana*

SIZE HB 40–60cm. T 29–41.5cm. W 2–3kg. **DESCRIPTION** Densely furred, sandy-coloured fox with 'frosted' grey sides, white underparts and a furry, sandy tail that has densely packed, very long, dark guard hairs. Large, funnel-like ears are scantily haired. The general demeanour is very cat-like and animals are invariably very evasive and timid. **HABITAT** Marked preference for rocky mountainous regions up to 2,000m. Possibly the relic of an Ice Age fauna. Thought to prefer natural crevices and rock shelters. **FOOD** Insects, supplemented by fruits and small vertebrates. **BEHAVIOUR** Extremely sensitive to sound and very shy, escaping notice with a fast ground-hugging run.



Common Jackal



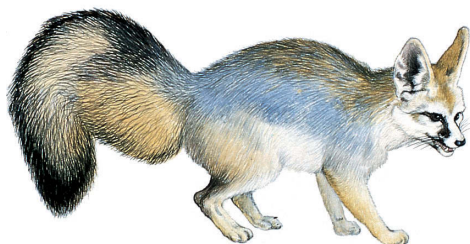
Grey Wolf



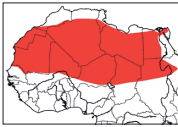
Bat-eared Fox



Bat-eared Fox



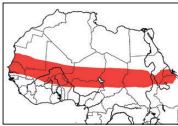
Royal Fox

**FENNEC FOX** *Vulpes zerda*

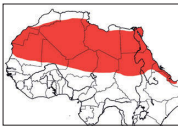
SIZE HB 37–41cm. T 18–21cm. W 0.8–1.5kg. **DESCRIPTION** Very small, rather short-legged fox with huge ears and a very small, pointed muzzle. The loud call is a brief shuddering howl, descending in pitch and repeated serially. Strictly nocturnal. **HABITAT** Sand-dune deserts and steppes with light, sandy soils. Self-dug burrows are extensive and dry grass is brought in to line the resting chamber. **FOOD** Desert grasshoppers and other desert invertebrates. Lizards, rodents and birds, and occasionally fruits and roots are also taken. An extremely fast and efficient digger in sand, both to catch prey and to escape detection. It can survive without surface water. **BEHAVIOUR** Most frequently seen in pairs but up to 10 animals have been recorded in a group.

**CAPE FOX** *Vulpes chama*

SIZE HB 54–62cm. T 29–39.5cm. W 2.5–3.5kg. **DESCRIPTION** Lightly built, slender fox, with bushy tail, medium to large ears and a fine-tapered muzzle. The face, underside and base of tail are tawny cream. The loud call is a high-pitched 'wow', ending in 2 or 3 yaps. Nocturnal. **HABITAT** Open *Acacia* grasslands, steppe, subdesert scrub and open grassy areas within bushland. Digs burrows or lies up in dense vegetation during the day. **FOOD** Predominantly invertebrates and mice; also other small vertebrates, carrion, fallen fruits and grass. **BEHAVIOUR** Forages alone but females have been observed out with subadult young.

**PALE FOX** *Vulpes pallida*

SIZE HB 38–45cm. T 23–28cm. W 2–3.6kg. **DESCRIPTION** Small, very pale fox with large ears, long legs and a relatively thin coat. It has sandy-fawn upperparts and a pale to white underside. **HABITAT** S Sahara and Sahel from Mauritania to the Red Sea, in steppe country, sandy and stony deserts. Digs extensive burrows and tolerates heat well. **FOOD** Small vertebrates (mainly rodents and lizards) and invertebrates. **BEHAVIOUR** Active from dusk till dawn. Unable to survive under totally waterless conditions.

**RÜPPELL'S FOX** *Vulpes rueppelli*

SIZE: HB 40–48cm. T 25–38cm. W 2–4.5kg. **DESCRIPTION** Very large-eared, slender fox with a soft, thick coat and rich, bushy tail. The tip of the tawny tail is white and above its 'violet gland' (near the root) is dark brown. The loud call is a harsh, yelping bark. This is a strictly nocturnal, cool-adapted fox. **HABITAT** Sand and stone deserts where burrows are commonly excavated under slabs of stone or the roots of bushes. **FOOD** Rodents, reptiles, insects and occasional fruits (dates). Rüppell's Foxes can tolerate a total absence of water. **BEHAVIOUR** Commonly solitary or in pairs, this very vocal species has brittle hacking calls, a high-pitched whistle, trilling (when tense) and hissing (in warning). There is also a barking loud call. Breeding is thought to be seasonal, with 3 or 4 blind helpless young born in late winter after a gestation of just under 2 months.

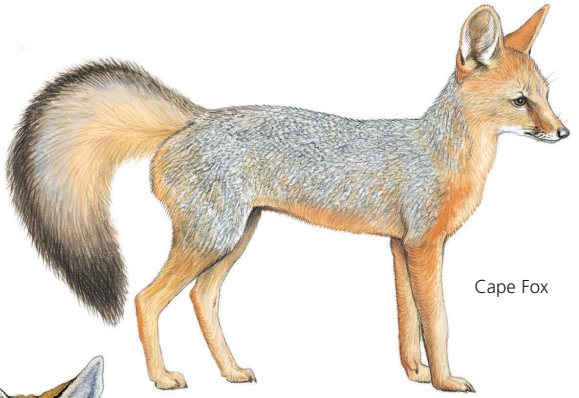
**RED FOX** *Vulpes vulpes*

SIZE HB 50–55cm. T 33–40cm. W 4–8kg. **DESCRIPTION** Back may be sandy red or greyish, surrounded by red or yellowish flanks, limbs, neck, face and tail. Tail tip, throat and chin are white. Ears, nose, whisker patch, forepaws, and sometimes the belly, are black. The most frequently heard call is a loud, multiple wow-bark. **HABITAT** Cultivated and urban land, settlements, desertic steppe, scrub, woodlands and hillsides up to 4,500m. Red foxes dig or modify burrows. **FOOD** Omnivorous: vertebrates and carrion, invertebrates, fruits and household debris. **BEHAVIOUR** Social grouping varies but pairs occupy large territories in impoverished habitats.

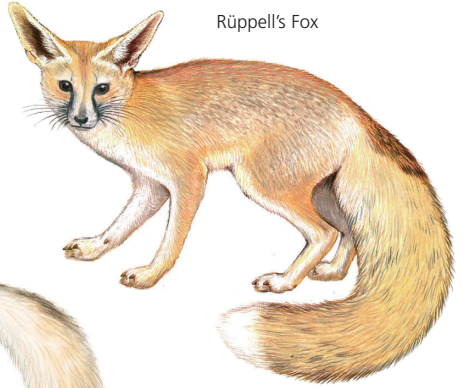
Fennec Fox



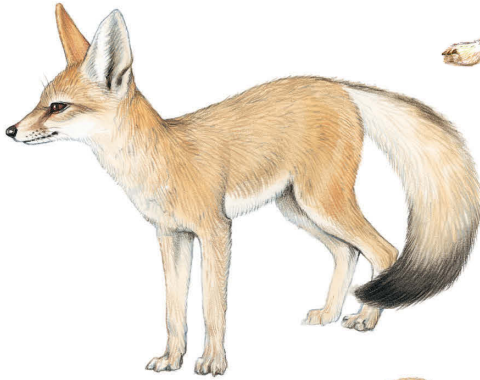
Cape Fox



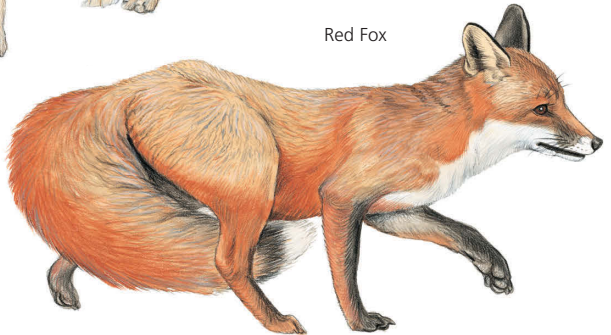
Rüppell's Fox



Pale Fox



Red Fox



MUSTELIDS *Mustelidae*

Mainly bird, mammal and fish predators of northern temperate origin.

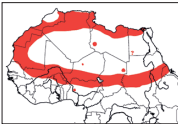
**COMMON WEASEL** *Mustela nivalis* (+ *M. subpalmata*?)

SIZE HB 20–29cm. T 7–13cm. W 124–250g. **DESCRIPTION** Brown upperparts and a white underside. Population in Nile Delta might be a separate species, *M. subpalmata*. **HABITAT** Mediterranean littoral and Atlas Mts, mainly in farmland. **FOOD** Rats, mice, frogs, lizards, small birds, rabbits and insects.

■ *M. nivalis numidica* ■ *M. (nivalis?) subpalmata*

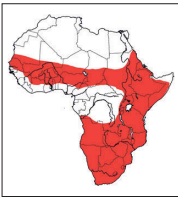
**POLECAT** *Mustela putorius*

SIZE HB 35–45cm. T 12–16cm. W 700–1,500g. **DESCRIPTION** White ears, and face marked with a black eye mask and hood. **HABITAT** From sea-level up to 2,000m in the Atlas Mts west of the Riff. **FOOD** Small mammals, reptiles, frogs, birds and insects; very occasionally fish and fruits.

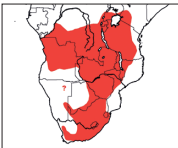
**LIBYAN STRIPED WEASEL** *Poecilictis libyca*

SIZE HB 22–30cm. T 12–19cm. W 500–750g. **DESCRIPTION** Conspicuous, with long, erectile hair, mainly white upperparts and narrow black stripes down the back. Nocturnal. Side-swinging movements give a remarkably snake-like impression. **HABITAT** Sahara desert, mainly on its margins and mountains.

FOOD Rodents and other small mammals, reptiles, invertebrates, birds and their eggs.

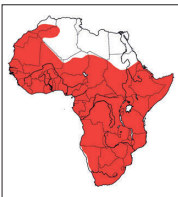
**ZORILLA** *Ictonyx striatus*

SIZE HB 30–38cm. T 22–30cm. W 700–1,400g. **DESCRIPTION** Small carnivore with strong claws on the forelegs, black underparts and a well-furred white tail. **HABITAT** Very patchily distributed, scarce or absent in most heavily wooded areas. Prefers upland grasslands or steppe. **FOOD** Invertebrates are the main staple but rodents form the bulk of the diet in some localities during certain seasons. Snakes and other reptiles are also commonly taken in some localities. Hares are a recorded prey animal.

**AFRICAN STRIPED (WHITE-NAPED) WEASEL** *Poecilogale albinucha*

SIZE HB 25–36cm. T 13–24cm. W 230–350g. **DESCRIPTION** Small, very elongated with very short legs but powerfully clawed paws and a conspicuous black and white striped back, underside black. **HABITAT** Occurs in numerous widely separate localities. Main centres of distribution are extensive grasslands or high veld with perennial, dense rodent populations. **FOOD** Almost exclusively

rodents, with occasional birds and eggs. **BEHAVIOUR** Normally solitary or in pairs. Larger groups include single females with young.

**RATEL (HONEY BADGER)** *Mellivora capensis*

SIZE HB 60–77cm. T 16–30cm. W 7–16kg. **DESCRIPTION** Chunky, lumbering carnivore with a white forehead and variably coloured mantle. The neck and shoulders are very muscular and the broad forepaws are armed with massive claws. **HABITAT** Commonest in open woodland but occurs in forest, waterless desert, in Afro-alpine moorland and coastal scrub. **FOOD** Opportunistic omnivore, specialising in the excavation of social insects, mice, trap-door spiders, dung beetles, larvae, scorpions, etc. **BEHAVIOUR** Ratels have very

large, overlapping ranges, and normally forage singly, but 2 animals are very often seen together.



Common Weasel



Libyan Striped Weasel



Polecat



African Striped Weasel



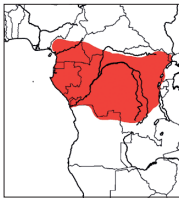
Zorilla



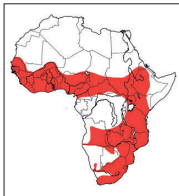
Ratel

OTTERS Lutrinae

These long-bodied, long-tailed, amphibious carnivores have dense waterproof fur, a blunt, short face and a prominent moustache of whiskers.

**CONGO CLAWLESS (SWAMP) OTTER** *Anyx congica*

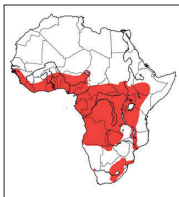
SIZE HB 78–97cm. T 40–59cm. W 15–25kg. **DESCRIPTION** White bib, nose and ears and a prominent black patch between the eyes and nostrils. Body rich sepia with some frosting on head and neck. **HABITAT** Rivers, swamps and ponds close to or surrounded by rainforest. **FOOD** Fish, frogs, earthworms, crabs, molluscs and other vertebrates and invertebrates. **BEHAVIOUR** Excellent swimmer. Forages singly but family parties have been observed in Cameroon rivers.

**AFRICAN CLAWLESS OTTER** *Anyx capensis*

SIZE HB 72–92cm. T 40–71cm. W 12–34kg. **DESCRIPTION** Blunt, unwebbed fingers and toes, and almost vestigial fingernails. Head broad. Massive neck and crown are visibly modelled by well-developed neck and jaw muscles. Colour on face variable but dark area between eye and nostril is never sharply isolated (as it is in the Swamp Otter). **HABITAT** Rivers, streams, marshes, lakes and dams with adequate cover. **FOOD** Freshwater crabs consistently form the major part of the diet. Frogs comprise a lesser, more seasonal, part of the otter's diet, as do fish, small mammals, birds and molluscs. **BEHAVIOUR** Normally forage singly or as a mother with young. However, adults may be quite tolerant and spend time together. It is possible that related animals along a stretch of 3–20km of river or coast may share a group or clan territory. Very vocal.

**COMMON OTTER** *Lutra lutra*

SIZE HB 60–90cm. T 35–47cm. W 6–18kg. **DESCRIPTION** The short face has prominent eyes and a brush of stiff whiskers on the muzzle. Coat can vary from light tan or grey tints to deep dark brown. Strong, well-clawed, webbed toes. The Common Otter makes chirping contact calls and a soft whistle of alarm. Largely nocturnal. **HABITAT** Now found only in a very few localities. Need dense vegetation for cover and safe retreats in holes, hollow trees etc. for breeding. **FOOD** Mainly fish but also frogs, crabs and many small animals. **BEHAVIOUR** Solitary individuals, pairs or families range over 12–24km of shoreline (and some up to 60km) on which they use up to 40 habitual resting spots (each well spaced from the next).

**SPOTTED-NECKED OTTER** *Hydriectis maculicollis*

SIZE HB 60–65cm. T 35–40cm. W 4–6.5kg. **DESCRIPTION** Sleek, slender with long tail and well-webbed, clawed toes. Apart from the brown and white blotching of the throat and underparts, which is very variable, the colour is a uniform, deep chocolate brown. A thin, high whistle is the most characteristic call. **HABITAT** Clear water seems to be an important determinant in distribution (it is mainly a diurnal fisher). **FOOD** Fish and frogs; also crabs, molluscs, aquatic insects and larvae, and various other vertebrates and invertebrates. **BEHAVIOUR** Usually solitary; may form small family parties. It forms groups of up to 20 animals in L. Victoria.

Congo Clawless Otter



African Clawless Otter



Common Otter

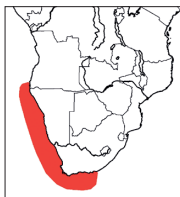


Spotted-necked Otter



SEALS Pinnipedia

A group of carnivores that have adapted to marine habitats. Their family name means 'fin-feet'. Their bodies have become modified to be extremely flexible, animated torpedoes, able to twist and turn in pursuit of the equally agile fish on which they feed. Sea lions and fur seals (Otariidae) are less extreme in the modification of their limbs. 'Earless' or 'true seals' form the family Phocidae.



CAPE FUR SEAL *Arctocephalus pusillus*

SIZE HB 110–180cm (female), 150–230cm (male). W 22–80kg (female), 60–350kg (male). **DESCRIPTION** A large streamlined marine mammal – the largest of all eight species of fur seals. The necks of adult males, already hugely powerful and muscular, are further enlarged by dense, thick hair. Forelimbs act as highly mobile flippers in the water but bend at the wrist to support the body on land. Hind limbs also retain some ability to support body weight on land, where a clumsy but fast 'caterpillar-gallop' can propel them back into the sea surprisingly fast. **HABITAT** They range down the coastal seas and depend on SW African islands to give birth and rear young. **FOOD** Some 34 fish species, 18 cephalopod species, and a few crustaceans have been recorded.



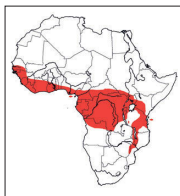
MEDITERRANEAN MONK SEAL *Monachus monachus*

SIZE HB 210–270cm. T 15–19cm. W 300–335kg. **DESCRIPTION** An exceptionally elongated, tubular seal. Sexes differ in colour with males darker (near black) than the grey females. Both sexes look piebald during the moult of their exceptionally short-haired pelage. They have large eyes staring out of a broad, flat face, with a prominent moustache of ochre whiskers. Newborn animals are black and woolly. **HABITAT** Mostly restricted to marine caves below steep cliffs. In the Cabo Blanco peninsula breeding females have reoccupied open beaches. **FOOD** Coastal or pelagic fishes, crustaceans and cephalopods. Dives normally less than 50m for up to 8 minutes. Larger prey may be taken up to the surface and chewed before swallowing.

CATS AND ALLIES Feliformia

TREE CIVET Nandiniidae

The Tree Civet is the single survivor of a very ancient carnivore family distantly related to all the 'cat-like' Feliforms: viverrids, mongooses, hyaenids and cats.



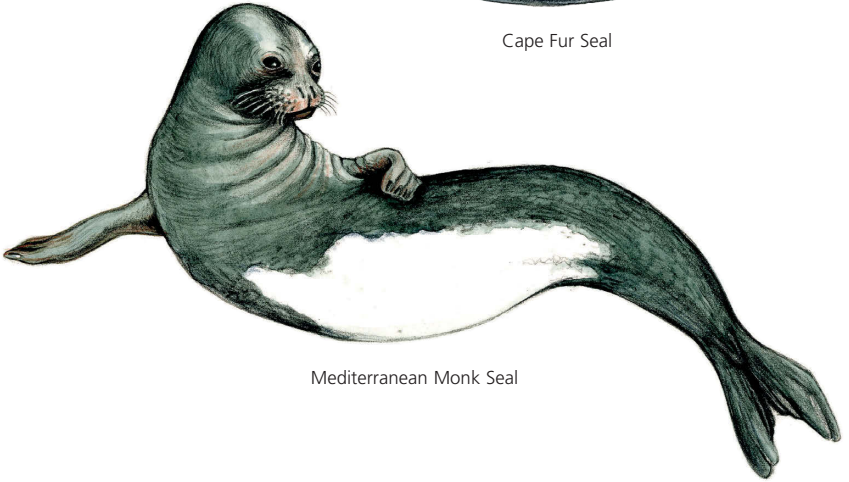
TREE CIVET *Nandinia binotata*

SIZE HB 45–58cm. T 50–62cm. W 2–3.2kg. **DESCRIPTION** Very inconspicuous. Mottled brown with long body and tail, well-clawed feet and distinctively textured soles to the hindlegs. The inner toes on all feet separated from other digits and function like thumbs during manipulation of foods or twigs. Strong, flexible limbs allow it to descend head down. Two pale spots on the shoulders prominent. Olive-green eyes have a conspicuously vertical pupil. Arboreal. Two subspecies: *N. b. binotata* (main forest blocks), and *N. b. arborea* (E

African isolates). **HABITAT** Mainly rainforest but also flourishes in cultivation mosaics. **FOOD** Partiality for the fruits of colonising trees and wild figs, and fleshy pulp of oil palms and numerous other fruits form seasonal staples. However, Tree Civets are omnivorous and highly opportunistic, catching roosting birds, nestlings, rodents, lizards, fruit bats and insects. They also take carrion. **BEHAVIOUR** Become active shortly after nightfall, forage for about 4 hours, rest up and then forage again for 3–4 hours before dawn. Mainly solitary but home ranges overlap extensively, with 12 or more animals using a common resource. Up to 4 young are born in a hollow tree after a 2-month gestation.



Cape Fur Seal



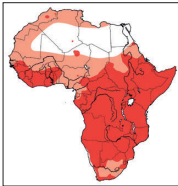
Mediterranean Monk Seal



Tree Civet

CATS Felidae

Ranging from lions, at well over 200kg, to little desert cats (not much more than 1kg), all cats have a long body, a short, rounded head, with large canines and reduced molars, bifocal vision, acute hearing and an expressive face.

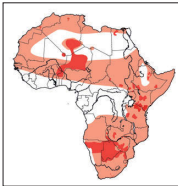


Former range

LEOPARD *Panthera pardus*

SIZE HB 104–140cm (female), 130–190cm (male). T 60–110cm. W 50kg (28–60kg) (female), 60kg (35–90kg) (male). **DESCRIPTION** Numerous, black and brown rosettes on back and upper limbs but single, solid spots on face, lower limbs and underside. Ground colour varies from pale cream (and widely spaced rosettes) in the dry Somali region to deep orange or tawny brown with variably sized and spaced rosettes. Darkest forms come from upland Ethiopia and Rwenzori. Commonest indications are tracks, faeces and a rasping call (inhaling-exhaling sawings). The unique Zanzibar Leopard *P. p.*

adersi has been deliberately exterminated and is now extinct. **HABITAT** Broken terrain and heavy vegetation. Rare or absent from wholly arid areas. **FOOD** Mainly small to medium-large mammals. Will also take birds and arthropods. Although able to kill large antelopes, Leopards prefer prey no heavier than themselves. **BEHAVIOUR** Ranges traversed vary from 9 to over 63km², but defended core areas are much smaller. Visit most of their home range very regularly, walking about 25km a night. At various land-marks, may drop faeces, spray urine or scratch tree trunks.

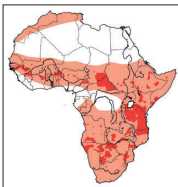


Former range

CHEETAH *Acinonyx jubatus*

SIZE HB 110–150cm. T 65–90cm. W 50kg (35–65kg). **DESCRIPTION** Tall, slender with evenly spaced, circular spots all over a tawny-cream background. Face notable for its rounded verticality, a peculiarity emphasised by black 'tear stripes'. Very young Cheetahs are dirty white above, near black below. **HABITAT** Any large population of small or medium-small ungulates can support the Cheetah if the vegetation is not too dense or the ground too broken. Patchy cover is most favourable. **FOOD** 'Staple' species are Impala, Springbok, gazelles, Kob. Many other smaller mammals are also taken

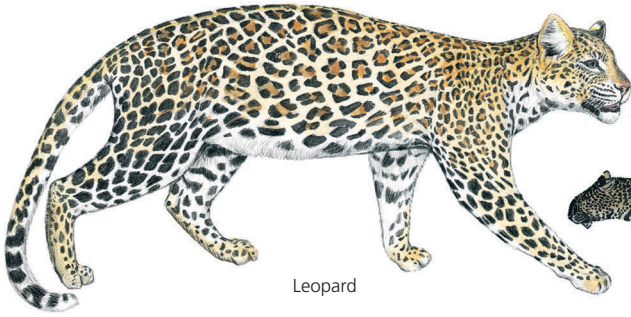
but only occasionally. Prefers to stalk to within less than 50m before racing out at about 60km/h. **BEHAVIOUR** While 2 or 3 males often form lasting associations that jointly defend shared territory (40–80km²), the majority of adults live in home ranges that are much larger (50–1,000km²).



Former range

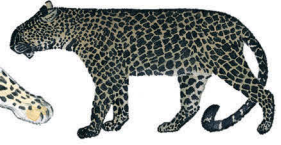
LION *Panthera leo*

SIZE HB 158–192cm (female), 172–250cm (male). T 60–100cm. SH 100–128cm. W 122–182kg (female), 150–260kg (male). **DESCRIPTION** The largest of cats, ranging in colour from nearly white to deep ochre-brown. Commonest colour is tawny yellow but ash grey not uncommon. Males develop thick woolly manes that vary individually in colour and extent. Leopard-like rosettes are characteristic of the young. Both sexes roar (males more loudly). Roaring starts with a few moans followed by full roars that then die away into grunts. On a still night roars carry for 8km. The roar advertises the presence and position of a Lion and may also denote status. **HABITAT** Formerly at most altitudes and in all vegetation types, except the most extensive forests and driest deserts. **FOOD** Mammals weighing between 50 and 300kg. When prey of this size cannot be readily caught, any animal between 15 and 1,000kg may be attacked. The smaller are eaten by individual Lions, the heavier killed and eaten by groups. Most prey is caught after a skilled stalk (taking advantage of any type of cover, including dust, vehicles or cloud over the moon) and a fast run or charge. **BEHAVIOUR** Lion social groups, commonly called prides, typically contain about 5 (2 to 20) adult females and 2 adult males and their young and subadult offspring.

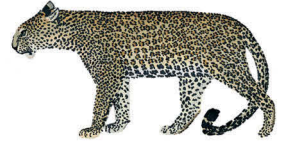
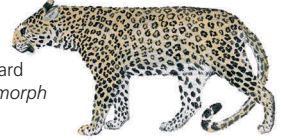


Leopard

Leopard
Ethiopian morph



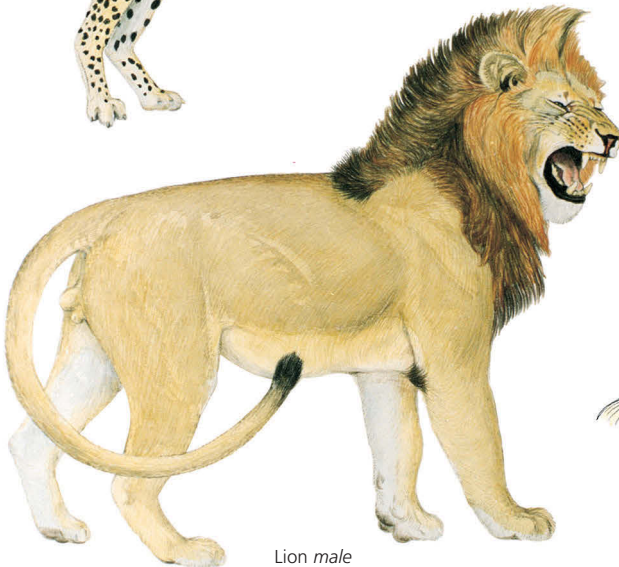
Leopard
Somali morph



Zanzibar Leopard
Panthera pardus adersi



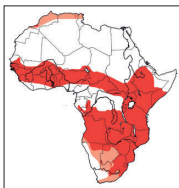
Cheetah



Lion male



Lioness

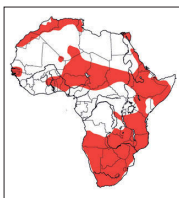


Former range

SERVAL *Leptailurus serval*

SIZE HB 67–100cm. T 24–35cm. W 11kg (6–12.5kg) (female), 13kg (10–18kg) (male). **DESCRIPTION** Tall, spotted cat with very large ears, a small muzzle and shortish tail. In SW Uganda and E Zaïre finely freckled Servals can be nearly as common as the more widespread, bold-spotted morph (both occur in the same litter). Various forms of melanistic Serval through to all-black animals also occur. **HABITAT** Grass savannas, subalpine and montane mosaics of moorland, forest and glades. Abundant along the margins of forest galleries, reedbeds and marshes. **FOOD** Wide range of small mammals, birds, reptiles

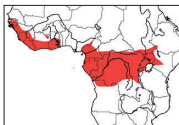
and insects; occasionally fruits. Grass-dwelling rodents are the main prey and times when local rodents are active strongly influence hunting patterns. High leaps or springs, with a powerful downward strike by the claws, are employed against larger prey, such as young antelopes and snakes as well as rodents. The Serval plucks birds and hares, and typical 'play' or tossing often changes imperceptibly into deliberate plucking. It will cache parts of a larger prey, returning later to uncover and consume it. Prey is sometimes disembowelled and the viscera left uneaten. **BEHAVIOUR** Has small, defended core territories but shares much larger areas (from 2 to 30km²) with other Servals.



CARACAL *Caracal caracal*

SIZE HB 62–91cm. T 18–34cm. W 8–13kg (female), 12–19kg (male). **DESCRIPTION** Colour varies by region, age, stage of moult and wear and tear, but generally with a reddish fawn coat variably frosted with a fine grey freckle. Sometimes melanistic. Muzzle is exceptionally short and small for such a tall cat but powerful jaw muscles underlie the broad cheeks and rounded face. **HABITAT** Plains and rocky hills in country with a short wet season and limited grass cover. *Acacia* and *Commiphora* woodlands, thickets and Karoo

scrub are preferred. **FOOD** Depending on the locality, hyraxes, hares, small monkeys, antelopes and rodents make up the bulk of the diet. Birds such as partridges and doves are locally and seasonally important. Reptiles and fruits may also be occasional foods. The Caracal stalks its prey to within range of its prodigiously long and fast bounds or spring, which is powered by disproportionately long and muscular hindlegs. **BEHAVIOUR** Mostly solitary, forms pairs or small mother–young groups for the period of mating and rearing. Repertoire of growls, spits, hisses and miaows but also a highly distinctive coughing call during breeding season.

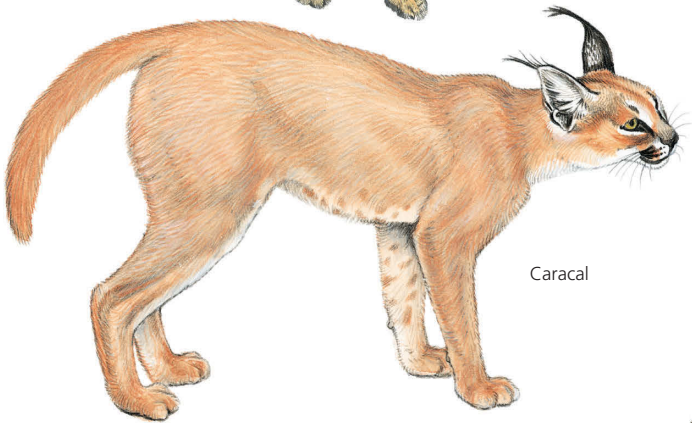


AFRICAN GOLDEN CAT *Profelis aurata*

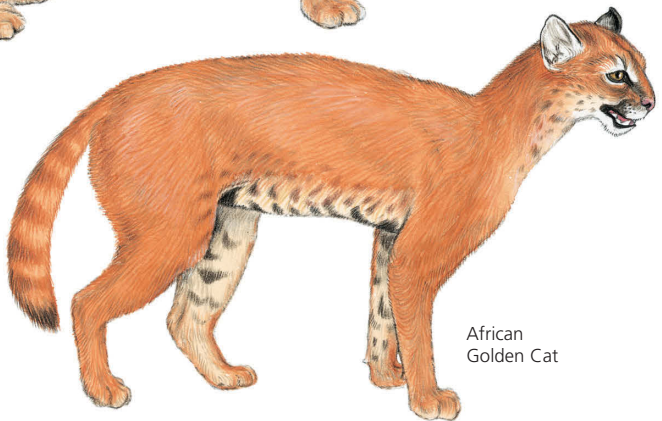
SIZE HB 61–101.5cm. T 16–46cm. W 5.5–18kg (males heaviest). **DESCRIPTION** Powerful, with even limb proportions, a heavy muzzle and small, black-backed ears. Adult sizes are very variable, as is the proportion of the tail. Colour and pattern are also varied, the background colour from red or yellow to smoky grey. All have boldly spotted bellies and inner limb fur, but spots range from fine freckles to large rosettes, from faint to bold, and from partial to overall. Before all this variation was understood, many races and species were described. **HABITAT** Mostly in lowland forest zone; also in secondary vegetation along rivers in outlying areas. Also at high altitudes in several mountainous areas in moorland, bamboo and montane forest. **FOOD** Duikers, monkeys, rodents and birds. In the Rwenzori Mts, feeds mainly on rats, hyraxes and Red Duikers. Francolins and guinea fowl are also commonly taken. **BEHAVIOUR** Has been observed repeatedly dashing up trees and down again which suggests that it may rely less upon leopard-like ambushes and more upon exceptional alertness and quick dashes.



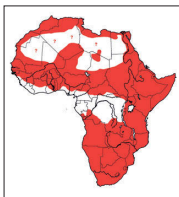
Serval



Caracal

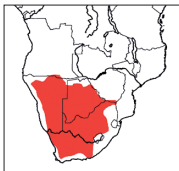


African
Golden Cat

**WILDCAT** *Felis sylvestris*

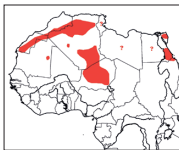
SIZE HB 45–73cm. T 20–38cm. W 3–6.5kg. **DESCRIPTION** Closely resembles a domestic cat (of which it is the direct ancestor), with a grey or buff ground colour and warmer tints on the face, back of the ears and on the belly. Darker types are found in more humid areas. Several subspecies. **HABITAT** Woodlands, savannas, grasslands and steppes. **FOOD** Mainly rats, mice and small mammals up to the size of a hare or very small antelope. Birds and, less frequently, reptiles, frogs and insects are also taken. Wild Cats traverse

known hunting grounds slowly and silently, alerted to prey by hearing or sight. Prey is approached with a gliding, ground-hugging run, after which they inch forward until they can strike (within about 1m). Most hunting takes place in the early morning or evening. **BEHAVIOUR** 'Rodent seasons' or periods of prey abundance (in and after prolonged rains) may provide the basis for breeding peaks. A single male's range tends to overlap those of several females.

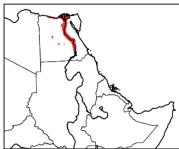
**BLACK-FOOTED CAT** *Felis nigripes*

SIZE HB 27–43cm. T 13–20cm. W 1–2kg. **DESCRIPTION** Small, pale, tawny with very bold dark spots and prominent rings on the limbs, and a rather short tail. The margins of the eyes, ears and mouth are white, as is the underside. Two subspecies. **HABITAT** Hunts in open, sandy country but keeps close to thickets, termitaries or clumps of grass. **FOOD** Mainly gerbils and bush rats (sengis also recorded). Birds, spiders, insects and reptiles are probably

more marginal foods. Can live without water. **BEHAVIOUR** Extreme caution and strictly nocturnal habits have ensured that these cats are very seldom seen.

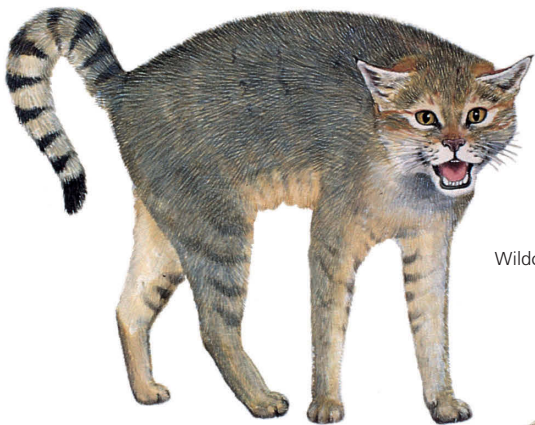
**SAND CAT** *Felis margarita*

SIZE HB 40–57cm. T 23–35cm. W 1.5–3.4kg. **DESCRIPTION** Very small, sandy-yellow with greyish freckling on the flanks, shoulders and forehead. Ears are very widely spaced and can be deflected into a horizontal, downward orientation. Fur is dense, fine and woolly. **HABITAT** Desert areas with gerbil colonies, both sandy and rocky. Digs dens in deep sand beneath desert bushes. **FOOD** Mainly gerbils and lizards. Attempts at catching birds appear inept. **BEHAVIOUR** By following the contours of the ground escapes the attention of both prey and predators.

**SWAMP (JUNGLE) CAT** *Felis chaus*

SIZE HB 60–90cm. T 20–35cm. W 7–13.5kg. **DESCRIPTION** Large-bodied, long-legged with shortish, banded tail and large, pointed ears. Pale ochre, with grey tints and indistinct striping on the hindlimbs and darker bands below the elbow. **HABITAT** Known mainly from wetlands throughout its South-east Asian and Indian range. Known from Egypt to Ethiopia. **FOOD** Migratory birds and waterfowl, rodents, reptiles and frogs. It is dependent on water. **BEHAVIOUR** An exceptionally

hardy species that can breed and survive exposure in open marshlands.



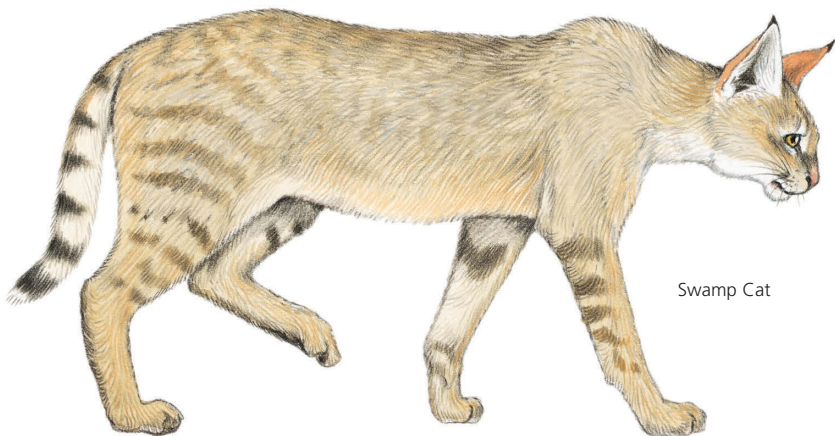
Wildcat



Black-footed Cat



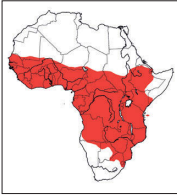
Sand Cat



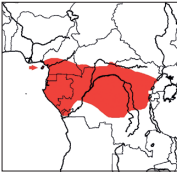
Swamp Cat

GENETS AND CIVETS Viverridae

Cat-like carnivores. Solitary foragers but some form short-lived family associations. Civets are almost wholly terrestrial; they are larger, coarse-furred, with blunt claws fixed in dog-like pads.

**AFRICAN CIVET** *Civettictis civetta*

SIZE HB 68–95cm. T 40–53cm. W 7–20kg. **DESCRIPTION** Shaggy, low-slung, dog-like animal with ornate pattern of bands and blotches on body and tail, black limbs and boldly marked face mask with pale forehead, white muzzle and black eye patches. Hair is coarse and loose, crest extends from forehead to tail tip. Mainly nocturnal. **HABITAT** Most abundant in forested or partly forested mosaics, in cultivated and marshy areas. It occurs only in dry, open country where dense cover grows along watercourses, around stone outcrops and in broken gullied land. Most often seen on well-established pathways. **FOOD** Omnivorous: vertebrates and plants (mainly roots, shoots and fruits).

**CENTRAL AFRICAN OYAN (LINSANG)** *Poiana richardsoni*

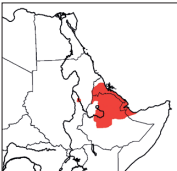
SIZE HB 33–38cm. T 35–40cm. W 500–700g. **DESCRIPTION** Long-tailed genet but differs from *Genetta* in dentition and skull. Very slender, small-muzzled and small-eared. **HABITAT** Rainforests. These nocturnal, highly arboreal linsangs are thought to move every few days, presumably on regular circuits, sleeping in nests during the day and rarely coming to the ground. **FOOD** Arboreal vertebrates, invertebrates and fruits.

**WEST AFRICAN OYAN (LINSANG)** *Poiana leightoni*

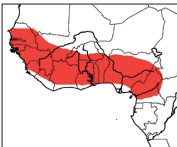
SIZE HB 30–38cm. T 35–40cm. W est. 500–700g. **DESCRIPTION** Very long, soft-furred tail, marked with dark asymmetrical chevrons (not parallel rings). Has small, sometimes irregular spots that are well spaced but a continuous black-brown line runs down the spine. The underside is unspotted and pure white. **HABITAT** Only known from rainforest in E Liberia and W Ivory Coast, where it is reputed to live in tree crowns above 30m. **FOOD** Young birds, insects and plant material, including kola fruits.

GENETS *Genetta*

Slender, long-bodied, cat-like carnivores. Predominantly arboreal, they have soft fur, retractile claws and a spotted or blotched coat pattern.

**ETHIOPIAN GENET** *Genetta abyssinica*

SIZE HB 40–50cm. T 40–45cm. W 1.3–2kg. **DESCRIPTION** Pale, sandy with five black stripes running down the back. Fur short, fairly coarse and of uniform length. Forefeet distinguished by absence of fur between digit pads and 'palm'. **HABITAT** Recorded from Red Sea coast to Ethiopian highlands in woodlands. Precise range and preferred habitats not yet known. **FOOD** Presumed to resemble other genets.

**HAUSA GENET** *Genetta thierryi*

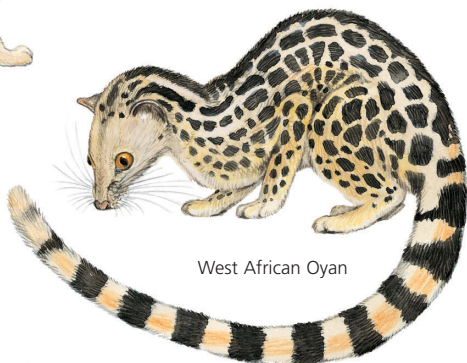
SIZE HB 38–45cm. T 37–45cm. W 1.3–1.5kg. **DESCRIPTION** Tan with blotchy spots following linear patterns down the back, often rich reddish orange. There is no crest and spotting is generally sparse on the face and forequarters. **HABITAT** Sparsely distributed in drier savannas from Guinea to Cameroon. Eastern limits uncertain. **FOOD** Not known.



African Civet



Central African Oyan



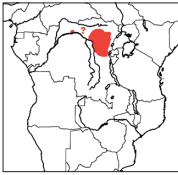
West African Oyan



Ethiopian Genet

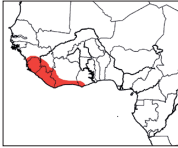


Hausa Genet



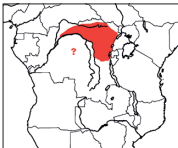
AQUATIC GENET *Genetta* (formerly *Osbornictis*) *piscivora*

SIZE HB 45–50cm. T 35–42cm. W est. 1.2–2.5kg. **DESCRIPTION** Lightly built, densely furred unspotted genet with large, protuberant eyes, relatively small ears and a 'moustache' of conspicuous, downwardly deflected white whiskers. **HABITAT** Shallow headwaters of streams (preferably clear and flowing over red clays and sands) within a forest type dominated by Limbali trees (*Gilbertiodendron*). **FOOD** Fish, which are caught in the mouth with a very rapid strike.



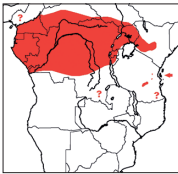
JOHNSTON'S GENET *Genetta johnstoni*

SIZE HB 40–52cm. T 40–54cm. W est. 1–3kg. **DESCRIPTION** Thick soft coat. Large eyes and fine muzzle. Upperparts tawny with rows of spots down flanks and back (become larger and more regular as they approach midline). Short dorsal crest. **HABITAT** Known from rainforest in Liberia and Guinea (also W Ivory Coast?). **FOOD** Not recorded but likely to include soft-bodied insects.



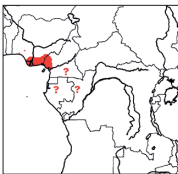
GIANT GENET *Genetta victoriae*

SIZE HB 55–60cm. T 45–50cm. W 2.5–3.5kg. **DESCRIPTION** Dense soft fur, long legs and a fine, narrow muzzle. Black spots are very numerous (but subject to individual variation). **HABITAT** NE Zaïre and W Uganda. Patchily distributed in forests, low and medium altitudes. **FOOD** Birds, termites, oil palm seeds, carrion and fruits reported.



SERVALINE GENET *Genetta servalina*

SIZE HB 41–50cm. T 35–44cm. W 1–2kg. **DESCRIPTION** Narrow face, rather long legs, very soft, dense, short fur and no dorsal crest (a short crest on the back of the neck may sometimes extend to the shoulders). Exclusively nocturnal. **HABITAT** Rainforest, apparently absent from Upper Guinea. Both lowland and montane forests. **FOOD** Ground-dwelling rodents, tree hyraxes, birds, insects and fruits have been recorded.



CRESTED GENET *Genetta cristata*

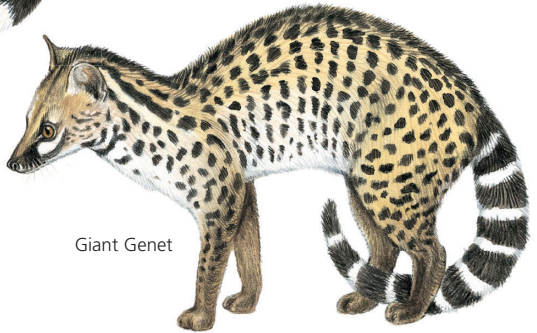
SIZE HB 49–62cm. T 43–50cm. W (est.) 2–3kg. **DESCRIPTION** Slender, long-legged genet resembling *G. servalina* but with a distinctive, erectile dorsal crest. Black spots numerous and of linear distribution. Pale neck and chin, deep sepia belly and limbs. Black and white banded tail. **HABITAT** Forests in Bight of Benin, from Niger Delta to Congo R. **FOOD** Mainly insects with traces of vegetable matter, rodents and reptiles.



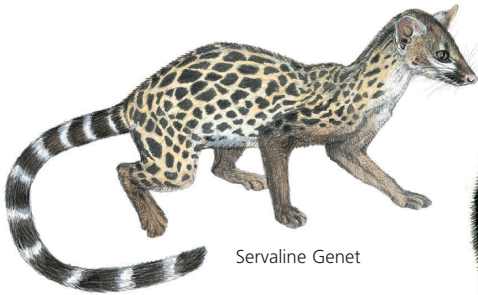
Aquatic Genet



Johnston's Genet



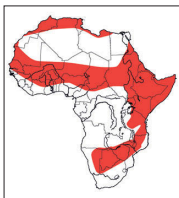
Giant Genet



Servaline Genet

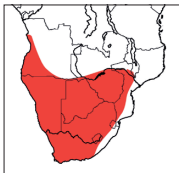


Crested Genet

**COMMON GENET** *Genetta genetta*

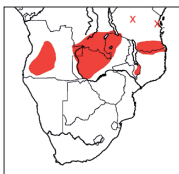
SIZE HB 40–55cm. T 40–51cm. W 1.3–2.25kg. **DESCRIPTION** Rather coarse fur and a short crest along the spine. Ringed tail is nearly as long as the body and strongly tapered. The dark brown spots are small, numerous and linear on a sandy background. Differently coloured morphs (red or grey-black) co-exist in the same area. **HABITAT** A wide range of drier habitats, from seasonally arid woodlands to sparsely bushed near-desert, especially rocky country. Can live without water. The Common Genet is the only genet to occur

within Africa. **FOOD** Varies by region, with a different spectrum of local vertebrates (rodents, birds or reptiles), invertebrates and fruits.

**FELINE GENET** *Genetta felina*

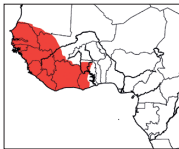
SIZE HB 86–100cm. T 40–50cm. W 1.5–2.6kg. **DESCRIPTION** Frequently treated as a subspecies of *G. genetta*, genetic isolation in temperate southern Africa has persuaded some geneticists that it deserves recognition as a species. This genet is here profiled as a 'provisional' species until further studies clarify its taxonomic status. This is a very grey species with dark grey limbs, a prominent black dorsal crest and strongly contrasting facial

patterns. Black spots small and rounded. Tail evenly banded in black and white. **HABITAT** Occurs from coastal Namibia to W Zambia. **FOOD** Prefers rodents and birds but other vertebrates and arthropods taken.

**MIOMBO GENET** *Genetta angolensis*

SIZE HB 44–48cm. T 38–43cm. W 1.3–2kg. **DESCRIPTION** Dark grey or brownish with a dorsal crest and irregularly spotted coat. The underside of the paws and the feet are blackish. Face dark with contrasting white flashes below eyes and muzzle. The allocation of supposed *Genetta angolensis* from N Mozambique remains tentative and uncertain (see image). **HABITAT** Miombo (*Brachystegia*) woodlands from Angola to Tanzania, preference for the moister

woodlands, riverine vegetation and forest galleries. **FOOD** Rodents are likely to be the main staple; also invertebrates.

**PARDINE GENET** *Genetta pardina*

SIZE HB 41–55cm. T 39–49cm. W 2.5–3.1kg. **DESCRIPTION** A robust genet with strongly contrasting facial mask. Black mid-dorsal line is wide. Spots typically with black outlines around reddish centres but subject to individual variation. Lower limbs sepia and sparingly spotted. Tail has six or seven pale rings, often incomplete, on shortish, mainly black background. **HABITAT**

Various wooded areas in far western Upper Guinea, possibly west of Volta R. **FOOD** Rodents, but frequency of invertebrates has been noted.



Common Genet



Feline Genet



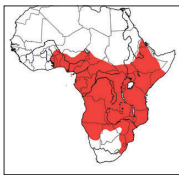
Miombo Genet



supposed Miombo Genet
from N Mozambique



Pardine Genet

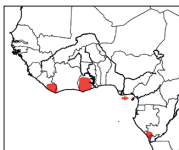

BLOTCHED GENET *Genetta maculata*

SIZE HB 40–55cm. T 40–54cm. W 1.2–3.1kg. **DESCRIPTION** Soft-furred, short-legged genet without a well-defined dorsal crest. Ears are broad-based and slightly rounded. The tail is soft furred, has a black or smudged tip and some white rings are often incomplete. The colours and patterns of the blotchy coat are extremely variable. Furthermore, differently coloured morphs (red or grey-black) co-exist in the same area. This has led to a great proliferation

of species and subspecies names. Recent genetic studies have determined that several taxa formerly regarded as subspecies should be given species status. Of the 20 or so other named subspecies many are currently being revised. **HABITAT** Most of sub-Saharan Africa except the Horn of Africa and SW Africa. Rainforest, riverine vegetation, secondary growth, moist woodlands and all moist forest and woodland mosaics. **FOOD** Mainly rodents, but more invertebrates and fruits than Common Genet.


CAPE GENET *Genetta tigrina*

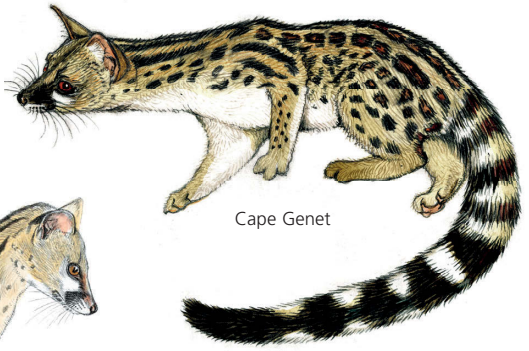
SIZE HB 40–55cm. T 40–54cm. W 1.2–3.1kg. **DESCRIPTION** A soft-furred, short-legged genet without a well-defined dorsal crest. The ears are broad based and slightly rounded. The tail is soft furred and has a black or smudged tip and some white rings, which are often incomplete. **HABITAT** Both natural Cape vegetation types and cultivated and settled land. **FOOD** Opportunistic omnivore. Mainly small mammals and invertebrates with birds mostly during fledging times. Some plant material.


KING GENET *Genetta poensis*

SIZE HB 35–68cm. T 35–46cm. W (est. ave.) 2.8kg. **DESCRIPTION** A large, dark genet of controversial status but erected as a species on genetic criteria. Genetically thought to be of very recent origin, having emerged from a common ancestry with *G. maculata*. Banding of the tail seems to be in the process of being suppressed, with very dark tints on the five or six paler bands. Likewise, blotches tend to amalgamate along the dorsal axis and lower limbs are very dark. **HABITAT** Most records are from coastal or near-coastal areas in high rainfall forests between the Congo R. and Liberia. However, it is only known from museum skins bought before 1946 and present status remains unknown. **FOOD** Not known, but probably relatively omnivorous.


BOURLON'S GENET *Genetta bourloni*

SIZE HB 49–50cm. T 40–42cm. W (est.) 3kg. **DESCRIPTION** Closely resembling the King Genet, *G. poensis*, but with more discrete spotting and well-marked face pattern. This species also belongs in the *maculata* group and has been erected mainly on genetic grounds. Like *G. poensis*, lighter bands on the tail are muted and less conspicuous than in most genets, implying that tail signals are of less significance for these species. **HABITAT** Upper Guinea rainforests. **FOOD** Not known.



Cape Genet



Blotched
Genet



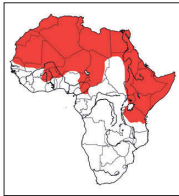
King Genet



Bourlon's Genet

HYAENIDS Hyaenidae

Long-legged, long-necked carnivores with large eyes and ears and a blunt muzzle. They have complex social relationships regulated by scent signals, loud calls and elaborate behaviour.

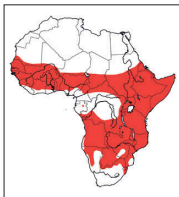
**STRIPED HYAENA** *Hyaena hyaena*

SIZE HB 100–120cm. T 25–35cm. W 25–55kg. **DESCRIPTION** Tall and slender with long, thick neck, pointed ears, large eyes and a blunt black muzzle with a pointed, dog-like nose. A crest runs from crown to tail. **HABITAT** Arid steppes and subdesert, *Acacia* scrub and dry savannas, open montane habitats and rocky escarpments. **FOOD** Omnivorous and opportunistic but primarily adapted to coping with bones and carrion. **BEHAVIOUR** Depends on whether or not Spotted Hyaena is present. Where the 2 species co-exist Striped is quieter, more retiring and perhaps more solitary and cryptic.

**BROWN HYAENA** *Hyaena brunnea*

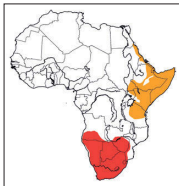
SIZE HB 110–125cm. T 25–30cm. W 40–55kg. **DESCRIPTION** Resembles dark, heavily caped Striped Hyaena but with a vivid cream-coloured throat, dark brown or slate body and shorter black tail. **HABITAT** Currently limited to the Kalahari Desert, the Namibian coastal littoral and less inhabited borderlands in South Africa and Zimbabwe. **FOOD** Primarily carrion, especially during the dry season or when nomadic herds pass through. Almost entirely nocturnal.

BEHAVIOUR Home ranges are occupied by a small number of closely related adults (up to 3 males and 5 females), their immediate young and some subadults, numbering up to 14 in total.

**SPOTTED HYAENA** *Crocuta crocuta*

SIZE HB 100–180cm. T 25–36cm. W 40–90kg. **DESCRIPTION** Powerfully built, dog-like, with a black muzzle and black tip to the short, bushy tail. Females average 12% heavier than males. Its loud, long-distance call, a repetitive and reverberating 'whoop-up', carries for up to 5km. Less frequent is its famous 'laugh', a shrill, social-appeasement call. **HABITAT** Open savannas, all *Acacia* communities, montane moors and grasslands, various dry steppes with abundant herbivores preferred. **FOOD** Opportunistic carnivore

and scavenger wherever animal waste, from the feeding of other carnivores or humans, or the vicissitudes of nature, is available. **BEHAVIOUR** Where food is plentiful a single clan can number over 100 (with a range of 35–80 adults).

**AARDWOLF** *Proteles cristata*

SIZE HB 55–80cm. T 20–30cm. H 40–50cm. W 8–12kg. **DESCRIPTION** Slender, cream or tawny with narrow, well-spaced stripes and dark brown feet, tail tip and muzzle. Long crest on neck and back. **HABITAT** Presence depends on 2 genera of harvester termites (*Trinervitermes* and *Hodotermes*). These termites flourish best in heavily grazed and trampled grasslands and savannas, especially on sandy plains and plateaus. **FOOD** Harvester termites. The availability of the nocturnal *Trinervitermes* and the more diurnal *Hodotermes* may partly determine the times at which Aardwolves are active. Small numbers of scarab and tok-tockie beetles, grasshoppers, moths and a few small vertebrates are also eaten. **BEHAVIOUR** Defended territories vary in extent

(1–2km² in habitats with a high density of termite mounds).

- *P. c. cristatus*
- *P. c. septentrionalis*

Striped Hyaena



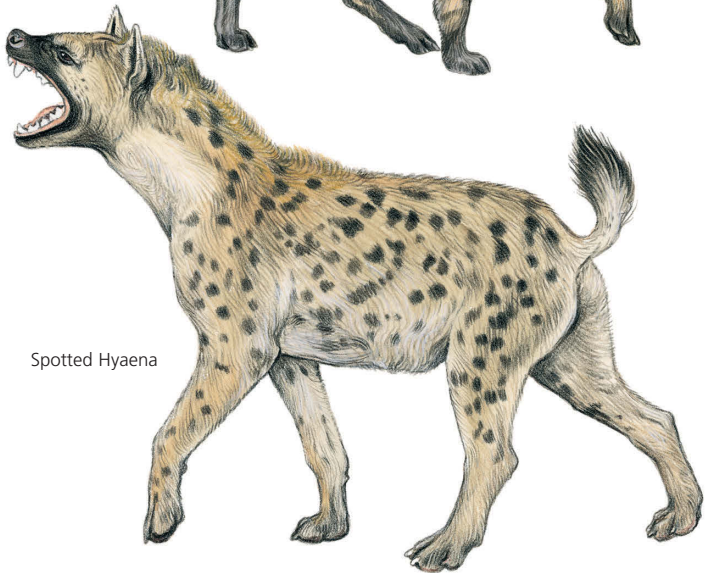
Aardwolf



Brown Hyaena

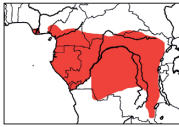


Spotted Hyaena

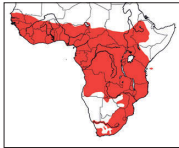


MONGOOSES Herpestidae

Small to medium-sized carnivores with long bodies and tails and shortish legs. All have inconspicuous ears, small eyes and a more or less pointed muzzle. Primarily terrestrial.

**LONG-SNOUDED MONGOOSE** *Xenogale naso*

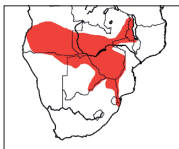
SIZE HB 52–59cm. T 36–43cm. W 3–4.2kg. **DESCRIPTION** Dark, shaggy with relatively long legs, a thick tail and pointed muzzle. Head is greyer than the deep sepia-black grizzled body and tail. **HABITAT** Main forest block north of the R. Zaire where they live close to clear forest streams. **FOOD** Known to eat snails (a rare prey for carnivores), reputed to take carrion and likely to feed on rodents.

**MARSH MONGOOSE** *Atilax paludinosus*

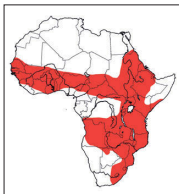
SIZE HB 46–64cm. T 32–53cm. W 2.2–5.0kg. **DESCRIPTION** Dark brown with thick, shaggy fur on the neck, body and tail but short, sleek fur on the fingered hands and feet. The hands have soft, naked palms and sensitive, flexible fingers. The blunt, slightly upturned muzzle is distinctive. 16 subspecies have been described **HABITAT** River courses and lake-shore areas in forested or humid areas, and papyrus swamps. **FOOD** Freshwater crabs, snails, mussels, frogs, lungfish (*Protopterus*) and catfish (*Clarias*); insect larvae, reptiles, small mammals, birds and their eggs, fruits. **BEHAVIOUR** Territorial and forage individually or in pairs with young. During droughts territories appear to be used more intensively and activity (which is predominantly nocturnal) may continue well into the day. Loud bark-growls are uttered as a threat; moans, purrs and bleats also uttered on occasion.

**YELLOW MONGOOSE** *Cynictis penicillata*

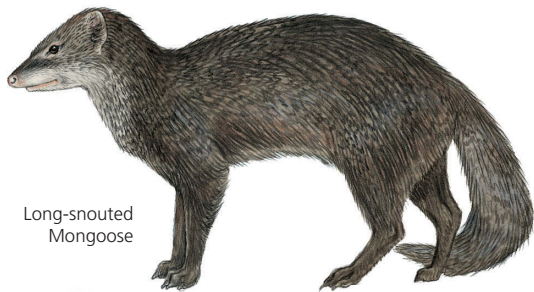
SIZE HB 25–40cm. T 18–30cm. W 440–800g. **DESCRIPTION** Dainty, rather weak-looking limbs and sharply tapered face. Commonly sun-bathe in the early morning. **HABITAT** Favours sandy areas, often valley bottoms or clearings within wooded country. **FOOD** Invertebrates, especially beetles, their larvae and harvester termites. **BEHAVIOUR** Hierarchical packs numbering up to 50 animals are dominated by a breeding pair.

**SELOUS'S MONGOOSE** *Paracynictis* (formerly *Cynictis*) *selousi*

SIZE HB 35–48cm. T 28–43cm. W 1.3–2.2kg. **DESCRIPTION** Delicate-looking with bushy, white-tipped tail. Almost wholly nocturnal. **HABITAT** Open, short grass; well-drained, sandy country with open Mopane (*Colophospermum*) scrub, *Baikiaea* teak woodland and fire-climax Miombo (*Brachystegia*) woodland with open floors. **FOOD** Invertebrates, with a strong preference for beetles and their larvae, termites and grasshoppers. Mice, reptiles and frogs are commonly eaten; birds only rarely. **BEHAVIOUR** Finds most food by smell. Often visits cattle pens to dig for dung-beetle larvae. Burrows are dug slowly and laboriously but are important as key landmarks and refuges. Normally seen singly out in the open.

**WHITE-TAILED MONGOOSE** *Ichneumia albicauda*

SIZE HB 47–71cm. T 35–50cm. W 2.0–5.2kg. **DESCRIPTION** Somewhat fox-like, with thick, silver-tinted coat. Unlike the Dog Mongoose (4 toes), this species has 5 toes. Nocturnal. **HABITAT** Flourishes in grassy savannas, tropical woodlands, grassy clearings in former forest areas, cultivation, suburbia and ranchlands. **FOOD** Mainly invertebrates: termites, beetles and their larvae preferred. Mice, frogs and reptiles also frequent, fruits very infrequent. **BEHAVIOUR** Although normally solitary, adult females are known to share home ranges amicably with adult offspring. As many as 9 individuals have been seen foraging together.



Long-snouted
Mongoose

Marsh Mongoose



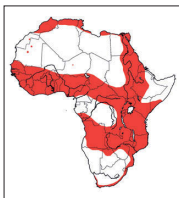
Yellow
Mongoose



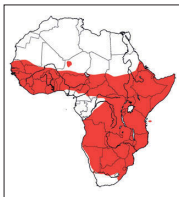
Selous's
Mongoose

White-tailed Mongoose

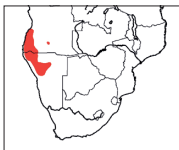


**ICHNEUMON (EGYPTIAN) MONGOOSE** *Herpestes ichneumon*

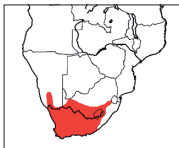
SIZE HB 45–60cm. T 33–54cm. W 2.2–4.1kg. **DESCRIPTION** Long-bodied, low-slung with a slender, almost snake-like head. Long, tapered tail ends in a black tassel. In most postures legs are concealed by long fur, increasing its reptile-like form. **HABITAT** Commonest on floodplains, littorals and broad river valleys; also rolling moist savannas and clearings where grass is dominant. **FOOD** Rodents, reptiles, frogs, birds and various invertebrates. **BEHAVIOUR** Normally seen singly or in small family parties.

**SLENDER MONGOOSE** *Herpestes sanguineus*

SIZE HB 26–34cm. T 23–31cm. W 350–800g. **DESCRIPTION** Long-bodied, short-legged, partly arboreal, extremely variable in colour. Numerous subspecies. **HABITAT** All wooded, savanna, thicket and forest habitats; also occurs in extensive papyrus and forest swamps. **FOOD** Rodents, insects, reptiles, frogs, birds (including nestlings and eggs). Insect larvae (notably blowfly larvae at carcasses). **BEHAVIOUR** Mainly diurnal foragers. Both sexes hold exclusive territories of variable size.

**ANGOLA SLENDER MONGOOSE** *Herpestes flavescens*

SIZE HB 31–35cm. T 32–36cm. W 550–907g. **DESCRIPTION** Slim, strongly grizzled mongoose with long, black-tipped tail. Face and feet are darker. The skull is intermediate between *H. sanguineus* and *H. pulverulentus*. **HABITAT** Inhabits rocky areas on the coastal plain of Angola and N Namibia. **FOOD** Mainly rodents (notably the rock-crevice-dwelling Noki *Petromus*), birds, reptiles and invertebrates.

**SMALL GREY MONGOOSE** *Herpestes pulverulenta*

SIZE HB 28–37cm. T 23–36cm. W 370–800g. **DESCRIPTION** Uniformly grizzled grey with thickly furred tail. **HABITAT** Bushy country in all habitat types south of the Orange R. Prefers rocky ground, hillsides and the coastal plain. **FOOD** Mainly invertebrates, insects, crabs, larvae, earthworms, snails; also rodents, reptiles, birds. **BEHAVIOUR** Seen singly, in twos, or in small family groups.

**SOMALI SLENDER MONGOOSE** *Herpestes ochraceus*

SIZE HB 22–29cm. T 22–27cm. W (est.) 400–700g. **DESCRIPTION** A grizzled, grey, brown or russet mongoose with a well-furred, tapered tail (without black tip). Muzzle and feet slightly darker than body colouring. **HABITAT** Notably hilly country in all habitat types of the Somali arid region. **FOOD** Probably small vertebrates and invertebrates.

**MELLER'S MONGOOSE** *Rhynchogale melleri*

SIZE HB 44–50cm. T 28–40cm. W 1.7–3.1kg. **DESCRIPTION** Dark, muddy-coloured with long legs and tail, shaggy, coarsely grizzled fur and a blunt, broad and rather retroussé nose above a swollen upper lip. A distinctive feature is the prominent 'reverse cow-licks' of long fur on each side of the throat. Where these meet the cheek fur there is something of a ruff. **HABITAT** Moist areas with thick grass and abundant termitaries, particularly in wide, shallow and well-watered valleys. **FOOD** Termites, particularly

surface-foraging *Hodotermes* and *Macrotermes*. Also takes termite-eating snakes, centipedes, grasshoppers, beetles, frogs and fallen fruits. **BEHAVIOUR** Solitary and little-known, extremely shy and reclusive.

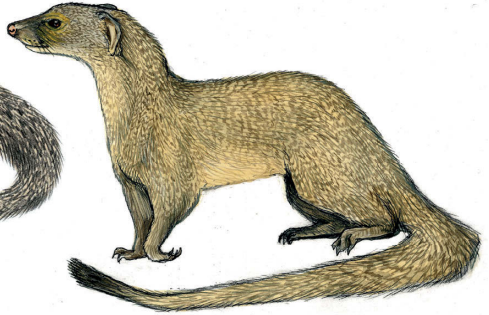
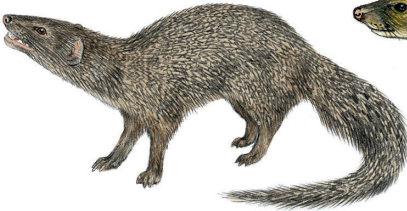


Slender Mongoose

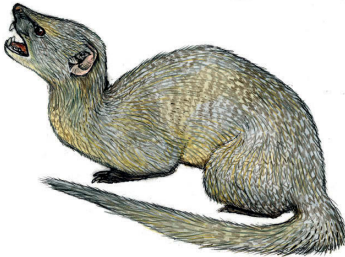


Ichneumon Mongoose

Small Grey Mongoose



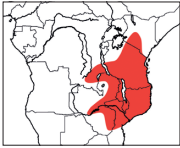
Angola Slender Mongoose



Somali Slender Mongoose



Meller's Mongoose


BUSHY-TAILED MONGOOSE *Bdeogale crassicauda*

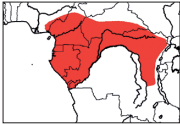
SIZE HB 40–50cm. T 20–30cm. W 1.3–2.1kg. **DESCRIPTION** Brown or black with bushy, tapered tail, relatively prominent ears and blunt dog-like muzzle. Colouring varies locally but is relatively uniform, with long black guard hairs over paler, dense underfur. Limbs black or deep brown. **HABITAT** Coastal thickets, dry forests and well-vegetated valleys in the moister eastern Miombo (*Brachystegia*) woodlands; also dense vegetation around rocky outcrops and escarpments. **FOOD** Ants and termites; also caterpillars, crickets, grasshoppers, beetles, their larvae and other invertebrates, mostly picked off the ground or vegetation. Snakes and lizards, burrowing toads and rodents are more rarely eaten. Very active prey appears to confuse bushy-tailed mongooses but more acquiescent prey is dealt with deliberately by means of deep, forceful bites.


SOKOKE DOG MONGOOSE *Bdeogale omnivora*

SIZE HB 34–45cm. T 18–24cm. W est. 0.7–1.6kg. **DESCRIPTION** Small with pale cream-coloured body and dark brown limbs and tail. There are longer, black-tipped guard hairs in the tail, on the rump and more sparsely on the back. Head and shoulders are palest, almost white. Predominantly nocturnal. **HABITAT** Only known with certainty from coastal forests between the R. Galana and Mombasa. The Sokoke forest consists of very old Miombo (*Brachystegia*) woodland growing on white marine sands. The animals shelter in small riverine patches of evergreen thicket but forage more widely. They range through a mosaic of forest, savanna and cultivation. **FOOD** The first specimens collected contained insects, birds and fruits.

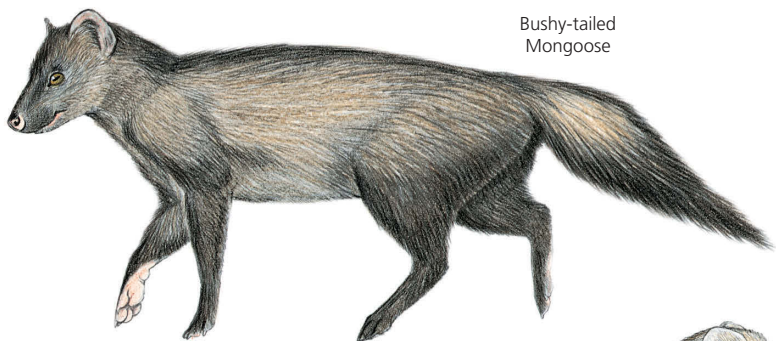

JACKSON'S MONGOOSE *Bdeogale jacksoni*

SIZE HB 52–57cm. T 27–36cm. W 2–3kg. **DESCRIPTION** Often regarded as a montane isolate of the Black-legged Mongoose, distinguished by much longer fur, especially on the tail, and very yellowish tints on the neck and throat. Mainly nocturnal and crepuscular. **HABITAT** Montane forests and bamboo zones on the Kenya mountains; also recorded from lowland forest immediately south of Mt. Elgon. **FOOD** Adult diet consists of insects, mostly army ants of the genus *Anona*; also caterpillars, beetles, millipedes, snails, lizards and snake eggs. About 80% of the juvenile's diet is rodents (compared with over 5% in adults), with the rest mostly lizards, beetles and birds. Coping with well-defended columns of army ants may therefore depend on maturity and learning.


BLACK-LEGGED MONGOOSE *Bdeogale nigripes*

SIZE HB 55–65cm. T 35–40cm. W est. 2–3.5kg. **DESCRIPTION** Large pale mongoose with black limbs and a white tail (face and rump are also white in some individuals). The tail is long but only moderately bushy. Fur on the body is dense and thick but relatively short. Shoulders may be grey or show an upward extension of the black or sepia forelimb colour. **HABITAT** Lowland rainforests between the R. Cross in Nigeria to the Western Rift Valley. Within this extensive range it is localised but nowhere very common. **FOOD** Mainly ants, notably army ants (*Dorylus* and *Myrmecaria*), and other insects; also a variety of invertebrates, including snails and crabs. Vertebrates, including rodents and frogs. Fallen fruits are taken occasionally.

Bushy-tailed
Mongoose



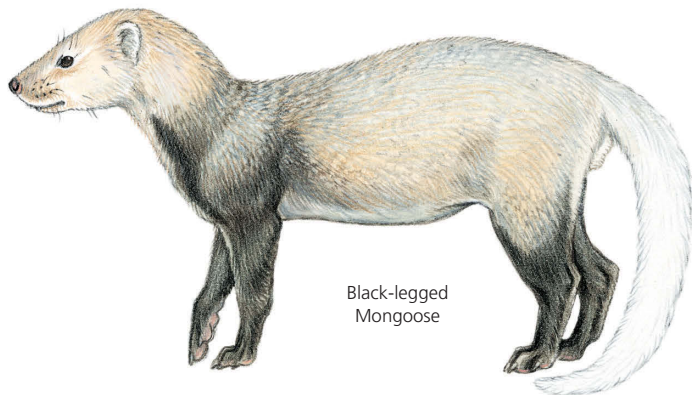
Sokoke Dog
Mongoose

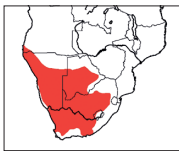


Jackson's
Mongoose



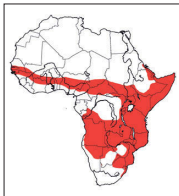
Black-legged
Mongoose



**MEERKAT (SURICATE)** *Suricata suricata*

SIZE HB 24.5–31cm. T 19–24cm. W 620–970g. **DESCRIPTION** Ochre-grey with rotund body, muscular, well-clawed forearms, a round head and tubular muzzle. Eye masks of black skin and fur. Pale underside prominently displayed when the animal stands upright. Banded rump. **HABITAT** Kalahari *Acacia* bush, Karoo scrub and Highveld rangelands. Favours dry, open,

often stony, country with short or sparse woody growth, mainly short grasses and extensive open pans. **FOOD** Mainly insects associated with grassland and herbivore herds: termites, larvae and pupae. **BEHAVIOUR** Packs of about 10 (up to 30) animals may include several breeding pairs. Aggression is seldom obvious (although adults may squabble over food).

**BANDED MONGOOSE** *Mungos mungo*

SIZE HB 30–45cm. T 15–30cm. W 1.5–2.25kg. **DESCRIPTION** Chunky, coarse-haired with short, muscular, well-clawed legs. Prominently banded rump. Larger and darker in moist habitats, and smaller and paler in drier habitats. Strictly diurnal. **HABITAT** Forest/cultivation mosaics to arid *Acacia* scrub and open, short grasslands. Closely associated with termitaries. **FOOD** Termites and beetle larvae (especially in rangelands); cryptic litter fauna in more forested areas, supplemented by small vertebrates. **BEHAVIOUR** Lives in

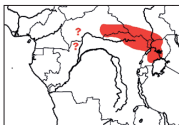
packs that can reach about 40 members before dividing into smaller groups with an average of between 15 and 20 members.

**GAMBIAN MONGOOSE** *Mungos gambianus*

SIZE HB est. 33–36cm. T est. 18–22cm. W est. 1–2kg. **DESCRIPTION** Compact, coarse-haired with plain grey upperparts, ochraceous underparts and dark outer surfaces to the limbs. Diurnal. **HABITAT** Moist savannas, forest/cultivation mosaics, grasslands and woodlands. **FOOD** Invertebrates with some vertebrates. **BEHAVIOUR** Highly social and twitters continuously while foraging in long grass.

**LIBERIAN MONGOOSE** *Liberiictis kuhni*

SIZE HB 40–45cm. T est. 18–22cm. W 2–2.3kg. **DESCRIPTION** Long-clawed, long-nosed with thick dark coat and bushy tail. The very undershot mouthparts, chin and chest are off-white. **HABITAT** Known from stream banks in secondary and deciduous forest. **FOOD** Earthworms and insect larvae are found in streambeds and sump areas by energetic digging with the claws, followed by sniffing and grubbing with the snout.

**SAVANNA MONGOOSE** *Dologale dybowski*

SIZE HB 22–33cm. T 16–23cm. W est. 250–400g. **DESCRIPTION** Grizzled with powerful claws on the forefeet and a thick, bushy tail. Throat displays prominent reverse 'cow-lick' of fur. **HABITAT** Only known from moist savannas and margins of rainforest in NE Zaïre, S Sudan and NW Uganda.

FOOD Unknown, but is associated with termitaries. Possibly fossorial invertebrates and small burrowing vertebrates.



Meerkat



Banded Mongoose



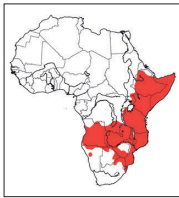
Gambian Mongoose



Liberian Mongoose



Savanna Mongoose

**DWARF MONGOOSE** *Helogale parvula*

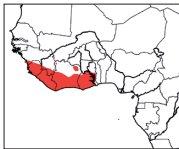
SIZE HB 18–28cm. T 14–19cm. W 210–350g. **DESCRIPTION** Easily distinguished by its small size, rather infantile features, smooth, finely grizzled coat and its diurnal and social habits. **HABITAT** Savannas, thickets and woodlands, typically with numerous termitaries for shelter. Avoids very arid, open country. **FOOD** Invertebrates, notably crickets, grasshoppers, termites and spiders. Also rodents, lizards, snakes and birds. **BEHAVIOUR** Social species, forms packs averaging over 8 individuals (range 2–20), with more females than males and fluctuating numbers of young.

**SOMALI DWARF MONGOOSE** *Helogale hirtula*

SIZE HB est. 20–27cm. T est. 15–18cm. W est. 220–330 g. **DESCRIPTION** Very small with shaggier fur than the Dwarf Mongoose. Social and diurnal. **HABITAT** Horn of Africa, limited to thicket and deciduous woodlands. Can live without water. **FOOD** Invertebrates and vertebrates.

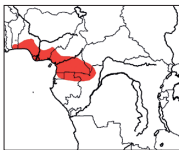
CUSIMANSES *Crossarchus*

Dark, shaggy mongooses with a snout-like nose and a tubular muzzle. Diurnal, social mongooses that form family parties numbering up to 20 animals.

**COMMON CUSIMANSE** *Crossarchus obscurus*

SIZE HB 30–37cm. T 15–25cm. W 1–1.5kg. **DESCRIPTION** Tubby, long-nosed, strongly clawed. Paler underfur. Shaggy dark outer fur that gives unkempt appearance. **HABITAT** Rainforest zone between Sierra Leone and Nigeria. Inhabits the floor of the rainforest, notably in areas of dense undergrowth. **FOOD** Insects, earthworms, snails, myriapods, crabs and invertebrates; also

vertebrates, including their eggs. **BEHAVIOUR** Quick and energetic forager. Keeps in touch with frequent chirps, churrs and twitters.

**CAMEROON CUSIMANSE** *Crossarchus platycephalus* not illustrated

SIZE HB est. 30–36cm. T est. 15–25cm. W est. 1–1.5kg. **DESCRIPTION** Externally resembles Common Cusimanse. Shaggy, with black guard hairs over a thick brown undercoat. **HABITAT** Tropical rainforest between the R. Cross (Nigeria) and R. Zaïre. Very patchily distributed. **FOOD** Forest floor invertebrates and small vertebrates.

**ALEXANDER'S CUSIMANSE** *Crossarchus alexandri*

SIZE HB 35–44cm. T 22–32cm. W 1–2kg. **DESCRIPTION** Continuous crest from crown to tail. Shaggy, with long-muzzled, short-furred face. **HABITAT** Rainforest in Zaïre basin and W Uganda. Favours seasonally flooded swamp forest. **FOOD** Earthworms, snails, slugs, beetles and other invertebrates; also small vertebrates and fallen fruits. **BEHAVIOUR** Social. Mainly diurnal. Commonly grunts and twitters while foraging.

**ANSORGE'S CUSIMANSE** *Crossarchus ansorgei*

SIZE HB est. 32–36cm. T est. 20–22cm. W est. 0.6–1.5kg. **DESCRIPTION** Thick brown fur on the body, black limbs and tail. Thick muzzle is flat-fronted and blunt. **HABITAT** Known only from high deciduous rainforest and said to avoid disturbed and cultivated land. **FOOD** Insect larvae, eggs and small vertebrates.



Dwarf Mongoose

Somali Dwarf Mongoose



Common
Cusimanse



Alexander's
Cusimanse



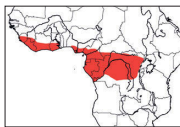
Ansorge's Cusimanse



PANGOLINS Pholidota

Highly specialised scaly ant-eaters, pangolins are typified by long, very muscular tails and horny scales, which are cornified extrusions of the outer skin (or enlargements of the miniature scales that cover many rodent and insectivore tails).

PANGOLINS Manidae



LONG-TAILED PANGOLIN *Uromanis tetradactyla*

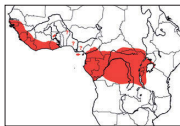
SIZE HB 30–40cm. T 55–80cm. W 2.2–3.25kg. **DESCRIPTION** Small, arboreal, with a very long tail and black face and underparts. The muzzle is naked and pointed. Active by day but very wary and difficult to spot. **HABITAT** Very localised; never far from permanent water and watercourses. Sleeps in tree hollows or in hollowed-out insect nests. **FOOD** Tree ant species that occur in swampy areas. **BEHAVIOUR** Uses habitual routes and sleeping-holes in a well-known home range.



TREE PANGOLIN *Phataginus tricuspis*

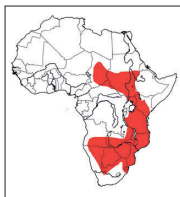
SIZE HB 25–43cm. T 35–62cm. W 1.6–3kg. **DESCRIPTION** Has very numerous, thin scales, resembling fir-cone scales in texture but with serrated ('3-cusped') points. Tail is tipped with a sensitive, thumb-like pad. **HABITAT** All through lowland rainforest block (and outliers) but especially favours secondary growth. **FOOD** Mainly termite species that are mostly found on the ground; also ants. Most foraging is on the surface and in leaf litter. The tail sometimes helps sweep insects within range of the flickering tongue.

Predominantly nocturnal. **BEHAVIOUR** Adult females highly sedentary and sleep in self-dug holes used for long periods. Forage within overlapping home ranges of some 3 or 4ha. Adult males more nomadic.



GIANT PANGOLIN *Smutsia gigantea*

SIZE HB 75–100cm. T 50–70cm. W 30–35kg. **DESCRIPTION** Largest pangolin. Powerfully built with precise geometric pattern of brunette scales which darken and change both texture and shape with age. The hindlegs leave prints that resemble those of a small elephant. At the front, weight is taken on the wrist, with long sharp claws folded inwards and facing to the rear. The tail, unlike that of the Ground Pangolin, often leaves a heavy drag mark. **HABITAT** Forest and forest mosaics but survives in secondary grasslands. Totally water dependent. **FOOD** Termites and ants. Other insects and larvae are also taken. Even water-beetles (*Dytiscidae*) are licked off the surface of pools (it is an able swimmer). **BEHAVIOUR** Solitary. Individuals have been known to inhabit a very limited locality for up to 2 years but their seasonal and overall ranges are poorly known.



GROUND PANGOLIN *Smutsia temminckii*

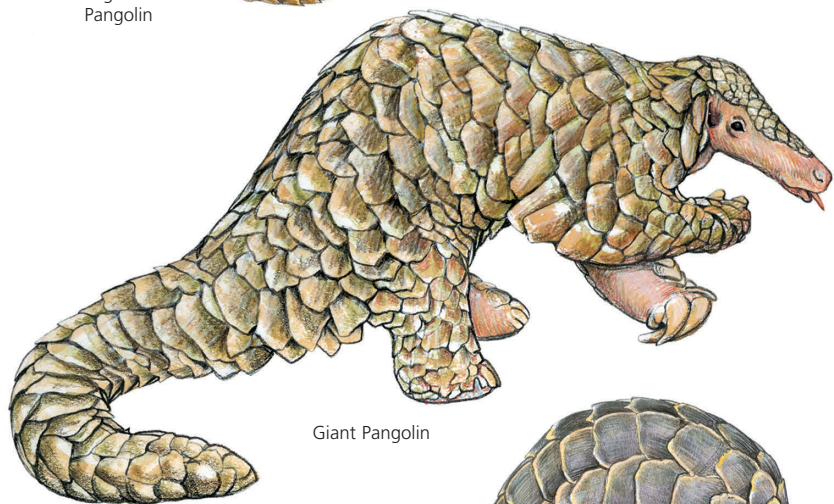
SIZE HB 34–61cm. T 31–50cm. W 7–18kg (males up to 50% heavier than females). **DESCRIPTION** Rotund with broad, rounded scales and heavy, graviportal hindlegs. Very broad, relatively short tail. **HABITAT** High- and low-rainfall areas with both sandy and rocky soils, in woodlands, savannas and grasslands. The main determinant is an abundance of ants and termites of a few specific types. **FOOD** Mainly ants. **BEHAVIOUR** Although capable of digging a burrow, prefers to use natural shelters or disused holes of other species.



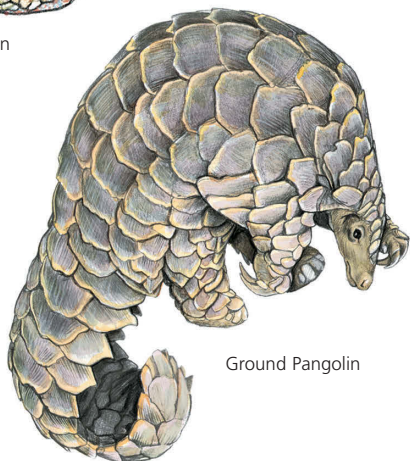
Long-tailed
Pangolin



Tree Pangolin



Giant Pangolin



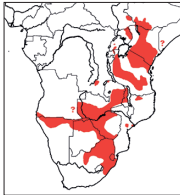
Ground Pangolin

ODD-TOED UNGULATES *Perissodactyla*

HORSES *Equidae*

AFRICAN HORSES *Equus*

Partially or wholly striped, these large grazing animals have a short, sleek coat. All have a big, long head, with large, flat chewing muscles over deeply rooted tooth rows. The neck is muscular and maned and the body is compact with a deep chest and very muscular haunches. The legs are strong and bony, with hard, single hooves. Horses can be very vocal, with a variety of neighs, barks or brays, squeals and whinnies.



COMMON ZEBRA *Equus quagga*

see plate 99

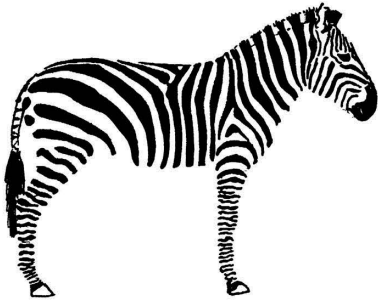
SIZE HB 217–246cm. T 47–57cm. SH 127–140cm. W 175–250kg (female), 220–322kg (male). **DESCRIPTION** A muscular horse with relatively short neck and sturdy legs. The stripes are subject to much regional and individual variation. Patterns are better illustrated than described (see opposite and overleaf). **HABITAT** Grasslands, steppes, savannas and woodlands. These zebras are totally dependent on frequent drinking. They prefer firm ground underfoot so may move off sumplands in the wet season or during flooding. **FOOD** Grass

of the most available species. Adaptable grazers, they mow short lawns close to the roots but are equally able to take taller flowering grasses. Water shortage may concentrate zebra populations around available waterholes during the dry season. Daily activity is dominated by shifts from open night-time resting areas to pastures, to water and back to sleep or rest. **BEHAVIOUR** Up to 6 females and their young live in very stable 'harems' where they are subject to low-key but continuous coercion by the harem stallion. He herds the females in his group whenever they stray and threatens males that come too close. The number of females appears to be limited by the intolerance of established females against incomers.

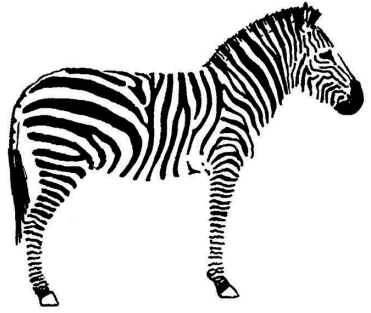
Common Zebras are extremely vocal, the adult males being particularly noisy during any nocturnal movement. For each social unit the stallion's individual 'song' (a glottal, barking bray) becomes the focal point for all harem members. Individuals which become separated from their group seek it with every sign of distress while the stallion too calls and searches until the group is reunited. Normally only harem stallions mate with harem mares but neighbours and bachelor groups show intense interest in any oestrous females. One foal (rarely 2) is born after a 12-month gestation. Foals suck milk for up to 6 months but begin to graze in the first month. They are sexually mature by 1½–3 years but females cycle without conceiving for a year or two and males seldom acquire harems before 5 years of age. Common Zebras are known to live for 40 years.

Subspecies: These form 4 regional foci with several intermediate/variable types coming from inter-zones, some of which seem to be very extensive. (a) **Quagga** *E. q. quagga* (Cape, Karoo) extinct. (b) *E. q. burchelli* (southern Africa). (c) *E. q. crawshaii* (SE Africa). (d) *E. q. boehmi* (E Africa).

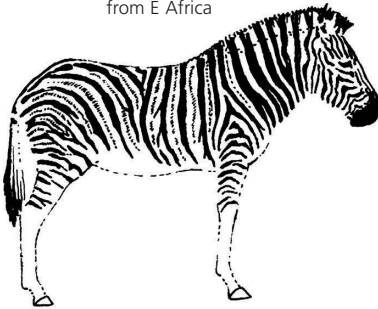
Intermediate/variable populations commonly given subspecific ranking: *E. q. antiquorum* (SW Africa, appears to combine *burchelli* and *boehmi* features). *E. q. chapmani* (ex *selousi*) (southern SE Africa, combines *burchelli* and *crawshaii* features). Intermediates between *boehmi* and *crawshaii* occur in the Rukwa/Usangu area.



E. q. boehmi
from E Africa



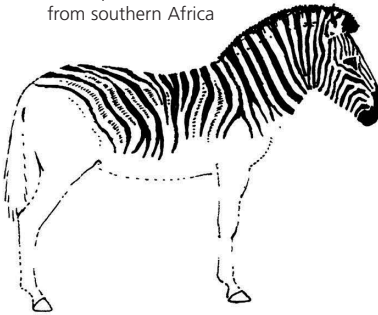
E. q. crawshaii x *boehmi*
from L. Rukwa



E. q. burchelli
from southern Africa



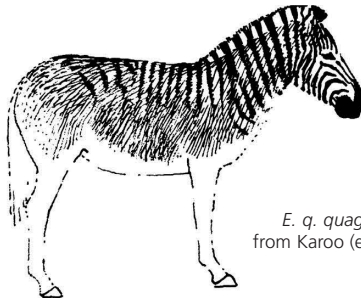
E. q. crawshaii
from SE Africa



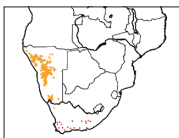
E. q. burchelli
from KwaZulu-Natal



E. q. chapmani
from S Mozambique



E. q. quagga
from Karoo (extinct)



■ *E. z. zebra*

■ *E. z. hartmanni*

MOUNTAIN ZEBRA *Equus zebra*

SIZE HB 220–260cm. T 40–55cm. SH 146cm (115–150cm). W 275kg (230–320kg) (female), 300kg (250–386kg) (male). **DESCRIPTION** Evenly spaced, vertical, black and white stripes on neck and body with a sudden ‘change of scale’ to 3 or 4 very bold, horizontal stripes on hindquarters. The body stripes extend into an enclosed ‘grid-iron’ pattern on the rump and upper tail. The legs have fine, even, black and white striping. Black stripes on the face graduate to orange-brown on the bridge of the nose and around the mouth and nostrils

(which are dark brown). The ears are moderately long and broad, their backs marked with bold black and white patches. Striping in the tall mane and over a dewlap enlarges the visual impact of the neck, especially in adult males (making them look ‘front-heavy’). Hooves grow exceptionally fast, leaving a characteristic hard-edged, rounded spur. Subspecies: **Cape Mountain Zebra**, *E. z. zebra* (Cape and Karoo); **Hartmann’s Mountain Zebra**, *E. z. hartmanni* (S Angola to Orange R.). The smaller Cape race averages 50kg lighter. **HABITAT** Formerly widespread in bushy Karoo shrubland in uplands where extreme daytime drought in summer is offset by nocturnal dew and mist. Here the animals often occupied separate summer and winter ranges (up to 120km apart). They moved between pastures and water sources on well-worn traditional paths.

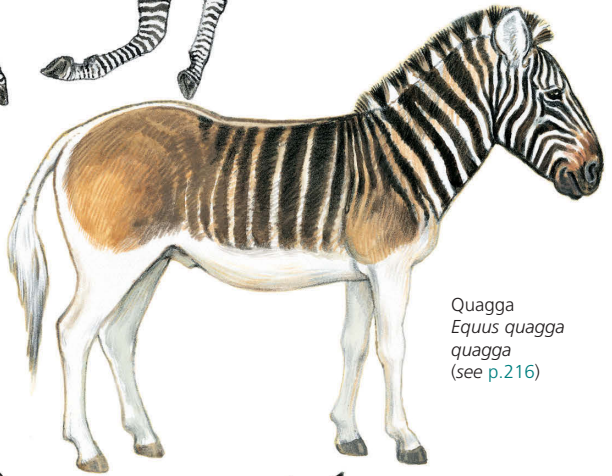
Where grazing permits, individual herds are seasonally residential (i.e. live within a 3–5km² range). Some local populations are less water-dependent than others; most prefer to drink daily and can dig into river beds with their hooves. **FOOD** Almost exclusively grazers (but will browse acacias on occasion). Grasses tend to be either patchy or sparse throughout their range (except for seasonal desert flushes). Recorded preferences are for *Themeda*, *Heteropogon*, *Cymbopogon* and *Aristida* species. *Stipagrostis* and *Hypharrhena* are other common grasses growing on deeply drained sites. Both individual grazers and social units tend to disperse more widely under these conditions. (They may also be less constrained by large carnivores, which are generally rare in such habitats.) The timing and intensity of grazing is strongly influenced by temperature and season, with animals taking shelter and becoming inactive during the middle of the day in summer. **BEHAVIOUR** Breeding-age females are coerced by the largest, most active males into ‘harems’ of several mothers accompanied by their latest offspring. Such harem groups average 5 animals and seldom exceed 12. Both harem structure and home ranges can become very stable and enduring. Elsewhere harems may be less permanent and highly mobile, with long daily or seasonal movements. Aggregations are temporary and seldom exceed 30. They rarely associate with other grazers. Non-breeding males, and occasionally young females, form small, unstable ‘bachelor’ groups.

Mountain Zebras are less vocal than other zebras. Subordinate animals appease superiors with a high, whistling whinny. A 2-phase barking bray, most often made by the male, both alerts and draws his harem together. When dominant males meet, they circle and strut broadside. The enlarged stripe pattern on the rump is visible from a greater distance than the vertical body stripes. This may help the zebras to maintain visual contact over wider distances on sparse grazing. The ‘grid-iron’ of smaller stripes above the root of the tail appears to be the target for ‘chinning’. This is a form of ritual social behaviour in which the zebra (usually a male, but of any age) approaches another and presses the chin very forcefully on the ‘grid-iron’. Actual grooming is very rare among adults but much rubbing, leaning and circling (especially among adult males) may be accompanied by mouth-champing. This behaviour suggests an uneasy mix of social and anti-social impulses.

One foal is born after a 1-year gestation. The spacing of births varies. Nursing foals coerce their mothers to permit suckling by blocking her path and leaning against her chest. Most offspring have left or are chased out of the parental group by 2 years old. They live for at least 25 years.



Mozambique Common Zebra
Equus quagga crawshaii
(see p.216)

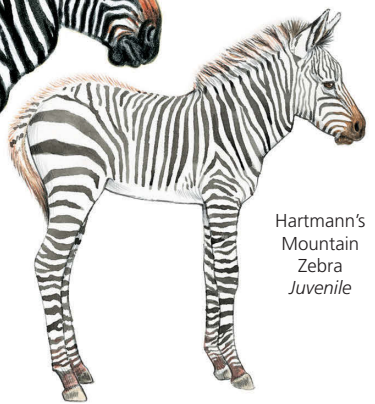


Quagga
Equus quagga quagga
(see p.216)

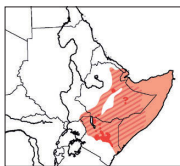
Hartmann's Mountain Zebra
Equus zebra hartmanni
adult male



Cape Mountain Zebra
Equus zebra zebra



Hartmann's Mountain Zebra
Juvenile



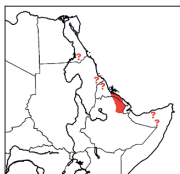
- Former range
- Recent range

GREVY'S ZEBRA *Equus grevyi*

SIZE HB 250–300cm. T 40–75cm. SH 140–160cm. W 385kg (350–400kg) (female), 430kg (380–450kg) (male). **DESCRIPTION** A long-legged, long-faced zebra with broad, rather ovoid ears, a stripeless white belly and a white-margined spinal stripe. The stripes are very uniformly distributed over the body, head and limbs but overall widths vary so that there are lighter and darker individuals among the 'even' majority. **HABITAT** Bush/grass mosaics with a preference for tracts of grassland growing on deep sand, hardpans, sumplands and in areas where fire and elephants have degraded the

dominant *Acacia/Commiphora* woodlands. Seasonally waterlogged plains are extensive in parts of its range and gatherings of thousands of zebras were seen on such grasslands in the past. It associates with giraffe, Oryx, Common Eland and, in the southern part of their range, with Common Zebra, Impala and Buffalo. An individual's long-term range covers many thousands of kilometres. **FOOD** Benefits from the spread of a grassland type dominated by *Pennisetum schimperi*, a tough grass incompletely exploited by other grazers, but grazes many other genera as well. **BEHAVIOUR** Grevy's Zebra has an open society in which females with their young and males on established territories (of up to 12km²) are the stable foci. Females associate in nursing groups, males in bachelor groups and all classes may join up in large, mixed herds. Aggression is inconspicuous except that territorial males assert their mating prerogatives. The most successful males win grassy territories close to water. Grass and water are major attractions, especially for lactating females.

Resident stallions actively seek the company of visiting males. Dominance is asserted by a proud posture, with arched neck and high-stepping gait. Submission is signalled by a lowered head and raised tail. While courting and copulating the male utters a very loud bray followed by a long, strangulated squeak. Both males and females tend to appease the caller. A single foal is born after a variable but exceptionally long gestation of about 400 days. Males and females tend to breed in the wild at about 6 years. They live for at least 24 years. Endangered.

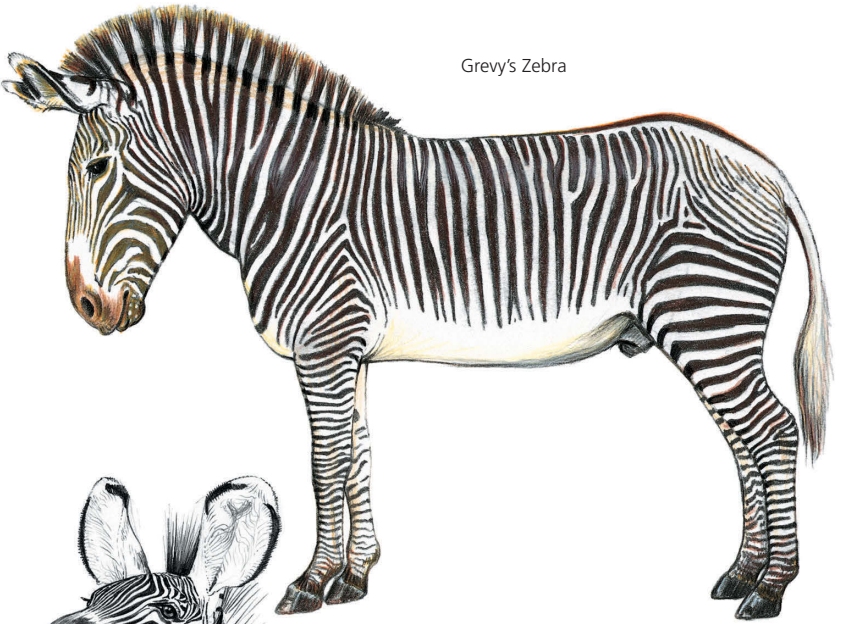


AFRICAN WILD ASS *Equus africanus*

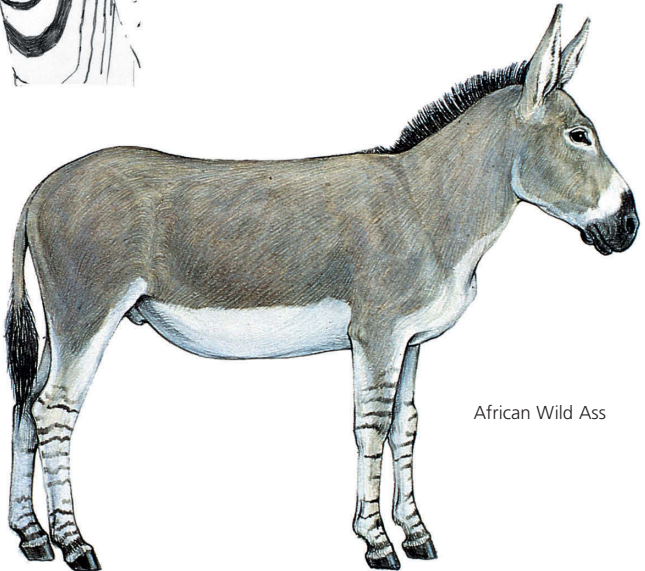
SIZE HB est. 195–205cm. T 40–45cm. SH 115–125cm. W 270–280kg. **DESCRIPTION** The wild ancestor of domestic donkeys, the African Wild Ass is lean and muscular, fawn or grey, with a near-white belly and legs. It has a short, hairy black brush to the tail, a black mane and black margins to the long leaf-shaped ears. Hooves are exceptionally narrow. Formerly more widespread across northern Africa. Subspecies: **Nubian Wild Ass**, *E. a.*

africanus: grey with only shoulder striped. **Somali Wild Ass**, *E. a. somalicus*: fawn, with only legs striped. **HABITAT** Semi-desert grasslands and dwarf shrublands (typified by aloes and euphorbias) where the asses tend to retreat into rocky hills and seek shade during the day. They are most active when the weather is cooler: at dusk, dawn and during the night. They are always within a 30km walk to water (but will tolerate brackish sources). They are able to go without water for about 3 days. **FOOD** Grasses, notably *Eragrostis*, *Dactyloctenium* and *Chrysopogon*. African Wild Asses are well adapted to graze the hardest of desert grasses, such as *Panicum* and *Lasiurus* species. They use their incisors and hooves to break open tussocks. **BEHAVIOUR** Very small mother-offspring units are independent of each other but gather opportunistically in search of good grazing. Preferred range often within vast territories held by mature males. These may exceed 20km² and their boundaries with those of adjacent males are marked by dung piles. Other males tolerated within territory but all access to females monopolised by territory-holder. One foal born after a 330–365-day gestation. It can start grazing within weeks of birth but may suckle for as long as 6 months. Animals are known to live for 40 years in captivity. Critically endangered.

Grevy's Zebra



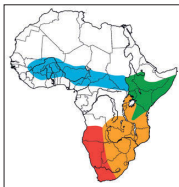
*detail of
Grevy's Zebra*



African Wild Ass

RHINOCEROSSES Rhinocerotidae

Once very abundant but now very scarce, rhinoceroses are the second largest land animals only surpassed by elephants in bulk and weight. They have relatively short, powerfully muscled legs, a short neck and a massive head, armed with a nasal horn or horns.

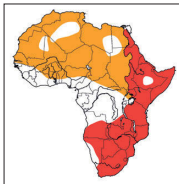


- *D. b. bicornis*
- *D. b. minor*
- *D. b. michaeli*
- *D. b. longipes*
(extinct)

BLACK (BROWSE) RHINOCEROS *Diceros bicornis*

SIZE HB 290–375cm. T 60–70cm. SH 137–180cm. W 700–1,400kg. **DESCRIPTION** Its thickest skin forms inflexible plates over the shoulders, haunches, sides, forehead and cheeks. Skin around the muzzle, eyes, ears, undersides and legs is thinner and more flexible. The head has a short forehead and a very muscular, mobile mouth ending in a sharply pointed upper lip. The 3 toes leave characteristic tracks. Other signs of the rhino's presence include rubbed trees, rocks and termitaries, well-scattered dung middens and habitually sprayed urine-posts. Subspecies: Highly variable: 23 subspecies have been named. **HABITAT** Favours edges of thickets and savannas with areas of short woody regrowth and numerous shrubs and herbs. **FOOD** Low-level browse (leaves, twigs and branches), typically in *Acacia*, thicket, hard-pan and riverine plant communities. Some 200 species from 50 families

recorded. Salt a major attraction. Can go for up to 5 days without water if food is moist; otherwise always found within daily walking distance of water. Horns occasionally used to loosen soil around roots or to break branches above its reach. **BEHAVIOUR** A female with her young is basic social unit. Adult females form temporary associations but aggression is elicited by total strangers. Home ranges can cover over 130km², but some are as small as 2.6km². Overtly territorial behaviour is also very variable. Males in high-density areas generally tolerant of neighbours. Males in low-density areas more likely to be aggressive. Critically endangered.



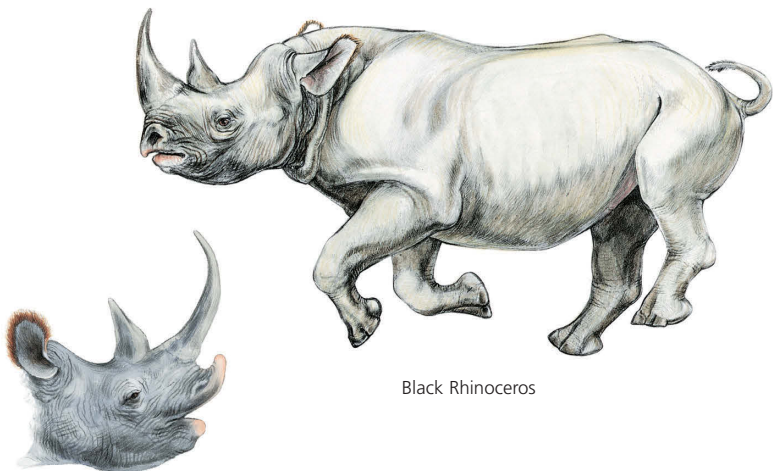
Likely prehistoric range

- *C. s. simum*
- *C. s. cottoni*

WHITE (GRASS) RHINOCEROS *Ceratotherium simum*

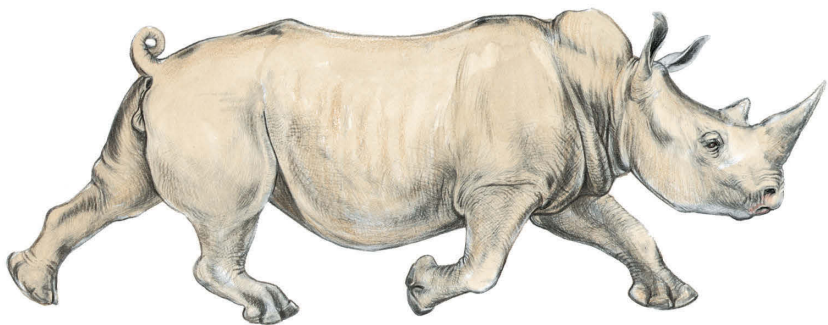
SIZE HB 360–420cm. T 80–100cm. SH 170–185cm. W 1,400–2,000kg (female), 2,000–3,600kg (male). **DESCRIPTION** Of similar skin colour to the Browse Rhino. Head is long (especially the forehead); mouth very wide, flat-fronted and set low over the chin. Neck forms a prominent hump when the head is raised. Spoor elongate with prominent cleft at the back. Subspecies: **Southern White Rhinoceros**, *C. s. simum* (southern savannas); **Northern White Rhinoceros**, *C. s. cottoni* (northern savannas). **HABITAT** Preference for short-grass areas and undertakes seasonal movements to avoid waterlogged long grass. Where territories are maintained by resident bulls, their border-patrolling and scent-marking leave foot-scuffs, dung middens, urine sprays, rubbing posts and horned vegetation along boundaries. **FOOD** Short grasses, typically *Cynodon*, *Digitaria*, *Heteropogon* and *Chloris* species in wet-season areas, are preferred.

After dry-season fires, *Themeda*, *Hyparrhenia* and *Setaria*. **BEHAVIOUR** Females and their immediate offspring occupy large (4–12km²) overlapping home ranges. Males defend territories but tolerance is related to population density. In Zululand parks male territories can be as small as 0.75–2.6km². White Rhinos are extremely vocal. Infantile squeaks and pantings become loud chirps, gasps and puffings (contact) or snarls and squeals of distress in adults. Dominant males grunt and bellow or court females with a low, pulsing cry. Northern subspecies *C. s. cottoni* critically endangered.



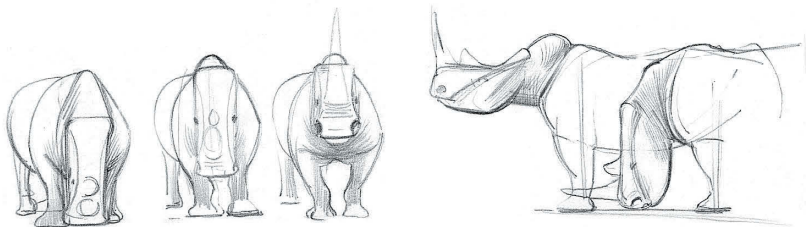
Black Rhinoceros

Black Rhinoceros
detail of lip



White Rhinoceros

sketches of White Rhinoceros



EVEN-TOED UNGULATES *Cetartiodactyla*

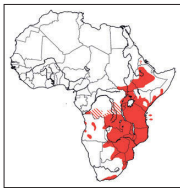
PIGS *Suidae*

Pigs are robust, large-headed animals with relatively short legs and a compact body build. The skulls of African pigs show striking adaptations to their preferred foods and to modes of tusk- or snout-fighting that are unique to each species.



WILD BOAR *Sus scrofa*

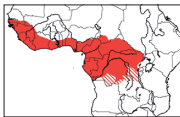
SIZE HB 85–130cm (female), 100–160cm (male). T 15–21cm. SH 60–90cm. W 30–80kg (female), 33–130kg (male). **DESCRIPTION** Flat-sided, shaggy pig with long snout, large, leaf-shaped ears and short dorsal mane. Colour varies between dark grey-brown and dirty tawny colour. Tracks reveal 2 oval hoof-marks (with side hooves only imprinting in mud). **HABITAT** In N Africa mainly oakwoods and scrub; also in tamarisk groves on desert margins. **FOOD** Omnivorous, with acorns the main seasonal staple; also bulbs, roots, fallen fruits, snails, insect larvae and other invertebrates. Wild boars occasionally scavenge and eat small vertebrates. **BEHAVIOUR** Females and their young form associations with one or more other mother families. These have loose, temporary associations with adult males in the vicinity. The animals tend to be sedentary but are quick to respond to disturbance or hunting with rapid movement and changes in behaviour. Thus mainly diurnal habits can change to nocturnal habits and distances of 20–30km may be covered. Home ranges are very variable, from 2 to 20km².



BUSHPIG *Potamochoerus larvatus*

SIZE HB 100–177cm. T 30–45cm. H 55–100cm. W 45–150kg. **DESCRIPTION** Compact, with slab-like, short-legged body, tapering into the head and snout with little indication of a neck. The dorsal crest and face are often white or grey. Body colour varies from blonde or red to grey, brown or black. Colour varies with sex, age, region or individual; 17 subspecies have been named. **HABITAT** A wide range of forested and woodland habitats, with a distinct preference for valley bottoms with dense vegetation and soft soils. **FOOD** Omnivorous and highly adaptive to local and seasonal conditions. Roots, tubers, bulbs and corms are the principal foods; also fallen fruits and herbage. In addition to fungi, takes various animals, rooting for larvae and beetles, snails, amphibians and reptiles. Occasionally scavenges.

BEHAVIOUR A female and her young are often accompanied by an adult male within a restricted area where trunk-slashing along paths, rubbing posts and latrines suggest that males, and perhaps females too, are territorial, if only seasonally. Larger associations are seen but only rarely. Home ranges of up to 10km² have been estimated and nightly foraging walks of up to 6km.



RED RIVER HOG *Potamochoerus porcus*

SIZE HB 100–145cm. T 30–45cm. SH 55–80cm. W 45–115kg. **DESCRIPTION** Bright russet with narrow white dorsal crest, white 'brows', cheek tufts and jaw-line. Ears leaf-shaped with long white tassel. Muzzle and forehead are black and the fur is sleek and short over most of the body (except jaws and flanks which have longer hair). **HABITAT** Rarely outside rainforest. Marked preference for river courses and swamp-forest margins. Here it ploughs up extensive areas while excavating roots and invertebrates. **FOOD** Omnivorous but with underground roots and tubers the main staple. Fallen fruits are of

great importance locally and seasonally, as are invertebrates. **BEHAVIOUR** Often found in small groups of up to 15 animals, occasionally gathers in very large but temporary associations of up to 60 animals. During confrontations between males, both animals strut broadside, with bristling fur and erect crests. They champ jaws, grunt, paw the soil and whip their slender tails back and forth.

■ *P. larvatus*
 ▨ Possible intergradation with *P. porcus*

■ *P. porcus*
 ▨ Possible intergradation with *P. larvatus*



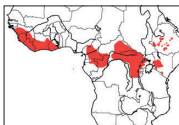
Wild Boar



Bushpig

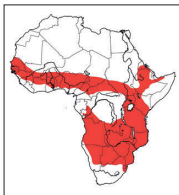


Red River Hog


GIANT FOREST HOG *Hylochoerus meinertzhageni*

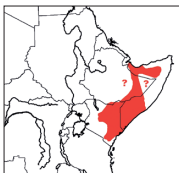
SIZE HB 130–210cm. T 25–45cm. SH 80–100cm. W 100–200kg (female), 140–275kg (male). **DESCRIPTION** Heavily built, covered in long black hair. The rhinarium, or snout disc, may be over 50cm across and is very broad and swollen. Over the forehead is a dish-like depression surrounded by a circle

of raised bone, tissue and bare skin. Mature males have grotesquely swollen preorbital glands. **HABITAT** Mainly forest/grassland mosaics but range from subalpine areas and bamboo groves through montane to lowland and swamp forests, galleries, wooded savannas and post-cultivation thickets. **FOOD** Many species of grasses, sedges and herbs, which are cropped at various stages of growth. In some montane areas herbaceous growth may also be very important. Rootles less than other pigs; prefers to graze on mats of relatively short green grass. **BEHAVIOUR** The basic social group is a mother and her offspring of up to 3 generations, but this unit may associate with a variety of neighbouring families. Sleeping-sites change frequently and are used by different permutations of neighbouring families. They are often very vocal, using close-contact quiet grunts in thick cover and a louder barking call to establish contact over a distance. Males make an extended grunting call that builds up to a trumpeting crescendo and then dies away.


COMMON WARTHOG *Phacochoerus africanus*

SIZE HB 105–152cm. T 35–50cm. SH 55–85cm. W 45–75kg (female), 60–150kg (male). **DESCRIPTION** Relatively long-legged but short-necked with prominent, curved tusks. The facial callosities, or 'warts', consist of 3 paired masses of thickened skin and connective tissue protecting the jaws, eyes and muzzle. Warthogs run at a high, jaunty trot, with back straight and the very narrow tail held vertically. The head is held high. Feeding animals drop to their knees and commonly graze in this position, with their hindquarters

raised. **HABITAT** Commonest on alluvial soils in lightly wooded country with a mosaic of vegetation types but well distributed throughout savanna and open-woodland areas of tropical Africa. **FOOD** Grazing throughout the rains, warthogs favour mats of short species. They also strip growing grasses of their seedheads. In dry season they turn to leaf bases and rhizomes that store nutrients. They unearth these with the sharp edge of the nose disc. Generally stay within walking distance of water. **BEHAVIOUR** There are several social levels. Mothers and their female offspring retain the most enduring bonds. Thus a new family unit joins others that are probably also close relatives. These loose groupings live within 'clan areas' averaging about 4km².


DESERT WARTHOG *Phacochoerus aethiopicus*

SIZE HB est. 100–150cm. T est. 35–45cm. SH est. 50–75cm. W 45–100kg. **DESCRIPTION** Closely resembles Common Warthog but the dentition and the associated leverage for chewing have been modified and specialised, apparently toward more thorough mastication. **HABITAT** The 2 subspecies now widely separated; it is likely that an 'arid corridor' once linked them, perhaps during last Ice Age (20,000 years ago). In modern Somalia survives

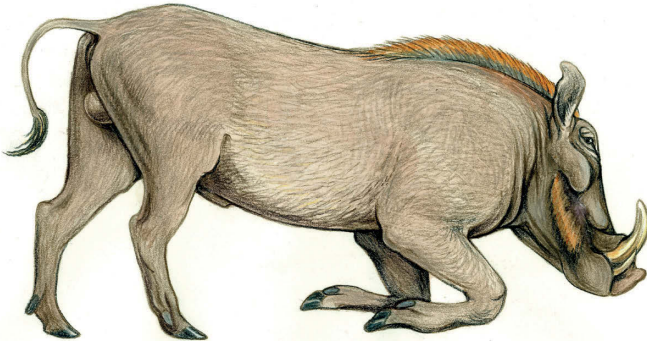
under conditions that are drier than any currently tolerated by the Common Warthog. Extinct in Cape. **FOOD** Grazes and ingests excavated roots and rhizomes with its hard, sharp-edged lips.



Giant Forest Hog



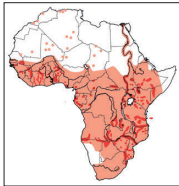
Common Warthog



Desert Warthog

HIPPOPOTAMUSES Hippopotamidae

Hippos resemble gigantic, amphibious pigs with enlarged lower jaw and canines, 4 large, blunt toes on each foot and a very rotund body build. Their shiny, naked skin is densely perforated by minute skin-conditioning mucus glands. Now known to be distantly related to whales.



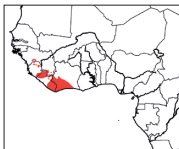
Former range

COMMON HIPPOPOTAMUS *Hippopotamus amphibius*

SIZE HB 280–350cm. T 35–50cm. SH 130–165cm. W 510–2,500kg (female), 650–3,200kg (male). **DESCRIPTION** Eyes, ears and nostrils on top of head. Main colour of smooth, shiny hide purplish grey to blue-black. Underside, eye rims, ears and mouth show variable expanses of pink. Hide glands exude a blood-like fluid. Males have larger canines and incisor teeth set in massive jaws and skull and also a huge jowl and thickened neck. **HABITAT** A silent, solitary grazer on land by night; a vocal, densely social and sedentary wallower by day. It is possible that large populations cause long-term vegetation cycles

because their progressive degradation of the grazing encourages regeneration of thickets. Closely cropped lawns, paths radiating from the water and great accumulations of dung are characteristic signs of intensive use by hippos. **FOOD** Both creeping and tussock grasses are taken. Crops grass by using its leathery (not muscular) lips. Walks slowly, closing its lips over mouthfuls of grass and wrenching them away with a regular swinging of the head. Can ingest up to 60kg in less than 5 hours out of the water. **BEHAVIOUR** Hippos have a very hierarchical society in which individuals must advertise their status and condition, especially to superiors.

Females accompanied by up to 4 successive offspring are the only stable social unit. Degrees of sedentariness or nomadism highly variable. The largest males occupy narrow strips of water and land along the foreshore. Here they defend exclusive mating rights but tolerate most subordinate males. Aggregations range between 2 and 150. Large groups are very vocal, the main call being a reverberating nasal wheeze followed by a series of guttural honks. In the early morning this is associated with the return to water. It is the response to all disturbances. Males also wheeze-honk while copulating (the female lies prostrate).



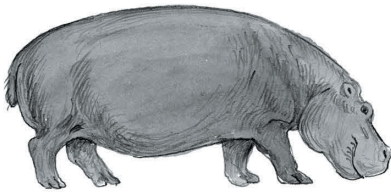
PYGMY HIPPOPOTAMUS *Choeropsis liberiensis*

SIZE HB 142–177cm. T 15–21cm. SH 70–92cm. W 179–273kg (sexes are of similar size). **DESCRIPTION** Rotund-bodied, thick-necked hippo with a similar rounded, toothy muzzle (but proportionately much smaller head) to the Common Hippo. Eyes, ears and nostrils do not protrude as much. Body is naked, sepia-brown. The toes, less webbed and more widely splayed than

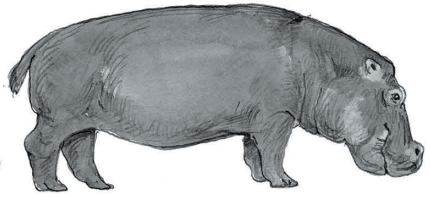
those of the Common Hippo, leave a distinctive 4-pronged spoor. **HABITAT** Forested watercourses where it shelters by day in ponds, rivers and swamps. At night follows tunnel-like paths through dense riverine vegetation to graze in glades, or along grassy trails. **FOOD** Graze consists of various green grasses and herbs, various sedges, herbaceous shoots and fallen fruits. Food is cropped by tearing the plant between the upper and lower lips. **BEHAVIOUR** Only recorded singly, in twos or, rarely, threes. Normally very silent but captive specimens have been recorded snorting, grunting, squeaking and hissing. They also make a much quieter groaning equivalent of the Common Hippo's honking call.



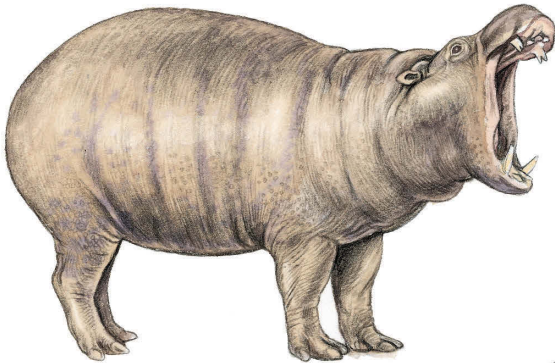
Common Hippopotamus



female



male



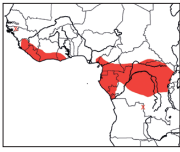
Pygmy Hippopotamus

*sketch of newborn
Pygmy Hippopotamus*



CHEVROTAINS *Tragulidae*

Chevrotains are small, spotted ungulates that are the last relic of a family that was widespread 40–20 million years ago.



WATER CHEVROTAIN *Hyemoschus aquaticus*

SIZE HB 60–102cm. T 7.5–15cm. SH 30–40cm. W 7–16kg (ave. 12kg (female), 9.7kg (male)). **DESCRIPTION** Compactly built, short neck, small, narrow head, leathery nose, slit nostrils, canine tusks and inconspicuous ears. Feet resemble pig's trotters. Sleek, reddish brown coat marked with longitudinal white stripes interspersed with spots. **HABITAT** River valleys within lowland

rainforest, near margins of streams. Never outside dense cover by day; may forage in exposed clearings at night. Water a major refuge from predators but only for brief periods. **FOOD** Mainly fallen fruits, notably figs (*Ficus*), *Pseudospondias*, palm nuts (*Elaeis*) and breadfruit (*Treculia*), and many other fruits. Insects, crabs, scavenged meat and fish also recorded. **BEHAVIOUR** Social system resembles that of a solitary carnivore. Females spaced out in isolated home ranges with minimal overlap or contact. Male ranges overlap those of at least 2 females. Mature males up to several kilometres apart.

DEER *Cervidae*

A non-African line of ruminants that resembles antelopes in body proportions.



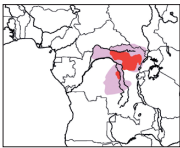
RED DEER *Cervus elaphus*

SIZE HB 160–250cm. T 12–15cm. SH 90–140cm. W 100–150kg (female), 150–225kg (male). **DESCRIPTION** Winter coat dark brown with longish hair. After spring moult summer coat is lighter reddish with pale spots. Rump yellowish.

Males grow bone-like 'antlers' over the summer months. **HABITAT** Only in Mejerda Mts on Algeria–Tunisia border in cork oak and wild olive forests. **FOOD** Shoots of trees and shrubs, bark, grasses and herbs; also fungi and crops. **BEHAVIOUR** Females and males live largely separate existences outside rutting season. Females residential. Male gatherings strongly hierarchical, even for the period they are without horns.

GIRAFFES *Giraffidae*

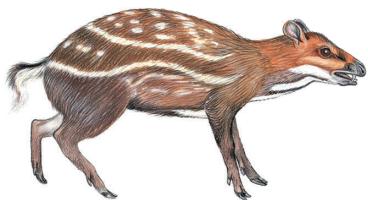
Tall, browsing animals whose long muscular tongue has been modified to serve as a plucking organ. They have cartilaginous 'horns' that become bony and eventually fuse to the skull.



OKAPI *Okapia johnstoni*

SIZE HB 190–215cm. T 30–42cm. Total height 150–180cm. W 210–250kg. **DESCRIPTION** Rotund, tall-shouldered. Hornless females chestnut-brown with black and white stripes radiating out from the genital area. Males smaller and darker, some almost purplish black, with skin-covered 'horns'. **HABITAT** Dense undergrowth within rainforest belt. **FOOD** Shade-loving plants in undergrowth; also fruits, ferns and fungi plucked with muscular tongue. **BEHAVIOUR** Female home ranges average 5km². Some male territorial behaviour is suspected. Snort loudly when disturbed and make a piping sound. Female remains in oestrus for a month, closely attended by a male. Threatened by uncontrolled bushmeat trade.

■ Possible recent range



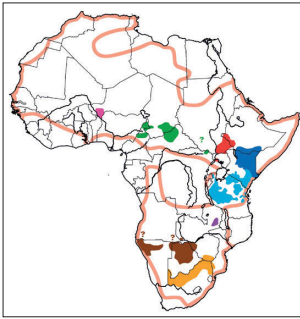
Water Chevrotain



Red Deer



Okapi



- Former range
- *G. (c.) peralta*
- *G. (c.) antiquorum*
- *G. (c.) camelopardalis*
- *G. (c.) reticulata*
- *G. (c.) tippelskirchi*
- *G. (c.) giraffa*
- *G. (c.) angolensis*
- *G. (c.) thornicrofti*

GIRAFFE *Giraffa (camelopardalis)*

SIZE HB 3.5–4.8m. T 76–110cm. Total height 3.5–4.7m (female), 3.9–5.2m (male). W 450–1,180kg (female), 1,800–1,930kg (male).

DESCRIPTION The length of a giraffe's neck is only matched by that of its legs and its slow-motion lope covers ground at a great rate (its Arabic-derived name means 'fast walker'). Giraffes can run at 60kph. Both young and old are able to outstrip most predators. The neck is fringed with a short, thick mane and both sexes develop three 'horns' above the eyes. The face is strongly tapered and a 45cm tongue is the principal means of gathering foliage in to the large, elastic mouth and lips. Colours vary greatly between individuals and from region to region (see plate). **HABITAT** Savannas, open woodlands and

seasonal floodplains (with abundant termitary thickets). Commonest in areas where rainfall, soils, wind, fire, elephants or flooding favour scattered low and medium-height woody growth. **FOOD** Known to feed from over 100 species of plant but *Acacia*, *Commiphora* and *Terminalia* species are major staples. The wet season is a period of abundant, green deciduous growth, during which time Giraffes are widely dispersed. During the dry season they concentrate where evergreens survive. The amount that Giraffes eat in a day varies but is less than half the intake of typical grazers. It is the concentrated nutritional value of the foliage which they select and super-efficient digestion that makes modest feeding

possible. **BEHAVIOUR** Adult males may be vestigially territorial because mature bulls monopolise all matings and tend to be intolerant of other large males at the cores of their very variably sized home ranges (cores may be as large as 80km² but year-long movements are known to range from 5 to 654km² or more). Females have very unstable home ranges that may drift from year to year. These overlap those of very many other females with which they may associate (in mixed sex groups of up to 50 animals). Such associations are temporary. The only stable associations of a female Giraffe's life are the year-long periods of motherhood and the traditional, highly localised, calving area to which she returns again and again to give birth. Newborn calves rise to their feet within 5 minutes and after a week or so may join up to 9 other calves born in the vicinity. One or more mothers are often nearby, although they tend to leave the 'crèche' of youngsters on their own during the middle of the day (when they feed most intensively and when most predators are inactive). Between half and three-quarters of all Giraffes fail to survive their first year. The main cause of death is predation.

GIRAFFE POPULATIONS The ranges shown below are historic because most Giraffe distributions are now vestigial. Three major populations can be recognised and, within these, further regional varieties or subspecies are commonly recognised:

Centre-west realm

West African Giraffe, *G. (c.) peralta* (includes *renatae*): W of L. Chad to Senegal.

Kordofan Giraffe, *G. (c.) antiquorum* (includes *congoensis*): W of R. Nile to L. Chad between 2° N and 14° N.

Nubian Giraffe, *Giraffa (c.) camelopardalis* (includes *rothschildi* and *cottoni*): E of R. Nile and W of Ethiopian dome, from Equator to 16° N.

Horn of Africa arid focus

Reticulated Giraffe, *Giraffa (c.) reticulata*: Horn of Africa E of Ethiopian dome to R. Tana. Thought to hybridise in places with Masai Giraffe and Nubian Giraffe.

South-east realm

Masai Giraffe, *Giraffa (c.) tippelskirchi* (includes *schillingsi*): Tanzania and S Kenya from Galana R. south to Rufiji R. Thought to hybridise with *reticulata* between R. Galana and R. Tana.

Cape Giraffe, *G. (c.) giraffa*: southern Africa.

Angola Giraffe, *G. (c.) angolensis*: Kalahari and neighbouring *Acacia* country in SW Africa.

Luangwa Giraffe, *G. (c.) thornicrofti*: isolate in Luangwa valley.

camelopardalis



reticulata (dark morph)



reticulata (light morph)



peralta



hybrid *reticulata* x *tippelskirchi*



camelopardalis 'rothschildi'

tippelskirchi (light morph)



camelopardalis (dark morph)



tippelskirchi (dark morph)

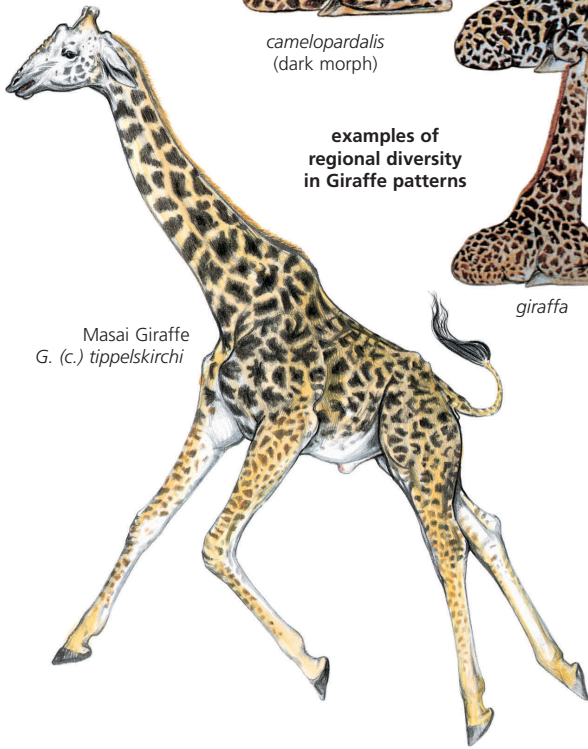


examples of regional diversity in Giraffe patterns

giraffa



Masai Giraffe
G. (c.) tippelskirchi



tippelskirchi



angolensis

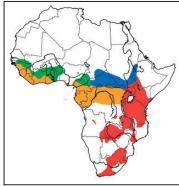


BOVIDS or HORNED UNGULATES *Bovidae*

Horned ungulates are long-legged, hooved herbivores that range in size from the 2kg Pygmy Antelope to the almost 1,000kg Common Eland. The males of most species, and the females of some species, are horned with true keratinous horn sheaths over bony cores. All horned ungulates ruminant but food preferences vary widely.

BOVINES *Bovinae*

These animals are distinguished from antelopes by their generally larger size, an absence of facial or pedal glands and smooth or keeled rather than annulated horns.



- *S. c. brachyceros*
- *S. c. nanus*
- *S. c. caffer*
- *S. c. aequinoctialis*

AFRICAN BUFFALO *Syncerus caffer*

SIZE HB 170–340cm. T 50–80cm. H 100–170cm. W 250–850kg. **DESCRIPTION** Large ox with thick, bossed horns and tasselled ears. The coat is short, often sparse and coloured from a rich red to black. The underside and chin of the Buffalo is often pale (even creamy white) and patches of contrasting colour appear on the face and legs. The differences between Forest and Savanna Buffaloes are very great but there are intermediate and mixed types. **Subspecies:**

- Forest Buffalo**, *S. c. nanus*;
- Western Buffalo**, *S. c. brachyceros*;
- Sudanic Buffalo**, *S. c. aequinoctialis*;
- Cape Buffalo**, *S. c. caffer*;

plus the possible relict **'Mountain Buffalo'**, *S. c. mathewsi*.

Forest Buffaloes are generally below 120cm in height and 320kg in weight; savanna forms are larger. **HABITAT** The Forest Buffalo depends on low-level browse and an undetermined minimum of grass in its diet, limiting it to grassy glades, watercourses and waterlogged basins. The humid climate ensures continuous plant growth, which ensures that small areas will support Buffaloes throughout the year. Heavy browsing and grazing in 'buffalo glades' helps to limit or delay plant growth. Savanna Buffaloes also seek out forests and valley bottoms where possible but can stay in the open and resist overheating and desiccation by becoming immobile or by lying in wallows. Their need for water and dense cover, as well as grass, makes them favour mosaics and savannas with patches of thicket, reeds or forest. They retain strong attachments to traditional ranges even when conditions change. **FOOD** Grazing, breaking and trampling by Buffaloes favours rapid grass regrowth, which encourages intense and repeated foraging. Particularly favoured grasses are *Cynodon*, *Sporobolus*, *Digitaria*, *Panicum*, *Heteropogon* and *Cenchrus* species, but a wide choice of swamp vegetation is eaten. Grazing is quickly influenced by disturbance or human predation, with animals switching from continuous grazing to dawn, dusk and night-time grazing. **BEHAVIOUR** The Forest Buffalo forms small groups of up to 12 animals with related females and their offspring as the core and 1 or more attendant males. Other males are solitary or form small bachelor parties. Savanna Buffaloes can assemble in much larger aggregations but similar 'family' clusters amplified into regular clan-like associations are also attended by bulls. Within these clans adults of both sexes develop hierarchical rank orders. They have well-marked seasonal breeding peaks and the dry 'off-season' sees many males breaking away from female families or clans. Gatherings of as many as 2,000 animals are only possible during the rains or on major patches of rich pasture.

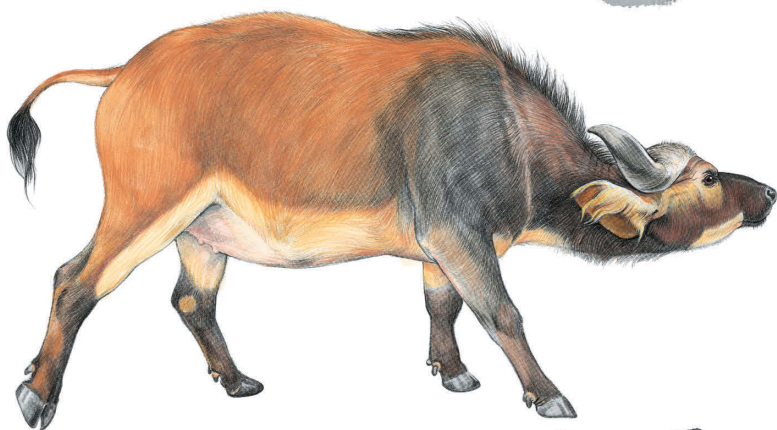
Female receptivity is preceded by signs of oestrus that attract many bulls. Here the effects of male rank come into play, with the top bull or bulls having priority. Nonetheless fights are common and collisions after head-to-head charges have ended in one bull cartwheeling into the air to land on his back. Gestation lasts about 11 months and birth intervals of 2 years are normal. The cow-calf bond is very strong and exclusive but the female attachment to her herd is also close. Thus, all adults respond to distress calls and even bulls wounded by other bulls seek refuge in the herd. Vision, a dominant sense in most open-country animals, is less important than sound. Quiet lowing is the preferred way of keeping in touch, especially in dark forests. This allows even blind buffaloes to remain safe in the herd.



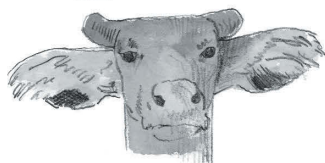
Cape Buffalo
Syncerus caffer caffer
male



Cape Buffalo female
facial detail



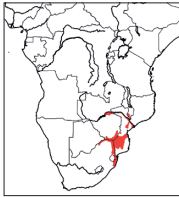
Forest Buffalo
Syncerus caffer nanus female



Forest Buffalo female
facial detail

SPIRAL-HORNED BOVINES *Tragelaphini*

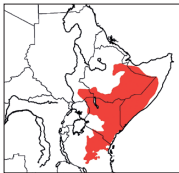
Medium-sized to large bovines with a deep body and a narrow head with big ears and twisted or spiral horns in the males. Teeth and digestion are adapted to a diet of young, nutritious vegetation.

**NYALA** *Tragelaphus angasi*

SIZE HB 135–145cm (female), 150–195cm (male). T 36–55cm. SH 80–105cm (female), 100–121cm (male). W 62–90kg (female), 100–140kg (male).

DESCRIPTION Females are slender and russet with up to 18 bold white stripes down their sides. Males begin with similar colouring but pass through a prolonged metamorphosis as they mature. First they turn sandy-grey and grow tufts on the chin, throat and belly. As the horns lengthen, the dorsal crest and continuous fringes of hair also grow in length. The colour darkens

and the pale vertical stripes fade and may disappear altogether. The timing of these developments varies individually and in some cases crests and colours remain relatively or absolutely undeveloped. The 'false' or side hooves are fringed with glands. Nyala lack inguinal glands in the groin. Male horns range from 40 to 83.5cm in length. Chunky hooves leave a distinctive spoor, with a compact, rounded margin. **HABITAT** A mosaic of dense mopane (*Colophospermum mopane*) thickets and more open woodlands, pans and scrub. Grass in the open areas tends to be ephemeral growth during the summer rains. Uses the thickets for browsing and shelter but emerges into more open areas at night, especially during wet season. **FOOD** Favoured browse species are *Acacia*, toothbrush trees (*Salvadora*), buffalo thorn (*Ziziphos*) and monkey apple (*Strychnos*). Picks up fallen leaves, herbs, cucurbits and various small legumes. **BEHAVIOUR** Up to 50 animals can gather on a flush of fresh growth while oestrous females can attract much smaller aggregations. Essentially independent animals will readily meet and part with a frequency that depends on local densities. Home ranges vary from 33 to 360ha, with an average of about 75ha.

**LESSER KUDU** *Tragelaphus imberbis*

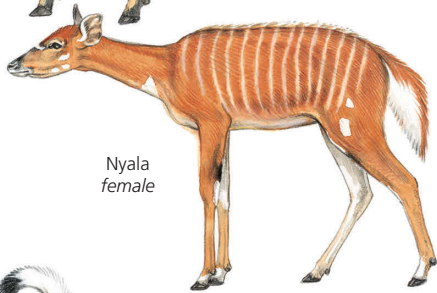
SIZE HB 110–175cm. T 25–40cm. SH 90–110cm. W 56–70kg (female), 92–108kg (male). **DESCRIPTION** Females and young are bright russet, with 11–15 vertical white stripes. They have a long, narrow head and resemble Nyala very closely, except for slightly longer legs and neck. Yearling males acquire sandy-grey colouring that is almost identical to that of similarly aged Nyala males.

The black and white markings on face, tail, and tawny-orange legs are also extremely similar in both species, with the greatest contrast in males. Lesser Kudu remain well-camouflaged by their colouring. The short and sparsely haired neck has geometric white markings on throat and chest. There are inguinal glands in the groin and secretions around the false hooves. Subspecies: Two described: *T. i. imberbis* (Horn of Africa), *T. i. australis* (E Africa). **HABITAT** Deciduous bushlands and thickets dominated by *Acacia* and *Commiphora*. Residents display some seasonal movement from the more deciduous upper slopes in the wet season to low-lying evergreen belts in the dry season. **FOOD** Browsers of foliage and herbage with a strong reliance on a few evergreen species during the dry season, notably the succulents (*Calyptrotheca* and *Euphorbia*) and the toothbrush tree (*Salvadora persica*). Over 100 species of plants have been recorded, including sprouts (especially *Combretum* and *Cordia*), buds, leaves and pods of various *Acacia* species, flowers and fruits. Grasses are taken sparingly while green and fresh. **BEHAVIOUR** Highly residential but non-territorial animals. Females tend to aggregate most (up to 24 in a group) and occasionally 2 or 3 females (presumably close relatives) sustain long-term companionships. Hierarchies have not been observed and all classes meet and part casually. Older males actively avoid each other except in the presence of oestrous females. Females are the most residential, with home ranges of about 60–500ha. Newly independent males move over a larger area (up to 670ha) but gradually settle into a smaller home range. The normal gait is a level walk but animals can leap 2m when fleeing, throwing tail and hindquarters in the air and sometimes uttering a harsh bark as they go. Both sexes bark but this mainly serves avoidance and orientation rather than signalling alarm.

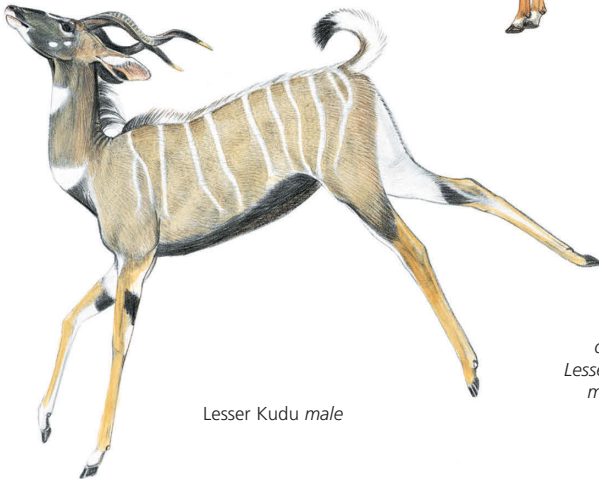


Nyala male

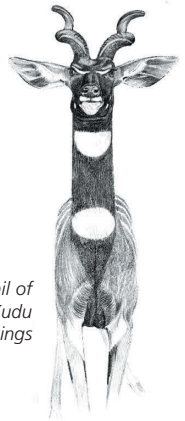
*Nyala
subadult male*



*Nyala
female*



Lesser Kudu male



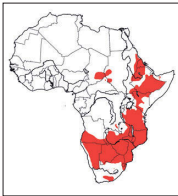
*detail of
Lesser Kudu
markings*



MOUNTAIN NYALA (GEDEMSA) *Tragelaphus buxtoni*

SIZE HB 190–200cm (female), 240–260cm (male). T 20–25cm. SH 90–100cm (female), 120–135cm (male). W 150–200kg (female), 180–300kg (male).

DESCRIPTION Hornless females resemble Red Deer hinds. Adult males nearly twice as heavy with deep chests, a dorsal crest and body colour of sepia brown that slowly gets darker with age. This throws white markings on the ears, face, throat, chest and forelegs into strong relief. They can be smooth and glossy or can become quite shaggy during the cold season. The tightness of the horns' spiral, and their thickness and length, vary; they can measure up to 118cm along the curve. **HABITAT** Mosaics of high-altitude woodland, bush, heath, moorland and valley-bottom grassland. The woodlands (mostly juniper and *Hagenia*), heath and bush (dominated by sage brush, *Artemesia* and everlasting, *Helichrysum*) provide dry-season refuge. During rains may move to pasture at lower levels. Formerly ranged over SE highlands of Ethiopia, now restricted to Bale massif. **FOOD** Herbs and shrubs with occasional grass, lichens and ferns. Most frequent browse are Solanaceae, St John's wort (*Hypericum*), lady's mantle (*Alchemilla*) and goosegrass (*Galium*). **BEHAVIOUR** Females accompanied by one or two generations of young form frequent but impermanent associations with other mother-young groups numbering up to 13. Regularly joined by adult males. Groups smaller in dry season when they range widely. Females restrict their movements in the rains to about 5km². Males range as widely as 20km². Young males are more mobile and less solitary. Mating peak in December and single young born after an 8–9-month gestation, at the end of the wet season. Ancestors had a wider span of habitats (before the evolution of Greater Kudu) but have now become montane specialists in their diet and physiology.

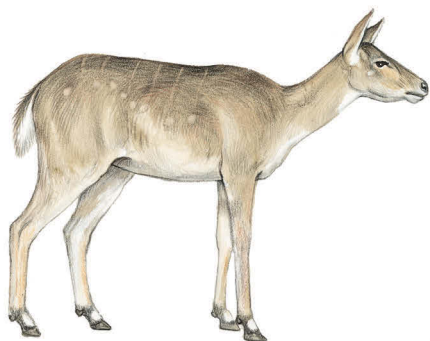


GREATER KUDU *Tragelaphus strepsiceros*

SIZE HB 185–235cm (female), 195–245cm (male). T 30–55cm. SH 100–140cm (female), 122–150cm (male). W 120–215kg (female); 190–315kg (male).

DESCRIPTION Tall, dun-coloured, with 4–12 pale stripes. Spiral horns reach record length of 181cm (along curve) in males. Both sexes have crest and mane. Males have a tessellated neck. Females normally hornless. Both sexes have very large, rounded ears. All living forms are substantially smaller than pleistocene Greater Kudus. Subspecies: *T. s. strepsiceros* (S and E Africa), *T. s. chora* (NE Africa), *T. s. cottoni* (Chad to W Sudan). **HABITAT** Originally throughout the drier areas of E and S Africa, wherever thickets and dense woodlands provide browse and shelter. Now increasingly restricted to stony, hilly country; thickets and evergreen forests along watercourses and on cloudy heights provide dry-season refuges. In wet season disperses through deciduous woodlands and may emerge at night to graze off herbs and grass on open *Acacia/Commiphora* pans. **FOOD** Very wide range of foliage, herbs, vines, flowers, fruits, succulents and grass. There are striking seasonal changes in diet, with choices much more restricted in the dry season, though the slow leaf-fall of bush willows (*Combretum*) provides browse during this time. **BEHAVIOUR** Wide dispersion during rains tends to separate sexes, but mating peak during the dry season draws animals back to the core of their range in valley thickets. Groups of 2–25 typically include several adult females with offspring of both sexes. Adults utter very loud and startling barks; males grunt when fighting or during confrontations; a hooting bleat signifies distress. Gestation lasts 9 months; the young lies up about 3 weeks and is weaned and fairly independent by 6 months. Greater Kudus have lived for 23 years in captivity.

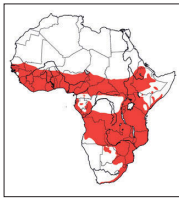
Mountain Nyala
male



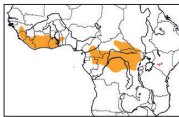
Mountain Nyala
female

Greater Kudu
male



**BUSHBUCK** *Tragelaphus scriptus*

SIZE HB 105–150cm. T 19–25cm. SH 61–100cm. W 24–60kg (female), 30–80kg (male). **DESCRIPTION** A small bovine. Females and young are mainly red and males become progressively darker with sexual maturity and age. The undersides are white, there are white flashes above black hooves and white markings on face and ears. Western forest forms ('harnessed') have vertical and horizontal white stripes on flanks. Eastern and southern populations ('sylvan' forms) are sometimes plain and often sparsely marked with a few light spots or streaks on flanks or haunches. Up to 27 subspecies listed. Male has horns 25–57cm long. **HABITAT** Dependent on thick cover. Can subsist on dew. Sometimes lives in reedbeds. **FOOD** Largely shrubs, leguminous herbs and growing grass, also pods, fruits of many species. Feeding patterns strongly influenced by disturbance and predators. Rests and ruminates frequently. **BEHAVIOUR** Lives at very variable densities. Not territorial, but solitary when feeding.

**BONGO** *Tragelaphus eurycerus*

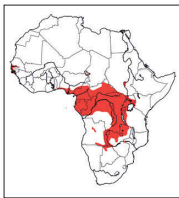
SIZE HB 170–250cm. T 24–65cm. SH 110–130cm. W 210–253kg (female), 240–405kg (male). **DESCRIPTION** Long-bodied, muscular bovine, deep russet-red, with 10–16 vivid white stripes on each side. Both sexes have spiral horns. Males have a vestigial dorsal crest and bold, black and white markings on the legs and face. Males become heavier and darker with age. Subspecies:

■ *T. e. euryceros*

■ *T. e. isaaci*

Lowland Bongo, *T. e. euryceros* (W and C Africa), **Mountain Bongo**, *T. e.*

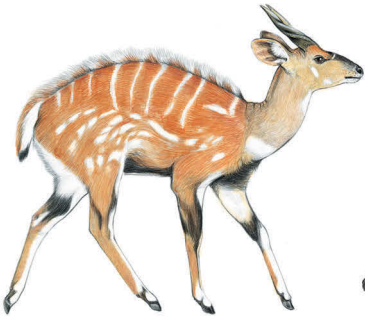
isaaci (Kenya). **HABITAT** Landslides, floods, fires, tree falls, elephant-browsing, logging and fallow all favour regrowth of the low-level fresh greenery that this species needs. In montane areas mass die-offs of bamboo suits it. Active at night but stays close to refuges in undergrowth or thickets. **FOOD** Foliage of shrubs and young trees, herbs, young grass and especially vines that are dragged down off trees or pulled up from the ground. Over 80 food plants known. **BEHAVIOUR** Individuals do not form permanent links with others, but lactating mothers form large nursery herds after the young are beyond the concealment phase. As a uniquely spectacular Kenyan endemic, the Mountain Bongo has become an icon for conservation in Kenya.

**SITATUNGA** *Tragelaphus speiki*

SIZE HB 115–155cm (female), 150–170cm (male). T 18–30cm. SH 75–105cm (female), 85–125cm (male). W 40–85kg (female), 80–130kg (male).

DESCRIPTION Shaggy, long-legged bovine, distinguished by spread-eagled stance and long, splayed hooves. Females hornless, rufous with 8 or 10 dorsal white stripes. Males larger and darker, with heavy, sharply keeled horns 45–92cm. Subspecies: **Nile Sitatunga**, *T. s. speiki* (Nile), **Zaire Sitatunga**, *T. s. gratus* (W and C Africa), **Southern Sitatunga**, *T. s. selousi*

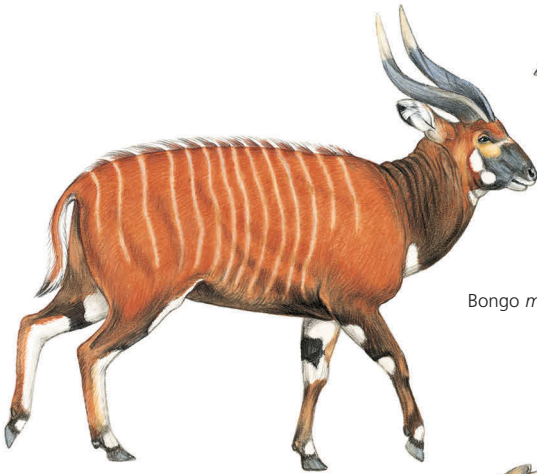
(S Africa). **HABITAT** Shrubby growth bordering forest waterways. **FOOD** Shrubs, herbs and grasses with strong regional biases. **BEHAVIOUR** Most active from 18.00–10.00h. A rich, year-round supply of greenery permits exceptionally small home ranges and potentially high densities. Females are especially prone to gather in high-density areas and may be accompanied by more than one generation of calves. They have a clumsy gait but are quiet and deliberate in their movements.



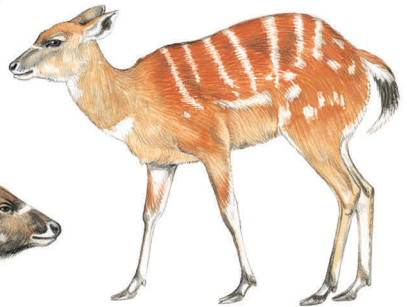
Bushbuck



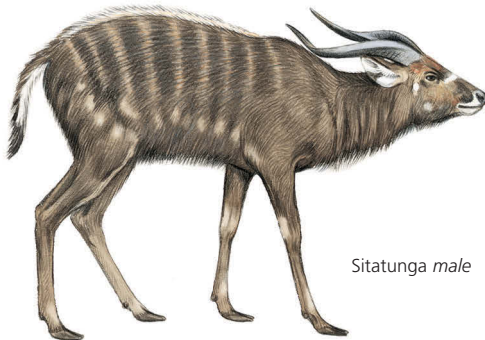
Bongo female



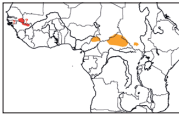
Bongo male



Sitatunga female



Sitatunga male

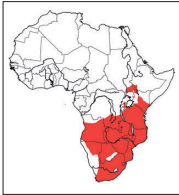


■ *T. d. derbianus*
 ■ *T. d. gigas*

GIANT ELAND *Taurotragus derbianus*

SIZE HB est. 210–240cm (female), est. 240–320cm (male). T 55–78cm. SH est. 140–160cm (female), 150–176cm (male). W est. 300–500kg (female), 450–907kg (male). **DESCRIPTION** Very large bovine with 8–12 vertical white stripes on sandy-grey or rufous body. Both sexes have horns; those of males are longer (up to 123cm), more widely splayed and have a looser spiral than in the Common Eland. Mature males have a black neck and a pendulous dewlap

from chin to chest. Ears broad, rounded and prominently marked, as are the hocks. Subspecies: *T. d. derbianus* (W of R Niger), rufous, average 15 stripes; *T. d. gigas* (E of R Niger), sandy-grey, average 12 stripes. **HABITAT** Narrow and increasingly fragmented belt of *Isoberlinia* woodland stretching from Senegal to the Nile and sandwiched between cultivated savannas of the Sudanian zone and wetter mosaics of forests and grasslands to the south. **FOOD** Browse consists of dominant leguminous trees, notably *Isoberlinia*, *Julbernardia* and some young grasses and herbs in the wet season. **BEHAVIOUR** Highly nomadic, with very large ranges and distinct seasonal movements. Males often solitary and contact with females ranges from a few hours to several weeks. Large herds in both wet and dry seasons suggest that security of the young, or social rather than ecological factors, influence female gregariousness. Range vastly reduced and now threatened with extinction in the wild.

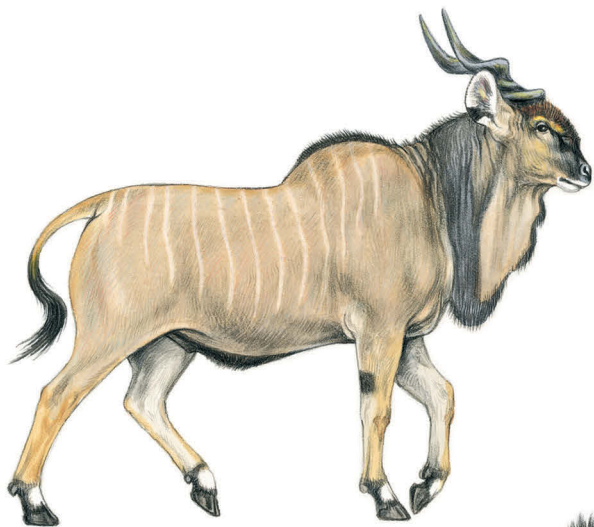


COMMON ELAND *Taurotragus oryx*

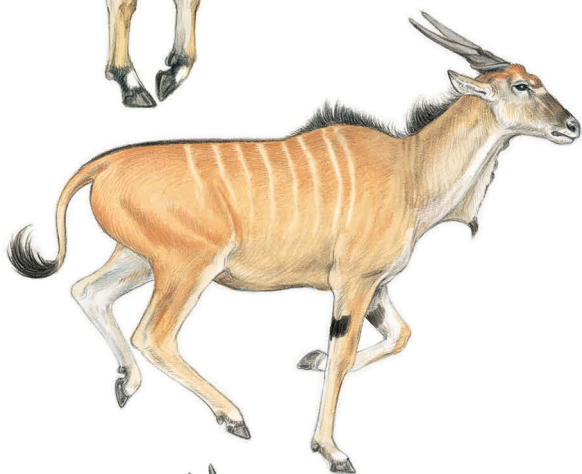
SIZE HB 200–280cm (female), 240–345cm (male). T 50–90cm. SH 125–160cm (female), 135–178cm (male). W 300–600kg (female), 400–942kg (male).

DESCRIPTION Very large, tan bovine in which both sexes have horns and dewlap. Long tail with tufted tip and narrow, relatively small ears. Males tend to increase in weight throughout their life, their neck and shoulders darken from tan to grey and the dewlap enlarges until it hangs below the level of the knees. Hair on males' forehead also changes, becoming more and more bushy. Mouth

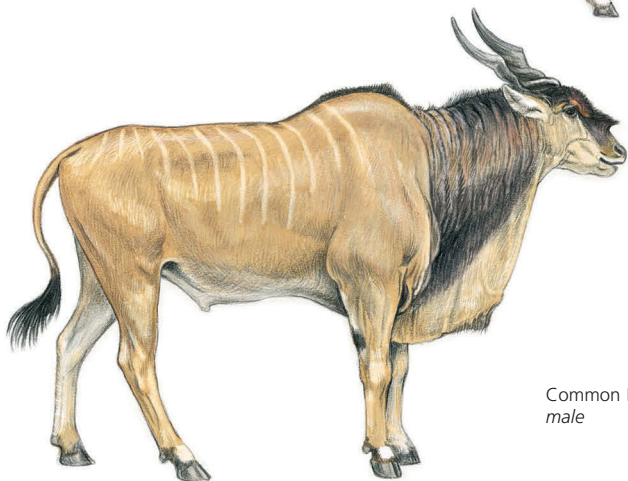
and muzzle small and pointed in comparison to those of buffaloes and cattle. Subspecies: **Cape Eland**, *T. o. oryx* (S and SW Africa), tawny, adults lose stripes; **Livingstone's Eland**, *T. o. livingstonii* (central woodlands), brown, up to 12 stripes; **East African Eland**, *T. o. pattersoni* (E Africa), rufous tinge, up to 12 stripes. **HABITAT** Primarily animals of the woodlands and woodland-savanna. In South Africa they have extended their range into temperate Highveldt and the Karoo. Common Elands gather in larger herds during and after the rains, and scatter into smaller groups in the dry season. Originally distributed from Cape of Good Hope to Nile floodplain and arid N Kenya. **FOOD** Browse foliage and herbs. In dry season myrrh (*Commiphora*) and bush willows (*Combretum*) become major foods in many localities. Marula fruit and *Acacia* seeds are eaten in quantities in the dry season. **BEHAVIOUR** Gregarious but with fluid and open system. Mutual attraction among calves leads to temporary isolated groups of up to 50 animals, all juvenile. Calf assemblies provide nucleus for female herds and hierarchies within these juvenile herds and the principle of 'rank by age and size' remain typical of all ages of Common Elands and both sexes. Temporary congregations of up to 1,000 recorded on flushes of green growth. Young animals, especially females, highly nomadic; older animals, especially males, more residential. Home ranges recorded up to 1,500 km². More matings recorded in rains, birth peaks nearly 9 months later at the end of dry season. Young have brief lying-out period before joining the 'crèches'. Growth exceptionally fast, due in part to the extreme richness of Common Eland milk. Known to have lived for up to 25 years.



Giant Eland
male



Common Eland
female



Common Eland
male

ANTELOPES Antilopinae

Ranging from less than 2kg to over 400kg, the very diversity of antelopes typifies them.

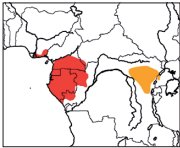
DWARF ANTELOPES Neotragini

A taxonomic 'basket' for living survivors of a bovid root stock. They have slender legs, longish neck, large eyes, large preorbital glands and simple spike horns in males.



ROYAL ANTELOPE *Neotragus pygmaeus*

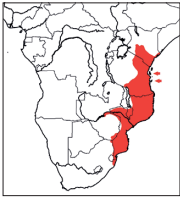
SIZE HB 38–51cm. T 5–8cm. H 24–26cm. W 1.5–3kg. **DESCRIPTION** Reddish or golden brown, with white belly, chin and chest. Tiny, conical horns. Gait high-stepping under bunched, compact body but it can slip away in a ground-hugging scamper or fast, high jumps. **HABITAT** Dense undergrowth along forest edges, in clearings, road verges and cultivation, in moist forest belt and galleries in forest–savanna mosaics. **FOOD** Fresh greenery, buds, leaves, fruits and fungi.



DWARF ANTELOPE *Neotragus batesi*

SIZE HB 50–57.5cm. T 4.5–8cm. H 24–33cm. W 2–5.5kg. (female averages 0.6kg heavier). **DESCRIPTION** Soft mahogany-brown fur has a shiny gloss. White markings are conspicuous. The smaller male has very short conical horns. Subspecies: *N. b. batesi* (R. Niger – R. Zaïre), *N. b. harrisoni* (NE Zaïre, W Uganda). **HABITAT** Dense, low undergrowth near watercourses, roads, gardens and chablis (tree falls). **FOOD** Browses leaves and shoots.

■ *N. b. batesi*
■ *N. b. harrisoni*

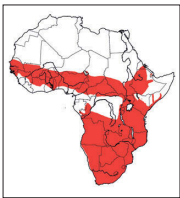


SUNI *Nesotragus moschatus*

SIZE HB 57–62cm. T 8–13cm. H 30–41cm. W 4–6kg. **DESCRIPTION** Compact stance and disproportionately broad head on a short neck. Males have finely annulated horns; 13cm maximum. Enormous facial glands, especially in males. Tail has a white underside and is flashed from side to side (rather than flipped up and down as Blue Duiker). Distant dwarf relative of Impala. **HABITAT** Coastal forests and thickets wherever there is thick undergrowth and regenerating fallow. **FOOD** A variety of leaves, shoots, herbs and fungi.

DUIKERS Cephalophini

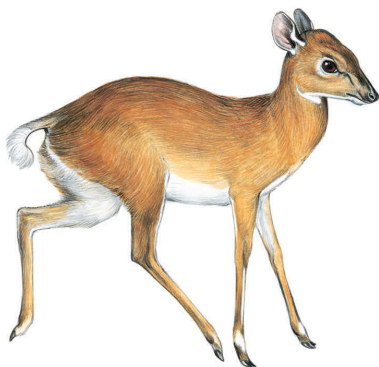
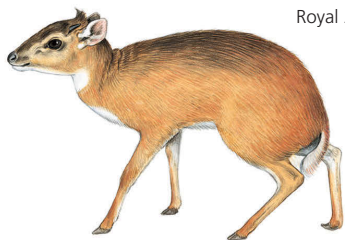
Forest antelopes with compact body and head. Short, wedge-shaped head with horns.



BUSH DUIKER *Sylvicapra grimmia*

SIZE HB 90–115cm (female), 70–105cm (male). T 7–19.5cm. H 45–70cm. W 12–25.5kg (female), 11–21.5kg (male). **DESCRIPTION** Longer legged and larger eared than forest duikers. Colour varies regionally. Straight, upright horns in male only. More than 40 races listed but regional groupings can be recognised: *S. g. grimmia* group (S Africa); *S. g. steinhardtii* group (Kalahari region); *S. g. orbicularis* group (E Africa); *S. g. splendidula* group (S Congo basin); *S. g. rosevelti* group (Niger to Nile savannas); *S. g. abyssinica* group (Uganda to Eritrea); *S. g. deserti* (Somali–Kenya littoral); *S. g. coronata* (Upper Guinea savannas). They are darker in moist habitats and lighter in drier habitats. **HABITAT** Flourishes in a wide range of habitats. **FOOD** Leaves and shoots of numerous dominant bush plants. Fruits are also very important seasonally. Do not need water. **BEHAVIOUR** Males defend territories with little or no overlap in range.

Royal Antelope



Dwarf Antelope



Suni



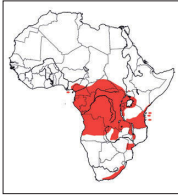
Bush Duiker
Sylvicapra grimmia splendidula



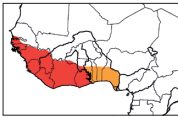
Bush Duiker
Sylvicapra grimmia orbicularis

BLUE DUIKERS *Philantomba*

Blue duikers are small, greyish, brown or fawn animals that have retained many of the original adaptive traits of the duiker tribe but clearly refined their own niche at an early date.

**BLUE DUIKER** *Philantomba monticola*

SIZE HB 55–90cm. T 7–13cm. H 32–41cm. W 3.5–9kg. **DESCRIPTION** Small grey or brown antelope. Tail has underside and fringe with white hairs that reflect light. Subspecies: 26 named. Seven main populations. **HABITAT** Lowland and montane rainforests, riverine and littoral forests and moist thickets. **FOOD** Up to 80% of the diet may be fruit. Also foliage, traces of gum and animal matter. **BEHAVIOUR** Bonded pairs on a small and regularly traversed territory (as little as 2.5–4ha). Might be divisible into two or more species.

**MAXWELL'S DUIKER** *Philantomba maxwelli*

SIZE HB 63–76cm. T 12–15cm. H 35–42cm. W 6–10kg. **DESCRIPTION** Strongly marked and more angular head. Grey-brown with paler underparts. **HABITAT** Rainforest or derived savannas. **FOOD** Fallen fruits, herbs, shrubs and new growth; probably some animal matter. **BEHAVIOUR** Pairs share a small common territory defended against others of the same sex.

■ *P. maxwelli*
■ *P. walteri*

WALTER'S DUIKER *Philantomba walteri*

not illustrated

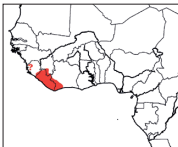
SIZE No data. Likely to be slightly smaller than Maxwell's Duiker. **DESCRIPTION** Newly described species based on morphology and genetic data. Formerly considered to be the easternmost population of Maxwell's Duiker. Intermediate in size between the larger Maxwell's Duiker to the west and the smaller Blue Duiker to the east. Morphologically similar to Maxwell's Duiker with a relatively long tail, large pedal glands and striking superciliary line, but differs from the other two species in the genus in cranial measurements, having a smaller nasal constriction and cranial height. **HABITAT** As Maxwell's Duiker. **FOOD** Presumably similar to other species in the genus. **BEHAVIOUR** Presumably as Maxwell's Duiker.

FOREST DUIKERS *Cephalophus*

There are at least 16 species of forest duikers and one or more of them once occupied virtually every type of forest in Africa. *Cephalophus* is the most diverse duiker group.

**ADER'S DUIKER** *Cephalophus adersi*

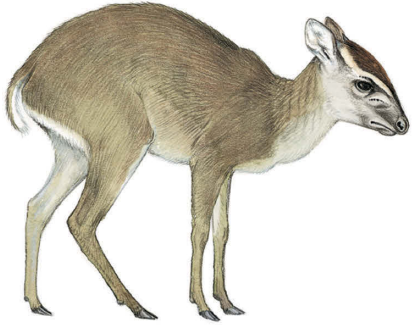
SIZE HB 66–72cm. T 9–12cm. H 30–32cm. W 6.5–12kg. **DESCRIPTION** Washed-out, tawny red ground colour with a bold white band across the buttocks. Muzzle is pointed, with a rather flat front to the nose. Genetically at the root of duiker radiation. **HABITAT** In Zanzibar has become almost entirely restricted to tall thicket forest growing on waterless coral rag. Probably extinct on mainland. Zanzibar policies likely to result in extinction of this species. **FOOD** Fallen flowers, fruits and leaves. **BEHAVIOUR** Pairs live in territories and breed throughout the year.

**ZEBRA DUIKER** *Cephalophus zebra*

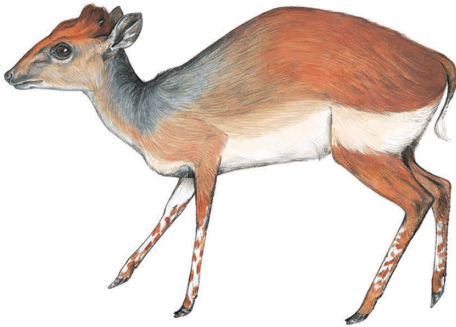
SIZE HB 70–90cm. T 10–15cm. H 40–50cm. W 15–20kg. **DESCRIPTION** Head, shoulders, lower legs russet red. Hocks, muzzle and leg joints black. Back striped. **HABITAT** Primary forests and margins. **FOOD** Fruits and foliage. **BEHAVIOUR** Because both sexes have horns and a thickened skull, it is likely that pairs share defence of home range.



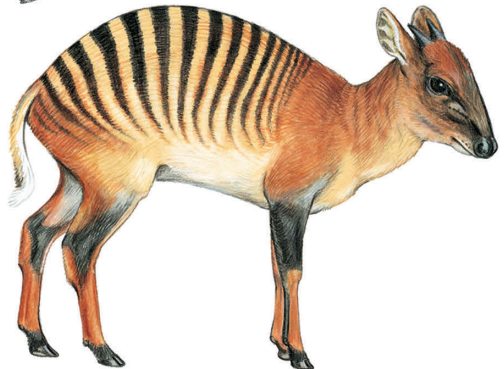
Blue Duiker



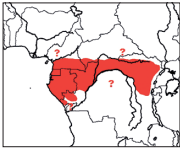
Maxwell's Duiker



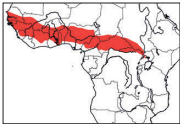
Ader's Duiker



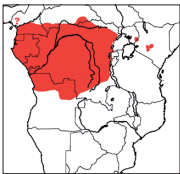
Zebra Duiker

**WHITE-BELLIED DUIKER** *Cephalophus leucogaster*

SIZE HB 78–100cm. T 8–15cm. H 42–51cm. W 15–20kg. **DESCRIPTION** Pale with warm, sandy-brown forequarters, graduating towards grey near the black dorsal line. Fluffy, black and white-tipped tail. **HABITAT** Sparsely and intermittently distributed from the R. Sanaga to W Rift, but only north of R. Zaïre. Only known to be common in a few highly localised places (notably N Gabon and Congo). **FOOD** A ratio of 75% fruits to 25% foliage (and a marked taste for flowers) recorded in Gabon. Hard-shelled fruits (among them mututu, *Klainedoxa*) in diet implies ability to smash them open (probably with the forehead).

**RED-FLANKED DUIKER** *Cephalophus rufilatus*

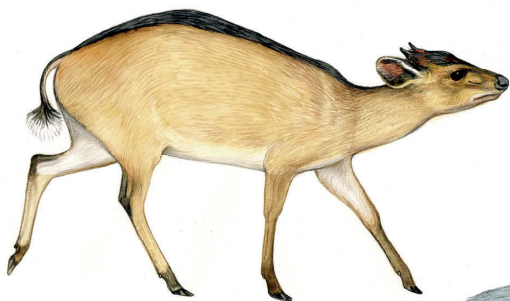
SIZE HB 60–80cm. T 7–10cm. H 30–38cm. W 6–14kg. **DESCRIPTION** Bright orange red on face, neck and flanks, brown or blue-grey gauntlets on limbs and brown or grey dorsal patch. Black nose and lower lip contrast strongly with white jaws and upper lip. Subspecies: *C. r. rufilatus* (Senegal to Chari valley), *C. r. rubidor* (Chari to Nile Valley). **HABITAT** Resident, territorial species living in forest relicts and riverine thickets within the savanna along a broad band of country from Senegal to NW Uganda. **FOOD** Fruits, flowers and foliage from numerous riverine species of trees, shrubs and herbs.

**BLACK-FRONTED DUIKER** *Cephalophus nigrifrons*

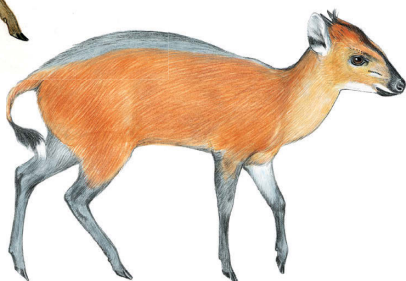
SIZE HB 80–107cm. T 7.5–15cm. H 45–58cm. W 14–18kg. **DESCRIPTION** Long-legged, long-hoofed duiker with glossy red coat that is plain and thin in lowland forms and thicker, darker and more grizzled in montane forest forms. The legs, darker than the body, are almost black at the hocks and thinly haired. There is a distinct pale 'brow' below the black forehead blaze that gives it its name. Subspecies: *C. n. nigrifrons* (lowland forest from Cameroon to E Zaïre), *C. n. kivuensis* (W Rift mountains), *C. n. fosteri* (Mt Elgon), *C. n. hooki* (Mt Kenya). **HABITAT** From Cameroon to Mt Kenya. Adapted to swamp forest and marshes at altitudes up to 3,500m. Territories marked with face glands and loud call. **FOOD** Variety of fruits and succulent vegetation. A ratio of 72% fruits to 28% foliage recorded in fruit-rich Gabonese forest.

**RWENZORI RED DUIKER** *Cephalophus rubidus*

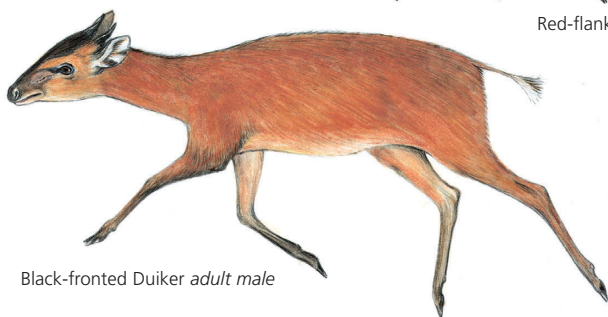
SIZE HB 75cm. T av. 10cm. H av. 45cm. W est. 15kg. **DESCRIPTION** Stocky duiker with a dense, glossy rufous coat with long, coarse hair on the neck, changing to dense, soft fur over the hindquarters. Belly is white, hindlegs are almost black and there are dark-brown markings on the joints of the forelegs. A black or dark-brown blaze stretches from the nose to the crown. Down the midline of the back and neck there is a zone of dark grey underlying the uniform red tips of the fur. The underfur of the flanks is cream. The lower slopes of the Rwenzori Mts are inhabited by a race of the Black-fronted Duiker, which has a thinner, harsher, grizzled coat. Nonetheless, it is possible that the two are actively hybridising in a region of overlap at about 3,000m. **HABITAT** Afro-alpine, subalpine and woodland zones of Rwenzori mountains. **FOOD** Browse in a pasture of herbs. Mainly diurnal but activity periods influenced by rain.



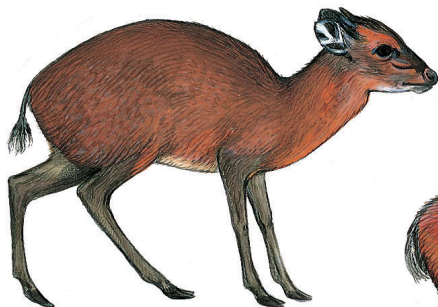
White-bellied Duiker



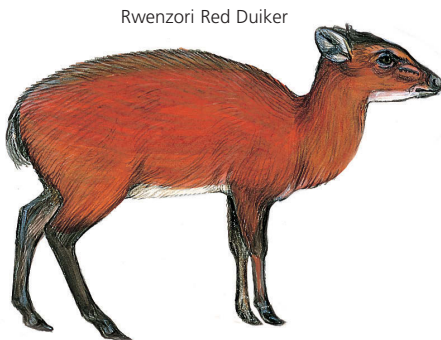
Red-flanked Duiker



Black-fronted Duiker *adult male*



Mt Kenya Black-fronted Duiker
Cephalophus nigrifrons hooki



Rwenzori Red Duiker

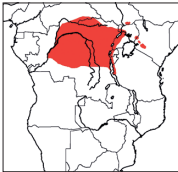

NATAL RED DUIKER *Cephalophus natalensis*

SIZE HB 75–87cm. T 9–14cm. H 40–43cm. W 12–14kg. **DESCRIPTION** Small with red body, legs and frontal tuft. Margins of ears, chin, throat and underside of the tail are white. Upperside of tail, ears and muzzle black. **HABITAT** From central Natal to the R. Rufiji valley, inhabiting coastal forests and thickets, low-lying riverine growth, escarpment and montane forests east of L. Malawi and the

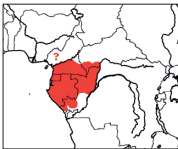
R. Shire. **FOOD** Opportunistic; fruits, flowers and foliage. All feeding normally diurnal. Nocturnal in disturbed areas.


HARVEY'S DUIKER *Cephalophus harveyi*

SIZE HB 85–95cm. T 11–15cm. H 44–50cm. W 13–16kg. **DESCRIPTION** Rich red with a black line down the centre of the face and nape. The white, tufted ears are black-tipped. **HABITAT** From coastal thickets to montane forests, riverine gallery and secondary forests wherever there is a variety of fruiting and flowering trees and shrubs. **FOOD** Fruits, flowers and foliage from the forest floor. Diurnal.


WEYNS'S DUIKER *Cephalophus weynsi*

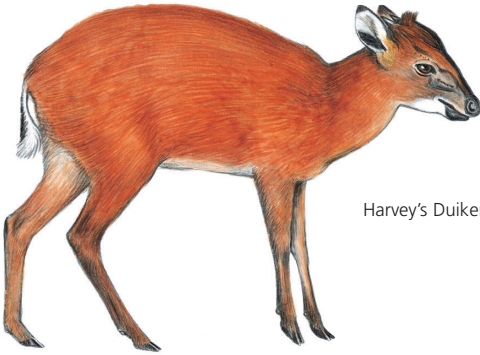
SIZE HB 80–115cm. T 8–16cm. SH 45–60cm. W 15.5–20kg. **DESCRIPTION** A fairly large duiker of very variable colouring. The main body colouring can range from pale tawny to rich russet or dark brown. The dark brown may be confined only to the legs or tint the shoulders, neck and face. The frontal tuft is russet in all subspecies. The forehead is among the most heavily reinforced of any duiker, with the dense bone of the frontal up to 13mm thick in some males. Subspecies: *C. c. weynsi* (R. Ubangi to Victoria Nile), *C. c. barbertoni* (E Uganda, W Kenya), *C. c. lestradei* (north end of L. Tanganyika). (Supposed hybrids with *C. harveyi* on Mau, Kenya.) **HABITAT** Ranges from R. Ubangi to W Kenya in both lowland and montane areas. This diurnal and territorial species flourishes in regenerating patches after logging but is not found in outlying riverine strips and galleries. **FOOD** About 70% of the diet consists of both ripe and unripe fruits. Fallen foliage makes up most of the balance.


PETERS'S DUIKER *Cephalophus callipygus*

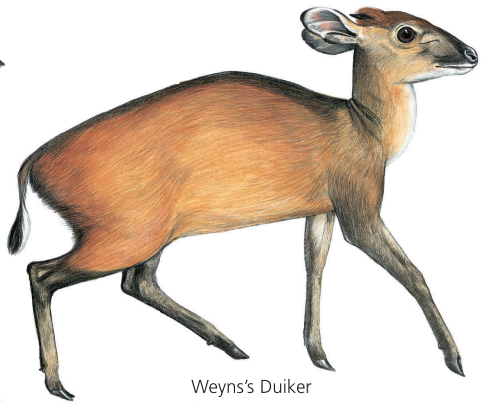
SIZE HB 94–109cm. T 8–15cm. SH 45–60cm. W 17.5–25.2kg. **DESCRIPTION** A fairly large duiker with a rich-red rump graduating into tawny flanks, neck and cheeks. Bright russet frontal tuft. A black mid-dorsal stripe widens over the hindquarters. The belly has a sepia midline that broadens on the chest. White flashes on ears, chin and lips. Like *C. weynsi*, the forehead is reinforced with a dense bony frontal. Subspecies: none, but individuals have been photographed that appear to have hybridised with *C. ogilbyi*. If so, it is possible that *callipygus* is actively replacing and interbreeding with *C. ogilbyi*. **HABITAT** Ranges through the moist equatorial forest zone from the R. Sanaga in Cameroon to the R. Ubangi. A diurnal and territorial species that even occurs in regenerating patches after logging so long as fruit and monkeys remain, but not in outlying mosaics or galleries. It occasionally survives in farm-bush. **FOOD** Recorded as taking 83% fruits and only 16% leaves (at Makoku, Gabon). This was the most completely frugivorous of all the duikers studied there.



Natal Red Duiker



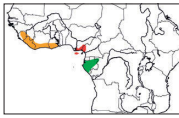
Harvey's Duiker



Weyns's Duiker



Peters's Duiker

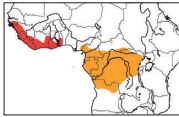


- *C. o. ogilbyi*
- *C. o. brockei*
- *C. o. crusalbum*

OGILBY'S DUIKER *Cephalophus ogilbyi*

SIZE HB 85–115cm. T 12–15cm. H 55–56cm. W 14–20kg. **DESCRIPTION** Orange to mahogany-coloured with a very red rump, a paler underside, and a black dorsal line (of variable extent). Face has marked brows and short but peculiarly curved horns with strong corrugations (in both sexes). Subspecies: *C. o. ogilbyi* (Bioko), *C. o. brockei* (Sierra Leone to Cameroon), *C. o. crusalbum* (Gabon). **HABITAT** Primarily forests close to the W African coast, where it is rare and patchily distributed. On Bioko I. it is a common

and dominant species. The absence of other large duikers (especially the Bay Duiker) is clearly a factor. **FOOD** Mainly fallen fruits, with the large, hard fruits of mututu (*Klainedoxa*) noted. Distribution might be influenced by a superabundance of fibrous fruits and numerous primates, which contribute to the fruit-fall. Occasional hybridisation with Peters's Duiker seems possible.

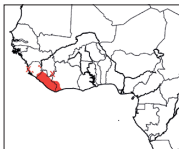


- *C. d. dorsalis*
- *C. d. castaneus*

BAY DUIKER *Cephalophus dorsalis*

SIZE HB 70–100cm. T 8–15cm. H 40–56cm. W 15–24kg. **DESCRIPTION** Heavily built with a red or yellowish brown coat, black or dark brown legs and a black midline along back and belly (definition varies individually). Fur coarse. Muzzle extremely reduced, strongly tapered. Eyes larger and higher in the head and head is broader and flatter than in any other duiker. Subspecies: *C. d. dorsalis* (Senegal to Togo), *C. d. castaneus* (E Nigeria to E

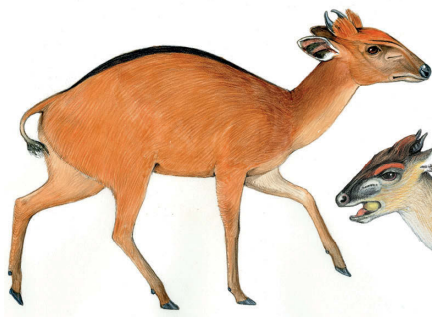
Zaire). **HABITAT** The entire equatorial lowland rainforest block from Senegal to L. Tanganyika, with a preference for high primary rainforest. Also patches within savanna mosaics (if undisturbed). May visit edges of clearings and prefers well-diversified zones with both dry and waterlogged areas. Shelters in hollow trees, between buttresses, under fallen trunks and in dark, dense thickets, only emerging to feed at night. Lives at low density; 2 or 3 animals inhabit 12–20ha. **FOOD** Hard or fibrous fruits, such as wild mango (*Irvingia*), mututu apples (*Klainedoxa*), African breadfruit (*Treculia*), and white star apple (*Chrysophyllum*), have been recorded; also less difficult fruits, such as monkey orange (*Strychnos*) and yellow mulberry (*Myrianthus*). Also known to stalk, kill and eat birds but fruits accounted for 73%, and foliage 27%, in a Gabon sample.



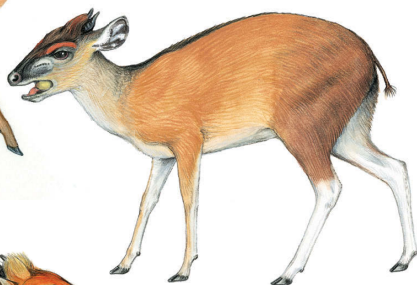
JENTINK'S DUIKER *Cephalophus jentinki*

SIZE HB est. 130–150cm. T est. 12–16cm. H est. 75–100cm. W est. 55–80kg. **DESCRIPTION** A long-horned (up to 17cm), very robust, short-legged duiker with a bold pattern of black, white and grey. The nearly black head and neck are offset by a vivid white halter over the shoulders and lower chest and a white border surrounds mouth and nose. This colouring involves both skin

and fur, the latter being extremely short and fine. In contrast to the fore-end, the hindquarters are grey agouti. **HABITAT** Only found in the high primary forest zone between Sierra Leone and the R. Niouniourou, a distribution that broadly coincides with many monkey populations and also that of the Zebra Duiker. Within this zone it enters secondary growth, scrub, farms, plantations and is even known to visit the seashore, presumably for salt. It is a 'hider', choosing hollow trees, fallen trunks and the buttress bays of kapok (*Ceiba*), *Bombax*, and mututu trees (*Klainedoxa*) for shelter. Unusually for duikers they sometimes lie up in pairs. Like the Bay Duiker it bolts from these daytime refuges with great speed if discovered, but has no stamina and does not go far. **FOOD** Known to enter plantations to eat palm nuts, mangoes and cocoa pods. The growing stems of tree seedlings are eaten (African teak, *Chlorophora*, has been identified).



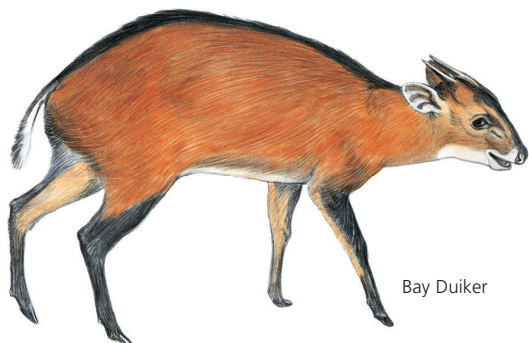
Ogilby's Duiker
Cephalophus ogilbyi ogilbyi



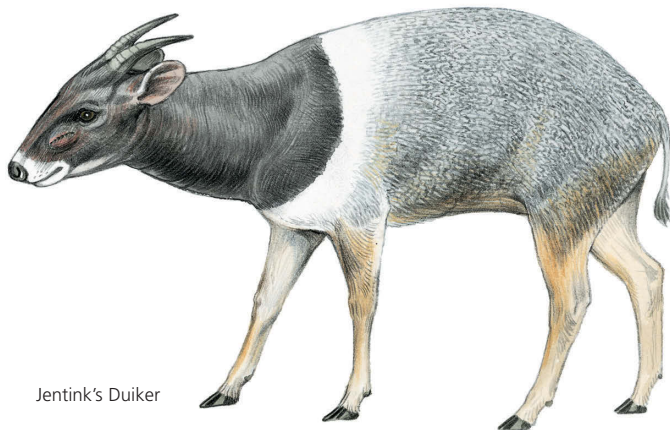
White-legged Duiker
Cephalophus ogilbyi crusalbum



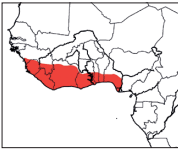
Brooke's Duiker
Cephalophus ogilbyi brookei



Bay Duiker



Jentink's Duiker


BLACK DUIKER *Cephalophus niger*

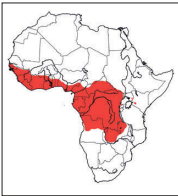
SIZE HB 80–100cm. T 7–14cm. H 45–55cm. W 16–24kg. **DESCRIPTION** A heavily built, long-bodied, long-headed, glossy black duiker, with swollen nostrils and short, stocky legs. The coat pales to light grey around the throat and chin and the lining of the ears. The tail shows some white hairs. Short horns, normally present in both sexes, are hidden in a coronal tuft of dense reddish

hair. **HABITAT** Rainforest from Sierra Leone to SW Nigeria as well as some riverine galleries, isolated patches and semi-deciduous forests on the margins of its range. It can also survive in regeneration areas after logging. It is mainly diurnal and territorial and is thought to fill a similar niche in Upper Guinea to Peters's Duiker, *C. callipygus*, in central Africa. This species suffers from overhunting throughout its range, except in some remote or better-protected localities in Liberia, Ivory Coast and Ghana. **FOOD** Fallen fruits and flowers, leaves and herbs. The Black Duiker is presumed to be as dependent on year-round fruit fall as other largish duikers.


ABBOTT'S DUIKER *Cephalophus spadix*

SIZE HB 97–140cm. T 8–13cm. H 66–74cm. W 50–60kg. **DESCRIPTION** A large, glossy, nearly black duiker with a paler grey face, a very prominent russet tuft between the horns and a reddish tinge to the belly and lower flanks. The wedge-shaped head ends with a broad, flat-fronted nostril pad that overhangs the mouth. Overall, this is a stocky duiker with rather short, thick legs and a thick neck. **HABITAT** Montane forest duiker restricted to wetter

(and therefore mainly eastern) sides of a few isolated massifs in E and S Tanzania. It is commonest in the Kilimanjaro National Park and Forest Reserve between 1,300 and 2,700m in forest and high-altitude swamps, but is said to range up to 4,000m and has been seen in high-altitude scrub and moorland. Disturbance may drive this species into more nocturnal activity but its preference for dense cover and its alertness keep it from view. This species is acutely threatened by poaching and the destruction of its habitat for charcoal, logs and potato fields. **FOOD** Fruits, flowers, green shoots and herbage; recorded browsing balsam (*Impatiens*).


YELLOW-BACKED DUIKER *Cephalophus silvicultor*

SIZE HB 125–190cm. T 11–20cm. H 65–87cm. W 45–80kg. **DESCRIPTION** A large, greyish brown duiker with a vivid cream-coloured patch on the back. The long, wedge-shaped head has light grey muzzle and cheeks ending in a shiny black rhinarium. Eyes and ears are small. The horns can be as long as 21cm. Newborn calves are dark umber, with freckled sides and a deep reddish tinge all over the underparts. The centre of the back is all jet black and only changes to adult colouring by 9 months of age, making juveniles

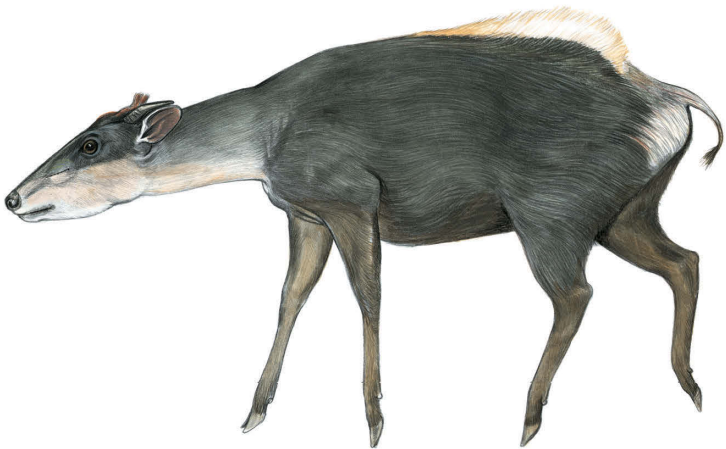
at intermediate stages of growth difficult to identify. **HABITAT** Rainforest, montane forests and many permutations of forest–savanna mosaics, from narrow riverine strips to fragmented woods. It is often found close to deep swamps. It lies up singly in characteristic ‘forms’ at the base of large trees, under fallen trunks or in dense tangles. Throughout its range it lives only in pockets of suitable habitat where it can be quite numerous. It is attracted to salt-licks. **FOOD** Fallen seeds, fruits, berries and bark of shrubs, fungi, ground moss and many herbs. **BEHAVIOUR** This duiker is mainly solitary and spaced out in territories (probably shared by a male and female). Lying up on ‘observation posts’ on termite mounds suggests that surroundings are regularly monitored and broken male horns could indicate active defence of territory by males. One, rarely two, young are born after a 151-day gestation. The newborn lies tight for a week or more but starts to nibble vegetation almost at once. It grows rapidly and is weaned by 6 weeks. The horn buds appear after about a month, when light hairs begin to show in the black back. Animals reach adult proportions and colouring by 9 months and are sexually mature by 1 year. Adults communicate with resonant grunts and a shrill bleat.



Black Duiker



Abbott's Duiker



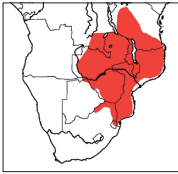
Yellow-backed Duiker

GRYSBOKS *Raphicerini*

Of all living antelopes, the Cape Grysbok provides the closest approximation to an ancestral type. It also resembles the earliest currently known antelope fossil, the 16-million-year-old *Eotragus* (from Eurasia).

**CAPE GRYSBOK** *Raphicerus melanotis*

SIZE HB 65–80cm. T 4–8cm. H 45–55cm. W 8–12kg (female 0.5kg heavier). **DESCRIPTION** Thick-coated, chunky. Strawberry roan in colour. Ears very large and lined with white hair. Males have short, smooth, widely spaced horns. Rump fur can be fluffed out. Tail short and inconspicuous. **HABITAT** Scrub thickets bordering hills, gorges and dunes. **FOOD** Browses thicket and shrubby growth. Feeds mainly at night.

**SHARPE'S GRYSBOK** *Raphicerus sharpei*

SIZE HB 61–75cm. T 5–7cm. H 45–60cm. W 7–11.5kg. **DESCRIPTION** 'Skirt' of elongated fur over the hindquarters. The reddish fawn fur densely interspersed with white hairs. Horns present in males only. **HABITAT** L. Victoria to Transvaal, Zambezi valley bounds western limits. Generally scarce and localised. **FOOD** Browses leaves, buds, herbs and fruits including tough dry material.

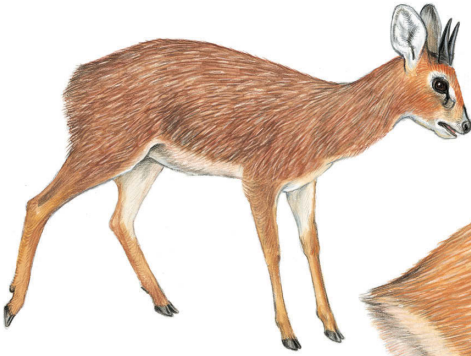
**STEENBOK** *Raphicerus campestris*

SIZE HB 70–95cm. T 4–6cm. H 45–60cm. W 7–16kg. **DESCRIPTION** Can be mistaken for Bush Duiker or Oribi but has rounded haunches without visible tail, very large, white-lined ears, a retroussé, black-bridged nose and big, black-rimmed eyes encircled by white. Males have upright, spiked horns. Subspecies: *R. c. campestris* (S Africa), *R. c. neumanni* (E Africa). **HABITAT** In S Africa mainly open plains. In E Africa common in stony savannas and among *Acacia*-grassland mosaics. **FOOD** Browses at or near ground level and adept at scraping up selected roots and tubers. Favours shoots of dominant shrub and tree species. **BEHAVIOUR** Pairs live for long periods with same partner on same territory (4ha to 1km²).

■ *R. c. campestris*
■ *R. c. neumanni*

**BEIRA** *Dorcatragus megalotis*

SIZE HB 76–87cm. T 5–8cm. H 50–76cm. W 9–12kg. **DESCRIPTION** Long-legged, long-necked antelope with enormous ears, vertical, upright horns (9–13cm) in the males only, and goat-like hooves. Intensely black eyelids contrast strongly with surrounding brilliant white fur. **HABITAT** Usually close to stony ridges, gorges and plateau margins. **FOOD** Herbs and browsed leaves and buds. **BEHAVIOUR** Pairs or parties with single male. Groups of up to 12, probably associations of 2 neighbouring families.



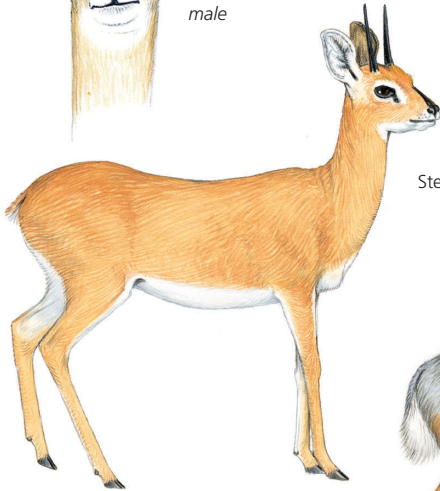
Cape Grysbok



Sharpe's Grysbok



Steenbok
male



Steenbok

Beira



DIKDIKS Madoquini

Formerly included within the Neotragini (when that taxon embraced all the dwarfed antelopes). Contemporary genetic research has demanded the disaggregation of Neotragini and the recognition that the dikdiks represent a lineage that has been distinct for more than 10 million years. They are a radiation of very small, long-legged antelopes with a fine, soft, grizzled (sometimes colourful) coat. They have relatively large eyes and ears, a prominent crest and a fur-covered nose that is enlarged into a proboscis in several species.

**SILVER DIKDIK** *Madoqua piacentinii*

SIZE HB 45–50cm. T est. 3–4cm. H 30–33cm. W est. 2–3kg. **DESCRIPTION** The smallest dikdik with very soft, fine fur, and a distinctive black border to the ears. The back and sides are a uniform silvery grizzle, particularly fine on the neck and haunches. Limbs, ears and muzzle are sandy ochre, cheeks and crest are creamy yellow and the bridge of the nose is often a vivid russet. **HABITAT** Shared with Lawrence's Dikdik (an eastern representative of the *M. saltiana* complex). This is possibly the most primitive and least arid-adapted of dikdiks. It inhabits very low, dense thickets growing along Obbia coastal littoral on fertile, sandy soils under a powerful offshore wind. This specialised wind-shaped, sand-blasted community has a year-long, low-level green growth, partly due to the sea's cooling and moisturising effect. **FOOD** Shoots and foliage of shrubs and herbs in undergrowth of the Obbia littoral thicket.

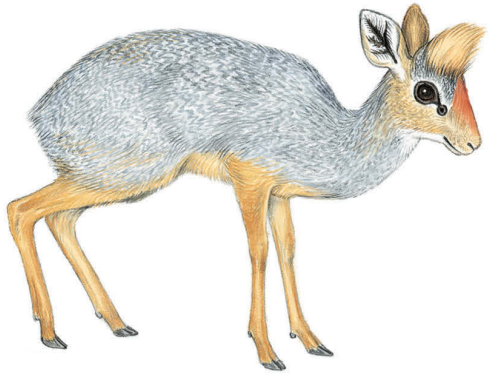
**SALT'S DIKDIK** *Madoqua saltiana*

SIZE HB 52–67cm. T 3–4.5cm. H 33–40.5cm. W 2.5–4kg. **DESCRIPTION** A small antelope with a short, squared-off, furry nose. Short male horns are up to 9cm. The coat is agouti-freckled and the legs sandy or reddish. There are 5 subspecies – two are dull-coloured (Salt's and Swayne's), two are very brightly coloured (Phillips' and Lawrence's), and one (the Harar Dikdik) is dark and somewhat intermediate. **HABITAT** Evergreen and semi-deciduous bushlands and thickets in the Horn of Africa from Suakin and Hadendowa (SE Sudan) to the mouth of the R. Juba. **FOOD** Herbs, foliage and shoots, especially *Acacia*. **BEHAVIOUR** Predominantly a nocturnal and crepuscular species, lying up in dense shade during the day. Colours appear to correspond with colour-coding for aggressive and submissive gestures. Subordinates (of both sexes) lower forequarters and expose greyer backs. Dominant animals flare their red or yellow crests and strut in high-stepping, side-on displays of red or yellow limbs and flanks.

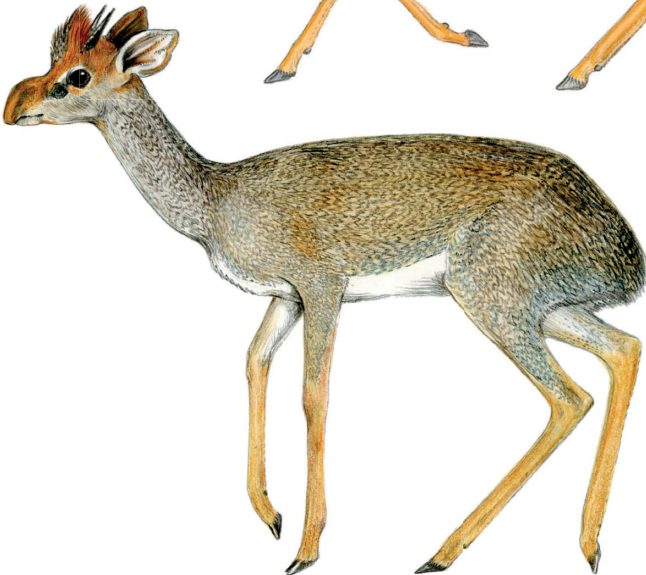
**GÜNTHER'S DIKDIK** *Madoqua guentheri*

SIZE HB 55–65cm. T 3–5cm. H 34–38cm. W 3.7–5.5kg. **DESCRIPTION** A small, slender dikdik, grizzled grey with brown or reddish flushes on the sides and neck and reddish fawn legs, nose and backs of ears. Belly, chin, and the fur in the ear and around the eye are white. The nose is appreciably longer and more elastic than any other dikdik but capacity to extend, shorten, 'empty' or inflate the proboscis makes it a difficult characteristic for distinguishing *M. guentheri* in the field. **HABITAT** Distribution centres on L. Turkana, reaching the Nile at Mongalla and possibly the Gulf of Aden at Maydh. South-eastern boundaries remain uncertain but possibly bounded by the R. Tana. Of all dikdiks they live in the driest, hottest desert and subdesert scrub with aloe, Euphorbia, Sasevieria, Cissus and Sarcostemma, as well as *Acacia*, providing both shelter and food. **FOOD** Green (and wilted) foliage, buds, shoots and bark of dwarf shrubs and herbs.

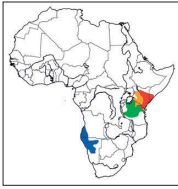
Silver Dikdik



Salt's Dikdik



Günther's Dikdik
male



- *M. (k.) kirkii*
- *M. (k.) cavendishi*
- *M. (k.) thomasi*
- *M. (k.) demarensis*

KIRK'S DIKDIK *Madoqua (kirkii)* (4 species)

SIZE HB 55–72cm. T 4–6cm. H 35–45cm. W 3.8–7.2kg. **DESCRIPTION** A group of very slender, small-snouted antelopes with grizzled or salt-and-pepper grey coats more or less suffused with warm red or yellow ochre tints. Face, coronal crest and legs are tawny while the eye is bordered with white; ear lining, chin and belly are also white. Sharp, corrugated male horns grow to 10cm. In spite of close external resemblances, each species has different numbers of chromosomes and cannot produce fertile offspring. There are four well-demarcated species:

Kirk's Dikdik, *M. (k.) kirkii* (Somali/Kenya coast and lowlands to foot of Pare/Usambara Mts): 47 chromosomes in males.

Naivasha Dikdik (Cavendish's Dikdik), *M. (k.) cavendishi* (uplands from E Uganda to Mbulu): 46 chromosomes.

Ugogo Dikdik (Thomas's Dikdik), *M. (k.) thomasi* (central Tanzania bushlands and thickets).

Damara Dikdik, *M. (k.) demarensis* (SW Africa): specialised hooves without pedal glands.

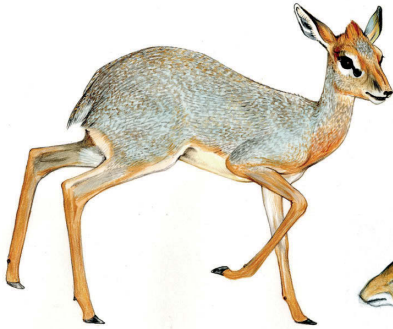
HABITAT A very wide range of habitats but with distinct geographic and ecological subtypes. Superficial resemblances were formerly interpreted as a sign of relatively recent dispersal. Contemporary molecular studies indicate an older and subtler adaptation of these dikdiks over their very wide and scattered range.

In Namibia they favour very dense thickets on hard, stony ground and limestone pavements. In Tanzania (Ugogo Dikdik) thickets dominated by *Grewia*, *Baphia* and *Pseudopropsis* are typical habitat. In the E African highlands (Naivasha Dikdik) the commonest bush is an olive (*Olea*) while the main thicket shrubs are *Aspilaia*, *Tinnaea*, *Turraea* and *Psiadia*, with *Sansevieria* and aloes being favourite retreats. In the hot, flat lowlands, north-east of these cooler uplands (Kirk's Dikdik), the vegetation is again different, with many more acacias, *Indigofera*, *Duosperma* and *Boswellia*. Thus, these dikdiks inhabit regions that have few major physical barriers but which are very distinct in flora, soils, altitude, temperatures and rainfall pattern. In combination these may serve to keep adjacent populations genetically distinct (yet, in Samburu, *M. (k.) kirkii* lives within sight of *M. (k.) cavendishi* with, apparently, no hybrids (a situation that begs further study).

These dikdiks are both diurnal and nocturnal (especially active during full moon) and have similar habits to other dikdiks, including a tendency to add their dung to any new, strong-smelling intrusion into their territory. A tendency to sprinkle elephant dung with their own minuscule pellets has an amusing bite in one local folk tale. This tells that the dikdik, on stumbling over an elephant bolus, keeps piling up his own pellets in the hope that one day he will trip up the elephant.

Males are also persistent whistlers. When whistling is initiated by the approach of a dog or Leopard its immediate effects are to cause females and young to hide. The whistles also serve to distract or 'mob' the predator and to broadcast an alarm. Another important, delayed effect is social cohesion. Once the danger has past female and male invariably join up, with much nuzzling and scent-marking.

FOOD It browses evergreen shoots and foliage of the herbs, shrubs and succulents typical of each region.



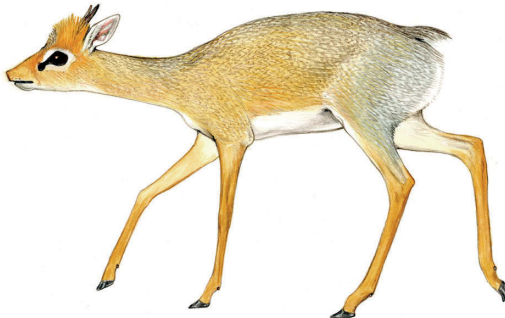
Kirk's Dikdik
Madoqua (kirkii) kirkii



Naivasha Dikdik
Madoqua (kirkii) cavendishi



Ugogo Dikdik
Madoqua (kirkii) thomasi



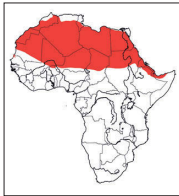
Damara Dikdik
Madoqua (kirkii) damarensis

GAZELLINE ANTELOPES *Antilopini*

Long-legged, long-necked antelopes with a light-coloured coat, large sensitive eyes and ears, a small mouth and, in some species, preorbital glands. Alert to both sound and movement.

GAZELLES *Gazella*, *Eudorcas* and *Nanger*

Slender, fawn or rufous antelopes; often with dark flank-mark separating body colour from white underparts. Divided into small and large desert gazelles, gleaners, and cold-adapted gazelles.

**DORCAS GAZELLE** *Gazella dorcas*

SIZE HB 90–110cm. T 15–20cm. SH 55–65cm. W 15–20kg. **DESCRIPTION** The smallest gazelle but proportionally the longest limbed, with small, fine hooves. It is notable for its very long ears. Horns, on both sexes, are long (up to 38cm), with up to 25 annular rings, and lyre-shaped (out then in at the tips). Colour is light fawn with poorly differentiated flank stripes but light and dark streaks down the face. **HABITAT** N and NE Africa in subdeserts with sparse vegetation. **FOOD** Herbs, succulents and shoots of shrubs.

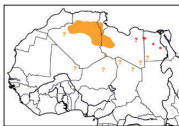
**SPEKE'S GAZELLE** *Gazella spekei*

SIZE HB 95–105cm. T 15–20cm. SH 50–60cm. W 15–25kg. **DESCRIPTION** Small, with inflatable nasal region. Fawn with black flank stripe, white buttocks with dark margins. A pale face. **HABITAT** The Indian Ocean littoral of Somalia in stony semi-desert dominated by stunted succulents, aloes, shrubs and sparse desert grasses (*Panicum* and *Eragrostis*). The centre of its range is the Nogal Valley where small groups, occasionally numbering up to 20,

gather or disperse in response to the sparse vegetation. It is notable for a loud sneeze, said to be an alarm call (probably as much an advertisement of status), that is made by inflating and emptying the nasal sac, which is such a prominent feature of this species. **FOOD** Grass, herbs, shrubs and succulents.

**CUVIER'S GAZELLE** *Gazella cuvieri*

SIZE HB 95–105cm. T 15–20cm. SH 60–69cm. W 15–20kg (female), 20–35kg (male). **DESCRIPTION** Grey-brown in colour. Nose has prominent black spot. Horns rise vertically before diverging out and back; smooth tips curving in and forwards. **HABITAT** From Morocco to Algeria in maquis scrub, open parkland of pines, oak thickets and rushes. **FOOD** Grass, herbs and shrubs; often visits cultivated fields.

**RHIM GAZELLE** *Gazella leptoceros*

SIZE HB 100–110cm. T 15–20cm. SH 65–72cm. W est. 14–18kg. **DESCRIPTION** A medium-sized gazelle of very pale yellowish-grey colour, only faintly marked with face and flank stripes. The ears are long and narrow. Horns (appreciably thicker and longer in males) are long and nearly straight, with 20–25 well-defined annulated rings. Outer hooves are broader than the inner ones. Subspecies:

■ *G. l. leptoceros*
 ■ *G. l. loderi* (a very provisional subspecies)

Eastern Rhim *G. l. leptoceros*;

Western Rhim *G. l. loderi* (validity uncertain).

HABITAT Strictly confined to the great sand deserts, or ergs, of the E Sahara from Algeria to Egypt. Here it lives among the dunes in very small parties, usually a male with one or more females and their young. **FOOD** Feather grass (*Aristida pungens*, or 'drinn'); also succulents, herbs and foliage of shrubs.



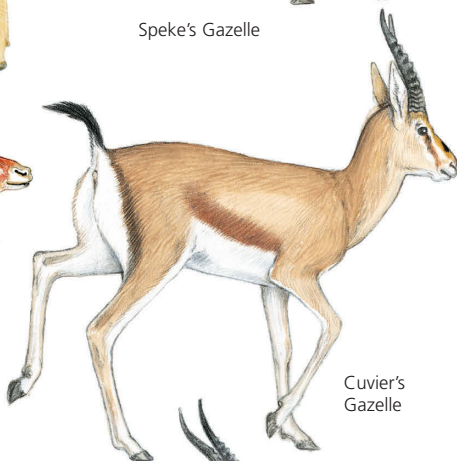
Dorcas Gazelle



Speke's Gazelle



Dorcas Gazelle



Cuvier's
Gazelle



Rhim Gazelle

**RED-FRONTED GAZELLE** *Eudorcas rufifrons*

SIZE HB 80–120cm. T 15–27cm. SH 55–82cm. W 15–25kg (female); 20–35kg (male). **DESCRIPTION** An elegant gazelle with a warm reddish back and white underparts separated by a black flank band. The white buttocks contrast strongly with the deep russet colour on the back which extends to the root of the all-black tail. The face is white with red or brown stripes, the ears are narrow and pointed. The double-arched horns have numerous annulations. Subspecies:

Red-fronted Gazelle: *E. r. rufifrons* (W Sahel);

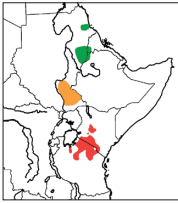
E. r. laevipes (E Sahel);

E. r. kanuri (South of L. Chad);

Red Gazelle – *E. r. rufina*? (Algeria – extinct).

HABITAT They prefer dry steppes and *Acacia/Combretum/Lanena* shrublands of the Sahel. Migratory animals, they form, fragment and reform easily. In Waza NP densities of 0.5–2.5 per km².

FOOD Growing green grass in rains; switches to herbs and foliage of *Acacia*, *Balanites* and *Boscia* in the dry season.

**THOMSON'S GAZELLE** *Eudorcas thomsoni***ERITREAN GAZELLE** *Eudorcas tilonura***MONGALLA GAZELLE** *Eudorcas albonotata*

SIZE HB 80–120cm. T 15–27cm. H 55–82cm. W 15–25kg (female); 20–35kg (male). **DESCRIPTION** A compact little gazelle with a warm sandy back and white underparts separated by a bold black flank band. The white buttocks have black marginal stripes and the colour on the back extends to the root of the all-black tail. The face is boldly striped (with much individual variation) and the ears are of moderate length. The mildly undulating horns have numerous sharp corrugations. The Thomson's Gazelle group now comprises three species:

■ *E. thomsonii*

■ *E. tilonura*

■ *E. albonotata*

Thomson's Gazelle *E. thomsoni* (L. Victoria/Eastern Rift Valley region);

Eritrean Gazelle (Heuglin's Gazelle) *E. tilonura* (E Sudan and W Eritrea);

Mongalla Gazelle *E. albonotata* (Sudd region of SE South Sudan, east of the Nile).

HABITAT The dry grasslands and shrubland habitats in E Africa. They prefer heavily grazed, trampled or burnt grasslands or naturally open steppe (and stay on pastures long deserted by larger herbivores as long as some miniature growth remains). Socially they are exceptionally flexible. They are migratory animals, without lasting ties between individuals, spread out in a loose mosaic of overlapping female herds. Each individual shares with many others a particular home-range within which activities such as going to water (treks of 15km are not unusual), resting and moving to fresh pasture are often coordinated. Males are less flexible and mature individuals fight to hold and defend territories within the females' favourite pastures. When resources are exhausted only thirst or hunger drives them away. Solitary territorial males in an empty landscape are a common sight. **FOOD** Mainly growing grass in the wet season but switches to herbs, the foliage of shrubs and seeds of *Acacia*, *Balanites*, *Sida* and *Solanum* in the dry season. *Themeda*, *Cynodon* and *Harpachne* are preferred grasses in Kenya.



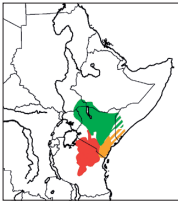
Red-fronted Gazelle



Thomson's Gazelle



Mongalla Gazelle



- *N. (g.) grantii*
- *N. (g.) notata*
- *N. (g.) petersi*

GRANT'S GAZELLE *Nanger (grantii) grantii*

TANA GAZELLE *Nanger (grantii) petersi*

BRIGHT'S GAZELLE *Nanger (grantii) notata*

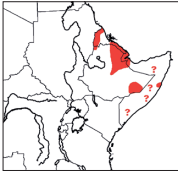
SIZE HB 140–166cm. T 20–28cm. SH 78–83cm (female), 85–91cm (male). W 38–67kg (female), 60–81.5kg (male). **DESCRIPTION** Large pale gazelles with upright stems to the long horns above relatively small eyes set in characteristic, leaf-shaped eye patches, or 'masks', of jet-black skin. Slightly inflatable nasal sac above nostrils. Mouth proportionately large for a gazelle. Tail markedly tapered and carries a wispy fringe. Rectangular white buttock patch emphasised by dark vertical stripe down each thigh. **Species:**

Grant's Gazelle, *N. (n.) grantii* (Mt Kenya to Ruaha valley);

Bright's Gazelle, *N. (n.) notata* (north of Mt Kenya);

Tana Gazelle, *N. (n.) petersi* (Tana and Galana valleys).

HABITAT Distribution spills over from the central axis or 'spine' of the E Rift. This upland distribution coincides with rain-shadows and with an arid corridor of unstable climate across the E African plateau. The Tana species lives in the lower Tana valley, and west of the R. Juba in Somalia. Here the gazelles live on very flat plains that are briefly flooded during occasional and unpredictable rains. Where their range becomes dense bush the gazelles are restricted to glades or open, scrubby valleys. They do not tolerate soft soils but will live in bush and tall grass more readily than any other types of gazelle. **FOOD** Herbs and shrub foliage during later wet and dry seasons; grass grazed while green. **BEHAVIOUR** Fighting and territorial displays, characterised by flicking of raised head on bulging neck and slow, stiff circling, increase during biannual mating peaks.



SOEMMERRING'S GAZELLE *Nanger soemmerringi*

SIZE HB 125–150cm. T 18–23cm. SH 81–90cm. W 38–46kg. **DESCRIPTION** Large, generally pale gazelle with extensive white on rump, strongly marked facial blazes. Lyrate, backwardly swept horns have in-pointed hooked tips. **Subspecies:** *N. s. soemmerringi* (Sudan and Eritrea): brown face, shorter horns. *N. s. berberana* (Somalia and NE Ethiopia): black face, longer horns. *N. s. butteri* (S Ethiopia): dark flank, thigh stripes. An unnamed dwarf from

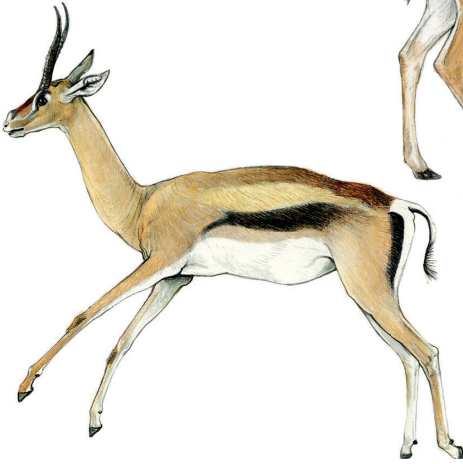
Kebir I. in the Dahlak archipelago (Eritrea) has differently curled horns and could be a distinct island species. **HABITAT** Endemic to Horn of Africa. Favours rough, hilly country with scattered evergreen thickets and *Acacia/Commiphora* steppe, as well as open, short-grass plains. **BEHAVIOUR** Seldom seen in herds larger than about 15. Like Grant's Gazelle, males flick their heads during confrontations. They yank their hooked horns sideways during fights in efforts to destabilise the opponent. When tending or herding females, males make a nasal croak. A mating peak has been recorded between September and November. Gestation lasts 198 days and the young lie up for a month. They are weaned by 6 months and reach sexual maturity by 18 months. Animals live for up to 14 years.



Grant's Gazelle



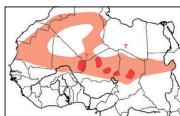
Tana Gazelle



Bright's Gazelle

Soemmerring's Gazelle





Former range

DAMA GAZELLE *Nanger dama*

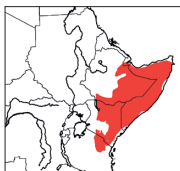
SIZE HB 140–165cm. T 25–35cm. SH 90–120cm. W 40–75kg. **DESCRIPTION** Largest gazelle, with long legs and neck, and short, compact, double-curved horns. The face and underparts are white in all forms; extent of rufous on upperparts varies according to population. Subspecies:

Dama Gazelle, *N. d. dama* (W Sahara);

Nubian Gazelle, *N. d. ruficollis* (Sahara west of the Nile). There was formerly a wide zone of very variable integration between these two.

Mhorr Gazelle, *N. d. mhorr* (North Africa to Mauritania).

HABITAT Until recently one of the most widespread and common of Sahara gazelles, making mass movements between its wet-season pastures deep in the Sahara and dry-season range in the semi-deserts and open bushlands of the Sahel. **FOOD** Mainly herbs, succulents and shrubs (notably *Acacia*). **BEHAVIOUR** Herds of many hundreds used to be seen on the move before dispersing into smaller groups numbering up to about 15. The principal mating peak in the Sahara was between March and June, the wettest months. Births would peak in about December, by which time the gazelles had moved well to the south so that the newborn could find shelter in the light scrub and grassland of the Sahel. Similar movements between moister and drier parts of their range took place in Morocco and Algeria. Here they travelled south into the Sahara, returning north where they preferred reg and hammada pastures. The last animals here were seen in the 1950s.



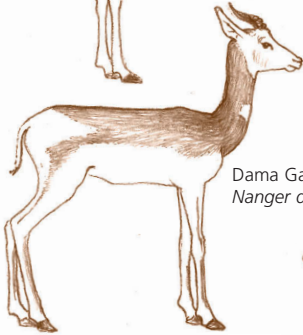
GERENUK *Litocranius walleri*

SIZE HB 140–160cm. T 22–35cm. SH 80–105cm. W 28–45kg (female), 31–52kg (male). **DESCRIPTION** Two-toned chestnut back, light fawn sides and white underparts. Dainty muzzle protrudes from a heavily reinforced brain-case. Males' horns have thick, diverging shafts, rising in a bold arc and then curling forward in a tight hook towards the tip. Two ill-defined subspecies are listed, which are sometimes regarded as full species. The

southern nominate race, *L. w. walleri*, has smaller cranial measurements than *L. w. sclateri* in the northern part of its range. **HABITAT** Dependent on an abundance of bushes and small trees, including evergreens. It avoids true, dense thickets and is commonest on flats where *Acacia*, *Commiphora* and other bushland species are well spaced or in small clumps. It has a wider tolerance of bushland types than the Dibatag. **FOOD** Almost exclusively a tree-foliage browser (creepers and vines being the main exception). Acacias, with their very small, nutritious leaflets, are the major staple but seasonal and regional variations follow what plants are in leaf or in bud at the time. Skunk Bush, *Premna resinosa* is a favourite in Kenya but 87 different trees and shrubs have been recorded in the diet. The gerenuk's minute, pointed muzzle can extract leaves from very thorny tangles. **BEHAVIOUR** Habitually rises on its hindlegs to reach food over 2m high (where Giraffes are the only, partial, competitors). Normally very residential, living in well-spaced home ranges of 3–6km². Here single adult males exclude other adult males but regularly associate with females and their offspring. Young are born after a 7-month gestation and most births occur during the rains. The newborn is well hidden and only emerges to join its mother after several weeks. A mother may be accompanied by more than one offspring (female young become independent at about 12 months, males parting later, at up to 18 months). Animals are thought to live for 10–12 years. Males fight by clashing horns with violent downward nods of the head. The contact call is a frog-like humming grunt.



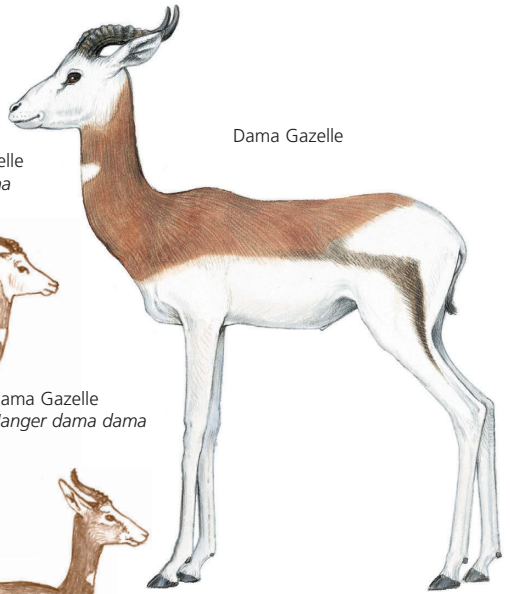
Nubian Gazelle
Nanger dama ruficollis



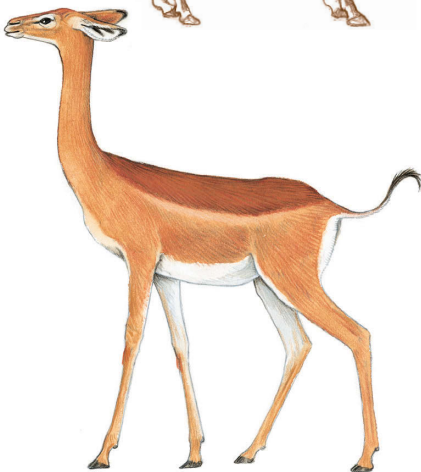
Dama Gazelle
Nanger dama dama



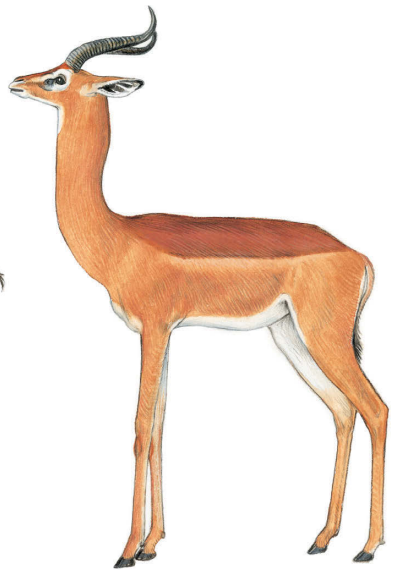
Mhorr Gazelle
Nanger dama mhor



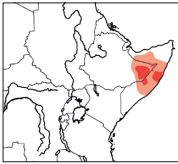
Dama Gazelle



Gerenuk female



Gerenuk male

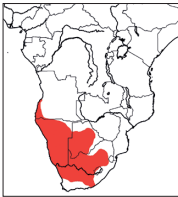


Former range

DIBATAG *Ammodorcas clarkei*

SIZE HB 152–168cm. T 30–36cm. SH 80–88cm. W 22–29kg. **DESCRIPTION** Males have shortish horns with heavy bases and tips sharply angled forward. Tail, carried like a wagging baton, is conspicuous. During flight, tail and head held erect. **HABITAT** Camel-brush or 'gedguwa', an *Acacia/Commiphora* deciduous bushland in central Somalia and the Ogaden (Ethiopia). Avoids dense thickets. **FOOD** Foliage of *Acacia, Commiphora* and other shrubs. **BEHAVIOUR** Males territorial, visiting latrines daily. Also reported

to make periodic small-scale shifts in range. Up to 5 females and young seen with single adult males but singles or twos commoner. Fighting males tuck muzzle between forelegs for protection and clash horns along back surfaces.



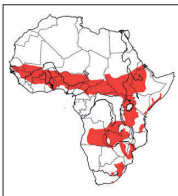
SPRINGBOK (SPRINGBUCK) *Antidorcas marsupialis*

SIZE HB 120–150cm. T 14–28cm. SH 68–90cm. W 20–43kg (female), 30–59kg (male). **DESCRIPTION** A gazelle-like antelope with white underparts extending well up the sides, rump and dorsal midline. Head also white but marked from crown to mouth with brown streaks (which conceal very protuberant eyes). Upperparts cinnamon fawn above an arc of black or brown on the flanks. Differs from gazelles in having longer, broader and less flexible bridge to nose, deeper, more muscular cheeks, and horns that sweep backwards

and hook inwards from peculiarly swollen bases. White dorsal crest normally hidden but can be erected (as can the white hair on the buttocks) to create an eye-catching signal. **HABITAT** Dry, open plains with a marked preference for flat drainage lines and the fringes of pans where soil conditions or overgrazing keep grasses and herbs low. **FOOD** Broadly a summer grazer and winter browser. Can survive on the residual moisture in plants. **BEHAVIOUR** Females highly mobile, moving independently of one another (but with current offspring). Because they form no close attachment to others or to territory, less is known of them than males which comprise 3 main classes: immatures; unattached, non-breeding 'bachelors'; and territorial, breeding males. Juveniles and subadults have a habit of hunch-backed bouncing, 'pronking', conspicuously.

ORIBI Ourebini

Formerly included in Neotragini, Oribi is a highly distinctive form of antelope with some distant and still to be studied relationships with the Reduncini.



ORIBI *Ourebia ourebi*

SIZE HB 92–140cm. T 6–15cm. H 50–67cm. W 12–22kg. (female averages 2kg heavier). **DESCRIPTION** Tall, slender, sandy body colour, with white undersides, upper throat, mouth and ear linings. Light-coloured muzzle deflects down sharply from the forehead. Alert and shy, utters piercing whistle as it flees with rocking-horse gait. 7 subspecies listed. **HABITAT** Grasslands. Prefers flats or gentle slopes. Commonest on lawns of short grass. **FOOD** Mainly fresh green grass typical of fire-climax communities.

BEHAVIOUR Females larger than males and independent in their movements but, as the object of continuous attention from a single male, each adult female determines the area within which he is intolerant of other males. Whistle may serve as both alarm and also to advertise shifting positions and movement.



Dibatag

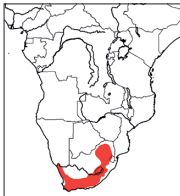
Springbok



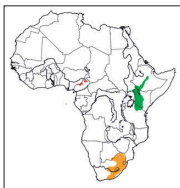
Oribi

REDUNCINES AND KOBS Reduncini

Medium-sized to large antelopes with slender to stocky legs, a long, well-muscled body and a relatively thick neck (especially in males). The largest species are shaggy; smaller ones are sleek or slightly fleecy. Most are tawny or tan but males of the larger species can be dark brown or even black (usually with white or off-white markings). Restricted to well-watered areas.

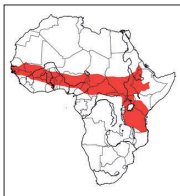
**RHEBOK** *Pelea capreolus*

SIZE HB 105–125cm. T 10–20cm. SH 70–80cm. W 18–30kg. **DESCRIPTION** Woolly, tawny grey coat rounds the body contours. Blunt, swollen nose. Ears very long and pointed; black-lidded eyes. Males have vertical spike horns up to 29cm. **HABITAT** Highveld, 'sourveld' and secondary grasslands, mainly on plateaus and mountains. **FOOD** Mainly a grazer. Independent of water. **BEHAVIOUR** A female and her female offspring provide a basic social unit of up to 14.

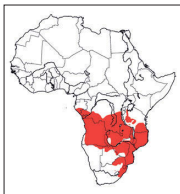
**MOUNTAIN REEDBUCK** *Redunca fulvorufula*

SIZE HB 110–136cm. T 17–26cm. SH 60–80cm. W 19–35kg (female), 22–38kg (male). **DESCRIPTION** Soft, fleecy fur tawny grey, white underparts and underside to the tail. Eyes prominent and, in males, short, forward-curved black horns. 3 disjunct subspecies: *R. f. fulvorufula* (S Africa), *R. f. chanleri* (E and NE Africa), *R. f. adamuae* (N Cameroon). **HABITAT** Prefers grassy ridges in broken rocky country. **FOOD** Grazers; *Themeda*, *Hyparrhenia* and *Cymbopogon* recorded. **BEHAVIOUR** Two to 8 females with young but temporary aggregations of up to 50 can form.

- R. f. fulvorufula*
- R. f. chanleri*
- R. f. adamuae*

**BOHOR REEDBUCK** *Redunca redunca*

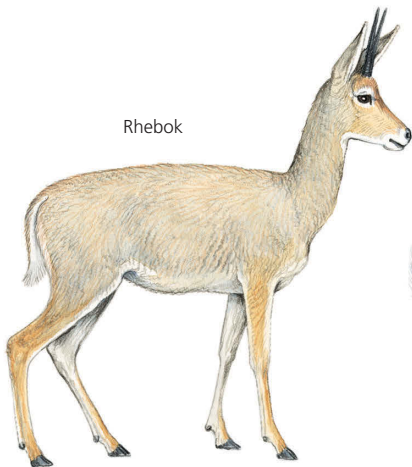
SIZE HB 100–135cm. T 18–20cm. SH 65–89cm. W 35–45kg (female), 43–65kg (male). **DESCRIPTION** Slender proportions of females contrast with the thick-necked, horned males. Black patches below ears. Loud whistles (mainly uttered at night). 4 subspecies listed. **HABITAT** Mostly large-scale sump grasslands with extensive annual flooding, drought and fires. **FOOD** Exclusively grazers with a recorded preference for typically dominant species. Feed mainly after dark. **BEHAVIOUR** Females disperse into discrete home ranges during the wet season (when most young are born). Males also scattered at this time.

**SOUTHERN REEDBUCK** *Redunca arundinum*

SIZE HB 120–160cm. T 18–30cm. SH 65–105cm. W 50–85kg (female), 60–95kg (male). **DESCRIPTION** Largest reedbuck with fine, almost woolly coat. Black and white markings on the front of the forelegs prominent. The horns, only on males, grow up to 45cm long. Subspecies: *R. a. arundinum* (south of Zambezi), *R. a. occidentalis* (tropical Africa). **HABITAT** Widely distributed in grass valleys and glades within Miombo (*Brachystegia*) woodlands. Adapted to mosaics of scrub and grass. **FOOD** Favourites are dominants in their

habitat, i.e. *Hyparrhenia*, *Panicum* and *Leersia*. **BEHAVIOUR** Converge on water sources in the dry season. Disperse widely when grass is tall.

Rhebok

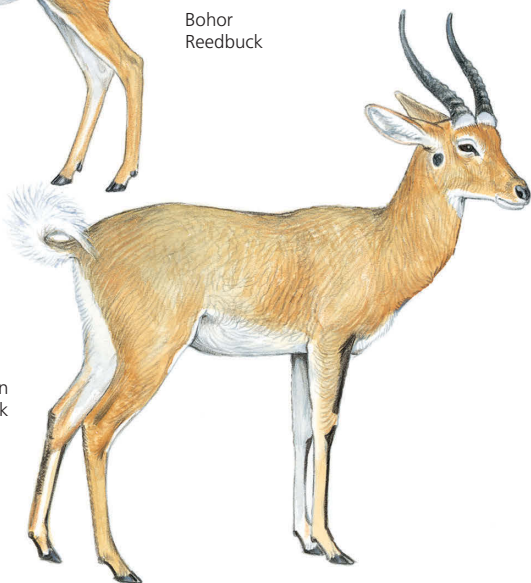


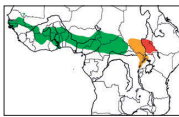
Mountain Reedbuck



Bohor
Reedbuck

Southern
Reedbuck





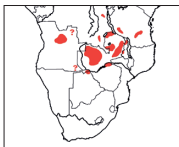
- *K. k. kob*
- *K. k. thomasi*
- *K. k. leucotis*

KOB *Kobus kob*

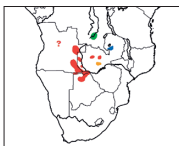
SIZE HB 160–180cm. T 10–15cm. SH 82–92cm (female), 90–100cm (male). W 60–77kg (female), 85–121kg (male). **DESCRIPTION** Males have thick, lyrate horns; colouring varies from rufous, or pale brown, to black and white in the Sudd floodplain. Subspecies:

- Western Kob**, *K. k. kob* (northern savannas);
- Uganda Kob**, *K. k. thomasi* (E Africa and NE Zaïre);
- White-eared Kob**, *K. k. leucotis* (Sudd floodplain).

HABITAT Flats or gently rolling country close to water. **FOOD** Grazers of the commonest grasses. **BEHAVIOUR** Resident populations move daily between habitual grazing grounds and watering places.

**PUKU** *Kobus vardoni*

SIZE HB 126–142cm. T 28–32cm. H 77–83cm. W 48–78kg (female), 67–91kg (male). **DESCRIPTION** Has heavier proportions, a coarser coat and shorter horns than the Kob. **HABITAT** More tolerant of narrow grasslands and park-like woodlands than the Kob. **FOOD** Preferred grasses are *Brachiaria*, *Eragrostis*, and *Vossia* shoots.



- *K. l. leche*
- *K. l. kafuensis*
- *K. l. anselli*
- *K. l. smithemani*

SOUTHERN LECHWE *Kobus leche*

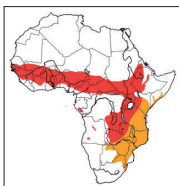
SIZE HB 130–170cm (female), 160–180cm (male). T 30–45cm. SH 85–95cm (female), 85–110cm (male). W 60–95kg (female), 85–130kg (male). **DESCRIPTION** Heavily built, with elevated haunches. Splayed, elongated hooves. In males, long annulated horns. Subspecies:

- Red Lechwe**, *K. l. leche* (NW Zambia, Angola, Botswana);
- Kafue Lechwe**, *K. l. kafuensis* (Kafue flats);
- Katanga Lechwe**, *K. l. anselli* (DR Congo);
- Black Lechwe**, *K. l. smithemani* (Bengweulu basin, R. Chambeshi).

HABITAT Margins between swamps and floodplains. **FOOD** Grasses and shoots of trampled reeds. **BEHAVIOUR** Females concentrate where best grazing is localised, dispersing when it is widespread.

**NILE LECHWE** *Kobus megaceros*

SIZE HB est. 130–170cm (female), est. 160–180cm (male). T 45–50cm. SH est. 80–85cm (female), est. 100–105cm (male). W est. 60–90kg (female), est. 90–120kg (male). **DESCRIPTION** Short face. Hooves exceptionally elongated. Males have lyrate horns and slowly darken over several years. Upper shoulder creamy white. **HABITAT** Grasslands between deep swamp and rain-flooded grasslands (Sudd region of White Nile). **FOOD** *Oryza* in early flood season but mainly *Leersia*, *Echinochloa* and *Vossia* as floods recede. **BEHAVIOUR** Females determine movements. Adult males drive other males away from female groups.



- *K. e. ellipsiprymnus*
- *K. e. defassa*

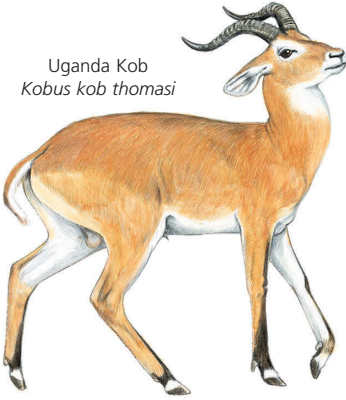
WATERBUCK *Kobus ellipsiprymnus*

SIZE HB 177–235cm. T 33–40cm. SH 120–136cm. W 160–200kg (female), 200–300kg (male). **DESCRIPTION** Variable in colour. Grey and rufous individuals in mixed groups. Male has long horns (50–99cm). Subspecies:

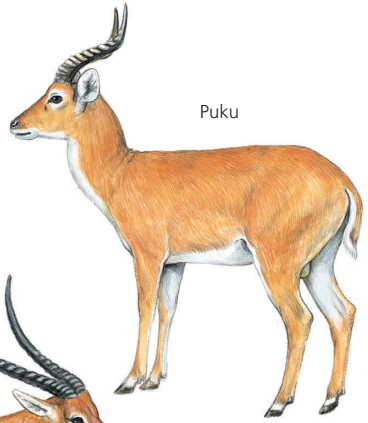
- Common Waterbuck**, *K. e. ellipsiprymnus* (SE Africa), rump crescent;
- Defassa Waterbuck**, *K. e. defassa* (NE, central and W Africa), white under tail.

HABITAT Sedentary in savannas, woodlands and mosaics close to permanent water. **FOOD** Many grass species, including reeds and rushes. **BEHAVIOUR** Both sexes remain for up to 8 years on same home range.

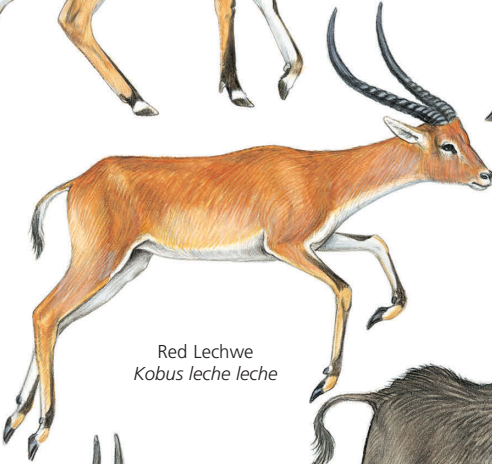
Uganda Kob
Kobus kob thomasi



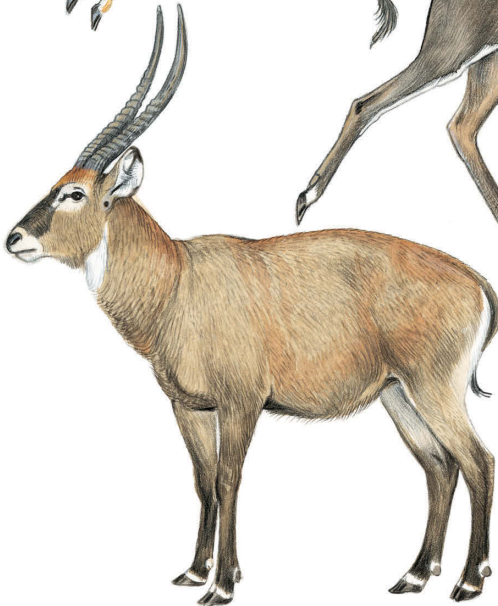
Puku



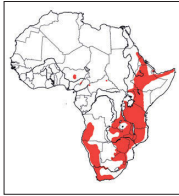
Red Lechwe
Kobus leche leche



Nile Lechwe



Defassa Waterbuck
Kobus ellipsiprymnus defassa

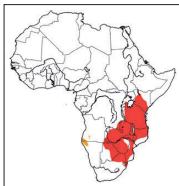
KLIPSPRINGER *Oreotragini***KLIPSPRINGER** *Oreotragus oreotragus*

SIZE HB 75–115cm. T 6.5–10.5cm. H 43–60cm. W 8–18kg (av. weights vary regionally 10–15kg). **DESCRIPTION** Unique for walking on the tips of its hooves and for its dense cloak of lightweight fur, which is brittle, coarse and rustles when shaken or touched. Short, wedge-shaped face. 7 subspecies listed. **HABITAT** Varied. Two features in common: rocky, stony ground and abundant short vegetation. **FOOD** Herbs and low foliage. Grass a wet-season food. **BEHAVIOUR** Female generally attended by a male. Young or an adult offspring

with her or nearby. 'Duets' of whistling are a means of regaining contact after disturbance.

IMPALA *Aepycerotini*

The sole survivor of an 'enlarged dwarf' lineage that eventually gave rise to several other large-bodied lineages, notably alcelaphines, hippotragines and caprines.

**IMPALA** *Aepyceros melampus*

SIZE HB 120–160cm. T 30–45cm. SH 75–95cm. W 40–60kg (female), 45–80kg (male). **DESCRIPTION** Gazelle-like with brown or yellowish brown back, lighter on haunches, shoulder, neck and head, and sharply lighter on flanks. Underside, chin, mouth and ear linings are white. Ear tips, thigh stripes, midline of tail and bushy fetlock glands are black. Adult males have long, narrow horns, with shallow, well-spaced annulations that arch up and out then back and up. Subspecies:

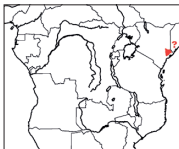
- *A. m. melampus*
- *A. m. petersi*

Common Impala, *A. m. melampus* (SE Africa);
Black-faced Impala, *A. m. petersi* (SW Africa).

HABITAT 'Edges' between grassland and denser woodlands are preferred. Require high-quality fodder (whether grass or leaves), moisture, shade and cover. In favourable localities numbers can reach over 200 per km². Grassland occupied during rains, woodland more in dry season. **FOOD** Almost wholly grazers during the rains, but in dry season mostly in woodlands, browsing on shrubs, herbs, pods and seeds. Feeding usually in 2 major bouts (around dawn and dusk) and 2 minor bouts (midnight and early afternoon). **BEHAVIOUR** Females form 'clans' of 30–120 animals with home ranges radiating out from fairly stable centres but extensively overlapping ranges of neighbouring female clans.

ALCELAPHINES, TOPI AND ALLIES *Alcelaphini*

Alcelaphines have long faces and legs, double-curved, hollow horns, fast gaits and a part or wholly grass diet. They are adapted to live at high densities on rich but unstable pastures.

**HIROLA** *Beatragus hunteri*

SIZE HB 120–200cm. T 30–45cm. SH 100–125cm. W est. 80–118kg. **DESCRIPTION** Of medium weight, with long legs and long body but a relatively short neck and long face. Lyrate horns not unlike those of Impala but have less flare and much heavier bases with pronounced annulations. Uniform sandy colouring gives way to slaty grey in older males. Long tail and black-tipped ears startlingly white, as are 'spectacles' around eyes. **HABITAT** A narrow strip of seasonally arid, grassy plains sandwiched between the waterless *Acacia* bush of the hinterland and forest-savanna mosaic on the coast. Northern margins of its range coincide with a type of very dry *Acacia* scrub. **FOOD** Strictly a grazer, feeding on the dominant grasses. Feeds most intensively early morning and evening. **BEHAVIOUR** Females with young form groups numbering between 5 and 40, often attended by single territorial male. All-male groups common.



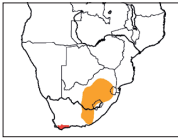
Klipspringer



Impala



Hirola male



- *D. p. pygargus*
- *D. p. phillipsi*

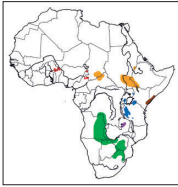
BONTEBOK/BLESBOK *Damaliscus pygargus*

SIZE HB 140–160cm. T 30–45cm. SH 85–100cm. W 55–70kg (female), 65–80kg (male). Bontebok an average 8kg lighter. **DESCRIPTION** Smaller southern cousins of the Topi, with very strong contrasts of colour in adults but young are fawn colour. Compact body, short neck and long nose with an expanded muzzle. Horns resemble enlarged gazelle horns. Subspecies:

Bontebok, *D. p. pygargus* (W Cape): glossy dark purplish brown with white buttocks and 'stockings'; very dark horns;

Blesbok, *D. p. phillipsi* (Highveld): dull reddish brown with ill-defined off-white buttocks and off-white lower legs; paler horns.

HABITAT Blesbok originally ranged over entire Highveld, grazing fire-climax grassland. Bontebok inhabited a different Cape fynbos habitat. **FOOD** Red oat grass, *Themeda* (at various stages of growth), *Eragrostis* and *Chloromelas* form main part of Blesbok diet. Bontebok also feed on *Eragrostis* species but local dominants, *Bromus* and *Danthonia*, are preferred grasses. **BEHAVIOUR** Where pastures in modern enclosures are sufficiently extensive to support them, Blesboks still gather in semi-nomadic herds. Even in smaller groups within still smaller enclosures both subspecies retain the habit of circulating around their available range in loose herds. Both subspecies have an 8-month gestation and their young are up and mobile within an hour or two of birth.



- *D. l. lunatus*
- *D. l. superstes*
- *D. l. korrigum*
- *D. l. tiang*
- *D. l. jimeta*
- *D. l. topi*

TOPI/TIANG/TSESSEBE *Damaliscus lunatus*

SIZE HB 150–230cm. T 36–42cm. W 75–150kg (female), 120–160kg (male). **DESCRIPTION** Large, compact antelope with deep chest, prominently ridged shoulders, rather short neck and long face. Tail narrow and fringed. Horns vary from one region to another but all have backward-curving stems and forward- or inward-curving tips. Body colour varies from rather yellowish bleached brown to red or even purplish brown. Black patches on hindquarters and forelegs above ochre-coloured 'stockings'. Bridge of nose black (very occasionally turning white with maturity). Subspecies:

Tsessebe, *D. l. lunatus* (southern Africa);

Bangweulu Tsessebe, *D. l. superstes* (NE Zambia);

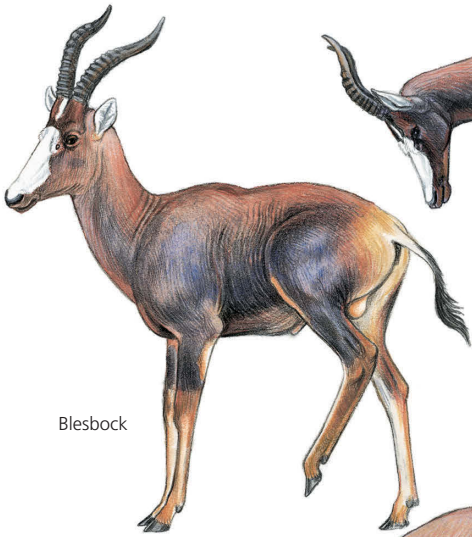
Korrigum, *D. l. korrigum* (Senegal to W Nigeria);

Tiang, *D. l. tiang* (NE Nigeria to W Ethiopia);

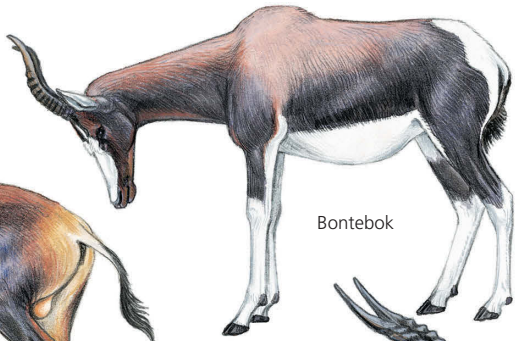
Nyamera, *D. l. jimeta* (Great Lakes region);

Topi, *D. l. topi* (E African coast).

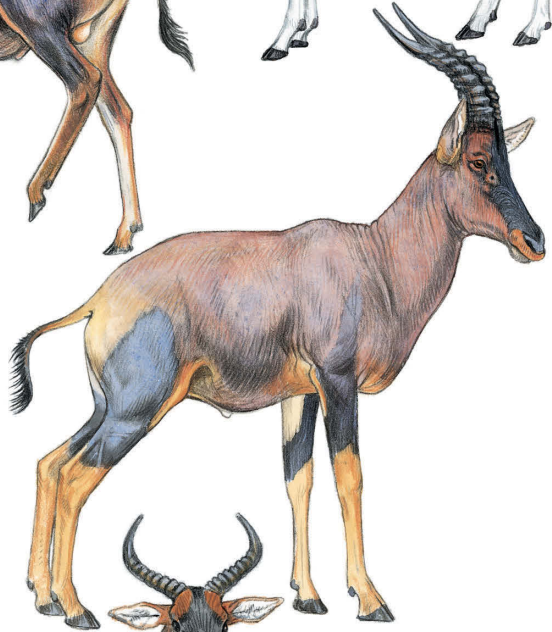
HABITAT Seasonally flooded grasslands. They follow receding waters in the dry season and retreat onto higher ground in the rains or flood season. They favour naturally short or medium-height pastures (such as alkaline pans), regrowth after burns or else concentrate in large herds in tall grass (commonly on wet-season higher ground retreats). Here heavy trampling soon opens up large glades and stimulates continuous regrowth. These annual cycles of movement can involve huge herds of tens of thousands in round journeys of nearly 1,000km, small circuits within closed valleys, or sustained residence on 'permanent' pockets of suitable grassland. The instability and unpredictability of floodplain pastures renders the last group peculiarly vulnerable. The advantages of living in very large, mobile herds include reduced predation, and optimum grazing, partly due to their own trampling. Younger animals benefit from older animals' knowledge of region's pastures. **FOOD** Most valley grasses taken. Longer rather than very short leaves are stripped from the stems with a nodding action that finely balances raking wrenches with clipping bites. **BEHAVIOUR** Although many Topi live in large migratory herds, they may be neighbours to (or co-exist with) small clusters of residential animals. Residents probably offshoots of larger aggregations but they occupy territories defended by males (also females). Scattered residents less seasonal in their breeding. Large groups have very intense rutting while herds are at their most concentrated. Young are born after an 8-month gestation. The sandy-fawn calf lies up for a few days before joining its mother. Young often gather spontaneously and females may form a defensive ring around them.



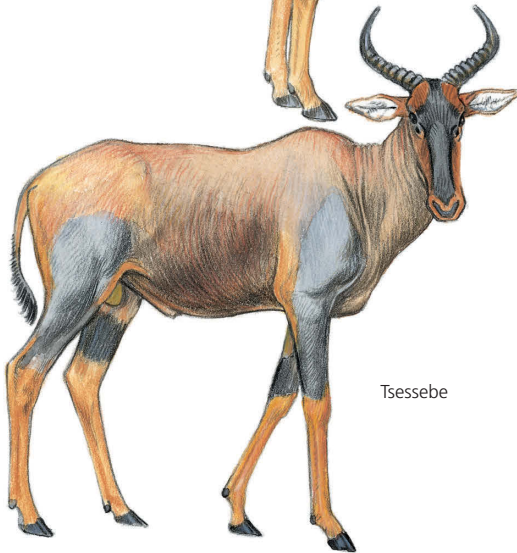
Blesbock



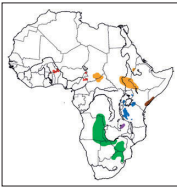
Bontebok



Topi



Tsessebe



- A. b. major*
- A. b. lelwel*
- A. b. swaynei*
- A. b. tora*
- A. b. cokii*
- A. b. lichtensteinii*
- A. b. caama*
- A. b. cokii* +
- A. b. lelwel*

HARTEBEEST *Alcelaphus buselaphus* (incl. *lichtensteinii*)

SIZE HB 160–215cm. T 30–70cm. H 107–150cm. W 116–185kg (female), 125–218kg (male). **DESCRIPTION** A large, high-shouldered, deep-chested antelope with long legs, a short neck and a very long, narrow face. The horns are carried on hollow bases, or ‘pedicels’, and show considerable variation (45–83cm) from individual to individual and from region to region. Coloration also shows considerable regional variation (red and black in the Kalahari, tan in E Africa, golden brown in W Africa) and also individual variation, especially in the Korkay from Ethiopia (*A. b. swaynei*) in which the overall body colour ranges from silvery purplish to red or dark brown and the blotches of black on shoulders and knees vary in shape and extent. The Hartbeest has preorbital and pedal (hoof) glands. Subspecies:

Korkay, *A. b. swaynei* (Ethiopia);

Kanki, *A. b. major* (W Africa);

Nkonzi, *A. b. lichtensteinii* (central and SE Africa);

Lelwel, *A. b. lelwel* (L. Chad to L. Turkana);

Khama, *A. b. caama* (Cape, Kalahari);

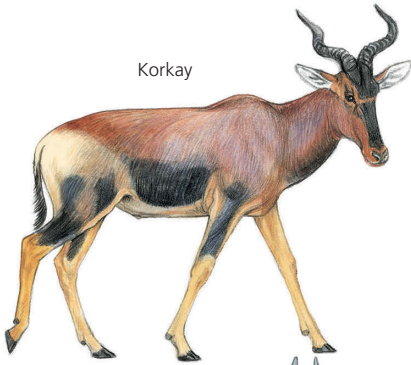
Kongoni, *A. b. cokii* (S Kenya and N Tanzania);

Tora, *A. b. tora* (E Sudan and N Ethiopia);

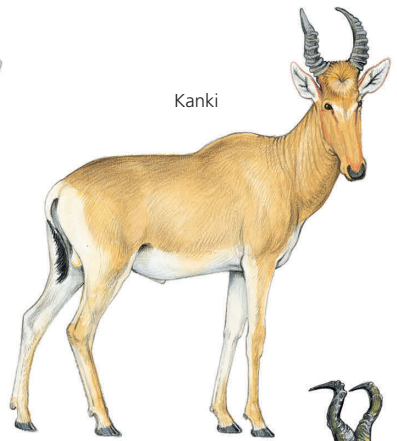
Bubal, *A. b. buselaphus* (N Africa), extinct 1925.

Note: The 8 subspecies listed here have been generally recognised since 1894. Among some 50 named forms are many collected from interzones between ranges of these populations. Most of these appear to be unstable hybrids rather than graduated intermediate forms, suggesting that former isolation has broken down as two forms, the Lelwel and Nkonzi, expanded their ranges.

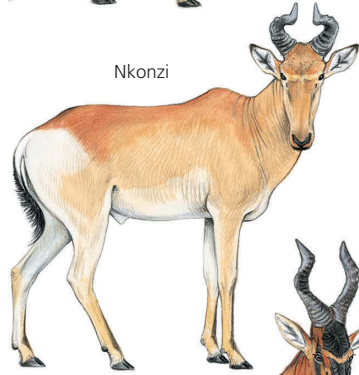
HABITAT Formerly distributed in all African grasslands and savannas (except for a very narrow strip between the R. Juba and R. Tana and the African Highveld). Although regional differences are substantial, Hartbeests are consistent everywhere in being grazers that live on boundaries between open grassy plains or glades and parkland, woodland or scrub (often on shallow slopes). They go to water regularly (but territorial males go without for quite long periods). They move down drainage lines for grass and water in the dry season and up onto better drained, thinly grassed woodlands during the rains. **FOOD** Grazers, selective of neither species nor component parts of the grass. However, certain species are avoided, notably *Cynodon*, a grass that is readily grazed by other herbivores. **BEHAVIOUR** Female Hartbeests are gregarious and to variable degrees move up and down shallow grassy valleys in pursuit of the best grass. Males become dispersed along the margins of each drainage line and establish dung-marked territories that embrace all the vegetation types from top to bottom of the slope. Where there is pressure from neighbours, territories may get narrowed but nearly always from the sides and not from above or below. Males waylay female groups as they pass through their territories. In some areas breeding is compressed into a short period during the rains and most males only become territorial at this time. In other areas some breeding continues throughout the year and territories are held more or less continuously. Males mark their territories with dung and posture with the head held upright and the legs placed well back. This is a gesture that suggests ritualised defaecation and may serve to deter neighbouring males and attract passing females. Males fight most intensely in the presence of oestrous females and are especially aggressive towards attendant male offspring. At high densities males are sometimes killed in fights. Females defend their young vigorously and also form temporary all-female hierarchies in which threatening gestures with horns are noticeable. Single young born after 8-month gestation and growth rates strongly influenced by nutrition. Sexual maturity reached in 1 year in some and not until the 4th year in others. Animals live for up to 19 years. Populations crash to very low levels during droughts, disease epidemics or under sustained competitive pressure from cattle. However, they recover quite rapidly when conditions improve. This capacity to build up their numbers is fuelled by subsistence on a normally super-abundant resource. Apart from being easy to hunt, this antelope declines wherever there is competition from intensive cattle-keeping.



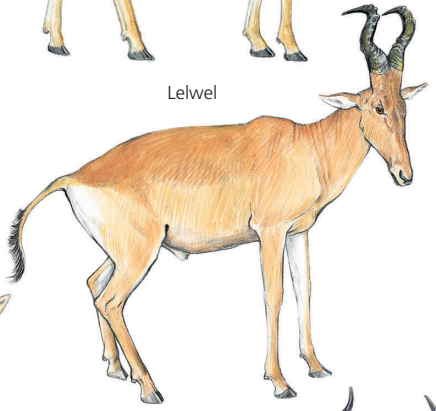
Korkay



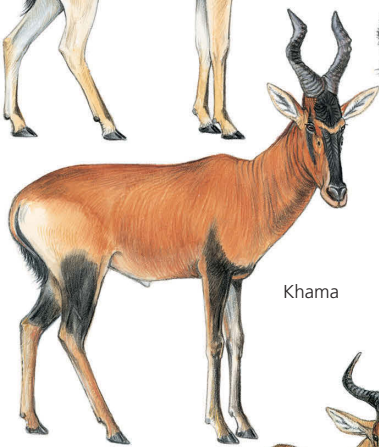
Kanki



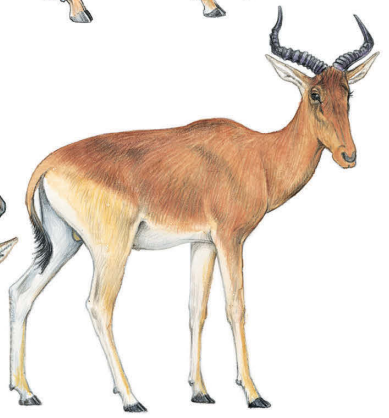
Nkonzi



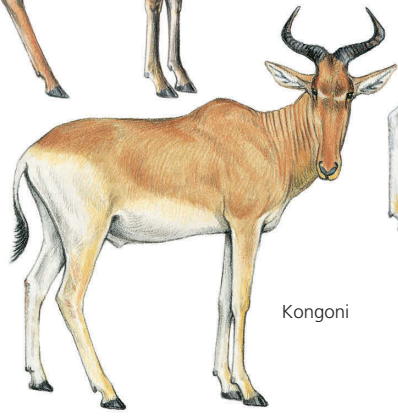
Lelwel



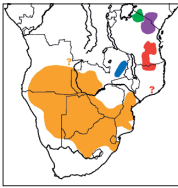
Khama



Tora



Kongoni



- C. t. taurinus*
- C. t. cooksoni*
- C. t. johnstoni*
- C. t. albojubatus*
- C. t. mearnsi*

BRINDLED GNU (COMMON WILDEBEEST) *Connochaetes taurinus*

SIZE HB 170–240cm. T 60–100cm. SH 115–145cm. W 140–260kg (female), 165–290kg (male). **DESCRIPTION** Dumpy, thick-necked, long-faced. Horns flare out sideways and then upwards. Flat, rather square nasal plate (with hair-lined, flap-edged nostrils) is bounded by an even broader, grass-nibbling mouth. Muzzle is black in all subspecies, as is the shaggy mane and tail. Body colour of subspecies varies from dark grey-brown to slate blue to pale greyish fawn, with variable degrees of brindling. Neck and chin are bearded in long, black, brown, cream or white hair. Legs short, brown or ochre, with pedal glands between the large true hooves (there are prominent false lateral hooves). Subspecies:

Brindled Gnu or Blue Wildebeest, *C. t. taurinus* (south of the R. Zambezi, Kalahari); **Cookson's Wildebeest/Gnu**, *C. t. cooksoni* (Luangwa valley); **Johnston's or White-banded Wildebeest**, or **Nyassa Gnu**, *C. t. johnstoni* (SE Africa); **Eastern White-bearded Wildebeest/Gnu**, *C. t. albojubatus*

(S Kenya, NE Tanzania, east of the Rift Valley); **Western White-bearded Wildebeest/Gnu**, *C. t. mearnsi* (N Tanzania and S Kenya, west of L. Natron and L. Manyara).

HABITAT Short grasslands (maintained by fire, shade, rainfall, water table, drainage, soil chemistry, herbivore grazing and trampling) always within about 20km of permanent water. Migration permits gnu to rotate pastures where these requirements are seasonal. **FOOD** A wide variety of nutritious grasses that form short swards. At times may be forced to strip leaves from tall stems. Unable to graze persistent rank growth. **BEHAVIOUR** Social grazers that congregate in response to the local distribution of short grass pastures and water. Where these are adequate throughout the year, females and their young can remain permanently on home ranges of a few ha. Where their food and water dry out, resident gnus tend to move on to more extensive seasonal pastures. Here they join other gnus, soon losing their local identities in the amalgam of herds. These seasonal aggregations are sometimes quite temporary. Permanent large herds are more continuously nomadic, with females joining up to lead mass movement from one major pasture to another. Males tend to win 'territories' that are simply marked out by their own behaviour. They 'broadcast' sound, scent and eye-catching visual displays in the form of belching grunts and snorts, flurries of scent (transferred from the face to everywhere they can reach) and frantic leaping, cavorting and head-shaking.



WHITE-TAILED GNU (BLACK WILDEBEEST) *Connochaetes gnou*

SIZE HB 170–220cm. T 80–100cm. SH 90–121cm. W 110–160kg (female), 140–180kg (male). **DESCRIPTION** A stocky, thick-coated antelope with heavily bossed horns that swing down, forward and upwards in tight angular hooks.

Muzzle long, very broad, flat-fronted and covered in dense black fur. Flapped nostrils set above wide rectangular mouth. Body colour dark brown, with black beard and chest tassels. Mane upright, hairs off-white with black tips. Tail long, flowing, white.

HABITAT Temperate grasslands and Karoo shrub lands where it migrates between summer pastures in the Karoo and eastwards to grasslands of the Highveld during the winter. These large-scale movements ceased when European settlement moved into the interior where, by the mid-19th century, this gnu had been brought close to extinction. Now extinct as a wild animal. **FOOD** Grazes but supplements grasses with succulents and shrubs, which permits grazing of the arid Karoo without regular water. More continuously active in cool weather but lies up for the heat of the day in summer. **BEHAVIOUR** Females wander in groups of up to 60 over home ranges of about 100ha. As they pass through male territories they are inspected and the male attempts to deter them from passing on into the territory of his neighbours. This herding is most intense during the period of female oestrus. Because most females only mate at the end of the hot wet summer (March–April) it would appear that mating used to coincide with a massed eastward shift towards the Highveld winter pastures. This species has evolved particularly dangerous horns and with them elaborate appeasement gestures (including prostration). Very vocal with a metallic snort, a 2-part 'ge-nu' and a very resonant, single 'hick' which is uttered with a violent spasm of the head and neck.



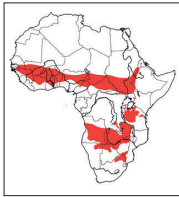
Brindled Gnu *male*



White-tailed Gnu

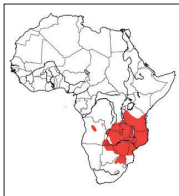
HORSE-LIKE ANTELOPES Hippotragini

Large, barrel-bodied antelopes with long, well-annulated horns, long ears and broad hooves. They have sleek coats, striped faces and thick necks with manes. All species are grazers.

**ROAN ANTELOPE** *Hippotragus equinus*

SIZE HB 190–240cm. T 37–48cm. H 126–145cm. W 223–280kg (female), 242–300kg (male). **DESCRIPTION** Tall, powerful, with thick neck, robust muzzle, long, droop-tipped ears, and massive, arched horns (50–100cm in males). Coat very coarse, becoming shaggy on the throat; hairs on the upright mane are dark tipped. Face pattern varies individually but also regionally (dark markings more extensive in north, light in south). Body colour also subject to both individual and regional variation (greyish in south, more tawny in north,

to reddish in moister parts of range). Two main populations: northern savannas: *H. e. koba* (Senegal to Nigeria), *H. e. bakeri* (Chad to Ethiopia); and southern savannas: *H. e. equinus* (S Africa), *H. e. langheldi* (E Africa), *H. e. cottoni* (central Africa). **HABITAT** Range from Sahelian steppe (but only within reach of water) and flat floodplains through various woodland and savanna types to montane and plateau grasslands up to 2,400m. Prefer localities in which there are few competitors and carnivores. In many areas have distinct wet- and dry-season ranges. **FOOD** Grazers of medium to short grasses belonging to dominant species, such as red oat grass (*Themeda*), thatch grass (*Hyparrhenia*) and couch grass (*Digitaria*). Occasionally browse shrubs or herbs and pick up *Acacia* pods in the dry season. They drink regularly. **BEHAVIOUR** Herds totalling 5–35 animals are made up of females and their young attended by a single adult male who excludes other males. Such groups circulate through a well-known and mainly exclusive home range but may converge temporarily on a pasture which is shared with other Roan while grazing.

**SABLE ANTELOPE** *Hippotragus niger*

SIZE HB 190–255cm. T 40–75cm. SH 117–143cm. W 190–230kg (female), 200–270kg (male). **DESCRIPTION** Large, strongly built antelope with thick neck, long, narrow muzzle, pointed ears, large, compact hooves and longish, tufted tail. Arched horns commonly exceed 1m in length and reach over 160cm in the Angolan Giant Sable. The upright mane reaches to behind the shoulders. Infants are dun-coloured and almost without markings. Juveniles and young adults are rich russet, the males maturing to black by 5 years.

Females of the southernmost population also turn black. In other populations females blacken more slowly and less completely. Subspecies:

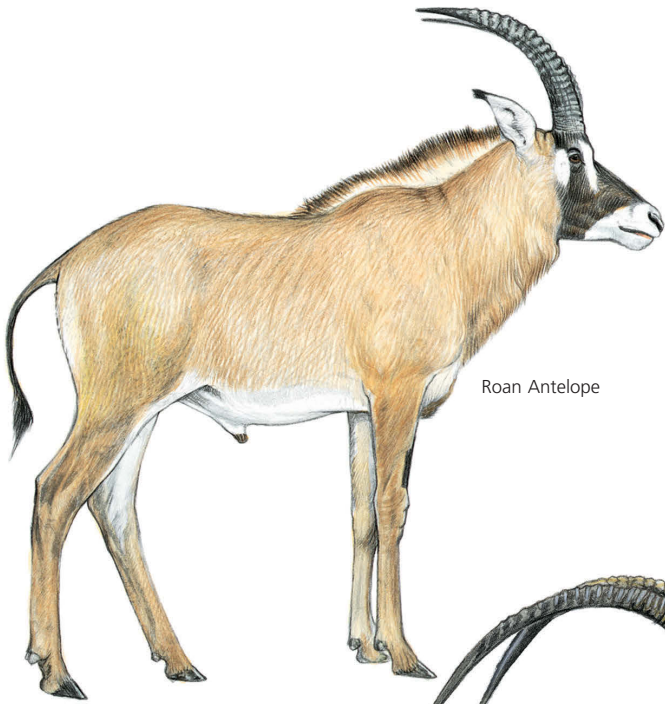
Southern or Black Sable, *H. n. niger* (south of the R. Zambezi);

Miombo or Common Sable, *H. n. kirkii* (R. Zambezi to W Tanzania);

Zanj Sable, *H. n. roosevelti* (East African littoral, north of R. Zambezi);

Giant Sable, *H. n. variani* (Angolan).

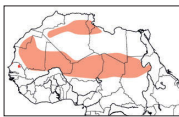
HABITAT Mostly but not wholly confined to Miombo (*Brachystegia*) woodland. They move out as these well-drained and seasonally burnt woodlands begin to dry out. They gather closer to permanent water, in valley-bottom grasslands, or mbugas, for the dry season. **FOOD** New grass growth or grasses of medium height belonging to locally dominant types are preferred. Well before the rains begin they leave the valley bottoms (like horses they avoid deep mud if they can) and greatly increase the normally small proportion of woody foliage in their diet. **BEHAVIOUR** Females form regional 'clans' of fewer than 100 animals which readily divide up into subgroups of unstable membership. Fission of subgroups may range from a few hours up to a month or more. Females from different clans are hostile to one another. Adult males sometimes follow these herds during their movements, but generally remain on established territories.



Roan Antelope



Sable Antelope

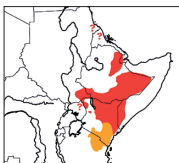


Former range

SCIMITAR-HORNED ORYX *Oryx dammah*

SIZE HB 190–220cm. T 45–60cm. SH 110–125cm. W 135–140kg. **DESCRIPTION** Rotund, with deep chest and relatively short, sturdy legs. Horns long, slender and arched (100–115cm), with many fine annulations. Vestiges of a structured pattern show up as pale apricot-brown tints on a predominantly white animal. Probably extinct in the wild. **HABITAT** Semi-desert grasslands

of the Sahel and their N Saharan equivalent. Woody plants growing in moisture-retaining troughs between dunes and outcroppings provided some cover and shade but it was flushes of grass that drew the nomadic oryxes back and forth across unknown distances. **FOOD** Mostly grasses, also herbs, shrubs and fruits. **BEHAVIOUR** Formerly seen in herds of 10 or more. Capable of aggregating and dispersing in response to ephemeral pastures. Reluctant to remain solitary.



O. b. beisa

O. b. callotis

BEISA ORYX *Oryx beisa*

SIZE HB 153–170cm. T 45–50cm. SH 110–120cm. W 116–188kg (female), 167–209kg (male). **DESCRIPTION** Compact and muscular, with thick neck, long face, long straight horns and distinctive ears. Brownish grey coat is demarcated from black and white facial, flank and foreleg patterns. Line of back-swept straight horns (60–110cm) continues right across the face in the form of a black stripe. Little difference between males and females. Subspecies:

Beisa Oryx, *O. b. beisa* (N of R Tana);

Fringe-eared Oryx, *O. b. callotis* (S of R Tana).

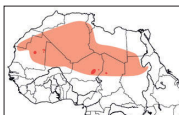
HABITAT Arid grasslands and bushland but avoids tall grass, also thick bush in dry season. **FOOD** Grasses, but will browse *Acacia* and other shrubs. During droughts dig out tubers and roots. Where water is available they drink regularly but can do without. **BEHAVIOUR** Mixed herds in which sexes sometimes equally balanced (usually more female). Both sexes establish hierarchies.



SOUTHERN ORYX (GEMSBOK) *Oryx gazella*

SIZE HB 180–195cm. T 40–47cm. SH 117–138cm. W 180–225kg (female), 180–240kg (male). **DESCRIPTION** Very thick-necked, with long, straight horns (60–120cm). White muzzle, face stripes, belly and 'stockings' contrast with black markings. Like other oryx, neck and shoulders are enveloped in thick skin. This gives adult bulls a rather 'jacketed' appearance. **HABITAT** Wooded grasslands and *Acacia* bush of central Kalahari and Karoo shrublands, entering wetter grasslands and bush along margins of main range. **FOOD** A

grazer but browses in absence of grass. **BEHAVIOUR** Although most female groups nomadic, many males remain in attendance. Old males become more sedentary.

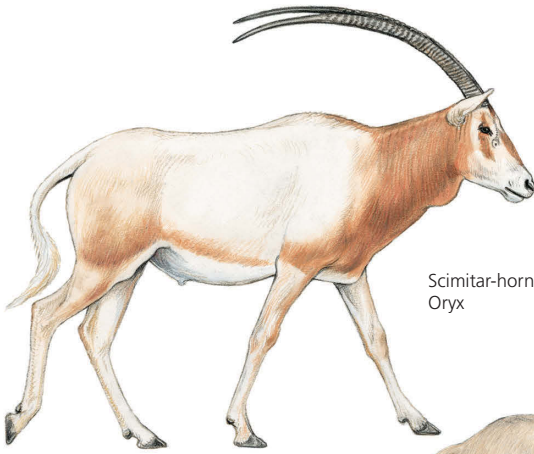


Former range

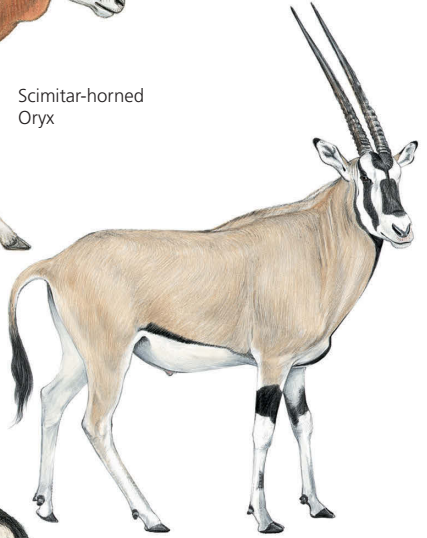
ADDAX *Addax nasomaculatus*

SIZE HB 120–175cm. T 27–35cm. SH 95–115cm. W 60–90kg (female), 100–135kg (male). **DESCRIPTION** Stocky, almost white, with long, annulated horns following loose spirals. Sexes differ very little. **HABITAT** Sand-dune deserts (erg). Now extinct except for small pockets in Niger and (possibly) Chad. **FOOD** Desert grasses, distinct seasonal preferences. **BEHAVIOUR** Formerly

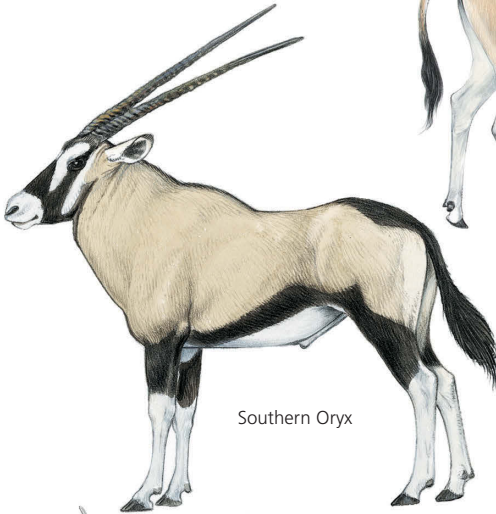
travelled in groups of 2–20, sometimes aggregating in larger groups, very occasionally in hordes of many hundreds.



Scimitar-horned
Oryx



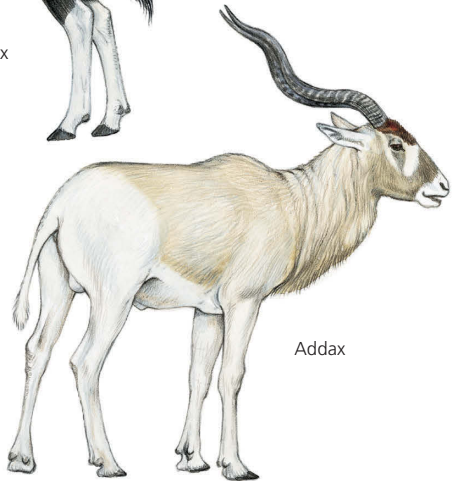
Beisa Oryx



Southern Oryx



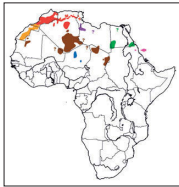
detail of
Addax



Addax

SHEEP AND GOATS Caprini

Medium-sized, thick-legged, compact antelopes with limbs and hooves modified for climbing and leaping over rough ground. Both sexes horned but males have larger ones.



- *A. l. lervia*
- *A. l. fassini*
- *A. l. ornata*
- *A. l. sahariensis*
- *A. l. angusi*
- *A. l. blainei*
- *A. l. lervial*
- *A. l. sahariensis*

BARBARY SHEEP (AOUAD, ARUI) *Ammotragus lervia*

SIZE HB 130–165cm. T 15–25cm. SH 75–90cm (female), 90–100cm (male). W 40–55kg (female), 100–140kg (male). **DESCRIPTION** Heavily built, thick, short-legged animal, intermediate between a sheep and goat. Outward-arching horns are slender and rounded in females, thick, ridged and much longer in males (which have twice the body weight of females). Face is long and tapered, ears small and white mouth parts contrast with pale tawny-brown coat colour. Fleece woolly in winter, with a harsh texture, but moults to a sleek summer coat. Both sexes have tufts of hair on the upper foreleg and a hanging fringe down the throat but those of males are denser and longer. 6 subspecies (see map). **HABITAT** Desert hills and mountains, stony plateaus (hammada) and the slopes of valleys (wadis) well away from mountains. Avoids sand deserts (ergs). **FOOD** Grass and herbs; also browses shrubs and trees and will get up onto hindlegs to reach foliage. Prefers to feed at dusk, dawn and during night. Will drink water but can go without. **BEHAVIOUR** Forms small family parties in which a single adult male attends several females

and their offspring. These tend to remain scattered but have been reported to gather into larger parties (up to 30 members) late in dry season (July). One or 2 young are born in a secluded site where mother and young lie up for a few days before rejoining their group.

**NUBIAN IBEX** *Capra nubiana*

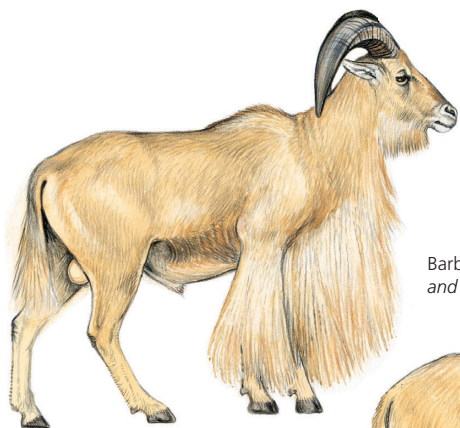
SIZE HB 92–160cm. T 6.5–17cm. SH 65–110cm (female), 0.75–1.1m (male). W 50–125kg. **DESCRIPTION** Ibexes have short muscular limbs, chunky rubbery hooves, long heavily reinforced horns, short ears, a chin beard and mane from nape to tail. Underside and inner limbs are white or cream, with white hock and knee patches. Coat is various shades of slaty brown. **HABITAT** Exists mainly as isolated populations in the Red Sea littoral hills of Egypt

and Sudan, from Suez to Massawa, on rocky mountains, gorges, outcrops and loose stony screes in areas with sparse cover. **FOOD** Leaves, buds, fruits, bark and flowers are eaten from a wide range of plants. Grass is also grazed. **BEHAVIOUR** Nubian Ibex live in ranges of a few km². Females normally have a loose association with other well-known females sharing the home-range. Males live independently until the rut (September–November), when dominant males seek to exclude other males from oestrous females.

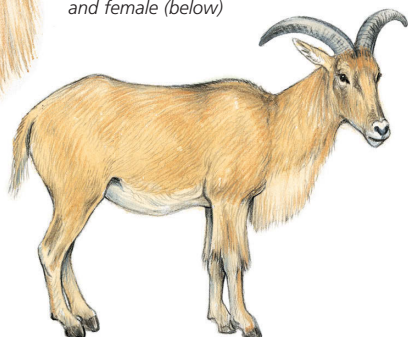
**WALIA IBEX** *Capra waliae*

SIZE HB 150–170cm. T 20–25cm. SH 90–110cm. W 80–125kg. **DESCRIPTION** Variable tints of russet on upper limbs and trunk, with dark grey or black on face, neck, dorsal midline, tail and on lower flanks, shoulder and hindquarters. Black and cream patterning of the legs is inconspicuous. Striping on the face is muted by overall darkening. Horns resemble those of the Nubian Ibex but tend to have fewer knobs on their forward surfaces.

HABITAT The Simien Mts of northern Gondar, NW Ethiopia. Mostly above the timberline in the Afro-alpine and ericaceous zones, between 3,000 and 4,500m. **FOOD** Similar to other goats, feeds on a variety of shrubs and herbs including *Lobelia* and *Erica* species. **BEHAVIOUR** Similar to Nubian Ibex, but lived in a richer habitat before being displaced by livestock. Non-territorial. Groups tend to segregate by sex, but mix during the rut (March–May).



Barbary Sheep male (left)
and female (below)



Nubian Ibex

Walia ibex



FURTHER READING

Information on mammals is mostly published in scientific papers. Our sister publication, *Mammals of Africa*, has extensive bibliographies of such papers, as well as comprehensive references for all species.

GENERAL ACCOUNTS AND LISTS OF MAMMALS

- Grzimek, B. (ed.) (1972) *Animal Life Encyclopaedia*, Vol. 13, *Mammals*. New York: Von Nostrand Reinhold.
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- Wilson, D. E. & Reeder, D. M. (2005) *Mammal Species of the World*. 3rd edn. Washington: Smithsonian Institution Press.

BOOKS ON AFRICAN MAMMALS

- Allen, G.M. (1939) *A Checklist of African Mammals*. Boston: Museum of Comparative Zoology, Harvard.
- Dorst, J. & Dandelot, P. (1970) *A Field Guide to the Larger Mammals of Africa*. London: Collins.
- Estes, R. D. & Otte, D. (1990) *The Behavior Guide to African Mammals*. Berkeley: University of California Press.
- Haltenorth, T. & Diller, H. (1980) *A Field Guide to the Mammals of Africa*. London: Collins.
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- Selous, F. C. (1899) *Great and Small Game of Africa*. London: Rowland Ward.
- Stuart, C. & Stuart, T. (1997) *Field Guide to the Larger Mammals of Africa*. London: New Holland.

There are many important monographs on individual species, families and orders. Books on evolution that are relevant to an understanding of the importance of mammals (especially African mammals) to humanity and the future of humanity include Charles Darwin's *Origin of Species*; Richard Dawkins's *The Ancestors' Tale*, *The Blind Watchmaker* and *The Magic of Reality*; Matt Cartmill & Fred Smith's *The Human Lineage*; Steven Jones's *The Language of the Genes*; Jonathan Kingdon's *Lowly Origin* and *Self-Made Man*; Richard Leakey & Roger Lewin's *Origins Reconsidered*; Christopher Stringer's *African Exodus*; and Edward Wilson's *The Diversity of Life*.

GLOSSARY

Adult A physically and reproductively mature individual.

Afrotheria Ancient radiation of uniquely African mammals that evolved during Africa's continental isolation (100–50MYA). The Aardvark, elephants, sea-cows, hyraxes, sengis, otter-shrews and golden-moles all share the genetic markers for Afrotheria.

Agouti Grizzled appearance of the coat resulting from alternating light and dark banding of individual hairs.

Allopatry Condition in which populations of different species are geographically separated.

Amphibious Able to live on both land and water.

Anal gland or sac A gland opening either just inside the anus or on either side of it.

Apocrine glands Cutaneous scent glands which produce complex and chemically variable secretions.

Aquatic Applied to animals that live in fresh water. All aquatic mammals move readily on land.

Arboreal Referring to animals that live in trees.

Arthropod The largest phylum in the animal kingdom, including insects, spiders, crabs etc.

Artiodactyl A member of the order Artiodactyla, the even-toed ungulates.

Biome A major type of ecological community such as savanna or desert.

Biotic community A naturally occurring group of plants and animals in the same environment.

Bipedal Two-footed stance or locomotion of four-footed animals.

Bovid. A member of the cow-like artiodactyl family, Bovidae.

Brachydont. Low crowned molars of browsers.

Brindled Having dark streaks or flecks on a grey or tawny background.

Browser A herbivore which feeds on shoots and leaves of trees, shrubs and forbs.

Bullae (auditory) Globular, bony capsules housing the middle and inner ear structures. Built onto the underside of the skull.

Callosities Patches of thickened skin and tissue (as on the hind quarters of monkeys or knees of some ungulates).

Canine teeth The usually long pointed teeth, one in each quarter of the jaws that are used by animal-eating mammals for killing their prey.

Carnassial teeth In carnivores, the fourth upper premolar and first lower molar are specialized for shearing meat and sinew.

Carnivore Any meat-eating organism but also a member of the mammal order Carnivora.

Caudal gland An enlarged skin gland associated with the root of the tail. (Subcaudal: below the root; supracaudal: above the root.)

Cecum A blind sac situated at the junction of the small and large intestine, in which digestion of cellulose by bacteria occurs.

Cellulose Main constituent of the cell walls of plants. Very tough and fibrous, and can be digested only by the intestinal flora in mammalian guts.

Cervid A member of the deer family (Cervidae), of the Artiodactyla.

Chablis A tree-fall opening in the forest.

Cheek pouches A pair of deep pouches extending from the cheeks into the neck skin, present in non-colobid monkeys and some rodents and used for the temporary storage of food.

Cheek teeth The row of premolars and molars used for chewing food.

Class A taxonomic category – the mammals, Mammalia, are a class.

Colonial Living together in colonies. Notably bats and rodents.

Concentrate selector A herbivore which feeds on those plant parts such as shoots and fruits which are rich in nutrients.

Conspecific A member of the same species.

Convergence The evolution of similarities between unrelated species occupying similar ecological niches.

Crepuscular Active in twilight.

Crustaceans Members of a class within the phylum Arthropoda typified by crayfish, crabs and shrimps.

Cryptic Concealing, inconspicuous. Usually referring to colouration and markings.

Cud Partially digested vegetation that a ruminant regurgitates, chews, insalivates and swallows again.

Cursorial Being adapted for running.

Cusp A prominence on a cheek-tooth (premolars or molar).

Dental formula A convention for summarizing the dental arrangement whereby the numbers of each type of tooth in each half of the upper and lower jaw are given; the numbers are always presented in the order: incisor (I), canine (C), premolar (P), molar (M). The final figure is the total number of teeth to be found in the skull. A typical example for Carnivora would be 3/3. 1/1. 4/4. 3/3 = 44.

Dentition The arrangement of teeth characteristic of particular species.

Dicot Short for dicotyledon.

Dicotyledon A plant with two seed leaves; the subclass of angiosperms containing most higher plants.

Digit Latin for finger or toe.

Digitigrade Animals that walk on their digits rather than the whole foot.

Dimorphism Two forms, typically the morphological differences between males and females (sexual dimorphism).

Dispersal The movements of animals, often as they reach maturity, away from their previous home range (equivalent to emigration).

Display Any relatively conspicuous pattern of behaviour that conveys specific information to others, usually to members of the same species: can involve visual and or vocal elements, as in threat, courtship or 'greeting' displays. A behaviour pattern that has been modified (ritualized) by evolution to transmit information by a sender to a receiver.

Diurnal Referring to species that are primarily day-active.

Dorsal The back or upper surface (opposite of ventral).

Dung midden Pile of droppings that accumulate through regular deposits, typically in connection with scent-marking (see also latrine).

Ecological niche The particular combination of adaptations that fits each species to a place different from that filled by any other species within a community of organisms.

Ecology The scientific study of the interaction of organisms with their environment including both the physical environment and the other organisms that share it.

Ecosystem A community of organisms together with the physical environment in which they live.

Emigration Departure of animal(s) usually at or about the time of reaching adulthood, from the group or place of birth. Also of biogeographic exchange between continents or regions.

Endemic Native plants and animals.

Eocene Geological epoch 54–38 million years ago.

Epidermis The outer layer of the skin or surface tissue of a plant.

Equatorial Geographical region bordering the equator.

False hooves Vestigial nails (digits 2 and 5) which persist in many ruminants as paired hooves or bumps on the fetlock.

Family A taxonomic division subordinate to an order and superior to a genus.

Feral Living in the wild (of domesticated animals, e.g. cat, dog).

Fetlock Joint above the hooves.

Folivore An animal whose diet consists mostly of leaves and other foliage.

Forbs Herbs other than grass which are abundant in grassland, especially during the rains.

Fossorial Adapted for digging.

Frugivore An animal that feeds mainly on fruit.

Gallery forest Trees and other vegetation lining watercourses, thereby extending forested habitat into more open zones.

Generalist An animal that is not highly specialized. For example, feeding on a variety of foods which require various foraging techniques.

Genotype The genetic constitution of an organism, determining all aspects of its appearance, structure and function.

Genus (plural Genera) A taxonomic division superior to species and subordinate to family.

Gestation The period of development between conception and birth.

Glands Specialized glandular areas of the skin.

Grazer A herbivore which feeds upon grasses.

Guard hairs The outer coat that overlies the shorter, softer hairs of the underfur (underfur is sparse or absent in many tropical mammals, e.g. most ungulates and primates).

Gumivorous Feeding on gums (plant exudates).

Harem group A social group consisting of a single adult male, at least two adult females and immature animals.

Herbivore An animal whose diet consists of plant food.

Herd A social group, generally applied to gregarious ungulates.

Hindgut fermentation Process by which breakdown of cellulose occurs in the cecum and large intestine.

Hierarchy As applied to social groups, a usually linear rank order in which members dominate all those of lower rank and are dominated by all individuals of higher rank.

Home range The area occupied by an individual or group (usually determined by points where the individual or group is seen over a period of time and plotting the perimeter).

Hysodont High crowned characteristic of the molars of grazing mammals (opposite to brachyodont).

Hybrid The offspring of parents of different species.

Inguinal Pertaining to the groin.

Insectivore An animal eating mainly arthropods (insects, spiders).

Interdigital Between the digits; e.g. the interdigital (hoof) glands of many antelopes.

Intestinal flora Simple plants (e.g. bacteria) which live in the intestines of mammals. They produce enzymes which break down the cellulose in the leaves and stems of green plants and convert it to digestible sugars.

Invertebrate Animal which lacks backbone (e.g. insects, spiders, crustaceans).

Juvenile Stage between infant and adult.

Karoo Arid part of the interior plateau in temperate southern Africa. Dominated by dwarf shrubs and adjoined by Highveld grassland.

Keratin Tough fibrous substance of which horns, claws, hooves and nails are composed.

Lactation The secretion of milk from mammary glands.

Larynx Dilated region of upper part of windpipe, containing vocal chords. Vibration of chords produces vocal sounds.

Latrine A place where animals regularly deposit their excrement.

Liana, liane A vine climbing woody plants; major constituents of rain forest.

Mandible The lower jaw.

Maquis Dense secondary scrub dominated by heathers and strawberry trees (Mediterranean).

Masseter A powerful muscle, subdivided into parts, joining the lower and upper jaws, used to bring jaws together when chewing.

Melanism Darkness of colour due to presence of the black pigment melanin.

Metabolism The chemical processes occurring within an organism, including the production of protein from amino acids, the exchange of gases in respiration and liberation of energy.

Microhabitat The particular parts of the habitat that are encountered by an individual in the course of its activities.

Midden A dunghill or latrine for the regular deposition of faeces by mammals.

Migration Movement, usually seasonal, from one region or climate to another for purposes of feeding or breeding.

Miocene A geological epoch 26–7 million years ago.

Montane Referring to African mountain habitats, including forest, grassland, bamboo zone, moorland etc.

Morphology Referring to an animal's form and structure.

Mucosa Mucous membrane; a membrane rich in mucous glands such as the lining of the mouth and nasal passageways.

Mutation A structural change in a gene which can thus give rise to a new heritable characteristic.

Natural selection Process whereby the fittest genotypes in a population survive to reproduce; a determinant principle in evolution.

Niche The role of a species within the community, defined in terms of all aspects of its life history from food, competitors and predators to all its resource requirements.

Nocturnal Active at night-time.

Nomadic The wandering habit. Among mammals, species that have no clearly defined residence most of the time; distinct from migratory species, which may be resident except when migrating.

Nose leaf Characteristically shaped flaps of skin surrounding the nasal passages of nose-leaf bats. Ultrasonic cries are uttered through the nostrils, with the nose leaves serving to direct the echo-locating pulses forward.

Occipital Pertaining to the occiput at back of head.

Oestrogen Hormone produced by ovaries and responsible for expression of many female characteristics.

Oestrus Behaviour associated with ovulation, being in most mammals the only time when females are sexually receptive ('in heat').

Olfaction, olfactory The olfactory sense is the sense of smell, depending on receptors located in the epithelium, or membrane lining the nasal cavity.

Oligocene A geological epoch 38–26 million years ago.

Omnivorous A mixed diet including both animal and vegetable food.

Opportunistic Referring to animals which capitalize on opportunities to gain food with the least expenditure of energy.

Order A taxonomic division subordinate to class and superior to family.

Ovulation The process of shedding mature ova (eggs) from the ovaries where they are produced.

Paleocene Geological epoch.

Parturition The process of giving birth.

Perineal glands Glandular tissue occurring between the anus and genitalia.

Perissodactyl Odd-toed ungulate.

Pheromone Secretions whose odours act as chemical messengers in animal communication.

Phylogenetic (Of classification or relationship) based on the closeness of evolutionary descent.

Phylogeny A classification or relationship based on the closeness of evolutionary descent. Often portrayed graphically by a branching tree.

Phylum A taxonomic division comprising a number of classes.

Physiology Study of the processes which go on in living organisms.

Pinna The projecting cartilaginous portion of the external ear (especially in bats).

Placenta Structure that connects the foetus and the mother's womb to ensure a supply of nutrients to the foetus and removal of its waste products.

Pleistocene Geological epoch 2–0.01 million years ago.

Pliocene Geological epoch 7–2 million years ago.

Polymorphism Occurrence of more than one morphological form of individual in a population.

Population Members of the same species that are within an area at the same time.

Post-partum oestrus Renewed ovulation and mating within days or weeks after giving birth.

Predation The killing and eating of living animal prey.

Predator Any animal that subsists mainly by eating live animals, usually vertebrates.

Preorbital In front of the eye (where a gland occurs in many ungulates).

Presenting The act of directing the hind-quarters toward another individual, either in a sexual context or as a gesture of appeasement derived from sexual presenting.

Protein A complex organic compound made of amino acids. Many different kinds of proteins are present in the muscles and tissues of all mammals.

Proximal Near to the point of attachment or origin.

Quadrupedal Walking on all fours.

Race A subspecies.

Radiation Speciation by a group of related organisms in the process of adapting to different ecological roles.

Rain forest Tropical and subtropical forest with abundant and year-round rainfall. Typically species rich and diverse.

Range (Geographical) area over which an organism is distributed.

Rank order A hierarchical arrangement of the individuals in a group.

Relict A persistent remnant population.

Resident Living within a definite, limited home range, as opposed to being migratory or nomadic.

Reticulum Second chamber of the ruminant artiodactyl stomach.

Rinderpest A lethal artiodactyl disease.

Ritualization Evolutionary modification of a behaviour pattern into a display or other signal, through selection for improved communication.

Ritualized Referring to behaviour that has been transformed through the process of ritualization.

Rodent A member of the order Rodentia, the largest mammalian order, which includes rats and mice, squirrels, anomalures and porcupines.

Rumen First chamber of the ruminant artiodactyl stomach. In the rumen the food is liquefied, kneaded by muscular walls and subjected to fermentation by bacteria.

Ruminant A mammal with a specialized digestive system typified by the behaviour of chewing the cud. Their stomach is modified so that vegetation is stored, regurgitated for further maceration, then broken down by symbiotic bacteria. The process of rumination is an adaptation to digesting the cellulose walls of plant cells.

Rut Period of concentrated sexual activity, the mating season.

Savanna Vegetation characteristic of tropical regions with extended wet and dry seasons. Dominated by grasses and scattered (predominantly leguminous) trees. The trees vary in type and density from broad-leaved, deciduous woodland in the wetter savanna to grassland with scattered thorn trees and acacia bush grading into subdesert.

Scent gland Area of skin packed with specialized cells that secrete complex chemical compounds which communicate.

Sebaceous glands The commonest type of cutaneous scent glands, consisting of localized concentrations of flask-shaped follicles that produce volatile fatty acids manufactured by symbiotic bacteria.

Sedentary Pertaining to mammals which occupy relatively small home ranges.

Selection Any feature of the environment that results in natural selection, through differential survival and reproductive success of individuals of differing genetic types.

Sexual dimorphism A condition in which males and females of a species differ consistently in form, size and shape.

Sexual selection Selection of genotypes through competition between members of the same sex (usually males) and mating preferences by members of the opposite sex (usually female).

Sinus A cavity in bone or tissue.

Solitary Unsocial, referring to animals that do not live in social groups.

Speciation The process by which new species arise in evolution. Typically occurs when a single species population is divided by some geographical barrier.

Species Population(s) of closely related and similar organisms which are capable of interbreeding freely with one another, and cannot or normally do not interbreed with members of other species.

Species-specific Characters that serve to distinguish a species such as its shape, markings or habits.

Spoor Footprints.

Subadult No longer an infant or juvenile but not yet fully adult physically and/or socially.

Subdesert Regions that receive less rainfall than arid zones, but more than true desert.

Subspecies Population(s) that has been isolated from other populations of the same species long enough to develop genetic differences sufficiently distinctive to be considered a separate race.

Superspecies A grouping of closely related species.

Swidden Rotational agriculture in rain forest.

Symbiotic A mutually dependent relationship between unrelated organisms that are intimately associated, e.g. the symbiosis between a ruminant and the microorganisms that live in its rumen.

Sympatric Overlapping geographic distribution; applies to related species that coexist without interbreeding (reverse of allopatric).

Systematics The classification of organisms in an ordered system based on their supposed or known natural relationships.

Tarsal Pertaining to the tarsus bones in the ankle, articulating between the tibia and fibia of the leg and the metatarsals of the foot (pes).

Termitary Termite-hill.

Terrestrial Living on land.

Territoriality. A system of spacing wherein home ranges do not overlap randomly – that is, the location of one individual's or group's home range influences those of others.

Territory An area defended from intruders by an individual or group.

Testosterone A male hormone normally synthesised in the testes and responsible for the expression of many male characteristics.

Thermoregulation The regulation and maintenance of a constant internal body temperature in mammals.

Thoracic Pertaining to the thorax or chest.

Tooth-comb A dental modification in which the incisor teeth form a comb-like structure.

Tropical The climate, flora and fauna of the geographic region between 23½ degrees N and S of the equator. The latitudes reached by the sun at its maximum declination known respectively as the Tropics of Cancer and Capricorn.

Tsetse fly Two-winged blood-sucking fly, which transmits 'sleeping sickness' (trypanosomiasis) to man and domestic livestock. The flies' presence in the woodlands of Africa south of the Sahara slowed the pace of settlements and thereby preserved habitats for wild animals which have a natural immunity to tsetse-borne diseases.

Undercoat The soft insulating underfur beneath the longer, coarser guard hairs of the outer coat.

Ungulate A member of the orders Artiodactyla (even-toed ungulates), Perissodactyla (odd-toed ungulates), Proboscidea (elephants), Hyracoidea (hyraxes), and Tubulidentata (aardvark), all of which have their feet modified as hooves of various types.

Ventral The underside, lower surface of an animal, opposite to dorsal.

Vertebrate An animal with a spinal column and skeleton of bone, including amphibians, reptiles, birds and mammals.

Vestigial A characteristic with little or no contemporary use, but derived from one which was useful and well developed in an ancestral form.

Vibrissae Stiff, coarse hairs richly supplied with nerves, found especially around the snout and with a sensory (tactile) function.

Vocalization Calls or sounds produced by the vocal chords of a mammal, and uttered through the mouth. Vocalizations differ with the age and sex of mammals but are usually similar within a species.

Yearling A young animal between one and two years of age (referring to species that take at least two years to mature).

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