**Mountain Forest**

What is a mountain forest?

Mountain forests make up a third of all natural forest cover worldwide. They're found on all continents with the exception of the Antarctic. They grow beyond an altitude of 500 meters. That location means mountain forests consist of trees that aren't found in lower-lying areas. The trees have adapted to the cool climate, heavy downpours and intense sunshine. In low-lying areas, they're squeezed out by different tree species.

What purpose do mountain forests serve?

The most important function is in storing water and preventing erosion. Mountain forests also play an important role in the regional climate. They can absorb rainwater like a sponge. Tropical mountain forests in particular give back the collected heavy downpours in the form of water sources, streams and rivers in the surroundings, thus ensuring a uniform distribution of water throughout the year and protecting the ground from erosion. At the same time, the forests have a cooling effect and make for a balanced regional climate. Mountain forests are home to a unique collection of plant and animal species. They include very strongly specialized species that you don't find in low-lying areas. The craggy landscape and different temperature zones also lead to different animal and plant habitats. Some of these are very small. Thus you have islands of diverse plant and animal species.

How and where are mountain forests at risk today?

Mountain forests are threatened by climate change but also by human use. People increasingly use the forests to graze cattle, collect firewood as well as for tea and coffee plantations. Mountain forests are particularly endangered in eastern Africa - in Rwanda, Burundi, Kenya, Tanzania, Ethiopia, Malawi and Uganda, in Himalayan regions such as Nepal, India and Pakistan, in the Caucasus in Armenia, Georgia and Azerbaijan, and in Laos and Cambodia in Southeast Asia. Many mountain forests have been almost completely destroyed - for instance in Caribbean states, in the Philippines and in the Mediterranean.

What role do mountain forests play in the fight against climate change?

Like most forests, they store vast amounts of carbon dioxide. If the forests are destroyed, the greenhouse gas is released into the atmosphere and contributes to climate change.

Following species are available in our *model Mountain Forest* (made in 2012) as part of *Project Biodiversity Park*:

*Moose, Mountain Squirrel, Giant Panda, Red Fox, Okapi, Rattlesnake, Great Horned Owl, Snow Leopard and Siberian Tiger.*
Moose

**Binomial name**

*Alces alces*  
*(Linnaeus, 1758)*

The moose (North America) or Eurasian elk (Europe) (*Alces alces*) is the largest extant species in the deer family. Moose are distinguished by the palmate antlers of the males; other members of the family have antlers with a dendritic ("twig-like") configuration. Moose typically inhabit boreal and mixed deciduous forests of the Northern Hemisphere in temperate to subarctic climates. Moose used to have a much wider range but hunting and other human activities greatly reduced it over the years. Moose have been reintroduced to some of their former habitats. Currently, most moose are found in Canada, Alaska, Scandinavia and Russia. Their diet consists of both terrestrial and aquatic vegetation. The most common moose predators are wolves, bears, and humans. Unlike most other deer species, moose are solitary animals and do not form herds. Although generally slow-moving and sedentary, moose can become aggressive and move surprisingly quickly if angered or startled. Their mating season in the autumn can lead to spectacular fights between males competing for a female.

**Conservation status:** Least Concern (IUCN 3.1)

**Scientific classification**

- **Kingdom:** Animalia
- **Phylum:** Chordata
- **Class:** Mammalia
- **Order:** Artiodactyla
- **Family:** Cervidae
- **Subfamily:** Capreolinae
- **Genus:** Alces, Gray, 1821
- **Species:** A. alces
Mountain Squirrel

**Binomial name**

*Syntheosciurus brochus*

Bangs, 1902

Bangs's Mountain Squirrel (*Syntheosciurus brochus*) is a nearly unknown species of tree squirrel, that only lives in Costa Rica and Panama. It can be found in mountain rain forests at an altitude between 1,900 and 2,600 metres (6,200 and 8,500 ft), and lives mainly in the tree tops, but sometimes on the forest floor as well. One of its habitats is at the summit of the Poás Volcano in Costa Rica, in a Clusia forest that is almost inaccessible for humans. The squirrel's head and body measure 15 centimetres (5.9 in), with a 13 centimetres (5.1 in) tail. It has an olive brown back and an orange-red belly. Because of the shape of its skull and teeth, the species has been separated from the genus of typical tree squirrels, *Sciurus*, into its own (monotypical) genus *Syntheosciurus*. Until the 1980s, only four animals of this species were known. Since then, the species has been studied more in depth, especially by the zoologists Wells and Giacalone. It has been discovered that these mountain squirrels are sociable creatures. A pair of squirrels lives in a tree nest together with their young at a height of 6 to 12 metres (20–39 ft).

Conservation status: Near Threatened (IUCN 3.1)

**Scientific classification**

- **Kingdom**: Animalia
- **Phylum**: Chordata
- **Class**: Mammalia
- **Order**: Rodentia
- **Family**: Sciuridae
- **Tribe**: Sciurini
- **Genus**: Syntheosciurus, Bangs, 1902
- **Species**: S. brochus
Giant Panda

**Binomial name**

*Ailuropoda melanoleuca*

(David, 1869)

The panda (*Ailuropoda melanoleuca*, lit. "black and white cat-foot"), also known as the giant panda to distinguish it from the unrelated red panda, is a bear native to south central China. It is easily recognized by the large, distinctive black patches around its eyes, over the ears, and across its round body. Though it belongs to the order Carnivora, the panda's diet is 99% bamboo. Pandas in the wild will occasionally eat other grasses, wild tubers, or even meat in the form of birds, rodents or carrion. In captivity, they may receive honey, eggs, fish, yams, shrub leaves, oranges, or bananas along with specially prepared food. The giant panda lives in a few mountain ranges in central China, mainly in Sichuan province, but also in the Shaanxi and Gansu provinces. As a result of farming, deforestation and other development, the panda has been driven out of the lowland areas where it once lived. The panda is a conservation reliant endangered species. A 2007 report shows 239 pandas living in captivity inside China and another 27 outside the country. Wild population estimates vary; one estimate shows that there are about 1,590 individuals living in the wild, while a 2006 study via DNA analysis estimated that this figure could be as high as 2,000 to 3,000. Some reports also show that the number of pandas in the wild is on the rise. However, the IUCN does not believe there is enough certainty yet to reclassify the species from Endangered to Vulnerable.

**Scientific classification**

- **Kingdom**: Animalia
- **Phylum**: Chordata
- **Class**: Mammalia
- **Order**: Carnivora
- **Family**: Ursidae
- **Genus**: Ailuropoda
- **Species**: A. melanoleuca
Red Fox

**Binomial name**

*Vulpes vulpes*  
*(Linnaeus, 1758)*

The red fox (*Vulpes vulpes*) is the largest of the true foxes and the most geographically spread member of the Carnivora, being distributed across the entire Northern Hemisphere from the Arctic Circle to North Africa, Central America and Asia. Its range has increased alongside human expansion, having been introduced to Australia, where it is considered harmful to native mammal and bird populations. Because of these factors, it is listed as Least Concern for extinction by the IUCN. Due to its presence in Australia, it is included among the IUCN's list of the "world's 100 worst invasive species. Apart from its large size, the red fox is distinguished from other fox species by its ability to adapt quickly to new environments and, unlike most of its related species, is not listed as endangered anywhere. Forty-five subspecies are currently recognised, which are divided into two categories: the large northern foxes, and the small southern foxes of Asia and the Middle East. Red foxes are often together in pairs or small groups consisting of families, such as a mated pair and their young, or a male with several females having kinship ties. The young of the mated pair remain with their parents to assist in caring for new kits. The species primarily feeds on small rodents, though it may also target leporids, game birds, reptiles, invertebrates and young ungulates. Fruit and vegetable matter is also eaten on occasion. Although the red fox tends to displace or even kill smaller predators, it is nonetheless vulnerable to attack from larger predators, such as wolves, coyotes, golden jackals and medium- and large-sized felines. The species has a long history of association with humans, having been extensively hunted as a pest and furbearer for centuries, as well as being prominently represented in human folklore and mythology. Because of its widespread distribution and large population, the red fox is one of the most important furbearing animals harvested for the fur trade.

**Scientific classification**

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The okapi /oʊˈkaːpiː/, *Okapia johnstoni*, is a giraffid artiodactyl mammal native to the Ituri Rainforest, located in the northeast of the Democratic Republic of the Congo, in Central Africa. Although the okapi bears striped markings reminiscent of zebras, it is most closely related to the giraffe. The animal was brought to prominent European attention by speculation on its existence found in popular press reports covering Henry Morton Stanley's journeys in 1887. Remains of a carcass were later sent to London by the English adventurer and colonial administrator Harry Johnston and became a media event in 1901. Today, about 10,000–20,000 remain in the wild and as of 2011, 42 different institutions display them worldwide. Okapis prefer altitudes of 500 to 1,000 m, but may venture above 1,000 m in the eastern montane rainforests. Because of a considerable amount of rain in these forests, okapis have oily, velvety fur coats that repel the water. The okapi's range is limited by high montane forests to the east, swamps to the southeast, swamp forests below 500 m to the west, savannas of the Sahel/Sudan to the north, and open woodlands to the south. They are most commonly found in the Wamba and Epulu areas. Okapis are herbivores, feeding on tree leaves and buds, grasses, ferns, fruits and fungi. Many of the plant species okapis feed on are poisonous to humans. Examination of okapi feces has revealed they consume charcoal from trees burnt by lightning. Field observations indicate their mineral and salt requirements are filled primarily by a sulfurous, slightly salty, reddish clay found near rivers and streams.

**Scientific classification**

- **Kingdom**: Animalia
- **Phylum**: Chordata
- **Class**: Mammalia
- **Order**: Artiodactyla
- **Family**: Giraffidae
- **Genus**: Okapia
- **Species**: *O. johnstoni*
Rattlesnake

Rattlesnakes are a group of venomous snakes of the genera Crotalus and Sistrurus of the subfamily Crotalinae ("pit vipers"). There are 32 known species of rattlesnake, with between 65-70 subspecies, all native to the Americas, ranging from southern Alberta and southern British Columbia in Canada to Central Argentina. Rattlesnakes are predators that live in a wide array of habitats, hunting small animals such as birds and rodents. They kill their prey with a venomous bite, rather than by constricting. All rattlesnakes possess a set of fangs with which they inject large quantities of hemotoxic venom. Rattlesnakes are heavily preyed upon as neonates, while they are still weak and mentally immature. Very large numbers of rattlesnakes are killed by humans. Rattlesnake populations in many areas are severely threatened by habitat destruction, poaching, and extermination campaigns. Rattlesnake bites are the leading cause of snakebite injuries in North America. However, rattlesnakes rarely bite unless provoked or threatened; and if treated promptly, the bites are rarely fatal.

Rattlesnakes are native to the Americas, living in diverse habitats from Southwestern Canada to Central Argentina. The large majority of species live in the American Southwest and Mexico. Four species may be found east of the Mississippi river, and two in South America. In the United States, the states with the most types of rattlesnakes are Texas and Arizona. Rattlesnakes are found in almost every type of habitat that is capable of supporting terrestrial ectothermic vertebrates; but individual species can have extremely specific habitat requirements, only able to live within certain plant associations in a narrow range of altitudes. Most species live near open, rocky areas. Rocks offer them cover from predators, plentiful prey (e.g. rodents, lizards, insects, etc. that live amidst the rocks), and open basking areas. However, rattlesnakes can also be found in a wide variety of other habitats including prairies, marshes, deserts, and forests.[6] Rattlesnakes prefer a temperature range between 80 and 90°F (26-32°C), but can survive temperatures below freezing, recovering from brief exposure to temperatures as low as 4°F (-16°C), and surviving for several days in temperatures as low as 37°F (3°C).

Scientific classification
- **Kingdom**: Animalia
- **Phylum**: Chordata
- **Subphylum**: Vertebrata
- **Class**: Reptilia
- **Order**: Squamata
- **Suborder**: Serpentes
- **Family**: Viperidae
- **Subfamily**: Crotalinae
Great Horned Owl

**Binomial name**

*Bubo virginianus* *(Gmelin, 1788)*

The Great Horned Owl, *(Bubo virginianus)*, also known as the Tiger Owl, is a large owl native to the Americas. There is considerable variation in plumage coloration but not in body shape. This is a heavily built, barrel-shaped species that has a large head and broad wings. Adults have large ear tufts and it is the only very large owl in its range to have them. The facial disc is reddish, brown or gray in color and there is a variable sized white patch on the throat. The iris is yellow, except in the amber-eyed South American Great Horned Owl *(B. V. nacurutu)*. Its "horns" are neither ears nor horns, simply tufts of feathers. The underparts are usually light with some brown barring; the upper parts are generally mottled brown. Most subspecies are barred along the sides as well. The legs and feet are covered in feathers up to the talons, with some black skin peeking out from around the talons. The feet and talons are distinctly large and powerful and only other Bubo owls have comparably formidable feet. There are individual and regional variations in color; birds from the subarctic are a washed-out, light-buff color, while those from Central America can be a dark chocolate brown. The breeding habitat of the Great Horned Owl extends from subarctic North America throughout most of North and Central America and then down into South America south to Tierra del Fuego, the southern tip of the continent. It is absent from southern Guatemala, El Salvador and Nicaragua to Panama in Central, and Amazonia and the southwest in South America, as well as from the West Indies and most off-shore islands. They are the most widely distributed owl in the Americas. It is among the world's most adaptable owls in terms of habitat. The Great Horned Owl can take up residence in trees that include deciduous, coniferous, and mixed forests, tropical rainforests, pampas, prairie, mountainous areas, deserts, subarctic tundra, rocky coasts, mangrove swamp forests, and some urban areas.

**Scientific classification**

- **Kingdom**: Animalia  
- **Phylum**: Chordata  
- **Class**: Aves  
- **Order**: Strigiformes  
- **Family**: Strigidae  
- **Genus**: Bubo  
- **Species**: B. virginianus
Snow Leopard

**Binomial name**

*uncia*  
*S. uncial* (Schreber, 1775)

The snow leopard (Panthera uncial or *uncia*) is a moderately large cat native to the mountain ranges of Central Asia. Snow leopards occupy alpine and subalpine areas generally 3,350 to 6,700 metres (10,990 to 22,000 ft) above sea level in Central Asia. McCarthy and Chapron (2003) compiled national snow leopard population estimates, updating the work of Fox (1994). Many of the estimates are acknowledged to be rough and out of date, but the total estimated population is 4,150–7,350. However, the global snow leopard effective population size (those likely to reproduce) is suspected to be fewer than 2,500 (50% of the total population, or 2,040–3,295). Snow leopards are slightly smaller than the other big cats but, like them, exhibit a range of sizes, generally weighing between 27 and 55 kg (60 and 121 lb), with an occasional large male reaching 75 kg (165 lb) and small female of under 25 kg (55 lb). Snow leopards have long, thick fur, and their base colour varies from smoky gray to yellowish tan, with whitish underparts. They have dark grey to black open rosettes on their bodies, with small spots of the same color on their heads and larger spots on their legs and tails. Unusually among cats, their eyes are pale green or grey in colour. The snow leopard cannot roar. Snow leopard vocalizations include hisses, chuffing, mews, growls, and wailing.

**Scientific classification**

- **Kingdom**: Animalia  
- **Phylum**: Chordata  
- **Class**: Mammalia  
- **Order**: Carnivora  
- **Family**: Felidae  
- **Subfamily**: Pantherinae  
- **Genus**: *uncia* (disputed), Gray, 1854[2]  
- **Species**: *uncia*
Siberian Tiger

Trinomial name

*Panthera tigris altaica*

Temminck, 1884

The Siberian tiger (*Panthera tigris altaica*), also known as the Amur tiger, is a tiger subspecies inhabiting mainly the Sikhote Alin mountain region with a small subpopulation in southwest Primorye province in the Russian Far East. In 2005, there were 331–393 adult-subadult Amur tigers in this region, with a breeding adult population of about 250 individuals. The Siberian tiger is reddish-rusty or rusty-yellow in color, with narrow black transverse stripes. The body length is not less than 150 cm (60 in), condylobasal length of skull 250 mm (10 in), zygomatic width 180 mm (7 in), and length of upper carnassial tooth over 26 mm (1 in) long. It has an extended supple body standing on rather short legs with a fairly long tail. It is typically 5–10 cm (2–4 in) taller than the Bengal tiger, which is about 107–110 cm (42–43 in) tall.

Scientific classification

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Order : Carnivora
Family : Felidae
Subfamily : Pantherinae
Genus : Panthera
Species : P. tigris
Subspecies : P. tigris altaica


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