

= Red panda =

The red panda (*Ailurus fulgens*), also called the lesser panda, the red bear cat, and the red cat bear, is a mammal native to the eastern Himalayas and southwestern China. It has reddish brown fur, a long, shaggy tail, and a waddling gait due to its shorter front legs, and is slightly larger than a domestic cat. It is arboreal, feeds mainly on bamboo, but also eats eggs, birds, and insects. It is a solitary animal, mainly active from dusk to dawn, and is largely sedentary during the day.

The red panda has been classified as Endangered by the IUCN because its wild population is estimated at less than 10,000 mature individuals and continues to decline due to habitat loss and fragmentation, poaching, and inbreeding depression, although red pandas are protected by national laws in their range countries.

The red panda is the only living species of the genus *Ailurus* and the family *Ailuridae*. It has been previously placed in the raccoon and bear families, but the results of phylogenetic research provide strong support for its taxonomic classification in its own family *Ailuridae*, which along with the weasel, raccoon and skunk families is part of the superfamily *Musteloidea*. Two subspecies are recognized. It is not closely related to the giant panda.

= Physical characteristics =

The head and body length of a red panda measures 50 to 64 cm (20 to 25 in), and its tail is 28 to 59 cm (11 to 23 in). Males weigh 3 to 6 kg (8 to 13 lb) and females 3 to 6 kg (6 to 13 lb). They have long, soft, reddish brown fur on the upper parts, blackish fur on the lower parts, and a light face with tear markings and robust cranio dental features. The light face has white badges similar to those of a raccoon, but each individual can have distinctive markings. Their roundish heads have medium sized upright ears, black noses, and very dark eyes - almost pitch black. Their long bushy tails with six alternating yellowish red transverse ochre rings provide balance and excellent camouflage against their habitat of moss- and lichen covered trees. The legs are black and short with thick fur on the soles of the paws. This fur serves as thermal insulation on snow covered or icy surfaces and conceals scent glands which are also present on the anus.

The red panda is specialized as a bamboo feeder with strong, curved and sharp semi retractile claws standing inward for grasping narrow tree branches, leaves, and fruit. Like the giant panda, it has a false thumb which is an extension of the wrist bone. When descending a tree head first, the red panda rotates its ankle to control its descent, one of the few climbing species to do so.

= Distribution and habitat =

The red panda is endemic to the temperate forests of the Himalayas, and ranges from the foothills of western Nepal to China in the east. Its easternmost limit is the Qinling Mountains of the Shaanxi Province in China. Its range includes southern Tibet, Sikkim and Assam in India, Bhutan, the northern mountains of Burma, and in south western China, in the Hengduan Mountains of Sichuan and the Gongshan Mountains in Yunnan. It may also live in south west Tibet and northern Arunachal Pradesh, but this has not been documented. Locations with the highest density of red pandas include an area in the Himalayas that has been proposed as having been a refuge for a variety of endemic species in the Pleistocene. The distribution range of the red panda should be considered disjunct, rather than continuous. A disjunct population inhabits the Meghalaya Plateau of north eastern India.

During a survey in the 1970s, signs of red pandas were found in Nepal's Dhorpatan Hunting Reserve. Their presence was confirmed in spring 2007 when four red pandas were sighted at elevations ranging from 220 to 610 m (560 to 840 ft). The species' westernmost limit is in Rara National Park located farther west of the Dhorpatan Hunting

Reserve . Their presence was confirmed in 2008 .

The red panda lives between 2 @, @ 200 and 4 @, @ 800 m (7 @, @ 200 and 15 @, @ 700 ft) altitude , inhabiting areas of moderate temperature between 10 and 25 ° C (50 and 77 ° F) with little annual change . It prefers mountainous mixed deciduous and conifer forests , especially with old trees and dense understories of bamboo .

The red panda population in Sichuan Province is larger and more stable than the Yunnan population , suggesting a southward expansion from Sichuan into Yunnan in the Holocene .

The red panda has become extirpated from the Chinese provinces of Guizhou , Gansu , Shaanxi , and Qinghai .

= = = Distribution of subspecies = = =

Distribution of the red panda is disjointed , with two extant subspecies :

Western red panda *A. f. fulgens* (Cuvier , 1825) lives in the western part of its range , in Nepal , Assam , Sikkim , and Bhutan .

Styan 's red panda *A. f. styani* lives in the east @-@ north @-@ eastern part of its range , in southern China and northern Burma .

A. f. styani has been described by Thomas in 1902 based on one skull from a specimen collected in Sichuan . Pocock distinguished *A. f. styani* from *A. f. fulgens* by its longer winter coat and more abundant blackness in the pelage , bigger skull , more strongly curved forehead , and more robust teeth . His description is based on skulls and skins collected in Sichuan , Myitkyina close to the border of Yunnan , and Upper Burma .

The Styan 's red panda is supposedly larger and darker in color than the Western member of the species , but with considerable variation in both subspecies , and some individuals may be brown or yellowish brown rather than red .

The Brahmaputra River is often considered the natural division between the two subspecies , where it makes a curve around the eastern end of the Himalayas , although some authors suggest *A. f. fulgens* extends farther eastward , into China .

= = Biology and behavior = =

= = = Behavior = = =

The red panda is territorial ; it is solitary except during mating season . The species is generally quiet except for some twittering , tweeting , and whistling communication sounds . It has been reported to be both nocturnal and crepuscular , sleeping on tree branches or in tree hollows during the day and increasing its activity in the late afternoon and early evening hours . It sleeps stretched out on a branch with legs dangling when it is hot , and curled up with its tail over the face when it is cold . This panda is very heat sensitive , with an optimal ? well @-@ being ? temperature between 17 and 25 ° C (63 and 77 ° F) , and cannot tolerate temperatures over 25 ° C (77 ° F) .

Shortly after waking , red pandas clean their fur like a cat , licking their front paws and then rubbing their backs , torsos , and sides . They also rub their backs and bellies along the sides of trees or rocks . Then they patrol their territories , marking with urine and a weak musk @-@ smelling secretion from their anal glands . They search for food running along the ground or through the trees . Red pandas may alternately use their fore paws to bring food to their mouths or place food directly into their mouths .

Predators of the red panda include the snow leopard , martens (*Mustelidae*) , and humans . If they feel threatened or sense danger , they may try to escape by climbing a rock column or tree . If they can no longer flee , they stand on their hind legs to make themselves appear larger and use the sharp claws on their front paws to defend themselves . The red panda Futa became a visitor attraction in Japan for his ability to stand upright for ten seconds at a time .

== = Diet = = =

Red pandas are excellent climbers , and forage largely in trees . They eat mostly bamboo , and may eat small mammals , birds , eggs , flowers , and berries . In captivity , they were observed to eat birds , flowers , maple and mulberry leaves , and bark and fruits of maple , beech , and mulberry .

Like the giant panda , they cannot digest cellulose , so they must consume a large volume of bamboo to survive . Their diets consist of about two @-@ thirds bamboo , but they also eat mushrooms , roots , acorns , lichens , and grasses . Occasionally , they supplement their diets with fish and insects . They do little more than eat and sleep due to their low @-@ calorie diets .

Bamboo shoots are more easily digested than leaves , exhibiting the highest digestibility in summer and autumn , intermediate digestibility in the spring , and lowest digestibility in the winter . These variations correlate with the nutrient contents in the bamboo . Red pandas process bamboo poorly , especially the cellulose and cell wall components . This implies microbial digestion plays only a minor role in their digestive strategy . To survive on this poor @-@ quality diet , they have to eat the high @-@ quality sections of the bamboo plant , such as the tender leaves and shoots , in large quantities , over 1 @.@ 5 kg (3 @.@ 3 lb) of fresh leaves and 4 kg (8 @.@ 8 lb) of fresh shoots daily . This food passes through the digestive tract fairly rapidly (about 2 ? 4 hr) so as to maximize nutrient intake . Red pandas can taste artificial sweeteners , such as aspartame , the only nonprimates known to do so .

== = Reproduction = = =

Red pandas are able to reproduce around 18 months of age , and are fully mature at two to three years . Adults rarely interact in the wild except to mate . Both sexes may mate with more than one partner during the mating season from mid @-@ January to early March . A few days before birth , females begin to collect material , such as brushwood , grass , and leaves , to build a nest , which is normally located in a hollow tree or a rock crevice . After a gestation period of 112 to 158 days , the female gives birth in mid @-@ June to late July to one to four blind and deaf cubs weighing 110 to 130 g (3 @.@ 9 to 4 @.@ 6 oz) each .

After birth , the mother cleans the cubs and can then recognize each by its smell . At first , she spends 60 % to 90 % of her time with the cubs . After the first week , the mother starts spending more time outside the nest , returning every few hours to nurse and groom the cubs . She moves the young frequently among several nests , all of which she keeps clean . The cubs start to open their eyes at about 18 days of age . By about 90 days , they have achieved full adult fur and coloring , and begin to venture out of the nest . They also start eating solid foods at this point , weaning at around six to eight months of age . The cubs stay with their mother until the next litter is born in the following summer . Males rarely help raise the young , and only if they live in pairs or in small groups .

Their average lifespan is between eight and 10 years , but individuals have been known to reach 15 years .

== = Threats = = =

The primary threats to red pandas are direct harvest from the wild , live or dead , competition with domestic livestock resulting in habitat degradation , and deforestation resulting in habitat loss or fragmentation . The relative importance of these factors is different in each region , and is not well understood . For instance , in India , the biggest threat seems to be habitat loss followed by poaching , while in China , the biggest threat seems to be hunting and poaching . A 40 % decrease in red panda populations has been reported in China over the last 50 years , and populations in western Himalayan areas are considered to be lower .

Deforestation can inhibit the spread of red pandas and exacerbate the natural population subdivision by topography and ecology , leading to severe fragmentation of the remaining wild

population . Fewer than 40 animals in four separate groups share resources with humans in Nepal 's Langtang National Park , where only 6 % of 1 @, @ 710 km2 (660 sq mi) is preferred red panda habitat . Although direct competition for food with domestic livestock is not significant , livestock can depress bamboo growth by trampling .

Small groups of animals with little opportunity for exchange between them face the risk of inbreeding , decreased genetic diversity , and even extinction . In addition , clear @-@ cutting for firewood or agriculture , including hillside terracing , removes old trees that provide maternal dens and decreases the ability of some species of bamboo to regenerate .

In south @-@ west China , red pandas are hunted for their fur , especially for the highly valued bushy tails from which hats are produced . In these areas , the fur is often used for local cultural ceremonies . In weddings , the bridegroom traditionally carries the hide . The " good @-@ luck charm " red panda @-@ tail hats are also used by local newly @-@ weds . This practice may be quite old , as the red panda seems to be depicted in a 13th @-@ century Chinese pen @-@ and @-@ ink scroll showing a hunting scene . Little or no mention of the red panda is made in the culture and folklore of Nepal .

In the past , red pandas were captured and sold to zoos . Angela Glatston reported she had personally handled 350 red pandas in 17 years .

Due to CITES , this number has decreased substantially in recent years , but poaching continues , and red pandas are often sold to private collectors at exorbitant prices . In some parts of Nepal and India , red pandas are kept as pets .

The red panda has a naturally low birth rate (usually single or twin births per year) , and a high death rate in the wild .

= = Conservation = =

The red panda is listed in CITES Appendix I. The species has been classified as endangered in the IUCN Red List since 2008 because the global population is estimated at about 10 @, @ 000 individuals , with a decreasing population trend ; only about half of the total area of potential habitat of 142 @, @ 000 km2 (55 @, @ 000 sq mi) is actually being used by the species . Due to their shy and secretive nature , and their largely nocturnal habits , observation of red pandas is difficult . Therefore , population figures in the wild are determined by population density estimates and not direct counts .

Worldwide population estimates range from fewer than 2 @, @ 500 to between 16 @, @ 000 and 20 @, @ 000 individuals . In 1999 , the total population in China was estimated at between 3 @, @ 000 and 7 @, @ 000 individuals . In 2001 , the wild population in India was estimated at between 5 @, @ 000 and 6 @, @ 000 individuals . Estimates for Nepal indicate only a few hundred individuals . No records from Bhutan or Burma exist .

Reliable population numbers are hard to find , partly because other animals have been mistaken for the red panda . For instance , one report from Burma stated that red pandas were still fairly common in some areas , and was accompanied by a photograph of a " red panda " as proof . The photograph in question depicted a species of civet .

The red panda is protected in all range countries , and hunting is illegal . Beyond this , conservation efforts are highly variable between countries :

China has 35 protected areas covering about 42 @. @ 4 % of red panda habitat .

India has 20 protected areas with known or possible red panda populations in Sikkim , Arunachal Pradesh , and West Bengal such as Khangchendzonga National Park , Namdapha National Park , and Singalila National Park , and a coordinated conservation policy for the red panda .

In Nepal , known populations occur in Langtang National Park , Sagarmatha National Park , Makalu Barun National Park , Rara National Park , Annapurna Conservation Area , Kanchenjunga Conservation Area , and in Dhorpatan Hunting Reserve .

Bhutan has five protected areas that support red panda populations .

Burma has 26 protected areas , of which at least one hosts red panda populations .

== In situ initiatives ==

A community managed forest in Ilam District of eastern Nepal is home to 15 red pandas which generate household income through tourism activities , including home stays . Villagers in the high altitude areas of Arunachal Pradesh have formed the Pangchen Red Panda Conservation Alliance comprising five villages with a community conserved forest area of 200 km² (77 sq mi) at an altitude of 2 ,500 m (8 ,200 ft) to over 4 ,000 m (13 ,000 ft) .

== In captivity ==

The red panda is quite adaptable to living in captivity , and is common in zoos worldwide . By 1992 , more than 300 births had occurred in captivity , and more than 300 individuals lived in 85 institutions worldwide . By 2001 , 182 individuals were in North American zoos alone . As of 2006 , the international studbook listed more than 800 individuals in zoos and parks around the world . Of these , 511 individuals of subspecies *A. f. fulgens* were kept in 173 institutions and 306 individuals of subspecies *A. f. styani* were kept in 81 institutions .

The international studbook is currently managed at the Rotterdam Zoo in the Netherlands . In cooperation with the International Red Panda Management Group , they coordinate the Species Survival Plan in North America , the European Endangered Species Programme in Europe , and other captive breeding programs in Australia , India , Japan , and China . In 2009 , Sarah Glass , curator of red pandas and special exhibits at the Knoxville Zoo in Knoxville , Tennessee , was appointed as coordinator for the North American Red Panda Species Survival Plan . The Knoxville Zoo has the largest number of captive red panda births in the Western Hemisphere (101 as of August 2011) . Only the Rotterdam Zoo has had more captive births worldwide .

The Padmaja Naidu Himalayan Zoological Park in Darjeeling , India , successfully released four captive bred red pandas to the wild in August and November 2003 .

Three red panda cubs were born in captivity at Hamilton Zoo in New Zealand in December 2012 , doubling the number held there .

== As pets ==

The most often cited example of keeping red pandas as pets is by Indira Gandhi . Pandas were presented to Gandhi 's family as a gift and they were then housed in " a special tree house " .

== Phylogenetics ==

The taxonomic classification of the red panda has been controversial since it was discovered . French zoologist Frédéric Cuvier initially described the red panda in 1825 , and classified it as a close relative of the raccoon (*Procyonidae*) , though he gave it the genus name *Ailurus* , (from Ancient Greek ??????? , " cat ") , based on superficial similarities with domestic cats . The specific epithet is the Latin adjective *fulgens* , " shining " . At various times , it has been placed in the *Procyonidae* , *Ursidae* , with *Ailuropoda* in the *Ailuropodinae* (until this family was moved into the *Ursidae*) , and in its own family , the *Ailuridae* . This uncertainty comes from difficulty in determining whether certain characteristics of *Ailurus* are phylogenetically conservative or are derived and convergent with species of similar ecological habits .

Evidence based on the fossil record , serology , karyology , behavior , anatomy , and reproduction reflect closer affinities with *Procyonidae* than *Ursidae* . However , ecological and foraging specializations and distinct geographical distribution in relation to modern procyonids support classification in the separate family *Ailuridae* .

Recent molecular systematic DNA research also places the red panda into its own family , *Ailuridae* , a part of the broad superfamily *Musteloidea* that also includes the skunk , raccoon , and weasel families .

It is not a bear , nor closely related to the giant panda , nor a raccoon , nor a lineage of uncertain affinities . Rather it is a basal lineage of musteloid , with a long history of independence from its closest relatives (skunks , raccoons , and otters / weasels / badgers) .

The two subspecies are *A. f. fulgens* and *A. f. styani* . However , the name *Ailurus fulgens refulgens* is sometimes incorrectly used for *A. f. styani* . This stems from a lapsus made by Henri Milne @-@ Edwards in his 1874 paper " Recherches pour servir à l 'histoire naturelle des mammifères comprenant des considérations sur la classification de ces animaux " , making *A. f. refulgens* a nomen nudum . The most recent edition of Mammal Species of the World still shows the subspecies as *A. f. refulgens* . This has been corrected in more recent works , including A guide to the Mammals of China and Handbook of the Mammals of the World , Volume 1 : Carnivores .

= = = Evolutionary history = = =

The red panda is considered a living fossil and only distantly related to the giant panda (*Ailuropoda melanoleuca*) , as it is naturally more closely related to the other members of the superfamily Musteloidea to which it belongs . The common ancestor of both pandas (which also was an ancestor for all living bears , pinnipeds -the walrus and seals- and musteloids -raccoons , skunks , weasels , otters ...) can be traced back to the Early Tertiary period tens of millions of years ago , with a wide distribution across Eurasia .

Fossils of the extinct red panda *Parailurus anglicus* have been unearthed from China in the east to Britain in the west . In 1977 , a single tooth of *Parailurus* was discovered in the Pliocene Ringold Formation of Washington . This first North American record is almost identical to European specimens and indicates the immigration of this species from Asia . In 2004 , a tooth from a red panda species never before recorded in North America was discovered at the Gray Fossil Site in Tennessee . The tooth dates from 4 @.@ 5 ? 7 million years ago . This species , described as *Pristinailurus bristoli* , indicates that a second , more primitive ailurine lineage inhabited North America during the Miocene . Cladistic analysis suggests that *Parailurus* and *Ailurus* are sister taxa . Additional fossils of *Pristinailurus bristoli* were discovered at the Gray Fossil Site in 2010 and in 2012 . The frequency with which panda fossils are being found at Gray Fossil Site suggests the species played a large role in the overall ecosystem of the area .

The discovery in Spain of the postcranial remains of *Simocyon batalleri* , a Miocene relative to the red panda , supports a sister @-@ group relationship between red pandas and bears . The discovery suggests the red panda 's " false thumb " was an adaptation to arboreal locomotion ? independent of the giant panda 's adaptation to manipulate bamboo ? one of the most dramatic cases of convergent evolution among vertebrates .

= = = Taxonomic history = = =

The first known written record of the red panda occurs in a 13th @-@ century Chinese scroll depicting a hunting scene between hunters and the red panda .

Major General Thomas Hardwicke 's 1821 presentation of an article titled " Description of a new Genus of the Class Mammalia , from the Himalaya Chain of Hills Between Nepaul and the Snowy Mountains " at the Linnean Society in London is usually regarded as the moment the red panda became a bona fide species in Western science . Hardwicke proposed the name " wha " and explained : " It is frequently discovered by its loud cry or call , resembling the word ? Wha ? , often repeating the same : hence is derived one of the local names by which it is known . It is also called Chitwa . " Hardwicke 's paper was not published until 1827 , by which time Frédéric Cuvier had published his description and a figure . Hardwicke 's originally proposed taxonomic name was removed from the 1827 publication of his paper with his permission , and naming credit is now given to Cuvier .

Frédéric Cuvier had received the specimen he described from his brother 's stepson , Alfred Duvaucel , who had sent it " from the mountains north of India " . He was the first to use both the binomial name *Ailurus fulgens* and the vernacular name panda in his description of the species

published in 1825 in *Histoire naturelle des mammifères*. *Ailurus* is adopted from the ancient Greek word ???????? (*ailouros*), meaning " cat ". The specific epithet *fulgens* is Latin for " shining , bright ". *Panda* is the French name for the Roman goddess of peace and travellers , who was called upon before starting a difficult journey . Whether this is the origin of the French vernacular name *panda* remains uncertain . Later publications claim the name was adopted from a Himalayan language .

In 1847 , Hodgson described a red panda under the name *Ailurus ochraceus* , of which Pocock concluded it represents the same type as *Ailurus fulgens* , since the description of the two agree very closely . He subordinated both types to the Himalayan red panda subspecies *Ailurus fulgens fulgens* .

= = Local names = =

The red panda 's local names differ from place to place . The Lepcha people call it *sak nam* . In Nepal , the species is called *bhalu biralo* (bear @-@ cat) and *habre* . The Sherpa people of Nepal and Sikkim call it *ye niglva ponva* and *wah donka* . The word *w??* is *Sunuwari* meaning bear ; in Tamang language , a small , red bear is called *t?w?m* . In the Kanchenjunga region of eastern Nepal , the Limbus know red pandas as *kaala* , which literally means dark because of their underside pelage ; villagers of Tibetan origin call them *hoptongar* .

Additionally , Pocock lists the vernacular names *ye* and *nigálya ponya* (Nepal) ; *thokya* and *thongwa* (Limbu) ; *oakdonga* or *wakdonka* and *woker* (Bhotia) ; *saknam sunam* (Lepcha) . *Nigálya* may originate from the Nepali word ?????? *ni??lo* or *n?g?lo* meaning a particular kind of small bamboo , namely *Arundinaria intermedia* , but also refers to a kind of small leopard , or cat @-@ bear . The word *pónya* may originate from the Nepali word ?? ? ?? *paj?* meaning claw , or ????? *pa?j?* meaning paw of an animal . *Nigálya pónya* may translate to bamboo claw or paw .

Nigálya pónya , *nyala ponga* , and *poonya* are said to mean eater of bamboo . The name *panda* could originate from *panj?* .

In modern Chinese , the red panda is called *xi?oxióngm?o* (??? / ??? , lesser or small panda) , or ??? / ??? (*hóngxióngm?o* , red panda) . In contrast , the giant panda is called *dàxióngm?o* (??? / ??? , giant or big panda) , or simply *xióngm?o* (?? / ?? , panda , literally bear @-@ cat) .

In English , the red panda is also called lesser panda , though " red " is generally preferred . Many other languages also use red or variations of shining / gold or lesser / small in their names for this species . For instance , ???????? ?????? in Bulgarian , *panda roux* in French , and *panda rojo* in Spanish all mean red panda . Since at least as far back as 1855 , one of its French names has been *panda éclatant* (shining panda) . In Finnish , it is called *kultapanda* (gold panda) . Variations of lesser panda occur in French *petit panda* (small panda) , Spanish *panda menor* (lesser panda) , Dutch *kleine panda* (small panda) , Russian ?????? ?????? (*malaya panda* , " small panda ") , Korean ????? (*aeki panda* , " baby panda ") , and Japanese ???????? (*ress? panda* , a transliteration of English " lesser panda ") .

Other names attributed to this species include fire cat , bright panda , and common panda .

= = Cultural depictions = =

The red panda was recognized as the state animal of Sikkim in the early 1990s , and was the mascot of the Darjeeling Tea Festival .

In 2005 , Babu , a male red panda at Birmingham Nature Centre in Birmingham , England , escaped and briefly became a media celebrity , before being recaptured . He was subsequently voted " Brummie of the Year " , the first animal to receive this honor . Rusty , a male red panda at the National Zoo in Washington , DC , similarly attracted media attention when he briefly escaped in 2013 .

The name of the Firefox web browser is said to have been derived from a nickname of the red panda .

An anthropomorphic red panda was featured as Master Shifu , the Kung Fu teacher , in the 2008

film Kung Fu Panda , and its sequels Kung Fu Panda 2 in 2011 and Kung Fu Panda 3 in 2016 . Some comments on the original film showed a lack of awareness about the red panda in the U.S. at the time it was released . Although most of the reviewers got the species correct , some nevertheless mistook it for a tiny wolf , a rodent , and a lemur . In an interview , Dustin Hoffman also indicated he did not know much about the animal when he first agreed to voice the character . The red panda Futa inspired the character of Pabu , the so @-@ called " fire ferret " animal companion (primarily of Bolin) , in the U.S. animated TV series The Legend of Korra .