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Of the only endemic cat species in China

The Chinese mountain cat

The Chinese mountain cat *Felis bieti* is about twice the size of a large domestic cat. Adult males are larger than adult females. The coat is a nearly uniform pale yellowish brown in winter and somewhat darker in summer (Fig.1). The fur is interspersed with longer, dark brown or black guard hairs. Traditional pastoralists living in the Tibetan Plateau refer to the Chinese mountain cat as the 'grass cat' because the fur is the colour of dry grass. The soft underfur is grey near the skin and brownish at the tips. The belly fur is white with the yellowish brown underfur showing through and is marked with indistinct horizontal stripes on the sides and legs. Faint dark stripes sometimes run across the outer sides of the hind limbs, a brownish cross-band runs across on the inner side of the forelimbs and two or three washed-out transverse bands are found on the outer side of the haunches. The lower hind legs are dark brown. The ear-tips are adorned with a 2–2.5 cm long tuft of dark hairs. The tail has 5–6 dark bands, and terminates with a black tip. Long hair grows between the pads of the feet, but the pads are not covered or obscured (Sunquist & Sunquist 2002, Chen et al. 2005, Yin et al. 2007). The Chinese mountain cat is often confused with the Asian wildcat *Felis silvestris* and the domestic cat. Moreover, because the Chinese mountain cat was believed to occur in deserts (Nowell & Jackson 1996), and perhaps because the colour of the fur is light brown, the Chinese mountain cat was formerly known as the Chinese desert cat or pale desert cat. Other English names proposed are Chinese alpine steppe cat and Chinese steppe cat.

Fig. 1. A Chinese mountain cat has been observed in Qinghai in July 2007 (top, photo Z. Ju). A young specimen has been photographed in the wild in Ruoergai county, Sichuan in 2007 (bottom, photo M. Zhang).

The taxonomic status is unclear. The Chinese mountain cat has commonly been regarded as a species *F. bieti*. However, Haltenorth (1953) and Corbet (1978) stated that, once more specimens became available, analysis would show the Chinese mountain cat to be a subspecies of *F. silvestris*. Recent molecular analysis of three specimens by Driscoll et al. (2007) confirms this suspicion and assigns the Latin trinomial *Felis silvestris bieti*. More recently Kitchener & Rees (2009) reconstructed the dynamic biogeography of the wildcat. These authors believe that current geographical patterns of morphological and molecular variation provide no clear support for the re-designation of the Chinese mountain cat as a subspecies of *F. silvestris*. Instead, Kitchener & Rees believe that distinctive morphology and possible sympatry with Asian wildcats support the premise that the Chinese mountain cat is a distinct species.

Status and distribution

The Chinese mountain cat is endemic to China and has a very limited distribution (Fig. 2). Very little to no information exists regarding the status or abundance of this elusive Chinese species. Although it

has been widely reported across western China, many records are unconfirmed, or have been shown to be misidentified or erroneous by He et al. (2004). These authors examined museum specimens and reports from across China and concluded that the only confirmed specimens of the Chinese mountain cat came from the eastern and north-eastern edge of the Tibetan Plateau in Qinghai and Sichuan. These two provinces account for all confirmed records of the Chinese mountain cat: eastern Qinghai (Xining, Huzhu, Huangzhong, Ledu, Minhe, Lianca, Tongren, Gonghe, Tianjun, Menyuan, Qilian, Haiyan, Gangca, Datong, Dulan, Golmud, Huangyuan, Zekog, Xinghai, Ulan, Madoi, Yushu, and Nangqen) and north-western Sichuan (Songpan, Garze, Dawu, Dege, Zamtang, Kangding, and Jiuzhaigou) (He et al. 2004, Chen et al. 2005, Yin et al. 2007). A survey conducted in the 1950s by the Chinese Academy of Sciences in Xinjiang reported sightings of Chinese mountain cats in the counties of Artux, Wuqia, Baicheng, Yanqi, Markit, Yecheng, Yutian, Qiemo, and Hami, but no specimens were collected and other specimens from Xinjiang were misidentified; reports of Chinese mountain cats from Shanxi, Shaanxi, Ningxia and on the Ordos Plateau of Inner Mongolia are also erroneous (He et al. 2004).

A dubious record from near Chengdu, Sichuan Province, claimed that the Chinese mountain cat occurs sympatrically with the giant panda *Ailuropoda melanoleuca* in montane bamboo forest. However, extensive camera trapping in panda habitat has never yielded a single photograph of a Chinese mountain cat. A second suspect record suggests that the Chinese mountain cat shares certain habitats with the golden snub-nosed monkey *Rhinopithecus roxellana*, but this species inhabits subalpine coniferous and broadleaf forest and occurs nowhere near steppe.

Most reports are from skins collected in markets or villages rather than from actual observations (Nowell & Jackson 1996, Sunquist & Sunquist 2002, Chen et al. 2005). Often the true origin of specimens or skins is unknown and thus not recorded (Nowell & Jackson 1996, He et al. 2004, Chen et al. 2005). Skins collected in one area and sold in another have led to confusion regarding the distribution and habitat of the Chinese mountain cat. Specimens such as those found in Sichuan (Tatsienlu and Sungpan) are speculated to have come from the local area or from the borderlands of the extreme western edge of Sichuan Province or from the Tibetan Plateau (Sunquist & Sunquist 2002, Chen et al. 2005).

There are no records of occurrence in any protected areas, and there is no information regarding population trend (Wang 1990, Nowell & Jackson 1996, Yin et al. 2007, IUCN 2010).

Felis bieti Fact Sheet

Names:
荒漠貓 [whong mo mao]
Chinese mountain cat
Chinese desert cat

Head and body length:
60-85 cm
Tail length:
23-35 cm
Weight:
4-8 kg

Chinese Population:
<10,000 (IUCN 2010)

Distribution in China:
C China, endemic, sparsely distributed

IUCN Red List:
Vulnerable C2a(i) (2010)
CITES:
Appendix II

China Red List:
CR A2abc; C1 + 2a(i)
China Key List:
Class II

Photo E. Kedi

Habitat

The first photographs of a wild Chinese mountain cat were taken only very recently by camera traps during light snow in May 2007 at 3570 m altitude (Yin et al. 2007; Fig. 3). Additional pictures were taken later in that year (Fig. 1). These photographs were taken in rolling grasslands and brush-covered mountains. The Chinese mountain cat occurs in high-elevation steppe grassland, alpine meadow, alpine shrubland and coniferous forest edges, between 2500 m and 5000 m elevation; it has not been confirmed in true desert or heavily forested mountains (Liao 1988, He et al. 2004, Chen et al. 2005, Yin et al. 2007). Six Chinese mountain cat burrows were located at 3000-3600 m above sea level (Tan 1991). The Chinese mountain cat copes with extremely high and low temperatures, and moves easily through snow in a windy and seasonally inhospitable habitat (Liao 1988).

Ecology and behaviour

Much of the information has been gathered with the help and effort of the Xining Zoo (Nowell & Jackson 1996). The knowledge gained from interviews with local pastoralists is also useful because the Chinese mountain cat has never been the subject of an ecological study (Chen et al. 2005, Yin et al. 2007). Chinese mountain cats are mainly nocturnal and crepuscular; like most wild cats they are solitary (Tan 1991, Chen et al. 2005, Smith & Xie 2008). They rest in burrows during the day and also tend their young in burrows, typically situated on south-facing slopes in the crack between rocks, under a boulder, or in abandoned dens excavated by marmots or badgers. Except during the mating period, males and females live separately. The burrows inhabited by females tend to be deeper and more secure, with only one entrance (Liao 1988). The young animals normally emerge from the burrow in the afternoon to play and also to warm themselves on the rocks.

The reproductive season is from January to March; kittens appear in May. There are

2–4 kittens. The age of independence is between 7 and 8 months (Liao 1988). This information is probably based on observations of a single individual.

Prey

Rodents (Chinese mole-rats *Myospalax baileyi*, voles *Microtus* spp., hamsters, *Cricetulus* spp., gerbils *Meriones* spp., marmots, *Marmota* spp.) and lagomorphs (pikas *Ochotona* spp., hares *Lepus* spp.) are the main prey of the Chinese mountain cat as well as birds such as pheasants, partridges and wild pigeons (Liao 1988, Tan 1991, Nowell & Jackson 1996, Smith & Xie 2008). There are claims that the Chinese mountain cat feeds primarily on various mice species and that in winter when food is scarce, the cat often preys upon domestic fowl and wild birds (Yin et al. 2007). There are reports of Chinese mountain cats hunting mole-rats by first listening for sounds of sub-surface movements within the rat's subterranean tunnels (3–5 cm below the surface), and then digging the rats out (Liao 1988).

In captivity

What little is known of the Chinese mountain cat in captivity comes from the collection of the Xining Zoo (Nowell & Jackson 1996). The first specimen in captivity was an adult male that was kept at the Beijing Zoo from 1974 until its death in 1978 (Sunquist & Sunquist 2002). A survey in 2000 showed that there were 8 specimens in captivity (4 at the Xining Wildlife Rescue Centre and 4 at the Xining Zoo) even though this report did not include Beijing Zoo (Garcia-Perea 2000). In 2007, the Lanzhou Zoo housed a single adult in an enclosure labelled Asiatic golden cat and only one Chinese mountain cat, a male, lived at the Beijing Zoo captive breeding facility.

Main threats

There are two threats to the continued existence of the Chinese mountain cat populations: widespread poisoning programs, and the skin trade. Small mammal control programs using poisonous chemicals such as zinc phosphide to eradicate pikas, voles and moles from large areas are sanctioned by the government. Pikas are believed to compete for graze with domestic livestock. Between 1958 and 1978, large-scale poisoning campaigns were conducted in both Qinghai and Sichuan Provinces as well as in Gansu Province and Tibet. The program was terminated with the discovery that carnivores that preyed on pikas were also victims of poisoning. However, smaller-scale poisonings similar in form continue in Qinghai Province throughout much of the Chinese mountain cat's range and affect both rodents and lagomorphs. Such poisoning programs cause general environmental pollution and are likely to be a human health hazard as well (Smith et al. 1990, Nowell & Jackson 1996, He et al. 2004, Chen et al. 2005).

Direct killing by local pastoralists for the skin trade and for articles of clothing and accessories is also a threat to Chinese mountain cat populations. For instance, traditional hats are made from Chinese mountain cat pelts. Locals kill Chinese mountain cats by either trapping or poisoning the cat. Depending on how often such an event occurs, local pastoralists can with patience and time extirpate a local population one individual at a time (Chen et al. 2005). Skins are sold openly in street-side shops and are commonly found in markets in Xining and southern China (Wang 1990, Nowell & Jackson 1996, Chen et al. 2005). There are no reliable figures for the number of skins in trade and most numbers were gathered through direct observation. In Sichuan Province, thirty pelts were taken in 1980. In 1986, George Schaller counted sixteen Chinese mountain cat skins for sale in the markets in Lingxia, Gansu Province, but reported that they were less common than those of Eurasian lynx (Sunquist & Sunquist 2002). Chinese mountain cat skins were found in three towns (Kangding, Tagong and Luhuo) in Ganzi Prefecture in western Sichuan Province. Local pastoralists confirmed its presence in the vicinity of several villages on the road from Kangding to Bangda village (Chen et al. 2005). Although old records are unreliable, these had led He at al. (2004) to suggest that populations such as around Kangding might well have disappeared.

The illegal fur trade might well still continue. In 1998 and 2001 around 50 skins were reported to be on sale at Songpan and Jiuzhaigou markets, even though the species is protected throughout China by laws such as the National Constitution, the China Wildlife Protection Law, the Wild Animal Protection Law, the Criminal Laws, the Forestry Law, and the Environmental Protection Law (Nowell & Jackson 1996, Li et al. 2000, He et al. 2004). The widespread and open availability of skins suggests that local law enforcement officials are either

Fig. 2. The limited distribution range of the Chinese mountain cat, a species endemic to China.

unaware of the law or reluctant to enforce it to stop the trade. Possible records from Qinghai suggest that Chinese mountain cats might also be crossbreeding with domestic cats (W. Bao, pers. comm.).

Current and future protection measures

Sanjiangyuan Reserve, Qinghai Lake Reserve and Jiuzhaigou Reserve have been created within the range of the Chinese mountain cat but most of the species' range is not protected (He et al. 2004). He et al. (2004) recommended creating new reserves where the species was not protected and upgrading its status to Category I under Chinese Wildlife Law.

With respect to poisoning control programs, research has found that pikas reach their greatest densities and cause greatest damage when rangeland has already been significantly degraded by domestic stock (Nowell & Jackson 1996), suggesting that authorities should focus their efforts on measures to prevent over-grazing. Healthy predator populations also limit pika numbers at no cost to humans; pikas are an important food source for a variety of carnivores and birds of prey including the Chinese mountain cat (Smith et al. 1990).

Already Wang (1990) recommended that a survey was needed to increase understanding of the distribution and range and to estimate the population size of the Chinese mountain cat. Political action and law enforcement is required to limit illegal hunting and trade (IUCN 2010).

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Fig. 3. The Chinese mountain cat was photographed for the first time in a camera-trapping session from March to July 2007 (Camera trap photos Yin Yufeng, A. Drubgyal & J. Sanderson).