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# WILD CATS OF THE WORLD

MEL SUNQUIST AND FIONA SUNQUIST





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## Fishing cat

*Prionailurus viverrinus* (Bennett, 1833)

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Many cats catch and eat fish when the opportunity presents itself, but the fishing cat is the only species to have been named for its habits and diet. Early zoologists were struck by this cat's resemblance to the viverrid family, particularly the large Indian civet (*Viverra zibetha*), hence its Latin name—*Prionailurus viverrinus*.<sup>1</sup>

## DESCRIPTION

The fishing cat belongs to a group that includes the rusty-spotted cat, flat-headed cat, and leopard cat; all are characterized by conspicuous stripes and spot patterns on the head and body. Recent immunological and DNA studies confirm taxonomists' earlier impression that the fishing cat is closely related to the leopard cat.<sup>2</sup> The two cats also share several physical characteristics, including similarly spotted coats, long, narrow skulls, and small, rounded, black-backed ears with prominent white patches. But here the resemblance ends. The powerful, stocky fishing cat and the slim, gracile leopard cat look as different as a shot-putter and a hurdler.

Rather than the lithe, long-legged grace that one normally associates with a small cat, the fishing cat projects an aura of power and strength. Its deep-chested body and comparatively short legs give it the look of a much bigger cat, and it is not surprising that villagers sometimes kill fishing cats, mistaking them for leopards.<sup>3</sup>

The fishing cat is about twice the size of a large domestic cat. Its small, rounded ears are set well back on its elongated face.<sup>4</sup> The toes on the front feet are partially webbed, and the tips of the claws protrude from their sheaths even when fully retracted.<sup>5</sup> The tail is comparatively short, about one-third of the cat's head and body length, and it is unusually thick and muscular near the body. As the fishing cat is known to be a strong swimmer, even in deep water, it is not unreasonable to suppose that the tail is used as a rudder.<sup>1,6,7</sup> The cat's short, coarse fur is mouse gray or olive brown and covered with small black spots. The underside of the body is white, and there are two dark collars on the throat. On the face, back, and neck the spots merge into short streaks or lines. The backs of the ears are black with small white central spots. The short tail is marked with five or six black rings and a black tip.<sup>1,8</sup>

## DISTRIBUTION

The fishing cat has a limited and discontinuous distribution in Asia. It is very rare in the Indus Valley of

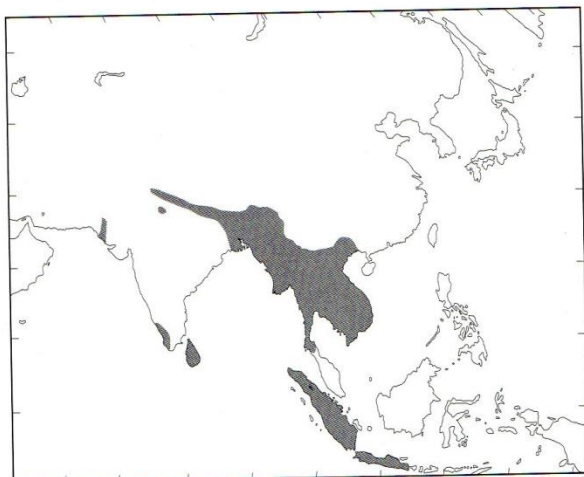


Figure 37. Distribution of the fishing cat.

Pakistan, and there may be scattered populations in coastal areas of Kerala in southwestern India and Sri Lanka. Its main stronghold is the Himalayan foothill region of India, Nepal, and Assam, and then south through Bangladesh, Myanmar, and northern Thailand to Vietnam. It is also found in Sumatra and Java (fig. 37).<sup>6,7,9,10,11</sup> There are a few specimens from peninsular Malaysia, Singapore, and Kalimantan, but whether these represent escaped pets or relicts is uncertain.<sup>12</sup>

## ECOLOGY AND BEHAVIOR

The fishing cat lives near water in thick cover in habitats such as mangroves, marshes, and the densely vegetated areas along watercourses. In Sri Lanka, India, and Nepal it is found in forest, scrub, reed beds, and tallgrass areas. The only radio-tracking study of fishing cats to date took place in the terai grasslands of southern Nepal. There, the cats spent most of their time in dense tall and short grasslands, sometimes well away from water; they were active only at night.<sup>13</sup> Fishing cats are not often seen in the wild, and they are thought to be primarily nocturnal.

Early naturalists maintained that the fishing cat was reluctant to enter water, but the animal's swimming abilities are now firmly established. It is very much at home in the water and can swim long distances, even under water. Roberts records one individual pursued by dogs that was seen to swim "a considerable distance down a narrow channel without exposing any part of its body. It appeared to have its eyes open the whole time and propelled itself with powerful strokes of its hind feet." Roberts also remarks on the fact that a cap-



tive fishing cat enjoyed swimming: "I observed it swimming with its head well clear of the water and using both fore- and hind legs with the tail acting as a rudder."<sup>6</sup>

### *Feeding Ecology*

Given its powerful build and strong swimming abilities, it is not surprising to find that the fishing cat takes a wide range of prey. It has been observed crouching on rocks and sandbanks along rivers, using its paw to scoop out fish,<sup>11</sup> and it will swim under water to catch coots and ducks.<sup>6</sup> In Keoladeo Ghana National Park, India, an Indian graduate student watched for five hours while a fishing cat hunted along the edge of a small canal. The cat came to the canal at 1945 hours in the evening and sat at the edge of the water. It pounced on a frog, ate it, then moved to another spot, where it sat, concentrating on the water. Over the next four hours the cat changed hunting locations roughly every fifteen minutes, but did not catch anything. Then, just before midnight, it dived into the water and thrashed around with its forelimbs. Putting its head under the surface, it grabbed something and ran out of the water onto the bank with its prize.<sup>14</sup>

Despite the fact that the fishing cat does catch and eat fish, its teeth are not specially adapted for catching fish or crushing mollusks.<sup>8</sup> Rather, like most felids, it has teeth suited for killing any mammal, bird, or reptile it can catch. This powerful cat is reported to be a formidable hunter, and historical accounts mention fishing cats killing calves, dogs, and even young children.<sup>7</sup> A large male fractured a dog's jaw with a blow from its paw,<sup>6</sup> and, in what can only be an exceptional situation, a newly caught male broke through the partition of a cage and attacked and killed a female leopard twice his own size.<sup>7</sup> There are several records of fishing cats killing chital fawns,<sup>13,15</sup> and one was seen scavenging a cow carcass in Keoladeo Ghana National Park.<sup>16</sup> In a sample of nine fishing cat scats from Keoladeo, fish were the most frequently found prey, followed by birds and small mammals.<sup>14</sup> These findings lend support to reports that, in addition to fish, these cats also eat small mammals, snakes, snails, crustaceans, and birds.

Captive fishing cats bite hens and ducks first in the shoulder area, then use both paws to draw the prey close enough to deliver a killing bite to the head. Birds larger than a blackbird are plucked before being eaten.<sup>17</sup>

### *Social Organization*

The fishing cat appears to be a solitary hunter, and there is little information on its social organization or mating behavior in the wild. Limited telemetry data suggest that these cats follow the usual felid land tenure pattern in which a male's range overlaps the smaller ranges of several females. In Chitwan National Park, Nepal, radio-tagged females used areas of 4 to 6 square kilometers, while a male's range was three or four times larger, about 16 to 22 square kilometers.<sup>13</sup>

Among the felids there is a general uniformity in the types of indirect and direct signals used in communication, although the vocal repertoire and scent marking patterns of fishing cats are not well known. Both males and females utter a chuckling call, described as "eh-eh-eh," and kittens have been heard to mew and give a birdlike "chirrup."<sup>18</sup> Adult fishing cats are also likely to gurgle, as this vocalization is known from other members of its taxonomic group.<sup>19</sup> Both sexes scent-mark by spraying urine, cheek rubbing, and head rubbing.<sup>20,21</sup>

In zoos, fishing cats have a reputation for being extremely wary and aggressive, but people who have kept them as pets report that they become quite tame and affectionate. Several different zoos have found that fishing cats seem to tolerate living in groups. In the Colombo Zoo in Sri Lanka two males, three females, and two juveniles lived together peacefully.<sup>3</sup> E. D. W. Jayewardene, who kept both jungle cats and fishing cats as pets, observed that "unlike the Jungle cats which, unless fed simultaneously, would fight savagely and violently over their food, the Fishing cats never quarrelled at feeding time."<sup>22</sup> Captive fishing cats have lived for ten years.<sup>23</sup>

### *Reproduction and Development*

Most observations of kittens in the wild date from March–April, suggesting that mating takes place in January–February, although young may be born at other times of the year.<sup>24,25,26</sup> Two den sites have been found in the wild, and both consisted of rough nests in dense patches of reeds. The remains of a coot and a wood sandpiper were found at one of the dens.<sup>6</sup>

Litters consist of two to three kittens. In captivity, the average litter size of thirteen litters was 2.61;<sup>20</sup> two litters of two<sup>27</sup> and a single litter of two have also been reported.<sup>22</sup> The gestation period is approximately sixty-three to seventy days;<sup>27,28</sup> a ninety- to ninety-five-day<sup>10</sup> gestation appears to be an overestimate. Young fishing cats weigh about 170 grams at birth, and



kittens at the Philadelphia Zoo were able to walk and climb over objects by the time they were twenty-nine days old. By two months of age the kittens regularly played in their water dish, and at three months they were wrestling violently with each other and leaping 60 centimeters up the wall while chasing flies. These captive kittens were first observed eating solid food at fifty-three days of age, but continued to suckle for about six months, at which time they were roughly three-quarters the size of their mother. They reached adult size at eight and half months.<sup>27</sup> Fishing cats shed their milk teeth as early as six and a half months and have acquired their adult canines by the time they are eleven months old.<sup>27</sup> One female became sexually mature at fifteen months.<sup>20</sup>

#### STATUS IN THE WILD

The fishing cat's association with wetlands, marshes, and grasslands does not bode well for its survival, since these areas are in increasing demand by people. The rapid conversion of wetland and floodplain habitat to agriculture has had a serious effect on the fishing cat in many parts of its range. Fishing cats are gradually disappearing from areas near villages in Bangladesh due to large-scale habitat destruction.<sup>29</sup> In 1982 a two-and-a-half-month status survey of cats in Sikkim and North Bengal did not find any conclusive evidence of the fishing cat's presence.<sup>30</sup> In Pakistan it is now considered very rare and fast disappearing because of increased cultivation along the Indus River and ever-expanding human exploitation of remaining swamp areas.<sup>6</sup> The fishing cat also appears to have disappeared from the western coast of India.<sup>31</sup> The situation is much the same in Sri Lanka as land development programs convert forests and wetlands to agricultural uses.

Although the main threat to the fishing cat comes from habitat loss, it is also considered edible, and its skin is still esteemed by the fur trade. In 1991, eighty fishing cat skins, along with the skins of a tiger and

a leopard, were found wrapped in a package deposited in a culvert in Silguri in North Bengal.<sup>32</sup> Fishing cat numbers have also been reduced by live capture. According to records of Thailand's Royal Forestry Department, 448 fishing cats were declared for export between 1967 and 1971.<sup>33</sup> Fishing cats are also killed when caught raiding poultry sheds, and some villagers believe they kill young domestic stock.

Large body size, a sought-after spotted pelt, and a distribution closely tied to wetlands and grasslands suggest that the fishing cat will undoubtedly suffer further contraction of its already disjunct geographic range. However, Khan reports that in some plantations and forests of southwestern Bangladesh the fishing cat is still a common predator.<sup>29</sup> In 1988–1989 four fishing cats were killed by villagers in a small wetland near Calcutta. The news caused great excitement because these cats were reportedly abundant in the area a hundred years ago, but there have been few confirmed sightings until now. Forest department officials now think these cats may be quite common in the *Typha-Imperata* wetlands in the Howra district near Calcutta. A local conservation organization, The Indian Society for Wildlife Research, is carrying out a fishing cat survey and has also launched a public education program to promote conservation awareness.<sup>34</sup>

#### STATUS IN CAPTIVITY

Fishing cats are not common in zoos; a 1988 census found only thirty-three individuals in North American and European zoos. Most of these animals are related to stock originally bred at the Rotterdam Zoo, and the population is probably inbred.<sup>28</sup> The few zoos that do keep fishing cats have found that when provided with a pond and live fish to catch, these cats make striking exhibits. Some zoos have found that fishing cats seem to be unusually tolerant of one another, so that several adults can be kept in the same enclosure.

TABLE 46 MEASUREMENTS AND WEIGHTS OF ADULT FISHING CATS

HB	n	T	n	WT	n	Location	Source
725–780	?	250–290	?	7–11	?	Thailand	10
775	1m	300	1m			Sri Lanka	8
724	3m	279	3m			Sri Lanka	8
660	3f	254	3f			Sri Lanka	8
658–857	?	254–280	?	6.4–11.8	?	Sri Lanka	4
720	1m	288	1m			Pakistan	6
711	1m	279	1m	14.5	1m	India	26
660	1m	240	1m	16.0	1m	India	16



TABLE 46 (continued).

HB	n	T	n	WT	n	Location	Source
648, 743	2f	242, 251	2f	5.1, 6.8	2f	Nepal	13
724, 762	2?	241, 267	2?			Nepal	4
1,150	1?	400	1?			Java	11
570–770	?	200–260	?			Java	35

Note: HB = head and body length (mm), T = tail length (mm), WT = weight (kg). n = sample size. Sex: m = male, f = female, ? = unknown. Mean values are presented only for sample sizes of three or more. Range of values is in parentheses.

## REFERENCES

- Guggisberg, C. A. W. 1975. *Wild cats of the world*. New York: Taplinger.
- Collier, G. E., and S. J. O'Brien. 1985. A molecular phylogeny of the Felidae: Immunological distance. *Evolution* 39: 473–487.
- de Alwis, W. L. E. 1973. Status of Southeast Asia's small cats. In *The world's cats*, vol. 1, ed. R. L. Eaton, 198–208. Winston, OR: World Wildlife Safari.
- Phillips, W. W. A. 1984. *Manual of the mammals of Sri Lanka*, 2nd ed. Colombo: Aitken Spence.
- Pocock, R. I. 1932. The marbled cat (*Pardofelis marmorata*) and some other Oriental species, with the definition of a new genus of the Felidae. *Proc. Zool. Soc. Lond.* 1932: 741–766.
- Roberts, T. J. 1977. *The mammals of Pakistan*. London: Ernest Benn.
- Sterndale, R. A. 1884. *Natural history of the Mammalia of India and Ceylon*. Calcutta: Thacker, Spink.
- Pocock, R. I. 1939. *The fauna of British India, including Ceylon and Burma*. Vol. 1, Mammalia. London: Taylor and Francis.
- Corbet, G. B., and J. E. Hill. 1992. *The mammals of the Indo-malayan region: A systematic review*. Oxford: Oxford University Press.
- Lekagul, B. M. D., and J. A. McNeely. 1977. *Mammals of Thailand*. Bangkok: Association for the Conservation of Wildlife.
- Hoogerwerf, A. 1970. *Ujung Kulon: The land of the last Javan rhinoceros*. Leiden: E. J. Brill.
- Van Bree, P. J. H., and M. K. M. Khan. 1992. On a fishing cat, *Felis (Prionailurus) viverrina* Bennett, 1833, from continental Malaysia. *Z. Säugetierk.* 57: 179–180.
- Smith, J. L. D., associate professor, Department of Fisheries and Wildlife, University of Minnesota, St. Paul, Minnesota. Personal communication.
- Mukherjee, S. 1989. Ecological separation of four sympatric carnivores in Keoladeo Ghana National Park, Bharatpur, Rajasthan, India. Master's thesis, Wildlife Institute of India, Dehra Dun. 83 pp.
- Singh, A. 1982. *Prince of Cats*. London: Jonathan Cape.
- Haque, M. N., and V. S. Vijayan. 1993. Food habits of the fishing cat *Felis viverrina* in Keoladeo National Park, Bharatpur, Rajasthan. *J. Bombay Nat. Hist. Soc.* 90: 498–500.
- Leyhausen, P. 1979. *Cat behavior: The predatory and social behavior of domestic and wild cats*. New York: Garland STPM Press.
- Ulmer, F. A. Jr. 1966. Voices of the Felidae. *Int. Zoo Yrbk.* 6: 259–262.
- Peters, G. 1984. On the structure of friendly close range vocalizations in terrestrial carnivores (Mammalia: Carnivora: Fissipedia). *Z. Säugetierk.* 49: 157–182.
- Mellen, J. D. 1993. A comparative analysis of scent-marking, social and reproductive behavior in 20 species of small cats (*Felis*). *Am. Zool.* 33: 151–166.
- Wemmer, C., and K. Scow. 1977. Communication in the Felidae with emphasis on scent marking and contact patterns. In *How animals communicate*, ed. T. A. Sebeok, 749–766. Bloomington: Indiana University Press.
- Jayewardene, E. D. W. 1975. Breeding the fishing cat in captivity. *Int. Zoo Yrbk.* 8: 150–152.
- Dover, C. 1933. The duration of life of some Indian mammals. Miscellaneous Notes, no. 1. *J. Bombay Nat. Hist. Soc.* 36: 244–250.
- Bhattacharyya, T. 1992. A brief note on some observations on the breeding biology of fishing cat (*Felis viverrina*). *Tigerpaper* 14(2): 20–21.
- Datye, H. S. 1993. First record of the fishing cat *Felis viverrina* Bennett in Dalma Wildlife Sanctuary and Chhotanagpur plateau of Bihar. *J. Bombay Nat. Hist. Soc.* 90: 90.
- Macdonald, A. St. J. 1950. The fishing cat (*Prionailurus viverrinus* Bennett). *J. Bombay Nat. Hist. Soc.* 49: 298.
- Ulmer, F. A., Jr. 1968. Breeding fishing cats at Philadelphia Zoo. *Int. Zoo Yrbk.* 8: 49–55.
- Mellen, J. D. 1989. Reproductive behavior of small captive exotic cats (*Felis* spp.). Ph.D. dissertation, University of California, Davis.
- Khan, M. A. R. 1986. The status and distribution of the cats in Bangladesh. In *Cats of the world: Biology, conservation, and management*, ed. S. D. Miller and D. D. Everett, 43–49. Washington, DC: National Wildlife Federation.
- Biswas, B., and R. K. Ghose. 1982. Progress report on "Pilot Survey" of the World Wildlife Fund-India/Zoological Survey of India collaborative project on the "Status survey of the lesser cats in eastern India." [Project No. IUCN 1357-India]. Zoological Survey of India, Calcutta. 52 pp.
- Cat News. 1986. Some notes for the record. *Cat News* 5: 11.
- Cat News. 1992. Rampant skin trade in India. *Cat News* 16: 25.
- Royal Forestry Department. 1972. Cited in S. R. Humphrey and J. R. Bain (1990), *Endangered Animals of Thailand*. Gainesville, Florida: Sandhill Crane Press.
- Cat News. 1989. Cats around Calcutta. *Cat News* 11: 16.
- Weigel, I. 1972. Small felids and clouded leopards. In *Grzimek's animal life encyclopedia*, vol. 12, *Mammals III*, ed. H. C. B. Grzimek, 281–332. New York: Van Nostrand Reinhold.