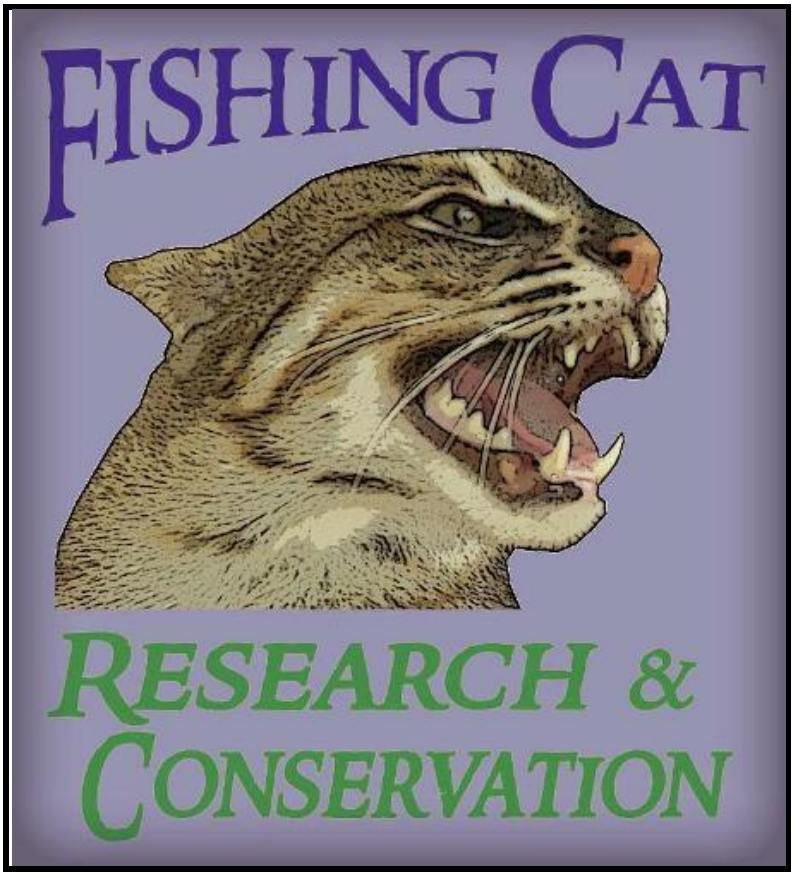


**Fishing Cat Research and Conservation Project**

*Occasional Report #5:*

# Camera Trapping and Conservation Status Assessment of Fishing Cats at Khao Sam Roi Yod National Park, Thailand and Surrounding Areas

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Camera Trapping and Conservation Status of Fishing Cats at Khao Sam Roi Yod National Park and the Surrounding Areas, Thailand

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## Executive Summary

*This is an occasional report of the Fishing Cat Research and Conservation Project, an independent research endeavour with the overall goal of ensuring that fishing cats survive and thrive in their wild habitats. Other reports in this series can be downloaded at: www.fishingcatproject.info.*

A rapid assessment using interviews, sign surveys, and camera trapping was carried out in and around Khao Sam Roi Yod National park between 5 January and 7 February 2009. Local residents reported seeing or finding sign evidence of fishing cats at several locations and the survey team visited two separate residences at which male fishing cats (reportedly siblings collected from a local rice field) are being kept in small enclosures.

Sign surveys around the location where the kittens were reportedly collected revealed copious tracks and scat of fishing cats left by at least two individuals (apparently an adult female and her kitten).

Camera trapping focused on this area. During 54 trap-nights, Moultrie i40 camera trap units logged a total of 230 video clips and 238 still photos. Images of fishing cats dominated the captures (203 captures during 20 of the trap-nights). At least three and perhaps four or more individual fishing cats visited trap stations. Also captured in camera traps during this survey period were numerous domestic cattle, two domestic dogs, a nightjar, another (unidentified) bird, and one local farmer.

## Introduction

Fishing cats are medium-sized nocturnal felids historically ranging throughout tropical Asia from India, Sri Lanka and Nepal through western India to most of Southeast Asia including the islands of Sumatra and Java. Their habitat is mostly brush or scrub near water (Lekagul and McNeely 1977). They feed on fish, crabs, rodents, birds, hard-shelled freshwater molluscs, and any other animals they can catch (Lekagul and McNeely 1977).

In late 2008, fishing cats were elevated from “Vulnerable” to “Endangered” on the IUCN Red list. International trade is controlled and the species is listed in Appendix 2 of CITES. The frequent development, conversion, and over-fishing of their wetland habitats have resulted in a high degree of habitat loss and population fragmentation throughout their range.

Little is known about the habits of fishing cats in the wild but from observations of captive animals, they are known to be secretive and relatively aggressive—even after several generations in captivity.

In Thailand, current range maps show fishing cats ranging throughout the northern areas of the country down to Isthmus of Kra. There are only 4 confirmed records of fishing cats from Thailand in the last 10 years: two from Thale Noi wetland area (Cutter 2007, Jonathan Murray pers. comm. (1999)) in Pattalung, one from Kaeng Krachan National Park (Dusit Ngoprasert pers. comm. 2004), and the records reported here. Although there are historical records of fishing cats occurring in southernmost Thailand and peninsular Malaysia there are no recent records from this area.

The Fishing Cat Research and Conservation project began in 2004 with the broad goal of providing a scientific basis for the management and conservation of fishing cats so that they can survive and thrive in their wild habitats. To date, four areas have been extensively surveyed (Klong Saeng Wildlife Sanctuary, Mae Nam Pachi Wildlife Sanctuary, Thale Noi Non-Hunting Area and Khao Sam Roi Yod National park.

The project's specific objectives are:

1. To compile and map current and historical records of fishing cats in Southeast Asia.
2. To obtain solid evidence of fishing cat occurrence in as many sites as possible in Thailand and perhaps other parts of the species range.
3. To document aspects of fishing cat ecology through the use of telemetry, automated camera and video "traps", faecal analysis, and other methods.
4. To provide information on which methods are most effective for detecting fishing cats in an area and how much effort is necessary to do so.
5. To obtain tissue and other samples for genetic analysis and disease screening.
6. To conduct education and other public outreach activities that promotes the conservation of fishing cats and their habitat.
7. To develop the capacity of protected area staff and local residents to manage all aspects of a coordinated conservation program in areas where fishing cats occur or where reintroduction efforts may be feasible.
8. To identify and facilitate other priority conservation actions.

Results of the current survey are summarized below. Additional research and conservation activities are planned for this area and will be covered in subsequent reports.

## Study Site

Khao Sam Roi Yod National Park represents the fourth site in Thailand where extensive and focused fishing cat surveys have taken place. The park is a 98 $km^2$ coastal protected area with marine and terrestrial components. The park was established in 1966 as Thailand's first coastal national park. The most distinctive features of the park are a prominent karst limestone mountain outcrop, approximately 30 km of alternately rocky, sandy and mangrove coastline, and a significant portion of Thailand's largest freshwater marsh (~70 $km^2$ total with about half of that within the protected area) which was recently (February 2008) designated Thailand's $11^{th}$ Ramsar site.

The vegetation of the terrestrial portion of the park consists of scrubby mixed deciduous forest on the karst formations, limited areas of mangrove and swamp forest, and active and fallow agricultural areas. Shrimp propagation ponds and rice paddies are tightly packed against the park's highly inter-digitated boundary. The park management is pursuing active mangrove reforestation in some areas.

Mangrove areas are dominated by olive mangrove (*Avicennia marina*), large-leaved mangrove (*Rhizophora mucronata*), and small-leaved mangrove (*R. apiculata*). The more intact marsh areas are dominated by common reed (*Phragmites karka*), water chestnut (*Eleocharis dulcis*), reed grass (*Arundo donax*), and lesser reedmace (*Typha angustifolia*). Where these areas transition into fallow fields and seasonal rice production areas, grasses such as *Solanum indicum*, *Passiflora foetida*, and swollen finger grass (*Chloris barbata*) dominate and occur with a variety of woody shrubs that provide a mosaic of

cover ranging from 1 to 3 meters in height. Occasional palms, tamarinds, and various other tree species are scatted throughout this lower vegetation layer and serve as anchors for more structurally developed patches of reed-grass dominated vegetation that may serve as refuge "islands" for larger species such as fishing cats during the day.

The majority of these fields are burned in the dry season (December-March) although the "refuge" patches appear somewhat resistant to a full burn.

## Survey Methods

***Interview surveys***

The survey team carried out informal interview surveys in order to gather general information about the occurrence of fishing cats, their prey species, and other wildlife. Interviewees were active and former rice and shrimp farmers, fishermen, cattle herders, and hunters—all of whom spend a considerable amount of time walking in the areas in and around the park.

***Sign surveys***

We searched for carnivore sign (particularly tracks of fishing cats) at the edge of reed grass patches, rice paddies, and mangrove areas inside and outside of the park. Where detected, tracks thought to be that of fishing cat were measured and permanently recorded either by taking photos or making plaster casts.

***Camera trap surveys***

Sixteen Moultrie i40 digital camera traps were deployed primarily in a rice paddy area covering about 10 $km^2$. This system is capable of taking normal colour still photos and 30 second video clips during the day and infrared stills and 5 second video clips at night (resulting in black and white stills and video).

Camera locations were selected based on where tracks thought to be those of fishing cats were detected. At each trap location, cameras were set in groups of from 1-3 cameras focused on bait stations with chicken carcasses. Camera traps were set up only between 5 pm and 8 am. Due to high daytime traffic of humans throughout the study site and thus the risk of theft, the survey team camped near where camera traps were set each night.

***Initial analysis indicates that individual identification based on pelage markings is possible. Video images allow for extraction of still images with optimum perspective and angle for comparison of animals.***

## Results

***Occurrence of Fishing Cats and Other Wildlife***

Interviews and observations at local residences and markets revealed that hunting and trapping of a wide variety of species is common with various species eaten or sold in local markets.

A senior park ranger described an event where, in November 2007, a local farmer collected two live fishing cat kittens after having scared away the mother while ploughing his field. He directed the survey team to the houses of two local residents where we confirmed two adult male cats of apparently the same age are being kept in small yet humane enclosures. The cats appear to be in excellent health and are reportedly fed a generous diet of fish.

Interviews further revealed that a few local residents are known to have captured fishing cats using simple cable snares. Given the gauge of the cable used in the snares and considering other species in these areas, it is likely that fishing cats were the intended target of these snares. It is clear that fishing cats are considered a valuable capture and can be sold for perhaps 1000 baht ($35) or more. In fact, one interviewee was quite candid in recounting that he had found the remains of a fishing cat paw in one of his snares (in September 2008) and later noted tracks of an animal missing a right paw (a "peg-legged" male is among the animals documented in this survey (see photos below)).

From interviews, we built up a search image for potential fishing cat habitat. It appears that most fishing cat sightings and sign have been observed around reed-grass "islands" within a large (~3 x 3 km) rice paddy area to the southwest of the park.

We found tracks that we interpreted as having been made by fishing cats at several sites within this paddy area. Tracks were especially abundant near edges of several reed grass patches and around smaller pools and puddles of water. We noted the remains of fish eaten by some animal in these areas. Scats thought to be of fishing cats were observed in these areas—often representing apparent latrine areas where many faecal deposits occurred within areas of less than 1 $m^2$.

We recorded tracks of an adult cat together with those of a smaller cat and interpreted this as preliminary evidence of fishing cat breeding. This was subsequently confirmed by photos of an adult female accompanied by a younger (apparently male) kitten (see below).

Three semi-natural reed grass patches were targeted for camera trapping. A total of 230 video clips and 238 still photos were recorded during 54 trap nights at sites clustered around these three patches. Fishing cats had the highest capture frequency with 203 exposures obtained from 15 distinct locations during 20 of the 54 trap nights. Analysis of the size, pelage patterns, body characteristics, condition, and behaviour indicated that these captures represented at least three (an adult female, a ~3-4

month-old kitten, and another (apparently male) adult missing a right front paw) and potentially four or more individual fishing cats. The three trapping clusters formed a roughly north-south axis with the distance between clusters ranging from 0.9 to 2.8 kilometres. The female/kitten pair was photographed in each patch whereas the adult male may only have been photographed only in the southernmost patch.

*Adult female "Wishbone". Her name comes from the Y-shaped lines on her right shoulder which resemble a wish bone*

*Wish bone and her kitten*

*Wishbone and her kitten*

*Wishbone's kitten*

*Wishbone's kitten*

*"Peg leg" -- a male fishing cat that lost his right paw escaping from a cable snare*

Also captured in camera traps were a nightjar, another (unidentified) bird, several large rats, numerous domestic cattle, two domestic dogs, and one local farmer.

*A nightjar lands on one of the stakes used to secure bait*

*A domestic dog investigates a trap station*

*A local farmer has a look at one of the cameras*

***Threats to Fishing Cats***

On a broad scale, it is clear that land conversion for shrimp farms has substantially reduced the amount of habitat potentially available for fishing cats in and around Khao Sam Roi Yod National Park. We have begun a systematic assessment of habitat in this area and will be using both satellite images and aerial photos to map current and historical land cover patterns.

Snares were observed frequently in areas around reed grass patches. Presumably as a consequence of a snare capture (reported by a hunter during an interview), one fishing cat recorded by camera traps appeared to have lost its right front paw. There is evidence that some snares are erected with fishing cats as a target species based on the height and weight of the mechanism (usually made of bamboo) and the gauge of cable used.

Our interview survey indicated that fishing cats are only infrequently poached. However, the relatively high market value may continue to drive illegal capture activities—especially during times of the year when other sources of income are diminished.

Mist nets were observed at several locations in the study site. We found at least 20 birds (ranging from small songbirds to kingfishers to red-wattled lapwings) dead in nets rescued numerous other birds during our survey. According to local residents, mist nets are erected both to remove perceived "pest" species from the area (many birds feed on the rice crop) and also as food or to sell at local markets. Many other mechanisms to ward off the birds were observed in fields including scarecrows, simple noisemaking chimes, fire crackers and plastic bags tied to posts or shrubs.

## Education and Outreach Activities

Although a systematic strategy for education and outreach is still being formulated for this area, we initiated several relevant activities during this reporting period.

The chief of Khao Sam Roi Yod National Park, Mr. Twatchai Satienkarn has expressed a keen interest in pursuing fishing cat conservation in and around the park and in promoting the area as one of the few places in Thailand where fishing cats are reproducing in the wild. Mr. Twatchai is generally supportive of adding fishing cat interpretive materials to the park's two primary visitor centres and has expressed an interest in having fishing cat ecology and habitat requirements inform upcoming efforts to define and further develop ecological corridors to link more intact areas of the park.

In addition to numerous interviews and discussions with local residents, the survey team met with the community chief of Khao Daeng village (where fishing cats were documented) where we discussed the status of fishing cats in the region and around Khao Sam Roi Yod. We further discussed our collaboration to work on promoting the conservation of fishing cats in the area. The chief is convinced of the significance of fishing cat conservation and committed to facilitating this conservation message in upcoming community activities and meetings.

***Interview with Lung Chong, an experienced local hunter.***

We developed a Thai poster celebrating the conservation significance of the fishing cat (see below) and displayed this during festivities to mark world wetland day on 2 February. We plan to have multiple copies of the poster produced for display at several park locations, at local schools, and various other community locations.


## References

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## Acknowledgements

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This survey would not have been possible without the thoughtful and professional field assistance of all staff from the Khao Sam Roi Yod National Park, especially Tongyod (whose enthusiasm has been a major boost to virtually all project activities). A large part of the successful photo-capture of a fishing cat is due to Tongyod's contribution. Most of all, I would like to extend my warm gratitude and appreciation to the communities around the Khao Sam Roi Yod National Park who have shared their homes, food, and friendship with me. Their warm hospitality has been extraordinary.

# Appendix 1. Additional Photos

*Sign survey*

*Sign survey*

*Sign survey*

*A latrine site*

*Collecting scats for dietary analysis*

*Setting up an automated photo and video trap*

*Annual burning of rice fields*

*Noisemaker for scaring birds*

*Mangrove reforestation area, shrimp farms, and coastline as seen from a viewpoint ~300 m above sea level*

*Bird snare*

*Rescuing a nightjar from a mistnet in the agricultural areas around Khao Sam Roi Yod National Park*