



Surveys for Fishing Cats
(*Prionailurus viverrinus*) in Thailand

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Smithsonian
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**Fishing Cat
Species
Survival Plan**

Introduction

Fishing cats are medium-sized nocturnal felids ranging throughout tropical Asia from India, Sri Lanka and Nepal through western India and Burma to Thailand and Indochina. A number of populations are also found on the islands of Sumatra and Java (Lekagul & McNeely 1977). Their habitat is mostly brush or scrub near water. They feed on fish, crabs, rodents, birds, hard-shelled freshwater mollusks, and any other animals they can catch (Lekagul & McNeely 1977).

Fishing cats are listed as vulnerable on the 2003 IUCN Red List (IUCN 2003) and listed as CITES Appendix II. 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. Lekagul and McNeely (Lekagul & McNeely 1977) cite a case where a fishing cat killed a leopard twice its size, and there is a report of a fishing cat taking a small child in India.

In Thailand, available range maps show fishing cats ranging throughout the northern areas of the country down to Isthmus of Kra. A recent record from Thale Noi wetland area in Pattalung (Murray 1999) represents an extension of this range significantly further south. Although there are historical records of fishing cats occurring in southernmost Thailand and peninsular Malaysia, there are no recent records from this area.

The aim of this project is to provide concrete documentation of the present distribution of fishing cats throughout Thailand starting with the peninsular region in hopes that these new data will better inform conservation and management efforts for the species.

The project's specific objectives are:

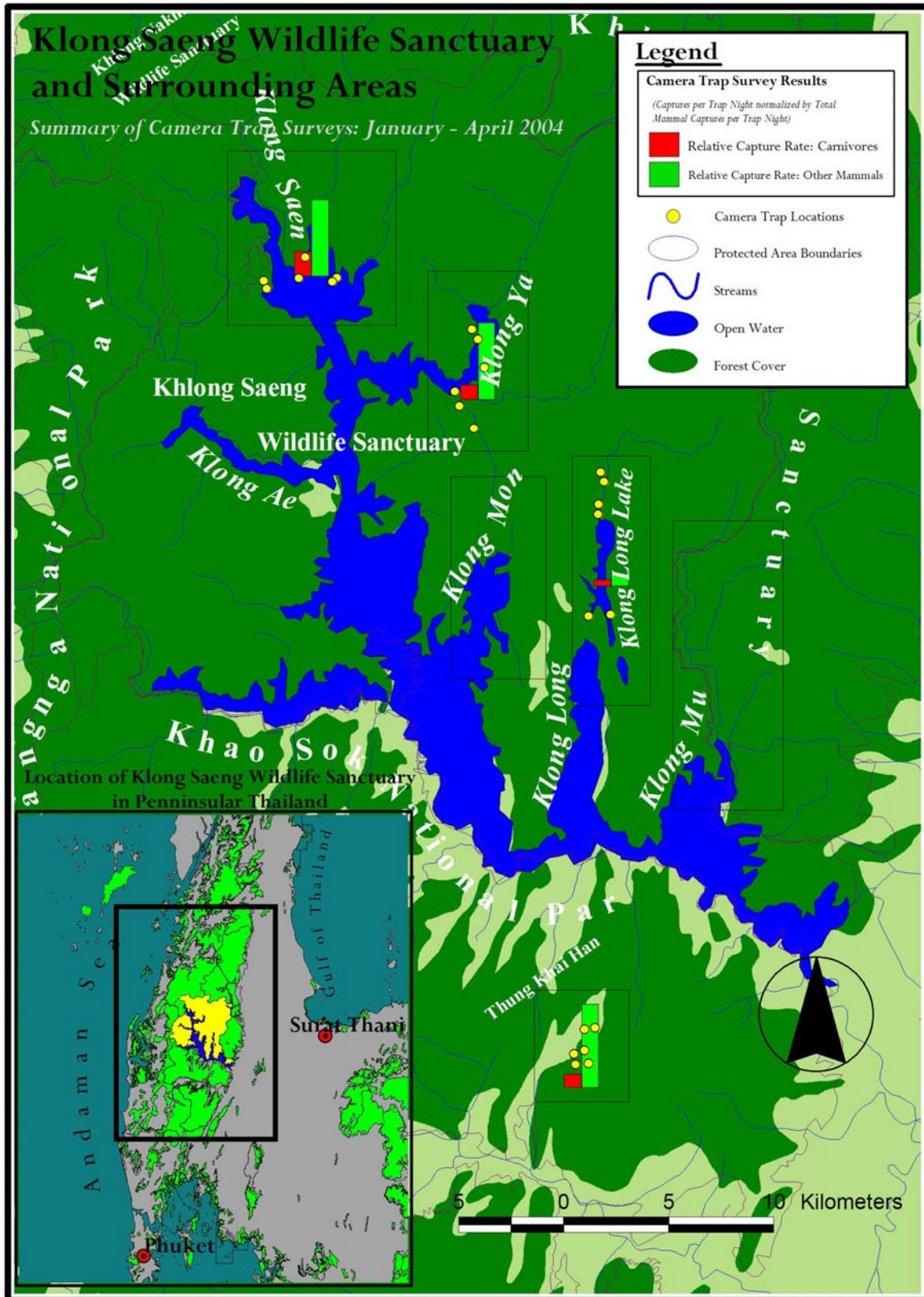
1. To review current and historical records of fishing cats in Thailand.
2. To assess the current distribution of fishing cats in Thailand.
3. To identify threats to the species in Thailand.
4. To obtain high quality photographs of fishing cats in areas where they presently occur.

Secondary objectives are to provide information about which methods are most effective for detecting fishing cats in an area and how much effort is necessary to do so.

This report covers the initial project survey period which has focused on Klong Saeng Wildlife Sanctuary in Surat Thani province. Results are summarized for surveys in four of six focal survey zones (see Map 1). Additional surveys are currently taking place in a fifth zone and surveys are scheduled for the sixth zone in June 2004.

Study area and selection of survey sites

Klong Saeng Wildlife Sanctuary (see Map 1) was selected for initial surveys based on the abundance of potential fishing cat habitat present in the sanctuary and because recent surveys have documented a high overall diversity of carnivores. A relatively well-developed research infrastructure and associated resources (i.e. existing mammal database, trained field technicians, transportation, etc.) also made the site attractive as a starting point for surveys and a testing ground for methods.



Map 1. Klong Saeng Wildlife Sanctuary and Surrounding Areas

Prior to Klong Saeng being designated a wildlife sanctuary, parts of the area were settled by humans with more than 40 villages inside what is now the sanctuary boundary. All of these villages were relocated after the area was designated as a wildlife sanctuary

in 1974. From 1986-1988 a major dam was constructed near the sanctuary's southern boundary to make a large reservoir that now extends through the central portion of the protected area. The approximate total land area of the sanctuary is 1,155 km² with the surface area of the reservoir approximately 81 km². Although commercial activities are usually prohibited within wildlife sanctuaries, a range of activities are permitted within Klong Saeng including commercial fishing and a tourism industry revolving around floating rafts at approximately 10 locations around the reservoir.

Methods

Survey site selection

Previous survey work (Kanchanasaka 2001) indicates that the areas with the highest abundance and diversity of mammals are areas around Klong Long, Klong Saeng, Klong Yah Streams, Klong Mon and Klong Suan (see Map 1). Based on these data and preliminary interviews carried out prior to this survey, a number of zones within the sanctuary were identified as representing the most likely areas of fishing cat occurrence. Given the time and resources available during this initial survey period, six of these zones were selected as focal survey areas (see Map 1).

Development of reference collection of fishing cat sign and photos

To provide an objective reference for signs found in the field, plaster casts and reference photos of fishing cats were obtained from captive animals at Khao Kieow Open Zoo and Khao Pratubchang Wildlife Research and Breeding Center. Casts were taken from both relatively moist clay and sand (see photos in Appendix 1).

Camera Trapping

Camera trap surveys were conducted by a team made up of one team leader and 2-3 experienced field technicians provided by the Klong Saeng Research Station.

Within the pre-selected survey zones, Six Camtracker[®] camera traps were set for a period of 10-20 days at locations that met at least one and usually several of the following criteria (in order of significance):

1. Remote areas with little or no human activity.
2. Areas within approximately 20 meters of a relatively shallow and slow moving (or still) water source observed to have fish (e.g. stream or lake shore).
3. Areas where signs of recent carnivore activity were detected.

After each survey period the survey team removed the film for processing and relocated camera traps to other selected sites.

Results

Reference materials

The casts collected from captive animals differed significantly from those presented in the most recent reference I could find. Specifically, the track presented in Kanchanasaka et. al. (1998), lacks claw marks (a trait visible in both the clay and sand reference tracks). Although this may simply represent the range of natural variability in tracks of the species due to such environmental variables as substrate and size of the individual cat, it is likely--given the habitat preferences of the species--that tracks found in the field would display claw marks. Fishing cats also have webbed paws—a trait that was visible (although only slightly so) in the mud substrate casts I made.

Field Survey Effort

Six camera traps were active at 4 different survey areas during five distinct periods for a total of 528 trap nights (see Table below).

Period	Location	Dates
1	Klong Long Lake and stream	22 December 2003-13 January 2004
2	Klong Saeng Stream	14-25 January 2004
3	Tung Khai Han	5-14-February 2004
4	Klong Long Lake and stream	19 February-12 March 2004
5	Klong Yah Stream	14-March-6 April 2004

Mammal Occurrence

Summary. 528 trap nights of active camera trap survey resulted in 196 “captures” of either wildlife or human activity (See Appendix 1). 20 species of wildlife were detected comprising 5 carnivore species, 10 other mammal species (not including humans), and 5 bird species. Poachers (humans carrying bags apparently with either forest products or equipment) were photographed on 3 occasions.

Carnivores. Evidence of fishing cat occurrence during this phase of the project was provisional; it consisted of non-specific reports from local residents and could not be verified on the ground.

A total of 16 camera trap photos of carnivores include the following species: Malayan Sun Bear, Crab-eating Mongoose, Banded Linsang, Banded Palm Civet, and Smooth-coated Otter.

Other Mammals. 126 photos of non-carnivore mammals were obtained representing 10 different species. Wild boars were the most frequently photo-captured species (57 out of 196) and were captured at all focal areas. Gaur was photo-captured on one occasion in the Klong Yah focal area—although tracks occurred at all focal areas.

Birds. Five identifiable species of birds (and one potentially different but unidentified species) were recorded by camera traps. These included Great Argus (listed as uncommon resident) and Storm Stork whose Thailand range is limited to the Klong Saeng-Khaosok complex and is listed as very rare resident on the verge of extinction (Lekagul & Round 1991).

Threats to Wildlife

Klong Saeng Wildlife Sanctuary is opened to the public for various activities including fishing and overnight stays in floating raft bungalows. The construction of the dam and subsequent increase in infrastructure development now provides greater than ever access to more remote parts of the sanctuary--mainly by boat. These activities have become a chief conservation concern of officials there. Signs of humans were observed at all locations visited during our surveys, especially the northern and western sides of the reservoir where there are several villages located along the boundary of the sanctuary and where access is made easier by the relatively gentle terrain.

Evidence of trekking and poaching activity in several remote areas raises concern that distribution patterns of secretive wildlife may be altered. Many rich wildlife areas around the lake are being promoted as wildlife spotting areas by tour operators.

There are at least 10 floating guest house and fishing rafts sites in Klong Saeng and trekking trips are being offered to tourists throughout the sanctuary. The Lang Ka Tuk ridge (the high point of the sanctuary located in the northern section) is one of the popular spots.

Both subsistence and commercial fishing activities take place throughout the lake.. Fishing nets can be seen at several locations near the edge of the dam and up to the main streams and their tributaries. During one of our surveys along Klong Long Stream, we found an owl caught in a fishing net and near death. We also documented reports of monitor lizards found dead in lines of fish hooks that are set just beneath the surface of the water.

Poachers were recorded by the camera traps at two locations along Klong Long Stream and at the northern part of Klong Long Lake.

Discussion and Recommendations

This survey demonstrates the value of camera traps in documenting otherwise difficult to detect wildlife species. The camera traps used have documented an impressive diversity of wildlife including rare carnivores such as the Banded Palm Civet and Banded Linsang and rare birds such as Storm's Stork.

I recommend the following based on this preliminary work:

1. Additional surveys should be carried out at other sites where there are current or historical records of Fishing Cat occurrence. Discussions with other researchers and Department of National Parks, Wildlife and Plant Conservation officials have so far generated the following list of target areas for future surveys: Tale Noi National Park in Pattalung, Tararutao Marine National Park in Satun, and Khao Sam Roi Yod National Park in Petchburi.
2. Additional efforts should be made to share information with others who may be in a position to document fishing cats. This would include field biologists, protected area staff, and others living or working in areas of suitable Fishing Cat habitat.
3. Attempts should be made to quantify human activity in all areas surveyed so that what appears to be a growing level of human disturbance can be documented and included in an analysis of threats to Fishing Cats.
4. Additional camera traps should be acquired if possible to increase the coverage in targeted sites. Such an increase may mean increasing survey team size or increasing the number of teams.

Acknowledgements

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This survey would not be possible without the thoughtful and professional field assistance of all staff from Klong Saeng Research Station.

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Appendix 2. Selected Photos

Working with captive fishing cats



Picture of a fishing cat taken from Khao Khiow Open Zoo



Picture of a fishing cat taken at Khao Pratap Chang's Research and Breeding Center



Preparing track box



Fishing track on clay made at Khao Pratap Chang's Research and Breeding Center



Fishing track on clay made at Khao Pratap Chang's Research and Breeding Center



Tracing tracks at Khao Kiew Open Zoo



Preparing plaster



Measuring tracks at Khao Kiew Open Zoo



Measuring tracks

Field Activities



Fishing cat survey team



Survey site at Klong Saeng WS (Main Lake)



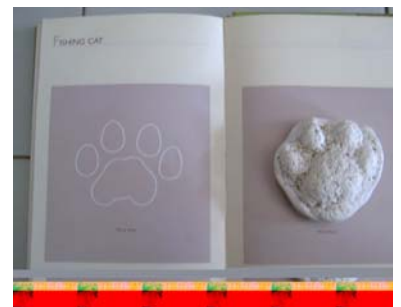
One of the caves where otter tracks were found



Survey along stream at northern end of Klong Long Lake



Making plaster cast



Comparing plaster cast of a track from Klong Long Lake with compare with the fishing cat track on the Mammals of Mainland Southeast Asia Book (show no claw marks)



Setting up camera trap



Flying squirrel found stranded on tree in Klong Long Lake



The same flying squirrel found dead the next day



Otter feeding location



Remains of wild boar(likely killed by leopard)



Small carnivore tracks found along stream



Otter tracks found in cave



Bear track found during survey



Tapir track found during survey

Threats



Floating guest houses on the dam inside Klong Saeng WS



A woman preparing fishing net



Fisherman's raft

Some wildlife and poachers recorded by the camera traps



Smooth-coated Otters



Smooth-coated Otter



Malayan Sun Bear



Banded Linsang



Malayan Tapir



Barking deer



Crab-eating Mongoose



Sambar deer



Wild boar



Malayan Porcupine



Great Argus



Stump-tailed macaque



Poacher



Poacher



Poacher