

Report to Smithsonian's National Zoological Park and Cincinnati Zoo:

**Fishing Cat Survey in Maenam Pachi Wildlife Sanctuary,
Rat Buri Province, Thailand
4-8 August 2005**

Submitted by
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Executive Summary

This report covers the third of several field trips to document fishing cat presence/absence at Maenam Pachi Wildlife Sanctuary, Rat Buri Province, Thailand. This report covers the period 4-8 August 2005.

The primary goals of the surveys were 1) to set up camera traps at targeted locations within Maenam Pachi WS and 2) to carry out a general reconnaissance of the sanctuary for the purpose of planning additional surveys.

This survey is a preliminary effort to determine fishing cat presence and absence within a well-defined area. If the occurrence of fishing cats can be confirmed, then longer term distribution surveys and conservation strategies will be considered.

During our approximately 10 kilometer survey along Pu Namron stream and its tributary stream, we found tracks of small-clawed otters, jackal and hog badger tracks were also found near the Pu Namron Station. Rangers reported that wild dogs have been found in the forest near the Pu Namron Station. Bear tracks were also found along the Pu Namron stream. Some of the clear tracks were measured and photographed the tracks and we set 8 camera traps at locations where we thought would be best for capturing photos of carnivores along the stream. Camera traps were left in those locations for approximately 20 trap nights.



Ranger prepare camera traps

After approximately 20 trap nights camera traps were retrieved and film developed. Results of camera traps number 1, 4, 13, 14, 18 detected total of three Common Palm Civet photos, two Tapir photos, three different species of bird photos, two stump-tailed macaque photos, one muntjak photo, two wild jungle fowl photos, five mouse spp photos and one squirrel sp. photo. Whereas camera traps number 2, 3 did not detect any wildlife and that may be due to camera malfunction because of heavy rain which resulted in the moist inside these cameras and film stuck together.

We also struggled with getting film out of the cameras after retrieved. One roll of the film was exposed to light when attempted to take it out of the camera (No. 20).

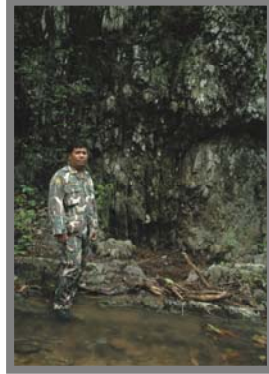
Selecting survey route

We selected to survey The Huay Pu Namron stream based on reports of wildlife occurrences from rangers. This stream has remark features such as mineral lick and a swamp of approximately 35 meters in diameters (see locations on map) where wildlife depend on for water and minerals all year round and more intensively during the dry season.

Gaur, tapir and barking deer tracks were detected during our survey at these remark locations.



Pu Namfon Ron
Stream



A mineral lick along the Pu
Namron stream—dries up
during the dry season and
wildlife can get to mineral



Cycad found along the stream



This land crab can be
commonly found in the stream



A 1.5 meter long monitor
lizard found on the hike to
the Pong Pu Namron
swamp



Threats—this sign shows that
this route had been traveled
by Karen rabels

Pong Pu Namron swamp features and activities



Trail leads to the swamp



Gaur, tapir and barking deer tracks found along trail



Examining tracks



Mixing plaster



Making plaster of tracks



Examining plaster of tapir track



Azelia xylocarpa—one of the 5 classic high-pirzed trees of mixed deciduous forest and sought after for its reddish timber-rare species

Survey goals

- 1) to collect data on carnivore presence/absence
- 2) to train rangers to assist in the field survey on sign identification and camera trapping

Selecting the Survey Area

Maenam Pachi Wildlife Sanctuary is the second focal area selected for an ongoing survey of fishing cats in Thailand with an initial survey focusing on Klong Saeng Wildlife Sanctuary to the south. The selection was based on the following:

- **Nearby records:** Fishing cats have been photographed in neighboring Kaeng Krachan National Park (WCS 2004).
- **Suitable habitat:** several areas within the sanctuary are considered suitable habitat for fishing cats based on literature descriptions and current and historical records of fishing cat occurrence.
- **Conservation Management.** The sanctuary lies between the southern part of the Western Forest Complex and Kaeng Krachan and Kui buri NPs where the Thai government is now working with the Asian Development Bank to initiate a major landscape-scale conservation project over the next 5 years with the hope of establishing a greater amount of connectivity between all the protected areas in this part of western Thailand.
- **Logistics.** The site is a modest drive from both Bangkok and Kanchanaburi (Cutter's residence). Additionally, at this stage in the project--with a limited number of camera traps--it makes more sense to focus on a smaller survey area and attempt to survey it comprehensively than to focus on a large area.

Survey Area Description

Maenam Pachi Wildlife Sanctuary established in 1978. It covers 489.31 km² and is located in Rat Buri province approximately 135 km to the west of Bangkok. It is contiguous with the international border with Burma to the west and to Kaeng Krachan National Park (2915 square kilometers) to the south. The nearest major town is Rat Buri, some 60km to the east.

Physical Features. The topography of the area is primarily dry hills of 300-1500 m. A number of streams flow north to an irrigation dam near Kanchanaburi (Round, 1985; Sayer, 1981).

Climate. The climate is subtropical with a distinct December to April dry season. Mean annual rainfall is about 1500mm and mean annual temperature is about 28 degree C (RFD, n.d.)

Vegetation. Semi-evergreen and dry evergreen forests predominate, with dry dipterocarp and mixed deciduous formations occurring where soils are poor and shallow and widespread bamboo where forests have been impacted by selective logging and other activities over the last 50 years. Commercially valuable tree species include *Dipterocarpus alatus*, *Hopea odorata*, *Azelia xylocarpa*, *Pterocarpus macrocarpus*, *Xylia kerii*, *Shorea obtusa* and *Pentacme suavis* (RFD, n.d.; Sayer, 1981).

Fauna. In 1985, elephant *Elephas maximus* numbers were estimated at between 25 and 75 individuals. Shortly thereafter, however, elephants were almost completely extirpated due to intensive tin mining at one localized site and general poaching pressure. Now a small herd is occasionally seen near the border with Kaeng Krachan NP. Other large mammals include tiger *Panthera tigris* (E), leopard *P. pardus* (V), sambar *Cervus unicolor*, Indian muntjac *Muntiacus muntjak*, gaur *Bos gaurus*, serow *Capricornis sumatraensis* and tapir *Tapirus indicus* (E) (RFD, n.d.; Sayer, 1981). Although the bird community has not been surveyed (Round, 1985), green peafowl *Pavo muticus* (V) are reported (Sayer, 1981).

Conservation Significance and Management. The Maenam Phachi Wildlife Sanctuary and Kaeng Krachan National Park complex is considered a key site for elephant conservation (Dobias, 1987). The sanctuary also protects a part of the Kaeng Krachan Reservoir catchment (Sayer, 1981).

Management Constraints. Game poaching of smaller species in the Phu Nam Ron and Huay Thong Kin Chao stream areas near the border of Kaeng Krachan is heavy throughout the year. The same areas are burned annually during the dry season (Storer, 1981) and there has been significant insurgent occupation (Burmese rebel groups) up through 2003 when Thai military troops set up permanently manned stations along the Burmese border. Up until 20 years ago tin mining operations were active in the Huay Thong Kin Chao and Huay Nam Nak areas. Impacted forests have recovered somewhat since their closure, but are still threatened by annual fire.

Survey Team

Passanan Cutter, Jadet Com-A, Tian Akanan



Methods

Camera trap and sign survey methods were implemented to detect evidence of fishing cats and other carnivores. Camera traps were set at potential spots where carnivore signs were found.

Areas along streams or where water sources such as swamps, springs and mineral licks were the main focused sites for the survey.



Survey Routes

- Survey started with walking along part of Pu Namron Stream and its tributary, Huay Ta Gao, Huay Pong Grating and Huay Pa Dum (see map) to check out tracks and look for potential locations for camera traps.

Locations of camera traps

Camera trap #13	0539352, 1464620
Camera trap #14	0540379, 1464777
Camera trap #20	0530043, 1465201
Camera trap #18	0539712, 1464330
Camera trap #1	0538870, 1465050
Camera trap #2	0541335, 1465201
Camera trap #3	0538072, 1465150
Camera trap #4	0541393, 1464866

Mammal observations

Carnivore species documented are summarized in Table 1. Most reports of species occurrence were questionable and are not reported here.

Species List - Carnivores

Family	Common Name	Latin Name	Method(s) of detection*	ID Confidence**
Felidae	Fishing Cat	<i>Prionailurus viverrinus</i>		0
Felidae	Leopard	<i>Panthera pardus</i>		0
	Tiger	<i>Panthera tigris</i>		0
Felidae	Leopard cat	<i>Prionailurus bengalensis</i>		0
Mustelidae	Smooth-coated Otter	<i>Lutra perspicillata</i>		
	Small-clawed Otter	<i>Amblonyx cinerea</i>	t	2
Vivarridae	Civet		t	
Ursidae	Bear sp.	<i>Ursus thibetanus</i> or <i>Helarctos malayanus</i>	t	4
Canidae	Wild dog			
	Jackal		t	3

* d = direct observation; p = photo trap; t = tracks; v = vocalization; f = feces, c = clawmarks; r = remains

** 4 = ID Certain; 3 = Strong evidence for ID; 2 = Weak evidence for ID; 1 = Best guess



Civet track



Bear track



Hog badger track



Porcupine track



Jackal track?

Track measurements

Jackal	Right Hind?				Right Front				Left Hind				Left Front			
Trackset	PW	PL	TW	TL	PW	PL	TW	TL	PW	PL	TW	TL	PW	PL	TW	TL
1 UTM: 0541127 1464807	2.2		4.6	6.0												
2 UTM: 0540433 1464676	2.2		4.6	5.3												

Hog Badger	Right Hind				Right Front				Left Hind				Left Front			
Trackset	PW	PL	TW	TL	PW	PL	TW	TL	PW	PL	TW	TL	PW	PL	TW	TL
1 UTM: 0541335 1464953	2.5	2.2	2.0	3.7			4.4	8.9							3.9	8.8
2 Same location	2.6	2.2	4.3	3.7											4.3	

Species List – Herbivores

Family	Common Name	Latin Name	Method(s) of detection*	ID Confidence**
Cervidae	Barking deer	<i>Muntiacus muntjak</i>	t	1
Tragulidae	Mouse deer	<i>Tragulus javanicus</i>	t	0
Bovidae	Banteng	<i>Bos javanicus</i>		
	Gaur	<i>Bos frontalis</i>		4
Suidae	Wild boar	<i>Sus scrofa</i>	Wallow	
Tapiridae	Malayan tapir	<i>Tapirus indicus</i>	t	4

* d = direct observation; p = photo trap; t = tracks; v = vocalization; f = feces, c = clawmarks; r = remains

** 4 = ID Certain; 3 = Strong evidence for ID; 2 = Weak evidence for ID; 1 = Best guess

Relative Abundances of Mammal Sign

Frequency of mammal sign was recorded during walking surveys. The following table summarizes these data. Entries include relative abundance value (2= abundant (species detected more than once per km walked), 1=occasional (species detected less than once per km), 0=species not detected, ?=species detected but ID uncertain) and type of detection (d = direct observation; p = photo trap; t = tracks; v = vocalization; f = feces, c = clawmarks; r = remains).

Survey	Km (approx.)	Substrate	Occurrences of tracks/feces/direct observation												
			Leopard	Tiger	Fishing cat	Leopard cat	Sambar	Barking deer	Mouse deer	Wild pig	Gaur	Tapir	Civet	Otter	Porcupine
Pu Namron Stream	10	Mud/sand	0	0	0	0	0	1		1/wallow	1/t	1/t	1/t	1/t	1/t

Additional Mammal Observations

Other mammal observed or detected during surveys included Lar gibbons calls.

Acknowledgements

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This survey would not be possible without the thoughtful and field assistance of Jadet Chom-A, Jan Guapu and Tian Akanan and all staff from the wildlife sanctuary.

Camera trap survey results:

Please see high resolution photos retrieved from camera traps on: www.conservatonasia.org

Camera trap #1



Gallus gallus-Red Jungle Fowl



Gallus gallus-Red Jungle Fowl



Mouse sp.



Paradoxurus hermaphroditus-
Common Palm Civet

Camera trap #4



Pitta moluccensis-Blue-winged Pitta



Mouse sp.



????



Chalcophaps indica-Emerald Dove



Rail sp.



Squirrel sp.



Mouse sp.

Camera trap #13



Macaca arctoides-stump-tailed macaque



Macaca arctoides-stump-tailed macaque



Mouse sp.

Camera trap #14



Muntiacus muntjak-muntjak or barking deer

Camera trap #18



Paradoxurus hermaphroditis-Common Palm Civet



Tapirus indicus-Malayan Tapir



Tapirus indicus-Malayan Tapir



Paradoxurus hermaphroditis-Common Palm Civet

Map of surveyed areas

