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Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

SHORT COMMUNICATION

RECENT PHOTOGRAPHIC RECORDS OF FISHING CAT

PRIONAILURUS VIVERRINUS (BENNETT, 1833) (CARNIVORA: FELIDAE) IN THE AYEYARWADY DELTA OF MYANMAR

Naing Lin & Steven G. Platt

26 May 2019 | Vol. 11 | No. 7 | Pages: 13910–13914

DOI: 10.11609/jott.4795.11.7.13910-13914



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RECENT PHOTOGRAPHIC RECORDS OF FISHING CAT *PRIONAILURUS VIVERRINUS* (BENNETT, 1833) (CARNIVORA: FELIDAE) IN THE AYEYARWADY DELTA OF MYANMAR

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Abstract: The distribution of the Fishing Cat *Prionailurus viverrinus* (Carnivora: Felidae) in Myanmar remains poorly known owing to a paucity of verifiable field records. We here present two recent photographic records that confirm the occurrence of the Fishing Cat in the Ayeyarwady Delta of southern Myanmar. Our photographic records together with other reports and the availability of suitable wetland habitat suggest that the Ayeyarwady Delta is globally important for Fishing Cat conservation. Deforestation, driven largely by agriculture, however, is of concern for the future survival of the Fishing Cat in Myanmar. Additional surveys are warranted to further resolve the distribution of the Fishing Cat in Myanmar.

Keywords: Carnivore, conservation status, distribution record, wetland.

The Fishing Cat *Prionailurus viverrinus* is a small, wetland-dependent cat with an extensive albeit discontinuous geographic range in southern and southeastern Asia (Mukherjee et al. 2016; Chutipong et al. 2019; Poudel et al. 2019). The distribution and occurrence of the Fishing Cat within this extensive geographic range remains ill-defined and poorly known owing to the 1) the paucity of recent authenticated records, the 2) the numerous unauthenticated,

ambiguous, and erroneous records, and the 3) the difficulties associated with detecting this small cat in the wild (Mukherjee et al. 2016). This situation is lamentable because Fishing Cat populations are thought to be declining at an alarming rate in all range countries, especially those in southeastern Asia (Mukherjee et al. 2016). Accurate distribution data, particularly from protected areas, are an essential prerequisite for designing effective conservation strategies (Dodd & Franz 1993; Stohlgren et al. 1994). Indeed, targeted conservation efforts for Fishing Cat are frequently hindered by the lack of reliable distribution and occurrence data (Duckworth et al. 2009, 2010; Mukherjee et al. 2012, 2016; Than Zaw et al. 2014).

Similar to other range countries in southeastern Asia (e.g., Duckworth et al. 2010; Rainey & Kong 2010), data on the occurrence and distribution of Fishing Cat in Myanmar are sparse (Than Zaw et al. 2014; Mukherjee et al. 2016). According to Morris (1936), two Fishing Cats were encountered and one collected along the Chindwin River near Dalu (Taro) in what is now Hukaung Valley Wildlife Sanctuary (Fig. 1). Shepherd & Nijman (2008)

DOI: <https://doi.org/10.11609/jott.4795.11.7.13910-13914> | **ZooBank:** urn:lsid:zoobank.org:pub:829D08E6-9432-432F-9D57-5EDCF21D39F2

Editor: Angie Appel, Wild Cat Network, Germany.

Date of publication: 26 May 2019 (online & print)

Manuscript details: #4795 | Received 04 January 2019 | Final received 26 March 2019 | Finally accepted 16 May 2019

Citation: Lin, N. & S.G. Platt (2019). Recent photographic records of Fishing Cat *Prionailurus viverrinus* (Bennett, 1833) (Carnivora: Felidae) in the Ayeyarwady Delta of Myanmar. *Journal of Threatened Taxa* 11(7): 13910–13914. <https://doi.org/10.11609/jott.4795.11.7.13910-13914>

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Funding: Margaret A. Cargill Foundation and Andrew Sabin and the Andrew Sabin Family Foundation.

Competing interests: The authors declare no competing interests.

Acknowledgements: Support for this project was provided by Margaret A. Cargill Foundation. Additional support was provided to SGP by Andrew Sabin and the Sabin Family Foundation. We thank Za Htoo Aung for facilitating our work in MKWS and Htet Lin Kyaw and Pyae Phyo Aung for field assistance. The efforts of Than Myint, Saw Htun, Thet Zaw Naing, and Alex Diment contributed to the success of our endeavour. We are especially grateful to Ai Suzuki for sharing her extensive knowledge of Fishing Cat biology, Onishi Shingo for granting us permission to include his excellent image in this paper, Htun Myint for suggestions regarding potential survey areas, Deb Levinson for assistance with obtaining literature, Kyaw Zay Ya for preparing our map, and Will Duckworth, Alexander Sliwa, Daniel Willcox, and Shomita Mukherjee for confirming that the cats in our images are indeed Fishing Cats. An early draft of our manuscript benefited from the comments of Thomas “Chief” Rainwater, Will Duckworth, and Lewis Medlock.



recorded 37 Fishing Cat skins offered for sale at illicit wildlife markets in Tachilek during 1991–1992, although the origin of these skins could not be determined with any degree of certainty. Furthermore, given the frequent misidentifications of even living animals, the reliability of these identifications are open to question. Similarly, a mounted specimen of unknown provenance (but presumably from Myanmar) was photographed in a Yangon curio shop in 2011 (Than Zaw et al. 2014). In the Ayeyarwady Delta, Forest Department staff reportedly observed Fishing Cats during an Estuarine Crocodile *Crocodylus porosus* survey of Meinmahla Kyun Wildlife Sanctuary (MKWS; Fig. 1), although no corroborating evidence (such as images) are available to confirm these sightings (Thorbjarnarson et al. 1999). Five Fishing Cats held in the Yangon Zoo were said to be captive-bred progeny from adults collected in the region during the late 1990s (Than Zaw et al. 2014). Despite the paucity of recent verifiable field records, Mukherjee et al. (2016) nonetheless suggested that Ayeyarwady Delta is likely to represent a globally important area for Fishing Cat conservation owing to the widespread availability of potentially suitable habitat. We here present two recent photographic records of known provenance that confirm the occurrence of Fishing Cat in the Ayeyarwady Delta. To our knowledge, these are the first verifiable locality-based records of Fishing Cat in Myanmar since the account of Morris (1936).

Our first photographic record of a Fishing Cat was taken by Onishi Shingo in MKWS on 20 February 2016 (Image 1). MKWS is an ASEAN Heritage Site comprising 137 km² of mangrove swamp, scrub forest, and wet grassland in the lower Ayeyarwady Delta (Beffasti & Galanti 2011). Much of MKWS is being converted to Phoenix Palm *Phoenix paludosa* thickets as a result of widespread illegal cutting of mangroves for fuelwood (Harris et al. 2016). The Fishing Cat was photographed from a passing boat while sitting on the bank of a tidal creek (Fig. 1; Polaung Lay Chaung; 15.973°N & 95.287°E; altitude = 1.0 m). The bedraggled appearance of the cat suggests that it was foraging in the creek shortly before the image was taken.

Our second photographic record of a Fishing Cat was obtained from an automated game camera deployed at a commercial fish pond approximately 17 km north of Maubin (Maubin Township) in Ayeyarwady Region. This low-lying site (16.819°N & 95.695°E; altitude = 4.0 m) is located within an anthropogenic landscape characterized by commercial fish ponds, rice fields, and natural wetlands laced with an extensive network of creeks, drainage ditches, and irrigation canals. Fallow

agricultural fields, natural wetlands, and embankments along creeks and canals support dense stands of high grass. During a casual conversation with two villagers participating in a Sarus Crane *Antigone antigone* survey (Thet Zaw Naing & Naing Lin unpub. data), we learned that small wild cats, perhaps Fishing Cats, are occasionally taken in traps and snares set for civets (Viverridae), the latter being locally hunted for domestic consumption. In response to these reports, we visited the site in April 2018 and noted tracks and scats (with a diameter <25 mm), consistent with published descriptions for those of Fishing Cats (Francis 2008; Cutter 2015; Naidu et al. 2015; Platt & Duckworth 2019).

We returned in May 2018 and deployed automated game cameras (HCO Scout Guard®) without bait in the bed of a recently drained fishpond having an abundance of felid tracks. The berm surrounding the fish pond supported dense stands of tall grass, while pools of standing water, some containing fish, aquatic vegetation, and emerging grass, were present in the pond bed. From 09 to 11 May 2018, we deployed three motion-sensitive game cameras, (programmed to take a single burst of three images at 1-min intervals) for six trap nights. Each game camera was set in the early evening (ca. 17.00 h) and recovered the following morning (ca. 07.00 h) to reduce the likelihood of theft. The game cameras were positioned to cover likely avenues of wildlife movement along the periphery of the drying pond.

On the night of 10–11 May 2018, one game camera captured a sequence of four images (04.27–04.33 h) of a Fishing Cat (Image 2). The first image shows a cat moving perpendicular to the field of view along the edge of the vegetation-mud interface. In the following image, the cat is standing <30 cm away from the lens and looking directly into the camera. Owing to the proximity of the cat to the camera, the image is washed out and little detail is evident other than the silhouette of the head. The third and fourth images were taken about five minutes later and show a Fishing Cat moving perpendicular to the field of view in the same direction as the individual captured in the first image. The legs and belly of the cat in the last two images appear to be wet, indicating the cat was wading in shallow water shortly before the camera was triggered. Although Leopard Cat *Prionailurus bengalensis* could potentially occur in the Ayeyarwady Delta, we identified the cat in our images as a Fishing Cat based on its large body size, pale grey colouration of the fur, relatively small black spots in distinct rows, short tail, neck stripes, and smallish, rounded ears positioned well back on the head. In contrast, Leopard Cat is smaller with a less elongated head, yellowish-brown fur which is

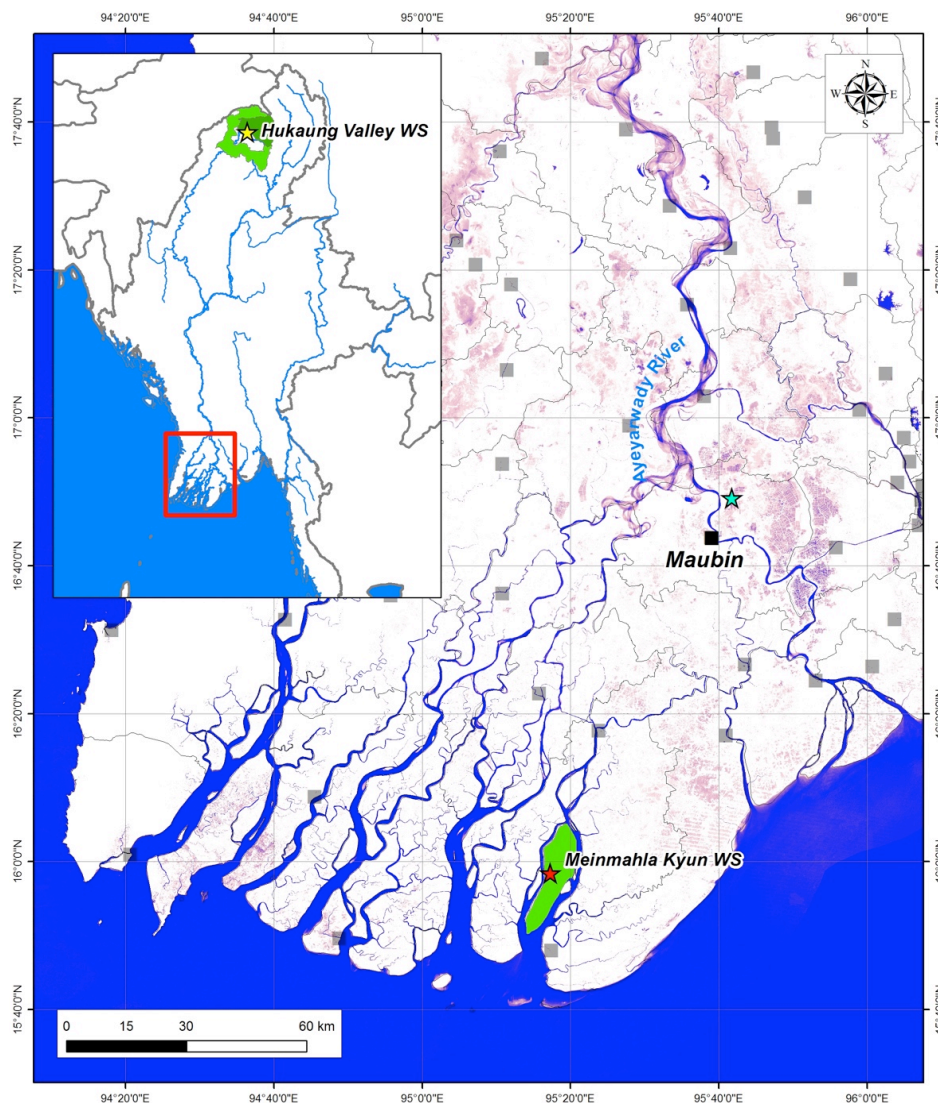


Figure 1. Confirmed locality records for Fishing Cat *Prionailurus viverrinus* in the Ayeyarwady Delta. Red and blue stars denote Fishing Cats photographed along Polaung Chaung in Meinmahla Kyun WS and at a commercial fish pond near Maubin, respectively. Grey squares indicate urban population centres. Inset shows Hukaung Valley WS and Ayeyarwady Delta (red box) within Myanmar. Yellow star denotes approximate location of specimen collected by Morris (1936).

lighter on the underside, large black or brown spots, and a longer, bushy tail (Sunquist & Sunquist 2002; Francis 2008; Breton & Sanderson 2011).

Our recent (2016 & 2018) photographic records confirm the occurrence of Fishing Cat at two widely separated locations (ca. 105km apart) in the Ayeyarwady Delta and provide conclusive evidence for its occurrence in Myanmar (Than Zaw et al. 2014; Mukherjee et al. 2016). Importantly, our photographic records compliment previous unconfirmed reports from the Ayeyarwady Delta (Thorbjarnarson et al. 1999; Than Zaw et al. 2014). As suggested by Mukherjee et al. (2016), the Ayeyarwady Delta is globally important for Fishing Cat conservation, possibly supporting a “large”

population owing to the extent of potential habitat in the region.

Habitat destruction, particularly of coastal mangrove forests, is of great concern for Fishing Cat conservation both globally (Sunquist & Sunquist 2002) and specifically in the Ayeyarwady Delta (Mukherjee et al. 2016). Spatial analysis of forest cover change in Myanmar indicates that mangroves are experiencing some of the highest deforestation rates of all forest types, with 20% lost in the Ayeyarwady Delta between 1990 and 2000 (Blasco et al. 2001; Leimgruber et al. 2005). According to Holmes et al. (2014), 92% of mangrove forests in the delta are impacted by some form of anthropogenic disturbance, ranging from occasional fuelwood collection to complete



Image 1. Fishing Cat photographed along Polaung Chaung in Meinmahla Kyun Wildlife Sanctuary on 20 February 2016.



Image 2. Fishing Cat recorded by an automated game camera deployed at a commercial fish pond near Maubin on 11 May 2018. © Wildlife Conservation Society–Myanmar Program.

clearance, with agricultural expansion being the primary driver of deforestation in this region (Webb et al. 2014). Only about 25,000ha of mangrove forest remain in the delta, with MKWS containing the largest contiguous tract (Holmes et al. 2014; Webb et al. 2014; Harris et al. 2016). Although complacency is unwarranted, Fishing Cat appears capable of surviving in human-modified landscapes (Mukherjee et al. 2016) and may be less affected by mangrove forest loss than other wetland fauna. Janardhanan et al. (2014) even suggest that commercial fish ponds may enhance Fishing Cat populations by providing a source of readily obtainable food.

Globally, poaching, subsistence hunting, and retribution killings for livestock depredation are all considered threats to the continued survival of Fishing Cat populations (Mukherjee et al. 2016). That said, we have yet to find any evidence of widespread hunting of Fishing Cat in the Ayeyarwady Delta. The limited sample of villagers we talked to mentioned only the occasional capture of small wild cats, perhaps Fishing Cat, as by-catch in traps intended for civets. More extensive interview-based surveys (e.g., Platt et al. 2017), however, complemented by objectively triangulated information relevant to species identification are required to fully assess the threats posed by harvesting to Fishing Cats in the Ayeyarwady Delta. In addition to anthropogenic threats, MKWS harbours one of the largest remaining populations of Estuarine Crocodile in mainland southeastern Asia (Platt et al. unpub. data; Thorbjarnarson et al. 2000) and Fishing Cat is probably vulnerable to crocodile predation when foraging along tidal creeks. Although we are unaware of any verified records of crocodiles preying on Fishing Cats, similar-sized terrestrial mammals are well-documented in the

diet of Estuarine Crocodiles (e.g., Evans et al. 2017; Samarasinghe & Alwis 2017).

In conclusion, additional surveys are warranted and, in light of range-wide declines, urgently needed to resolve the distribution and conservation status of the Fishing Cat in Myanmar. Given the availability of habitat and confirmed occurrence of Fishing Cat in the Ayeyarwady Delta, this region should be prioritized for initial survey efforts. Follow-up efforts should target wetlands throughout the coastal zone, particularly those in Rakhine and Mon states and Tanintharyi Region where significant tracts of mangrove forests, grass swamps, and other wetlands still remain. Importantly, survey efforts should not be restricted to coastal habitats. The historical record from the Hukaung Valley in northern Myanmar (Morris 1936) indicates that Fishing Cat could potentially occur anywhere in the Ayeyarwady-Chindwin River basin where appropriate habitat is present.

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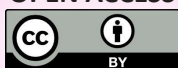
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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

May 2019 | Vol. 11 | No. 7 | Pages: 13815–13950

Date of Publication: 26 May 2019 (Online & Print)

DOI: 10.11609/jott.2019.11.7.13815-13950

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