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NOTE

Tawny Fish-owl *Ketupa flavipes* Hodgson, 1836 (Aves: Strigiformes: Strigidae): recent record from Arunachal Pradesh, India

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Fish-owls are important for indicating balanced stream ecology as they are the top predators in freshwater ecosystems (Duncan 2003; Wu et al. 2006). The Tawny Fish-owl *Ketupa flavipes* is commonly found in the Himalaya, eastern Indo-China, southern China as well as Taiwan (Voous 1988; Marks et al. 1999). The size of the owl can be up to 58cm, which is among the largest owls found in India (Sun 1996; König et al. 2008). But it is so infrequently observed in the wild that it is assumed rare over most of its range (Marks et al. 1999). It is currently listed under Schedule-IV of Wildlife Protection Act, 1972 (WPA) and in CITES Appendix II.

Tawny Fish-owls are generally piscivorous, but also eat small mammals, crabs, reptiles, birds, and insects (Fogden 1973; Sun & Wang 2004; Hong et al. 2013; Schauensee 1984; Ali 1986; Voous 1988; Mark et al. 1999). They mainly depend on streams for prey (Sun 1996; Wu et al. 2006) and their higher altitudinal range is decided by the distribution of stream fishes (Voous 1988; Marks et al. 1999). Other than its breeding biology and circadian rhythm (Sun et al. 1997), very little is known about this rare and secretive Tawny Fish-owl (Voous 1988).

The sacred groves are an integral part of the local community, as they perform rituals and ceremonies to please the deity for wellbeing, prosperity and provide refuge to rare and threatened species (Adhikari & Adhikari 2008). They play a significant role in traditional resource conservation system in many regions of India (Malhotra et al. 2001). They can be considered as parts of forest conserved by the local indigenous community because of their religious views and rituals that run through several generations (Gadgil 1975; Meena & Singh 2012).

The fading respect towards traditional knowledge among youngsters and rapid socio-economic advancement has led to the deterioration of sacred groves (Adhikari & Adhikari 2008). In total, 101 sacred groves have been established in Arunachal Pradesh with 36 in Tawang District (Krishna & Amirthalingam 2014).

Zemithang Village (27.718N & 91.726E) is located at an elevation of 2,439m on the bank of Nyamjang Chu (Chu stands for river; Figure 1). It encompasses montane sub-tropical, temperate, and sub-alpine zones. This river is one of the vital perennial rivers in the entire Tawang River basin. Zemithang-Nelya area has been

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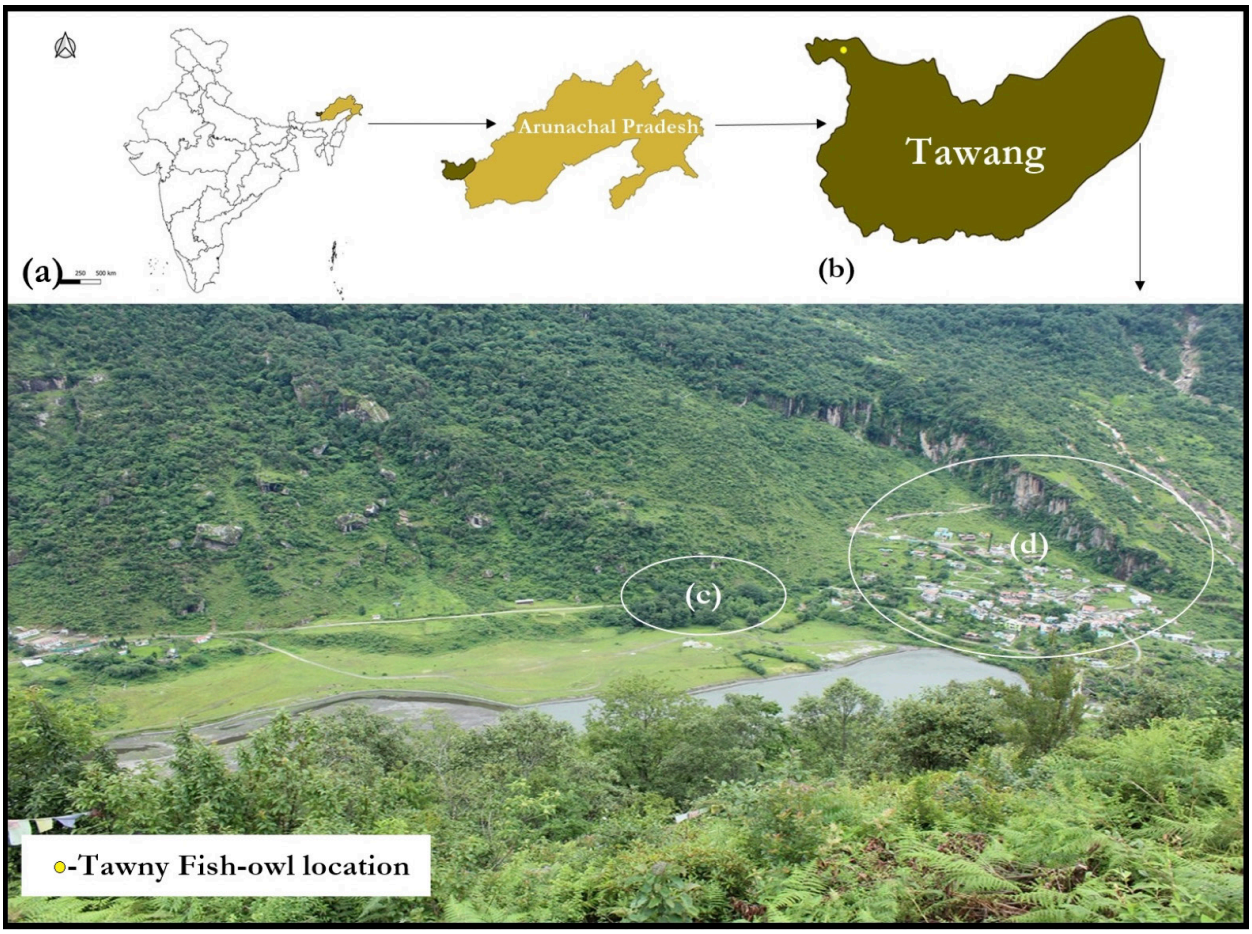

Image 2. The location of the state of Arunachal Pradesh: a—study site within the state of Arunachal Pradesh | b—location of Zemithang Village (encircled) | c—sacred grove | d—Zemithang Village in Tawang District.

identified as an important bird area (IBA code: INAR-28) with several bird species listed as Vulnerable and Near Threatened by the IUCN (Rahmani & Islam 2004).

This large-sized predatory bird was observed on 31 July 2017 inside a sacred grove. Due to a sudden and sharp alarm call from other birds, it was confirmed that some large predator was sitting on the branches of Alder tree *Alnus nepalensis* near the Zemithang to Brokenthang road. While observing through binoculars, it was found that the owl had pale orange upperparts with distinct black streaking, bold orange buff on wing coverts and flight feathers. There was also a whitish patch on the forehead and a prominent black streaking on pale rufous orange underparts. Based on morphological characteristics and a distinct call like a deep whoo-whoo, it turned out to be the Tawny Fish-owl. A few photographs (Image 1) were also taken to reconfirm the identification of the species because of the misidentification possibility of the Tawny Fish-owl with the Brown Fish-owl. The sacred grove in Zemithang is located in a small area with the dominance of *Alnus nepalensis* trees in a waterlogged area. The other major plant species (trees, shrubs, herbs, and grasses) found in the sacred grove are, *Salix* sp., *Celtis* sp., *Elaeagnus* sp., *Rubus* sp., *Girardina macrophylla*, *Artemisia nilagirica*, *Kummerowia striata*, *Paspalum paspaloides*, *Vernonia cinerea*, *Geranium nepalense*, *Selaginella* sp., *Galinsoga parviflora*, *Drymaria cordata*, *Plantago ovata*, *Arthraxon* sp., *Erianthus sikkimensis*, *Sporobolus africanus*, *Pennisetum clandestinum*, *Equisetum* sp., and *Cyperus compressus.*

Local people of Arunachal Pradesh symbolizes the sacred groves under Buddhist monasteries called as Gompa Forest Areas. The sacred groves are managed by local Lamas and Monpa tribes. Arunachal Pradesh has 58 Gompa Forest Areas, distributed mainly in Tawang and West Kameng districts (Higgins et al. 2005).

This particular sacred grove is believed to be rare and associated with high cultural significance in Monpa values (Barbhuiya et al. 2008).

Image 1. Tawny Fish-owl *Ketupa flavipes* in Zemithang. © Malyasri Bhattacharya

After the first sighting of Tawny Fish-owl, it was continuously observed from August–November 2017 and January–February 2018 (Bhattacharya 2018). On 10 January 2018, we observed a pair of Tawny Fish-owl sitting on a branch of alder tree. The species has its range in low elevation ranges up to 1,500m for the Indian Himalayas (Ali & Ripley 1987; Grimmett et al. 1998; Rasmussen & Anderton 2005; BirdLife International 2018) along with Bhutan, China, Laos, Cambodia, Taiwan, and Myanmar (Koker 2019; Holt et al. 2020). The species has also been reported earlier from Pakke Wildlife Sanctuary (WS), Arunachal Pradesh (Ritschard & Marques 2007) and Dibang Valley (preserved specimen, Choudhury 1998). There are many observational records from Assam, Mizoram, Nagaland, and Uttar Pradesh (Barua & Sharma 1999; Praveen et al. 2018; Purkayastha 2018), and from Jim Corbett National Park and the Sattal region of Uttarakhand (Koker 2019). The Tawny Fish-owl was not reported from Tawang District, hence, it is the first report. It is observed that the loss of natural forests due to road and dam construction is very high in the valleys. This might have led to the decrease of the Tawny Fish-owl population since riparian natural forests are the main habitat type used by fish owls (Hayashi 1997; Sun et al. 2000). Therefore, the conservation of such lesser-known species signifies the necessity to protect these small sacred groves. The developmental projects such as roads, dams, and highways, as well as encroachment to forest areas are the major causes of concern for the conservation of these sacred groves (Adhikari & Adhikari 2008). Hunting is completely absent in this region due to the religious belief of the Monpa tribes inhabiting the area (Gopi et al. 2018) however, a proposed hydroelectric project, as well as sand mining practices in the area act as a major threat to the species. We recommend specific research to be carried out to understand the status, distribution, and habitat use of the species in the region.

References

Ali, S. (1986). *Field Guide to the Birds of the eastern Himalayas*. Oxford University Press, Oxford, England, 282pp.

Ali, S. & S.D. Ripley (1987). *Handbook of the Birds of India and Pakistan (compact)*. Oxford University Press, New Delhi, 816pp.

Barbhuiya, A.R., M.L. Khan, A. Arunachalam, S.D. Prabhu & V. Chavan (2008). Sacred Groves: Informal protected areas in the high altitudes of eastern Himalaya, Arunachal Pradesh, Northeast India: Traditional beliefs, biodiversity and conservation, pp. 131–146. In: O' Reilly, A. & D. Murphy *National Parks: Biodiversity, conservation and tourism*. Nova Science Publishers, Inc. US, 214pp.

Barua, M. & P. Sharma (1999). Birds of Kaziranga National Park, India. *Forktail* 15(1): 47–60.

BirdLife International (2018). *Ketupa flavipes*. The IUCN Red List of Threatened Species 2018:e.T22689017A130157883. https://doi.org/10.2305/IUCN.UK.2018

Bhattacharya, M. (2018). Ebird, Cornell Lab of Ornithology, Ithaca, New York. URL: https://ebird.org/checklist/S43773131

Choudhury, A. (1998). Some new elevations records of birds from Mehao Wildlife Sanctuary, Arunachal Pradesh, India. *Forktail* 14(1): 71.

Adhikari, S.D. & B.S. Adhikari (2008). Sacred groves: people's contribution to conservation. In: Special Habitats and Threatened Plants of India. Wildlife Institute of India, Dehradun, *Envis Bulletin* 11(2008)1: 223–227.

Duncan, J.R. (2003). *Owls of the World: Their Lives, Behavior and Survival.* Firefly Books, New York, 320pp.

Fogden, M. (1973). Fish-Owls, Eagle Owls, and the Snowy Owl, pp. 53–85. In: Burton, J.A. (ed.). *Owls of the World–their Evolution, Structure and Ecology.* A & W Visual Library, New York, NY, U.S.A.

Gadgil, M. & V.D. Vartak (1975). Sacred groves of India - a plea of the continous conservation. *Journal of the Bombay natural Historical Society* 72: 312–320.

Gopi, G.V., J.A. Johnson, B.S. Adhikari, M. Bhattacharya, T. Watham & K. Sivakumar (2018). Assessment of Habitat Use by Black-necked Crane (*Grus nigricollis*) and Eflows of Nyamjang Chu Hydroelectric Project in Tawang District, Arunachal Pradesh. Wildlife Institute of India, Dehradun. Technical Report, 119pp.

Hayashi, Y. (1997). Home range, habitat use and natal dispersal of Blakiston's Fish-Owls. *Journal of Raptor Research* 31: 283–285.

Higgins, L.Z & S. Chatterjee (2005). Eastern Himalayas (Sikkim and Arunachal Pradesh) sacred gumpa forests. Beyond Belief. UK: WWF International Switzerland and Alliance of Religion and Conservation, 9194pp.

Hong, S.Y., Y.H. Sun, H.J. Wu & C.C. Chen (2013). Spatial distribution of the Tawny Fish-owl *Ketupa flavipes* shaped by natural and man-made factors in Taiwan. *Forktail* 29(1): 48–51.

Grimmett, R., C. Inskipp & T. Inskipp (1998). *Birds of the Indian Subcontinent.* First Edition. London: Christopher Helm, A & C Black, 888pp.

Holt, D.W., R. Berkley, C. Deppe, P.L. Enríquez, J.L. Petersen, J.L.R. Salazar, K.P. Segars, K.L. Wood & J.S. Marks (2020). Tawny Fish-owl (*Ketupa flavipes*), version 1.0. In: (del Hoyo, J., A. Elliott, J. Sargatal, D.A. Christie & E. de Juana (editors). *Birds of the World*. Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.tafowl1.01

Koker, P. (2019). Ebird Website URL: https://ebird.org/checklist/S62607908

König, C., F. Weick & J.H. Becking (2008). *Owls of the World*. Second Edition. Christopher Helm, London, UK, 528pp.

Krishna, N. & M. Amirthalingam (2014). *Sacred Groves of India: A Compendium.* C.P.R. Environmental Education Centre, 460pp.

Malhotra, K.C., Y. Gokhale, S. Chatterjee & S. Srivastava (2001). *Cultural and Ecological Dimensions of Sacred Groves in India*. Indian National Science Academy, New Delhi, and Indira Gandhi Rashtriya Manav Sangrahalaya, Bhopal, 30pp.

Marks, J.S., R.J. Canning & H. Mikkola (1999). Family Strigidae (typical owls), pp. 76–242. In: del Hoyo, J., A. Elliott & J. Sargatal (eds.). *Handbook of the Birds of the World* - 5. Lynx Edicions, Barcelona, 759pp.

Meena, D. & A. Singh (2012). Oran of Rohida: an endangered tree species of Rajasthan. *Current Science* 103(12): 1389.

Praveen, J., R. Jayapal & A. Pittie (2018). Taxonomic updates to the checklist of birds of India and the South Asian region—2018. *Indian BIRDS* 14(2): 37–42.

Purkayastha, J. (2018). Urban biodiversity: an insight into the terrestrial vertebrate diversity of Guwahati, India. *Journal of Threatened Taxa* 10(10): 12299–12316. https://doi.org/10.11609/jott.3721.10.10.12299-12316

Rahmani, A.R. & Z. Islam (2004). *Important Bird Areas in India: Priority Sites for Conservation*. Indian Bird Conservation Network, Mumbai, xviii+1133pp.

Ritschard, M. & D. Marques (2007). Tawny Fish-owl *Ketupa flavipes* in Arunachal Pradesh, India. *Indian Birds* 3(3): 108.

Rasmussen, P.C. & J.C. Anderton (2005). *Birds of South Asia: the Ripley Guide.* 1st Edition. Smithsonian Institution and Lynx Editions, Washington, D.C. and Barcelona ,683pp.

Schauensee, R.M. (1984). *Birds of China.* Oxford University Press, 38pls+602pp.

Sun, Y.H. (1996). Ecology and conservation of Tawny Fish-owl in Taiwan. PhD Thesis, Texas A & M University, Texas, USA.

Sun, Y. & Y. Wang (2004). Tawny Fish-owl predation at fish farms in Taiwan. *Journal of Raptor Research* 38(4): 326–333.

Sun, Y., Y. Wang & K.A. Arnold (1997). Notes on a nest of Tawny Fish-owl at Sakatang Stream, Taiwan. *Journal of Raptor Research.* 31(4): 387–389.

Sun, Y., Y. Wang. & C. Lee (2000). Habitat selection by Tawny Fish-owls (*Ketupa flavipes*) in Taiwan. *Journal of Raptor Research* 34(2): 102–107.

Wu, H.J., Y.H. Sun, Y. Wang & Y.S. Tseng (2006). Food habits of Tawny Fish-owls in Sakatang Stream, Taiwan. *Journal of Raptor Research* 40(2): 111–119.

Voous, K.H. (1988). *Owls of the Northern Hemisphere*. Collins, London, 320pp.

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