Abstract: Historically, Andaman Teal Anas albogularis have been primarily found in South Andaman. However, the land uplifts and subsidence resulting from the 2004 tsunami and the earthquake have created new wetlands across the island. These wetlands became suitable habitats for the Andaman Teal, leading to population expansion within South Andaman and a range shift to North Andaman.

Keywords: Avian ecology, distribution extension, land reclamation, mangrove colonization, new intertidal, new wetland.

The avifauna family Anatidae constitutes 53 genera and 174 species. They are widely distributed across the globe, from the colder regions in the Northern Hemisphere to the tropical regions in the Southern Hemisphere (Gilbert et al. 2006). Among 53 genera, the genus Anas is the most species-rich with 31 species, of which 11 are categorized as threatened (1 Extinct, 1 Critically Endangered, 3 Endangered, 4 Vulnerable, 2 Near Threatened), and remaining 20 categorized as ‘Least Concern’ as per the IUCN Red List (IUCN 2017; Winkler et al. 2020). Of the six Anas species reported from India (19%), two are distributed in the Andaman Islands, namely A. albogularis (Andaman Teal) and A. acuta (Northern Pintail) (eBird Basic Dataset 2023). The Andaman Teal is endemic to the Andaman Islands of India and the Great Coco Island of Myanmar in the Bay of Bengal. It currently falls under the ‘Vulnerable’ category (BirdLife International 2024).

Earlier, the taxonomic position of Andaman Teal was problematic, as ornithologists misplaced them in the Nettion genus. Later, it was misidentified as conspecific with another ‘Near Threatened’ species, A. gibberifrons (Sunda Teal). However, in 2014, the taxonomic confusion was resolved to accept the Andaman Teal as a monotypic species based on their differences in the color pattern around the eyes and the speculum (BirdLife International 2024). Further, the Andaman Teal’s prime habitats to roost, feed, and breed are inland water bodies ranging from freshwater streams, ponds, agriculture fields,
mangroves, lagoons, brackish swamps, tidal creeks, estuaries, and open sea (Grimmett et al. 1998). Natural catastrophic events like cyclones and tsunamis could directly impact these habitats, devastatantly affecting the island’s vulnerable Andaman Teal population (Sutherland et al. 2012).

The 2004 Sumatra-Andaman earthquake, epicentred 200 km from Andaman & Nicobar Islands (hereafter ANI), produced large tsunami waves that severely destructed the coastal forest ecosystem, including wetlands and creeks (Sankaran 2005). Additionally, the earthquake of 9.1 intensity on the Richter scale permanently altered the island’s geomorphology, leading to vertical movement of the island (Meltzner et al. 2006). The northern part of the Island (North Andaman) experienced a coastal uplift of up to 1.35 m, while the southern part (South Andaman) subsided by ~1 m (Meltzner et al. 2006). The altered geomorphology resulted in the degradation of around 150 km² of coastal forest habitat (largely mangroves) across Andaman Islands (135 km² in uplift sites of North Andaman and 15 km² in subsided sites of South Andaman) (Ramakrishnan et al. 2020; ShivaShankar et al. 2020). The impacts of Tsunami, coastal uplift, and subsidence on the water birds remain under-studied in the Andaman Islands. A study by Mamanann & Vijayan (2009) reported a 60% decline in the Andaman Teal population from ~136 individuals in 2004 to ~58 individuals in 2007 from South Andaman (Mohanty & Padmavati 2022).

The coastal uplift and subsidence have also created new intertidal habitats across the Andaman Islands suitable for the colonization of wetland flora and fauna (Ramakrishnan et al. 2020; ShivaShankar et al. 2020). The land uplift created new intertidal zones towards the seaward zone along North Andaman, previously colonized by corals and reef beds (Images 1A & B). These new habitats often exposed rocks and mudflats with molluscs, arthropods, and insects during the low tide, providing perfect roosting and feeding ground for the Andaman Teal. The formation of new habitats (Images 1B, D, E, & F) with ample food resources might be the paramount factor for the increase in Andaman Teal population in the islands by 48%, from 674 individuals in 2005 to ~1000 individuals in 2014 (Vijayan et al. 2006; Rahmani 2012; Rajan & Pramod 2017; Purti et al. 2022).

Andaman Teal, despite being endemic to the entire Andaman Island, their distribution within the island group was historically reported sporadic (Image 2A). For instance, their distribution before the 2004 tsunami was mostly in and around the wetlands of South Andaman (Kulkarni & Chandi 2003; Vijayan et al. 2006; Rahmani 2012; Rajan & Pramod 2017; Purti et al. 2022). Some literature also suggests that Andaman Teals were residents of the wetlands of South Andaman, rarely migrating to North Andaman (North Reef and Interview Island) in groups of 20–30 individuals as visitor birds (Andrews & Whitaker 1994; Vijayan 1996; Vijayan et al. 2000). Further, on accessing the location of point count of Andaman Teal before and after 2004 tsunami from the e-bird database, we found their distribution and abundance were mostly restricted to South Andaman before the tsunami (Image 2A). Their sighting reports and abundance extended to the North and Middle Andaman post-2004 tsunami (Images 2A & B). The reporting of bird sightings on the e-bird database before the 2004 tsunami from the islands would be scarce mostly due to the remoteness and inaccessibility of the Islands. Meantime, while conducting the mangrove survey in the new intertidal habitat of North Andaman, we observed 30–40 individuals (including young ones) of Andaman Teal for three consecutive years (2021–2023) at two locations, namely Chippo (Caren Basti—13.5478°N & 93.0104°E), and Beach Dera (13.4645°N & 93.0167°E) (Image 2A & B). These observations were further inquired with the village head of Beach Dera (Gabriel Toppo) and Chippo (Saw Solomon & Saw Lakapow), who confirmed that these ducks (vernacular name: Paani Batak) were not present before the 2004 tsunami but seen permanently residing here for around the last 5–6 years.

Even though Andaman Teal’s population status and distribution show an increasing trend in Andaman Island (Vijayan et al. 2006; Rahmani 2012; Rajan & Pramod 2017; Purti et al. 2022) (Image 2B), they are under threat from various natural and anthropogenic disturbances. The new intertidal habitat is currently under succession from unvegetated (post-tsunami event) to gradual colonization by mangroves and associates. Mangroves would eventually occupy the new wetlands and intertidal habitats, leading to Andaman Teal and other waterbird populations shrinking in the future. Further, the new wetlands formed in subsided sites of South Andaman, where a large proportion of the Andaman Teal population resides, are largely privately owned farmlands (Images...

1E & F) (Purti et al. 2022). Now, these lands (currently new wetlands) are undergoing reclamation by the landowners (Images 1E & F), which will again endanger the population status of Andaman Teal in the near future.

Hence, identifying and mapping potential habitats and management of land under private ownership will be a crucial step towards sustaining the Andaman Teal population in the Andaman Islands. Moreover, long-
term monitoring of these new wetlands with continuous population estimation should be a priority to conserve Andaman Teal and other water birds on the island. To strengthen our baseline information, focused research on Andaman Teal movement ecology, habitat use, diet, and breeding ecology is of utmost importance, which will help the managers and policymakers to conserve the species upon any futuristic catastrophic events.

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Image 2. Spatial distribution of *A. albogularis* (Andaman Teal) in the Andaman Group of Islands based on ebird data (eBird Basic Dataset 2023): A—distribution of Andaman Teal in the islands before and after the 2004 tsunami | B—sighting frequency of Andaman Teal in the islands after the 2004 Tsunami. (Map prepared in ArcMap Version 10.5).
Conservation of Andaman Teal


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