

Gray-backed Tern

Sterna lunata

Hawaiian: Pakalakala

Family: Laridae; Subfamily: Sterninae

Physical description

Gray-Backed Terns are medium-sized terns that are mostly slate gray above and white below with a black crown and nape. Their forehead has a narrow white patch that is continuous with a white eye-brow that extends above and past the eye and is completely bordered with black. They have a deeply forked tail and the outer tips of their tail are approximately the same length as their wingtips.

Gray-backed Terns are similar to the larger Sooty Terns, which nest in the same areas. Gray-backs can be distinguished by their lighter gray mantle and upper tail and higher extent of white on their forehead.

Life span and survivorship

Only a small number of birds have been banded, so determination of life span and survivorship is difficult. The oldest known individual, banded as a nestling on French Frigate Shoals was 25 years old.

Distribution

Breeding (Jan-Oct)

The Gray-backed Tern nests on all of the Northwest Hawaiian Islands and Moku Manu (Oahu) and Kaula (Niihau) in the main Hawaiian Islands. Outside of Hawaii, Gray-backed Terns nest on the Marianas, Howland and Baker, Johnston, Wake, Jarvis, Line Islands, American Samoa, the Marquesas, and Tuamotu.

Marine

Little is known about their distribution outside the breeding areas. The Gray-backed Tern is thought to be pelagic during non-breeding season. Few individuals are seen over north-central Pacific waters (i.e., near Hawaiian and Johnston breeding grounds) outside of the breeding season, suggesting that these populations range widely from their breeding colonies during nonbreeding months

Breeding ecology

Gray-backed Terns make a simple scrape in sand, exposed rock, coral and volcanic rubble, and occasionally large rocks. They often lay their single egg at the base of herbaceous plants, shrubs, or rocks, but nesting locations change slightly from season to season. Colonies are often found at edges of the breeding colonies of the larger and more aggressive Sooty Tern (*Sterna fuscata*). In Hawaii, the initiation of egg-laying varies from year to year and colonies are not highly synchronous. At French Frigate Shoals, the first egg is usually laid mid-February to early March, 5 - 10 weeks after the arrival of the first adults. Peak egg-laying typically occurs in April, but laying extends into July and August. The Incubation period averages 30 days and the chicks take 38 - 47 days to fledge after they crawl out of the egg. Fledging occurs through late September or mid-October. However, the breeding period occurs later as you move northwest along the archipelago. Birds begin breeding at 4 - 5 years of age and annually thereafter.

Feeding ecology and prey

- Feeding guild – NEUSTON-FEEDING TERN
- Food capture – Feed mainly by plunge-diving or by dipping the surface while hovering.
- Foraging Distribution – Gray-backs are found only in highly saline waters, whereas Sooty Terns are encountered in both high- and low-salinity waters. The species is variously described as an inshore, offshore, or pelagic feeder. Discrepancies are probably due to a

lack of knowledge of this species and of geographic or seasonal differences in its foraging habitat.

- **Microhabitat for foraging** – Gray-backed Terns feed solitarily, in groups with conspecifics or occasionally in mixed flocks (with Sooty Terns (*S. fuscata*) and Wedge-tailed Shearwaters (*Puffinus pacificus*). Gray-backed Terns may to some degree rely on tuna schools above which they are frequently observed feeding. Their reliance on juvenile thorn-back cowfish suggests either some highly specific (and undiscovered) feeding grounds or very selective capture methods.
- **Diet** – The Hawaiian name for the Gray-backed Tern, pakalakala, probably stems from its favorite food item, the thornback cowfish (*Lactoria fornasini*) as the Hawaiian word kalakala means ‘thorny’. The diet of the Grey-backed Tern in Hawaii is actually quite complex and includes fish from 41 families; the highest number for any Hawaiian seabird. After the Thornback Cowfish, the most common prey items (by number and volume) are flying fish (Exocoetidae), goatfish (Mullidae), dolphinfish (*Coryphaena* spp.), and round herring (*Spratelloides delicatulus*). They also consume mollusks (squid [Ommastrephidae and others], janthinids [*Janthina* spp.], and cavolinids [*Cavolinia tridentata*]), crustaceans (crabs [Portunidae and others], krill [Euphausiacea], isopods, copepods [Pontellidae], shrimp), and cnidarians (by-the-wind sailor, *Verella vellella*). Their diet varies seasonally and geographically in Northwestern Hawaiian Islands. Cowfish were the highest-ranked prey item in all seasons studied in all areas except Midway, Kure, and Pearl and Hermes during the summer months.

Threats and status

In Hawaii, the population is estimated at 44,000 breeding pairs, with largest populations occurring on Lisianski (20,000 pairs), Nihoa (12,000 pairs), and Laysan (10,000 pairs). The worldwide population is unknown but is likely on the order of 70,000 breeding pairs.

Main threats to the species include:

- **Predation** – Gray-backed Terns are especially vulnerable to mammalian predators. Introduced cats and rats reduced or eliminated populations on Midway Atoll, Kure Atoll, Wake, Howland, Baker, Jarvis, and Christmas Islands and probably at all other places where these species are sympatric. Although cats and rats have been extirpated from Sooty nesting grounds, great care must be taken to prevent reinvasion.
- **Invasive species** – Colonies of Sooty Terns require large areas of bare ground or low-lying vegetation for nesting. Non-native plants, specifically golden crown-beard (*Verbesina encelioides*) grow dense and tall (over 6 ft) thereby reducing available nesting habitat. Introduced big-headed ants (*Pheidole megacephala*) at Kure and Midway may cause nestling mortality, but also facilitate the destruction of native vegetation by a nonnative scale insect.
- **Human disturbance** – Sooty Terns are sensitive to nest disturbance, and flush from nests when humans approach. Exposed eggs and chicks are vulnerable to predation by Great Frigatebirds (*Fregata minor*), Ruddy Turnstones (*Arenaria interpres*), Bristle-thighed Curlews (*Numenius tahitiensis*), and Laysan (*Telespiza cantans*) and Nihoa (*T. ultima*) finches. Repeated disturbance may result in permanent abandonment.

Selected Readings

Division of Forestry and Wildlife (DOFAW). 2005. Hawaii's Comprehensive Wildlife Conservation Strategy. Div. Of Forestry and Wildlife, Dept. of Land and Natural Resources, Honolulu, HI. www.state.hi.us/dlnr/dofaw/cwcs/process_strategy.htm

Harrison, C.S. 1990. Seabirds of Hawaii. Cornell University Press, Ithaca, NY.

Mostello CS, Palaia NA, Clapp RB. 2000. Gray-backed tern (*Sterna lunata*). In The Birds of North America, No. 525 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

USFWS Midway Species Account: <http://midway.fws.gov/wildlife/gbte.html>