

Sooty tern

Sterna fuscata oahuensis

Hawaiian: ewa ewa

Family: Laridae; Subfamily: Sterninae

Identification

The Sooty Tern is a medium-sized tern that flies with a steady, buoyant wingbeat. Their upperparts including wings, nape and tail are blackish while their forehead, underparts, and outermost, elongated rectrices are a contrasting white. Sooties have a deeply forked tail and their bill and legs are black. Adults are identical, but juveniles are entirely sooty brown to black, with some whitish and tan spots, and with whitish or tan under parts.

In Hawaii, the Sooty Tern may be confused with the Gray-backed Tern (*Sterna lunata*), but the latter has distinctly lighter bluish-gray upper parts and is smaller.

Survival and Lifespan

The oldest known breeders (Seychelles) are 34 years old. This may be an underestimate due to band loss by older birds. Adult survival in Seychelles colonies is estimated at 90%.

Distribution

Breeding (Jan-Sept)

Their regularly occupied breeding range consists of islands in all tropical oceanic areas, mostly within a latitudinal belt between 30° N and 30° S of the equator. Sooties nest on all the Northwest Hawaiian Islands and on the Main Hawaiian Islands there are nesting colonies on Manana and Moku Manu off Oahu as well as Kaula off Niihau. During the breeding season, highest densities are generally found within 80 km of breeding islands

Marine

Outside the breeding season, Sooty Terns are highly pelagic and almost entirely aerial; not seen on or near land. The distribution of adults and juveniles differ; both apparently disperse at sea, but little is known of the distribution or activity of particular populations. They do, however, remain in tropical and subtropical areas of the ocean.

Breeding Ecology

Sooty Terns are gregarious and nest in large, dense colonies consisting of thousands to a million pairs of terns. Highly ritualized and vocal aerial displays are conducted over the nesting area prior to settling down to lay eggs. Nesting locations change slightly from season to season. Timing of breeding varies among years and locations with breeding occurring progressively later along the archipelago from Oahu to Kure Atoll. Generally, eggs are laid at the beginning of February and most birds fledge by July. Nests are shallow scrapes often lined with bits of shell or vegetation. A single speckled egg is laid on the ground and both parents participate in all aspects of parental care. The incubation period averages 30 days with individual incubation shifts lasting approximately five days. Heat stress may cause terns to abandon eggs for short periods to drink seawater. Chicks are shaded by parents during hot hours and brooded only when cool. Parents locate chicks through vocalizations, and will feed only their own. Fledging occurs between 66 – 70 days depending on environmental conditions, but offspring continue to be fed by parents for several weeks after fledging. The young remain aloft until they return to breed at 6-8 years of age.

Feeding and Prey

- Feeding guild – TUNA BIRD

- Food capture – Individuals generally remain 1–20 m above the water when hunting for food, descending simultaneously when food is spotted; when prey descend, the flock rises up again. Unlike diving seabirds, such as boobies (*Sula* spp.), Sooties must catch prey within a few centimeters of the surface. Food items driven to the surface by the predatory fish are captured on the wing by dipping, or by shallow plunge dives to the surface. Sooty Terns have

poor waterproofing and easily become waterlogged. The birds seem to forage extensively at night.

- Foraging Distribution – Sooty Terns are highly pelagic foragers that generally feed far at sea in tropical and subtropical oceanic waters. Flocks in the eastern tropical Pacific occur in areas with a thermocline at about 77 m, and chlorophyll level of about 0.14 mg/m³. Around Johnston Atoll Sooties are often seen feeding offshore in waters about 100 fathoms deep, to the southeast, south, and southwest of the Atoll and 175 km southwest of the Atoll. Their foraging habitat may be determined by the presence of feeding tuna (Scombridae) that drive smaller fish to the surface. They are more abundant within the Equatorial Countercurrent than either the North or South Equatorial Currents and highest densities are found in convergence areas where downwellings concentrates prey. There is considerable discussion of how far Sooty Terns travel from nesting islands to foraging grounds, evidently because distances are highly variable among years and colonies. Foraging trips range from under 80 km to over 200 km.
- Microhabitat for foraging – Generally forages in large mixed species feeding flocks (especially with Wedge-tailed Shearwaters, *Puffinus pacificus*), typically feeding over schools of predatory fishes, especially Yellowfin Tuna (*Neothunnus macropterus*) and Skipjack Tuna (*Katsuwonus pelamis*) that drive smaller fish to the surface making them available.
- Diet – The main foods taken by Sooty Terns are small pelagic fish and squid. Diet samples from adults at Christmas Island contained 38% fish by volume. About 75% of the fish consisted of two species of flying fish (Exocoetidae) and several in the tuna family. Although there were fewer squid, they constituted the majority by volume. In Hawaii, squid made up 53.5% of the volume while fish made up 46.5%.

Threats and Status

The Sooty Tern is one of the world's most abundant terns and is not globally threatened. Many local colonies however have been severely reduced or even extirpated by egg collecting, human development and from introduced mammalian predators. Guano mining in the 1800's and early 1900s has also had a large impact on some colonies.

In Hawaii, the population is estimated at greater than one million breeding pairs with the largest populations occurring on Laysan (500,000 pairs) and Lisianski (500,000 pairs). The worldwide population is estimated at between 60 and 80 million breeding pairs.

Main threats to the species include:

- Predation – Sooty Terns are especially vulnerable to mammalian predators. Introduced cats and rats reduced or eliminated populations on Midway and Kure Atolls. Although these animals have been extirpated from Sooty nesting grounds, great care must be taken to prevent reinvasion.
- 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.
- 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.

- Fisheries – Sooty Terns rely on predatory fish to drive prey to the surface, overfishing may eventually affect Hawaiian populations.
- Oil pollution – Sooties are vulnerable to oil spills.

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.

Schreiber EA, Feare DJ, Harrington BA, Murray BG, Robertson WB, Robertson MJ, Woolfenden GE. 2002. Sooty tern (*Sterna fuscata*). In The Birds of North America, No. 665 (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/sote.html>