Black Noddy
Anous minutus melanogenys; Main Hawaiian Islands
Anous minutus marcusi; Northwest Hawaiian Islands
Hawaiian: *Noio*
Family: Laridae; Subfamily: Sterninae

Identification
Black Noddies are a medium-sized sooty black tern with a white cap. Their plumage is overall sooty black, with white markings on their forehead and crown that blend gradually into a dark hind neck. They have a white crescent on their lower eyelid rim and a white spot on their upper rim. Their bill is black while their legs and feet are reddish brown. Black Noddies have a medium-length tail that is slightly notched when closed and wedge-shaped with a central notch when spread. Both sexes are alike and juvenal plumage is similar to adult plumages, except their white cap is not as sharply demarcated.

Black Noddies can be distinguished from the similar Brown Noddy (*Anous stolidus*) by being distinctly smaller and slimmer. They also have a blacker overall plumage, a whiter cap, and a proportionately longer, thinner bill.

Survival and Lifespan
Oldest recorded bird is at least 25 years old.

Distribution
Breeding (Year-round)
Black Noddy colonies are found throughout the Pacific Ocean (mainly southwest and central); sparsely scattered in the Caribbean Sea, equatorial and South Atlantic Ocean, and Northeast Indian Ocean. In Hawaii, they breed on all the Northwest Hawaiian Islands and on coastal cliffs (south coast of Hawaii, possibly Na Pali coast on Kauai) and offshore islets (Kaula, Lehua [Niihau], of the main Hawaiian Islands. Since they forage close to shore, and are commonly resident in the colony year-round, Black Noddies are seldom seen far from their nesting and roosting islands

Marine
Most populations are sedentary; they are resident throughout the year on nesting islands. In the Pacific, Black Noddies are seen north to Japan (accidental), south to New Zealand (casual), and on the eastern coast of continental Australia (casual). Interisland movements are not uncommon and range from 1,000 - 4,000 km. It is unknown whether partial migration, dispersal, or nomadism accounts for travel from otherwise sedentary populations.

Breeding Ecology
In Hawaii's high islands, Black Noddies nest on ledges of coastal cliffs and caves whereas on the low-lying islands and atolls in the Northwest Hawaiian Islands they nest on vegetation (trees, shrubs, or herbaceous plants). On Kure Atoll, they nest exclusively in tree heliotrope (*Tournefortia argentea*). However, they appear flexible in choice of nesting-habitat type: on Tern Island, French Frigate Shoals, pairs were observed to switch between nesting on shrubs and on window ledges.

Black Noddies reach reproductive maturity at 2 - 3 years of age. The timing of laying can be highly variable from year to year and is thought to be controlled by peak availability of prey species. This species is unusual among seabirds in that a pair can raise 2 broods in the same nesting season with breeding intervals of 5 - 12 months. A protracted winter-spring (Nov-Jun) egg-laying season generally occurs in the Northwest Hawaiian Islands, commonly extending into summer, but some birds lay year-round. Chicks usually fledge in 5 - 7 weeks. Although rearing of individual chicks may be prolonged during periods of low prey availability.

Feeding and Prey
- Feeding guild – TUNA BIRD

- Food capture – Unlike most temperate terns, Black Noddies do not dive for food, but capture prey found at the water's surface or just below. They forage low over the water by seizing prey while in the air or splashing bill-first into the water without submerging fully. Unlike many other terns, Black Noddies do not carry prey in their bill.

- Foraging distribution – Most populations feed nearshore (<10 km from shore), often in lagoons of atolls.

- Microhabitat for foraging – They usually forages in large, multispecies flocks of hundreds to thousands of birds. Flocks typically feed over foraging schools of predatory fishes, especially nearshore tunas (e.g., *Euthynnus affinis*) and jacks (*Caranx* spp.) and may sometimes depend on them to drive prey to the surface. In the Hawaiian Islands, 75% of predatory fish schools under bird flocks are skipjack tuna (*Katsuwonus pelamis*). When skipjack are most abundant (May-Sep), their diet (prey family and size) overlaps the diet of Black Noddy, indicating that the 2 species target the same prey. In winter, however, Black noddies also feed in association with inshore resident jacks, with no dietary overlap. It is doubtful that predatory fishes are important in noddies' ability to exploit winter prey.

- Diet – Small (usually juvenile or larval) fish are the principal component of the Black Noddy diet, followed by squid and crustaceans. The only important invertebrates are squid Ommastrephidae). Many fewer squid than fish are taken, but squid average much larger size and so form a significant part of diet. Stomach samples taken at French Frigate Shoals contain 34 prey families indicating that Black Noddies are apex, opportunistic predators. In the Northwestern Hawaiian Islands, diets commonly include lizardfish (Synodontidae), goatfish (Mullidae), and round herring (Cluepeidae). At French Frigate Shoals, lizardfish, goatfish, and dartfish (Microdesmidae) ranked highest in prey importance. Among the Northwestern Hawaiian Island seabirds, the importance of dartfish as prey is unique to Black Noddies. Major fish families in diet vary by location.

Threats and Status

In Hawaii, the population is estimated at 12,000 breeding pairs with the largest populations occurring on Midway Atoll (6,000 pairs) and Nihoa (5,000 pairs). There is an estimated 1 - 1.5 million breeding birds worldwide. Most populations also include a large percentage of nonbreeding birds. For example, about 63% of the Hawaiian population in a given year are non-breeders. Therefore, the total global population may be as high as 3 - 4 million birds. Nesting populations appear stable or increasing in the Northwest Hawaiian Islands.

Main threats to the species include:

- Predation – Adults and nests are susceptible to predation by introduced mammals (e.g., rats, cats, dogs). Although all sites in Northwest Hawaiian Islands are free of rats, cats, and dogs, the Main Hawaiian Islands support large populations of non-native mammalian predators. Also, native predators such as Iwa or Great Frigatebirds (*Fregata minor*), Black-crowned Night Herons (*Nycticorax nycticorax*), Laysan Finches (*Telespiza cantans),* and shorebirds will depredate eggs and chicks, especially when adults are flushed from nests by human disturbance.

- Invasive species – Non-native plants, specifically Golden Crown-beard (*Verbesina encelioides*), degrade nesting habitat in the Northwest Hawaiian Islands by out-competing shrubs and tress necessary for nesting. Introduced big-headed ants (*Pheidole megacephala*) at Kure and Midway facilitate the destruction of native vegetation by supporting a nonnative scale insect.

- Fisheries – In Hawaii, overfishing may directly or indirectly harm seabird populations; harvest of Skipjack and Yellowfin Tuna (*Thunnus albacare*) could eliminate predatory fish needed to

drive prey species to the surface. Also, live bait needed for the fishery could potentially decrease goatfishes (Mullidae) and *Decapterus* spp. (Carangidae), which are used by Black Noddies.

- Human disturbance – Until the early twentieth century, eggs, chicks, and adults were regularly collected in the Main Hawaiian Islands; only colonies on nearly inaccessible cliffs now remain. Today, the biggest human disturbance comes from Kayak and zodiac tours of sea caves used for nest sites which causes adults to flush from nests, resulting in predation by native birds.

Selected Readings/References

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