SNOWY OWL

A Visual Natural History

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PHYSICAL FEATURES

The Snowy Owl (*Bubo scandiacus*) is by far the easiest owl to identify and is unlikely to be confused with any other. So distinctive is the Snowy that it was put in its own genus, *Nyctea*, in 1809 before it was reclassified in 2003 as a member of the *Bubo* genus, which includes the Great Horned Owl and Eagle Owl.

The Great Horned Owl is the Snowy Owl's closest living relative, but only the lightest-colored Great Horned Owls of the paler Arctic race approach the color of the darkest female Snowy Owl. Snowys are also more compact and have rounder heads than Great Horned Owls. Snowy Owls often share habitat with Short-eared Owls, but the latter has a more distinctive facial disk, is browner, and has a striped rather than a white breast. I also know of several occasions when people mistook pale Barn Owls in their headlights for Snowy Owls due to their light color—and perhaps a bit of wishful thinking. The Snowy Owl is much larger and bulkier than the Barn Owl and lacks its heart-shaped facial disk.

The Snowy Owl is one of the largest owls in the world, with females weighing up to 6.5 pounds and having a wingspan of up to 61 inches. The females are roughly 25 percent heavier than the males, which max out at 4.5 pounds, with a wingspan of up to 56 inches. The two genders have a similar body length of about 23.5 inches. The Snowy is the largest owl in North America in terms of weight, but has a shorter body length than the lighter Great Gray Owl and a wingspan similar to both the Great Gray Owl and the Great Horned Owl.

Although they are often referred to as "earless," Snowy Owls have small ear tufts that are rarely seen except when they are flying against a strong wind or when females are on the nest. An owl's ear tufts have nothing to do with hearing, but rather are believed to help hide the owl by breaking up its shape. The Snowy Owl's tufts might play that role, they might signal an owl's mood, or they may simply be

Snowy Owls display several adaptations to the Arctic environment including thick feathers around the bill and on the feet to keep the owl warm as well as a heavy, compact build and strong wings that help them fly into strong winds.

ABOVE: *Fluffing their feathers allows Snowy Owls and other birds to capture pockets of air between the feathers, boosting their insulation power.*

OPPOSITE: *Older adult male Snowy Owls often appear nearly pure white, but some, like this one, retain round dark flecks on their wings, tail, or even head.*

facilitates spotting prey and predators. They show a strong preference for treeless or even shrubless locations but will tolerate some of each when they have large open areas to hunt and a good food supply. Some typical winter locations include coastlines, prairies, large beaches, farm fields, marshes, pack ice on open water, cities and towns adjacent to open areas, forest openings, and often, unfortunately for the owls, airports.

Migrations, Irruptions, and Other Movements

Snowy Owls exhibit a wide and complex range of movement patterns. Some migrate, some irrupt, some travel hundreds of miles in search of food, and some stay put on breeding territories. The type of movement is influenced by a number of factors: the prior year's breeding success, snow depth, weather, and the abundance of lemmings and secondary prey such as Willow Ptarmigan, hares, and seabirds during the breeding season. It is also affected by the availability in winter of all those foods plus other birds and small mammals. The owls' unpredictable movements combined with the fact that their breeding grounds are so inaccessible make it difficult for us to estimate their actual population numbers and their exact movement patterns.

Every year between late October and early January most migratory North American Snowy Owls fly south from their breeding grounds to wintering areas in southern Canada and the northern United States. Some travel west into Russia, while others move north onto the frozen Arctic Ocean, where they feed on seabirds that congregate along openings in the ice. Snowy Owls sometimes winter thousands of miles from where they spent the previous winter.

During Snowy Owl irruptions, large numbers of owls may congregate, resulting in confrontations such as this one.

A female Snowy Owl looks over her young on their nest on the Arctic tundra. Females lay eggs roughly every two days and produce up to eight to twelve eggs if food is plentiful, resulting in young of varying ages at a single nest.

BREEDING

Snowy Owl breeding is just as enigmatic as their migrations, but one thing is clear: the degree of success or failure is driven by the male's ability to successfully hunt a large number of lemmings. Without them, the male will not attract a mate, convince her to breed, or enable her to lay eggs. Once a male owl has secured a mate and she has scraped a nest into the top of a tundra mound, the female begins to lay eggs, and the male feeds her at the nest while she incubates the eggs and cares for the nestlings.

A spike in lemmings had driven a successful breeding season the first time I photographed Snowy Owls one July on Alaska's North Slope along the Arctic Ocean. I visited several nest sites with researchers from the Owl Research Institute. After running, crouching, and ducking to avoid attacks from a vigilant male during our survey, we counted the prey, eggs, and young and weighed the nestlings.

Plump dead lemmings outnumbered eggs at the first nest we visited. Ten lemmings were scattered around the edges of the shallow depression scraped into the sod of the tundra, with three pure white eggs bunched together in the center. This was a hopeful sign. The male seemed able to secure enough lemmings to feed his mate and the forthcoming young.

Lemming numbers spike and plummet in what has been called a cyclical—but would be more accurately called an unpredictable—fashion, with gains and declines happening both between and within nesting seasons. In early spring, when the plump rodents are still living and foraging beneath the snow-covered tundra, Snowy Owls begin concentrating where lemmings are most abundant.

Male Snowy Owls are driven to catch and stockpile as many lemmings as they can, to provide their own food for courtship and to enable the female to lay eggs. Prior to securing a mate, the male frequently stockpiles lemmings near habitual perches, which are often the most elevated parts of the tundra.

ABOVE: *One by one, young owls walk or run off the nest and into the surrounding tundra vegetation. The young typically leave on different days with the oldest ones leaving first.*

OPPOSITE, TOP: *Six Snowy Owl nestlings huddle together for warmth at their nest.*

OPPOSITE, BOTTOM: *A week or so after the young owls leave the nest, the feathers of the feet, wings, and face of fledglings become increasingly white.*

Snow-encrusted grass is one sign of the end of the Arctic fall and the commencement of winter migration.

THE FUTURE

The shrinking of the Snowy Owl's limited breeding habitat presents major challenges to its survival. At the same time, both its breeding and wintering habitats are threatened by climate change and resource extraction. To save this species, we must understand the threats facing these owls and what we can do to help.

Threats to the Snowy Owl

Most of the world's specialized species are losing habitat due to climate change, but Arctic species such as the Snowy Owl and the lemmings they rely on as food are unique in that their breeding habitat is being pinched off, or more accurately, "melted off," on both its northern and southern edges. At the same time, significant parts of the owl's breeding and wintering habitats are being threatened by resource extraction, and its wintering habitat faces additional pressure from conversion to agriculture. The Snowy Owl's future becomes more worrisome when we add the additional impacts of development that occur around resource extraction, the use of poisons for "pest" control, and human encounters.

Climate change is already dramatically affecting the Arctic, shrinking the owl's limited suitable nesting habitat. Snowy Owls nest on the very thin band of Arctic tundra, a herbaceous habitat located between the boreal forest and the Arctic Ocean and consisting of an intricate weave of the green, yellow, red, and white fibers of mosses, lichens, sedges, grasses, wildflowers, liverworts, and some low shrubs. Only plants with short roots can survive on the thin layer of soil that rests on a frozen layer of subsoil, the permafrost. Very little precipitation falls on Arctic tundra, and most of what does fall is snow. Permafrost prevents water from soaking deeper into the ground, resulting in the presence of innumerable openings