

# EURASIAN JAY

CARD 92

GROUP 2: BIRDS

ORDER  
Passeriformes

FAMILY  
Corvidae

GENUS & SPECIES  
*Garrulus glandarius*



**The Eurasian jay is found in wooded countryside throughout Europe, yet it is rare to catch more than a blurred glimpse of this bird as it flits between branches.**

## KEY FACTS



**SIZES**  
Length: About 13 in.  
Weight: 5-7 oz.



**BREEDING**  
Sexual maturity: 1 year.  
Breeding season: Spring to early summer.  
No. of broods: Usually 1.  
Eggs: 4-6.



**LIFESTYLE**  
Habit: Easily disturbed; territorial during the breeding season.  
Call: Loud, harsh screech. Mimics other birds.  
Diet: Small invertebrates, rodents, acorns, seeds, berries, eggs, and young of other birds.  
Lifespan: Longest, 16 years.



**RELATED SPECIES**  
There are 2 other *Garrulus* species: the purple jay from India and the lanceolated jay from the Ryuku Islands south of Japan.



Range of the Eurasian jay.

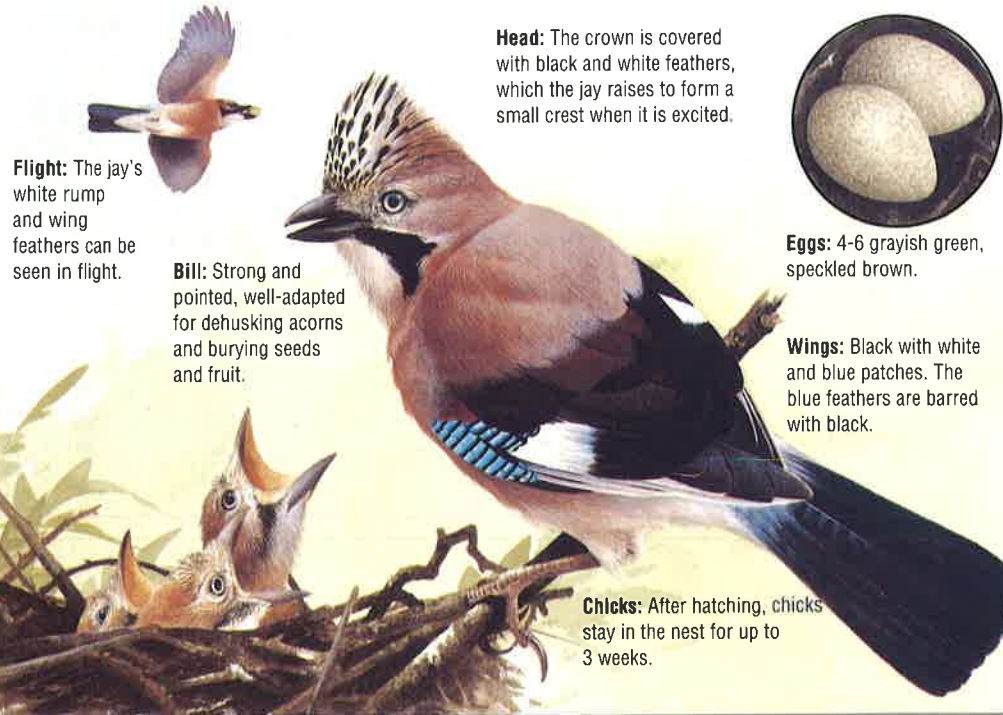
### DISTRIBUTION

Found in wooded areas throughout Europe, except in the far north; also found in northern Africa and western Asia.

### CONSERVATION

The Eurasian jay is an adaptable bird and appears to be thriving throughout its range. The only danger is the continuing use of agricultural pesticides, which can contaminate its food.

## FEATURES OF THE EURASIAN JAY



**Flight:** The jay's white rump and wing feathers can be seen in flight.

**Bill:** Strong and pointed, well-adapted for dehusking acorns and burying seeds and fruit.

**Head:** The crown is covered with black and white feathers, which the jay raises to form a small crest when it is excited.

**Eggs:** 4-6 grayish green, speckled brown.

**Wings:** Black with white and blue patches. The blue feathers are barred with black.

**Chicks:** After hatching, chicks stay in the nest for up to 3 weeks.





The Eurasian jay is a colorful member of the crow family. Its black wings have shimmering, iridescent blue and white patches. When excited, it raises the black and white feathers on its crown to form a crest.

## HABITS

The Eurasian jay is more often heard than seen. It can be identified by its white rump, black tail, and blue and white wing patches. When it flies from tree to tree, it may appear only as a flash of color.

The jay frequently engages in an activity called *anting*. It deliberately disturbs an ant-hill, encouraging the ants to swarm over its feathers. The

excited ants then release a substance called formic acid, which the jay rubs into its body. The formic acid acts as an insecticide, keeping the jay free from other insects.

Recently the jay's habitat has broadened to include orchards, parks, and gardens.

Right: Over distances the jay's flight is heavy and wavelike.

Right: A young jay demands food from its parent by either pecking at the adult's bill or squawking loudly until the food is handed over.



## FOOD & FEEDING

The Eurasian jay's diet includes caterpillars, worms, spiders, and small rodents. It also eats seeds, fruit, and the eggs and newly hatched young of other birds.

In the fall the jay eats and hoards thousands of acorns, storing large quantities below ground to have when other

Left: The Eurasian jay prefers the cover of a wooded area.

food is scarce. The jay buries each acorn separately. It pecks a small hole in the ground, drops the acorn in it, then covers it with earth, leaves, and twigs. It also stores beechnuts, peas, and berries in this way.

The jay eats an acorn by holding it down with its feet and picking off pieces of the husk with its bill to expose the soft part underneath.

## DID YOU KNOW?

- Male and female Eurasian jays look alike and can be distinguished only by their mating behavior.
- Jays are excellent mimics and have been heard imitat-

ing dogs, goats, and even a squeaking door.

- Jays remember where they have hidden acorns even when the ground is covered with snow or leaves.



Above: The jay rouses an ant-hill with its wings.



Left: The jay often steals eggs of other birds.

## BREEDING

Mating begins in spring after a ritual known as the "spring gathering," which is a way of bringing together unpaired birds. The male and female jays gather in groups and chase each other through the air, holding their wings open to display their blue patches.

After pairing, both male and female defend a small territory against intruders,

and a pair may bond for life. Both birds build a small, flat nest hidden high in a tree.

In late April or May the female lays four to six grayish green eggs with brown spots, which she incubates herself. The chicks hatch 16 to 19 days later and leave the nest after about 21 days, although the parents feed them for several more weeks.



## BIRDWATCH

The Eurasian jay is found mainly in woodlands and in open country with lots of trees. It is becoming more common in suburbs.

Its pinkish body and blue

and white wing patches identify the jay. But it is easily disturbed and more likely to be seen flying away, showing only its white rump and black tail.





CARD 94

# GREATER ROADRUNNER

GROUP 2: BIRDS

ORDER  
Cuculiformes

FAMILY  
Cuculidae

GENUS & SPECIES  
*Geococcyx californianus*



**The greater roadrunner is the world's fastest-running flying bird. Its exceptional speed and agility help it to capture prey and outmaneuver predators.**

## KEY FACTS



**SIZES**  
Length: Body, 16 in. Tail, 8 in.  
Speed: Up to 18 mph.



**BREEDING**  
Sexual maturity: About 1 year.  
No. of broods: 1.  
Breeding season: March to April.  
Eggs: White. Up to 7; usually 3-5.  
Incubation period: 20 days.  
Fledging period: 18 days.



**LIFESTYLE**  
Habit: Generally solitary outside the breeding season.  
Call: Makes a wide range of sounds, including crowing, cooing, and hooting noises.  
Diet: Insects, lizards, snakes, small rodents, and small birds.  
Lifespan: Not known.



**RELATED SPECIES**  
Member of the cuckoo family. Its closest relative is the lesser roadrunner, *Geococcyx velox*, which ranges from Mexico to Nicaragua.



Range of the greater roadrunner.

### DISTRIBUTION

The greater roadrunner's range is confined to desert chaparral (dense shrubs and trees) and the scrubby forests of the southwestern United States and Mexico.

### CONSERVATION

Like most of the other cuckoo species, the greater roadrunner does not appear to be at risk at present from either hunting or destruction of its habitat.

## FEATURES OF THE GREATER ROADRUNNER

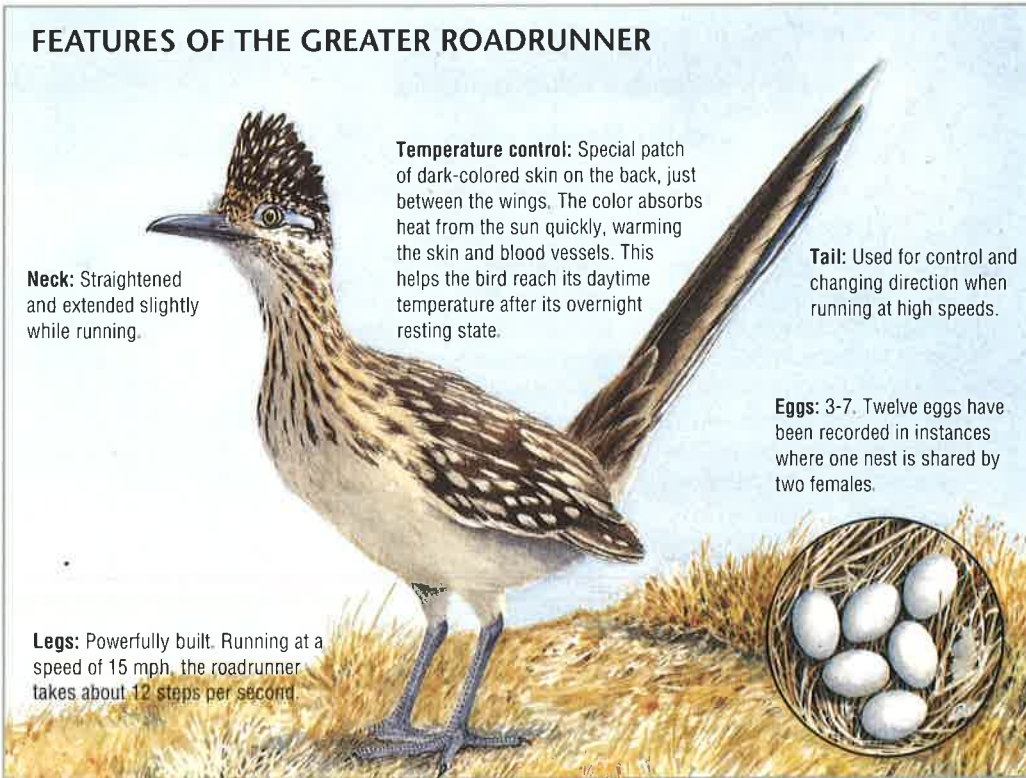
**Neck:** Straightened and extended slightly while running.

**Temperature control:** Special patch of dark-colored skin on the back, just between the wings. The color absorbs heat from the sun quickly, warming the skin and blood vessels. This helps the bird reach its daytime temperature after its overnight resting state.

**Tail:** Used for control and changing direction when running at high speeds.

**Eggs:** 3-7. Twelve eggs have been recorded in instances where one nest is shared by two females.

**Legs:** Powerfully built. Running at a speed of 15 mph, the roadrunner takes about 12 steps per second.







*The greater roadrunner is a medium-size bird with a streamlined body, strong legs, and a long tail.*

*Although it can fly, it prefers to stay on the ground, where it runs at high speed in pursuit of prey.*

*This bird is particularly skilled at catching a variety of snakes.*

## FOOD & HUNTING

The greater roadrunner has a varied diet that includes insects, lizards, snakes, small rodents, and birds. It picks small prey like insects directly from vegetation or flushes them from cover by beating its wings. The roadrunner sprints after larger, fast-moving prey, dashes it against the ground, and then eats it whole. It pounds tough-skinned prey until it is soft enough to eat.

The roadrunner is a specialist at catching snakes. It circles the snake, keeping out

of range of its fangs, and then darts in and seizes it behind the head. It kills the snake by pounding its head against the ground.

Newly hatched chicks need more water than their food alone provides. To supplement a chick's water intake, the adult holds out an insect or other small prey at the tip of its bill. When the chick tries to take it, the adult regurgitates water into the chick's mouth and then lets it take the food.

*Left: Adapted for speed, the greater roadrunner's long tail acts like a rudder.*

*Right: A strong bill and speed on the ground make this bird a formidable snake catcher.*



*Left: A special patch of skin behind the roadrunner's wings absorbs heat from the sun quickly and raises the bird's body temperature from its nighttime state.*

## DID YOU KNOW?

- The roadrunner received its name before the automobile was invented, when it used to run on the road alongside horses and carriages.
- A greater roadrunner was clocked at 26 miles per hour while being chased by a car.

- This time equals the peak speed of the 1988 world record holder for the 100-meter.
- This bird was once hunted in the mistaken belief that it ate game birds.
- The greater roadrunner is also called a chaparral cock.

## HABITS

The greater roadrunner lives mainly on the ground. Although it can fly clumsily for short distances, it relies on running to escape danger and to catch prey. It runs very fast (about 15 miles per hour) and can change its direction quickly by using its tail as a rudder. When it runs, the bird straightens and extends its long neck and uses its tail and wings to stay balanced.

The greater roadrunner lives in a climate that is hot during the day but can drop to very

low temperatures at night. In these conditions other birds burn energy to keep their body temperature constant. But the roadrunner allows its temperature to drop slightly each night and enters into a state of *torpor*. This state of reduced energy consumption is similar to hibernation, and the bird becomes sluggish. Although it cannot respond quickly to danger in this state, it has so few predators that any risk is outweighed by the savings in energy.



*Left: The male roadrunner offers the female food but does not let her eat until after mating.*

## BREEDING

The male greater roadrunner attracts the female with a series of descending cooing sounds. He then offers her food but does not let her eat it until after mating. As a display, he raises his crest and flicks his tail while cackling and quickly patting his feet. He repeats the display several times, alternating it with bowing and cooing.

Unlike many other species of

cuckoo, the roadrunner builds its own nest instead of using that of another bird. The female uses twigs to build a shallow, basket-shaped structure off the ground.

The female lays between three and seven white eggs and incubates them for about 20 days. The chicks are born black and naked. Both parents bring them insects and small lizards to eat. The chicks can run at about 18 days and are ready to leave the nest about a week later.



# NORTHERN GANNET

CARD 96

GROUP 2: BIRDS

ORDER

Pelecaniformes

FAMILY

Sulidae

GENUS & SPECIES

*Morus bassanus*



**The northern gannet's streamlined shape, long wings, and daggerlike bill make it a lethal predator of fish. With its wings drawn back, this seabird dives down to seize its prey.**

## KEY FACTS



### SIZES

Length: About 3 ft.  
Wingspan: 5½-6 ft.  
Weight: 5-8 lb.



### BREEDING

Sexual maturity: 5-6 years.  
Breeding season: Early spring to summer.  
No. of broods: 1.  
Eggs: 1, whitish.  
Incubation: About 6 weeks.  
Fledging period: Up to 3 months.



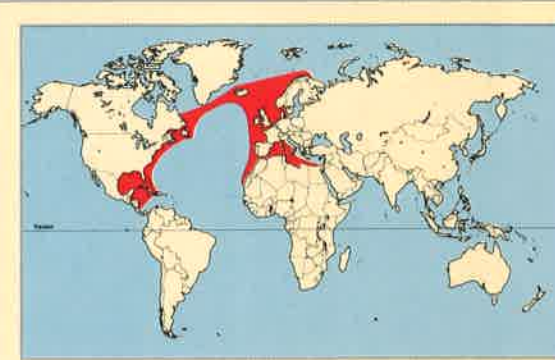
### LIFESTYLE

Habit: Breeds in colonies; less sociable at other times.  
Diet: Mainly fish.  
Lifespan: 16-20 years.



### RELATED SPECIES

The northern gannet's closest relatives are the Cape gannet, *Morus capensis*, and the Australian gannet, *M. serrator*.



Range of the northern gannet.

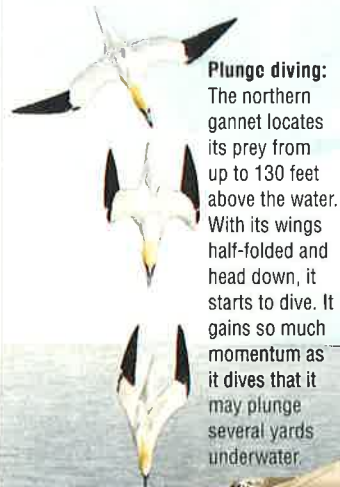
### DISTRIBUTION

Found in the continental waters of the North Atlantic, with breeding colonies in eastern Canada, Great Britain, Ireland, Norway, and Iceland.

### CONSERVATION

The number of northern gannets declined sharply in the 19th century because of hunting. Thanks to protected colonies in Europe, the population is increasing.

## FEATURES OF THE NORTHERN GANNET



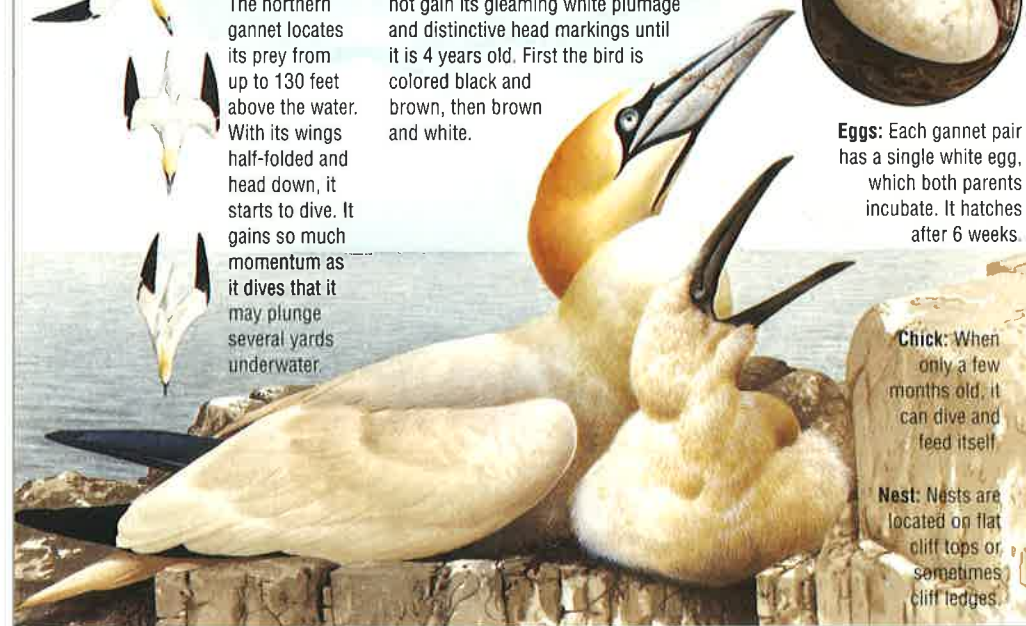
### Plunge diving:

The northern gannet locates its prey from up to 130 feet above the water. With its wings half-folded and head down, it starts to dive. It gains so much momentum as it dives that it may plunge several yards underwater.

**Plumage:** The northern gannet does not gain its gleaming white plumage and distinctive head markings until it is 4 years old. First the bird is colored black and brown, then brown and white.



**Eggs:** Each gannet pair has a single white egg, which both parents incubate. It hatches after 6 weeks.



**Chick:** When only a few months old, it can dive and feed itself.

**Nest:** Nests are located on flat cliff tops or, sometimes, cliff ledges.





*The northern gannet is the largest seabird in the North Atlantic. This remarkable diver can plunge 130 feet from the sky to catch fish in the sea. Its huge nesting colonies may contain tens of thousands of birds—all gleaming white and creating a tumult of noise.*

### FOOD & HUNTING

The northern gannet is renowned for its plunge diving. Flying as high as 130 feet above the sea, the bird locates its prey and drops with its wings half-folded. Plunging headlong, it gains so much momentum that it dives several yards underwater. It can then swim to a depth of 50 feet.

After snatching its prey in its beak, the gannet swims to the

surface to swallow it. Each dive lasts 5 to 20 seconds. Other hunting techniques include diving at an angle from a lower height and diving from the surface after dipping its head underwater to spot prey.

The gannet catches fish up to a foot long, including cod, herring, haddock, capelin, mackerel, pilchard, and anchovy. It also catches squid.

*Left: Male gannets frequently use their bills to wrestle for ownership of a nest site.*

*Right: The gannet is a strong flyer and seeks shelter only in very rough weather.*



### DID YOU KNOW?

- Large air sacs around the northern gannet's throat and neck help absorb the shock when it hits the water.
- The gannet's nostrils are closed as an adaptation for

diving. The bird breathes through its mouth.

- When rearing its young, the gannet may travel almost 400 miles from the colony to find food.



### BIRDWATCH

Thirty percent of all northern gannets nest in the western Atlantic. Well-known colonies are on Bonaventure Island off Quebec's Gaspé

Peninsula and at Cape St. Mary in Newfoundland. Gannets winter off the U.S. coast and can be seen from shore as they dive for fish.

### HABITS

The northern gannet is a large North Atlantic seabird. It stays mostly in continental waters and rarely flies out to mid-ocean. Its population today is about 200,000 breeding pairs.

In the breeding season, gannets gather in noisy colonies on grassy coastal slopes or flat-topped islands. The colonies vary from fewer than 10 pairs to many thousands.

Outside the breeding season, the gannet is less sociable. It fishes at sea and comes to the coast only in harsh weather or to pursue large schools of fish. Some birds, especially younger ones, fly south in winter—to

Florida in the west and Guinea-Bissau in the east. In the early spring, breeding adults return to the nesting colonies.

The gannet's flight consists of deep, powerful beats combined with short glides. It can maintain its course even in strong winds.



*Right: The northern gannet returns each year to the same nest site and the same mate.*



### BREEDING

The northern gannet mates for life and uses the same nest site each year. The male returns to the site in early spring. He must reestablish ownership before his mate arrives. A male

*Left: The single chick is tended by both parents until it can dive for food.*



breeding for the first time must secure a site. He then attracts a female by shaking and extending his head.

The male usually builds the nest, piling up seaweed, grass, and feathers mixed with earth and droppings. A single egg is incubated by both sexes for about a month and a half. After hatching, the chick develops a downy coat. It eats partially digested fish from its parents' mouths. After a couple of months it is left alone and dives down to the sea to feed. Gannets gain full adult plumage after four years.

*Left: Breeding pairs spar with their bills to greet each other at the nest.*



CARD 97



# BLACK-BROWED ALBATROSS

GROUP 2: BIRDS

ORDER

Procellariiformes

FAMILY

Diomedidae

GENUS & SPECIES

*Diomedea melanophris*



**The black-browed albatross is a bird of the open seas that lands only to breed. An immature bird may circle the world several times before it touches down on firm ground.**

## KEY FACTS



### SIZES

**Length:** 2½-3 ft. Male larger.  
**Wingspan:** 6-7 ft.  
**Weight:** About 6½-9 lb.



### BREEDING

**Sexual maturity:** 4-7 years.  
**Breeding:** Once every 2 years.  
**Eggs:** 1, white with red-brown spots.  
**Incubation:** Approximately 2 months.  
**Fledging:** Over 9 months.



### LIFESTYLE

**Habit:** Mainly solitary but nests in large colonies.  
**Diet:** Squid, fish, crustaceans.  
**Lifespan:** 30 years.



### RELATED SPECIES

There are 13 albatross species. Nine species inhabit the southern oceans, including the wandering albatross, *Diomedea exulans*, and the black-footed albatross, *D. nigripes*.



Range of the black-browed albatross.

### DISTRIBUTION

Found in the southern oceans. Nests on remote islands where there are no predators, such as the Auckland Islands, Tristan da Cunha, and South Georgia.

### CONSERVATION

Once hunted by sailors, the black-browed albatross has few enemies except man. It is the most numerous species of albatross.

## THE BLACK-BROWED ALBATROSS FAMILY

**Bill:** Long and yellow, with a pinkish, hooked tip. Small nostrils through which stomach oil and salt are secreted.

**Black "brow":** A furrow of black feathers over the adult's eye distinguishes this albatross species.

**Plumage:** Both sexes have dark brown upper wings, a dark back, gray tail, dark gray edges on the front of the underwing, and an otherwise white body.

**Nest:** A mound of mud or earth built on a high site overlooking the sea. Other pairs nest nearby.



**Chick:** Stays in nest for over 9 months.

**Egg:** One per brood. Large and white with red-brown markings.





Left: Light, air-filled bones help the black-browed albatross to sustain its gliding flight for hours.

Right: The albatross usually nests high on a hill with a view over the sea.

The black-browed albatross glides easily on its long, stiff wings. It can remain in the air for hours at a time by riding the strong air currents that rise from the surface of the sea. A native of the southern oceans, this wide-ranging bird only occasionally strays north of the equator.

## BREEDING

Breeding occurs in colonies on remote islands. Once birds pair up, they mate and breed every other season.

The male reaches the breeding site first. When his mate arrives, the two birds engage in a noisy courtship display. They dance around each other with outstretched wings and clattering bills.

The birds build a cup-shaped nest from mud or earth. A single egg is laid and incubated in turn by each parent for over two months.

The parents feed the newly hatched chick predigested food and take turns guarding it. After a month both adults

may leave the chick for up to 10 days while they search for food. The chick remains dependent on the parents for another eight months.

Right: A breeding colony.

Below: The adult offers its chick predigested food.



## DID YOU KNOW?

- When threatened, the black-browed albatross regurgitates a smelly oil, derived from its food, and squirts it at the attacker. The oil is also used in preening to help keep the bird's feathers waterproof.

- *Mollymawk* is a name sailors use for a medium-sized albatross like the black-browed species.
- Once fully fledged, the black-browed albatross may not alight on dry land for four to seven years.



## HABITAT

The black-browed albatross has weak wing muscles and relies on strong winds to lift it. It circles the oceans at a latitude of 30 to 60 degrees, where there is enough wind to keep it airborne. It favors the windy sub-Antarctic zone.

Albatrosses from southern waters rarely cross the windless equatorial belt. The black-browed species is an exception and has been seen off the coasts of Florida and Newfoundland.



## FOOD & HUNTING

Most often the black-browed albatross can be found gliding 50 to 65 feet above the water's surface. At this height it gets the maximum benefit from wind speed and can still see prey swimming below.

The black-browed albatross

eats squid, crustaceans, various fish, and lampreys. It is an active scavenger and follows ships for days waiting for leftover food to be thrown away. The albatross drinks seawater and gets rid of the excess salt through its nasal passages.



## SPECIAL ADAPTATIONS

The black-browed albatross belongs to a group of birds, called *tube-noses*, that have tubular nostrils at the base of their bills. These nostrils may account for the bird's keen sense of smell. They may also help to keep sea

spray out of the bird's nose.

The albatross lives almost entirely at sea, so it must drink salt water. It has large nasal glands that secrete the salt in solution, and the tube nose may keep this mixture away from the bird's eyes.



Left: Tubular nostrils give the bird a keen sense of smell. They may also deflect sea spray from its nose and secrete fluids from its eyes.



# DOVEKIE

CARD 100

GROUP 2: BIRDS

ORDER  
Charadriiformes

FAMILY  
Alcidae

GENUS & SPECIES  
Alle alle



**The dovekie thrives in the Arctic, where few other birds can survive. In the cold polar waters, among the ice floes, it finds a plentiful supply of plankton for food.**

## KEY FACTS



### SIZES

Length: 6-8 in.  
Wingspan: 15-20 in.  
Weight: 4-6 oz.



### BREEDING

Sexual maturity: Unknown.  
Breeding season: Late May to August.  
Broods: 1.  
Eggs: 1. Pale greenish blue.  
Incubation: 24-30 days.  
Fledging period: 26-30 days.



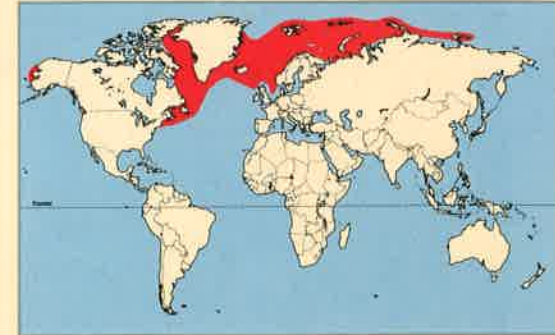
### LIFESTYLE

Habit: Sociable; nests in large colonies. Couples usually form long-lasting bond.  
Diet: Plankton, marine worms, mollusks, very small fish.



### RELATED SPECIES

The 23 species in the auk family are all seabirds of the Northern Hemisphere. Other members include the puffin, razorbill, and great auk.



Range of the dovekie.

### DISTRIBUTION

Breeds in Greenland, Iceland, Jan Mayen Island, Bear Island, Spitsbergen, Franz Josef Land, and Novaya Zemlya. Winters in Arctic and North Atlantic oceans.

### CONSERVATION

The dovekie is one of the most abundant auks, even though it has disappeared from some former breeding grounds during this century and is hunted for food on some islands.

## IDENTIFYING THE DOVEKIE

**Flight:** Has a whirring flight, moving fast and low over the water.



**Egg:** Female lays one pale greenish blue egg between late May and early July. It is large compared with her tiny body size.



**Swimming:** Swims buoyantly on the Arctic waters. Gathers its food by diving from the surface of the water, propelled by its wings and webbed feet. Each dive is fairly shallow and lasts from 25 to 40 seconds, usually with a 10- to 20-second rest between dives.

**Breeding plumage:** Mainly black, with pure white underside.

**Winter plumage:** White throat, chin, and lower face. White markings curve up behind the eye.





*The dovekie has a short, thick body and black and white feathers similar to a puffin's. It gathers in large numbers on islands in the Arctic, where it breeds in late spring. Some of the nesting colonies consist of more than a million dovekies. In summer these colonies are alive with the birds' activity and chatter.*

## HABITS

All auks live in the Northern Hemisphere, but none quite as far north as the dovekie. Its total population is unknown, but about 25 million pairs are believed to nest in Greenland and several million more on the larger sub-Arctic islands.

At the end of summer the colonies of dovekies disperse. Most of the birds move offshore to feed in the broken ice. Many head toward wintering grounds in the North Atlantic off of Newfoundland and the northeast United States, as well

as in Norway and Scotland.

Small flocks of about 15 dovekies gather as part of larger groups. The birds often congregate on ice floes or rest close together in the water in formations known as *rafts*.

Although the dovekie is fairly quiet in the winter, the summer nesting colonies are noisy.

The dovekie is agile on land. It walks easily over rocks and ice and can even negotiate narrow cliff ledges. It swims well and flies fast and low over the waves.

## FOOD & FEEDING

The dovekie feeds mainly on *plankton* (tiny plants and animals in the water), especially crustaceans. It also eats young fish, marine worms, and mollusks. The abundance of this food supply enables the bird to survive in great numbers in the harsh Arctic environment. The dovekie's nesting sites are always close to stretches of sea that are rich in plankton.

*Left: The dovekie swims buoyantly. Groups of dovekies in the water are called rafts.*

To gather its food, the dovekie dives from the surface of the water, propelled by its feet and wings. The bird has been seen eating waste from fishing boats. It probably takes plankton from the gutted stomachs of the fish.

During breeding season the adults may fly miles to find food for the hungry chicks. They bring the plankton back in their expandable throats.

*Right: The dovekie, or "little dove," is known in Europe as the little auk.*

## DID YOU KNOW?

- In gale conditions, rafts of weakened dovekies have occasionally been blown as far south as the Caribbean Sea.
- Fights often break out between male dovekies at the breeding colonies. With their bills locked together, two rivals will sometimes roll

several yards downhill.

- The mass of red droppings around dovekie colonies helps to fertilize dense vegetation. Ironically, this growth provides cover for Arctic foxes and glaucous gulls—the main predators of the dovekie's eggs and young.



## BREEDING

In summer thousands of pairs of dovekies crowd for nesting space on the cliffs and rocky coasts of the Arctic islands. Toward the southern part of its breeding range, however, the dovekie may nest in small colonies. Most colonies face the sea, but some are a bit inland. The birds prefer sites that are sheltered from winds and rain, and where the snow has already melted.

The dovekies gather at their breeding areas in April and early May. They assemble in large rafts offshore and then fly in to rejoin the colony. The

*Left: Dovekies often gather in small flocks that are part of a very large group.*



birds usually find their previous mate and take over their old nest site. Unpaired adults engage in courtship rituals, with fast flights through the colony and fluttering displays in the air.

The dovekie nest may be located in a crevice in a rock, under a boulder, or among piles of rocky debris. Sometimes the nest is lined with pebbles and dried grasses.

A single egg is laid from late May to early July. The egg is large compared with the female's body, so the chick can develop well before it hatches. Both parents incubate the egg and then brood the chick for two to four days until it can keep itself warm. A few weeks later, before it can fly, the chick leaves the colony. It is taken to the sea and cared for by its father until it becomes independent.

*Left: The dovekie expands its throat pouch when it collects plankton to feed its young.*