

GOLDEN EAGLE

CARD 1

GROUP 2: BIRDS

ORDER
Falconiformes

FAMILY
Accipitridae

GENUS & SPECIES
Aquila chrysaetos



J.Meech/Natural Image

One of only two kinds of eagle to breed in North America, the majestic golden eagle once provided the feathers for the warbonnets of the Plains Indians.

KEY FACTS



SIZES

Length: 30-35 in.
Wingspan: 6-7 ft.
Weight: 6-13 lb.



BREEDING

Sexual maturity: 4-5 years.
Breeding season: March-July.
Eggs: 2, white with brown blotches.
Incubation: 43-45 days.
Fledging period: 65-70 days.



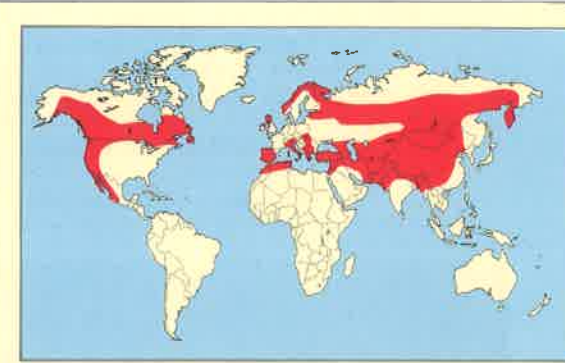
LIFESTYLE

Habit: Solitary or paired; hunts for prey on the ground while soaring on *thermals* (warm air currents).
Diet: Small mammals and birds.
Lifespan: 15-20 years.



RELATED SPECIES

The imperial eagle, *Aquila heliaca*.



Range of the golden eagle.

DISTRIBUTION

Found sparsely across northern Europe, Asia, North America, and North Africa.

CONSERVATION

Protected in the U.S. since 1962, it is still threatened by direct persecution and habitat loss. It is hunted in some parts of the world.

SPECIAL FEATURES OF THE GOLDEN EAGLE

The golden eagle spends much time soaring. Its **wings** are long and have well-spread **primary feathers**, which allow it to adjust its movements while gliding in air currents.

The golden eagle also has a particularly large and powerful **hooked beak**. It is used to dismember prey, which the eagle carries back to the nest in pieces.



Its **legs and feet** are large and thick with long, sharp **talons** that enable it to grasp and crush its prey.



The golden eagle is one of the world's largest and most majestic birds of prey.

But it has long been persecuted, especially by some farmers, who hold the mistaken belief that it kills farm animals and poultry.



G. Ziegler/Bruce Coleman Ltd.

HABITAT

A large bird that hunts from the air, the golden eagle is most at home in wide, open spaces. Today, although it is found among the forests and

wetlands of eastern Asia, Europe, and North America, it mostly inhabits mountains and moors, where there is little cover for its prey.

DID YOU KNOW?

- Golden eagles are thought to live for about 15 to 20 years in the wild. Captive birds have been known to live for 40 or 45 years.
- In forests of North America, the eagle's home range may cover 200 square miles.
- Golden eagles swoop down on their prey at speeds of up to 95 miles per hour.
- In old England, only kings were allowed to hunt golden eagles.

BREEDING

Golden eagles usually build their nests, called aeries, on rocky ledges, cliffs, or trees. In some places, eagles have used the same rocky ledges for hundreds of years. Nests in trees are often reused and expanded every year.

When courting, the male flies quickly through the air, diving and soaring repeatedly. The first egg is usually laid in March.

Incubation begins before a second egg is laid, so the first chick hatches three or four

days before the second. The second chick usually starves or is killed by the older chick.



S. Roberts/Ardea London

Above: Golden eagles typically lay two brown, blotchy eggs, which are incubated for more than six weeks.



J. Mitok/Survival Anglia

Left: Although two eggs may hatch, the chick that hatches first is usually the only survivor.

FOOD & HUNTING

The golden eagle preys mainly on small animals, especially the mountain hare. It scavenges the remains of larger animals, such as deer. Other prey includes young foxes, mink, lizards, snakes, and game birds, such as red grouse and ptarmigan.

The golden eagle catches most of its prey on the ground, but it will catch some birds in mid-air. Its sharp eyesight enables it to see smaller prey from some distance away.

Right: After a successful hunt, an eagle tears up its prey into manageable pieces. If there are chicks to feed, the eagle will carry part of its kill back to the nest.



J. Swedberg/Ardea London



BIRDWATCH

The golden eagle is difficult to catch a glimpse of in the wild. Not only does it inhabit remote regions, its numbers have been greatly reduced.

Spotting one is often a matter of being in the right place at the right time. In winter, it is possible to spot the bird in the southwest United States and in Mexico, where some eagles migrate to escape the harsh, northern winters.

In spring and summer, the golden eagle can be seen soaring on the air currents emanating from the sun-warmed ground.

From a distance, the golden eagle sometimes looks like a common buzzard. However, an adult eagle is larger than a buzzard, and its wings are folded to its body in a more parallel fashion. When it soars, the golden eagle holds its wings in the characteristic "V" shape.

EAGLE & MAN

The golden eagle was once widespread throughout the Great Plains. Its numbers have declined due to persecution from hunters and farmers.

The eagle's habitat is now threatened as well. Reforestation is reducing the open areas in which it hunts. Insecticides, such as DDT and dieldrin, have adversely affected the eagle's breeding success. Despite bans on these chemicals, poisoning remains the greatest threat to the eagle today.

RUBY-THROATED HUMMINGBIRD

CARD 2



GROUP 2: BIRDS

ORDER
Apodiformes

FAMILY
Trochilidae

GENUS & SPECIES
Archilochus colubris



This strikingly beautiful bird is one of the best-known hummingbirds. It gets its name from the male's magnificent blood red throat plumage.

KEY FACTS



SIZES
Length: 4 in.
Wingspan: 5 in.
Weight: 1/100 oz.



BREEDING
Breeding season: March-July.
No. of broods: 1, sometimes 2.
Eggs: 2 per clutch.
Incubation: 16 days.
Fledging period: 22-24 days.



LIFESTYLE
Habitat: Woods, orchards, and gardens. Forest in winter.
Diet: Nectar and insects.
Call: Short, high-pitched squeaks.
Lifespan: 5 years.



RELATED SPECIES
320 different species throughout the two American continents.



Range of the ruby-throated hummingbird.

DISTRIBUTION

Breeds in eastern North America and winters in Central America and the West Indies.

CONSERVATION

Its plumage and minute size made the hummingbird a natural target for collectors in the nineteenth century. However, it survived well and is in no immediate danger. It is common in its normal range.

THE HUMMINGBIRD'S FLIGHT

The ability of the hummingbird to fly backwards and upside down and to hover is very unusual. Few other birds can do any of these things, and none as successfully as the hummingbird.



The hummingbird is able to rotate the main parts of its wing in all directions. By positioning its body almost vertically and tracing a figure-eight with the tips of its wings, it produces lift and hovers.



The tiny ruby-throated hummingbird looks like a jewel flashing in the sun. Bright light on its feathers produces a brilliant metallic sheen. In shadow, without this effect, its plumage looks quite dull.

MIGRATION

Despite its tiny size, the ruby-throated hummingbird migrates more than 1,850 miles from the eastern United States, crossing 600 miles of the Gulf of Mexico, to spend the winter in Central America.

The ruby-throat's return to its breeding grounds is timed

according to location. The birds that live in the southern part of the United States begin their return migration as early as February. The birds that live further north time their return to coincide with the flowering of their food plants.

BREEDING

Like many migrating birds, the male ruby-throated hummingbird arrives at the breeding area before the female. There, he establishes his territory. When the female appears, the male makes a courtship gesture by flying back and forth in a perfect arc.

Two eggs are laid sometime between March and July in a nest situated high up in a tree. The female makes the nest with lichen and other soft plants.

She incubates the eggs for 16 days until they hatch, and then feeds the young on nectar and small insects. The male takes no part in the rearing of the young and may go off to find another mate.

Young are fledged in three to four weeks, and some birds go on to raise a second brood.

Right: A mother feeds her young. She makes their nest from leafy material held together with spiders' webs.



FOOD & FEEDING

The hummingbird's agility in flight lets it flit from flower to flower like an insect. Although it tends to feed from red flowers, at least thirty-one different plants have flowers which attract the ruby-throated hummingbird. They include honeysuckle, petunias, nastur-

tiums, and lilacs.

Flying from flower to flower, the hummingbird pollinates the plants it feeds on. Because it can hover for long periods of time, the hummingbird can effectively suck out all the nectar it needs from a flower with its long, fine bill. Al-

though nectar is its main food, providing essential high-energy sugars, hummingbirds will also eat some insects and spiders. The hummingbird is not attracted to regular bird feeders, but it will feed on red-colored sugarwater offered from a drip tube.



Above: The hummingbird's long beak is ideal for feeding on nectar.

Left: The flowers' stamen touches the bird's head, depositing pollen that is then carried to the next plant.

DID YOU KNOW?

- The ruby-throated hummingbird has the smallest number of feathers ever counted on any bird.
- Ruby-throated hummingbirds have been caught by dragonflies and praying mantises, trapped in spiders' webs, snatched by frogs, and stuck on thistles.
- Before migrating, the ruby-throated hummingbird stores a layer of fat equal to half its body weight.
- Victorians often decorated their living rooms with a case of stuffed hummingbirds.
- During courtship, the ruby-throated hummingbird's wings beat up to 200 times per second, as opposed to its usual wing beat of 90 times per second.
- The hummingbird needs to eat twice its body weight in food everyday.
- Each hummingbird species makes a different humming sound, depending on the speed of its wing beats.

SNOW GOOSE

CARD 3

GROUP 2: BIRDS

ORDER
Anseriformes

FAMILY
Anatidae

GENUS & SPECIES
Anser caerulescens



Flying in perfect V-formation at altitudes of up to 2,000 feet, huge numbers of snow geese leave their chilly Arctic breeding grounds every fall for warmer southern climes.

KEY FACTS



SIZES
Length: 25-30 in.
Wingspan: 50-65 in.
Weight: Lesser, 5-6 lb. Greater, 6-7 lb.



BREEDING
Sexual maturity: 2-3 years.
Breeding season: From mid-June.
No. of broods: 1.
Eggs: 4-5, creamy white.
Incubation: 22-23 days.
Fledgling period: About 40 days.



LIFESTYLE
Habit: Sociable and migratory.
Diet: Grasses, grains, berries, water plants, and insects.
Lifespan: Typically 3 years. Captive birds, 15-20 years.



RELATED SPECIES
The snow goose is one of 15 species of true geese and brants.



■ Range of snow goose. ■ Winter migration routes.

DISTRIBUTION

Breeds in northeastern Siberia, Arctic North America, and Greenland. Migrates mainly to California and Mexico, but also to eastern coast of North America, Japan, and China.

CONSERVATION

Although one of the most numerous of all goose species, increased exploitation of the Arctic by man could threaten its mass breeding sites.

SNOW GOOSE VARIETIES



The wide variation in size and color of snow geese presented bird experts with a puzzle for many years. The

greater snow goose, *A. c. atlanticus* (left), is larger than the lesser (below), and breeds in Canada and Greenland.



Once thought to be a separate species, the blue goose (left) is a color variety of the lesser snow goose (*A. c. caerulescens*). Much of its plumage is gray, tinged with blue on the back and wing.

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With its dazzling white plumage, the snow goose is aptly named and is one of the easiest of all geese to identify. However, there are three types of snow goose, one of which is actually a dark, gray-colored bird known as the blue goose. The white and blue geese occasionally interbreed.

BREEDING

Unlike most geese, which are extremely aggressive and antisocial during the breeding season, snow geese nest together in huge colonies. In the more popular breeding grounds, colonies numbering nearly 200,000 pairs are not uncommon.

Snow geese pair for life, although trios of a male and two females and, rarely, two males and a female, sometimes occur. Paired birds migrate together, and, as soon as they reach their breeding grounds, they begin nest-building. Both birds work together to build their nest, which is set in a hollow on the ground of the



Left: These snow geese are paired for life. They sit in the grassy nest that they have built together for this year's brood.

open Arctic plain, or *tundra*.

The female incubates the eggs for 22-23 days while the male stands guard. Protected by both parents, the goslings soon become self-sufficient. In little more than a month, they are ready to migrate south.

Right: Having been given a fairly safe start in life, these goslings will grow rapidly and will soon be ready to migrate.



FOOD & FEEDING

The snow goose's diet varies considerably throughout the year according to the availability of food in its different summer and winter habitats. It feeds mainly on grass, wheat, rice, and other vegeta-

tion, although it eats insects as well. It is a good swimmer, but prefers to feed on land, where its relatively short, serrated-edged bill makes it well-suited to grazing on the short tundra vegetation.

HABITS

The snow goose is one of the few species that are able to survive in the harsh environment of the Arctic region. Its breeding season coincides with the brief Arctic summer. The snow goose raises its young in a land virtually free from competitors, predators, and human disturbance.

From June to August, the snow goose inhabits the Arctic tundra of northeastern Siberia, North America, and Greenland.

It generally settles into low, sheltered ground near the water.

Almost as soon as the newborns can fly at the end of the summer, the geese migrate south. Most geese will cross the Bering Sea and head for the northwest coast of the United States, before moving south to California and the Gulf of Mexico. Migrating flocks can be so dense that they may block out the sun.

Left: The sociable snow geese form huge colonies. This colony has made the long journey from the Arctic to New Mexico for the winter.

Below: A snow goose uses its serrated bill to sever tough lakeside reeds.



BIRDWATCH

The snow goose is one of the easiest geese to identify. It is entirely white except for its black wing tips, pink legs, and a black-bordered crimson bill. Because they travel in such large flocks, they are

easily visible on their migration routes.

The best places to observe the snow goose in winter are in national wildlife refuges on the east, west, and Gulf coasts.

DID YOU KNOW?

- All 15 species of true geese inhabit the Northern hemisphere.
- Snow geese fly in V-formation to reduce wind drag and the risk of collision.
- A pure white snow goose may breed with a blue snow goose, producing offspring of various shades.
- It is the noisiest of all geese; its shrill honk can be heard long before it flies into view.
- Lesser snow geese may be the most abundant of all wild geese.

AFRICAN FISH EAGLE

CARD 4

GROUP 2: BIRDS

ORDER
Falconiformes

FAMILY
Accipitridae

GENUS & SPECIES
Haliaeetus vocifer



Sharply eyeing the water from its overhead perch, the predatory African fish eagle will swoop down to the surface to catch a fish that may weigh as much as the eagle itself.

KEY FACTS



SIZES
Wingspan: Males, 6 ft. Females, 8 ft.
Weight: Males, 5 lb. Females, 7 lb.



BREEDING
Sexual maturity: 4-5 years.
Breeding season: Usually in dry season when water levels are low.
Eggs: 1-3; white, sometimes flecked with red.
Incubation: 42-45 days.
Fledging: 70-75 days.



LIFESTYLE
Habit: Noisy; mates for life.
Diet: Mainly fish, but also water-fowl and carrion.
Lifespan: 12-15 years.



RELATED SPECIES
Related species include the bald eagle, the Madagascar sea eagle, and the European white-tailed sea eagle.



Range of the African fish eagle.

DISTRIBUTION

Found throughout southern Africa, from the southern edge of the Sahara to Cape Agulhas.

CONSERVATION

Still common in much of Africa, the birds have benefited from the construction of reservoirs. They are affected in other places, however, by chemical pollution in rivers and lakes, which poisons the fish they feed on.

HOW THE AFRICAN FISH EAGLE CATCHES FISH

Spying a fish from its perch, the fish eagle will swoop down to the water's surface in a smooth glide, grasp its victim, and rise up again without slowing its pace. The fish eagle will occasionally hover over the water and then drop vertically on its victim as a falcon would.



If the eagle's catch weighs more than 4 pounds, it will be dragged along the water's surface and eaten onshore. Larger fish are too heavy to lift, so the eagle drags them ashore, paddling across the water with its wings.



Its distinctive black, brown, and white plumage and loud, ringing call make the fish eagle one of Africa's most recognizable birds. Experts think that the birds pair for life and maintain their close bond by calling to each other constantly in a variety of high and low notes.

FOOD & HUNTING

Fish are the eagle's main prey, and it hunts from a perch overlooking the water. It may make short foraging flights, but it rarely travels more than 50 yards from the shore.

A fish eagle's feet have long claws, and the spiky undersides of its toes can hold

Right: *The fish eagle's hooked beak makes short work of prey.*

Below: *A young fish eagle takes its prey to the shore to eat.*

wriggling prey securely. The eagle needs about 3 pounds of fish a day. In addition to fish, it will eat waterfowl, ter-rapins, and baby crocodiles.

Fish eagles also eat carrion, and will force other fish-eating birds, such as herons, to give up their food.



BREEDING

At the start of the breeding season, males and females increasingly call to one another, and they sometimes link claws while flying in mid-air. After displaying this mating behavior, the pair will nest in a tall tree.

Most pairs have one or two nest sites that they use regularly. Older nests are very large—up to 6 feet across and 4 feet deep—and can be quickly prepared for use.

The eggs are usually laid when the seasonal rains have stopped. The female does most of the incubating, but

the male will sometimes incubate the eggs while she hunts for herself. Because the eggs hatch at intervals of two to three days, the eldest chick often kills the younger one.

By the end of eight weeks, the young can feed themselves, and they begin to forage outside the nest 14 days later. Still, they are unable to fend for themselves for two months more. They will then be chased away from their parents' nest. When they reach breeding age, the birds will have to establish their own territories.

Right: *Adult birds call to each other constantly.*
Below: *Fish eagles lay 2-3 eggs in their large, bulky nests.*
Below right: *Both parents share the task of feeding the youngsters.*



HABITAT

African fish eagles are always found near lakes, reservoirs, or rivers. They also hunt along the coast, particularly in river mouths and lagoons where the water surface is sheltered.

Where food is abundant and there are plenty of large trees suitable for nesting, fish eagles may be found every few hundred yards along the shoreline.

Right: *Wings outspread, a fish eagle soars high in the air.*



DID YOU KNOW?

- Where breeding territories are crowded, adult fish eagles may spend so much time defending their patch that they often have no time for breeding.
- One fish eagle nest is known to have been used regularly for 21 years.
- Once they have found a good hunting area, fish eagles often do not have to hunt for any more than 15 minutes a day.



EMPEROR PENGUIN

CARD 5

GROUP 2: BIRDS

ORDER
Sphenisciformes

FAMILY
Spheniscidae

GENUS & SPECIES
Aptenodytes forsteri



The emperor penguin is not only the largest seabird, it is also the hardiest. Living on the Antarctic ice pack, it endures sub-zero temperatures and hurricane-force winds.

KEY FACTS



SIZES
Length: 4 ft.
Weight: 45-90 lb.



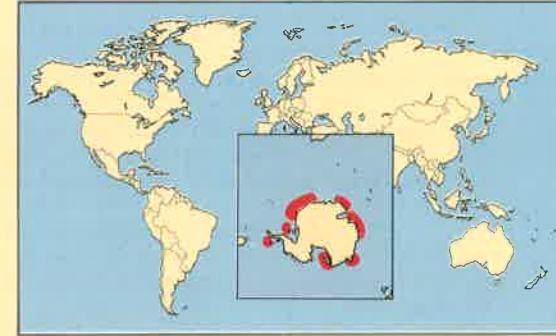
BREEDING
Sexual maturity: 3-6 years.
Breeding season: March-December.
No. of broods: 1.
Incubation: 64 days.
Fledgling period: 40-80 days.



LIFESTYLE
Habit: Sociable, living in colonies of 500 to 20,000 pairs.
Diet: Fish, squid, and crustaceans.
Lifespan: 20 years.



RELATED SPECIES
The emperor penguin's closest relative is the king penguin, *Aptenodytes patagonica*, which looks similar but is smaller, measuring only 3 feet and weighing 25-45 lb.



Range of the emperor penguin.

DISTRIBUTION

It is the most southerly breeding penguin and rarely strays outside the Antarctic.

CONSERVATION

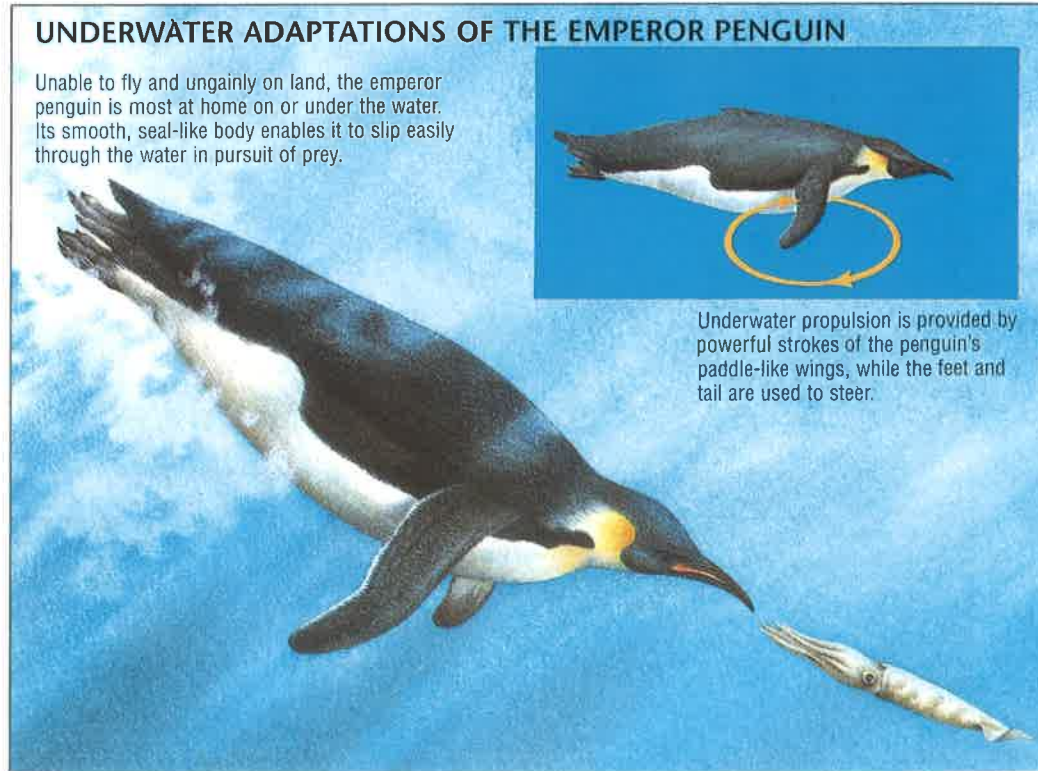
The emperor penguin has few enemies and survives in a habitat in which few others can. Despite numbers of more than 150,000 pairs, increased fishing and pollution of the polar seas could seriously threaten it.

UNDERWATER ADAPTATIONS OF THE EMPEROR PENGUIN

Unable to fly and ungainly on land, the emperor penguin is most at home on or under the water. Its smooth, seal-like body enables it to slip easily through the water in pursuit of prey.



Underwater propulsion is provided by powerful strokes of the penguin's paddle-like wings, while the feet and tail are used to steer.



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The sight of emperor penguins waddling over the ice, flapping their specially adapted wings, is quite comical. These birds have exchanged a mastery of land and air for grace and agility in the water, together with an ability to survive in Antarctica—one of the world's harshest and most demanding environments.

HABITAT

The emperor penguin is found only on the Antarctic ice pack and in the surrounding oceans. Although the emperor penguin is a marine bird and feeds exclusively at sea, its breeding sites, called *rookeries*, are usually situated on the solid ice under the

shelter of an ice cliff, often many miles inland. Although the emperor penguin breeds in winter, it must choose a nesting site where the ice will not melt before the young have fledged in summer.

Below: Inland rookeries may contain as many as 6,000 birds.



PREDATORS & PREY

There are more than 300,000 emperor penguins in Antarctica. Because of their remote habitat, they have few predators. The only predators that occasionally kill adult penguins are leopard seals and killer whales. One-third of the young fall prey to the giant petrel. Emperor penguins them-

selves prey on fish, squid, and shrimp. Although they are not fast swimmers—reaching only 3 to 5 miles per hour—penguins are agile and quite adept at catching their prey.

Below: Penguin pairs take turns incubating the egg.



DID YOU KNOW?

- The emperor penguin can dive to a depth of 870 feet and can stay underwater for 18 minutes.
- During the breeding season, males may not feed from March until July, a total of 110-115 days without food.
- Unlike flying birds, the

emperor penguin does not have light, air-filled bones. Its heavier bones cause it to be less buoyant in the water, which allows it to dive below the surface with ease.

- On smooth, icy slopes, the emperor penguin lies on its belly and toboggans across it.

BREEDING

The breeding season begins in March and a single egg is laid between May and July. No suitable nest-building material is available in the Antarctic, so the parents support the egg on their feet to protect it from the cold. When the parents pass the egg from one to the other, they take part in a ritual display, dropping their bills onto their chests and calling to each other.

After the female lays the egg, she returns to the sea to feed, leaving the male to incubate the egg. He incubates the egg for 40-50 days, shielding it from the icy temperatures (which may fall as low as

-40° F) with a fold of skin that extends from his belly. Large groups of incubating males huddle together in order to keep warm.

The female returns just as the egg is about to hatch. She incubates the egg for the last few days before it hatches, and then broods the chick for 40 days. This allows the exhausted male, who by this time has lost nearly half of his body weight, to return to the sea to feed.

Below left: A 2-week-old chick feeds from its mother.

Below: Fed by both parents, the chick grows quickly.



SPECIAL ADAPTATIONS

The emperor penguin is specially adapted to survive in some of the most inhospitable conditions on earth. The penguin has thick plumage with two dozen feathers per square inch. These are short and stiff with a downy base. The closely overlapped feathers are highly effective at trapping a

layer of warm, insulating air.

The emperor penguin's body shape is also a heat-saving adaptation; it is blubbery and carried low to the ground so that less cold air can circulate around it.

The emperor penguin's nasal passages even minimize heat loss when it exhales.

BLUE TITMOUSE

CARD 6

GROUP 2: BIRDS

ORDER
Passeriformes

FAMILY
Paridae

GENUS & SPECIES
Parus caeruleus



Known for their acrobatic skills, blue tits are tough, inquisitive, and highly successful inhabitants of the temperate woodlands.

KEY FACTS



SIZES
Length: 4½ in.
Weight: ½ oz.



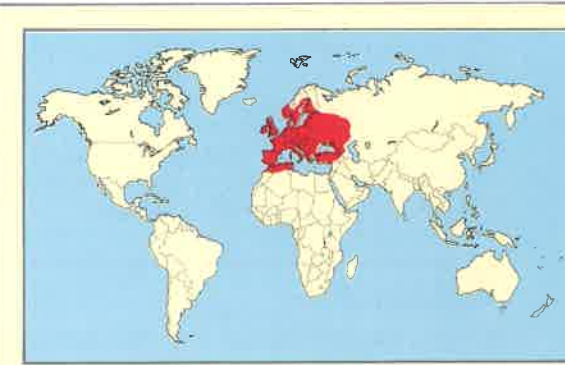
BREEDING
Breeding season: April-June.
Eggs: 7-13; white with tan or brown speckles.
Broods: 1.
Incubation: 2 weeks.
Fledging: 2-3 weeks.



LIFESTYLE
Habit: Sociable and inquisitive; forms loose flocks in winter.
Diet: Insects and spiders in spring and summer. Also seeds, fruit, grain, and nuts.
Lifespan: Oldest known 15 years.



RELATED SPECIES
There are 46 species in the titmouse family, found in forests and woods throughout Asia, Europe, Africa, and North America.



Range of the blue titmouse.

DISTRIBUTION

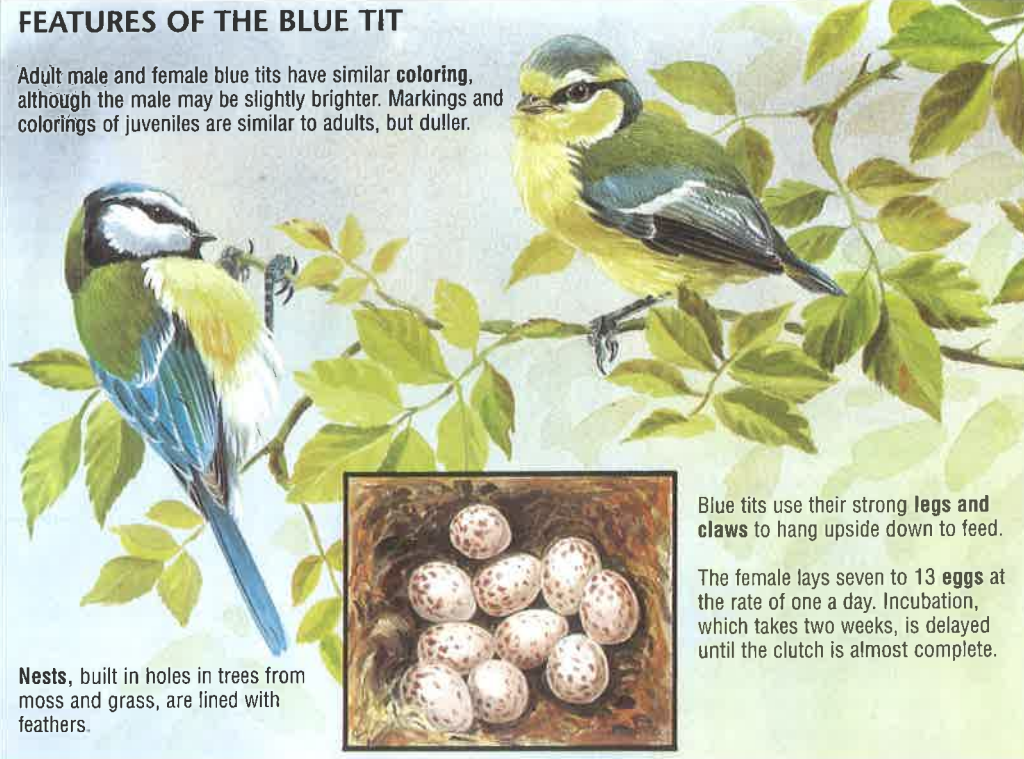
Common in woodlands throughout the British Isles and Europe from southern Scandinavia, east to Moscow, and south to North Africa.

CONSERVATION

The total breeding population has probably declined in the last 40 years because of habitat loss. There are, however, 4 million breeding pairs in the British Isles alone.

FEATURES OF THE BLUE TIT

Adult male and female blue tits have similar coloring, although the male may be slightly brighter. Markings and colorings of juveniles are similar to adults, but duller.



Nests, built in holes in trees from moss and grass, are lined with feathers.

Blue tits use their strong legs and claws to hang upside down to feed.

The female lays seven to 13 eggs at the rate of one a day. Incubation, which takes two weeks, is delayed until the clutch is almost complete.

The blue tit's characteristic plumage of bright blue and yellow—and its habit of visiting backyards to feed on nuts and scraps—make it one of the most endearing and best-known birds in all of Europe.

HABITAT

Blue tits are found in most of the broad-leaved woodlands throughout a large area of Europe. They are far less common in coniferous forests.

During spring and summer, blue tits tend to be found in woodlands made up of older trees whose holes are large enough to support nests. In fall and winter, tits can be found in woods of all ages,

often grouping together with other species of titmouse, forming large, loose flocks that forage for insects together. Their greater numbers give them extra protection from aerial predators, such as sparrowhawks.

Right: *In fall and winter, blue tits may be seen in the woodlands of Europe busily searching for scarce insects.*



FOOD & FEEDING

During the summer, blue tits live mainly on insects picked from foliage. The abundant caterpillar population, which appears on oak trees in late spring and summer, is the usual diet for chicks. People who feed birds in winter should stop at this time so that the birds will search for natural supplies.

In autumn, elderberries, beech-mast, and hawthorn berries are all sources of food. Seeds are the blue tit's main food in winter.

When searching for scarce food in the winter, blue tits will probe and pry the bark of trees, searching for insects hidden underneath. Their strong, stubby beaks are well suited to this task.



NATUREWATCH

The boldness of blue tits allows bird watchers to see them at close range. Winter is the best time to attract them with a bag of nuts.

Blue tits should not be fed in the summer because the nestlings may find adult-food indigestible.

A nesting box should have a very small entrance hole to keep out predators.



BREEDING

Blue tits usually start looking for nesting sites in February. Ideal sites are small holes or narrow cracks in trees or other structures that stand 3 to 50 feet above the ground.

Males and females seek nesting sites together. When the male finds a suitable place, he displays by fluttering his wings and calling to his mate. The female may reject several sites before deciding on the one she wants. She builds the nest alone, using moss and other materials, which she shapes by pushing it out to the edge of the cavity with her breast. She lines the cup-shaped structure with soft feathers and strands of hair.



Left: *The eggs take 13 to 14 days to hatch. It will be two to three weeks before the chicks are ready to leave the nest.*

Right: *At 9 days old, the chicks have some covering on their bodies and feed greedily. Both parents bring them food.*



Blue tits lay anywhere from seven to 13 eggs. During the laying and incubation periods, the male defends the area around the nest site against

other blue tits, protecting the available food supply. He also brings food to the female so she can concentrate on laying and warming the eggs.

The eggs hatch at the time of year when food is most abundant. Hatchlings stay in the nest for two to three weeks. Their parents feed

them a diet made up mostly of caterpillars, and they remove the young birds' droppings regularly to keep the nest clean.

DID YOU KNOW?

- In a single winter day, more than 200 blue tits may feed at a nut bag hung in a backyard.
- Females and their young are in danger from weasels, which can squeeze through holes measuring only an inch across.
- Blue tits have been known to fly through an open window to tear off strips of wall-paper for lining the nest.
- Blue tits have been remarkably successful in intelligence tests in which they pulled out a series of pegs and opened matchboxes to obtain food.
- In winter, blue tits will roost in street lights to keep warm.