

# GREAT CORMORANT

CARD 29

GROUP 2: BIRDS

ORDER

*Pelicaniformes*

FAMILY

*Phalacrocoracidae*

GENUS & SPECIES

*Phalacrocorax carbo*



**The great cormorant is well adapted for catching fish. With its sleek shape, long, serrated bill, and powerful webbed feet, it is ideally suited for its marine environment.**

## KEY FACTS



### SIZES

**Length:** 30-40 in.  
**Wingspan:** 50-60 in.  
**Weight:** 4-8 lb.; males heavier.



### BREEDING

**Sexual maturity:** 4-5 years.  
**Breeding season:** Lays eggs from late March to June.  
**No. of broods:** 1.  
**Eggs:** 3-4, pale blue or greenish.  
**Incubation:** 28-31 days.  
**Fledging period:** About 50 days.



### LIFESTYLE

**Habit:** Solitary or in loose flocks; forms breeding colonies.  
**Diet:** Mostly fish.  
**Lifespan:** Oldest known, 20 years.



### RELATED SPECIES

There are 32 species of cormorants worldwide, ranging from cool temperate to tropical regions.



Range of the great cormorant.

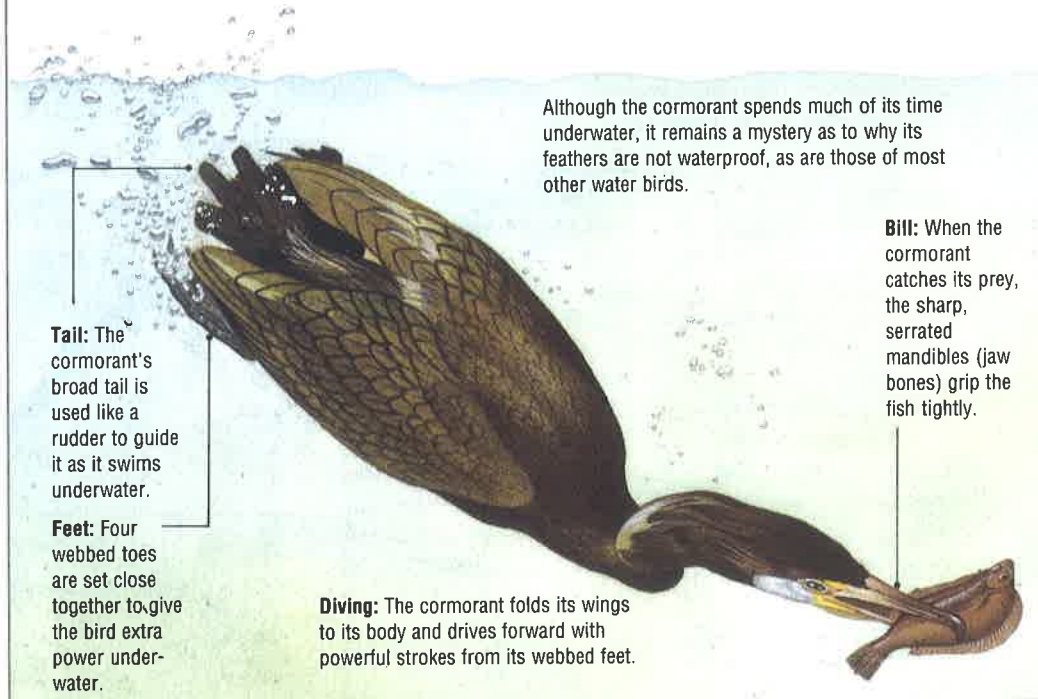
### DISTRIBUTION

Both coasts of the North Atlantic, southeast and northern Europe, east and southern Africa, southern and east Asia, parts of central Asia, Japan, Australia, and New Zealand.

### CONSERVATION

Numbers have increased in some areas, but declined in others. Breeding colonies have long been persecuted by fishermen because of the bird's depletion of fishing stocks.

## SPECIAL ADAPTATIONS OF THE GREAT CORMORANT



**Tail:** The cormorant's broad tail is used like a rudder to guide it as it swims underwater.

**Feet:** Four webbed toes are set close together to give the bird extra power underwater.

**Diving:** The cormorant folds its wings to its body and drives forward with powerful strokes from its webbed feet.

Although the cormorant spends much of its time underwater, it remains a mystery as to why its feathers are not waterproof, as are those of most other water birds.

**Bill:** When the cormorant catches its prey, the sharp, serrated mandibles (jaw bones) grip the fish tightly.



*Left: During the breeding season, the male raises his wings to display his white flank to the female.*

*Below: The cormorant does not produce any waterproofing oil for its feathers, so after it dives, it must spread its wings to allow them to dry.*

*The great cormorant is the largest and most widely distributed species of cormorant, found on five continents. Though primarily a bird of inshore coastal waters, it often appears around rivers and lakes, and in some regions, it even breeds inland.*

## FOOD & HUNTING

The great cormorant's primary feeding grounds are shallow, inshore waters, where the bird can dive to the seabed to catch prey. Fish are its main food, and it is well adapted to hunt and catch them.

The great cormorant dives for food from the water's surface, arching its body in a graceful curve and disappearing silently beneath the waves. It swims swiftly underwater, using its broad tail as a rudder and relying on its strong thigh muscles and webbed feet for propul-

sion. Great cormorants can stay submerged for up to 60 seconds, re-emerging many yards from the place where they entered the water.

When it draws close to its prey, the bird snaps its bill shut, gripping the struggling fish tightly in its serrated jaws. It brings most of its prey to the surface before swallowing it. The great cormorant feeds on crab, flatfish, cod, whiting, wrasse, and sand eel, caught at depths of up to 30 feet. It will also eat an occasional frog, duckling, or water rat at inland sites.

## BREEDING

The great cormorant nests at both coastal and inland sites, choosing cliffs, trees, reedbeds, and sometimes bare ground. Its breeding colonies are usually small, but sometimes include as many as 2,000 pairs. The male attracts a female

by raising and lowering his wings, revealing a conspicuous white patch on his flank.

The nest itself is a mound of sticks and dried seaweed that measures approximately three feet across. Both parents incubate the clutch of three to

four eggs and feed the chicks. Newly hatched nestlings take regurgitated food from their parents, but later they eat solid food. Though they fledge at about two months, the young return to the nest site to feed for another six weeks.



*Left: Cliffs are a common nesting site for the cormorant.*

*Below: The chicks pester the adult for food by pecking at its bill until it regurgitates the catch into its throat.*



## HABITS

The seasonal habits of the great cormorant vary considerably over the bird's vast range. In many areas, it is sedentary, wintering and breeding in the same location. Others move from inland sites to coastal breeding grounds. Some populations—such as those from the Baltic—migrate thousands of miles south to the Mediterranean. They often form flocks at migration, but they are gener-

ally solitary by nature except during breeding season.

The great cormorant is often seen perching on rock reefs, trees, sea walls, buoys, and boats. It characteristically perches with its wings outstretched, most likely to dry its feathers and warm its body after a dive. Its webbed feet, which propel it through water, are unsuitable for use on dry land.



## BIRDWATCH

In North America, the great cormorant nests in coastal areas ranging from southern Greenland to Nova Scotia. It winters as far south as Florida.

It can be distinguished from the more common double-crested cormorant by its white flank feathers and bright throat markings.

Great cormorants are often seen perched on buoys, jetties, and boats.

## DID YOU KNOW?

- Great cormorants have been known to catch low-flying swallows over the water.
- Great cormorants sometimes swim just below the water's surface, leaving only the head and neck exposed.
- In parts of Asia, people use cormorants to catch fish. They tie the birds to boats with long leads and allow them to hunt underwater. A ring placed around the birds' throats prevent them from swallowing the fish.



# BROWN PELICAN

GROUP 2: BIRDS

ORDER  
*Steganopodes*

FAMILY  
*Pelecanidae*

GENUS & SPECIES  
*Pelecanus occidentalis*



**With its enormous wingspan, huge beak, and habit of plunging into the water from great heights, the brown pelican is one of the most dramatic birds of the North American coasts.**

## KEY FACTS



**SIZES**  
Length: 3 ft.  
Wingspan: 6 ft.  
Weight: 7 lb.



**BREEDING**  
Sexual maturity: 2-3 years.  
Breeding season: Varies with location, but during spring on West Coast.  
No. of broods: 1.  
Eggs: Usually 3; dull white color.  
Incubation: About 4 weeks.  
Fledging: About 9 weeks.



**LIFESTYLE**  
Habit: Sociable, breeds in colonies.  
Diet: Mainly fish, occasionally carrion.  
Lifespan: Probably 15-25 years.



**RELATED SPECIES**  
There are 8 species of pelican. All are distributed along coasts washed by warm, temperate seas.



Range of the brown pelican.

### DISTRIBUTION

On the coasts of California and Mexico, extending east to the Carolinas.

### CONSERVATION

Although protected in the United States, numbers declined in the 1950s and 1960s due to the deadly effects of pesticides.

## THE BROWN PELICAN'S DIVE

When a pelican spots its prey from its perch above the water, it launches itself and drops down in a vertical line, its wings partly closed and its beak and head pointed at its target. As it enters the water, it stretches its wings back behind its body like a paper airplane. The water breaks the momentum of the dive, which allows the bird to engulf the fish in its open pouch before bobbing back up to the surface.



The pelican's most distinctive feature, its huge **beak**, has a flattened upper part. The large bottom **pouch** can be opened to scoop up to 2 gallons of water.





*The brown pelican has a very distinctive shape.*

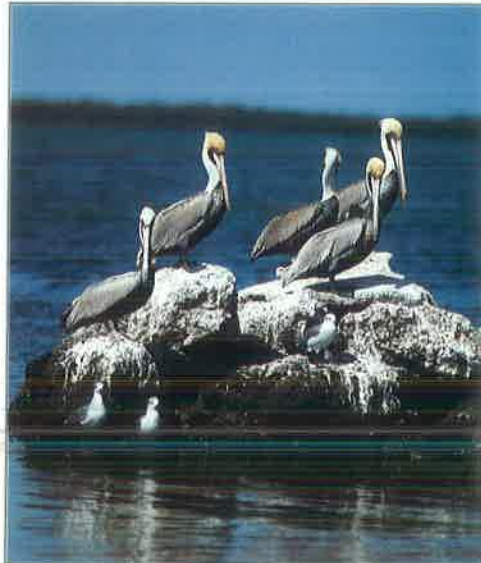
*When it flies, it hunches up its neck  
and rhythmically flaps its massive,  
powerful wings.*

### HABITS

Brown pelicans inhabit the rocks and cliffs in warm, coastal waters. They seldom venture far inland, nor do they stray far from the shore.

When they are not breeding, pelicans gather in flocks of

up to 50 birds to roost and feed together. During the breeding season, the flocks become larger. They can often be seen flying in V-formation above the waves, following their leader's flight path.



*Left: A group of pelicans pauses between dives. Gulls may be waiting to steal what they can from the pelicans' next catch.*

*Right: Pelicans sometimes beat their wings on the water's surface to frighten the fish into schools.*

### BREEDING

Spring usually signals the start of the breeding season, although if fish stocks are low, mating is delayed. Many birds nest in shallow depressions on the ground, which they line with feathers and surround with a wall of soil. Some colonies nest in trees, building structures of reeds on stick platforms.

Both adults share in the incubation of the eggs. The chicks are naked when they hatch, but grow an ample coat of fluff down within two weeks. The parents feed their young with regurgitated fish.

In the ground-nesting colonies, youngsters gather in groups when they are 6 weeks old, where they wait to be fed by their parents. The adults seem to recognize and feed only their own young, beating off any other chicks that may approach them for food. The young continue to be fed by their parents until they learn to fish for themselves.



*Above and left: Many pelicans make a simple nest on the ground. Others build messy structures in trees. Young are often killed or injured falling from the branches.*

### FOOD & FEEDING

Brown pelicans feed almost entirely on fish, which they catch by diving from heights of up to 65 feet.

Plunging into the sea, the bird scoops up a beakful of water and fish. Too heavy to fly, it then has to sit on the surface of the water to drain its bulging pouch before it can swallow the fish.

Occasionally, brown pelicans also feed on carrion, and they have been known to eat the young of their breeding neighbors.



### DID YOU KNOW?

- Pelicans are among the largest of all living birds, but the brown pelican is the smallest bird in the family *Pelecanus*.
- Pelicans use their pouches only to catch fish, not to carry them, as this would make them too front-heavy to fly properly. A pelican can scoop more than 2 gallons of water into its pouch at a time.
- The sound of a diving pelican hitting the water is audible half a mile away. But a series of air pockets beneath its chest cushions the force of the impact and protects it against injury.
- Many pelicans that live on freshwater lakes feed by working in groups. First, they force fish into a dense school by beating their wings on the water. Then, using their huge beaks, they scoop the fish into their pouches.

# GRAY HERON

CARD 31

GROUP 2: BIRDS

ORDER  
*Ciconiiformes*

FAMILY  
*Ardeidae*

GENUS & SPECIES  
*Ardea cinerea*



**Whether motionless at the water's edge or wading through the shallows, the gray heron is quite distinctive. Even in flight, silhouetted against the sky, the bird is unmistakable.**

## KEY FACTS



### SIZES

**Length:** Up to 38 in. Head and neck longer than body.  
**Wingspan:** Up to 6 ft.  
**Weight:** About 3 lb.



### BREEDING

**Sexual maturity:** Some birds mature at 1 year, most at 2 years.  
**No. of broods:** 1.  
**Breeding season:** March to July.  
**Eggs:** Pale blue, 4-5.  
**Incubation period:** 26 days.  
**Fledging period:** About 50 days.



### LIFESTYLE

**Habit:** Sociable, nesting in colonies. Male defends own territory during mating.  
**Diet:** Fish, aquatic insects, frogs, birds, small mammals.  
**Lifespan:** Oldest bird recorded, 25 years 4 months.



### RELATED SPECIES

*Ardea herodias*, the North American great blue heron.



■ Range of the gray heron.

### DISTRIBUTION

Across Europe and Asia to Japan, including the Mediterranean, India, and northern China; as well as in southeastern Africa and Indonesia. Northern birds migrate.

### CONSERVATION

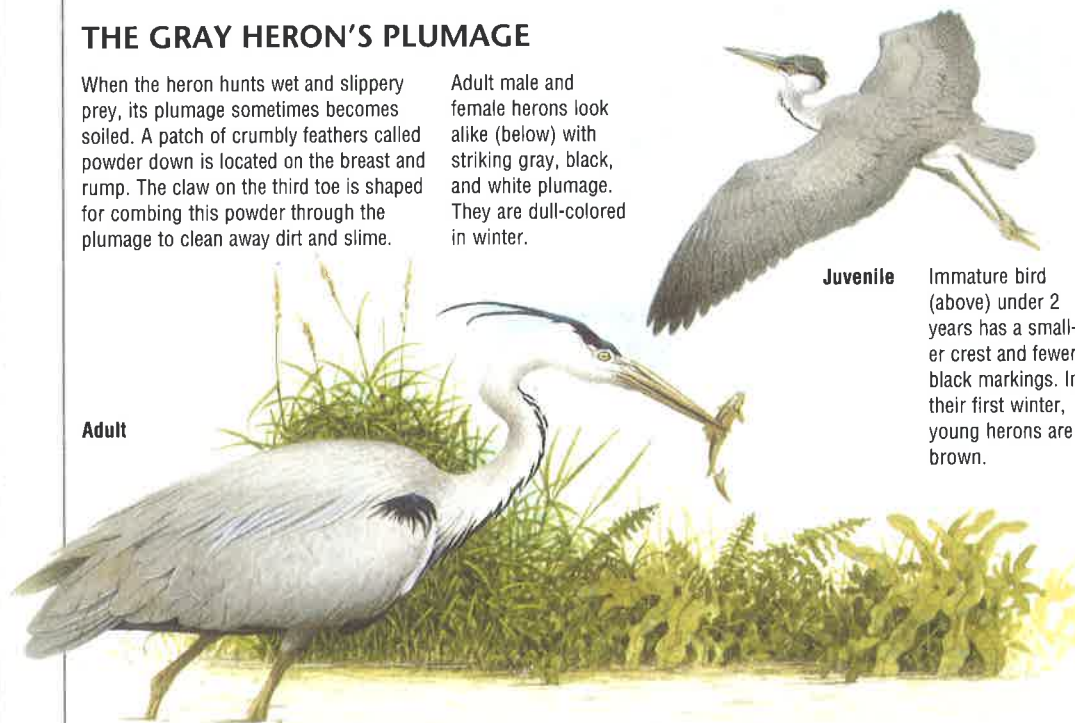
Harassed and killed by fishermen and fish farmers, the gray heron's population has decreased in many countries. It is now fully protected by law and increasing in some areas.

## THE GRAY HERON'S PLUMAGE

When the heron hunts wet and slippery prey, its plumage sometimes becomes soiled. A patch of crumbly feathers called powder down is located on the breast and rump. The claw on the third toe is shaped for combing this powder through the plumage to clean away dirt and slime.

Adult male and female herons look alike (below) with striking gray, black, and white plumage. They are dull-colored in winter.

Adult



Juvenile

Immature bird (above) under 2 years has a smaller crest and fewer black markings. In their first winter, young herons are brown.

*The gray heron may appear slow and awkward, but this impression is quickly dispelled when a fish, frog, or small bird comes within its reach. The heron's reactions are lightning-fast as it spears its prey with a swift thrust of its pointed bill.*



## HABITAT

Gray herons feed around the edges of slow-moving streams and rivers, and near shallow lakes and sheltered seashores. They hunt for frogs, mice, and insects in wet fields and marshes. Many that live near urban areas steal goldfish out

of ponds. Gray herons can also be found along canals. Their breeding colonies, called *heronries*, are often situated among clumps of tall trees near the water. In some areas, the herons favor reed beds, bushes, and cliffs.

## BREEDING

To attract a mate, the male calls repeatedly during the day and sometimes at night. When a female approaches, he gets her attention by pointing his beak at the sky, lowering his head, and clapping his bill repeatedly.

The female nests in the treetops, and if another male approaches, her mate will defend the territory by ruffling his feathers and snapping his beak at the intruder, who almost always retreats.

Nesting starts early in the

year to allow enough time for the young herons to mature and become self-sufficient before winter arrives. Most eggs are laid at the end of March. Both parents incubate the eggs.

The parents share the task

of feeding the newly hatched chicks with regurgitated food. When food is scarce, the older, larger chicks are fed first, and the smaller chicks are often left to starve. Sometimes as many as half the young gray herons die.



*Left: Herons use the same saucer-shaped nest year after year, with the female adding fresh grass and ferns for the clutch of four to five pale blue eggs.*

*Right: Gray heron chicks are blackish-brown in color and are often very noisy.*



## DID YOU KNOW?

- The largest heron in the world is the aptly named Goliath heron, in Africa. It stands nearly 5 feet tall.
- Herons occasionally swim to capture prey. They can easily take off in flight from the water.
- The heron swallows fish

headfirst so that the spines and fins do not stick in its throat.

- In some parts of Europe, herons often die during harsh winters. Herons elsewhere, especially in northern Europe, migrate south to the Sahara Desert.

## FOOD & HUNTING

The gray heron hunts with both speed and stealth. Whether slowly stalking its prey at the water's edge or wading belly deep in the water, the heron waits patiently for unsuspecting fish to approach. It then strikes quickly, catching prey with its long, pointed bill.

Besides fish, the gray heron also eats aquatic insects, small mammals and birds, frogs, grass snakes, and crabs.

Herons will travel up to 20 miles from their heronry in search for good hunting.

*Below: Often the prey is still alive and wriggling when the heron gulps it down.*



## BIRDWATCH

When resting, a heron sits with its head hunched between its shoulders. The bird can be difficult to see because it is so still and silent. When it detects an intruder, it stretches its neck in alarm and flies away.

In flight, the heron's neck is folded down against its chest, but its long legs, big feet, and huge, flapping wings are easily visible.

Disturbing herons can interfere with their breeding.



# GREAT BUSTARD

CARD 32

GROUP 2: BIRDS

ORDER  
*Gruiformes*

FAMILY  
*Otididae*

GENUS & SPECIES  
*Otis tarda*



**The great bustard is a shy bird that feeds mainly on seeds and insects. Although it is a powerful flyer, its strong legs and broad feet have become well adapted for running on the ground.**

## KEY FACTS



### SIZES

**Length:** 30-40 in.  
**Wingspan:** Male, up to 8 ft.  
Female smaller.  
**Weight:** Male, up to 35 lb.



### BREEDING

**Sexual maturity:** Female, 3-4 years. Male, 5-6 years.  
**No. of broods:** 1.  
**Breeding season:** April to August.  
**Eggs:** 2-3, pale gray or green with gray and brown blotches.  
**Incubation period:** 25-28 days.  
**Fledging period:** 28-35 days.



### LIFESTYLE

**Habit:** Shy; not sociable during the breeding season.  
**Call:** Low barking noise.  
**Diet:** Mainly seeds and insects.  
**Lifespan:** Not known.



### RELATED SPECIES

The little bustard, *Tetrax tetrax*, and the Kori, *Ardeotis kori*.



Range of the great bustard.

### DISTRIBUTION

Some regions of Europe and central Asia, including Spain and parts of France and eastern Europe, through central Asia to southeastern Siberia and Manchuria.

### CONSERVATION

Numbers are declining, especially in Spain and areas of central Europe, but as yet no conservation measures have been taken. Aboveground power lines are a major threat.

## FEATURES OF THE GREAT BUSTARD

**Camouflage:** This female is showing the white chest and mottled brown feathers that normally conceal the great bustard in its dry grassland habitat.



**Mating display:** The male sinks his head into his shoulders and puffs out his throat, thrusting out his stiff cheek feathers.



**Mating display:** The male cocks his white, fluffed-up wing feathers.



*The great bustard is similar in size to a turkey. Although it is plain colored compared to other birds, its dull brown and gray feathers serve to camouflage it among the tall grasses of its habitat. Even the chicks and eggs have protective coloration.*



**Above left:** *If danger threatens, the great bustard hides in the grass.*

**Left:** *Mating begins with a display by the male to attract the female. The male fluffs up his white tail and lowers his head to his throat, making his cheek feathers stand out.*

## HABITS

The great bustard is wary by nature and lives in open, treeless country where it can see for long distances with its keen eyesight. In spite of its large size, the great bustard can fly well, although it rarely flies higher than 300 feet above the ground. When the bird is on the ground, it is well camouflaged in the grass by its mottled feathers.

In flight the great bustard looks, from a distance, similar to a goose. It stretches its head and neck in front of its body and beats its wings strongly. Unlike the goose, however, the bustard's rump sags in the air as it flies.

## FOOD & FEEDING

The great bustard eats both plants and animals. It feeds primarily on seeds and small insects, although it eats crops such as peas, cabbages, and grains. Most food is found on grassy plains and in cultivated grain fields.

## DID YOU KNOW?

- The great bustard is one of the largest flying birds in the world.
- The bustard blends in well with its surroundings and can hide in the grass, unseen by predators.
- Most of the 24 species of bustard live in Africa, where the farmers regard them as beneficial in controlling the pests that destroy their crops.
- The Australian bustard eats small snakes. It picks one up with its beak and stuns it by banging it against its feet before swallowing it whole.

## GREAT BUSTARD & MAN

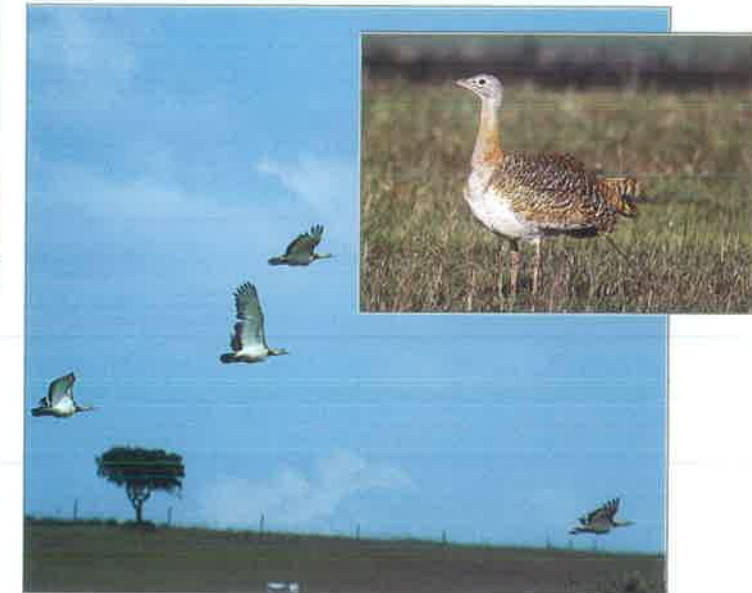
The principal threat to the great bustard's survival is man, although it has many predators in common with most other ground-nesting birds. Foxes kill both adults and chicks; crows take eggs.

The great bustard's popularity as a game bird endangers its survival; one bird makes a substantial meal for

a number of people.

The great bustard population has declined as a result of habitat loss—most notably in Spain and parts of central Europe.

*Below: The great bustard's white underparts are clearly visible in flight but are less noticeable on the ground.*



## BREEDING

The female makes a simple nest either by trampling a patch of grass or by scraping a shallow depression in the ground. She lays two or three eggs that are pale gray or green in color and have brown and gray blotches. The female incubates the eggs until they hatch 25 to 28 days later.

The chicks are *nidifugous*—that is, they leave the nest shortly after birth, although they are still fed and protected by a parent. The female feeds

insects to each chick when it is first born and then slowly begins feeding it plant matter. Chicks can fly and search for food at five weeks.

**Inset:** *The drab color of the egg makes it less noticeable to predators.*

**Right:** *Young chicks, like their parents, also have camouflaging coloration.*





# OXPECKER

CARD 33

GROUP 2: BIRDS



ORDER  
Passeriformes

FAMILY  
Sturnidae

GENUS  
*Buphagus*



**Because it feeds on blood-sucking ticks that burrow into animals' skins, the oxpecker is a welcome companion for many large mammals in Africa.**

## KEY FACTS



**SIZES**  
Wingspan: About 11 in.  
Length: 8 in.



**BREEDING**  
Sexual maturity: 1 year.  
Breeding season: Start of rainy season, depending on location.  
No. of broods: Up to 3 a season.  
Incubation: 12 days.  
Fledging: 30 days.



**LIFESTYLE**  
Habit: Sociable; may be 12 birds on one host.  
Diet: Ticks and blood-sucking flies taken from the hides of wild and domesticated animals.  
Lifespan: 4-7 years.



**RELATED SPECIES**  
Two species in the genus *Buphagus*: the red-billed *B. erythrorhynchus*, and the larger yellow-billed *B. africanus*.



Range of the oxpecker.

### DISTRIBUTION

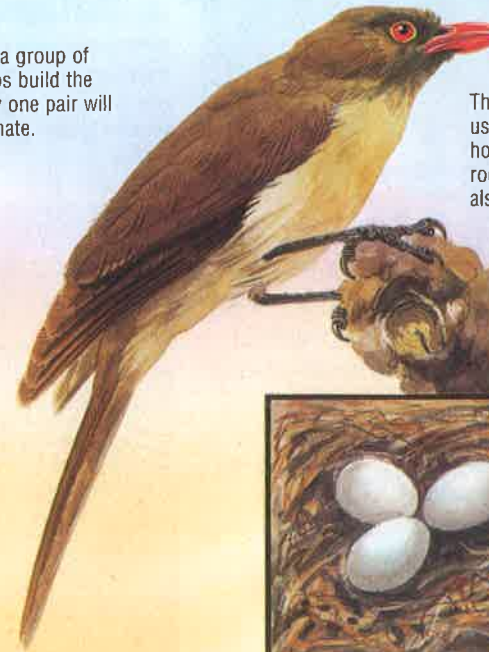
Found on the eastern side of the Rift Valley, from Ethiopia through Sudan, Kenya, Zambia, Zimbabwe, South Africa to Natal, and across to Namibia.

### CONSERVATION

Common where game herds are numerous; becoming rare in agricultural areas where farmers remove ticks from livestock with the use of chemicals.

## FEATURES OF THE OXPECKER

Although a group of birds helps build the nest, only one pair will actually mate.



The nest is usually built in a hole in a tree, but rock cavities are also used.



Three eggs is the average size of a clutch, but there can be up to five. With their communal breeding system, oxpeckers can raise up to three broods a year.

*Armed with a pointed beak and sharp, curved claws, the oxpecker is well equipped for its life of scavenging parasites from the backs of large, thick-skinned animals. It rids its host of unwelcome pests and provides early warning of danger by calling loudly when alarmed.*



Left and right: Oxpeckers hunt ticks on a variety of animals with different skin types by adapting their feeding technique.



### DID YOU KNOW?

- Rhinos, giraffes, zebras, and warthogs are all happy to carry oxpeckers; waterbucks, hartebeests, steenbucks, and elephants will not tolerate them.
- The oxpecker is also known as the tickbird.



### HABITS

Oxpeckers are common throughout the African savanna, living wherever large mammals gather. They prefer wide, grassy plains.

Feeding during the morning and late afternoon, the oxpecker rests during the heat of the day, riding passively on its host. At night, large groups gather to roost with other species of starling on trees, cliffs, or buildings.

Left: Perched on a buffalo's muzzle, an oxpecker pauses during feeding.



### SPECIAL ADAPTATION

The oxpecker is sometimes described as a "sentinel" for the large animals on which it feeds. It makes a fierce, hissing sound when it is alarmed.

Oxpeckers also have a variety of calls that are similar to other birds in the starling family, including shrill whistles and barking sounds.



### FOOD & FEEDING

The oxpecker feeds mainly on ticks caught on the backs of host animals. Its bill is flattened on the sides, and is very sharp at the tip. The bird pushes it through the fur of its host, moving the tip in a nibbling action, until it catches a tick. It even searches the host animal's ears and nostrils.

The oxpecker will sometimes catch flies by "hawking" (jumping and catching them in mid-air). It will also feed on dead skin and raw flesh in wounds and sores. Rhinos are particularly prone to open sores, especially just behind their front legs, where they cannot groom the skin by rolling. The oxpecker keeps these wounds clean. But sometimes, the oxpecker will hurt the rhino with its extremely sharp bill.

Oxpeckers drink from the same waterholes as their host animals.



### BREEDING

The oxpecker's breeding season varies from country to country, but always begins with the seasonal rains.

Once a hole is chosen, a group of up to five birds fills it with a mass of grass and plant fibers, and then lines it with hair and fur. Only two birds from the group mate and incubate the eggs. The clutch varies from one to five eggs, which are pinkish-white and spotted with brown and purple.

Incubation lasts for 12 days. Parent birds relieve each other every hour during the daytime, with the female incubating the nest by night.

When the chicks hatch, all members of the group share the work of feeding them. Chicks continue to be fed after they have left the nest (approximately 30 days after hatching) and for as long as three months after that. Oxpeckers can rear as many as three broods per season.



Above: When alarmed, oxpeckers climb up their host's backs and give alarm calls.

Left: Guarding the nest site.

Right: A tick, the oxpecker's insect prey.