

= Crex =

Crex is a small genus of birds in the rail family . It contains two species , the corn crake , *C. crex* , which breeds across Europe and Asia and winters in southern Africa , and the African crake , *C. egregia* , which migrates within Africa . Both are short @-@ billed rails with blackish @-@ brown upperparts , mainly blue @-@ grey underparts , and barring on the flanks . The corn crake is significantly larger than its relative , and has a distinctive chestnut patch on its wings . Unusually for their family , these are birds of dry habitats rather than wetlands ; the Eurasian species mainly breeds in hay meadows , and the African crake in dry grassland . The African crake is sometimes given its own genus , *Crecopsis* , but is now more usually placed in *Crex* .

Both species have distinctive loud grating calls used for advertising and territorial purposes in the breeding season , although the corn crake is silent on its African wintering grounds . They are mainly active during the day ; they walk with a high @-@ stepping action , and when disturbed they can run swiftly through grass or fly a short distance to cover . Migration takes place at night , and the ability to undertake these journeys is innate , not learned from adults . The nest is a shallow cup of grass lined with finer vegetation and built in a well hidden depression . The precocial chicks leave the nest soon after hatching , and fledge after four to six weeks . These are ground @-@ feeding omnivores , but mainly eat invertebrates . They may be killed by a variety of mammals and large birds , and infected by parasites .

The two *Crex* species have huge breeding ranges and large populations and are classed as least concern on the IUCN Red List . The corn crake was formerly classified as near @-@ threatened because of serious declines in western Europe , but improved monitoring shows that numbers have remained stable further east in Russia and Kazakhstan . In much of the western half of the corn crake 's breeding range , there have been long @-@ term declines that are expected to continue . The main cause of the decline is the loss of nests and chicks from early mowing . Haymaking dates have moved forward in the past century due to faster crop growth , made possible by land drainage and the use of fertilisers , and the move from manual grass @-@ cutting using scythes to mechanical mowers . Loss of habitat is the other major threat to the corn crake . Drained and fertilised silage fields are less suitable for breeding than traditional hay meadows . In western Europe the conversion of grassland to arable land has been aided by subsidies , and further east the collapse of collective farming has led to the abandonment and lack of management of much land in this important breeding area .

= = Taxonomy = =

The rails are a bird family comprising nearly 150 species . Although the origins of the group are lost in antiquity , the largest number of species and the most primitive forms are found in the Old World , suggesting that this family originated there . The genus *Crex* was created by German naturalist and ornithologist Johann Matthäus Bechstein in 1803 . Originally it held only the corn crake , *C. crex* , which Bechstein moved from its original name , *Rallus crex* , given to it by Linnaeus in his *Systema Naturae* in 1758 .

The taxonomy of the small crakes is complicated , but the closest relative of the corn crake is the African crake , *C. egregia* . This was first described as *Ortygometra egregia* by Wilhelm Peters in 1854 from a specimen obtained in Mozambique , and has variously been placed in the genus *Porzana* or its own genus , *Crecopsis* , but is now more usually placed in *Crex* . The *Porzana* crakes are the closest relatives of the *Crex* genus , particularly the ash @-@ throated crake , *Porzana albicollis* , which has occasionally also been allocated to *Crex* .

The genus name is onomatopoeic , referring to the repetitive grating call of the corn crake . Although these species occur in fairly open habitats , they lack the pure white undertail used for signalling in open @-@ water or gregarious species like the coots and moorhens .

= = Description = =

Both *Crex* crakes are short @-@ billed birds with blackish @-@ brown upperparts and mainly blue @-@ grey underparts . The belly is white , and there is barring on the flanks and the underside of the short tail . The corn crake is significantly larger than its relative , at 27 ? 30 cm (11 ? 12 in) long with a wingspan of 42 ? 53 cm (17 ? 21 in) , compared to the African crake 's 20 ? 23 cm (7 @.@ 9 ? 9 @.@ 1 in) length and a 40 ? 42 cm (16 ? 17 in) wingspan . The corn crake is sympatric with the African crake on its wintering grounds , but can be distinguished by its larger size , paler upperparts , chestnut @-@ coloured patch on the upperwing and different underparts pattern . In flight , it has longer , less rounded wings , and shallower wingbeats than its African relative , and shows a white leading edge to the inner wing .

The sexes of each species are similar in appearance , although the females are slightly smaller and duller than the males , with a less contrasting head pattern . Juveniles of both species are duller than the adults , and browner underneath . Adults undergo a complete moult after breeding . No subspecies have been recognised of either *Crex* crake . Although corn crakes become paler and greyer towards the east of the range , the change is clinal , and there is great individual variation in colour within all populations .

The two *Crex* crakes are unlikely to be confused with other rails , since most sympatric short @-@ billed rails are smaller , with white markings on the upperparts , different underparts patterns and shorter bills . The European water rail and the African rail have long pointed bills .

== Voice ==

Like other rails , the *Crex* species have a wide range of vocalisations . The males of both crakes have a loud territorial and advertising call consisting of a series of grating notes repeated two or three times a second for several minutes . The male stands upright with his neck extended when advertising , with its head and neck almost vertical and bill wide open . Calling is most frequent early in the breeding season , mainly at night for the corn crake , but in the day for its African cousin . The corn crake 's call may be repeated more than 20 @,@ 000 times a night , with a peak between midnight and 3 am .

The advertising calls of both crakes are readily distinguished from the quite dissimilar calls of potentially sympatric rails such as the spotted crake , striped crake , Baillon 's crake , or water rail . The calls of the two *Crex* species cannot be confused , since the corn crake is silent in Africa . Both sexes may give distinctive territorial or alarm calls , and females and chicks communicate with cheeps and wheezes . The African crake can be attracted to within 10 m (33 ft) of a human by imitation of its kraaa threat call , and the male corn crake by mechanical imitations of their advertising call , including rubbing a piece of wood down a notched stick , or by flicking a credit card against a comb or zip @-@ fastener .

== Distribution and habitat ==

The corn crake is a long distance migrant , breeding across temperate Eurasia from the British Isles east to central Siberia and western China . It winters in Africa from Zaire and central Tanzania south to eastern South Africa , mainly KwaZulu @-@ Natal and the former Transvaal Province . Small numbers of birds may winter in the milder areas of western Europe , or halt their migration and stay in North Africa .

The African crake occurs throughout sub @-@ Saharan Africa from Senegal east to Kenya and south to KwaZulu @-@ Natal , except in arid areas of south and southwest Africa where the annual summer rainfall is less than 300 mm (12 in) . It is widespread and locally common in most of its range , apart from the rainforests and the drier regions . Nearly all the South African population of about 8 @,@ 000 birds occur in KwaZulu @-@ Natal and the former Transvaal Province . This crake is only a vagrant to the drier zones on the southern edges of South Africa 's northern and eastern Cape Province and North West Province , and southern Botswana .

Both species are nocturnal migrants . Most corn crakes migrate through Egypt , with smaller numbers crossing at the western end of the Mediterranean . It has been recorded in most countries

between its breeding and wintering ranges , including much of west Africa , and those parts of southern Asia that lie between the east of the breeding range and Africa . Further afield , it has been recorded as a vagrant to Sri Lanka , Vietnam and Australia , the Seychelles , Bermuda , Canada , the United States , Greenland , and the North Atlantic islands .

The African species is a partial migrant , but its movements are complex , seasonal and poorly studied . It is mainly a wet @-@ season breeder , and many birds move away from the equator as soon as the rains provide sufficient grass cover to allow them to breed elsewhere . Southward movement is mainly from November to April , the return north beginning when burning or drought reduces the grass cover again . This species is present throughout the year in some West African countries , and in equatorial regions , but even in those areas numbers vary seasonally due to local movements ; internal north ? south migration has been noted within countries including Nigeria , Senegal , The Gambia , Côte d'Ivoire and Cameroon . This crane has also wandered further afield . It is rare on Bioko Island (Equatorial Guinea) , and there have been two records each for São Tomé and Tenerife , the Canary Islands birds being the first records for the Western Palaearctic .

Most rails are wetland birds , but the two *Crex* species prefer drier habitats . The African crane is found mainly in grassland , ranging from wetland edges and seasonal floodlands to savanna , lightly wooded dry grassland , and grassy forest clearings . It also frequents maize , rice and cotton crops , derelict farmland and sugarcane plantations close to water . A wide range of grass species are used , with a preferred height of 0 @. @ 3 ? 1 m (0 @. @ 98 ? 3 @. @ 28 ft) tall but vegetation is acceptable up to 2 m (6 @. @ 6 ft) tall . The corn crane is mainly a lowland species , but breeds up to 1 @, @ 400 m (4 @, @ 600 ft) altitude in the Alps , 2 @, @ 700 m (8 @, @ 900 ft) in China and 3 @, @ 000 m (9 @, @ 800 ft) in Russia . When breeding in Eurasia , the corn crane 's habitats would originally have included river meadows with tall grass and meadow plants , but it is now mainly found in cool moist grassland used for the production of hay , particularly moist traditional farmland . It also utilises other treeless grasslands in mountains or taiga , on coasts , or where created by fire . Very wet habitats are avoided , as are open areas and those with vegetation more than 50 cm (20 in) tall , or too dense for the birds to walk through .

While wintering in Africa , the corn crane occupies dry grassland and savanna habitats , occurring in vegetation 30 ? 200 cm (0 @. @ 98 ? 6 @. @ 56 ft) tall , including seasonally burnt areas and occasionally sedges or reed beds . It is also found on fallow and abandoned fields , uncut grass on airfields , and the edges of crops . It occurs at up to at least 1 @, @ 750 m (5 @, @ 740 ft) altitude in South Africa . Although it sometimes occurs with the African crane , that species normally prefers moister and shorter grassland habitats than does the corn crane . On migration , the corn crane may also occur in wheatfields and around golf courses .

= = Behaviour = =

Both *Crex* cranes are mainly active during the day , especially at dawn , dusk , during light rain , or after heavier rain . The African crane is less skulking and easier to flush from cover than other cranes , and is often seen at the edges of roads and tracks , but the corn crane is a much more difficult bird to see in its breeding sites , usually being hidden by vegetation and rarely emerging into the open . Both cranes are territorial on both the breeding and non @-@ breeding grounds ; the male threat displays involves the bird standing upright and spreading the feathers of the wings , flanks and belly like a fan . Fighting at territorial boundaries involves the male birds jumping at each other and pecking .

Both species walk with a high @-@ stepping action , and can run swiftly through grass with the body held horizontal and laterally flattened . When disturbed , they typically fly less than 50 m (160 ft) , frequently landing behind a bush or thicket , and then go into a crouch . In short grass , they can escape from a dog using their speed and maneuverability , running with the body held almost horizontal . The typical flight is weak and fluttering , especially that of the African crane , but for longer flights , such as migration , the corn crane has a steadier , stronger action with its legs drawn up . Flocks of up to 40 corn cranes may form on migration , sometimes associating with common quails . Migration takes place at night , and flocks resting during the day may aggregate to hundreds

of birds at favoured sites . The ability to migrate is innate , not learned from adults ; chicks raised from birds kept in captivity for ten generations were able to migrate to Africa and return with similar success to wild @-@ bred young .

= = = Breeding = = =

Both crakes were formerly believed to be monogamous , but the male corn crane may have a shifting home range , and mate with two or more females , moving on when laying is almost complete . The breeding display consists of a short chase of the female by the male . The nest is a shallow cup of grass leaves and lined with finer grasses , built in a depression and well hidden in the grass . The clutch size is from 3 to 11 pink eggs for the African species , and 6 ? 14 ? usually 8 ? 12 ? for the European breeder . The corn crane 's eggs are oval , slightly glossy , creamy or tinted with green , blue or grey , and blotched red @-@ brown . They average 37 mm x 26 mm (1 @.@ 5 in x 1 @.@ 0 in) and weigh about 13 ? 16 g (0 @.@ 46 ? 0 @.@ 56 oz) , of which 7 % is shell .

The first egg is often laid when the nest is little more than a pad of grass , and a further egg is laid on each subsequent day . Both sexes incubate the eggs , which start hatching after about 14 days ; all hatch with 48 hours despite the extended laying period . The black , downy precocial chicks soon leave the nest but are fed and protected by the parents . Fledging occurs after four to six weeks , and the young can fly before they are fully grown . It is not known whether the African crane has a second brood , but the corn crane usually does . Where grass is not tall enough at the start of the season , the first nest may be constructed in herby or marsh vegetation , with the second brood in hay . The second nest may also be at a higher altitude than the first , to take advantage of the later @-@ developing grasses further up a hill .

Although survival in undisturbed sites is high , at 80 ? 90 % , the corn crane suffers from modern farming practices , since mechanised mowing can kill 38 ? 95 % of chicks in a given site . The influence of weather on corn crane chick survival is limited : although chick growth is faster in dry or warm weather , the effects are relatively small . Unlike many precocial species , chicks are fed by their mother for a few days until they become independent , and this may cushion them from adverse conditions . The number of live chicks hatched is more important than the weather , with lower survival in large broods .

= = = Feeding = = =

Both *Crex* crakes are omnivorous , but mainly feed on invertebrates , including earthworms , slugs and snails , spiders , beetles , dragonflies , grasshoppers and other insects . The corn crane may take pests such as *Sitona* weevils , leatherjackets and wireworms . In Africa , termites , cockroaches and dung beetles may be consumed . These opportunist hunters will take the occasional vertebrate such as a small frog , rodent or fish . Food is taken from the ground , low @-@ growing plants and from inside grass tussocks ; the crane may search leaf litter with its bill , and run in pursuit of active prey . In Africa , both species will occasionally feed on grassy tracks or dirt roads . Plant material is eaten , especially grass seeds , but also green shoots , leaves and other seeds . As with other rails , grit is swallowed to help break up food in the stomach . Indigestible material is regurgitated as pellets . Chicks are fed mainly on animal food . *Crex* crakes forage singly , in pairs or in family groups , sometimes in association with the other member of the genus or with other grassland birds such as great snipes , blue quails and common quails .

= = Predators and parasites = =

Predators of the corn crane on its European breeding grounds include feral and domestic cats , introduced American mink , feral ferrets , otters and red foxes , and birds including the common buzzard and hooded crow . In Lithuania , the introduced raccoon dog has also been recorded taking corn crakes . When chicks are exposed by rapid mowing , they may be taken by large birds including the white stork , harriers and other birds of prey , gulls and corvids . At undisturbed sites ,

nests and broods are rarely attacked , which is reflected in the high breeding success .

In Africa , *Crex* species may be hunted by the leopard , serval , cats , the black-headed heron , dark chanting goshawk , African hawk-eagle , Wahlberg's eagle , and black sparrowhawk . In South Africa , newly hatched African crane chicks were taken by a boomslang .

Parasites recorded in this genus include the widespread fluke *Prosthogonimus ovatus* (which lives in the oviducts of birds) , the parasitic worm *Plagiorchis elegans* , the larvae of parasitic flies , the feather mite *Metanalgus elongatus* , and hard ticks of the genera *Haemaphysalis* and *Ixodes* . During the reintroduction of corn cranes to England in the 2003 breeding season , enteritis and ill health in pre-release birds was due to bacteria of a pathogenic *Campylobacter* species . Subsequently , microbiology tests were done to detect infected individuals and to find the source of the bacteria in their environment .

== Status ==

Both *Crex* species have huge breeding ranges , estimated at 15,700,000 km² (4,000,000 mi²) for the African crane and 12,400,000 km² (4,800,000 mi²) for the corn crane . The population size of the African species is unknown , but it is common in most of its range , and its numbers appear to be stable . The European bird has an estimated 1.3–2.0 million breeding pairs in Europe , three-quarters of which are in European Russia , and a further 515,000–1,240,000 pairs in Asiatic Russia ; the total Eurasian population has been estimated at between 5.45 and 9.72 million individuals . Both species are classed as least concern on the IUCN Red List . The corn crane was formerly classified as near-threatened because of serious declines in Europe , but improved monitoring in Russia indicates that anticipated losses there have not occurred and numbers have remained stable or possibly increased in Russia and Kazakhstan . Although most rails in the Old World are covered by the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) , neither *Crex* species is listed , being too terrestrial to be classed as wetland species .

Overgrazing , agriculture and the loss of wetland and moist grassland have reduced the availability of suitable habitat for the African crane in many areas , such as some parts of the southern KwaZulu-Natal coast which have been urbanised or planted with sugarcane . In other areas , grassland may have increased locally in recent years as woodland is cleared . This crane is considered to be good eating , and is killed for food in some regions . Despite these adverse factors , it appears to be under no real threat .

In much of the western half of the corn crane's breeding range , there have been long-term declines that are expected to continue , although conservation measures have enabled numbers to grow in several countries , including substantial increases in the small populations in Finland , the UK and the Netherlands . The breeding population had begun to decline in the 19th century , but the process gained pace after World War II . The main cause of the steep declines in much of Europe is the loss of nests and chicks from early mowing . Haymaking dates have moved forward in the past century due to faster crop growth , made possible by land drainage and the use of fertilisers , and the move from manual grass-cutting using scythes to mechanical mowers , at first horse-drawn and later pulled by tractors . Mechanisation also means that large areas can be cut quickly , leaving the crane with no alternative sites to raise either a first brood if suitable habitat has gone , or a replacement brood if the first nest is destroyed . The pattern of mowing , typically in a circular pattern from the outside of a field to its centre , gives little chance of escape for the chicks , which are also exposed to potential animal predators . Adults can often escape the mowers , although some incubating females sit tight on the nest , with fatal results .

Loss of habitat is the other major threat to the corn crane , since drained and fertilised silage fields are less suitable for breeding than traditional hay meadows . In western Europe the conversion of grassland to arable land has been aided by subsidies , and further east the collapse of collective farming has led to the abandonment and lack of management of much land in this important breeding area . More localised threats include floods in spring , and disturbance by roads or wind farms , and the loss of many birds – up to 14,000 a year – in Egypt , where migrating birds are

captured in nets set for the quail with which they often migrate . Although this may account for 0 @. @ 5 ? 2 @. @ 7 % of the European population , the losses to this form of hunting are less than when the targeted species were more numerous and predictable .

Most European countries have taken steps to conserve the corn crane and produce national management policies ; there is also an overall European action plan . The focus of conservation effort is to monitor populations and ecology and to improve survival , principally through changing the timing and method of hay harvesting . Later cutting gives time for breeding to be completed , and leaving uncut strips at the edges of fields and cutting from the centre outwards reduces the casualties from mowing . Implementing these changes is predicted to stop the population decline if the measures are applied on a sufficiently large scale . Reduction of illegal hunting , and protection in countries where hunting is still allowed , are also conservation aims . Reintroduction of the corn crane is being attempted in England , and breeding sites are scheduled for protection in many other countries . Where breeding sites impinge on urban areas , there are cost implications , estimated in one German study at several million euros per corn crane . The corn crane does not appear to be seriously threatened on its wintering grounds and may benefit from deforestation , which creates more open habitats .