

## The Ecology of the Corncrake *Crex crex* in Stubble Paddyfields in the South Caspian Lowlands

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**Abstract:** A study into the Corncrake *Crex crex* was carried out in Amlash paddyfields in Gilan Province, northern Iran, from August to December in each of the years 2003 to 2005. This survey showed that Corncrakes migrate through the area between September and November. No birds were recorded in late November or December. This species usually chooses habitats with humid soil and covered by rice stalks more than 20 cm high and the same colour as its body for camouflage. The abundance of the species cannot easily be determined. Totals of 16, 11 and nine Corncrakes were observed and captured in 2003, 2004 and 2005 respectively by one group of hunters. However, based on c. 50 questionnaires and interviews, 112 individuals were captured and hunted during the 2003–2005 period in this area. These data seem to indicate that the migratory population of Corncrakes passing through this area is decreasing, and point to the need for more conservation measures in paddyfields.

**Keywords:** Corncrake, *Crex crex*, status, passage migrant, stubble, rice fields, Amlash, Gilan.

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### INTRODUCTION

The Corncrake *Crex crex* flies with its feet dangling slightly backwards similar to other birds of the family Rallidae. However, the acorn-colored wings distinguish it from other Rallidae species (Mansoori 2001). Its average body length, including the tail, is about 294 mm and its average weight is approximately 194 g (A. Ashoori, unpubl. data). The male's call is 'crek-crek' or 'arrp-arrp' and is somewhat similar to that of the Mistle Thrush *Turdus viscivorus* (Batten *et al.* 1990). The white eye-stripe of adult birds makes them distinguishable from immatures (Mansoori 2001). The Corncrake breeds in Eurasia, from northwest Europe north to the southern part of Fennoscandia and 62°N in the western part of Russia, and east across central and eastern Asia to 120°E (Green & Gibbons 2000). Almost the entire population spends the northern winter in Africa south of the Sahara.

In Iran, the Corncrake is summer migrant to West and East Azarbaijan Provinces (Mansoori 2001). Its presence in Gilan Province has recently been reported by Ashoori (unpubl. data) in the stubble of paddyfields in eastern Gilan. Here, Corncrakes usually occur on autumn migration in September and October, after the rice harvest (in August and early September) and before migrating to their wintering areas in Africa (A. Ashoori, unpubl. data).

Rice is one of the main crops which covers 63.7 percent of the total farmlands of Gilan Province. After the rice harvest, the stubble left in the paddyfields attracts many native and migratory birds onto the farms, where water, food and shelter are available. This paper provides some ecological information on the Corncrake in the paddyfields of Amlash, which is located in the eastern part of Gilan. The importance of this area and the need for its protection are emphasized.

## STUDY AREA

After the rice harvest which occurs between mid- and late August, the paddyfields are left until they are inundated and ploughed from late February. The water sources for the paddyfields are either rivers, canals or wells. Organochlorine pesticides such as Diazinone are being used against the rice stem borer *Chilo suppressalis*. The present study was carried out in the paddyfields of Amlash, eastern Gilan, in the south Caspian lowlands (the coordinates for the study area lie between 36°48'–37°08"N and 50°05'–50°17'E). The purpose of the study was to obtain some ecological information on the Corncrake population of Amlash. This district is bordered by Langarud in the north and west, Roodsar in the east and Siahkal in the south. About 3500 ha of the available farmland are under rice cultivation. The study area consists of 2000 ha of paddyfields comprising the villages of Mashkeleh, Kharashtom, Chelaras and Kiaklaiyeh.

## METHODS

Since Corncrakes prefer to run rather than fly and since they hide themselves under vegetation, remaining silent, the survey was carried out using local hunters with their trapping nets and hunting dogs. Zeiss 8x30 binoculars were used to identify the flying birds. In this survey, the habitat and behaviour of the Corncrake were recorded for approximately 100 days (every Wednesday, Thursday and Friday, when hunting is permitted) for about six hours between 0700 and 1400 hrs and between 1400 and 1900 hrs in August–November of 2003–2005.

The hunting of Corncrakes is illegal. However, it is difficult for Department of the Environment (DOE) Guards to manage these areas because of the large area of paddyfields and also the high number of hunters. In addition, hunting licenses are issued around October in Gilan Province, but in fact occasional hunting starts from September. Corncrake and Common Quail *Coturnix coturnix* are both hunted for their meat, although sometimes male Common Quail are



Figure 1. How to capture Corncrake in stubble paddyfields.

hunted and kept in cages for their song until the following spring when they are released.

A.A. was able to join one of the hunting parties who walk over the rice stubble with their dogs. The dogs search for Corncrakes as well as other birds such as Common Quail and crakes *Porzana* spp. by sniffing the ground. Corncrakes rarely fly in the paddyfields when humans are present, so it is necessary for the hunters to use hunting dogs. As soon as a quarry is located, the dog wags its tail and watches the quarry keenly from a distance of 0.5–1.0 m. This alerts the hunter who approaches the dog and gets ready with his net. A well-trained hunting dog does not let the bird escape but makes the bird fly on a signal from the hunter. Then the hunter has to capture the bird by skillfully throwing his net (Fig.1).

Additional information about the number of birds killed by hunters and other local people was obtained through questionnaires or interviews. Questions were asked about the age of the hunters, the reasons for hunting and the number of individuals under guardianship (of the hunter).

## RESULTS AND DISCUSSIONS

### Migration period

The earliest record of a Corncrake in the paddyfields in Gilan was on 7 September 2003 and the latest observation was on 9 November 2004. This species seems to visit the area at a time when there is dense cover and plant and animal food is available in the paddyfields.

Very few Corncrakes remain in Europe and Asia throughout the winter, and the great majority migrate to Africa where they occur commonly as far south as Zimbabwe and eastern South Africa (Cramp & Simmons 1983). The birds return to their breeding habitat in Europe and Asia in mid–April and early May (Green & Gibbons 2000).

### Number of birds

Sixteen Corncrakes were seen or captured in the study area in 2003, 11 in 2004 and nine in 2005. The highest numbers were in September (20 over the three years), followed by 13 in October and three in November (Table 1). During migration, Corncrakes are usually solitary (Scott *et al.* 1975, Firouz 2000, Mansoori 2001), and indeed during this survey, Corncrakes were always encountered as single individuals. However, it happened several times that when one Corncrake was observed, others

were also observed in the same area. Perhaps the species forages in loose parties. The birds hide themselves and freeze at the approach of danger and prefer running to flying. For this reason it was not possible to estimate the total numbers of Corncrakes occurring in the study area.

However, the information gathered from about 50 questionnaires and interviews indicated that 112 Corncrakes were hunted in the area during the 2003–2005 period. The reason for the discrepancy in the number of birds recorded in this study and that obtained through questionnaires and interviews is probably the fact that our estimates were based on the activity of just one hunting party, whereas there could be a dozen or more hunting parties active during a given season. At least 18 other groups of hunters hunt at least twice per week and some of them hunt every day in the study area.

**Table 1.** Corncrake numbers recorded in Amlash area, Gilan, during 2003–2005.

Year	2003			2004			2005		
	Sep.	Oct.	Nov.	Sep.	Oct.	Nov.	Sep.	Oct.	Nov.
<b>Bird numbers</b>									
<b>Month</b>									
Based on the activities of one party of hunters (monthly)	8	6	2	7	3	1	5	4	0
Based on c. 50 questionnaires and interviews (yearly)		42			41			29	

### Habitat preference

The Corncrake, unlike other crane species, avoids wetlands and reed-beds and favours farmland and grassland (Dayani 1988, Firouz 2000). In Lithuania, it is attracted by flooded grassland and dry grassland during the breeding season (Green 1995), while in Scotland and Ireland it inhabits meadows and wetlands during spring, and dry grassland and fodder farmland during summer (Williams *et al.* 1998). In the present study area the Corncrake favours wet terrain with a dense cover of rice stubble the colour of which matches the birds' plumage. On the other hand, Common Quail and crakes spp. prefer dry or inundated habitats respectively where they can blend in with the vegetation. This is apparent in the study area, as the hunters never pursue Corncrake or Spotted Crane in the dry paddies where they expect to capture Common Quail and vice versa.

From the end of October to the middle of November, the bird is more vulnerable because of the decrease in vegetation cover and the natural flooding of the paddyfields which means that birds cannot conceal themselves easily. During this period, the birds live in paddyfields covered with tall grasses and on the dykes dividing the paddyfields, and escape to these areas for shelter when danger threatens. Unfortunately the colour of the Corncrake is not the same as that of the vegetation in these areas, so the birds are easily seen and hunted. From the end of October, the rainfall increases, the paddyfields become submerged, and domestic livestock graze the plants and the straw, so that the security of the habitat is reduced. By this time, most Corncrakes have continued their autumn migration to Africa, and none has been seen in the paddyfields after the middle of November.

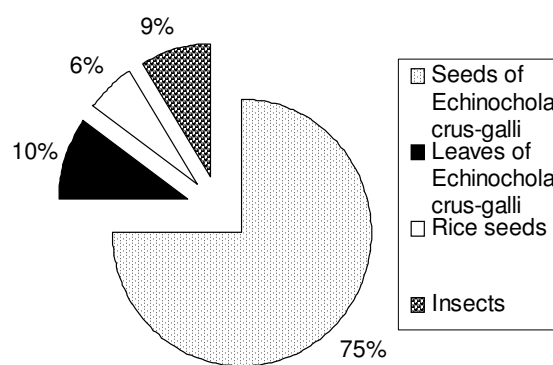
Corncrakes generally prefer paddyfields near streams or hills covered with thorny vegetation which is inaccessible and which they can reach immediately during times of danger. In early and mid-November, Corncrakes have been seen outside the study area in tea plantations which have grassy vegetation, and it seems that this is because of the degradation and loss of the habitat in the paddyfields, especially the reduction in shelter and food due to grazing and inundation. Sehatiasabet & Vetr (unpubl. data) also reported one Corncrake in the *Rubus* shrublands (areas inhabited by Common Pheasant *Phasianus colchicus*) in Radar-Poshteh (41°06'N and 38°68'E), Siahkal, Gilan on 25 September 2002.

### Diet

Analysis of the crop contents of 16 hunted birds in Gilan showed that the Corncrakes in this area prefer to feed on herbs, especially the seeds of *Echinochola crus-galli*, and rarely eat rice and very rarely insects (Fig. 2). On the breeding grounds, however, Corncrakes feed mainly on invertebrates such as insects, snails, earthworms and spiders (Green 1995) which are collected from the ground or from plants. Young frogs, green parts of plants, young shoots and seeds are also taken. Any indigestible material is regurgitated in pellets. The birds forage only by day and usually in cover (RSPB 2002). A sample of 33 stomachs in Britain contained (by volume) 82.5 % animal and 17.5 % plant items: 66.5 % insects, including *Acridium*, earwigs, beetles (*Staphylinus*, *Agriotes* larvae, *Sitona*), cranefly eggs and larvae; 5.5 % slugs and snails; 1.0 % millipedes; 0.5 % spiders; plant foods included green weed, seeds of *Spergula*, unidentified rushes and barley *Hordeum*. Stomachs in central and southern USSR contained insects and seeds of wheat *Avena*. Ten stomachs from Ukraine contained almost entirely animal material: 196 Hymenoptera (including 187 ants), 92 beetles (28 Carabidae, 26 Elateridae, 20 grasshoppers, and 50 plant items including 18 seeds of *Anchusa* (Cramp & Simmons 1983).

### Status and Conservation

Corncrake populations have declined severely and the species is now listed as Near Threatened (NT) in the Red List of IUCN (BirdLife International 2007). Batten *et al.*



**Figure 2.** Proportion of food items in the diet of Corncrakes in Gilan.

(1990) reported that destruction of breeding habitat, uncontrolled hunting and trapping are the main factors responsible for the species' decline. Corncrakes are one of the protected bird species in Iran, and their hunting and capture is banned (Mansoori 2001), but in reality, illegal hunting (shooting and trapping) still continue.

In the questionnaire survey, almost all individuals (92%) were of the opinion that unemployment and the non-availability of recreational activities are the main reasons for overexploitation of Corncrakes. Moreover, psychologically the local people think in a negative way, *e.g.* "If I do not hunt, others will", "If hunting is strictly banned, we do not hunt then", "We feel pity for these creatures and sometimes even we do not cut their head off and bring them alive to our house, and then we will set them free". Some people (20%) also said that "We go hunting for their meat or to sell them". Those who hunt on holidays and rainy days were above the age of 17 (100%), and most of those involved in hunting every day were under the age of 20 (95%). It seems that these people hunted mainly for recreation. The non-hunters completely disagreed with hunting and requested that the Department of the Environment (DOE) should protect the species.

However, the important issue was the lack of knowledge that people have about the Corncrake. They were aware of the fact that the Corncrake's population has declined rapidly in recent years as compared to the past. When the locals were informed about the Corncrake, especially its migratory nature and its decline worldwide, they agreed to cooperate in the

conservation of the species. Conservation campaigns resulted in the cooperation of four hunting parties with the authors in the ringing programme in 2006. On a few occasions, the hunters kept the trapped birds for several days for the authors to see, reflecting their interest in conservation, although they were still involved in the shooting and trapping of Common Quail.

One of the most important causes for the widespread decrease in the population of this species is degradation of habitat (Green 1995, Green & Gibbons 2000). Development, industrialization of agriculture and human disturbance have all caused the destruction of Corncrake habitat during its breeding period (Green 1995). Another likely cause of the population decrease in this species is uncontrolled large-scale hunting during the migration period in late summer and autumn. The hunters who hunt Common Quail also hunt Corncrakes. In addition, during migration some birds are killed accidentally by hitting electricity wires and poles (Green 1995), and this also contributes to the decline in the population. The protection of this species is thus more complicated than the protection of sedentary species. .

It is recommended that the following steps should be taken in order to protect the Corncrake in Gilan:

- a. Awareness campaigns should be launched to educate the local inhabitants and to involve them in conservation efforts.
- b. Important staging areas for Corncrakes in Gilan should be made protected areas, and in particular, the Amlash area should be declared as a non-hunting area for Corncrakes.
- c. After the rice harvest, due to the farmers' increased leisure time and the school holidays, many people rush into the fields in order to hunt Common Quail, Corncrake and Spotted Crake. This practice should be discouraged and the Department of the Environment should actively participate in the protection of the species.

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