Food and Agriculture Organization of the United Nations

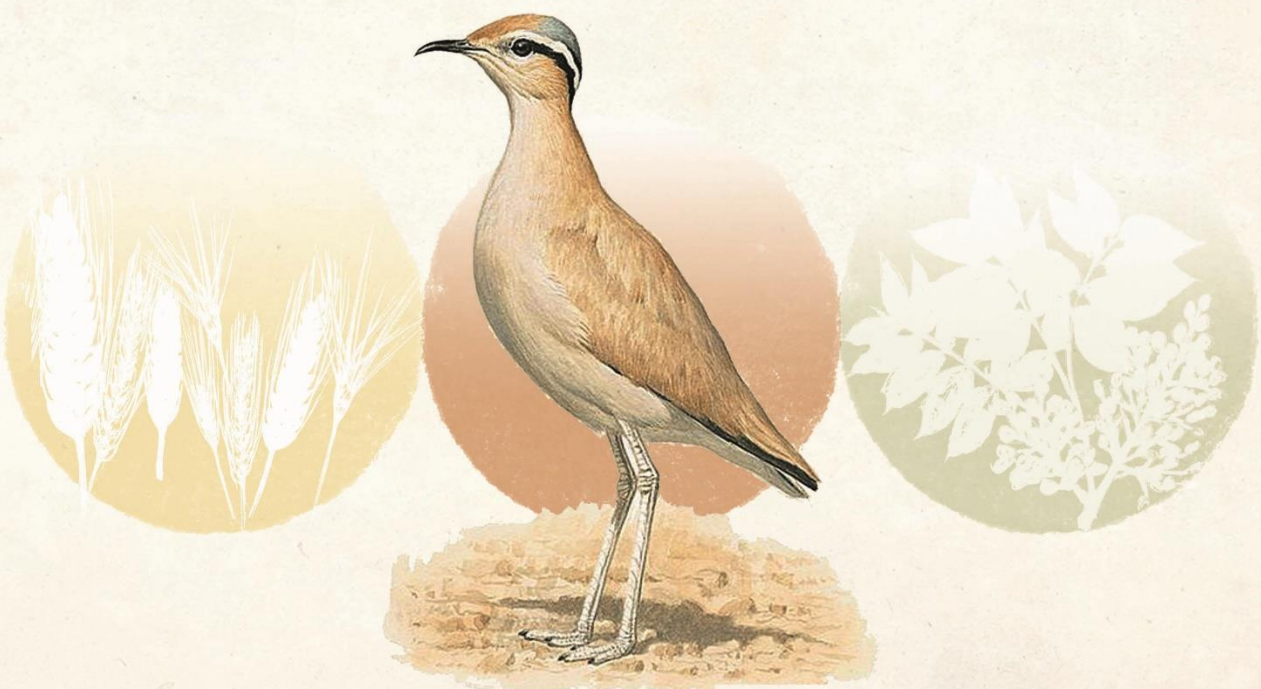
CONSERVATION and SUSTAINABLE MANAGEMENT of TURKEY'S STEPPE ECOSYSTEM PROJECT

GCP /TUR/ 061/GFF

Development of Management Plans for the
Şanlıurfa Merkez Kızılkuyu WDA, Tek Tek Mountains NP
and (Şanlıurfa Part Of) Karacadağ - LOT 2

Species Action Plan for Cream-coloured Coursor (*Cursorius cursor*)

(2021 - 2030)

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ŞANLIURFA MERKEZ KIZILKUYU WILDLIFE DEVELOPMENT AREA

Cream-coloured Courser
(Cursorius cursor)

SPECIES ACTION PLAN

SECTION I

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LIST OF ABBREVIATION

ANCEO	Anadolu Çevre Ormancılık Haritacılık İnş. Tic. ve San. Ltd. Şti.
DD	Data Deficient
FAO	Food and Agriculture Organization of the United Nations
GDAE	General Directorate of Agricultural Enterprises
GDF	General Directorate of Forestry
GDNCNP	General Directorate of Nature Conservation and National Parks
GDPP	General Directorate of Plant Production
GEF	Global Environment Facility
IUCN	International Union for Conservation of Nature
LC	Least Concern
MoAF	Ministry of Agriculture and Forestry
NT	Near Threatened
OIZ	Organized Industrial Zone
SPP	Solar Power Plant
WDA	Wildlife Development Area

PLANNING TEAM

The *Cursorius cursor* (Cream-coloured cursor) Species Action Plan was prepared by **ANÇEO** Anadolu Çevre Ormancılık Haritacılık İnş. Tic. ve San. Ltd. Şti. within the scope of "***Conservation and Sustainable Management of Turkey's Steppe Ecosystems Project***" carried out in cooperation with United Nations Food and Agriculture Organization **(FAO)**, Ministry of Agriculture and Forestry, General Directorate of Nature Conservation and National Parks **(GDNCNP)**, General Directorate of Plant Production **(GDPP)** and General Directorate of Forestry **(GDF)** and with the financial support of the Global Environment Facility **(GEF)**.

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EXECUTIVE SUMMARY

The **"*Cream-coloured courser (Cursorius cursor) Species Action Plan*"** has been developed within the scope of "Conservation and Sustainable Management of Turkey's Steppe Ecosystems" (GCP/TUR/061/GFF).

This report covers the general information of the taxonomy, morphological characteristics, life cycle, habitat preferences, spatial distribution and the threats and limiting factors for species and its habitats. While the data about the species was obtained through field studies and literature reviews; threats and restrictions were evaluated and categorized according to IUCN threat analysis criteria.

The Cream-coloured courser, is a habitat specific bird, is completely compatible with the steppe ecosystem and prefers stony, gravelly, sandy plains with sparse vegetation in the steppe. The species prefers various invertebrates as the main diet but it also feeds on seeds and small lizards.

The Cream-coloured courser is a summer immigrant in Turkey. Migration period and breeding period differ according to its location. It can be observed between April-October in Turkey and breeds between May-July. It is distributed in a region that includes India, Pakistan, Afghanistan, Iran, Turkmenistan, Yemen, Oman, UAE, Saudi Arabia, Jordan, Israel, Lebanon, Iraq, Syria, Turkey, North Africa, Sahara belt, Canary Islands and Cape Verde Islands. In Turkey, it is distributed only in the Southeastern Anatolia Region and mainly in Şanlıurfa.

Cream-coloured courser (*Cursorius cursor*) is one of the Least Concern (LC) species according to the IUCN Red List category. Its population tends to decrease and a current assessment of the population status and distribution in Turkey has never been explored until Steppe Project. The project provided the opportunity to conduct a comprehensive assessment for the species with the action plan prepared for the conservation of Cream-coloured courser (*Cursorius cursor*), one of the best indicator species of the steppe ecosystem. World population information is not available due to a recent taxonomic divergence. The European population consists of Turkey and Cape Verde Islands, and the European breeding population size is estimated as 450 – 2,800 adult individuals.

In the Species Action Plan prepared for the population in Cape Verde in 1999, habitat degradation and fragmentation and human disturbance were stated as the main threats. The threats limiting the distribution of the species in Turkey are defined as habitat destruction and changes. The loss of habitat resulting from the conversion of the steppes into agricultural areas and the change in habitat characteristics with the transition to irrigated agriculture have caused the species not to breed in some areas anymore. Threats limit the range of distribution of the species. Protecting the distribution areas of the species, preventing habitat destruction, grazing

management in critical areas, regular monitoring of the species and population counting are important steps to be taken for the protection of the species.

1. INTRODUCTION

"The Şanlıurfa Province Cream-coloured Courser *(Cursorius cursor)* Species Action Plan" will be prepared with the work of *"Development of Protected Area Management Plans and Species/Taxa Action plans for the Şanlıurfa Merkez Kızılkuyu Wildlife Development Area, Tek Tek Mountains National Park and Karacadağ Steppes"* under the grand project of ***"Conservation and Sustainable Management of Turkey's Steppe Ecosystems"*** Project – (GCP/TUR/061/GFF)

Cream-coloured courser (*Cursorius cursor*) is distributed only in the Southeastern Anatolia Region of our country and mainly in Şanlıurfa. It prefers stony, pebbly, sandy plains with sparse vegetation in the steppe, which are completely coherent with the steppe ecosystem. The global population size of the Cream-coloured courser (*Cursorius cursor*), which is extremely poorly researched around the world, is unknown. Although there is no "Red List of Turkey Birds" accepted by official institutions, in the publication prepared by Kılıç and Eken (2004), Cream-coloured courser (*Cursorius cursor*) was evaluated as a species in the "DD" data deficient category according to the National Red List category. The population of the Cream-coloured courser (*Cursorius cursor*) is declining, and it is one of the priority conservation species in the Annex-1 List of the European Union Bird Directive. As one of the best representatives of the steppe ecosystem, Cream-coloured courser (*Cursorius cursor*) is a species worthy of better recognition, research and protection, and the action plan to be prepared is very important for both better understanding of the species and its protection.

2. GEOGRAPHIC EXTENT

2.1. The Study Area

Cream-coloured courser (*Cursorius cursor*) study area covers the entire Şanlıurfa province, focusing on the Şanlıurfa Merkez Kızılkuyu Wildlife Development Area (WDA) (**Figure 1**). Şanlıurfa province, located between 36^0 40' and 38^0 2' north latitudes and 37^0 50' and 40^0 12' east longitudes, is a province covering of wide plains and plateaus with a surface area of 19.451 km^2. The altitude of the city center is 518 meters asl.

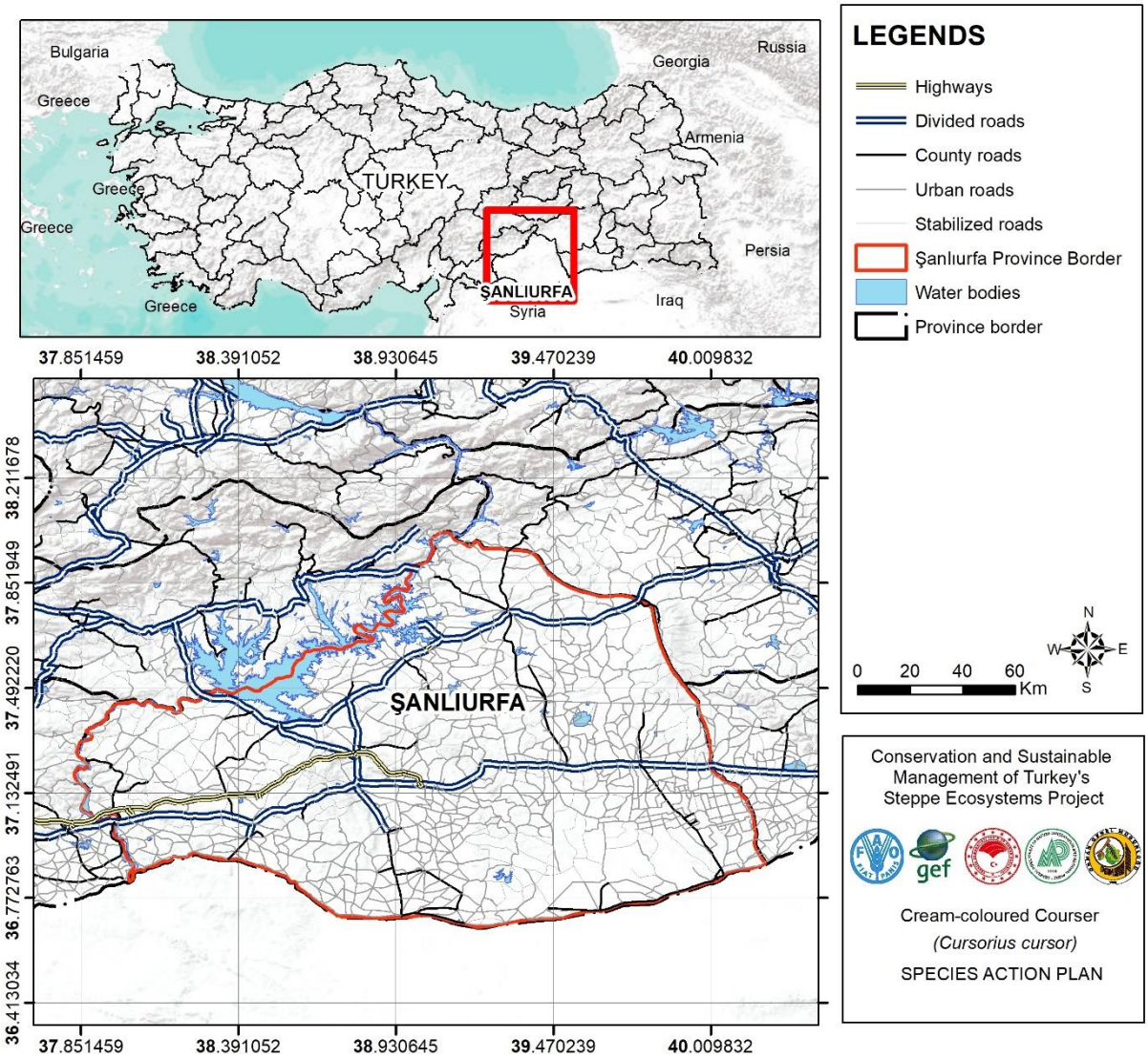

Figure 1. The study area

2.2. Şanlıurfa Merkez Kızılkuyu Wildlife Development Area

Şanlıurfa Merkez Kızılkuyu Wildlife Development Area is the focus of the Species Action Plan and is located in the southwestern part of Şanlıurfa Province, within the borders of the Merkez District, between 36^0 90'00" - 37^0 8'00" northern latitudes and 38^0 30'40" - 38^0 50'00" east longitudes. The area is located within the N41-c4, N41-d3, O41-a2 and O41-b1 sections on the 1/25.000 scaled topographic map, and the area of the Wildlife Development area is 15,337 ha (Figure 2).

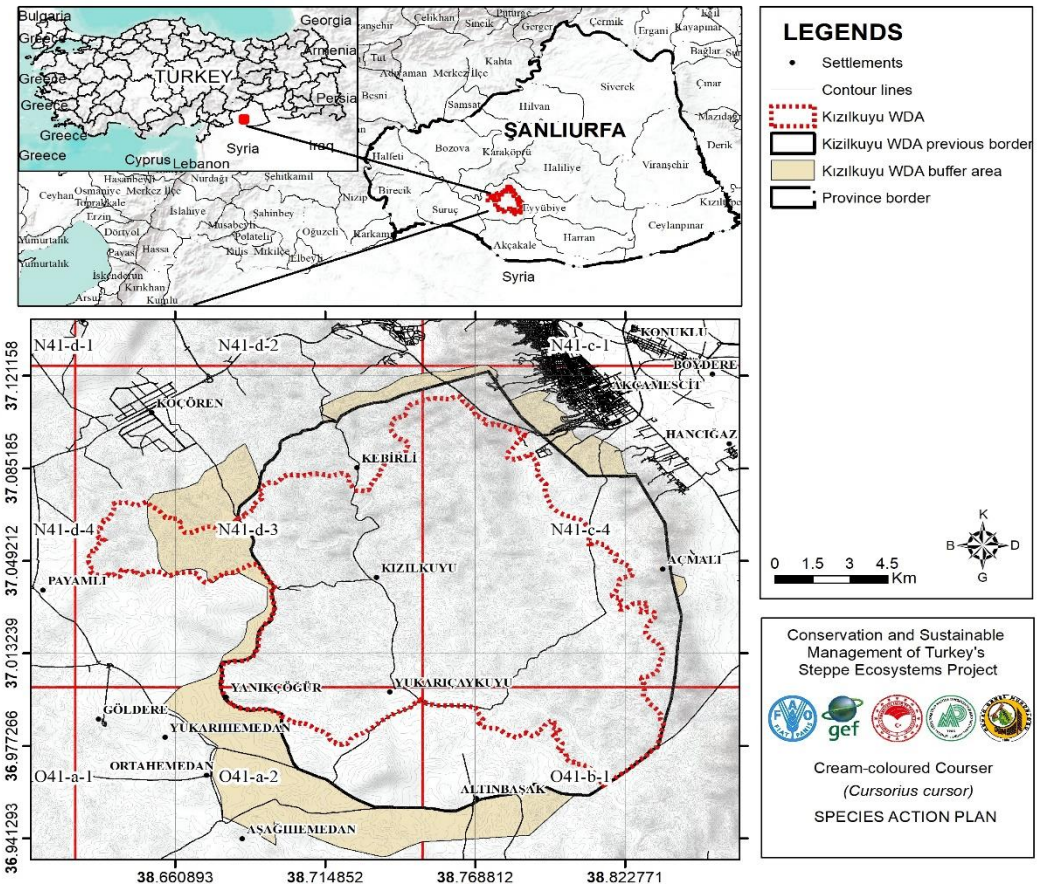

Figure 2. Şanlıurfa Merkez Kizilkuyu Wildlife Development Area borders

Şanlıurfa Merkez Kızılkuyu Wildlife Development Area hosts bird species such as Sociable lapwing (*Vanellus gregarius*), Great bustard (*Otis tarda*), Pin-tailed sandgrouse (*Pterocles alchata*), Cream-coloured cursor (*Cursorius cursor*) and Motau's harrier (*Circus pygargus*), as well as many other bird species such as See-see partridge (Ammoperdix griseogularis), Red-wattled lapwing (*Vanellus indicus*), Black-winged Kite (*Elanus caeruleus*), Pallid harrier (*Circus macrourus*) and Black-bellied sandgrouse (*Pterocles orientalis*).

The buffer areas were determined around Şanlıurfa Merkez Kızılkuyu WDA within the scope of the *project "Survey and Assessment on Biological Diversity, Socio-Economic and Socio-Cultural Aspects, Ongoing Grazing Activities and Livestock Situation*" under the main project of "Conservation and Sustainable Management of Turkey's Steppe Ecosystems". Based on the project, the Şanlıurfa Merkez Kızılkuyu WDA borders were revised and the buffer areas were largely included within the current WDA borders. However, the buffer zone, especially in the southwest, was not included in the new WDA boundary. Land use status and projects and investments for the area have been effective in this boundary change. The Cream-coloured courser (*Cursorius cursor*) Action Plan has been prepared by considering both the current borders and the borders determined in the previous study as a buffer area. It was not only limited to WDA, but also covered all provincial borders.

In the Şanlıurfa Merkez Kızılkuyu WDA, Cream-coloured courser (*Cursorius cursor*) uses especially the vicinity of Yanıkçöğür and Yukarıçaykuyu villages as a breeding ground, and according to the new border, this area is close to the southern border. This area was further inland than the previous border, while the buffer zone provided an additional separate area to the south. Unfortunately, there is no buffer zone to protect the southern border for the Cream-coloured courser (*Cursorius cursor*) since the new border was pulled further north in the last border revision. Pursuant to Article 13 of the WDA regulation, "*Activities and settlements other than those included in the management and development plans in wildlife protection and development areas cannot be allowed, and the ecosystem cannot be deteriorated. Even though outside these areas, facilities that will have a negative impact on these areas cannot be allowed, and the wastes of existing facilities, if any, cannot be left without treatment…",* the WDA area and its surroundings, which are the home range of Cream-coloured courser (*Cursorius cursor),* should be handled and protected as a whole.

3. SPECIES DESCRIPTION

3.1. Background information on the species

Turkey is one of two breeding areas in Europe where the Cream-coloured courser (*Cursorius cursor*) migrates to breed in summer and departs again in autumn. It is estimated that 23% of the European population resides in Turkey (BirdLife International, 2015). Cream-coloured courser (*Cursorius cursor*), which is one of the species most adapted to the steppe and desert habitat, is decreasing in population size and is one of the priority species in the **Annex-1 List** of the European Union Bird Directive.

3.1.1. Taxonomy

Cream-coloured cursor (*Cursorius cursor* Latham, 1787) is a bird species belonging to the Charadriiformes order and Glareolidae family. The Charadriiformes is an order with 19 families and 390 species. The taxonomic hierarchy of the species is shown below.

Kingdom (Regnum): Animals (Animalia)
Phylum (Divisio): Cords (Chordata)
Class (Class): Birds (Aves)
Order (Ordo): Charadriiformes
Family (Familia): Glareolidae
Genus (Genus): *Cursorius*
Species (Species): *Cursorius cursor* (Latham, 1787)
Sub-species (Sub-species): *Cursorius cursor cursor* (Latham, 1787): Canary Islands, North Africa, Arabian Peninsula and Socotra
Cursorius cursor bogolubovi Sarudny, 1885: SE Turkey, Eastern Iran, SW Afghanistan, S Pakistan and NW India.
Cursorius cursor exsul Hartert, M, 1920: Cape Verde Islands

Members of the Glareolidae family are found in the Old World tropics, with the highest diversity in the Afrotropical region. There are 4 genera, 17 species and 35 taxa in this family. Three species have been recorded in Turkey. They live in open areas, near wetlands, deserts and savannas up to 2000 meters above sea level. They are terrestrial shorebirds similar to plovers or terns, with very long and pointed wings, and short and long legs. They have short, pointed and curved beaks. Cream-coloured coursers (*Cursorius cursor*) are fast-running, short-clawed, square-tailed terrestrial species. Pratincoles are long, pointed winged, short-legged, forked-tailed, long-fingered species that hunt in the air. Members of this family occur in flocks. Both sexes have same appearance. They may attack predators in groups to defend their nests. Adult recorded mock-brooding to distract predator from presence chick. They nest in the bare ground or in a shallow hole in the ground. Incubation size is 1-4 eggs. Both sexes participate in incubation and brood care. It has been observed that in some cases, they cover the egg with sand or bushes to prevent the egg from being damaged by heat (Winkler et al., 2020). It is thought that the subspecies *Cursorius cursor bogolubovi* (Sarudny, 1885), or perhaps the nominate subspecies *Cursorius cursor cursor* (Latham, 1787) is present in Turkey. However, since there is no sample from Turkey, no clear information exists on this issue (Roselaar, 1995; Dickinson, 2003; Kirwan et al., 2008).

3.1.2. Morphology

It is a shorebird species with a size of 19 – 24 cm, a wingspan of 51 – 57 cm, and a weight of 102 – 156 g (MacLean and Kirwan, 2020). Cream-coloured courser (*Cursorius cursor*), well adapted to the desert environment, slender, predominantly sand-coloured, long-legged, with a slender and downward curved beak, sand-coloured crown on the forehead, bluish-grey neck. It is a summer migratory bird species distributed in the Southeastern Anatolia Region of Turkey. The beak is thin and curved downwards. In flight, the black feathers contrast with the sand-coloured upperparts. The white trailing edge is prominent. The underwing is black and contrasts with the body. In immature, the head does not show grayish-white-black patterning as in the adult. There are dark brown streaks on the upper part, head and chest (Furtun et al., 2021) **(Figure 3, Figure 4).** The juvenile is sand-colored, dark brown with finely mottled. The head is darker. The chin is whitish.

Figure 3. General appearance of Cream-coloured courser (*Cursorius cursor*)
(© Kiraz ERCİYAS YAVUZ)

Figure 4. Wing details and Cream-coloured courser (*Cursorius cursor*)
(© Kiraz ERCİYAS YAVUZ)

3.1.3. The Habitat

It is found in arid, open, generally fairly flat plains and plains with hot desert and semi-desert features, sandy, stony and gravelly, sparse and short vegetation. Although it is usually found at altitudes of 800 meters and below, hence it has also been recorded in Yemen at an altitude of 2400 meters (Jennings, 2010) (**Figure** 5**, Figure 6).**

Figure 5. Cream-coloured courser (*Cursorius cursor*) and its habitat (Yeni Akpınar – 23.05.2021)

(© Kiraz ERCİYAS YAVUZ)

Figure 6. Cream-coloured courser (*Cursorius cursor*) and its breeding habitat (Yeni Akpınar – 23.05.2021)
(© Kiraz ERCİYAS YAVUZ)

3.1.4. Breeding

The breeding season in North Africa is late February – June. However, it is rarely known to breed in autumn. It breeds in Mauritania, Israel and Iran in February-April, in Turkmenistan in May-July, in Pakistan in April, in Jordan in April-May, in the Canary Islands in February-May, in the Cape Verde Islands between September-May, in Senegal in December-May and in Socotra in September-July. Small broods were observed in NW India in February and July, and two possible broods are mentioned (Snow and Perrins, 1998). The nearly flat nest is on bare ground. Sometimes nests can be found very close to each other. It usually lays two eggs, rarely three. Eggs are Cream-coloured or buff-colored with intense brown spots (**,Figure 8).** Egg size is 34.7 mm x 27.1 mm on average (Harrison and Castell, 2002). The incubation period is 18-19 days and both sexes participate in incubation. The incubation period is 26-30 days. Reaches reproductive maturity at 1 year. In order to keep the enemies away from the nest and offspring, the adult runs away and tries to distract him by bending his legs and poking his tail.

Breeding takes place between May and July in Turkey. Since the number of observations for August is limited, it is not known whether there will be breeding in August and after.

Figure 7. Cream-coloured courser (*Cursorius cursor*) in incubation

(© Kiraz ERCİYAS YAVUZ)

Figure 8. General view of the nest and eggs of Cream-coloured courser *(Cursorius cursor*)
(Yeni Akpınar – 26.05.2021)
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3.1.5. Diet

Cream-coloured courser (*Cursorius cursor*) feeds on invertebrates such as insects, grasshoppers, termites, maggots, spiders, mollusks, sometimes seeds, and small lizards and snails. It usually runs on the ground, stopping to pick up its prey and continuing to run. It catches sometimes locusts in flight. It can search for food by digging the soil with its beak. In some areas, it catches insects that are attracted to animal manure close to villages. Sometimes it feeds on the roads near the desert by collecting road-killed insects.

3.1.6. Migration movements

The nominate subspecies generally undertake long-distance migrations, with most northern populations crossing the Sahara to overwinter Sudan and northern Kenya. Migration to the north of the Sahara is generally in March-April. It has been reported that a flock of about 1000 individuals, over front of several kilometers, was observed during the migration in March in Tunisia. It winters in the west of the Negev Desert and in Israel in December and January.

Breeding birds arrive in Jordan in early March and depart in late June. It reaches Lebanon in March (Prior and Conroy, 2009). The subspecies *C.c.bogolubovi* usually overwinters in Pakistan and NW India. It is a summer migrant in Turkey and Iran. It can be seen in groups of 45 in Egypt and in groups of 160 in Kuwait in August-September. It is usually seen incidentally in some European countries in autumn. 10 individuals were observed in the Netherlands in September 1969 (Maclean and Kirwan, 2020)

It is generally a partial migratory species in the Middle East. It was noted that they gathered in small groups for migration in September. It was recorded on April 3 at the earliest. Except for the April-August period, records are extremely limited.

3.1.7. Moulting

There is no information in the literature regarding moulting of the Cream-coloured courser (*Cursorius cursor*).

3.1.8. Behavior

Cream-coloured courser (*Cursorius cursor*) is a species that adapts well to its environment; it is hard to spot when on the ground. It shows high camouflage feature. When searching for food, it runs quickly, stops and picks food from the ground. It has also been reported that they can catch flies in flight (Del et al., 1996). During display, it exhibits circular flights and glides. In order to protect the chick or egg, it runs away from the nest to draw attention to itself and exhibits tail-cracking and knee-bending behaviors. When someone approache to Cream-coloured courser (*Cursorius cursor*) it usually runs away and rarely flies. Strong but infrequent wing beats. It forms groups in pairs and threes during the breeding period, and in groups outside the breeding period and during migration.

3.1.9. Local Names

Different names are used in various regions of Şanlıurfa province. The local names given to the species in the province are “Kerhayık” and “Tirli”.

3.1.10. Conservation states and threat category

According to the IUCN (International Union for Conservation of Nature) Red List category, the species is listed in the “LC-Least Concern” category, and according to the IUCN European Red List category, the species is listed in the “NT-Near Threatened” category (BirdLife International, 2015). It is listed in the "DD-Data Deficient" category according to the National Red List category (Kılıç and Eken, 2004).

There is no specific conservation study for the species in Turkey, and the species is listed among the species whose hunting is prohibited according to the Decision of the Central Hunting Commission.

3.2. The status of Cream-coloured courser (Cursorius cursor) in the World and Turkey

3.2.1. The status in the World

It is distributed in a region that includes India, Pakistan, Afghanistan, Iran, Turkmenistan, Yemen, Oman, UAE, Saudi Arabia, Jordan, Israel, Lebanon, Iraq, Syria, Turkey, North Africa, Sahara, Canary Islands and Cape Verde Islands **(Figure 9).** World population information is not available due to a recent taxonomic division. The European population consists of Turkey and

Cape Verde Islands, and the breeding population size here is estimated to be around 450 – 2,800 mature individuals.

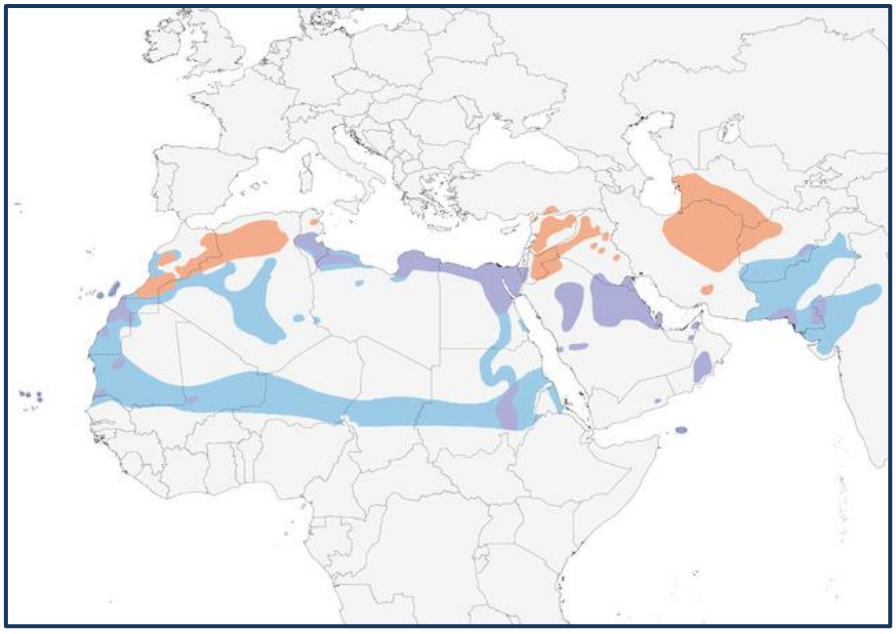

Figure 9. The spatial distribution of Cream-coloured courser (*Cursorius cursor*) in the world

3.2.2. The status in Turkey

The species is located in the Southeastern Anatolia Region, especially in Şanlıurfa in Turkey **(Figure 10).** While there were breeding records only in Şanlıurfa and Gaziantep until the last two years, in 2020, some observations were recorded in Şırnak during the breeding season. It is possible to see the species in Turkey between May and October. Apart from the breeding area, it is possible to see the species individually on the Mediterranean coast in spring. These are birds that have just arrived from migration and use that area for short-term stay.

According to an evaluation by Kılıç and Eken (2004), the Cream-coloured courser (*Cursorius cursor*) population in Turkey was estimated to be 20 pairs. While there was very little information and observation about the species until the 2000s, with the increase in the number of observations after 2000, the population size of the Cream-coloured courser (*Cursorius cursor*) in Turkey has recently been estimated to be 250 – 500 individuals (BirdLife International, 2015). However, this estimation is not based on the results of a systematic study and was based on an estimation based on the evaluation of bird watchers' records. The most recent evaluation of the Cream-coloured courser (*Cursorius cursor* population was made in 2013. With the submission of the results obtained within the scope of "Conservation and Sustainable Management of Turkey's Steppe Ecosystems" Project to BirdLife International, the new population estimate will be published on a global scale, and a new European and Turkish population assessment will be made. The preparation of the species action plan and the revision

of the population status and distribution area of the species are extremely important steps for the protection of the species.

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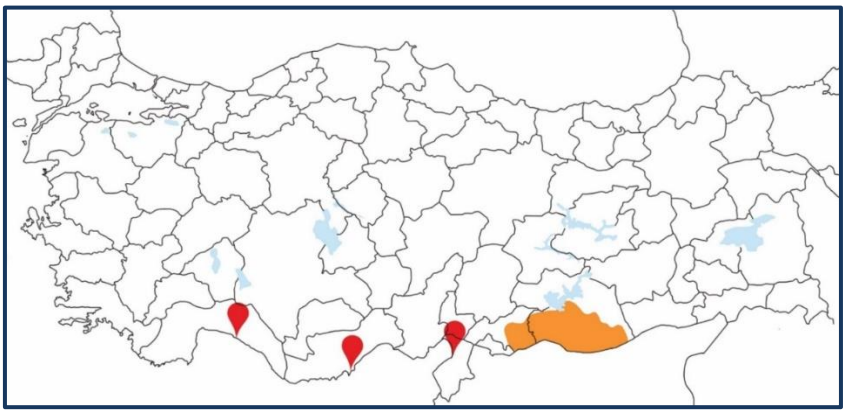

Figure 10. The spatial distribution of Cream-coloured courser (*Cursorius cursor*) in Turkey

3.2.3. Status in the Region Covered by the Action Plan

The area where Cream-coloured courser (*Cursorius cursor*) has the highest distribution and highest number is Şanlıurfa. It mainly lives in the south of Şanlıurfa. No systematic studies have been conducted so far, and estimates of former distribution and population size are based on bird watchers' records. However, the current state has been evaluated according to the field studies carried out within the scope of this project.

Cream-coloured courser (*Cursorius cursor*) arrives in the area covered by the action plan at the beginning of May. It increases its intensity after the first week of June. Breeding behavior of the species can be observed in May, June, July and August. Behaviors directly related to the breeding behaviors of the species such as mate formation, egg laying, incubation and offspring can be observed in May, June and July. Juveniles and young are observed in July, August and September. Cream-coloured courser (*Cursorius cursor*), which come together in groups of 15-20 in mid-October, leave Turkey as of the end of October and migrates to their wintering areas in the Middle East and Africa. Cream-coloured courser (*Cursorius cursor*), who spend the winter in a milder place compared to our country, comes in spring, the breeding season again to Turkey to breed **(Figure 11**).

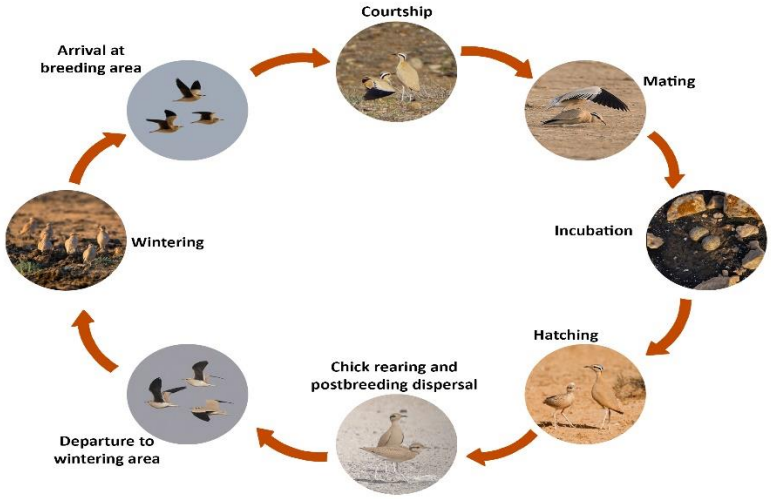

Figure 11. Annual migration and reproduction cycle of celanders

Within the scope of this project, during the field studies carried out throughout Şanlıurfa in May, June, July, August and September, suitable breeding areas for the species and areas with records from previous years were visited to evaluate the breeding status and estimate its population. Estimated values were calculated by considering the number and observation records of the species in that area. Observed areas are given in **Figure 12** and information on the numbers and locations where they were observed are given in **Table 1.**

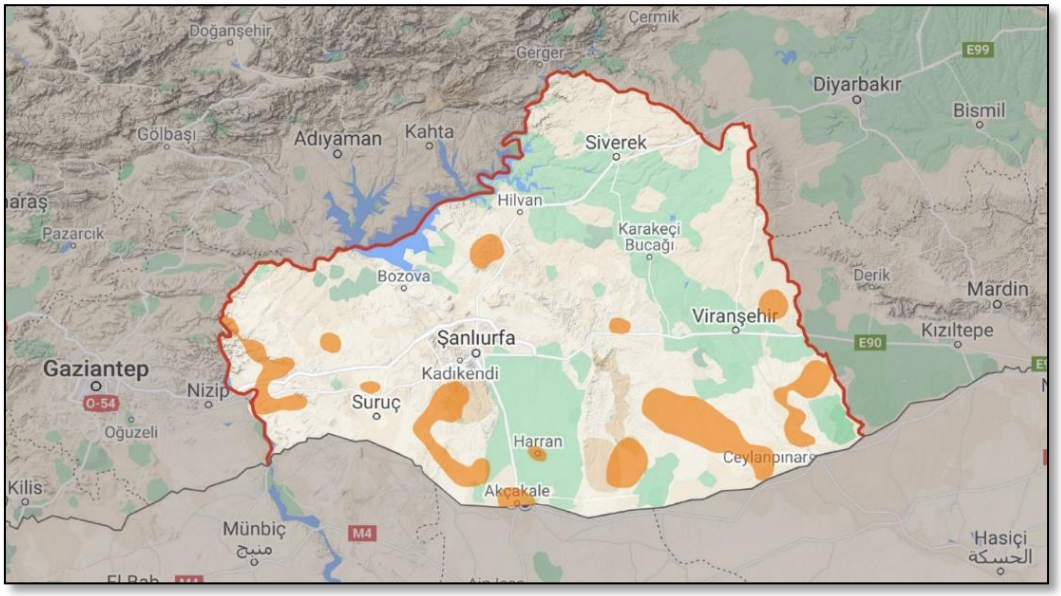

Figure 12. The breeding areas of Cream-coloured courser (*Cursorius cursor*) in Şanlıurfa

Table 1. Number of breeding pairs of Cream-coloured courser (*Cursorius cursor*) in Şanlıurfa districts

District	Number of breeding pairs
Halfeti	3-4 pairs
Birecik	6-8 pairs
Suruç	6-8 pairs
Akçakale	8-10 pairs
Harran	2 pairs

District	Number of breeding pairs
Ceylanpınar	25-30 pairs
Eyyübiye	10-12 pairs
Haliliye	2 pairs
Karaköprü	1 pair
Viranşehir	2-4 pairs
Bozova	0-2 pairs
Siverek	0
Hilvan	2-3 pairs
GRAND TOTAL	67 – 86 pairs

Accordingly, the most crowded population is in Ceylanpınar district. According to the records obtained, it was estimated that 67-86 pairs were breeding in Şanlıurfa, with 25-30 pairs in Ceylanpınar district and 10-12 pairs in Eyyübiye district, and the number was rounded off as 70-90 pairs.

Considering that almost 80% of the population of Cream-coloured courser (*Cursorius cursor*) breeding is in Şanlıurfa, a lower population size is seen in the current situation compared to previous population estimates. The distribution area is generally fragmented. It is distributed in Şanlıurfa, especially in Ceylanpınar, Birecik, Eyyübiye and Halfeti. The species is most intense in Ceylanpınar GDAE and Kızılkuyu WDA, which are among the most sheltered areas. Cream-coloured courser (*Cursorius cursor*) shows a rather fragmented distribution due to the conversion of suitable habitats to agricultural areas (Figure **12**). Ceylanpınar GDAE area is thought to be preferred by Cream-coloured courser (*Cursorius cursor*), because of its very good protection, low human activity, wide range of suitable breeding habitats and rich food sources.

Scarborough (2018), in his study on habitat preferences of the Cream-coloured courser (*Cursorius cursor*) at the Spanish island of Lanzarote in the Atlantic, looked at which of the abiotic factors such as sand, soil, rock in the habitat is effective in the preference of the area and noted that the species is not found in dense rocky areas. In the studies we carried out in Şanlıurfa, although there are suitable steppe areas in many areas such as Tek Tek Mountains National Park and Haliliye district, it is thought that having no records of the species there both in the past and today may be due to the fact that those areas are densely covered with large rocks. Palomino et al. (2008) stated in their study that Cream-coloured courser (*Cursorius cursor*) does not prefer the area if the slope in the area where it is located is more than 11% and if the surface area is covered with rocks more than 23%. Since running in high slope areas will require more energy, the species avoids those areas (Abourachid and Renous, 2000). Traba et al. (2013) stated that the ground cover is bare and areas with high pebbles are more preferred. In other words, the species prefers both less steep areas and the areas that are less in terms of rocks and dense in terms of gravel. The areas where the species is seen in Şanlıurfa have always been flat areas with a low slope. It has been observed that they generally prefer semi-bare lands with small stones and pebbles, various herbaceous plants.

Scarborough (2018), in his study on vegetation, in order to understand the effect of biotic factors on habitat preference, stated that they prefer places with various plants as a priority and that they do not use the areas where some plants are found, and stated that biotic factors are more important in habitat preference. It has also been observed that Cream-coloured courser (*Cursorius cursor*) does not prefer areas with high vegetation. It has been stated that it is not preferred because it is difficult to find food in areas with high vegetation and because of the high risk of predation, as it is difficult to look around during resting. In the field studies carried out in Şanlıurfa, it was not examined whether there was a preference in terms of vegetation diversity. However, it has been observed that there are areas where the species was observed in previous years, but is no longer used due to the growing grass length. Bird watchers in the region stated that the grass height has increased since the area is no longer grazed, and perhaps that is why the species is no longer found. This observation is in line with the results of the study carried out by Scarborough (2018), and in order for those areas to be suitable habitats that can be reused by the species, the grazing in the area should be managed and the grazing management plan of those regions should be planned considering these situations.

4. RELEVANT NATIONAL LEGISLATION AND INTERNATIONAL CONVENTIONS

Cream-coloured courser (*Cursorius cursor*) is included within the list of wild animals under the scope of Annex-3 of the "Protected Wild Animal Species" published by the Ministry of Forestry and Water Affairs (abolished) based on Article 4 of the Terrestrial Hunting Law No. 4915 dated 1/7/2003 in Turkey.

The areas where the species is found in Cape Verde Islands in Spain were declared as Natural Parks in 1987. In 1986, due to the membership of the European Union, MacQueen's bustard (*Chlamydotis macqueenii*) areas that share the same habitat with the Cream-coloured courser (*Cursorius cursor*) were classified as Special Protected Areas (Gonzalez, 1999).

The species is listed in Annex-I according to Directive 2009/147/EC dated 30 November 2009 on the Protection of Wild Birds (Bird Directive for short). According to Annex-1, these species and subspecies are endangered and member states should declare Special Protection Areas for the protection of these species.

It is included in Appendix-2 according to the Bern Convention and is listed among the "fauna species that are under absolute protection".

5. THREATS AND LIMITING FACTORS

Threats and limiting factors that suppress the population of the species and adversely affect its population and distribution have been observed in areas where Cream-coloured courser (*Cursorius cursor*) is recorded and breeds. According to the information obtained from field

studies and stakeholder interviews, threats causing "habitat destruction and change" under the categories of "residential and commercial development" and "agriculture and aquaculture" have been determined as the most primary threats that can affect a large part of the population very quickly in the past, future and present.

According to an assessment by the IUCN, the threats that are effective in endangering bird species are listed as development, agriculture, energy and civilization, transportation, biological resource use, human-induced disturbances, modification of natural systems, invasive alien species, pollution, geological events and climate change (EEA, 2020). Many of these threat categories are also associated with habitat destruction and fragmentation. The Cream-coloured courser (*Cursorius cursor*) is a habitat specific species. It prefers areas with certain features. For this reason, they cannot use the habitats that do not have the features they prefer, and their numbers are rapidly decreasing due to the inability to find a breeding ground. Although there was no systematic study in the past years, people who brought local and foreign bird watchers to the region and provided guidance were contacted and information about the breeding areas in the previous years was tried to be obtained. However, the answer is frequently encountered as "*The habitat has changed a lot due to pistachio orchards and irrigated agriculture, we do not see the species in many places where it used to be*". Therefore, it is no longer observed in many areas where it used to be. As long as habitat loss continues, its number will decrease and the areas it uses will become more and more limited. Therefore, the impact level of all threats associated with habitat destruction is defined as high.

Indirect threats to the species have been defined as the lack of sufficient scientific studies and the lack of awareness and recognition of the species in the region. Various activities will be discussed in the species action plan to reduce indirect threats.

Direct threats are human activities or processes that have affected the status of the taxon under consideration. In the light of the results obtained so far, the direct threats in the area was classified according to the "IUCN-CMP Unified Classification of Direct Threats" (IUCN, 2012a). Accordingly, 13 direct threats that may affect the species have been classified according to the IUCN Threat Classification Scheme.

It has been observed that suitable steppe areas where the species is found, especially in Şanlıurfa Merkez Kızılkuyu Wildlife Development Area, are rapidly converted into agricultural areas. Similarly, the stones in the agricultural areas are crushed with stone crushers and collected, and trees are planted for pistachio (**Figure 13**, **Figure 15**), and the fields are intensively converted into olive fields due to the support of the state for olive trees in addition to pistachio agriculture.

In addition, due to the transition to irrigated agriculture, it was observed that corn was planted in most places and the habitat characteristics of the species have changed. Scarborough (2018) stated in his study that Cream-coloured courser (*Cursorius cursor*) does not prefer places with high vegetation around the species. Depending on the change in agricultural product pattern, silage corn cultivation has increased intensively with irrigated agriculture. Since the corn plant is a tall plant, the species is no longer observed in and around the places where corn is planted,

as the species will lose its dominance around it. The change of farming pattern has caused the species to change its habitat.

All these identified threats are given in **Table 2**, taking into account the threat categories determined by the International Union for Conservation of Nature (IUCN), and some images of the threats are given in **Figure 13**, **Figure 14** and **Figure 15**.

Table 2. Classification of threats against Cream-coloured courser (*Cursorius cursor*)

IUCN Threat Category			Description
1. Residential and Commercial Development	1.1. Housing and Urban Areas	1.1.1. Building housing	Due to the expansion of Şanlıurfa province, the construction of large residences such as TOKİ, which reaches the Kızılkuyu WDA border
	1.2. Commercial and Industrial Areas	1.2.1. OIZ development	The rapid development and expansion of the OIZ located in the north of Kızılkuyu WDA
		1.2.2. Power plants	Habitat loss due to GES to the habitat of the species in various parts of Birecik, Haliliye and Suruç districts at the Kızılkuyu WDA border
2. Agriculture and Aquaculture	2.1 Annual and Perennial Non-timber crops	2.1.2 Small Farmer Farming	Field and garden opening activities for grain and vegetable farming, peanut and olive tree planting. Species leaving the field due to change in product pattern
	2.3 Livestock and Farming	2.3.1 Nomadic Grazing	The species did not use the area due to the absence of grazing during the breeding season in various parts of Halfeti, Birecik, Eyyübiye districts.
		2.3.2 Smallholder Grazing, Farming or Farming	The species did not use the area due to the absence of grazing during the breeding season in various parts of Halfeti, Birecik, Eyyübiye districts.
3. Energy Production and Mining	3.2 Minings and Quarrying	3.2.1 Opening and operation of mines and quarries	The mines and quarries around Kızılkuyu WDA and Tek Tek Mountains National Park, and the mines between Suruç and Birecik restrict the habitat of the species and cause discomfort to the species.
5. Biological Resource Use	5.1 Terrestrial Animal Collecting and Hunting	5.1.2. Unintentional effects (species evaluated are not targets)	Effect of chemicals used for pest control on species and reproductive success
			The activities of hunting dogs or shepherd dogs disturb the bird in the breeding area, damage the nest or egg, predation
6. Human Intrusions and Disturbance	6.1. Recreational Activities	6.1.1. Bird watching activities	Nest abandonment as a result of domestic and foreign bird watchers coming to Şanlıurfa to see the species disturbed the species during the breeding period.
9. Pollution	9.2 Industrial and Military Wastewater	9.2.1. Waterborne pollutants	Due to the fact that the stream in Kızılkuyu WDA passes through the OIZ and the pollution load from the OIZ is very high, many wild animals use this water source and it is used for irrigation.
	9.3 Agriculture and Forestry effluents	9.3.3 Herbicides and Pesticides	The negative impact of pesticide use on the species and reproductive success in the area and surrounding agricultural areas.

IUCN Threat Category			Description
11. Climate Change and Severe Weather Conditions	11.1 Habitat shifting and alteration	11.1.1 Habitat change due to change in precipitation regime	Change of habitat characteristics due to irregularity in precipitation
	11.3 Temperature Extremes	11.3.1. Sudden waves of heat and cold	Drought due to low rainfall

Figure 13. Areas where stones were collected and converted into pistachio fields (© Kiraz ERCİYAS YAVUZ)

Figure 14. Areas prepared for planting trees (© Kiraz ERCİYAS YAVUZ)

On the other hand, although there are quite suitable habitats for the species, it is thought that the grasses in the region are taller than the Cream-coloured courser (*Cursorius cursor*) would prefer, and therefore they do not prefer those areas due to the elongation of the grasses (**Figure 15**). According to the personal communication with the bird watchers in the region, animal husbandry activities have decreased in many areas, and as a result, certain areas have become ungrazed. The decrease in grazing has caused the grass length to increase and as a result, the species did not prefer the area.

Figure 15. Steppe areas with tall grasses and areas converted into agricultural field (Fields with Cream-coloured courser (*Cursorius cursor*) in the past)

(© Kiraz ERCİYAS YAVUZ)

The impact score was calculated by taking into account the extent and level of the threats and how they affect the target species. Accordingly, the "IUCN Threat Impact Scoring System" (IUCN, 2012b) was used.

Coverage is defined as the proportion of the population that can be expected to be affected by the threat within 10 years if the current situation and trends continue.

Threat level is the level of damage to the species by the continuation of existing conditions and trends (including potential new threats). Threat level is evaluated within the framework of 10 years or 3 generations, whichever is longer.

Time was not used in the calculation of threat impact. Only threats that are ongoing or expected to occur in the short term (10 years or more) are considered in the calculation of threat impact. Threats that were thought to have been ongoing for at least 10 years were stated as "past and ongoing".

The impact level indicates the degree of threat of Cream-coloured courser distributed in Şanlıurfa province. The analysis of each threat according to coverage, threat level and time is given in **Table 3.**

Table 3. Impact scoring of direct threats to Cream-coloured courser (*Cursorius cursor*)

IUCN Threat Category			Coverage[1]	Threat level[2]	Impact score[3]		Time
					Today	Future	
1. Residential and Commercial Development	1.1. Housing and Urban Areas	1.1.1. building housing	2	3	8	9	In the past and ongoing
	1.2. Commercial and Industrial Areas	1.2.1. OSB development	1	3	8	9	In the past and ongoing
		1.2.2. power plants	1	2	6	6	In the past and ongoing
2. Agriculture and Aquaculture	2.1 Annual and Perennial Non-timber crops	2.1.2 Small Farmer Farming	3	3	9	9	In the past and ongoing
	2.3 Livestock and Farming	2.3.1 Nomadic Grazing	1	1	6	6	In the past and ongoing
		2.3.2 Smallholder Grazing, Farming or Farming	1	1	6	6	In the past and ongoing
3. Energy production and Mining	3.2 Mining and Quarrying	3.2.1 Opening and operation of mines and quarries	2	2	6	6	In the past and ongoing
5. Biological Resource Use	5.1 Terrestrial Animal Collecting and Hunting	5.1.2. Unintentional effects (species evaluated are not targets)	0	1	3	4	In the past and ongoing
			0	1	3	3	In the past and ongoing
6. Human Interventions and Disturbance	6.1. Recreational Activities	6.1.1. Bird watching activities	1	1	5	5	In the past and ongoing
9. Pollution	9.2 Industrial and Military Wastewater	9.2.1. Waterborne pollutants	1	1	5	5	In the past and ongoing
	9.3 Agriculture and Forestry effluents	9.3.3 Herbicides and Pesticides	1	1	5	6	In the past and ongoing
11. Climate Change and Severe Weather Conditions	11.1 Habitat shifting and alteration	11.1.1 Habitat change due to change in precipitation regime	1	1	1	6	In the future
	11.3 Temperature Extremes	11.3.1. Sudden waves of heat and cold	1	1	1	6	In the future
	[1]Coverage score: Affects the entire population (>90%) (3) Affects the majority of the population (50-90%) (2) Affects a small portion of the population (<50%) (1) Unknown (0) [2]Threat level score: Very fast (3) Fast (2) Slow (1) Fluctuating (1) Negligible (0) [3]Impact score: High (8-9) Medium (6-7) Low (3-5) Negligible (0-2)						

Annex 1. FIELD STUDIES

Field studies were carried out for Cream-coloured curser (*Cursorius cursor*) in different districts of Şanlıurfa in May, June, July, August and September, 2021. The species was determined by visiting the suitable habitats and the areas where the species was recorded before. In addition to the project team, additional information was obtained by contacting the people who made observations in the region and entered their data to eBird and Trakus. These data were also used in the assessment.

In the field study, the landscape was scanned with the help of binoculars and telescope, the sound was played in some areas and the observation was recorded as the species was seen. In addition, picture and video recordings were taken in order to create visual material. When the species was observed, it was followed for a while to determine whether it had a nest or chick. Each location where the species was seen, the number of individuals in that area, the number of chicks and eggs, if any, were recorded (**Table 4**).

A group of up to 12 individuals was recorded at one time. Apart from that, during the breeding season, the non-incubating individual was observed first, followed by the other nesting pair, running away from the nesting place. In the post-breeding period, couples and their offspring were observed. Generally, 1 pair and 2 offspring were observed. In some, groups of 5-6 individuals were observed, where two families came together and formed a group, including offspring.

Table 4. Coordinate details of the Cream-coloured cursor (*Cursorius cursor*) observed locations during the project

Observation Date	Coordinates (X-Y)		Individuals
	X	Y	
22.05.2021	37,1275	38,074444	7
23.05.2021	37,143398	38,068547	1
26.05.2021	37,145052	38,12648	1
26.05.2021	37,137325	38,090485	2
29.05.2021	37,026839	37,978234	2
29.05.2021	37,048205	38,72653	4
30.05.2021	36,822668	38,707334	2
30.05.2021	36, 935034	38,596424	2
9.06.2021	37,1275	38,074444	7
9.06.2021	36,781366	38,75329	1
9.06.2021	37,240598	39,330031	6
19.06.2021	36,990561	38,713407	2
20.06.2021	36,934917	39,968875	2
20.06.2021	36,931414	39,968707	2
20.06.2021	37,384929	38,516667	1
21.06.2021	36,987588	38,709209	2
23.06.2021	36,831628	38,81777	2

Observation Date	Coordinates (X-Y)		Individuals
	X	Y	
23.06.2021	36,795002	38,815189	2
23.06.2021	36,86088	38,663178	3
28.06.2021	37,12751	38,074444	1
6.07.2021	37,035047	38,737885	2
7.07.2021	37,1275	38,074444	6
9.07.2021	37,137406	38,090306	4
14.07.2021	36,813237	38,7302	2
26.07.2021	36,781348	39,235828	5
26.07.2021	36,775581	39,269025	3
26.07.2021	36,775581	39,269025	10
27.07.2021	37,148384	39,470727	4
27.07.2021	37,106908	39,93949	10
28.07.2021	36,887114	38,572416	1
28.07.2021	36,877172	38,57025	5
28.07.2021	36,885986	38,569673	10
1.08.2021	36,818782	38,706438	2
14.08.2021	37,366432	39,8586	2
15.08.2021	36,868999	39,729841	8
15.08.2021	36,859473	39,867664	8
15.08.2021	36,97776	39,991307	3
15.08.2021	36,90633	39,578158	3
15.08.2021	36,859892	38,686792	5
15.08.2021	36,894494	39,691012	3
15.08.2021	36,967078	39,695271	2
16.08.2021	37,015072	38,66263	2
16.08.2021	36,8102	39,86575	1
16.08.2021	36,8102	39,86575	1
21.08.2021	36,8102	39,86575	12
24.08.2021	36,97776	39,991307	3
18.09.2021	36,935597	39,81873	3
19.09.2021	36,863167	39,77568	3

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