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Bird Census News reports developments in census and atlas work in Europe, from the local to the continental scale, and provides a forum for discussion on methodological issues.

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EDITORIAL

Monitoring and use of bird data

There are many different ways to monitor birds. Breeding bird surveys and International mid-winter Waterbird Counts are probably the most commonly used examples. This issue of the Bird Census News introduces a less-known method: roost counts. The first article is an example from the Netherlands, where the method has produced important information on both breeding and non-breeding bird populations. The monitoring data is collected, so that it can be used in various ways. The second paper is about Corn Crake surveys in Armenia and how the data has been used to evaluate the conservation status of the species. The third paper summaries the latest report on the state of the birds in the United Kingdom, which is largely based on monitoring data. The last three articles of the issue continues two new series. We have two interviews with observers of the EBCC board, Sergi Herrando and Alena Klvaňová, and the final article discusses the online tool of the Dutch territory mapping scheme. Enjoy!

Aleksi Lehikoinen

Editor Bird Census News

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Communal roost counts in the Netherlands: a summary of 10 years of monitoring

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Abstract. Communal roost counts are a useful tool for national and site-based monitoring of bird populations during the non-breeding period, particularly in situations when birds disperse widely during the day to forage and are hard to count at that time. Within the Dutch application of the European Bird Directive, specific numeric goals are set for 19 species in the Netherlands to safeguard their communal roosts in protected areas and populations in surrounding areas that depend on these roosts. Since the start of our national Communal Roost Census in 2009, we have greatly increased our knowledge of locations of roosts and the numbers they hold, particularly (but not only) in Bird Directive sites. Based on our experience from 10 years of monitoring, we discuss advantages and drawbacks of roost counts and share examples from Great Egret and Caspian Tern counts.

Introduction

Approximately 135 bird species make use of communal roosting sites in the Netherlands, including species that only roost socially at high tide (van den Bremer *et al.* 2008). There have been a great number of 'grey' publications dealing with this aspect of avian life history, mostly focusing on single species counts within a well-defined region during one or multiple seasons, often combined with a description of ecological aspects of communal roosting (e.g. Kleefstra 2010, Wymenga *et al.* 2013, Altenburg & van Horssen 2018). Here, we give a synopsis of the systematic, annual counts of communal roosts that have taken place since the winter season of 2009/10, as part of the Dutch Communal Roost Census.

In the Netherlands, Natura 2000 sites have been assigned under the EU Bird Directive for breeding, migrating/wintering and roosting birds. This means that any potential disturbance (e.g. changes in water level management, recreation, new infrastructure for transport or energy) for roosting birds in these areas needs prior research into possible consequences. For this purpose, numeric goals have been formulated for most species-area combinations, based on known numbers from available water bird and roost counts during the period 2008–2012 (van Kleunen *et al*. 2017). These are used as a reference, and compared with the results from counts that are carried out as part of the Dutch Communal Roost Census. Currently, 53 Natura 2000 sites have been assigned a communal roost function for 19 species (Table 1). Mostly, these concern large wetlands and species that are important in an international context. As a secondary goal of the census, roosts for other species and outside Natura 2000 sites are also gathered. These may after all affect the communal roost function of Natura 2000 sites or they may be used as a guideline for future designation of complementary sites.

Apart from this site-specific monitoring, for some species also the national trend of the non-breeding population is assessed using communal roost counts, instead of using counts of foraging birds made during the day, such as under the Dutch Wetland Bird Census (Hornman *et al.* 2019). With roost counts, a larger proportion of the population can be counted with a much more limited time investment. This concerns species that are restricted to a specific habitat, that are relatively scarce and show a strong, seasonal peak in occurrence or roost in large numbers in a limited number of locations: Caspian Tern *Hydroprogne caspia*, Gull-billed Tern *Gelochelidon nilotica*, Black Tern *Chlidonias niger*, Common Crane *Grus grus,* Ruff *Philomachus pugnax* and Black-tailed Godwit *Limosa limosa*. For the latter two species, a combination of non-overlapping wetland and roost counts is used to calculate a national trend (van Els *et al.* 2020). Roost counts are also suitable for more common species that forage in widely scattered locations in farmland (outside large

Table 1. Target species of the Dutch National Communal Roost Census and number of Bird Directive areas designated as roost sites for these species.

Species	Areas (n)
Eurasian Cormorant *Phalacrocorax carbo*	13
Great Egret *Ardea alba*	4
Bewick's Swan *Cygnus columbianus*	19
Whooper Swan *Cygnus cygnus*	4
Taiga Bean Goose *Anser fabalis*	3
Tundra Bean Goose *Anser serrirostris*	12
Pink-footed Goose *Anser brachyrhynchus*	4
Greater White-fronted Goose *Anser albifrons*	28
Lesser White-fronted Goose *Anser erythropus*	3
Graylag Goose *Anser anser*	27
Barnacle Goose *Branta leucopsis*	24
Brent Goose *Branta bernicla*	6
Eurasian Crane *Grus grus*	3
Eurasian Oystercatcher *Haematopus ostralegus*	1
Ruff *Philomachus pugnax*	5
Black-tailed Godwit *Limosa limosa*	19
Eurasian Curlew *Numenius arquata*	6
Caspian Tern *Hydroprogne caspia*	3
Black Tern *Chlidonias niger*	3

wetlands) during the daytime and are therefore difficult to assess completely using traditional water bird counts, such as Great Egret *Ardea alba*, and Great Cormorant *Phalacrocorax carbo*.

Methods

To be able to count total numbers of roosting birds accurately, it is desirable to perform counts simultaneously at a regional or national level. For the Dutch Communal Roost Census (Fig. 1), two or three counts are organized within species-specific time windows per year since 2009 (and, for some species, outside of the framework of the Roost Census before that time). Time windows coincide with the peak occurrence of each particular species, and consist of a period of two weeks around a single preference date, to offer some flexibility to observers, and offer the possibility to combine the roost count with the mid-monthly wetland count. Two to three one-hour counts per year per site form a compromise between capturing some of the (large) fluctuations in numbers through time and attracting a sufficient number of volunteer observers. Of course, more counts per roost during the year are encouraged. During a time window, multiple species may be counted, that simultaneously have a peak in their occurrence (e.g. Eurasian Oystercatcher *Haematopus ostralegus*, Ruff *Calidris pugnax* and Black-tailed Godwit; Eurasian Cormorant and Great Egret). Roosts of several species (e.g. Great Egret, geese, terns) persist for many years, so that search time is reduced to a minimum, but other species are more capricious in their use of roosts (e.g. Starling *Sturnus vulgaris*, hirundines) and require more effort. New roosts can be found opportunistically, or by searching for promising locations based on the ecology of different species, always keeping in mind that predation and disturbance-free locations are most attractive. For several species (e.g. Great Cormorant, herons and egrets, geese, Crane), sheltered water bodies with or without woody vegetation are suitable, others frequent sand bars and islets (e.g. terns, waders), or isolated groups of trees (e.g. crows, pigeons), and some are decidedly picky: migrating swallows almost exclusively roost in reed beds. The Dutch Communal Roost Census database holds information on all known roosts; roosts that are no longer used or roosts that have become unavailable due to e.g. tree cutting are marked as unused, but may be used again in the future.

Out of two to three counts per year for each species, the highest number is used as a seasonal maximum per roost. Because numbers fluctuate at roosts, maxima are better representations of true numbers than means. This way of working has a few limitations; because roost counts are a snapshot in time, it is possible that the highest numbers are missed. This results in fairly large effects of chance in count results, so it will take longer before trends are detected at site level (Kleefstra 2010, Altenburg & van Horssen 2018), although preliminary statistical exploration indicates these chance effects do not hinder trend development. In addition, peak occurrence of particular species do not occur simultaneously everywhere in a country (Altenburg & van Horssen 2018). Traditionally, large nature reserves have been an obstacle to bird counts, but simultaneous counts (by sometimes >10 counters) of locally roosting birds offer a solution for this problem. Many roosts regularly move geographically and at the moment of counting (usually around dusk), so there may not be time to visit or search for another location. Another issue is counters only reporting positive numbers, leading to a lack of null counts. If null counts happen

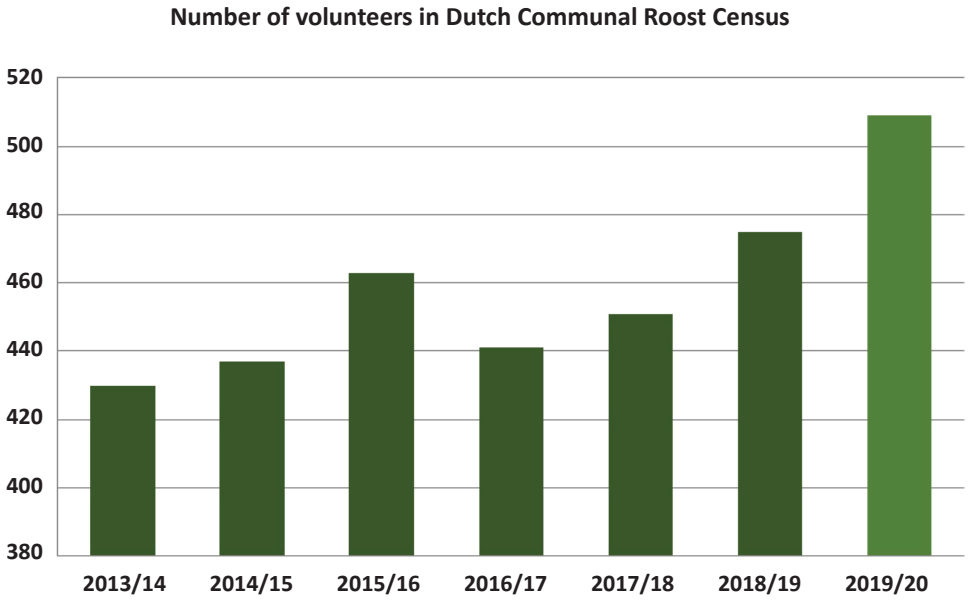

Figure 1. Number of participants in Dutch Communal Roost Census by year.

repeatedly, the motivation to count decreases, even though numbers at roosts fluctuate naturally. For these reasons, roost counts are sometimes incomplete, especially in large areas that consist of a network of multiple smaller roosts. However, the advantages of capturing large numbers of birds during a relatively small time interval generally outweigh the disadvantages and there are workaround solutions for incomplete counts. A post-hoc correction is applied by imputing numbers on known roosts that were not counted. Missing values are imputed according to a multiplicative model of site, year, and month factors in UINDEX (Underhill & Prŷs-Jones 1995). Imputing is only applied and used when there is a predefined minimum amount of count data available.

Case examples of roost counts: Great Egret and Caspian Tern

Great Egret *Ardea alba*

With over 11,000 counts since the inception of the National Roost Census, the Great Egret is the most frequently counted species. This is also evident from the geographic spread of counts (Fig 2a); there are only a few areas in the Netherlands that lack roost counts of the species. The near-absence of Great Egrets on the sandy soils in the eastern half of the country is genuine. Roosts are generally found in and around all sorts of sheltered water bodies. Because roosts tend to be compact and birds are easily counted because of their conspicuous coloration, few observers are generally needed. The largest roosts are found in the river Rhine basin, in the western polders and around Lake IJsselmeer and the lake-district in the north of the country. These are all areas where the species has always been numerous, ever since the explosive spread of the species across the country. The median number of birds per roost is 12 (1st–3rd quantile: 5–27). Roost counts have resulted in 30% higher totals of the species compared to the results from the Wetland Bird Survey, because birds foraging in agricultural areas are not well represented in these counts (Klaassen 2012).

Caspian Tern *Hydroprogne caspia*

In the Netherlands, the Caspian Tern occurs only for a very short period during migration (Fig. 2b, 3). Numbers are higher during mid-August through the beginning of September than during April and May, so simultaneous roost counts with >20 count participants nationwide are organised during three days in late summer. The species often forages individually during the day over large water bodies, where they range widely, so that roost counts are the ideal way to monitor the species. The largest roosts are found on sand bars near the shores of Lake IJsselmeer. Numbers of the Caspian Tern have increased steadily during

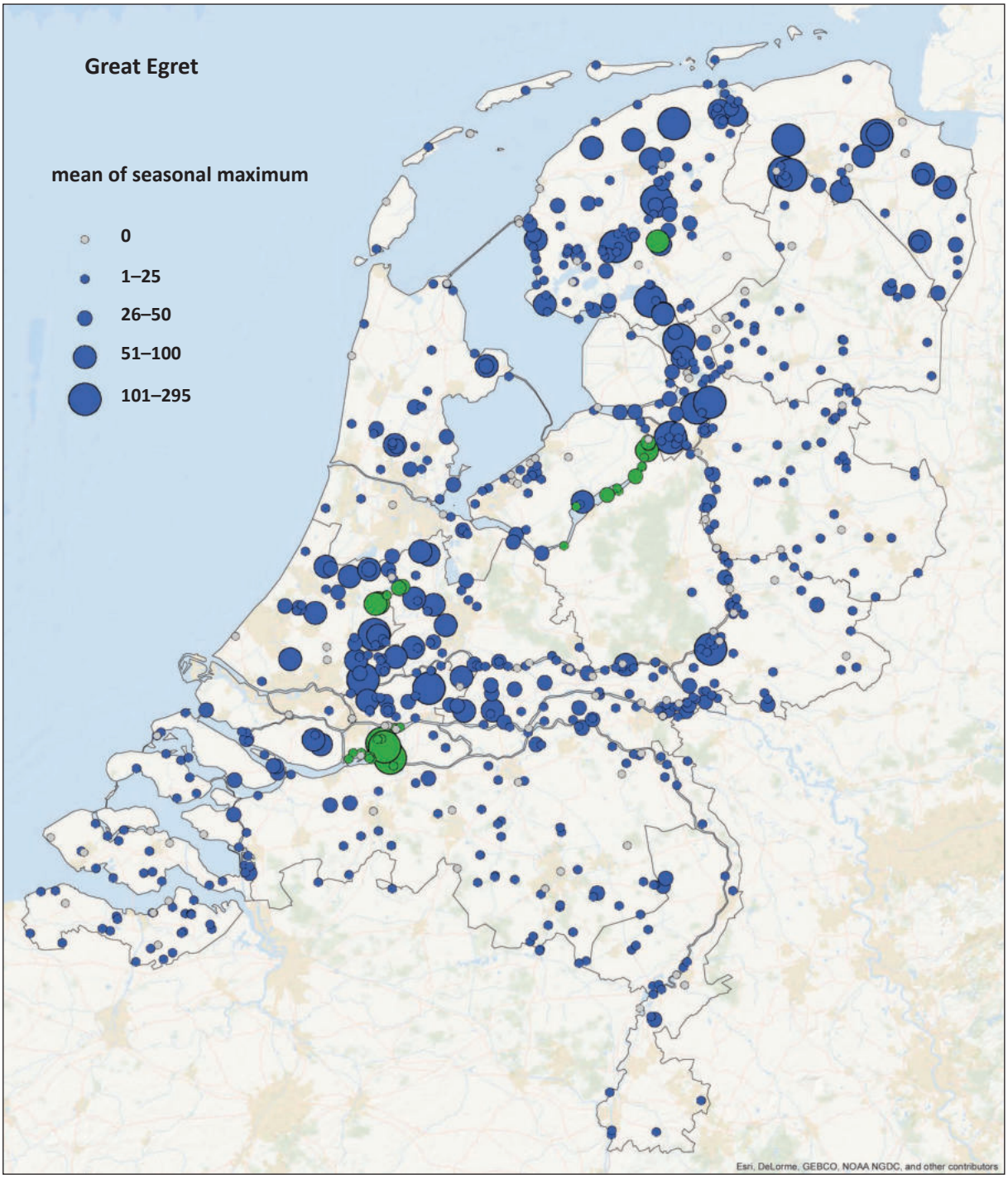

Figure 2a. Distribution and size (mean of seasonal maximum counts, 2009–17) of communal roosts in the Netherlands of Great Egret. Green symbols refer to sites with a specific target for communally roosting birds, blue symbols are outside the Natura 2000-network or are without targets for roosting birds.

the last decade, from >10 individuals in the 1980s to on average >100 individuals in the last decade. This contrasts with the trend of breeding pairs in the Baltic, which decreased for long and has now stabilized (Eskildsen & Vikstrøm 2011), and could indicate a change in migratory route. In general, Caspian Tern roosts are small, with a mean of 8 (3–18) individuals. A challenge in counting roosts of the species is that Caspian Terns frequently change roost sites due to varying water levels. The enthusiasm of volunteer counters to track these every time makes up for this, however.

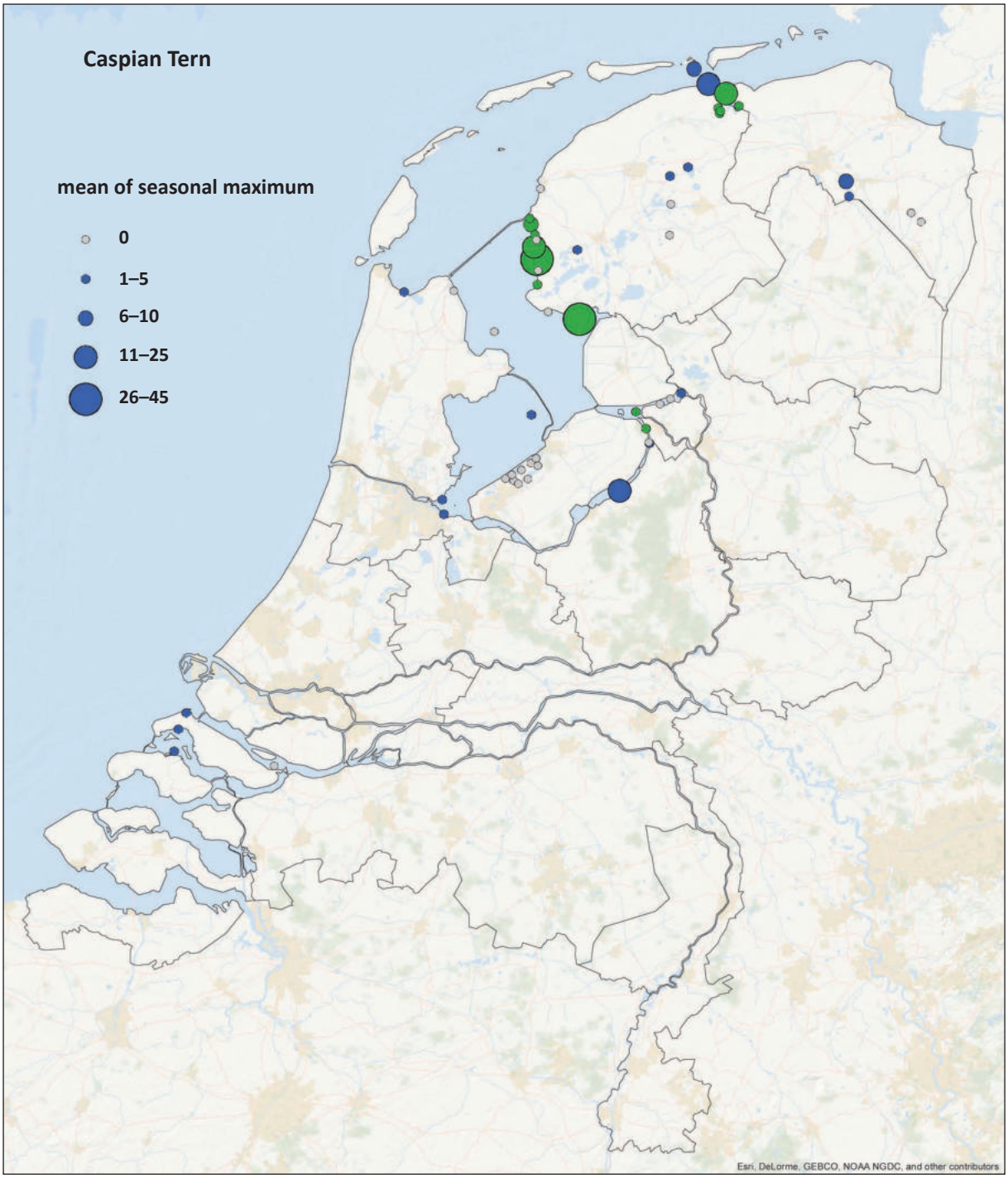

Figure 2b. Distribution and size (mean of seasonal maximum counts, 2009–17) of communal roosts in the Netherlands of Caspian Tern. Green symbols refer to sites with a specific target for communally roosting birds, blue symbols are outside the Natura 2000-network or are without targets for roosting birds.

References

Altenburg J.F. & P. van Horssen. 2018. Opvallende verandering in het maandelijks voorkomen van de Wulp op slaapplaatsen langs de Lek. Limosa, 91: 61–70.

van den Bremer L., O. Klaassen & M. van Roomen 2008. Slaapplaatsen van vogels: toekomstig verspreidings- en monitoringsonderzoek. Sovon-informatierapport 2008-05. Sovon Vogelonderzoek Nederland, Nijmegen.

CBS 2018. Meetprogramma's voor flora en fauna. Kwaliteitsrapportage NEM over 2017. CCN creatie, Den Haag.

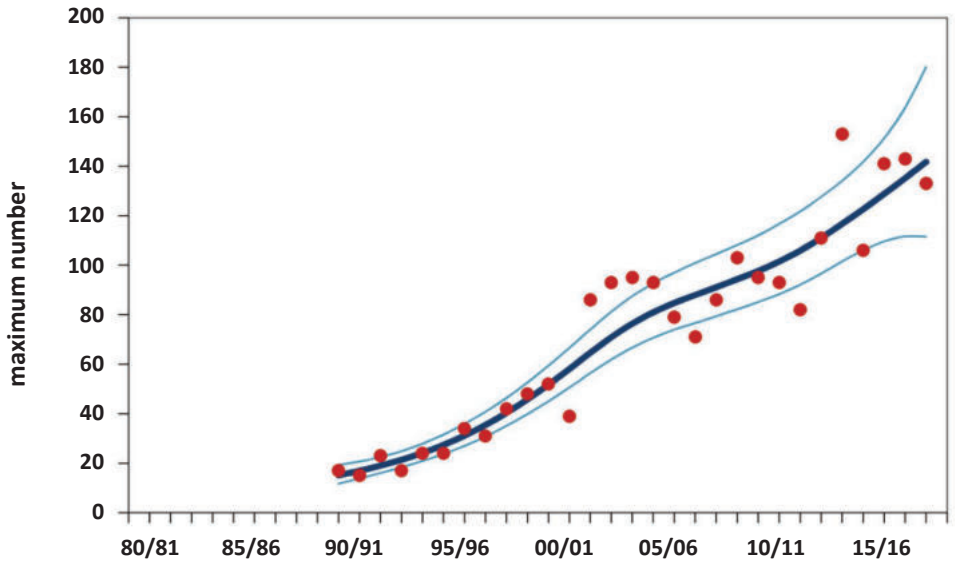

Figure 3. Trends in seasonal maximum counts of Caspian Tern. The dark blue line represents the trend, light blue lines indicate confidence intervals and red dots are individual seasonal maximum counts.

Eskildsen A. & T. Vikstrøm 2011. Truede og sjældne ynglefugle i Danmark 2010. Dansk Ornitologiske Forening, 108: 1–144.

Hornman M., F. Hustings, K. Koffijberg, E. van Winden, P. van Els, A. van Kleunen, Sovon Ganzen-en Zwanenwerkgroep & L. Soldaat 2019. Watervogels in Nederland in 2016/2017. Sovon Rapport 2019/01. Sovon Vogelonderzoek Nederland, Nijmegen.

Klaassen O. 2012. De toename van overwinterende Grote Zilverreigers in Nederland aan de hand van dagtellingen en slaapplaatstellingen. Limosa, 85: 82–90.

Kleefstra R. 2010. Monitoring van ganzen op slaapplaatsen in het centrale merengebied van Friesland 1998–2010. Limosa, 83: 160–167.

Underhill, L. G., & R. P. Prŷs-Jones 1994. Index numbers for waterbird populations. I. Review and methodology. Journal of Applied Ecology, 31: 463–480.

Van Els, P., E. van Winden, O. Klaassen, L. Soldaat, C. van Turnhout. 2020. Gemeenschappelijke slaapplaatsen in Nederland: resultaten van 10 jaar tellen. Limosa, 93: 92–102.

Van Kleunen, M. van Roomen, J. A. M. Janssen, A. T. Kuiters, E. van Winden, A. Boele, A. M. Schmidt, & T. van Vreeswijk 2017. Advies over correcties en bijstellingen van Natura 2000-doelen. Wageningen University & Research, rapport 2779c.

Wymenga, E., Y. van der Heide & M. Koopmans 2013. Steltlopers op slaapplaatsen in Fryslân in 2011. Twirre, 23: 3–9.

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About the state of Corn Crake *Crex crex* Bechstein 1803 in Armenia

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Abstract. The Corn Crake *Crex crex* is one of the most secretive birds in Armenia, which was assessed as Vulnerable in the last edition of National Red Book. We carried out national surveys in 2003–2019 and estimate the current occupied range of the Corn Crake in Armenia as 1,859 km^2 and its Extent of Occurrence as 16,621 km^2. In 2019 we estimate the species' population size at 2,529 calling males (95% CI: 1,770–3,290). Its population trend shows a moderate significant decline; –19% in 17 years, with insignificant fluctuations. Surveys of the seven Hunters' Unions of Armenia found that there are 10,000 to 20,000 active hunters, which sometimes shoot Corn Crake due to lack of knowledge of the Red-listed status of the species. Existing mowing practices result in habitat degradation, which also contribute to the decline of the Corn Crake. Currently the species deserves a conservation status of Vulnerable under criteria B1ab+B2ab+C1. To protect the species, it is recommended: (1) develop better financial mechanisms to fund the monitoring of the populations of the game species and control of hunting and poaching; (2) develop a new State exam for obtaining a hunting license aimed at having better educated and more responsible hunters; (3) establish small seasonal protected areas for the Corn Crakes; (4) develop and introduce alternative mowing schemes which support higher survival of Corn Crakes' chicks; (5) develop alternative fodder for livestock in winter to decrease their need in hay. The proposed measures should be accompanied by monitoring of the species.

Introduction

Corn Crake (*Crex crex*) is a monotypic species, widely distributed in Eurasia (Taylor & Kirwan 2020). Its global conservation status was downgraded during the last decade from Near Threatened with decreasing population trend (BirdLife International 2008) to Least Concern with a stable population trend (BirdLife International 2016). This classification has taken place on the basis of improved knowledge of the species's global extinction risk, as opposed to a genuine recovery to favourable conservation status across its range. At the European scale the species is also considered as Least Concern (BirdLife International 2015), while in Armenia it was included in the Red Book of Animals of Armenia as Vulnerable VU B1ab (iii)+2ab (iii) with unknown population size and trend and an assumption of such threats as disturbance by agricultural operations during the breeding season, disturbance by shepherd dogs, which accompany livestock in the period of nomadic grazing in the mountains, disturbance by wild herb collectors, and poaching (Aghasyan & Kalashyan 2010). Corn Crakes show some habitat specialization within Armenia, inhabiting a rather narrow range of meadows and marshes from 1,200 to about 2,500 metres above sea level (Adamian & Klem 1999). The landscapes inhabited by the species may indeed potentially be influenced by various anthropogenic factors, and the birds may be victims of direct persecution. Ten years after the last assessment, it is a time to review the conservation status of the Corn Crake examining changes in its distribution and population, and evaluating existing and potential threats for the species.

Material and methods

Corn Crake data collection

Early observations of Corn Crake in Armenia recorded in the literature were collated and summarized in Adamian & Klem (1999). Systematic data collection on the Corn Crake started in 2003 within a National Bird Monitoring Program. The standard European Monitoring Grid with a

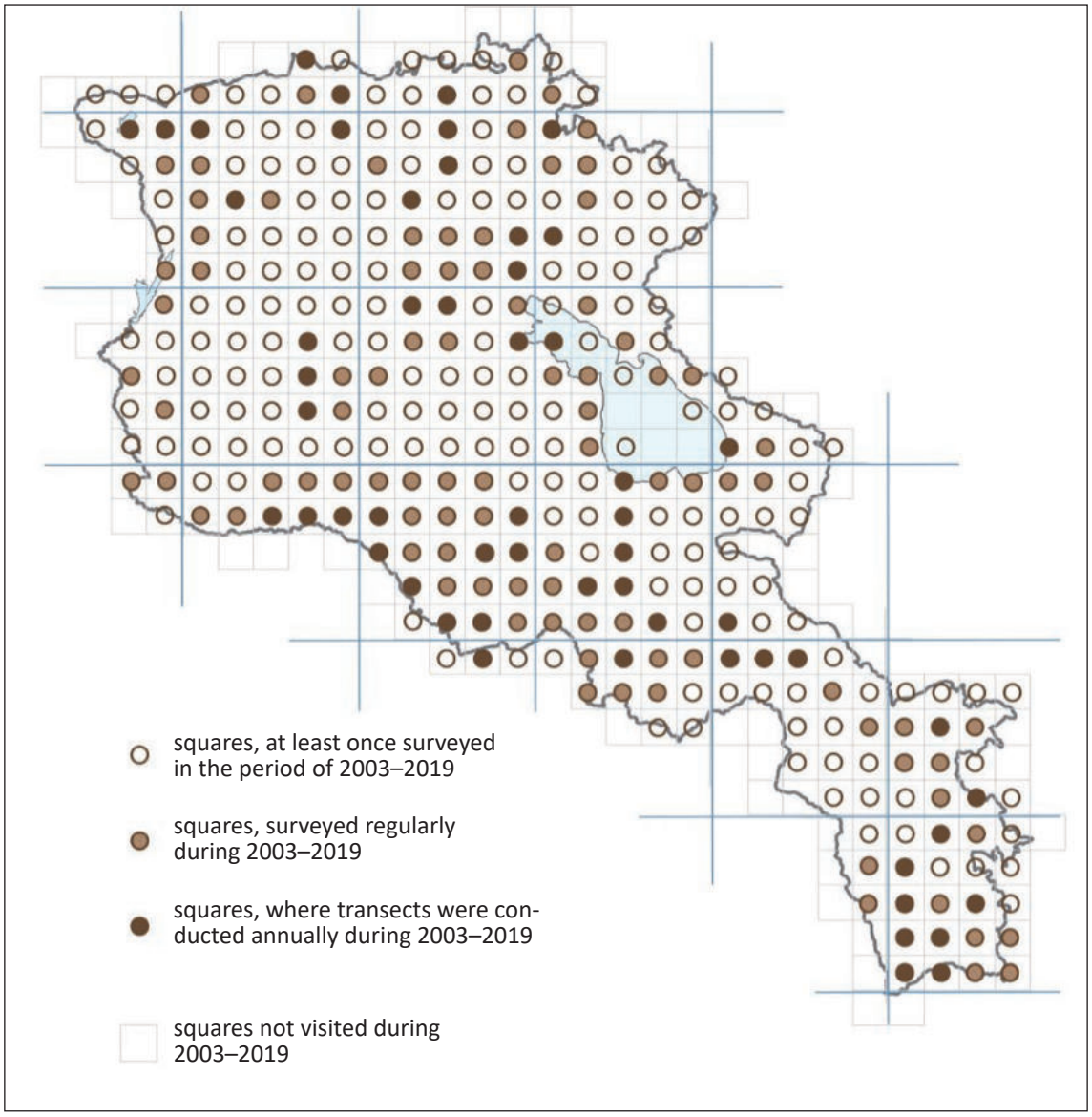

Figure 1. Squares (on a 10×10-km grid) surveyed for Corn Crakes in Armenia either systematically (annually after first count), or opportunistically (at least in one year) over the period 2003–2019.

10×10-km mesh was applied to Armenia (Council of Europe 2018), dividing the territory of the republic into 374 squares. The monitored squares were of two kinds: "systematic" ones that, once counting started on them, were systematically counted every subsequent year, and "opportunistic" ones, where counts were carried out when the opportunity arose. In total, in the period of 2003–2019 the 325 squares were visited at least once during that period, including 147 squares, with systematic data collection (see the map on Fig. 1). In total, out of 325 surveyed squares the data on Corn Crake was collected in 118 squares. The Corn Crake is quite a secretive species, which spends most of the time in rather high herbal vegetation, and is hardly seen walking or flying. However, males call loudly and regularly during the breeding season, having an unmistakable voice and making it possible to detect their presence and to count them. In the surveyed squares, data on Corn Crake was obtained from two different sources: (1) opportunistic observations and (2) standardized counts (data collected according to standard methodology). Both types of data may be used to create species distribution maps, and data collected by the second method was used for estimating population densities and trends.

1. Opportunistic observations were provided by birdwatchers and accepted as long as they conformed to minimum data requirements: accurate species identification, observation date, geographical coordinates, name of nearest locality (human

settlement, mountain, historical site, etc.), breeding code (based on the bird's behaviour, indicating how likely it is that the bird is breeding in the surveyed area — (Voříšek *et al*. 2008)), observer name and contact details. The observations often have additional information, e.g., time, observation duration, number of people in the group, etc. Since it was not always possible to record the precise geographical coordinates on the spot, the information was sometimes provided at the level of the 10×10-km square.

2. Standardized counts (counts done following a predefined standard protocol) can be conducted by both professional ornithologists and amateur skilled birdwatchers. Counts were carried out during a fixed period of 1 or 2 hours, when an observer slowly walked along a transect route counting all the calling males within 200 m either side of the transect (hence in a strip 400 m wide). The specific call of the Corn Crake is clearly audible even from a farther distance, that is why we assume high detectability of the birds within the 200 m distance from each side of the transect. As far as possible, surveys were done a couple of hours before the sunrise or in evening soon after sunset, in favorable weather conditions, such as absence of rain and weak wind (below Beaufort Force 3). The earlier studies (Hudson *et al*. 1990) suggest that the calling activities of Corn Crakes can be significantly reduced before 23:00 and after 2:00 am, and therefore its number could be underestimated, however we assume that use of the same method over the period of time provides us with the reliable data for computation of the species population trend. The best period for Corn Crake counts was considered to be between 15 May and 10 June, nevertheless, data collected later in mid-June to July were used as well. The standardized counts required more detailed data collection than incidental observations: number of calling males heard, observation date, geographical coordinates of the beginning and end of the route, type of habitat, start and end times of the count, individual-specific breeding codes, observer name and contact details. The number of routes in one 10×10-km square varied from one to two, depending on how many habitat types were present in a square. Each route was dedicated to one type of habitat only. We tried to keep the same routes for the standardized counts and to survey them every year, whenever possible. However, in the period 2013–2017, when the number of volunteer counters increased thanks to the fieldwork required for the European Breeding Bird Atlas 2 (Keller et al. 2020), and some new standardized counts were created from atlas routes. All data were collated at the end of each counting season, entered into a database and checked.

Hunting data collection

To gather information on possible hunting pressure on the Corn Crake, we conducted surveys of the heads of seven Hunting Unions and their hunter members (keeping the hunters' survey confidential to reduce the risk of false reporting). We tried to keep the numbers per Hunting Union roughly equal (minimum difference was two and the maximum difference was 10 hunters). The survey was conducted in spring 2019, after the end of the 2018–2019 hunting season, which usually starts on 20th to 25th of August and lasts until end of March of the next year. For the survey we have sent out over 800 questionnaires. A total of 486 responses were received, and a further 14 responses obtained following personal requests, giving a total of 500. The following questions were included in the questionnaire: (1) do you hunt? (2) do you know Corn Crake (photo of the bird supplied)? (3) do you ever hunt Corn Crake? (4) how often do you hunt Corn Crake (almost every year; not frequently; rarely)? (5) how many Corn Crake do you hunt per annum? (6) do you know whether Corn Crake is in Red Book of Armenia or not? (7) do you know anything about punishment for illegal shooting of Corn Crake? We also interviewed staff at the State Inspectorate for Nature Protection and Mineral Resources. These interviews were conducted with four inspectors from Shirak, Lori, Kotayk, and Vayots Dzor Provinces and were less structured. The main questions that were relevant here were related to the ability of the inspectors to detect poaching on this red-listed species.

Data analysis

The distributional range of Corn Crake was determined at the 10km x 10-km square level. A given square was considered occupied if the calling males were recorded in any of the 17 years 2003–2019 through incidental observation or standardized count. To compare the change in distribution from before 2003 with that during 2003–2017, we also digitized all the previous records summarized in Adamian and Klem (1999). The available

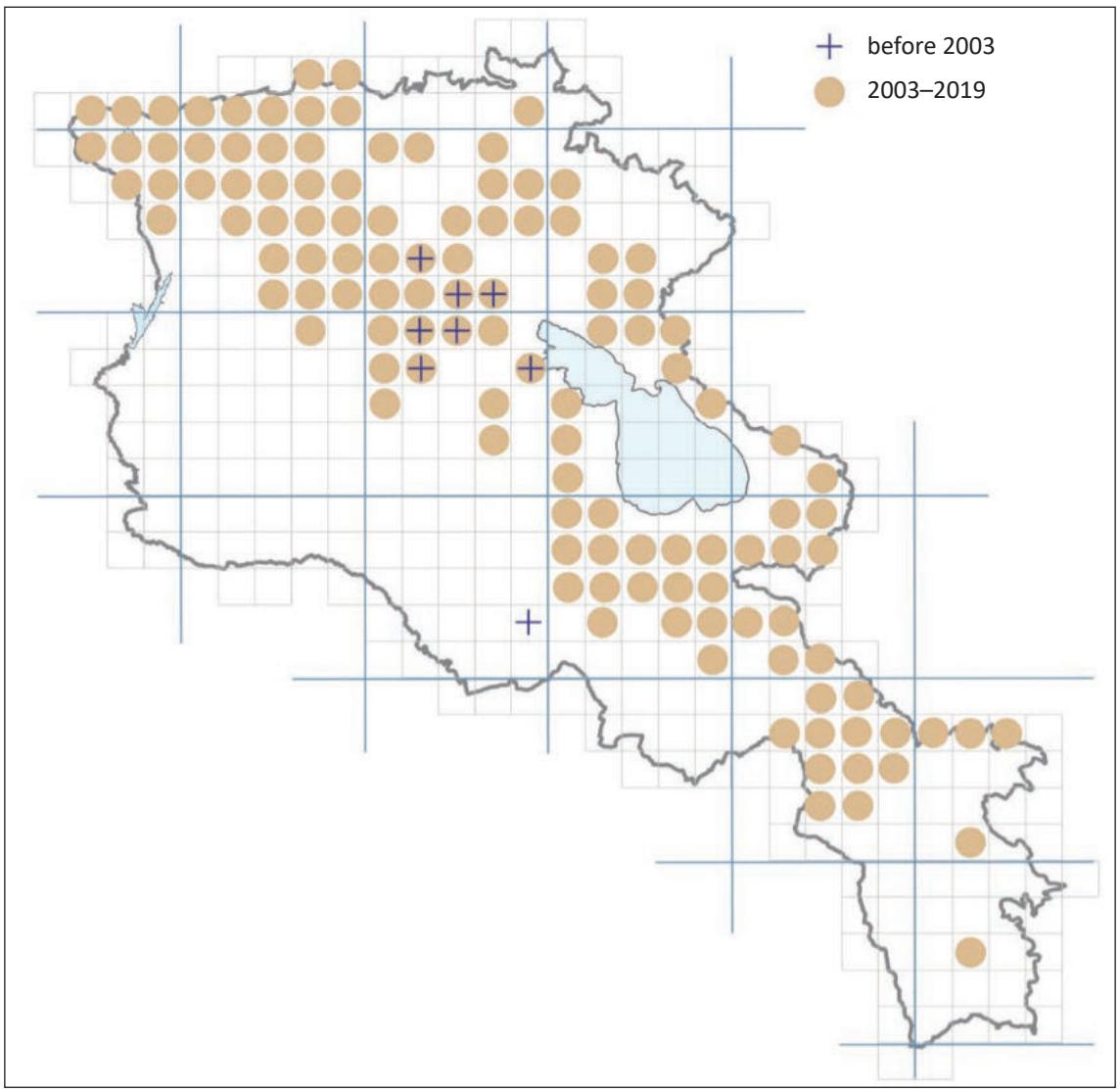

Figure 2. Distribution of the Corn Crake in Armenia based on a 10×10-km square grid, before and after 2003.

habitats of the species were calculated using the software package ArcGIS 10.0 (Environmental Systems Research Institute, Inc.) using the own database of the habitat shape files. The Extent of Occurrence was computed using IUCN guidelines (IUCN Standards and Petitions Committee 2019). For the purpose the rule of minimum convex polygons (the smallest polygon in which no internal angle exceeds 180° and which contains all the sites of occurrence) was applied within the overall distribution inside the borders of Armenia

The density of the Corn Crake was taken in common for this species format of calling males (Taylor & Kirwan 2020, EEA 2020). The density of Corn Crakes was estimated for each transect route by dividing the recorded number by the area around a transect, obtained as the length of the route multiplied by the strip width of 400 m. The density values were then averaged across transects and its standard error (SE) was calculated. The total size of the population of Corn Crakes in Armenia in 2019 was estimated as the sum of the number obtained by multiplying the 2019 upper and lower ranges of the density (average ± SE) by the area of habitat within the occupied range. The density of the species and therefore the total population size of the species is taken as minimum, since the earlier studies (Hudson *et al*. 1990) demonstrated that the surveys conducted before 23:00 and after 4:00 am can provide figures, which are up to five times lower than the real densities of the species.

To calculate population trends, we used transects with multi-year data series and processed the data (density values per transect and year) using TRIM 3.54 software (van Strien et al. 2004). In total, there were 289 data values analyzed from 17 transects monitored annually. We calculated a

Figure 3. Typical habitat of the Corn Crake in the Vardenis mountains of Armenia. Photo by K. Aghababyan.

population index using log-linear Poisson regression, and applying a time effect model; the indices are calculated relative to 2003, which is given a value of 100. TRIM also provides an estimate of overall trend in the form of the average annual rate of change *r* and its standard error SE(*r*) across the full span of years (Pannekoek & van Strien 2005). The importance of the trend was assessed based on its magnitude and statistical significance in accordance to van Strien at al. (2001).

Results

Distribution, population size and trend in Armenia

During the surveys of 2003–2019 the Corn Crake was recorded in relatively large areas of Northern and Central regions of the country (Fig. 2). The species was recorded at elevations mainly ranging from 1,400 to 2,600 m above sea level, although some calling males were recorded as low as 1,020 m above sea level. The main habitats occupied by Corn Crake included meadows located on plateaus, in river valleys, and on slopes above the timberline (Fig. 3). Its presence was typically associated with tall (60–100 cm) herbal vegetation and often with some wet marsh-like areas. The total area occupied by Corn Crake in Armenia is estimated at 1,859 km^2. The Extent of Occurrence is estimated at 16,621 km^2. The population appears to be fragmented into at least 15 subpopulations.

The average density of the species (±SE) in 2019 makes 1.36 (±0.21) calling males per square km (95% confidence limits 0.95 to 1.77 birds). For 2019 the size of the breeding population of Corn Crakes in Armenia was estimated at 2,529 calling males (95% confidence limits 1,770 to 3,290 birds).

From 2003 to 2019, the population index calculated by TRIM (Fig. 4) showed a moderate decline ($p < 0.05$). The overall decline of the population during 17 years was –19%, while the annual decrease was –1.3% ± 0.020% SE (Fig. 4).

Hunting

According to the seven Hunters' Unions of Armenia, there are over 50,000 hunters in the coun-

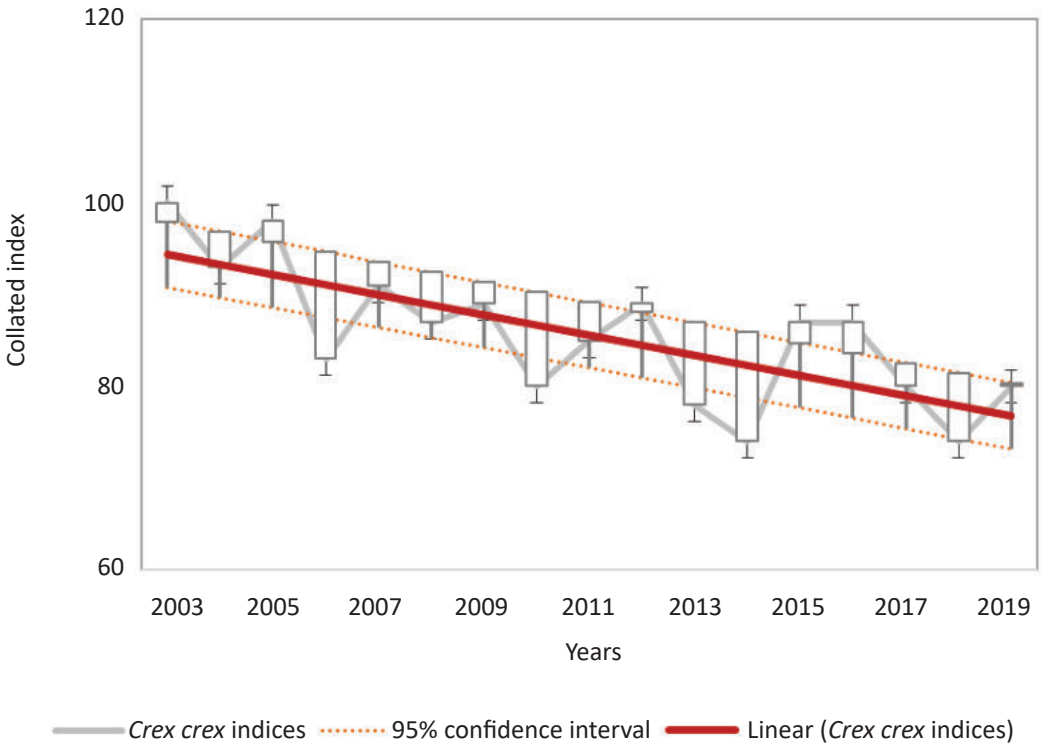

Figure 4. Annual abundance index (relative to 2003, which is standardized to 100) of Corn Crake abundance in Armenia during 2003–2019. The red line is the best-fitting curve with a constant rate of change. Up-down boxes indicate the difference between data points and the upper 95% confidence interval (CI), while up-down solid bars indicate the difference with lower 95% CI.

try. However, the number of active hunters was estimated by the Hunters Unions to lie between 10,000 and 20,000 people. Out of the 500 hunters surveyed, all reported that they do hunt almost every season, but only 87 (17%) of them knew the Corn Crake. Out of those 87 hunters, 23 (26% or 5% of total hunters surveyed) responded that they have hunted Corn Crake. All 23 hunters mentioned that they hunt Corn Crake rarely (at most once per three years) and every time they have got 1–2 birds. Only two hunters (2% of 87 hunters who knew the bird and 0.4% of total hunters surveyed) responded that they know about inclusion of the Corn Crake in the Red Book and about existence of punishment for illegal shooting of the species.

Interviews with the heads of seven Hunters' Unions established that the hunters obtain hunting permits based on two recommendations from existing hunters and a face-to-face interview. The questions asked at the interview cover weapon safety but do not assess knowledge on game birds' species identification, which public lands are open to hunting, which species are Red-listed, which hunting methods are allowed and which ones prohibited, daily bag limits, cases of poaching and the punishments.

The interview with the State Inspectorate body established that during the last four years there were no cases of poaching of Corn Crake recorded. However, the Inspectorate pointed out that the absence of such records can be a result of very low number of inspections, due to understaffing within the Inspectorate body and a lack of financial resources allocated for the inspection process. The Inspectorate also noted an absence of cooperation between the Inspectorate and the Hunters' Unions, in contrast to the situation that prevailed in Soviet times (before independence in 1991), when such cooperation was very efficient and hunters volunteered for the inspection process, keeping poaching at a low level.

Discussion

Corn Crake population status

Adamian and Klem (1999) summarize the historical distribution of the Corn Crake in Armenia, and state that the species is rare and occurs in Tsakhkunyats and Pambak mountain ridges. The publication also mentions a single record from 16 May 1963 and 5 May 1964 in Jrvezh, but the specimen can hardly be considered a breeding

one as the area is occupied by semi-desert and arid mountain steppe. Lyaister and Sosnin (1942) add several points to those records, which slightly expand distribution of Corn Crake at Pambak mountains and vicinity of Lake Sevan. Dahl (1944) adds a point in Urts Mountain Ridge where the bird was observed on 15 May 1939. By comparison with the results of our surveys, it therefore appears that the Corn Crake's distribution in Armenia is much wider and the species was most probably overlooked in the counts due to its very secretive and nocturnal behavior. We did not find the species at Urts mountains again, and assume that the Corn Crakes could probably breed here in past, but disappeared due to change of the habitat under aridization, which is caused by decrease of precipitations and increase of average summer temperature documented for entire Armenia (Ministry of Nature Protection 2015).

The number of calling males, currently estimated for Armenia (1,770 to 3,290) significantly differs from the figures presented in the IUCN assessment of the species, which supposes presence of 500–800 calling males in the country (BirdLife International 2015). Taking into account that our survey of the species was conducted in the hours when the calling activities of the Corn Crakes decline (Hudson *et al.* 1990), the real number of the calling males could be substantially higher. Therefore, we take the current estimate as conditional and preliminary, aiming to test the night counts of the Corn Crakes for the subsequent studies. With the same reservation in mind, the number of mature individuals can be roughly estimated from the assumption that one male of Corn Crake usually bonds with two – three females (Taylor & Kirwan 2020), and thus can be computed by multiplying number of calling males by 2.5, resulting to 4,400 to 8,200 mature individuals.

The conservation status of the Corn Crake was evaluated as Vulnerable B1ab(iii)+2ab(iii) for the latest edition of the Red Book of Animals of Armenia (Aghasyan & Kalashyan 2010). Under IUCN Red List guidelines, the time period over which to assess population change is three generation lengths, which in the case of the Corn Crake is 11.1 years (from the BirdLife global assessments at http://datazone.birdlife.org). Calculation of the extent of the decline during a period of 11 years indicates a reduction of 16%, which is well below the threshold of 30% needed to qualify under Red List criterion A. The species nevertheless fits the category Vulnerable under criteria B1, having the Extent of Occurrence below 20,000 km^2, criteria B2, having the Area of Occupancy below 2,000 km^2, and accompanying points 'a' — as it has severely fragmented population and 'b' — because it shows continuous decline of mature individuals. Also, conditionally, the species fits criteria C1, having less than 10,000 mature individuals and decline of more than 10% over three generations. The rescue effect, which could be an important point for the small countries like Armenia is theoretically possible in northern and north-western regions of the country, which are bordering with Georgia and Caucasus part of the Turkey. Currently, the detailed information about the population status is available for Turkey, which supposes breeding of 80–200 calling males (BirdLife International 2015) and can hardly support Armenian population. The information for Georgia is less precise and suggests 10,000–50,000 calling males with a poor data quality, while providing no information on the species' trend (BirdLife International 2015). In the same time, both countries are facing the similar issues of overgrazing and uncontrolled mowing (Javakhisgvili *et al*. 2020), which could probably affect the population of the Corn Crake in their countries, and therefore can negatively influence their potential in rescue of Armenian population of the species. Therefore, the species should still be considered as Vulnerable, but the criteria have to be revised into B1ab+B2ab+C1 (IUCN Standards and Petitions Committee 2019) in Armenia.

Threats

The poaching on the Corn Crake takes place, and rough calculation of number of shot birds per annum results from 420 to 840 specimens, assuming existence of 10,000 to 20,000 active hunters respectively. The main causes of poaching are lack of hunters' education and awareness and lack of inspection's control. This is mostly the result of a lack of targeted financial resources and a lack of cooperation between the Ministry of Environment, State Environmental Inspection and the Hunters' Unions.

Another threat comes from the practice of hay-making, similar to the situation in many European countries such as Britain and Ireland (Green & Stowe 1993), and Sweden (Berg & Gustafson 2007). The local villages mostly use slopes for livestock grazing and flatter areas for cutting the hay that is stored to feed the livestock over winter. Those flatter and moister areas with high grass are the core microhabitats for the Corn

Crake and are being harvested in late June to early July, which is likely to destroy nests and kill chicks and to leave this secretive ground nester with insufficient cover. The growing use of hand mowers allows cutting the grass in the areas, which where inaccessible for the machinery mowing before, which even more reduces the safe habitats for the Corn Crakes. A high mortality of the Corn Crake chicks is reported in Britain due to use of machinery mowing that proceeded from the outside of the field inwards and the mortality decreased with the change of the scheme, which was mowing from inside outwards (Green 2020). Most important of all is to delay hay-mowing until most birds have large young from their second brood that takes place in August (Green 2020).

Recommendations

To halt the decline of Armenian population of Corn Crake, we recommend two groups of measures, related to (a) improving the control of hunting and poaching and (b) improving the management of meadows and reconsidering the mowing practices. In particular, we suggest the following: (1) develop alternative mechanisms for allocating the funds which are generated from the sale of hunting permits, targeting the revenue towards monitoring the populations of the game species and towards better control of hunting and poaching on the ground; (2) develop a new State exam for obtaining a hunting license aimed at having better educated and more responsible hunters; (3) establish small seasonal protected areas prohibited for mowing and livestock grazing; (4) develop and introduce alternative mowing schemes which support higher survival of Corn Crakes' chicks; (5) develop alternative fodder for livestock in winter to decrease their need in hay. The proposed conservation measures should be accompanied with the monitoring of the species, to secure proper assessment of the efficiency of the suggested methods.

Acknowledgements

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References

Adamian, M. & Klem, D. 1999. Handbook of the Birds of Armenia. American University of Armenia, California.

Aghasyan, A. & Kalashyan, M. (eds.) 2010. The Red Book of Animals of the Republic of Armenia. Yerevan, Ministry of Nature Protection.

Aghababyan, K.E., Ter-Voskanyan, H., Tumanyan, S., & Khachatryan, A. 2015. First National Atlas of the Birds of Armenia. Bird Census News, 28 (2): 52–58.

Berg, Å. & Gustafson, T. 2007. Meadow management and occurrence of corncrake *Crex crex*. Agriculture Ecosystems & Environment, 120 (2–4): 139–144.

BirdLife International. 2008. *Crex crex*. The IUCN Red List of Threatened Species 2008. e.T22692543A26660497. Downloaded on 04 January 2021.

BirdLife International. 2015. *Crex crex*. The IUCN Red List of Threatened Species 2015. e.T22692543A60016665. Downloaded on 04 January 2021. (scope: Europe).

BirdLife International. 2016. *Crex crex*. The IUCN Red List of Threatened Species 2016. e.T22692543A86147127. https://dx.doi.org/10.2305/IUCN.UK.2016–3.RLTS.T22692543A86147127.en. Downloaded on 04 January 2021.

Cramp, S. & Perrins, C. M. 1980. Handbook of the birds of Europe, the Middle East and Africa. The birds of the western Palearctic, Vol II: Hawks to Bustards. Oxford University Press, Oxford.

Council of Europe 2018. Transfer of National Data to Pan-European 10×10 km grid for Non-EU contracting parties to Bern Convention (Guidance Document). European Topic Centre on Biological Diversity. Strasbourg, 27 September 2018. T-PVS/PA (2018) 14. 42 pp.

Dahl, S.K. 1944. Vertebrates of Sarayboolagh Mountains. Zool. Digest, 3: 5–46. [In Russian].
EEA, 2020. Article 12 EU population status assessments — Methodology. European Environmental Agency, European Topic Centre on Biological Diversity. Technical paper. 10 pp.
Fayvush, G., Arakelyan, M., Aghababyan, K., Aleksanyan, A., Aslanyan, A., Ghazaryan, A., Oganesyan, M., Kalashyan, M. & Nahapetyan, S. 2016: In Baloyan, S. (ed.) The "Emerald" Network in the Republic of Armenia. Yerevan. Ministry of Nature Protection.
Green, R., & Stowe, T. 1993. The Decline of the Corncrake *Crex crex* in Britain and Ireland in Relation to Habitat Change. Journal of Applied Ecology, 30 (4): 689–695.
Green, R. 2020. Corn Crake conservation. British Birds, 113: 671–685.
Hudson, A., Stowe, T. & Aspin, S. 1990. Status and distribution of Corncrakes in Britain in 1988. British Birds, 83 (5): 173–187.
IUCN Standards and Petitions Committee. 2019. Guidelines for Using the IUCN Red List Categories and Criteria. Version 14. Prepared by the Standards and Petitions Committee. 113 pp.
Javakhishvili, Z., Aghababyan, K., Sultanov, E., Tohidifare, M., Mnatsekanov, R., Isfendiyaroğlu, S. 2020. Status of Birds in the Caucasus. In: Zazanashvili, N., Garforth, M., and Bitsadze, M. Ecoregional Conservation Plan for the Caucasus, 2020 Edition. Supplementary Report. WWF, KfW, Tbilisi. 72–82.
Keller, V., Herrando, S., Voříšek, P., Franch, M., Kipson, M., Milanesi, P., Martí, D., Anton, M., Klvanová, A., Kalyakin, M.V., Bauer, H.-G. & Foppen, R.P.B. 2020. European Breeding Bird Atlas 2: Distribution, Abundance and Change. European Birds Census Council & Lynx Edicions, Barcelona.
Lyaister, A.F. & Sosnin, G.V. 1942. Materials on Ornithofauna of Armenian SSR. Ornis Armeniaca. Yerevan, 418 pp. [In Russian].
Ministry of Nature Protection. 2015. Armenia's Third National Communication on Climate Change. Yerevan, "Lusabats" Publishing House, 165 p.
Taylor, B. & Kirwan, G.M. 2020. Corn Crake (*Crex crex*), version 1.0. In Birds of the World (del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. & de Juana, E., eds). Cornell Lab of Ornithology, Ithaca, NY, USA.
Pannekoek, J. & van Strien, A.J. 2005. TRIM 3 Manual (TRends & Indices for Monitoring data). Statistics Netherlands. Retrieved from https://www.ebcc.info/art-13/ on 16th of Dec 2019.
van Strien, A.J., Pannekoek, J. & Gibbons, D.W. 2001. Indexing European bird population trends using results of national monitoring schemes: a trial of a new method. Bird Study, 48: 200–213.
van Strien, A.J., Pannekoek, J., Hagelmeijer, E.J.M. & Verstrael, T.J. 2004. A loglinear Poisson regression method to analyse bird monitoring data. In: Anselin, A. (ed.). Bird Numbers 1995, Proceedings of the International Conference and 13th Meeting of the European Bird Census Council, Pärnu, Estonia. Bird Census News, 13: 33–39.
Voříšek, P., Klvaňová, A., Wotton, S., & Gregory, R.D. 2008. A best practice guide for wild bird monitoring schemes. First edition. RSPB/CSO.

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The state of the UK's birds 2020 — a summary

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Since 1999, a partnership of the UK's bird monitoring, research and conservation organisations have published annual summaries of the latest monitoring results for birds in the UK and its overseas territories: *The state of the UK's birds* (SUKB) reports. After hiatus, with no reports since 2017, *SUKB 2020* (Burns *et al.* 2020) was published in December, and here we give a brief summary of the findings.

The UK is fortunate to have a long tradition of ornithology, with structured monitoring programmes dating back as far as 1928, when the British Trust for Ornithology's Heronries Census began. Standardised monitoring of common breeding birds and wintering waterbirds began in the late 1960s, and of rare breeding birds from the early 1970s, so we have well-established volunteer-based monitoring programmes, some of which involve thousands of observers. While there remain some species for which data on population size and trends are sparse, these monitoring efforts means SUKB has a wide range of survey updates to cover in its 80 pages.

New population estimates for the UK's birds

Reporting for Article 12 of the Birds Directive — while the UK was still in the European Union — has resulted in the publication of new population estimates for all of the UK's regularly occurring bird populations (Woodward *et al.* 2020). A synthesis of these estimates in *SUKB 2020* reveals that the UK has around 83 million pairs of native breeding birds, with the Wren *Troglodytes troglodytes* being the commonest with 11 million pairs; this and ten other species contribute 60% of all the UK's breeding birds. The total is approximately 19 million pairs fewer than in 1966, owing to a rapid net loss of birds in the late 1970s and 1980s, driven largely by declines in numbers of House Sparrows *Passer domesticus* and Tree Sparrows *P. montanus*, Starlings *Sturnus vulgaris*, Whitethroat *Sylvia communis* and Skylark *Alauda arvensis*. Total native bird biomass has risen slightly over the same period, however, mainly due to the increase in Woodpigeons *Columba palumbus*. Meanwhile, due to the release of approximately 47 million individuals per annum, the biomass of non-native Pheasants *Phasianus colchicus* in September is estimated to be more than the post-breeding biomass of all native species combined, with largely unquantified ecological impacts (see Mason *et al*. 2020).

Population trends

SUKB 2020 gives summary tables for trends derived from all the UK's main bird monitoring programmes. The Breeding Bird Survey (www.bto.org/our-science/projects/bbs), and its predecessor the Common Bird Census, provide trends from 1970 onwards covering 117 species. In addition, for the first time in SUKB, we present trends in survival and productivity for a subset of species covered by demographic studies based on ringing and nest-recording. Many of the individual species' trends will seem familiar to readers across Europe, for example marked declines in birds of agricultural habitats, such as Turtle Dove *Streptophilia turtur* (down by 98% since 1970), whereas many generalist woodland species have increased, e.g. Blackcap *Sylvia atricapilla* (up by 335% since 1970).

Rare and scarce breeding birds are monitoring by the Rare Breeding Birds Panel (www.rbbp.org.uk); it is notable that many of the UK's rare and scarce breeding birds are increasing. Thirteen new species have become established as regular breeding birds in the UK since the 1970s, and another 24 species have increased by over 50% over the same period. This is in marked comparison with the declines in many common and widespread species.

The UK has internationally important populations of many seabirds, and a section on the Seabird Monitoring Programme (www.jncc.gov.uk/our-work/seabird-monitoring-programme/) gives the latest results from annual monitoring of 14 species in a sample of 500 colonies. We await the results from a complete census of Britain and Ireland's seabirds, the first for 20 years, which will give a more robust assessment of populations and trends, and cover all 25 of our breeding seabird species including those difficult-to-study species such as Leach's Petrel *Hydrobates leucorhous*, Manx Shearwater *Puffinus puffinus* and Black Guillemot *Cepphus grylle*.

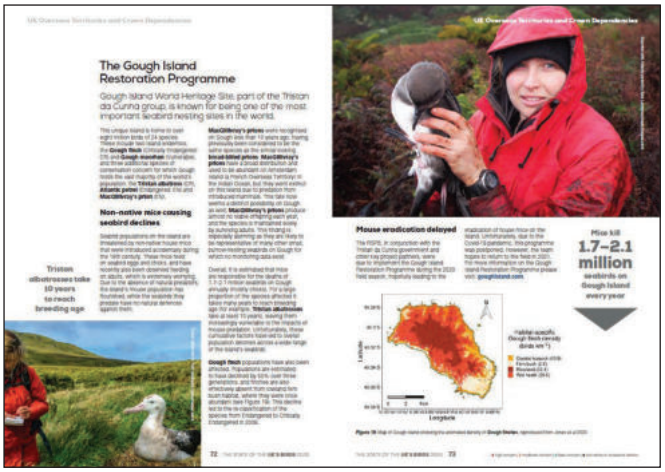
In international terms, the other significant element of the UK's avifauna is the populations of wintering waterbirds that migrate from further north and east to winter on our coasts. The volunteer-based Wetland Bird Survey (www.bto.org/our-science/projects/wetland-bird-survey) provides robust annual population trends for most of these species. Whilst many species of wintering waterbird have shown long-term increases, in recent years population declines have become more prevalent. In some cases recent declines in species' numbers wintering in the UK are thought to be related to climate driven changes in wintering distribution, rather than flyway-level population declines. In oher instances, however, these declines, such as for Bewick's Swan *Cygnus columbianus* and Common Pochard *Aythya ferina*, are known to be related to declines on a much wider scale.

Not just the UK

The UK is unusual in having four constituent nations, and as in recent years responsibility for the delivery of conservation has been devolved to national governments, the reporting of the status biodiversity at national level has assumed greater importance. As a consequence, *SUKB 2020* is the first report in the series to include dedicated sections for England, Northern Ireland, Scotland and Wales, reporting species' trends for these nations, although reporting at these smaller spatial scale (particularly for the smaller nations of Northern Ireland and Wales) means that sample sizes are smaller and population trends can be produced for fewer species. The Welsh section is provided in the Welsh language as well as English.

Of course, the report gives a brief overview of the European Breeding Bird Atlas 2 (Keller *et al*. 2020), with a few examples given of species of particular interest to UK readers, such as the advancing Cattle Egret *Bubulcus ibis* and retreating Redwing *Turdus iliacus*.

Finally, looking even further afield, *SUKB 2020* gives a selection of updates on birds across the UK's 14 Overseas Territories (OT's), which are scattered across the globe. These OT's contain extremely important bird populations, including a substantial number of endemics and huge numbers of penguins, albatrosses and other seabirds, and include 69 globally threatened species. Efforts



to help vulnerable island populations through the removal of non-native invasive predators are highlighted, including on Gough Island, part of the Tristan da Cunha group in the South Atlantic, where species such as the Gough Finch *Rowettia goughensis*, MacGillivray's Prion *Pachyptila macgillivrayi* and even the mighty Tristan Albatross *Diomedea dabbenena* are threatened by predation by introduced house mice; a project to eradicate the mouse population before it drives endemic species to extinction is now underway.

The full *SUKB 2020* report can be downloaded at here, and all previous reports are available from here. If you have any questions or comments on the report the lead author, Fiona Burns, can be contacted on fiona.burns@rspb.org.uk.

References

Burns F., Eaton M.A., Balmer D.E., Banks A., Caldow R., Donelan J.L., Douse A., Duigan C., Foster S., Frost T., Grice P.V., Hall C., Hanmer H.J., Harris S.J., Johnstone I., Lindley P., McCulloch N., Noble D.G., Risely K., Robinson R.A., Wotton S. 2020. *The state of the UK's birds 2020*. The RSPB, BTO, WWT, DAERA, JNCC, NatureScot, NE and NRW, Sandy, Bedfordshire.

Keller, V., Herrando, S., Voříšek, P., Franch, M., Kipson, M., Milanesi, P., Martí, D., Anton, M., Klvaňová, A., Kalyakin, M.V., Bauer, H.-G. & Foppen, R.P.B. 2020. *European Breeding Bird Atlas 2: Distribution, Abundance and Change.* European Bird Census Council & Lynx Edicions, Barcelona.

Mason, L.R., Bicknell, J.E., Smart, J. & Peach, W.J. 2020 *The impacts of non-native gamebird release in the UK: an updated evidence review*. RSPB Research Report No. 66. RSPB Centre for Conservation Science, Sandy, UK.

Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. 2020. Population estimates of birds in Great Britain and the United Kingdom. British Birds, 113: 69–104.

EUROPEAN MONITORING NEWS

Introducing the EBCC board members

Aleksi Lehikoinen

Bird Census News has started a new article format, where it introduces current board of the European Bird Census Council (EBCC) inclucing observers. The articles cover interviews with the current board and the second issue is dedicated to two people: Sergi Herrando and Alena Klvaňová.

Sergi Herrando. Bird Monitoring at the southern part of the Catalan Coastal Mountain Range, April 2021. Photo by Lluís Brotons

What is your title and the current working position?

I am the scientific director of the Catalan Ornithological Institute (ICO) and a researcher at CREAF, an ecological research centre based in Barcelona.

What is your role in the national bird monitoring and in the EBCC?

I am scientific coordinator of the Catalan Common Bird Survey (subnational bird monitoring project in Catalonia, Spain). I also coordinate the Catalan Breeding Bird Atlas 3. Data from these two projects contribute at their best to PECBMS and EBBA2, respectively.
Together with my colleagues Verena Keller (Swiss Ornithological Institute) and Petr Voříšek (Czech Society for Ornithology), I have been working for nearly 10 years as coordinator of the European Breeding Bird Atlas 2.

You were working at the same time with the EBBA2 and Catalan Bird Atlas. Was this challenging and did you find any synergies?

I have been working in four atlas projects in Catalonia over the last 20 years (including a winter atlas and an atlas specific for Barcelona). All of them have taken ideas from atlases carried out by other partners at the EBCC. All this experience was surely valuable when I was asked to build methodological proposals on how to conduct EBBA2. However, it was much more important to learn from the many particularities found across the whole of Europe to implement standards which could be valid for 50 countries. Contributing to this collective effort has been one of the most challenging works in my life.
The Catalan Breeding Bird Atlas 3 was born in 2015 with the intention to update the former Catalan breeding bird atlas and contribute to the Spanish and European Atlases. I should admit that working at the same time with the Catalan and European atlases revealed to be very difficult for the team of "atlas guys" working at ICO. Actually, at some point we decided to postpone the analyses and publication of the Catalan Atlas (which is still in process) to concentrate all our capacities in ending EBBA2 by December 2020, as planned within the EBCC community. First Europe and then our small piece of land.

What were the most interesting surprises of these two atlases?

This is not an easy question but for me the most interesting scientific outcome of EBBA2 came from the comparison with EBBA1. There were doubts at the beginning of the project about the reliability of the eventually named change maps, but we got them! There have been so many changes in European breeding birds since the 1980s! Some changes are apparently tracking usually mentioned driving forces such as climate warming or farmland intensification, but not always. I was surprised that for many species losses and gains have been located in different parts of Europe, e.g. the European Roller losing ground in the north-east and along the Atlantic coast and with gains in the Mediterranean coasts. I was also surprised by some general patterns that were different from my own expectation, such as the expansion of the Common Stonechat in central Europe.
The Catalan Breeding Bird Atlas 3 will be clearly focussed on changes in distribution and population. I cannot tell you much yet but here are a couple of complementary examples of what I said before regarding the whole of Europe: The European Roller has expanded its range in Catalonia since the 1980s, while the Common Stonechat is losing ground in the southern and lowlands parts of Catalonia and keeping ground in the northern mountain areas, above 1000 m asl.

You have been also working in the Spatial Modelling Group of EBCC, SMOG, what has been the role of SMOG in these atlas projects.

The Spatial Modelling Group of EBCC had a very important role in the European Atlas. This group is composed of brilliant modellers coming from different countries and backgrounds and organising together the best modelling approach for the EBBA2 10-km modelled maps was a very nice exercise. My role there as a coordinator was mainly to try to put the overall context of the atlas project into this specific and important task.

Do you have a favourite bird or birding habitat/location?

I do not have a favourite birding location. Actually I like watching birds everywhere, it depends more on my situation than on the place itself. I can be happy both with a rarity in a superb landscape and with a common species at the other side of my window. Birds can always tell us something. My favourite species is the Sardinian Warbler. I am fascinated by its ability to thrive in many Mediterranean warm habitats.

Alena Klvaňová. Although Alena works mainly on the computer, she prefers time spent in the field, counting or watching birds. This picture has been taken at Litovický pond near Prague, breeding site of the Black-necked grebe, which is a rare species in Czechia.

What are your title and the current working position?

Head of the department of International Monitoring and Research, Czech Society for Ornithology, and PECBMS project manager.

What is your role in the national bird monitoring and the EBCC?

Regarding the Czech national bird monitoring scheme, I am a volunteer fieldworker since 2008, and I have been involved in atlasing since 2001. My role is more focussed on international monitoring. In 2005, I started to work as the PECBMS technical assistant. Now I am the EBCC observer on behalf of the scheme. I am also involved in EBCC promotion, managing the website, FB profile, and newsletter. And I cannot forget the unique experience of being the artwork coordinator for EBBA2.

Pan-European Common Bird Monitoring, PECMBS, is one of the three main projects of the EBCC. Could you please explain what kind of development there has been in this project in recent times?

We have concentrated on the technological development and improvement of data flow and analyses recently. In cooperation with our colleagues from the Catalan Institute for Ornithology (ICO) and Statistics Netherlands, we have been developing new programs in R to compute species indices and the online tool. The latter is a brand new tool that makes the life of the coordinators easier. It facilitates data delivery and automatically checks data quality. We also plan other online tools for the site-level data upload, and for maintenance of the requests for data by researchers. Last year, we conducted a deep data revision to start using the new programs with a wholly revised dataset. I am delighted that

we finally published the first PECBMS data paper describing the dataset, methods, and data use in detail, alongside making the national and supranational species indices publicly available in the Zenodo repository. We hope the open dataset will encourage further research with the data and its use in conservation. Since one of our priorities is to keep all the network members in touch, the Covid pandemia also had a positive effect — it speeded up our explorations of new communication channels. In March, we established a forum in Slack to share experience among the network and organised a webinar for the national coordinators. We also offer online video tutorials to learn how to work with the new programs. We are constantly looking for ways to support bird monitoring in the eastern parts of Europe, from which we lack the data. Thanks to new ideas such as the International Census Plots project or EBCC fund, I believe the target is nearer. I want to stress that the scheme's success is only possible owing to the excellent international network of coworkers and the core team's efforts — everybody is doing his or her best. It is a pleasure and honour for me to work for birds with the "PECBMS family".

Population trends of species can vary within Europe, and thus Pan-European trends are important to see the overall picture. Can you tell us a couple of examples of the interesting changes in species population trends?

From the very first indicators released by the PECBMS in 2003, the decline of the farmland birds was markedly apparent. Since then, we keep alarming the audience about the numbers of birds we lose every year. And I must confess that it is sometimes frustrating to publish the trends that are getting worse and worse. One might think that no one listens. Nothing happens. But when I met the policy people from the EC and started to discuss the problems with them, I realised there are interested and supportive people trying to implement the monitoring outputs for meeting climate and biodiversity objectives on the EU level. I very much hope that we won't miss the aims of the EU Biodiversity Strategy 2030 as we missed those in 2010 or 2020 and that PECBMS, including all the volunteers counting birds in the field, can contribute to meeting the targets by delivering up to date monitoring data.
There have been hardly any positive changes in farmland birds at the European level so far. On the other hand, we welcome the increasing numbers of raptor species, such as the Common Buzzard and Western Marsh-harrier, benefitting from the conservation efforts aiming to stop persecution. We also see increasing numbers of Common Cranes which probably reflect the protection of their roosting and breeding sites. We can also track some recent population changes in the dataset that are likely to be affected by climate change. An increasing trend in the European Bee-eater as it is expanding northwards or decreasing Brambling losing their range may serve as examples.

You have also been managing the web pages of the EBCC. Could you tell the readers what kind of information one can find from the web pages?

I am pleased that we managed to release the new EBCC website in 2019, which I hope is more user-friendly and attractive than the old one. Today, it serves as the source of the general information on EBCC and a crossroad to the three main projects. You find the list of board members, national delegates or partners here, the overview of all EBCC conferences organised so far, including the proceedings, as well as the tips for reading on bird monitoring. You also may download all the issues of Bird Census News there. Besides the news published regularly, I regard the overview of bird monitoring and atlas work as one of the most valuable parts for the reader.

Do you have a favourite bird or birding habitat/location?

I love nature as a whole. It isn't easy to choose only one species from all the fantastic creatures around us. I studied mobbing, and sexual selection in House Sparrows at the university and this species is my favourite since then. I admire the sparrows' boldness, invention and "good temper" they keep despite severe circumstances. Among others, I like the Bullfinches, Long-tailed Tits, Robins or Linnets — the common species that visit our garden regularly. Regarding the birding habitats, I enjoyed rainforests in Madagascar vibrating with wildlife, hot and aromatic Mediterranean shrubland, as well as the severe and cold Scandinavian mountains. But to name only one place, it would be the landscape of my ancestors with ponds and pinewoods in southern Bohemia.

Introducing online tools to give feedback to the volunteers, volume 2: Dutch breeding bird monitoring program

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Keeping volunteers motivated and happy is a key aspect in long-term monitoring schemes that use citizen science. Regular feedback is an important way to increase the motivation of the volunteers. The feedback can include published reports and (online) meetings with presentations, but also online tools where volunteers can look at a variety of scheme results for themselves. Technical advances have enabled various online feedback options. The aim of this Bird Census News article series is to introduce various national versions of these online feedback systems, which hopefully can help national coordinators to develop their own systems. In addition, the articles will provide brief introductions to a range of bird monitoring schemes and also enable the reader to explore potential changes in bird populations in various areas. This article, the second contribution in the series, is introducing the Dutch breeding bird monitoring program (BMP), which is coordinated by Sovon Dutch Center for Ornithology together with Statistics Netherlands.

The scheme has been running since 1984. It is based on intensive territory mapping in fixed study plots. Fieldwork and interpretation methods are highly standardized and are described in detail in a manual. Territory mapping uses a high number of field visits (5–10 between March and July), consistent between years. The size of study plots, as well as exact number, timing and duration of visits, depend on habitat type and species selection (either all species or a fixed selection of scarce/rare species). All birds with territory-indicative behaviour (e.g. song, pair bond, display, alarm, nests) are noted down in the field on maps, since 2016 by using the mobile app 'Avimap'. Species-specific interpretation criteria

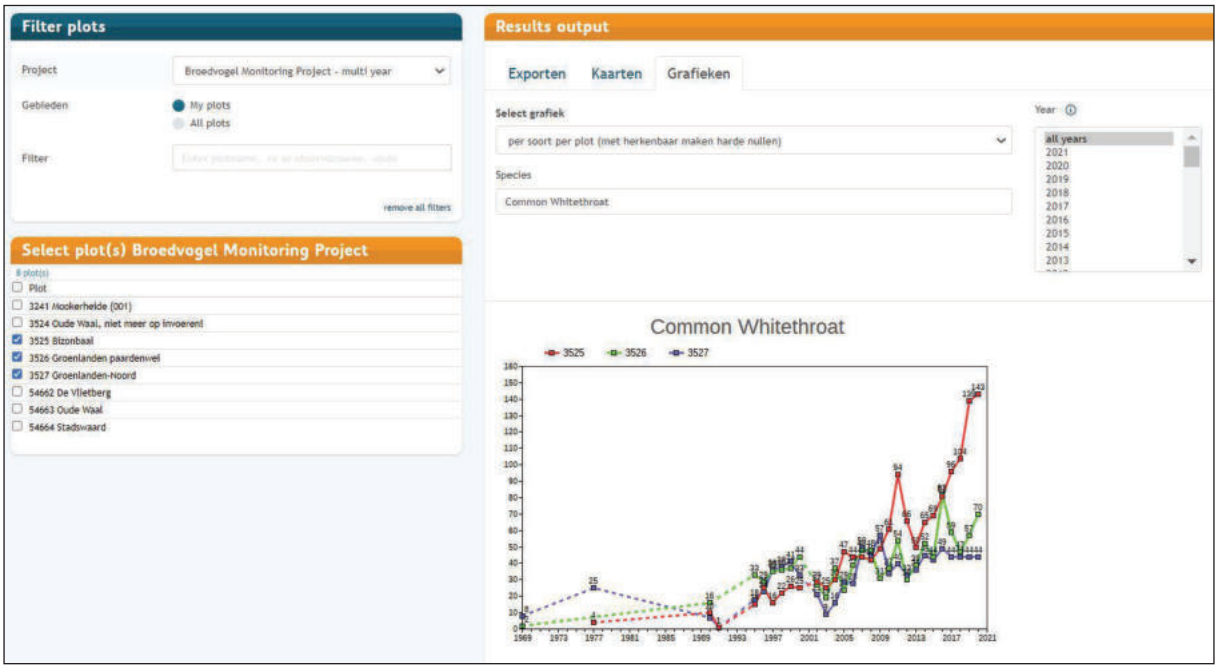

Figure 1. Change in number of Common Whitethroats *Sylvia communis* in three BMP study plots since 1969. This species has increased in most parts of the Netherlands, most strongly in rehabilitated river floodplains where farmland was phased out and replaced by natural river dynamics and semi-natural grazing (plot 3525).

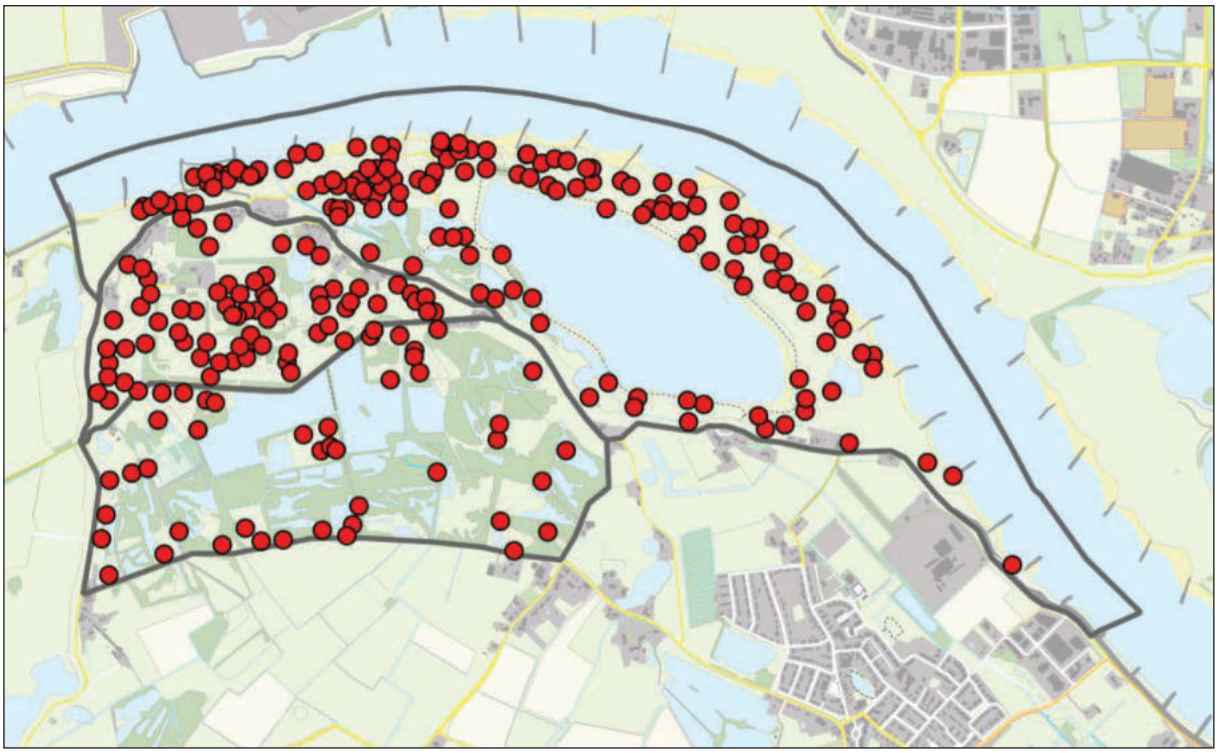

Figure 2. Distribution of Common Whitethroats *Sylvia communis* **in three BMP study plots in 2020 (n=257).**

are used to determine the number of 'territories' per species at the end of the season. Interpretation criteria focus on the type of behaviour observed, the number of observations required (taking into account the varying detection probability between species and within the breeding season), and the period of observations (to exclude non-breeding migrants). Since 2011, the clustering of observations into territories is completely automated within the program 'Autocluster'. The number of BMP plots grew from around 300 per year in the mid-1980s to around 2,000 in recent years.

Results of the BMP are communicated with volunteer participants, stakeholders and the general public by open-access annual reports (e.g. https://www.sovon.nl/nl/publicaties/broedvogels-nederland-2019) and online information (https://www.sovon.nl/vogelinfo), presenting trends at the national, regional and local (Natura 2000 sites) scales. In recent years we have been extending the possibilities for participants to 'play around' with the results of the censuses in their own study plots. In this way, we give our volunteers direct and easy access to their private data for customized exploration and reporting. Also, we enable them to visualize their results and share them with co-workers, regional coordinators and managers/owners of the sites which they have been granted access to (nature reserves, farmers, agri-environment groups), if they wish to do so. This detailed type of feedback also contributes to detect previously hidden errors in the data (typos, incorrect zero or missing counts), in addition to other validation procedures.

At present, we offer the following online tools, which are available after logging in with one's personal Sovon-account (screenshots shown in Figs 1–3).

1. Exports of count results to Excel- and GIS shape-files, per study plot or for more study plots combined.
2. Graphs of the number of territories per species per year (Fig. 1).
3. Maps of the distribution of territories, per year or range of years, per species (Fig. 2) or group of species (Red-Listed species, 'ecological groups', Fig. 3).

This online feedback appears to successfully meet a need, and is increasingly used by our volunteer participants and reserve managers. We try to include their suggestions for additional features as much as possible.

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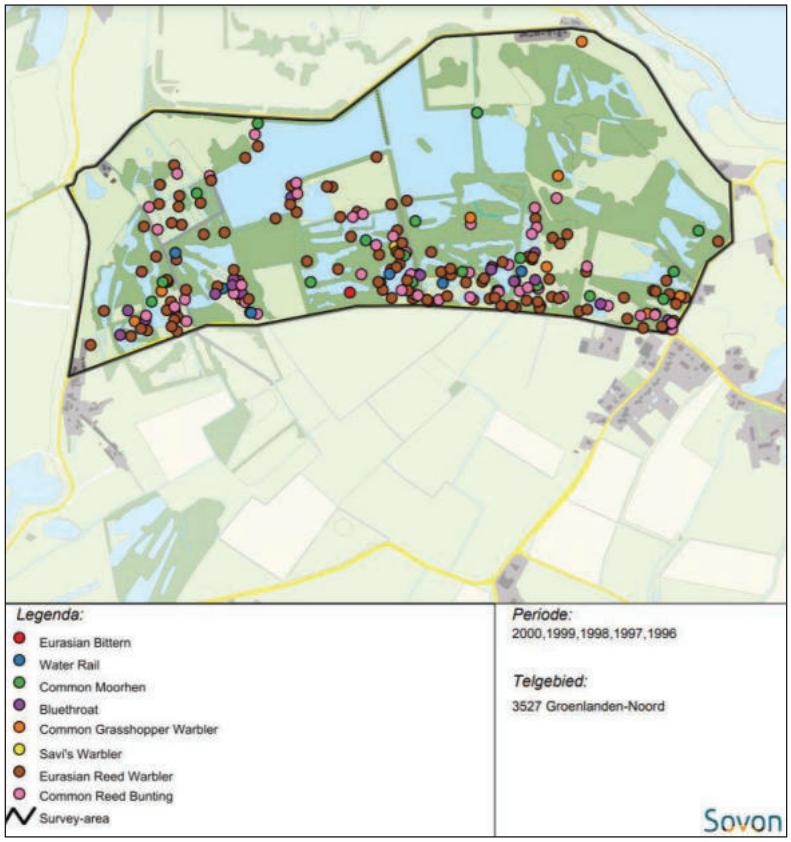

b

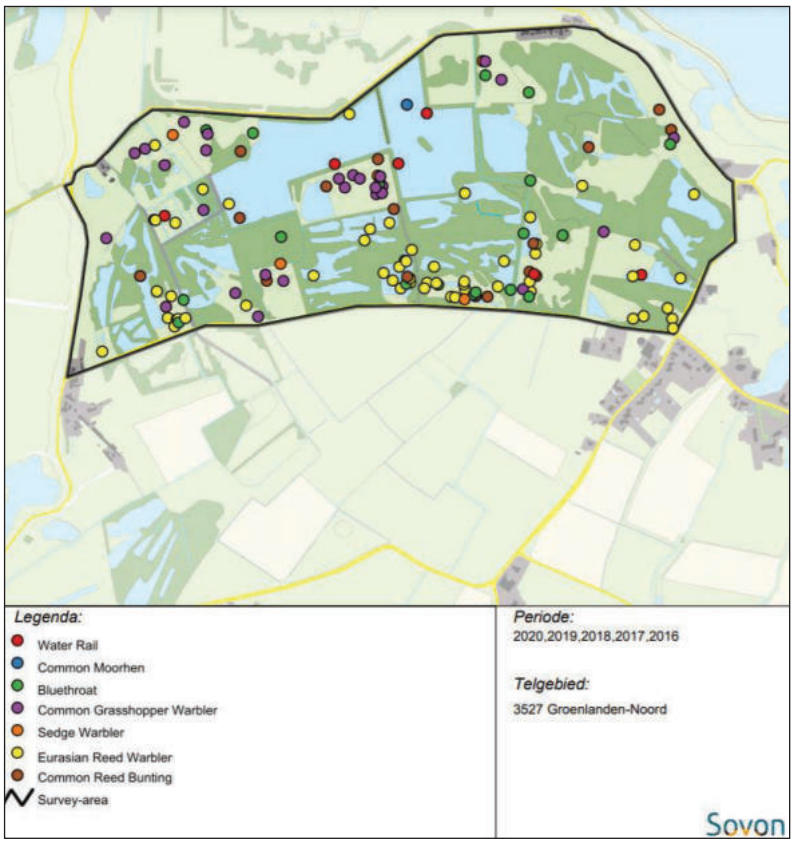

Figure 3. Distribution of ten breeding bird species characteristic for reed marshes in BMP study plot 3527 in a) 1996–2000 (n=222 territories) and b) 2016–2020 (n=130). Different species are indicated by different colours. This marshland plot was affected by desiccation and vegetation succession. As a consequence, Bittern *Botaurus stellaris* and Savi's Warbler *Locustella luscinioides* have disappeared since 2000, Great Reed Warbler *Acrocephalus arundinaceus* already did before 1996. Most other species have decreased in numbers, apart from Grasshopper Warbler *Locustella naevia* (orange in a., purple in b.), which is also occupying the drier parts the study plot.

Your text in the next issue?

Bird Census is meant as a forum for everybody involved in bird census, monitoring and atlas studies. Therefore we invite you to use it for publishing articles and short reviews on your own activities within this field such as (preliminary) results of a regional or national atlas or a monitoring scheme, species-specific inventories, reviews or activity news of your country (as a delegate: see also below).

Instructions to authors

– Text in MS-Word.
– Author name should be with full first name. Add address and email address.
– Add short abstract (max 100 words).
– Figures, pictures and tables should not be incorporated in the text but attached as separate files.
– Provide illustrations and figures both in colour.
– The length of the papers is not fixed but should preferably not exceed more than 15 pages A4 (including tables and figures), font size 12 pt, line spacing single (figures and tables included).
– Authors will receive proofs that must be corrected and returned as soon as possible.
– Authors will receive a pdf-file of their paper.
– References in the text: Aunins (2009), Barova (1990a, 2003), Gregory & Foppen (1999), Flade et al. (2006), (Chylarecki 2008), (Buckland, Anderson & Laake 2001).
– References in the list: Gregory, R.D. & Greenwood, J.J.D. (2008). Counting common birds. In: A Best Practice Guide for Wild Bird Monitoring Schemes (eds. P. Voříšek, A. Klvaňová, S. Wotton & R.D. Gregory), CSO/RSPB, Czech Republic; Herrando, S., Brotons, L., Estrada, J. & V, Pedrocchi, V. 2008. The Catalan Common bird survey (SOCC): a tool to estimate species population numbers. Revista Catalana d'Ornitología, 24: 138–146.

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