Birdwatching with a Purpose in Turkey: KuşBank - An Internet Based Bird Database and Citizen Science Project

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"As for the future, your task is not to foresee it, but to enable it." - Antoine de Saint-Exupery

Introduction

Six years ago, in spirit with Saint-Exupery our goal was not to foresee or design the future of birdwatching and conservation in Turkey, but to enable the growth of a conservation-minded birdwatching community. As any community, the birdwatching community acquires specific characteristics based on initial conditions and subsequent historical developments. The birdwatching community in Turkey can therefore be defined as an *institution* "a group of people who come together with specific interests and goals and behave within formal or informal rules and a frame that is socially acceptable" (Ostrom, 1996). Birdwatchers all around the world share an interest towards birds, but how they express that interest is as diverse as finches on the Galapagos.

Let us first define the current institutional structure of the Turkish birdwatching community and then outline how KuşBank – an internet based citizen science project for bird conservation - has contributed to build capacity and strengthen the existing institutional structure towards conservation-minded birdwatching. The Turkish birdwatching community has gone through a rapid growth from only about 20 people in 1990 to about 1000 in 2006. But when we projected this increase in 2000 it was also a cause of anxiety. Because if the community would have not found ways to sustain the enthusiasm and the conservation orientation, the institutional evolution could have lead to a direction that values birdwatching for personal enjoyment and listing (twitching) only. Through the institutional structures built and maintained we ended up with a birdwatching culture

that believes in birding with a purpose and primarily values conservation of birds and their habitat.

Institutional analysis

The institutional analyses show that birdwatchers in Turkey are organized through:

1. an internet based email group called Toygar,
2. an internet site called KuşTR,
3. a regular bulletin edited and distributed to all the birdwatchers by Doğa Derneği,
4. National Birdwatching Conferences and regular community birdwatching.
5. an internet based database called - KuşBank.

Toygar, an internet based email list:

Toygar is an email group (listserver) that works under the platform of Yahoogroups (http://groups.yahoo.com/group/toygar). Emails sent to Toygar by its members are distributed to all other members. The birdwatching community is not new to listservers. Between 1995 and 1999, there was a birdwatching listserver on the computer system of Middle East Technical University but the number of its members never exceeded 20-30. Founded in September 1999, Toygar has more than 10 emails per day and has 580 members. By June 2006, 15000 messages were sent to Toygar. While in 2000 one email per day was data and counts from a birdwatching trip today there are on average 5 emails coming via KuşBank, which shows a five fold increase in total reporting. Other mails include photo or sound quizzes, questions and notices about birds, organizing activities, and conservation problems. Toygar over time has taken on the role of the public-eye on submitted bird records to KuşBank. Unusual records are questioned without being offensive, and participants are able to take criticism without being defensive. Those unwritten rules are generally accepted. Toygar has become a respectable, productive and enjoyable environment for information exchange among birdwatchers. Also "Lark" a parallel yahoogroup has been established for English speaking expatriate Birdwatchers in Turkey.

KuşTR – www.kustr.org

This website mostly operates as a living bulletin. At this website bird watchers can learn what is happening in the birdwatching community, the

latest events. They write articles and share information on birds, on the website.

National Conferences and Community birdwatching events

Even though the cyberworld of Toygar and KuşTr seems enough to the birdwatchers, it is not sufficient to get to know each other. National Birdwatching Conferences are organized since 1991 of which the 8th was organized in 2005. These conferences enable to have the largest gathering of all birdwatchers in Turkey. The sessions enable birdwatchers to present to others what kind of projects they have been doing in the last year and learn from others. Of course the best way to interact with another birdwatcher is to watch birds with him/her. The conference always includes a trip to a nearby IBA (Important Bird Area) for birdwatching. In addition to conferences "Birdwatching Days" are organized by local birdwatching clubs, who host other clubs for a few days of birdwatching together. During these visits generally 20 to 30 birdwatchers get to know each other, and learn that one of the most important aspects of birdwatching is "sharing". Through the organization of Birdwatching Days and national conferences the hosting birdwatching club makes itself and its purpose known to local organizations and strengthens its social contacts with the outside. The bird data that are recorded during "Birdwatching Days" are sent to KuşBank and to Toygar. The visit and observed environmental problems are reported in an article in "Birders Bulletin". Special reports are sent to local authorities about the environmental problems observed during the visit.

Bulletin

The first printed bulletin specifically about birds was "The Bulletin of the Bird Conservation Group" which was sent out in October 1988 and only published once by DHKD. The same fate followed for bulletins such as "Binocular" (Beykus), "Lesser Kestrel" (AKGT) and the scientifically orientated "Crane" (TOK). The "Hoopoe" Bulletin by KAD published 4 issues till 1999 and then published 5 issues as a magazine. The "Birders Bulletin" edited and distributed for free by DHKD started in October 1999 and continued as "Birders Post" with a renewed design by Doğa Derneği until now. The graphic design of this bulletin is very attractive and the content is very engaging. There are 3 functions of the bulletin. First, it provides a reality check for the cyber personality of Toygar. It provides a permanent reference in the world of "electron recycelante, scripta remenante" *sensu* "verba evaporante, scripta remenante". Second, it provides an alternative communication medium for people without an internet connection or who choose not to use it. Third, it organizes and condenses the unordered and unstructured flood of information in Toygar into a logical framework every

three months. It also highlights important events that have happened or will happen and the important bird observations from the previous months.

Other Forums

Emphasizing these forums does not mean that other forums are not contributing to the birdwatching community. There are other forums which help Turkish and even visiting birdwatchers. These forums include up-to-date web pages of clubs and individuals. Some clubs have their own internal email servers with up to 70 members and all communicate effectively via email. There were also 7 "Birdwatching Schools" in the last decade and these have introduced birdwatching to several hundred people.

Summary of Institutions:

During the last ten years birdwatching in Turkey has passed the point of no return. There are bird clubs in 24 different provinces and others are being founded. The birdwatchers exchange information and build community through three successful forums (Toygar, Bulletin, National Conferences, Community birdwatching events). The institutional structure provided by these forums is what has helped the community to grow. For example community birdwatching events are organized through Toygar and the events and observations are reported there as well. The summary account and collected data is later published in the Birders Bulletin. These 3 forums serve different goals, yet they all support each other. With the help of these forums the observers have produced common values and created tradition, which has helped the institutional structure to develop. For example to be able to accept submitted bird records there are informal rules requiring date, place, weather conditions, observers, etc. All birdwatchers are expected not to disturb birds while watching them. For the community to harm birds while observing them is morally unacceptable (some bird groups have posted codes of ethics on their web sites). However, there was still a need for an establishment of a conservation-minded birdwatching community that gives great emphasis to bird data collection for conservation. The tradition of birding with a purpose had to take roots in the community while it is growing.

A new birdwatching philosophy

As stated so far the current development of the birdwatching community especially with the introduction of KuşBank has led to an emphasis to bird data collection for conservation. By providing new institutional structures

we enabled a community that puts bird conservation in front. In countries with a high percentage of birdwatchers an ethic of birdwatching has been established. The "code of ethics" from all around the world can provide examples, but we ought to recognize that those examples bear the traces and philosophy of their past. They may not be appropriate for the conditions in Turkey, since they have evolved when the threats on birds were less severe. The basis of our ethical rules ought to stand upon a "birdcentric philosophy". The birdcentric philosophy can be practiced when we consider the benefit of birds in every social activity we take part in and in every individual move we make. In practice this philosophy prevents the activities and behaviours that may cause harm to birds and promotes a birdwatching activity for bird conservation. It is different from the existing "code of ethics". The birdcentic philosophy is not only concerned about the welfare of birds, but it necessitates to work directly to conserve birds and their habitat.

The number of birdwatchers in developed countries is high compared to that of birdwatchers in the less-developed countries. Unfortunately little percentages of these birdwatchers behave according to birdcentric philosophy. Birdwatching for a majority of people is a hobby only to have good time and enjoy being out in nature. For some it is a competitive activity in which keeping and comparing lists of birds seen is a prestige. Fortunately birdwatching only for the purpose of listing is not very prominent in Turkey and is considered degrading. Data that are submitted to KuşBank and to Toygar include information about number of birds, reproduction and habitat. Excitement is shared not only for rarities seen but also for common birds like white stork. When inclinations for raptor fetishism appear on the list (Toygar), voices of protests appear, which is already an indication of an institution that fosters birdcentric philosophy.

As we know philosophical movements do not survive unless they have their followers, supporting institutions, structures and activities. One of these institutions to support a birdcentric philosophy for bird conservation is to have a common purpose. In her book "Birding with a Purpose" Fran Hamerstrom expresses the necessity of purpose and meaning for birdwatching on behalf of birds. The meaning of birdwatching for Hamerstrom is to produce scientific data for the conservation of birds (Hamerstrom 1984). For bird conservation Fran and her husband did important research that helped birds including some endangered species. Research for conservation therefore provides an excellent purpose for birdwatchers. They can contribute to something by just doing what they enjoy most, watching birds. So how can birdwatchers who are not scientists contribute to conservation?

Citizen Science

In its widest definition, citizen science is scientific research done by people from every level of society in collaboration with scientists, to end the discrepancy between science, politics, and decision making and planning. To be able to bridge the gap society requires proper scientific approaches with full participation of the public. Citizen science requires balanced and flexible management with democratic values, capable institutions and a powerful civil society. The public watches environmental problems in frustration. Environmental problems worry everyone in every level of society. Once whispers in the wind, the statements of scientists are beginning to be heard and interpreted by different sections of society. The public, which was once looked down upon as "ignorant," wants to be part of the democratic decision-making process. For sustainable development and real democracy, the notion of citizenship must be settled and the participation of the citizens must be assured. In contrast with current scientific approaches that value generalization, the knowledge and experience of citizens are specific to local conditions (Irwin 1995). Therefore to make sustainability a real and down to the earth concept, it is crucial to incorporate the knowledge and experience of the local. Citizens, once taken seriously, are willing to share their knowledge and experiences in the decision making process. They are pleased to collaborate with scientists through citizen science. Professional scientists gain credibility through science that is respected and backed up by the public. Citizens have the opportunity of being involved in scientific studies while doing what they enjoy as a hobby. By participating in studies on the environment citizen scientists will learn more about environmental problems. The more they learn about the scientific issues, the more consistent their decisions will be with science. Once they become proficient in scientific issues their effectiveness in environmental advocacy will increase. In this respect citizen science empowers civil society, it strengthens democracy (Irwin 1995, Irwin & Wynne1996). Research that involves different parts of society and their local experiences and knowledge result in more harmonious institutions and sustainable development (Lee 1993, Gunderson *et al* 1995). Therefore for the maintenance of a sustainable society and a healthy environment citizen science is central.

As Citizen Science is a collaboration between professional scientists and amateurs, it is usually done on a voluntary basis. It is especially useful for research subjects that require large data sets that need to be collected across large geographic regions. Bird watching has pioneered Citizen Science from the very start. It should be no surprise that the oldest known citizen science project is the "Christmas Bird Count" which has been held in the USA since 1900. We can easily consider birdwatching to be the founding institution of citizen science. Even "Bird Marathons" organized for fund raising for bird conservation, can be accepted as citizen science. Birdathons

can provide information on bird species found in a place at a given time. More organized and systematic studies may provide us with more important data for bird conservation purposes.

Today distinguished research centers such as Cornell Laboratory of Ornithology and Patuxent Wildlife center collect scientific data and raise awareness by Christmas Bird Counts, backyard bird counts, and breeding bird surveys. A new initiative by BirdLife, RSPB, Audubon and other partners called "WorldBirds" is expanding to do the same on a global scale. These schemes collect the data from participants with the help of the internet. The participants directly input their records through the internet. The submitted records in online databases can be viewed by participants and visitors to the internet sites. The data is later analyzed and distributed to participants and to the larger society. Participants in citizen science projects learn how science operates and the importance of scientific data and the pleasure of conducting science and contributing towards bird conservation. Participation increases the sensitivity of the participants to conservation issues and it also helps them realize that they have power to change things. Data about birds provided by citizen science is also very useful for bird conservation research (Barker & Rosenberg 1997).

Early Attempts at Citizen Science in Turkey:

There were early attempts to start a form of citizen science for bird conservation by DHKD in the 1990s. For years different versions of birdwatching data forms were being distributed and collected. The main goal was to harness bird observations collected by foreign birdwatchers, but also from a few Turkish birdwatchers. A set of maps based on a grid system drawn on aviation maps was sent to some birdwatchers and used for data collection. Thereby the geographic locations of the collected data could be referenced. An expert from RSPB established a database appropriate for these data forms. This program is now very old and does not run on existing computer platforms. But even if it could a database of this form is highly vulnerable to being lost or outdated. The data cannot be viewed and used by people who collect it, and it is not suitable for further analysis. No feedback was received for the efforts although there were rumours that it was used to write the "Important Bird Areas" book.

When bird observation data collected by Turkish birdwatchers started to be sent regularly to Toygar and other listservs there was a concern about where these data ended up and whether all the effort was being wasted. Some were archived by individuals in forms that were not very suitable for data analyses, others were being lost. It is still not clear where they are stored or how accessible it is, whether there is redundancy, and whether they are

going to be used for bird conservation. Birdwatchers who value data and who input it into personal databases with great effort might not be able to share that information because of time, technology and the availability of the software and platform. With the rise of the internet we are now in a new era with incredible opportunities for citizen science. The internet enables citizen birdwatchers to actively gather, use, and analyze data for bird conservation directly. Therefore we developed KuşBank – an internet based citizen science project for bird conservation.

KuşBank

KusBank is a database where bird watchers enter their observation records via Internet. It is a "citizen science" project by which bird watchers, citizen scientists, help conservation of birds through their observations. Kuşbank is a project lead by Doğa Derneği and Erciyes University with the support of the Royal Society For Protection of Birds (RSPB). It all started in two workshops with the bird watchers, who stated the need for such a system. KuşBank then was designed through the suggestions and wishes of the bird watching community (Özesmi, 2000; Özesmi, 2002a). Later it was turned into a proposal and presented to RSPB as a project. The Project was formulated, designed and lead by Uygar Özesmi and the software was coded by Sezgin Erdoğan. The Project was administered for a while by Handan Tezbaşaran. Today the Project is lead by Esra Per and advised by Uygar Özesmi, Ian Fisher, Jose Tavares, and Guven Eken. Furthermore, KuşBank is part of a worldwide project called Worldbirds (www.worldbirds.org) which is initiated by BirdLife. Worldbirds project aims to aggregate various national databases, like KuşBank, in order to use these data for the conservation of birds. KuşBank can be reached through the Internet address: www.kusbank.org and is open to all birdwatchers who would like to contribute (Fig. 1).

Why KuşBank Is Essential?

Before KuşBank, it took great efforts to reach hand written data or data in individual databases. It was almost impossible to compile records for use, and to share observations with others. As the records were not collected in a Standard way, they were mostly incompatible. Thus, bird watchers needed a common database where they can record their observations and share them with others. For conservation use there was a need for a database that would be upto date with the latest information from which breeding, wintering and migration distributions and trends could be derived.

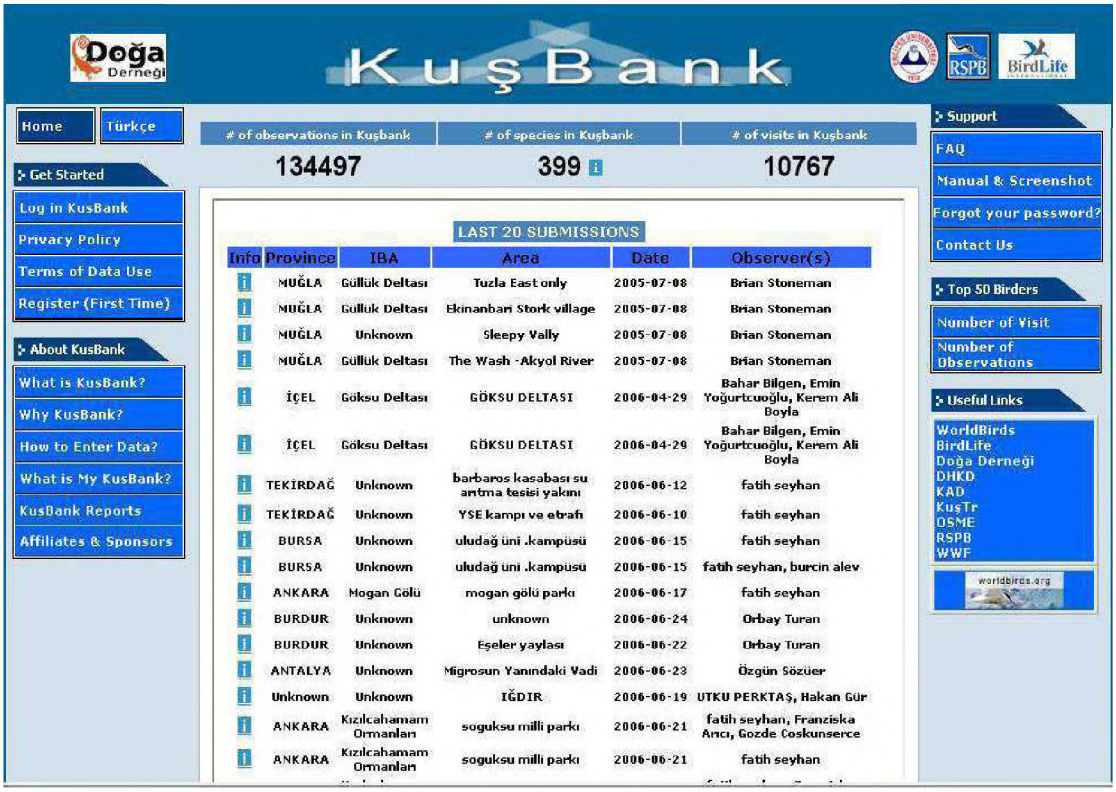


Fig. 1: KuşBank main page.

As birds are fairly good indicators on how the environment changes, as the information on birds in KuşBank increases to make statistical analysis, KuşBank aims to provide changes in the distribution and abundance of birds. The bird species, number, reproductive state, habitat and threaths entered at KuşBank leads to the effective observation of Important Bird Areas (IBA). The essential data about an area that fulfills IBA criteria can be obtained from KuşBank. We hope that KuşBank will become the basis for IBA determination and the update of IBA's bird, habitat and threath data. Data entered into KuşBank will not only determine a new IBA, but will also asses whether there is development or regression in bird diversity and population in current IBAs. The data in KuşBank already contributed to the IBA update book that was published in 2004 (Kılıç & Eken, 2004). In 2004, 41 records of 27 species provided the update of status of IBAs. The bird observation data in the database were used easily for the conservation of birds and nature as in this example. Also, KuşBank contributes to Turkey's EU adaptation process by providing data to the conservation studies.

KuşBank Member Statistics

The names of the bird watchers who have the highest number of observation records in Kuşbank are announced at "the ranking of the first 50 records and observations" link at the main page of the web site: www.kusbank.org. In 2004 Ian Richardson, Emin Yoğurtçuoğlu, Bahar Bilgen were the highest ranking birdwatchers. The users of KuşBank are mostly birdwatchers who are in the bird watching clubs in various provinces. This is due to the success of Doğa Derneği in establishing bird clubs all around the country (Fig. 2).

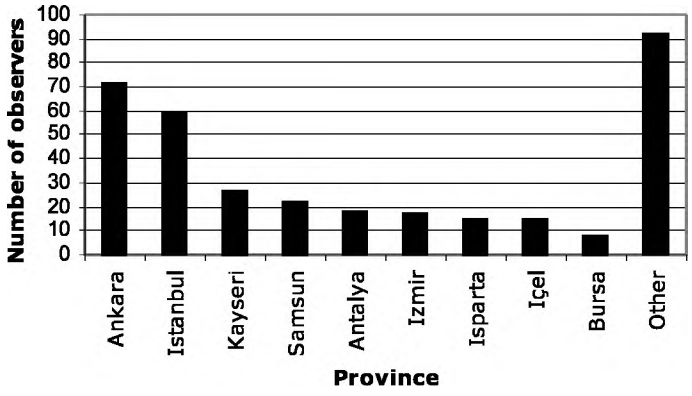


Fig. 2: Number of KuşBank users by provinces

Of the total users 22% are from Ankara and 17% from Istanbul. KuşBank users are 74% male and 26% female, 26% of the users are students. The profession distribution of the users is shown at Fig. 3. Birdwatchers who enter observations to KuşBank were watching birds on average for 5 years.

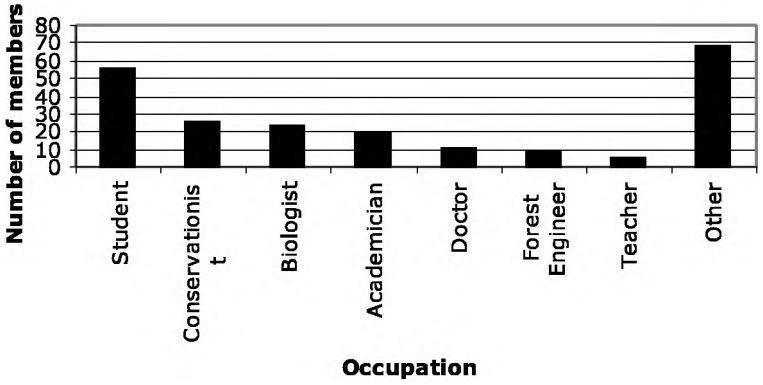


Fig. 3: Number of professional occupation types of users.

KuşBank Use Statistics:

KuşBank with its 300 users is continuing to develop and data is increasing rapidly. All known bird observations in 2004 were completly entered and retrospectively data has started to be entered between the years 1984 and 2003 (Fig. 4). Among the past observations there is data from the Erciyes Mountain Bird Atlas that was done by Erciyes University Bird Watching Society in 2001. (Per *et al.*, 2002) As of 29 June 2006, there are 134.497 bird records, 399 bird species and 10.767 observations" in KuşBank. The collection of this high number of data about birds in a such a short time has been a first in Turkey's bird watching history. Starting in May 2004, KuşBank has has received on average monthly 500 observation entries and 50.000 hits. During this time KuşBank is used most frequently on Mondays between 16:00-17:00. Bird watchers who generally made their observations on weekends, prefer to enter their records on Monday. When the distribution of observation records from KuşBank in 2004 was analysed, we found that bird data from 56 cities in Turkey were entered (Fig. 5).

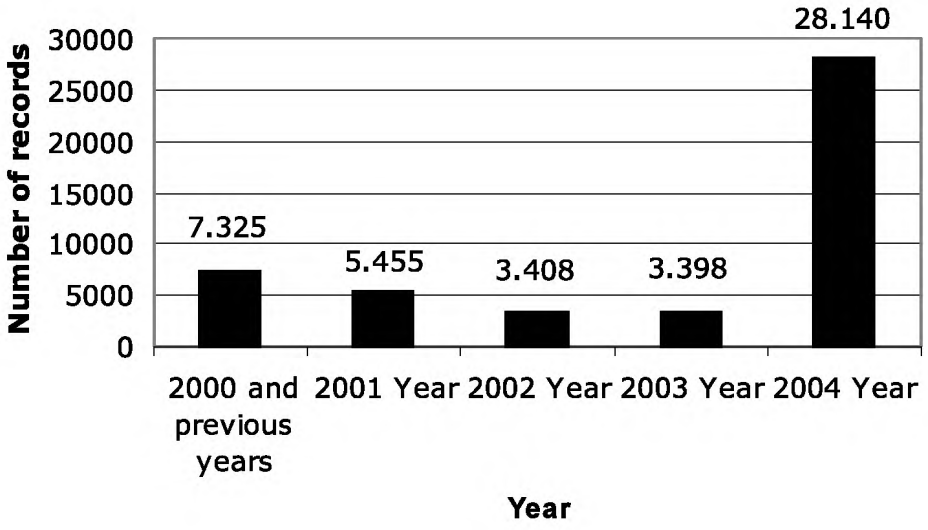


Fig. 4: Number of records in KuşBank by years (as of 15.05.2005)

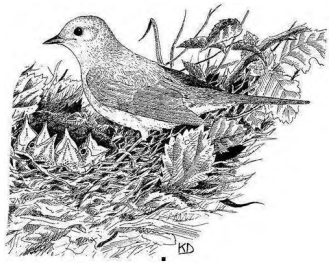


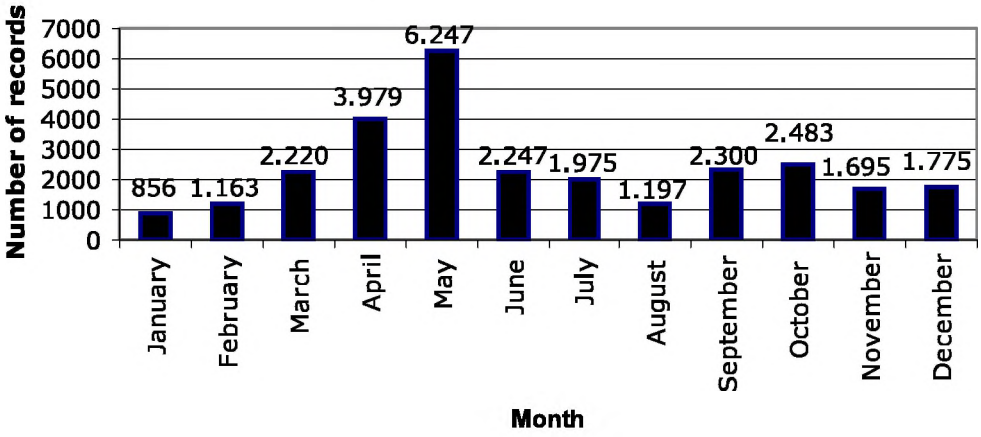


Fig. 5: Provinces from which records exist in 2004.

Record Statistics from 2004:

The bird observation records belonging to the year 2004 makes 27% of the data in KuşBank as of 21 January 2006. Turkey is divided into 376 units of 50x50 km squares. Of these squares 166 of (44.2%) have been visited by bird watchers. In 2004, 28.140 bird records from 2000 observations were recorded. The total number of species seen in 2004 was 362 bird species. Of all records 54% were from IBA's. Breeding Bird Atlas studies increased data entered in May of 2004. With the start of fall migration records entered into KuşBank increased again (Fig. 6).

Fig. 6: Distribution of records by month in 2004.



Distribution of Bird Records in Turkey in 2004

When all records in 2004 are mapped onto 376 squares of 50X50 km we see calculated that there were on average 75 records per square (Fig. 7). Most records (2371) came from the square in Ankara that included Mogan Lake, Eymir Lake, Altinpark and ODTÜ Campus.

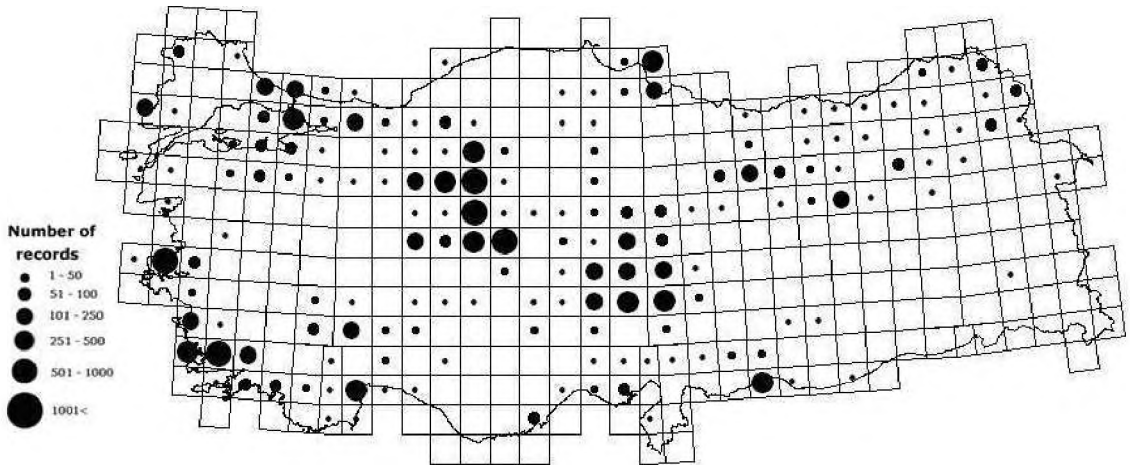


Fig. 7: Total number of records in 50x50 km squares in 2004.

The breeding distribution of 8 bird species

In 2004 we produced maps for 10 species to demonstrate how records in KuşBank can be useful in mapping bird distributions. We mapped the known distributions of birds before KuşBank and how records collected by citizen scientists in 2004 only can improve our knowledge (Fig. 8-15). For previous distributions we used the database from Metehan Özen who collected data from Toygar before KuşBank became operational, the bird distributions from the Konya Basin Atlas Study from DHKD (Eken & Magnin, 1999), The South East Anatolia Bird Atlas Study (Welch, 2004) and the distribution maps from "Songbirds of Turkey" (Roselaar, 1995).

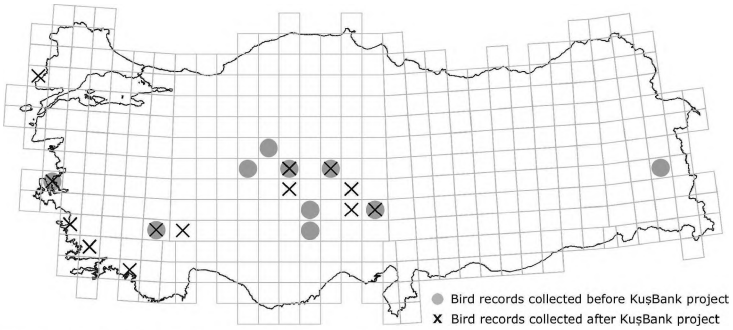


Fig. 8: Flamingo, Phoenicopterus ruber breeding and summer distribution

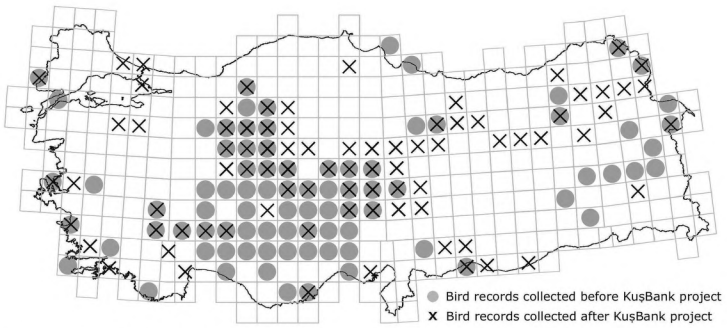


Fig. 9: Long-legged buzzard, Buteo rufinus breeding distribution

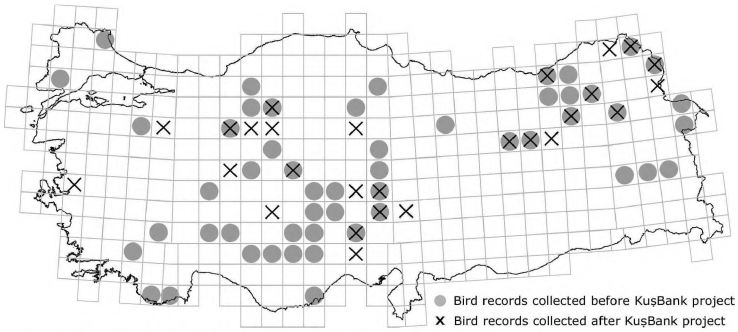


Fig. 10: Golden eagle, Aquila chrysaetos breeding distribution.

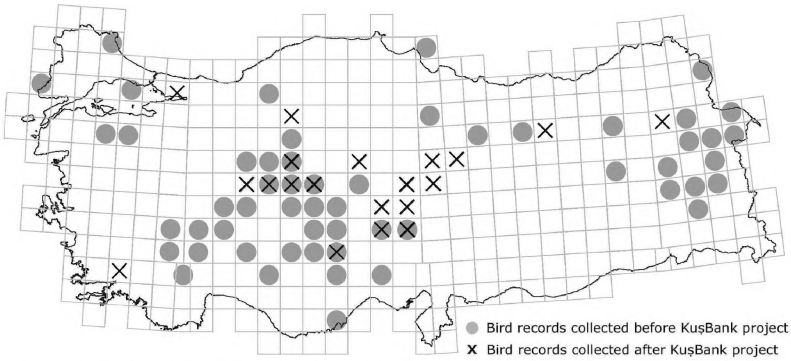


Fig. 11: Lapwing, Vanellus vanellus breeding and summer distribution

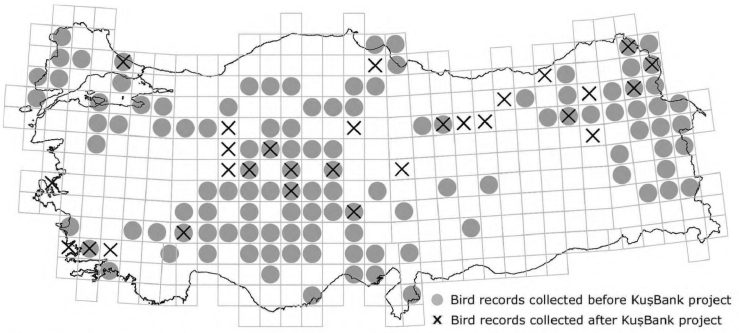


Fig. 12: Skylark, Alauda arvensis breeding distribution

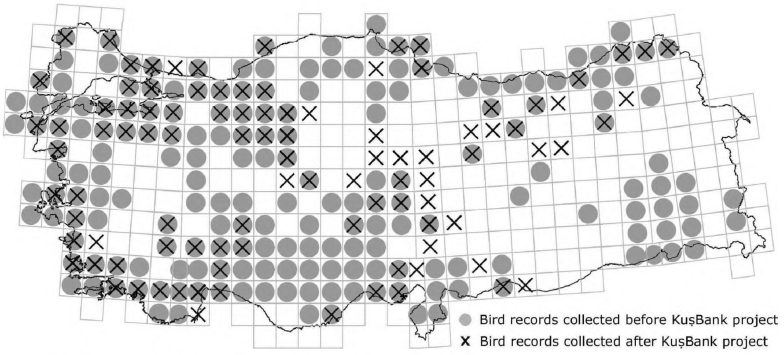


Fig. 13: Blackbird, Turdus merula breeding distribution

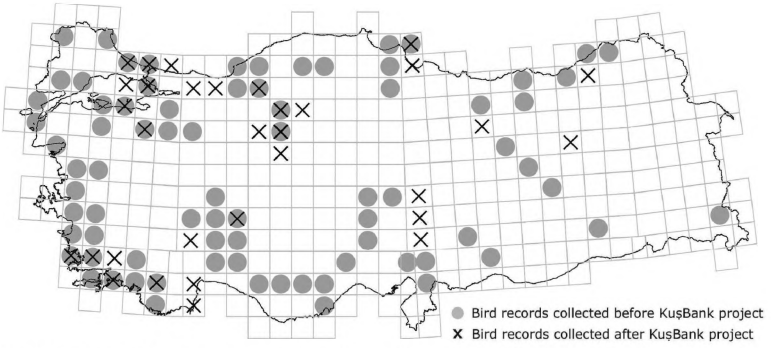


Fig. 14: Long-tailed tit, Aegithalos caudatus breeding distribution

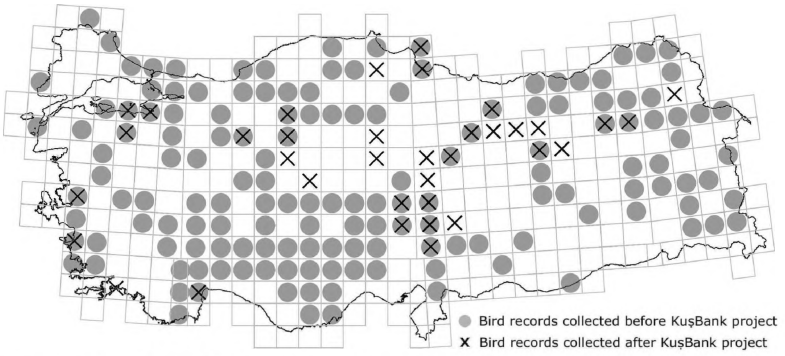


Fig. 15: Ortolan Bunting, Emberiza hortulana breeding distribution

Conclusion

KuşBank through the services it provides to the birdwatching community has contributed to the institutionalization of the bird watching community in Turkey and an to the establishment of a bird watching practice that puts bird watching for data gathering for conservation at the front. Thereby birdwatching in Turkey has come to have a strong purpose.

In KuşBank, birdwatchers can store their sightings in a standard way and share with other birdwatchers. KuşBank, as a citizen science project for bird conservation, has shown that volunteers can contribute to scientific work.

Turkey is a rich country in terms of bird diversity and hosts 456 species. 362 (79%) of those have been seen and entered into KuşBank during 2004. Among those species entered in KuşBank 158 are threatened species in Europe.

During 2004, 2000 field observations by 400 birdwatchers were collected in KuşBank which include a total of 28.140 bird sightings. The sightings correspond to 166 50x50 km squares in 56 provinces from the total of 376 squares found in Turkey. The majority of the observations and sightings in KuşBank date from spring and autumn. The breeding data was used to prepare breeding distribution maps of Turkish birds. Many sightings come from Important Bird Areas (IBA) and 53% of those are from Central Anatolian IBAs. Mogan Gölü (Lake Mogan) in Central Anatolia is the most frequently visited IBA.

According to the statistics collected through KuşBank 74% of users are male and 26% female. Twenty-six percent of the users are students who make up the most frequent profession among the users. Similarly, 45% of the users are university graduates. The majority of the birdwatchers in Turkey are young adults; average age of the user is 30 and birders have 5 years of experience on average.

During 2004, KuşBank started providing information about IBAs. KuşBank has become the most important source of information to update information on the state of birds, their habitats and the threats on IBAs. Information from KuşBank allows us to update the species that trigger the IBA criteria and more importantly help us monitor IBAs. KuşBank is a partner of the Worldbirds project and has contributed significantly in its initial stages to the software development of this international platform.

KuşBank is not only the largest collection of accessible information on Birds in Turkey but also one of its kind in terms of a citizen science projects in Turkey. Through KuşBank an almost entirely amateur community of

birdwatchers are contributing towards the production of scientific information on the distribution and trends in bird abundance in Turkey. Doğa Derneği is continuing to work towards expanding the birdwatching network in Turkey and building capacity among birdwatchers. Doğa Derneği and its partners will continue to improve the services and software of KuşBank together with birdwatchers for birding with a conservation purpose.

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