

eBird – Global tools for birders – Critical data for science

This article describes how you can use the internet web site eBird (www.eBird.org) to record and track your bird sightings while at the same time sharing them with scientists and other birders. eBird is essentially a giant shared database and its purpose is to collect dispersed bird data of interest to science while meeting the needs of birders to manage their bird records and lists. eBird collects valuable data on bird distribution and is an excellent research and notification tool for travelling birders and listers alike. eBird is managed by the Cornell Lab of Ornithology and supported by National Audubon Society and other funding sources. Hopefully by the end of this article I will have convinced you of the value of eBird and encouraged you to try it out. If you are already an eBird user great! Stay tuned for some tips and tricks in a later article. If you want to skip the sales pitch and dive right in just go to the eBird quick start page: <http://ebird.org/content/ebird/about/ebird-quick-start-guide> and try entering some data (eBird is free and it's easy to register and enter/delete test data). Like any software tool, the more you know about and use eBird, the easier and more useful it becomes. And eBird will continue to be improved over time as Cornell and Audubon have made it clear that it is a top priority for their science and conservation programs. For those interested, the following is a brief history of the contributions of birders to science and the internet as far as birders are concerned.



How the internet has changed birding

Amateur naturalists have long made major contributions to ornithology, increasingly so since the publication of the Peterson Field Guides to the Birds and the rise in popularity of bird watching. This history includes such well known projects as the Christmas Bird Count, the USGS Breeding Bird Survey, and various state efforts such as Breeding Bird Atlas projects among many others. Many birders have kept rigorous field notes and detailed checklists from outings and provided seasonal reports to North American Birds (formerly called Audubon Field Notes). Arguably the contributions of amateur birders have been critical to our understanding of bird distribution and more recently in many advances in bird identification. The internet has played an increasingly important role in how birders share this information.

It's an understatement to say that the internet has changed the world in the past 20 years. Birding is no exception and birders were there from the start realizing the potential of the World Wide Web to quickly share bird information. Information is the main currency of birding and before the internet, phone trees and message systems were the only way to quickly spread information

needed by birders quickly. Seasonal reports provided more detailed information in journals such as North American Birds and ornithological society journals but well after the fact and filtered through a hierarchy of editors. Once access to the internet became fairly widespread birders found their way to local information through state and regional email lists, chat boards, and bird club web sites. The stage was set for the explosion of Web 2.0 with social sharing sites such as Facebook and flickr, blogs, podcasting, and much more and birders jumped right in with the new resources. Along the way there was the realization that the internet could be a very efficient way to collect dispersed data. Bird distribution data is a perfect example as it is not only widely dispersed but very diverse. At the same time citizen science efforts such as the Christmas Bird Count had matured and become accepted by mainstream science. It was only a matter of time that a group such as the Cornell Lab of Ornithology, already well engaged with birders, realized the potential for birders to contribute huge amounts of data. Computer technology and statistical techniques had also advanced enough to allow analyzing of these huge datasets.

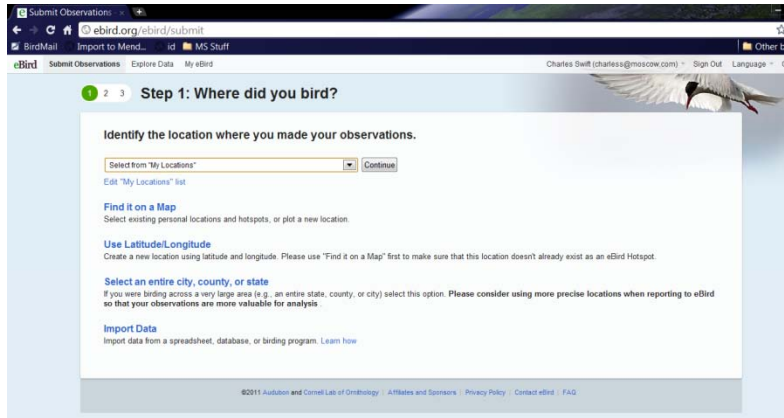
Why Use eBird?

If you have been birding for a while you may wonder if your records could be useful to science – well they can be with eBird. Many birders already participate in projects like the Christmas Bird Count and Feeder Watch which have proven their usefulness in informing science and conservation. eBird extends birder participation in science to a new level by providing you a way to contribute any or all of your bird records. In addition, your records are potentially archived in perpetuity in eBird and accessible to future generations of birders and scientists. If you are lister you will find that eBird is a great way to manage your life list as well as state, county, and year lists (all are displayed in the ‘My eBird’ section of eBird). If you are a data junkie you will find many ways to slice and dice eBird data beyond what is already provided. Anyone can download eBird data directly for their own needs. If you already use a program like Avisys you may find that you can export (with some effort) your sightings to eBird. In the future 3rd party software will likely be tightly integrated with eBird providing improved usability especially for mobile users. For fun you will find that you can compare your lists with other birders using eBird. You can register your yard or favorite birding spots (patches) with eBird and you can contribute a site survey if you regularly survey your favorite birding spots. eBird checklists can now be shared with others by email, on social sharing sites like Facebook and Twitter, or linked from anywhere by a direct link (URL). You can “share” ebird lists with birding companions who are also eBird users (these lists will also become part of their records as well). If you are travelling birder you will find eBird to be a useful research tool, a place to store your trip sightings (eBird is now has global coverage), and a way to find out about recent sightings at your destination.

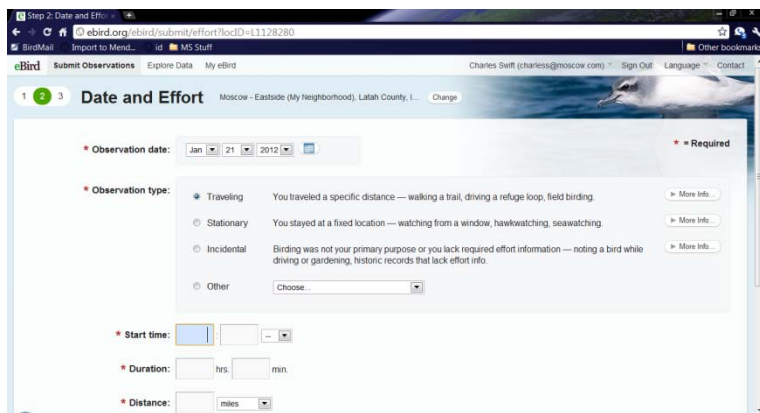
How to Use eBird

What really makes eBird powerful is its ability to explicitly and precisely map the locations of the bird data it collects. This is accomplished through a mapping interface (using Google Maps) or from user-entered coordinates recorded from a GPS device. The easy availability of

geographic data such as habitat, topographic information, and land use, allows scientists to correlate eBird data with these features and explore spatial patterns of birds across multiple scales (local areas, counties, states, regions, etc.). This information is also critical for identifying areas of interest for conservation purposes. This is why it is so important when using eBird to specify as precisely as possible the location of the bird data being entered. Data lacking this information has limited usefulness to eBird.

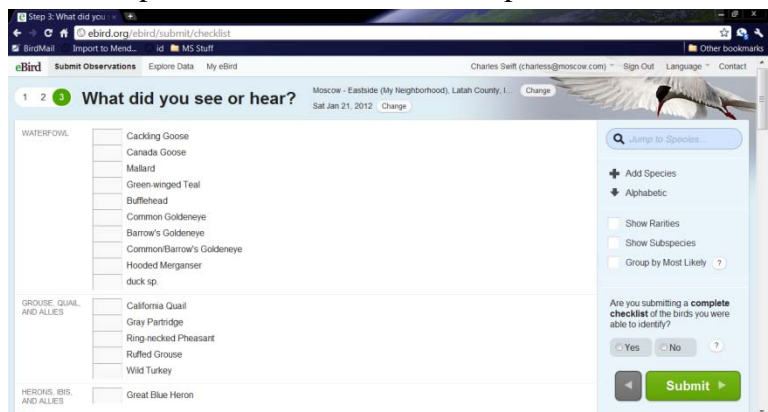


Once an entry is made for a new location it becomes a permanent location in eBird. Locations are either personal locations or (shared) hotspots. Personal locations are only available to the user who created them although they can be seen by other users when exploring eBird data.



Hotspots are locations shared by all eBird users and are usually well known and easily accessible birding locations. When submitting a checklist you will be asked to find the location for your checklist on the eBird map interface. If the location is already a hotspot then you should use it. If it is a new location and you feel it should be a hotspot you can check a box to suggest it as such.

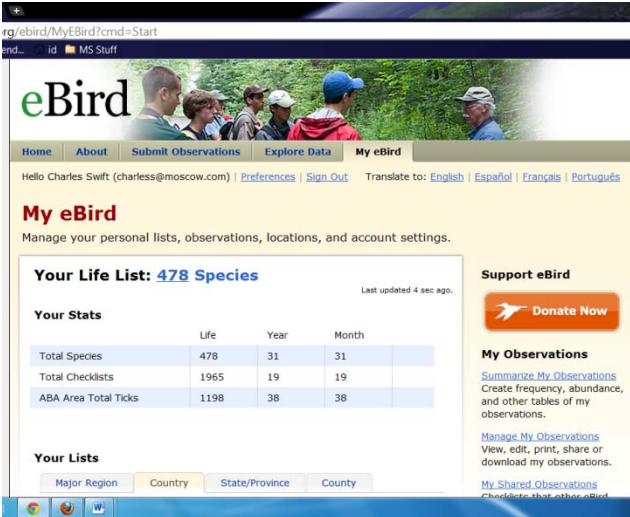
A second important thing to understand is that the checklist is eBird's currency (or sampling unit in statistical speak). The reason for this is that a species' frequency or commonness is roughly related to how often it occurs in checklists. A checklist-based analysis is the basis for much of the analysis done in eBird to provide usable output. For this reason it's important to submit complete checklists which means enter all species detected, not just species of particular interest. Incomplete checklists are acceptable for listing purposes (make sure to answer no to the species complete question) but cannot be used by eBird for analysis. Furthermore entering numbers, even rough estimates,



allows eBird to estimate abundance. Rough estimates of large flocks are more useful than X's (depicting only presence or absence) and can be done with some practice. As an added benefit, counting large flocks is also often a good way to find unusual species hidden within them.

eBird requires that checklists are entered by protocol and most birders will use traveling counts, stationary counts, or incidental observations. Examples of each are given in the eBird tutorial here: <http://ebird.org/content/ebird/about/tutorial>. Other required data includes time of day and effort in the form of time and distance. Time of day is important as it has an effect on detectability (birds being generally easier to find in the morning). Effort is important as it is positively related to the number of species and individuals found while birding. These variables can be very useful in analyzing eBird data and are required in all protocols except incidental observations.

The basic process of submitting a checklist to eBird then is to select the location, enter date, time, and effort data, and then enter the species checklist. Make sure to indicate complete/incomplete checklist and then submit the checklist. Once submitted eBird will show you the full checklist and it's worth reviewing it quickly for data entry errors. With practice most checklists can be entered fairly quickly, within 5 minutes or less.



The screenshot shows the eBird website interface for a user named Charles Swift. The page features a navigation menu with links for Home, About, Submit Observations, Explore Data, and My eBird. Below the navigation, there is a greeting and links for Preferences, Sign Out, and language translation options. The main content area is titled "My eBird" and includes a "Your Life List" section showing 478 species, a "Your Stats" table, and a "Your Lists" section. A "Support eBird" section with a "Donate Now" button is also visible.

	Life	Year	Month
Total Species	478	31	31
Total Checklists	1965	19	19
ABA Area Total Ticks	1198	38	38

This is the information you will need to get started with eBird and at this point you can jump in and try submitting some lists. To use "live" data simply take a 5 minute count in your yard or use data in from your bird notebooks or other birding software. There is more detailed information on the eBird web site in various tutorials and articles once you are ready to delve in to eBird further. In a future article I will describe how to explore and use eBird data and provide some tips, shortcuts, and further resources for using eBird efficiently and understanding all its capabilities. Hopefully this has encouraged you to try out eBird and learn how it can be a great tool for managing your bird data and sharing it with science!

eBird – Tips

I would like to share some tips for using eBird efficiently and delve into ways eBird can be useful for doing research. I want to reiterate that most of this information is available on the eBird tutorial here - <http://ebird.org/content/ebird/about/tutorial>. And like any application eBird will become easier and more useful as you gain experience with it.

First though I want to mention a new tool that will make eBirding even easier and sharing data through eBird virtually instantaneous in many areas. This is the ability to submit eBird checklists

using Android (and soon iPhone) smart phones and devices using the Birdseye Bird Log app. This will allow birders to enter data to eBird while in the field. This will be most useful in areas with good cell phone coverage although I understand the app will still work offline using the device's GPS to record the location which will be useful in and of itself. While offline, checklists are saved and then can be submitted later when cell coverage or wifi is available.

A simple way to use eBird efficiently is through checklist sharing with birding companions. If you are birding with a friend or group of friends only 1 person needs to keep track of the bird list and enter it in eBird at which time they can "share" the list with others in the group. That checklist will then become a part of each person's individual records. For additional information see the eBird tutorial on sharing here: <http://tinyurl.com/6sh4ssr>. This could be a good way to use eBird on field trips and to introduce participants to eBird while not necessitating extra work for the field trip leader. Leaders could ask for volunteers to record and enter checklists at various stops and then share with other interested participants. It's even possible to share a list simply by grabbing a URL (link address) off the sponsoring organizations web site.

There are several handy shortcuts that make data entry faster and easier in particular using the 4 letter banding code or part of the birds name in the "Jump to Species" box on the bird list entry screen. This will quickly jump to the species of interest and allow you to enter bird lists from a field checklist in any order. Each bird has a 4 letter banding code which is generally (with exceptions) the first to letters of the first and last parts of a species name (for example American Robin is AMRO). Many birders use banding codes in the field so this is a handy way to quickly enter this kind of data. A final useful data entry tip that I just recently learned about is to rename your frequently used locations with several asterisks at the beginning which will move them to the top of the locations drop down. This can be easily done in the "Manage My Locations" part of the eBird.

Finally here are few suggestions for doing research on bird distribution and timing using eBird. Under the "View and Explore Data" tab the "Range and Point Maps" and "Bar Charts" are the most useful options for most birders. "Range and Point Maps" lets you enter any bird species and location (state and county level locations are most useful) and shows frequencies or locations in eBird for that species. If you check "Show Points Sooner" you will get specific checklist locations for the mapped as long as it contains 2000 points or less (otherwise zoom in to get the location points). The bar charts can be generated for locations and date range and show all species meeting those criteria. This can be very useful for determining how likely a species is to occur throughout the year. Both of these options can be useful for the travelling birder researching places at their destination or of course for learning more about the distribution and timing of different species in your local area. Hopefully these suggestions will be helpful to newer and potential eBird users and find new ways that it can enhance your birding.

Contributed by Charles Swift for the Palouse Audubon Society Newsletter, Prairie Owl – 2012