

eBird: a proposed provincial standard for regional bird recordkeeping

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SPANNING FROM the Carolinian forests and tall grass prairie remnants in the south, through the vast boreal forest and to the Arctic tundra along Hudson Bay, Ontario is a vast province of many habitats. Millions of migrants are concentrated along our thousands of kilometres of Great Lakes coastline and literally tens of millions of birds raise their young in our province every year (Cadman *et al.* 2007). We are also lucky to have a rich history of ornithologists documenting many aspects of Ontario's avifauna for over a hundred years (McNicholl and Cranmer-Byng 1994). Indeed, our understanding of the patterns of bird distribution and occurrence have benefitted greatly from the hundreds of birders who have painstakingly documented both the rare and the routine. We have benefited greatly from a few dedicated record keepers, who have meticulously

compiled thousands, if not millions, of bird records, often into monumental works that are invaluable to the study of bird distribution in Ontario (Curry 2006, Black and Roy 2010, Tozer 2012).

Currently, the rarest of the rare are published in *North American Birds* or *Ontario Birds* — but the majority of species are either not documented, left in a notebook to gather dust, or perhaps, entered into one of our regional records databases. These databases, while all quite functional, are as varied as Ontario's birdlife. Some may be vetted by a single compiler, while others in more populated areas may be vetted and maintained by a committee of sorts. What happens when these roles change hands may be a period of difficult transition as the new reviewers may favour a different system of recording and/or vetting records.

I would like to propose a provincial standard for incorporating regional record-keeping into a province-wide network. The vessel for this feat is the popular online bird database project known as eBird (www.ebird.ca). Until the last couple of years, the growth of eBird has been concentrated largely in the United States, where promotion and adoption by state birding organizations has been fairly high. In Ontario, we have just recently seen exponential growth in eBird users and the trend promises to continue as more birders come “onboard” (Figure 1 and 2). In addition to tremendous growth in individuals using eBird, several organizations have begun keeping records with eBird as it presents an easy, free system for recording bird observations. Some of these organizations are the very same ones that we have traditionally been relied upon to keep regional records, such as the Kitchener-Waterloo Field Naturalists Club (KWFN), Kingston Field Naturalists Club (KFN), Toronto Ornithological Club (TOC), Long Point Bird Observatory (LPBO), and Northumberland Bird Records, to name a few. Some of these organizations (KWFN, KFN and LPBO) have already adopted the method (to varying extents) I am suggesting here for gathering and keeping bird records.

How does it work?

eBird works by collecting daily checklists from users. Each checklist contains several pieces of information, most

What is eBird?

It is an online database project initially started by the National Audubon Society and Cornell Lab of Ornithology in 2002. Bird Studies Canada entered into a formal partnership to create the Canadian eBird portal in 2006. eBird is now world-wide, although use is still most evident in North America. It was initially designed as a way to collect the millions of bird observations that are being documented by bird watchers and use these data in the conservation of birds. Since its initial days, it has grown tremendously, thanks largely to the products (bar graphs, mapping tools, etc.) that serve the very birders who are contributing data to the project (Wood *et al.* 2011). While it is still early, the data collected by eBird are influencing state, provincial and even federal and continental bird conservation decisions (e.g. North American Bird Conservation Initiative, U.S. Committee 2011). Some impressive animated occurrence maps are already being produced.

(see: <http://ebird.org/content/ebird/about/occurrence-maps/occurrence-maps>).

importantly a species list with a date and location. The species list submitted can include counts or presence/absence data for each species and can include as many species as the user wishes (i.e. they don't have to include every species they saw, although they are encouraged to do so). While this basic information may seem trivial to the average birder, multiplied by the one hundred checklists submitted per day in Ontario in

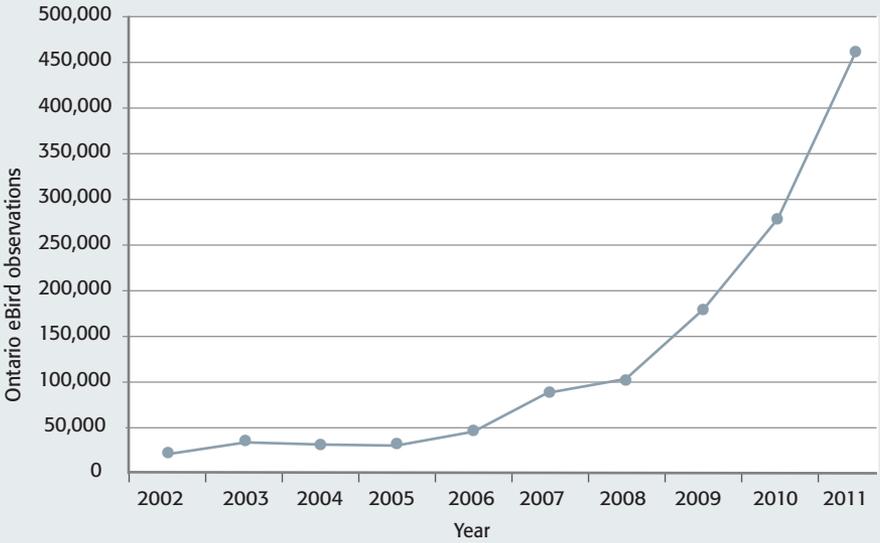


Figure 1: Number of bird records for Ontario by year, 2002-2011

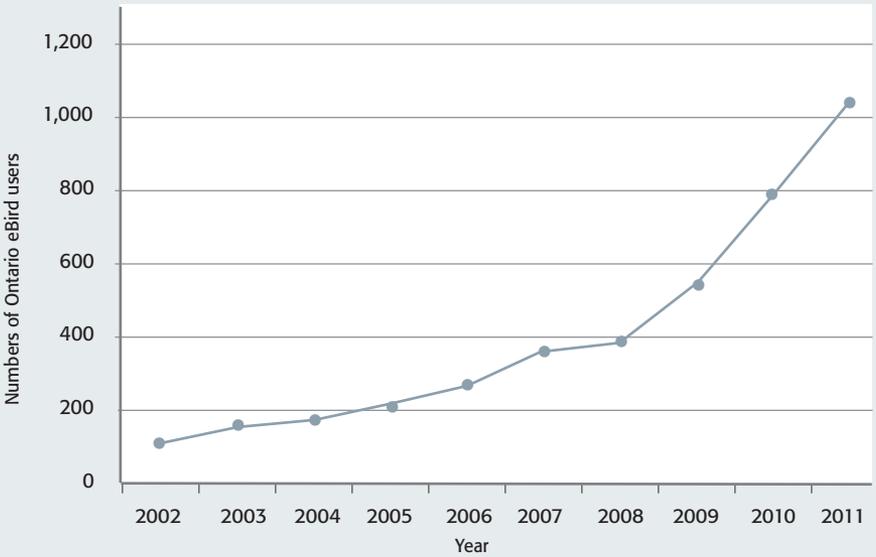


Figure 2: Users submitting at least one checklist to eBird in Ontario, 2002-2011

2011 these data shed a light on the occurrence patterns of Ontario's birds rather quickly. Birding is often a social event and so is eBird. eBird has made it easy for users to submit a checklist and then share that checklist with the other birders that accompanied them with one click, bringing the records into both users' eBird accounts, but more importantly, flagging the two identical checklists as duplicates so that they aren't both used for data analyses. Any users who share a checklist can make changes to the checklist, since, as we all know, you never see as much as your birding partner! This is also an easy way for clubs/groups to keep records, with each member "sharing" their checklists with the group's central account.

As mentioned previously, the recent success and growth in eBird has been largely thanks to the output tools which allow birders to naturally express their competitive sides. You can instantly see where you rank next to other users with year and all time lists at every level from American Birding Association area down to the sub-provincial jurisdictions (counties, regional municipalities and districts). Keeping your own lists is even more diverse, with life and year lists for any location a click away — all kept automatically when you submit your records. At first, this is a deterrent for some people to start using eBird, since they feel like they would have to start their lists from scratch, but eBird allows you to upload your existing lists in a few short steps.

The lists and fun keep me coming back, but some of the real powers of the eBird outputs are the bar charts (think seasonal checklists on steroids) and mapping features that make bird-finding a cinch. Combine these tools with smart phone technology, and you can be guided right to that much-needed tick on your next birding trip in California. eBird is also in the process of expanding its email alert system. Currently, I receive an email alert any time someone reports a rare species or a species in Waterloo Region that I haven't observed yet. Those email alerts can be customized to geographic area. Needless to say, the rewards of becoming an eBird user are much greater than simply becoming better at keeping your own personal records.

eBird data is submitted online, so a user needs access to the internet to participate. This allows you to enter or explore your sightings anywhere with a computer and internet access. It also means that your data are more secure than if they were kept on your home or work computer, since they are being stored and backed-up constantly on secure servers. Any user who wishes can download their full dataset at any time. Some people may think the internet requirement poses a problem, but you can always save your sightings to be entered later, or store your sightings temporarily in a spreadsheet (this is made very easy with some tools that have been developed — see: <http://ebird.org/content/ebird/news/new-ms-excel-tool-to-simplify-data-upload>) or with another

bird records program and later uploaded to eBird by interface. Currently, you can upload large datasets from a spreadsheet or from several bird records programs, such as Avibase (see: <http://ebird.org/content/ebird/about/using-the-ebird-data-import-tool>). This means that no matter the digital format, data can be relatively easily formatted for mass upload to eBird.

How does the vetting process work?

Many of the concerns with eBird in the past have focused on data quality. eBird has come a long way in this regard as well, at least partially thanks to increased usage and interest. The eBird vetting protocol is simple, yet effective. Essentially, each county (or equivalent) in the province has its own filter. Each filter has a maximum number of individuals per month and per species that is “allowed”. If the number exceeds the limit set on the filter, the user is asked to confirm that it was not a mistake, and then the record becomes marked as not valid and does not immediately enter the public database (but appears instantly in the user’s account and is used for calculating their list totals). The flagged record then

sits in a review environment awaiting an eBird reviewer's evaluation of the record. During this process, the reviewer can ask the user who submitted the record to provide more details (eBird now allows users to include links to photos in their checklists) before they make a decision about the record. For most records, it is simply a matter of checking the species comments which the user may have already optionally included. Every decision about a particular record made by a reviewer requires the reviewer to give a reason for the decision they changed the record to valid or not valid and leaves space for the reviewer to type out their notes explaining the decision. All of this information is saved, along with a timestamp, so that future researchers or reviewers can see why a decision was made. If the record is validated by the reviewer, it enters the public database and can be seen by anyone exploring the eBird database. If not, the user will always retain the record in their personal database (unless they choose to delete it). At any time, if a reviewer or eBird user notices a questionable record, they are encouraged to contact the appropriate reviewer.

Filters and reviewers

A network of very competent regional reviewers is already in place for much of Ontario. Where possible, existing bird records committees have been asked to designate individuals to be responsible for this role. At any time in the future, these roles can be passed along to new people. The filters for each Ontario county (or equivalent) were painstakingly prepared by incorporating much of the work done previously by local compilers in the form of published books and seasonal checklists. The filters can be edited “on the fly” by regional reviewers and are meant to be evolving.

What would a regional records keeping organization look like under eBird?

I propose that organizations create a group eBird account (such as has been done by the organizations that I have already listed). This allows legacy data to be uploaded to eBird, and in the future, regular contributors can share their eBird checklists with this group account so all of the details associated with a record can be downloaded easily and viewed by account administrators. For any observers that do not have an eBird account, the current record-keeper(s) can enter their sightings with the group account. This could be done one sighting at a time or via regular mass uploads from a spreadsheet. The regional reviewers would ideally be the same people or group that traditionally keeps these records and/or votes on records. In the future, this could become an option for record submission to the Ontario Bird Records Committee (OBRC), as some state records committees have already begun.

What would the benefits be?

While the system I am proposing would certainly need to have the “kinks” worked out, it offers many benefits. It has already been implemented successfully in some areas, despite the number of birders using eBird still growing rapidly in Ontario. Some of the benefits include:

1. Standardized approach province-wide.
2. Data would be available to everyone, including visiting birders
3. Gaps filled in where historically no one has kept detailed records
4. Easy transitions from one record keeper to the next
5. Easy to contribute records (do not “need to know the right person”)
6. Documentation of regional avifauna to a greater detail than previously possible
7. Ability to document range shifts and changes in abundance of common species not traditionally tracked by regional bird records-keepers
8. Automatic taxonomic updates
9. Uncovering of bird records from people who wouldn't normally report to traditional sources (several examples of OBRC Review List species have already occurred)
10. Streamlined data collection for regional bird reports (*e.g.* North American Birds)

Acknowledgements

I would like to thank the thousands of people who have submitted bird records to eBird, the eBird teams at Cornell and Bird Studies Canada for making an incredible product, and my wife for putting up with my newest obsession. Of course, I'd also like to thank the hundreds of birders who have bought in to eBird and encourage others to do the same. And finally, thanks to all of those existing and past birders who have kept the detailed notes to put together regional books and checklists that inspire and teach us about the birds of Ontario.

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Spring migration of Great Egrets into Ontario: an eBird analysis

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Introduction

In spring, Great Egrets (*Ardea alba*, henceforth egrets) are known to arrive in Ontario in late March and early April (Speirs 1985, Curry 2006, Weir 2008, Black and Roy 2010). Both Bent (1926)

and McCrimmon *et al.* (2011) gave spring dates by which egrets reached certain northerly migration points, *e.g.* 20 March in Ohio. So, although there is good information on the timing of the egrets' arrival in or near Ontario,