

eBird 203: Advanced data exploration

This is the last (for now!) in a series of articles to help you get the most out of eBird – it is quickly become an invaluable resource for birders locally and around the world. In previous entries to this series we have covered everything from the basics behind submitting checklists and exploring data (eBird 101; *Bluebill* 61(2): 63-73) to advanced options and tips for entering data (eBird 202; *Bluebill* 61(3): 125-129), to managing your locations (eBird 202; *Bluebill* 62(1): 23-27). In this article we'll cover off some more advanced techniques for exploring the vastness that is the eBird database.

Advanced data exploration

With millions of data points submitted every month, knowing how to explore the eBird data can be a huge learning tool. In eBird 101, we looked at some of the basics for exploring the data. Here we will expand on this to learn more about what is happening with bird distribution and abundance patterns!

Year-to-year variation using the line graph tool

A really interesting tool to use to compare variation between years or between species is the Line Graph tool. To start, select “Line Graphs” from the “Explore Data” page. The basic line graph has one or more species and displays the frequency of checklists at one week intervals. In Figure 1, we can see the line graph for Common Redpoll and Pine Siskin for the counties within the Kingston area. Remember that you can refine the date and location for this output on top of the species.

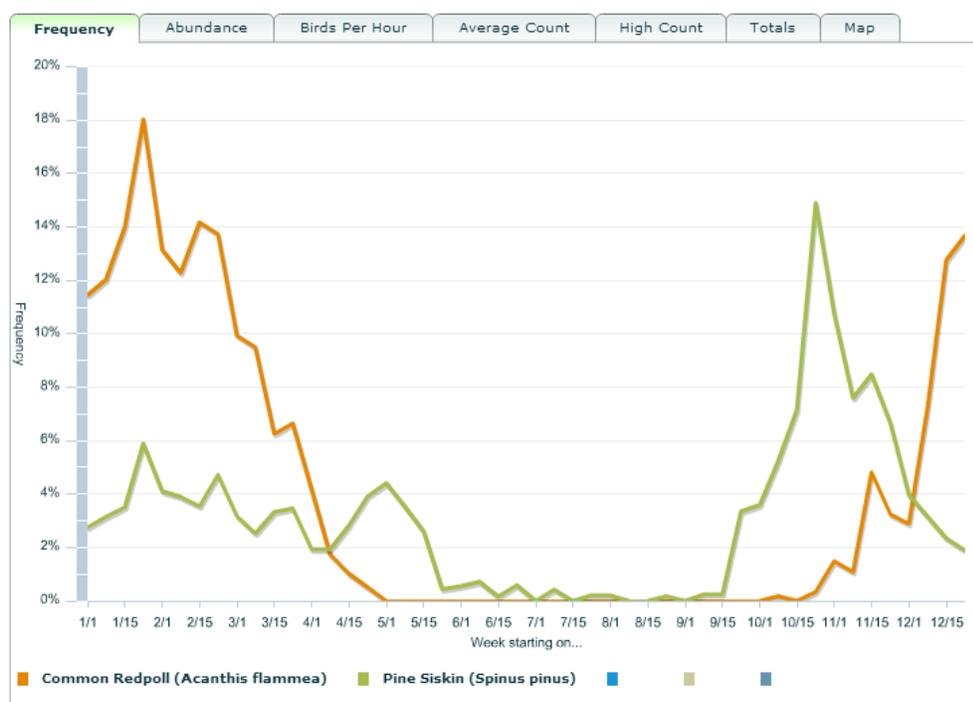


Figure 1 Line Graph for Pine Siskin and Common Redpoll within the counties of Frontenac, Leeds and Grenville, Lennox and Addington, and Prince Edward

The default is to show frequency on the graph, but there are tabs along the top of the graph to switch to other measurements (abundance, birds per hour, average count, high count, totals, and map).

What most people don't realize is that you can use the line graph to compare between different years. To do this, open up the "change date" page and select the "separate years" check box; note that you can only compare up to five different years at once. You can also refine the date range (months) further to better suit your query. In Figure 2, the options are set to compare January-February between 2010 to 2014.

Bird Observations - Change Date
Date Range: 1/1 - 12/31, 1900-2015

Choose a part of the year:

- Entire Year (Jan-Dec)
- Spring Migration (Mar-May)
- Breeding Season (Jun-Jul)
- Fall Migration (Aug-Nov)
- Winter (Dec-Feb)
- Jan to Mar

Choose a range of years:

Start In: 2010 End in: 2014

Separate years (max. 5 years, 1 species)

Continue

Figure 2 Change date page: be sure to select the check box for "separate year" to compare results between years

Once you have made the changes to your query your line graph will display a separate line for each year (Figure 3). In the example here (Common Redpoll) you'll quickly see that some years (2010, 2012, 2014) the species was mostly absent, but in other years (2011, 2013) it was present in varying frequencies. Not only can you compare which years were "better" for a species, but you can also look at seasonal trends to see if they are consistent from year to year.

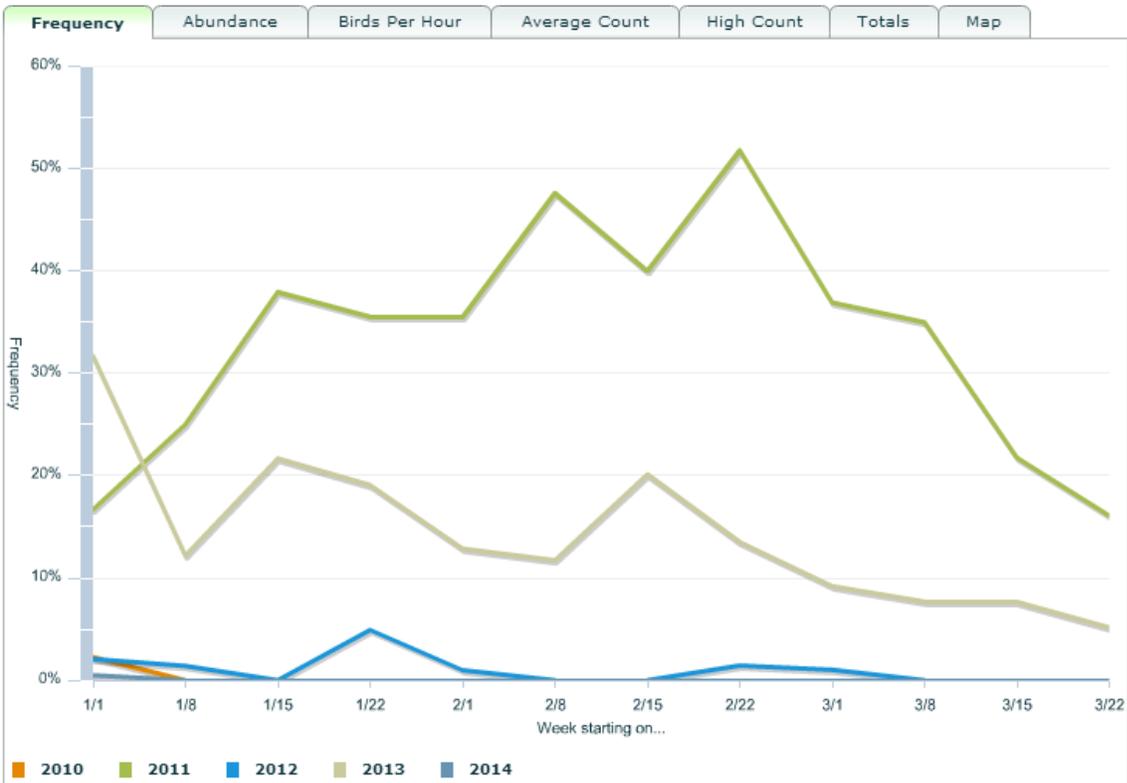


Figure 3 Line graph comparing frequency between years for Common Redpolls

Mapping like a boss

In eBird 101 you learned how to make a basic eBird map for a species, but there are some important options to help you get more out of your maps. Pay attention to the “Explore Rich Media” and the “Show Points Sooner” checkboxes – they each make your life much easier!

Explore Rich Media: this will switch the map from the purple frequency squares to display only points for checklists with rich media (photos, video, or audio) in them. So, for instance, if you wanted to quickly find the reports for a species that contained a video, you’d click this option and then look for any points labelled with a “v”. Once you find them, click it to bring up the list of checklists for that point and any that have media attached to them will be at the top of the list.

Show Points Sooner: by default, the eBird maps will display shaded squares depicting the frequency of the species you are exploring. Only when zoomed in to a scale of less than about 1:1,000,000 will the squares be replaced with actual points. This can be frustrating because often you want to see the details behind a sighting but can’t until it switches to a point when you zoom right in. If you select the “show points sooner” option, then the data will display as points at any scale, so long as the view extent of your map contains less than 2000 points (otherwise your computer might explode). Use this option to get all the details you want from the eBird maps.

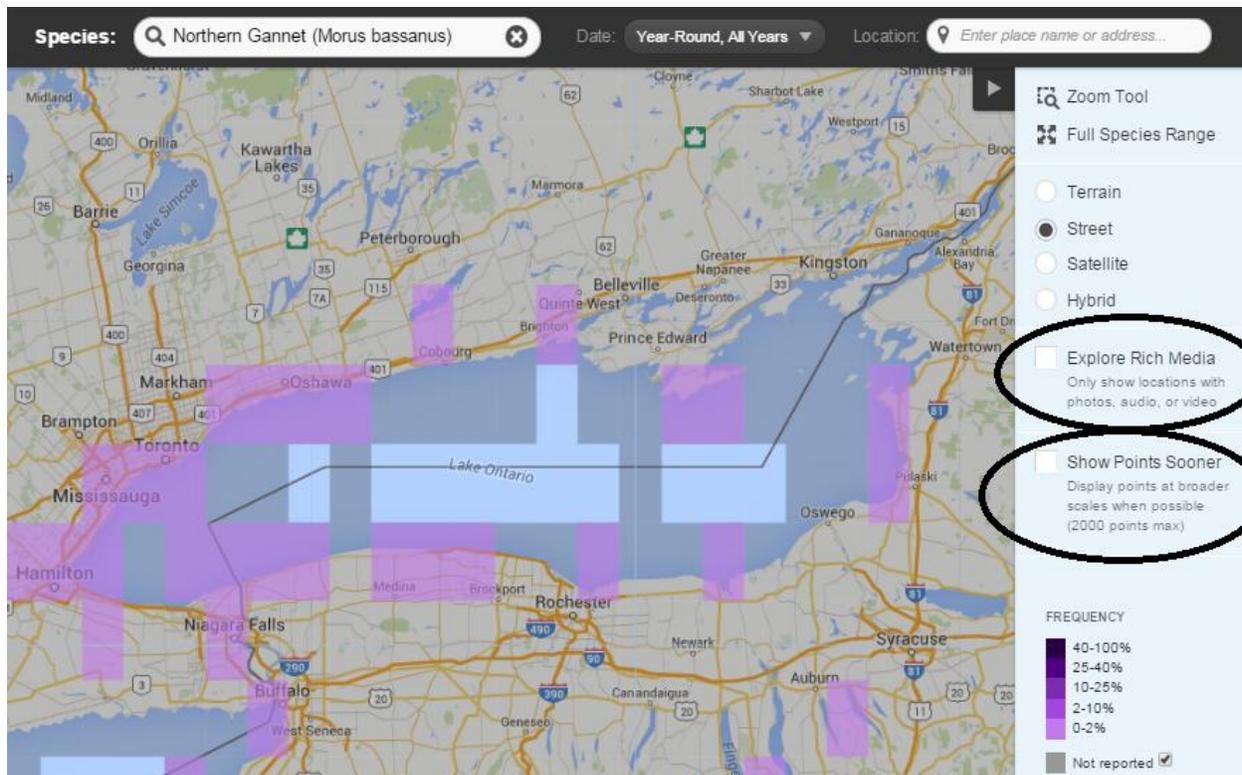


Figure 4 eBird map for Northern Gannet, showing important options in the margin

Target species

With all of this data at your finger tips you have the ability to search for specific targets no problem, but eBird has a special tool for doing this very efficiently. Open up the Target Species tool on the explore data page and fill in the following information:

-County, State/Province, or County: select the area you are interested in

-Months: the month(s) you are interested in. For example, if you are visiting Panama in February, you could select February-February. Or, if you are looking to see which species you still need for Frontenac County for the next year, you could select January-December.

-List: for instance, if you chose Frontenac, you could generate a targets list for your Frontenac County list or you could see which species in Frontenac you could add to your Ontario, Canada, or world lists.

-Life/Year list: you can choose to see targets just for this year, or for your life list for the region specified above.

Once you have chose your options, eBird will compare your eBird data with everyone else's to generate the most likely species. The output is a list, in order of likelihood, of what you are most likely to add. Each species also has a map link to see where exactly they have been seen, plus there is a print option so you can open a printer-friendly version.

Show species observed in:

During the months: through

That I need for my: list

[Show Species](#)

25 species observed in **Frontenac County, Ontario, CA** from **Jun** through **Jul** that you need for your **Frontenac County Life List** (212 species) [Print](#)

View Life Needs Alert for Frontenac County, Ontario, CA

Based on 1,606 complete checklists

	SPECIES NAME ▾	FREQUENCY (%) ▾	MAP
1	Blue-gray Gnatcatcher <i>Poliophtila caerulea</i>	1.18306	Map
2	Vesper Sparrow <i>Poocetes gramineus</i>	0.74720	Map
3	Least Bittern <i>Ixobrychus exilis</i>	0.43587	Map
4	Clay-colored Sparrow <i>Spizella pallida</i>	0.37360	Map
5	Louisiana Waterthrush <i>Parkesia motacilla</i>	0.31133	Map

Figure 5 eBird Targets list for the author in June and July for Frontenac County life list. In this example, Blue-gray Gnatcatcher and Vesper Sparrow are the most likely additions.

eBird Alerts

eBird offers flexible alerts that can be customized to your interests. You can set up your alerts by going to “Alerts” on the explore data page. You can set up your alerts by clicking the “subscribe” button, or you can just view them with the “view” button. If you view them, you can bookmark the page and check it whenever you want. If you subscribe, you’ll be given the option to be emailed once a day or once an hour, it just depends how fast you need to know!

The eBird alerts can be divided into two main types:

Needs Alerts: look at your eBird lists to see which species you “need”. If a species that you need is reported in the area you specify then it will trigger an alert. You can also refine the needs alert to be for this year only, which will only look at your list for the current year. This is really helpful if you are trying to build your year list.

Rare Bird Alerts: look at what is being reported that is rare. The definition of rare comes from the automated filters that work behind the scenes and could mean a species that is rare for that area or a species that is rare for that date.

In both types of alerts, if a species triggers the alert you will get emailed with the details (if you are subscribed) or it will show up on your bookmarked page.

All alerts look back seven days, so if someone enters a sighting to eBird two, five or up to seven days after it happened it will still trigger the alert.

Conclusion

In this issue we've explored some of the ways to dig deeper and get more out of the amazing data exploration and visualization tools that eBird has to offer. These really are amazing for learning about patterns of distribution and abundance of our birds and will help you be a better birder. Throughout the series, we've worked our way up from the basics to the point that you should all be eBird pros now. We'll add more to this series as eBird continues to grow and new and improved features are developed! In the meantime if you have any questions about using eBird don't hesitate to contact Mike Burrell (613-442-0020, mburrell@birdscanada.org).