

Protocols for the Oregon 2020 Birds Project

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The Oregon 2020 Birds project emphasizes exploration of our State to count birds in places off the beaten path. After all, to leave a legacy of quality data about Oregon birds early in the 21st century we need data representing the whole state not just our favorite refuges. The Oregon 2020 project is structured to sample our state in a manner that represents it appropriately while providing fun challenges as we work together to create our benchmark of Oregon's birds.

Exploring the countryside can be great fun. Maybe you have always wondered what birds breed on that grassy bald in the Coast Range, or in the long narrow canyon deep in the Willamette. This project provides the motivation to visit those places, count birds, and to share and archive our data.

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What are Hotspot Squares?

Hotspot Squares are 1 square-mile sections chosen at random from each of the 36-square mile Townships across Oregon. You can read more about Townships and their history [here](#). To greatly simplify, Townships form a grid placed over most of the United States to help identify locations and land ownership. Because we chose Hotspot Squares randomly (stratified random across the whole state, if you are a science geek and can appreciate the lingo), we can extend the bird count data we generate from explorations of the Hotspot Squares to predict occurrence of birds outside of the squares. In other words, this kind of sampling allows us to use modern statistical methods to predict current statewide patterns of distribution and population sizes.

We have just over 2800 Townships and, therefore, Hotspot Squares in Oregon. The number per county varies from just a few in small counties such as Gilliam and Sherman to quite a large number in big counties such as Douglas, Lane and Malheur. Surveying all these squares will certainly require a large collaborative effort!

Why did we set up the Hotspot Squares like this? Well, aside from the aforementioned need to produce a certain type of stratified random sample across the whole state, we also wanted to create surveys that would satisfy even Goldilocks herself: not too big and not too small, but just right! Our own experience, as well as feedback from County Blitzes in 2013, indicated that a one square mile area provides a sufficiently large area to find plenty of interesting birds and to include an adequate sampling of the area's primary habitats.

At the same time, the areas are not so big that they become boring to survey. As most of us know from experience, if you randomly choose places to count birds, most of the time you are going to be wandering through "typical countryside habitat." We certainly need to know what birds are in such places if we want to create an amazing benchmark of Oregon's birds. Yet, we also realize that part of the fun of birding is going to very birdy places such as your local refuge. One-square mile Hotspot Squares are efficient to survey. Normally, it takes an hour or two to cover a Hotspot Square reasonably well and then you can move on to the next square or off to your favorite birding spot for the rest of the day. In addition, the larger an area is, the less able we are to establish tight links between the birds you observe and the proportions of habitats at those locations. By keeping the survey areas relatively small, we improve our ability to understand the relationships between the habitats and the numbers of birds we report.

Land access issues: A word of caution: The 1-square mile Hotspot Squares were chosen at random. It is possible, and even quite likely, that some of the Squares may not contain publicly accessible land. We would appreciate hearing from you if you discover a Hotspot Square is inaccessible (oregon2021@gmail.com). Typically, we found that most of the Squares have at least one publicly accessible road or contain

public land. Many of the sections also have private land. Please bird only on the public land portions unless you arrange for permission to get on private property. Our selection of these sites does not imply that we have permission to visit all lands within a Hotspot Square. Those permissions need to be arranged as needed.

Where can I find those Hotspot Squares?

Navigate to the Oregon Explorer page that shows all of the Oregon 2020 Hotspot Squares:

http://tools.oregonexplorer.info/oe_map_viewer_2_0/Viewer.html?Viewer=Oregon2020

Click the plus sign in the upper left of the map and zoom in to the map of Oregon. Soon you will see some yellow squares, which are included in the County Explorer Hotspot Square Challenge, but are part of the second major challenge discussed below.

Keep zooming in to your county until you see all of the Hotspot Squares. A few yellow ones will appear and many white ones. As you continue to zoom in, you will start to see the names of the Hotspot Squares appear. Continue zooming to see what roads might provide you access to each Hotspot Square. As you zoom enough to see roads and other features, the GPS coordinates for the corners and the center of the Square begin to appear.

Your bird counting in each Hotspot Square should stay within the boundaries outlined on these maps. Why? One of the reasons we kept the sites small is because we wish to understand how characteristics of habitats are associated with numbers of each bird species we survey. When we know these relationships, we can make useful predictions about the birds in other nearby areas where we did not count birds, but we know the habitat characteristics. Keeping survey areas small helps improve our ability to achieve that goal.

Once you select a Hotspot Square to visit, you can print a hard copy of the map to take with you. That way, you can see the features of the landscape that will let you know how close you are to boundaries of the Hotspot Squares. If you have a GPS, or a GPS app on your smartphone (we really like MotionX-GPS), you can check the GPS coordinates to be sure you are within the square. The old-fashioned way of carrying a hard copy also works just fine.

If you have a smart phone and are in an area with cell reception, you can load the maps via the same link you visited at home:

http://tools.oregonexplorer.info/oe_map_viewer_2_0/Viewer.html?Viewer=Oregon2020

Finally, you can use the Oregon 2020 Birds app, which can show you where you are within a Hotspot Square if you have turned on location services in your smartphone. This app is **free** and available for both iOS and Android systems. iPhone users can download the app from the [App Store](#), while Android users can use [Google Play](#).

Each of these Hotspot Squares is also a Hotspot within eBird. So in eBird you can go to Explore Data, then Explore a Location, search for your Hotspot Square (they all are named as "Oregon 2020--Name of square"; e.g., Oregon 2020--McFadden Marsh) to see what birds have been seen already in the Hotspot Square. In addition, if you choose to enter data into the BirdLog app, which loads directly into your eBird account, all the Hotspot Squares will be available within BirdLog. Just search for the nearest Hotspot when choosing your location and you should see names of the Squares. Be sure to pick the one you are actually in!

We have two primary Hotspot Square Challenges

The County Explorer Hotspot Square Challenge

The County Explorer Hotspot Square Challenge is to count birds and submit your data for as many of the Hotspot Squares in your county as you can.

This Challenge is designed to acknowledge that many of us prefer to spend as much time as possible looking at birds instead of sitting in a car traveling to some distant, yet no doubt exciting, venue for birding. We may have limited time, resources, or interest in traveling very far from home. But we value developing a deep understanding of the birds around us. Who is common in our county? Who is rare? Are there as yet undiscovered locations in our county for breeding Northern Goshawks, Lark Sparrows, or Mountain Bluebirds? Where are the undiscovered migrant traps? Are there owls or nightjars in our county that we have overlooked? Have I overlooked wintering Common Yellowthroats, Black Phoebes or Jacksnipe?

The County Explorer Challenge provides an opportunity to contribute bird observations from your home, or favorite, county in a meaningful and helpful way. Participants in this Challenge will be providing the data that establishes our high-resolution picture of bird distributions at this point in history. Given that each 36-square-mile Township has a Hotspot Square, when we visit all the Hotspot Squares in each county we will be producing data at many locations quite close together. On average, the Hotspot Squares are within about 6 miles of each other.

How many of the Hotspot Squares can you survey in your county?

The Hot 300 Challenge

The second Hotspot Square Challenge is called the Hot 300 Challenge. As you navigate the Oregon Explorer web page with all the Hotspot Squares, you will see

that some are outlined in orange and are named after bird species. These squares are called The Hot 300. They represent about 11% of the 2800 Hotspot Squares in Oregon. The Hot 300 Challenge is to count birds and submit data for as many of those orange bird-named Squares as you can. They are scattered all over the state, so it will take some exploration over a few years to visit them all!

To help you keep track, we have created [this handy checklist](#) of the Hot 300 Squares in each county. As you might notice, some of them are named after some pretty exciting species. The names do not mean we expect that species to occur in its Square. Instead, it's simply a fun way to name them as we tick them off our list after each Square visit. How many can you visit in the next few years?

Once I'm in the Square, how do I count birds?

Recommended counting practices

We want to keep this as easy as possible for you, because easy usually means it is more fun and you will do a better job of counting birds. So we first recommend the simplest bird counting approach that will meet the goals of Oregon 2020. Then we outline an alternative, yet a bit more time-consuming, method.

First, the easy way: When counting birds within a Hotspot Square, we recommend a type of count that eBird calls a *traveling* count. These are counts done while moving through an area (walking is best to allow you to hear the birds).

Start your count when you are sure you are inside the Hotspot Square. Note the time you begin, then walk the publicly accessible roads, trails or other areas. If you arrange permission to access private land, those data are, of course, also included. Count all birds you can identify to species. Please do your best to actually count individuals and not estimate numbers unless you find large flocks of birds. If you keep a running tally in a notebook or in BirdLog you are more likely to be accurate with your counts. Once you are done exploring the area, note the time again, and estimate the distance you traveled.

If you have the BirdLog app, you can enter your numbers as you go. If you don't have the app, that's fine. Some of the Oregon 2020 crew prefers the old-fashioned way. A notebook and pencil works super well, and provides the added benefit of giving you a hard copy backup of your data. If you did not use the app, then be sure to enter your data into your eBird account when you get home.

What's that second survey method you said was better yet more complicated?

A second survey method is a little more complicated, not so much because the method is hard (it's actually much easier), but because it adds an extra step during

data entry into eBird or BirdLog. Instead of one traveling count within a Hotspot Square, you can also do several stationary counts. A stationary count, which some people call a point count, involves standing at one place for a specified amount of time and counting all birds you see or hear (including fly-overs) from that location.

We actually prefer stationary counts to other types of counts because when we know exactly where you were, we can then relate the birds you encountered at that location with habitat data from that very location. Other types of counting methods can reduce the usefulness of these bird-habitat relationships because we do not really know exactly where you were and therefore the relationships become diluted.

Here's how to do a stationary count.

- 1) **Select your location.** You can begin anywhere you like within a Hotspot Square. Once you finish one location, move along and try to space the locations you select at least 150 yards apart so that you reduce the chances of counting the same birds twice.
- 2) **Note your location with GPS coordinates in decimal degrees format.** Make sure your hand-held GPS unit (or smartphone with GPS app) is cranked up and has had time to find as many satellites as it needs to get a reliable location fix. Basic GPS units now cost about \$100, sometimes less, on Amazon. Smartphone apps like MotionX-GPS cost just a few dollars. Be sure your GPS is set to use *decimal degrees* and WGS84 . If you see latitude and longitude listed as degrees, minutes, and seconds, you need to change the settings so you can see decimal degrees. Once you are satisfied you have a good fix on your location, then write down the latitude and longitude for your location in your notebook, or in the Submission Comments box in the BirdLog app.
- 3) **Note the start time for your count.** Generally speaking, you should count for no less than 5 minutes. Remember that even if you are finding just 1 bird in 5 minutes (boy, would that be boring!), those data are valuable. If you find a really birdy place, stay longer than 5 minutes, just be sure to note the total amount of time you spent at that place. You can also add comments about conditions if you feel the weather, traffic noise, or other circumstances affected your ability to count birds.
- 4) **Start identifying and counting birds!** We recommend that you write down the birds as you encounter them. We use small pocket notebooks that fit in a shirt pocket so that we do not have to carry much with us. Some people like clipboards, perhaps for the larger format or perhaps because they feel very official when they use a clipboard. Others like the BirdLog app for their smartphone. If you use the latter, take great care with the automatically generated location information. Sometimes the location can be wrong so double check it. One good way to be sure there are no location errors with BirdLog is to choose a nearby hotspot when getting the location and select the Hotspot Square you are in. We have already provided a list of Hotspot Squares for the BirdLog app so it will automatically get the right location for you. If you are out of cell range (as much of Oregon still is today), probably

the best bet is to keep your data in a pocket notebook. Whatever method works for you, use it! Have a great time!

- 5) **Move on to your next location and repeat the process.** Each time you move to a new location within the Hotspot Square and begin a new stationary count be sure to note the GPS coordinates at that new stationary count location. When you enter the data into eBird or BirdLog, type in the GPS coordinates in the Submission Comments area. It's that easy!
- 6) **Consult our tutorials on the web site** for help if you need tips on data entry.

Timing of surveys

You can do surveys any time of day. A couple of issues to keep in mind: spring and summer breeding season surveys are going to be more fun and successful in the morning, within about 4 hours of sunrise. Birds sing more then, so you will find more of them. Outside of spring and summer, birds are usually harder to detect (unless you are at the ocean or a shorebird/waterbird spot) so longer counts are better than shorter counts. A 5-minute count may work great in spring and summer, but you may not find as many birds in 5 minutes during winter. Aiming for a minimum of 10 or 15 minutes may be better outside of spring and summer.

Breeding season can be very long in Oregon. Some owls and hummingbirds begin breeding in January and some doves are still nesting well into fall. So, you can contribute bird counts in Hotspot Squares any time of year. In the end, we will create a Breeding Season estimate of bird numbers and distributions based on the appropriate breeding dates of each species and we will also analyze data on Winter Season bird populations. So visit the Hotspot Squares any time you like!

How do I share my data with Oregon 2020?

If you want, you can share your checklists with Oregon 2020 (use our oregon2021@gmail.com address) when you enter your data into eBird. But you do not have to share the data for it to be used by Oregon 2020. We will request all the data from eBird later when it is time for analyses. In the meantime, putting your observations in eBird provides the added benefits. For example, your observations can be used by other birders who want to see the birds you have located. All of the data in eBird are also used for other research projects, some of which address important conservation issues, improve understanding of bird migration across the continent, or generate new knowledge about the value of citizen science projects more generally.

Can I see what birds have been seen in an Oregon 2020 Hotspot Square by other birders?

Yes! If you entered your data properly into the Hotspot Square (one named Oregon 2020--), then you can navigate into eBird and visit the Explore Hotspot tools to see how your efforts compare with the efforts of other birders who visited that Hotspot Square. eBird will show a list of the species found there as well as total number of species found by each birder who has visited that Hotspot Square. Pretty cool!

What if I don't use eBird but I want to help with Oregon 2020?

If you do not want to use eBird, but still want to contribute to the Oregon 2020 effort to benchmark the birds of Oregon, we suggest two options. The best is to input your observations into a spreadsheet that you can download [here](#), then email that spreadsheet to us (oregon2021@gmail.com). You may also send us hard copies of your data. Mail those to Oak Creek Lab of Biology, 8840 NW Oak Creek Drive, Corvallis, OR 97330. Be sure to include all of the following information from each survey: your name, the number of observers (if others joined you), name of the Hotspot Square you surveyed, date, time you started, time you finished, approximate distance you covered within the Hotspot Square, a list of the species you identified and the number of individuals of each species. Thank you!

Somewhat technical stuff for bird brains

This stationary counting protocol is designed to provide several ways to generate estimates of the species richness and abundance of each species of bird encountered during surveys.

The protocol will generate data for species accumulation curves and richness estimators so we can determine how many bird species may occur in each location (Hotspot Squares, Townships, Counties and State).

The data collected during stationary and traveling counts will be suitable for creation of species accumulation [curves](#) and calculation of species richness [estimators](#). Because time (effort) is being noted, we will be able to create effort curves based on time spent surveying. Also, all individual birds are identified, so we can use cumulative number of individual birds identified as a measure of effort.

Are you qualified?

If you know how to identify birds, you can contribute! You need not be an expert with all birds and their sounds, but it sure does help. However, if you know your birds reasonably well and you just enjoy exploring, then you are qualified.

The main issue to keep in mind is that we should avoid "false positives" at all costs. A false positive is basically a species identification error. We determine that a species is present when it is really not. These kinds of mistakes are very difficult to detect once data are entered, especially if they involve misidentification of a

common bird. The eBird system does a good job of detecting rarities that need to be inspected, but it cannot detect misidentification of common birds. So, whenever you have any doubt at all, leave it out.

Let us know you are joining us!

We suggest that you let us know of your interest in the Oregon 2020 challenges, so we can help you find the resources you will need to identify locations for birding. Please [register](#) so we know which county you want to explore! ***If you are super excited about your county and are willing to help us coordinate efforts to cover your county, please [let us know!](#)*** We would love to have your local expertise driving the efforts in your county to gather high quality information!

You can still contribute to the project without registering. Just follow the instructions on how to locate the Hotspot Squares, how to count birds, and where to share your observations. Thanks for working with us!