



Department of Defense
Partners in Flight

Our Mission

Providing expertise on the management and conservation of birds and their habitats to sustain and enhance the military mission



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DoD eBirding: A Defense User's Guide to Using Citizen Science Tools While Addressing Installation Concerns

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Introduction

eBird (<http://www.ebird.org>) is an online tool designed for anyone to enter and upload bird observation data into a centralized data repository. As a real-time, online checklist program, eBird has revolutionized the way that the birding community reports and accesses information about birds. eBird's goal is to maximize the utility and accessibility of the vast number of bird observations made each year by recreational and professional bird watchers. It is amassing one of the largest and fastest-growing biodiversity data resources in existence. Users add more than 100 million bird sightings every year from around the world!

Observational data in eBird include both casual sightings and more complicated survey data. The observations of each participant join those of others in an international network of eBird users. eBird then shares these observations with the global community of educators, land managers, ornithologists, and conservation biologists. eBird provides rich data sources for detailed information on bird abundance and distribution at a variety of spatial and temporal scales. These data have become a critical tool for better understanding breeding and wintering bird distributions, migration pathways, stopover hotspots, and most recently, localized trend data.

The eBird tool was originally constructed by the Cornell Lab of Ornithology (CLO) in part with grant funds from the Department of Defense (DoD) Legacy Resource Management Program. eBird is a valuable research tool not just for worldwide avian trends, but also can be used to support inventory and monitoring of birds on DoD lands. The mobile app and web-based platforms fit well into the DoD Coordinated Bird Monitoring Plan and, in part, the needs of DoD natural resource managers for cataloging bird observations on installations.

This white paper compiles guidelines and best practices and makes recommendations for DoD participation in the eBird citizen science tool. Additionally, this paper includes theories and concepts that would apply to any online "citizen science" project.

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DoD Critical Issues and Concepts

First and foremost, it is important to control when and how eBird data from within installation boundaries are provided to eBird. Detections that occur within sensitive areas, such as in and near munitions impact areas, or near munitions storage areas, and reported as such with exact coordinates, could pose safety or security risks if other birders attempt to access these sites.

- There currently is little “control” of online data. Public entry cannot be controlled, nor can the data use be controlled once it is made public. Management of data requires creative means and cautionary procedures.
- The goal of shared data is to show true trends, which may rely on observations within DoD landholdings. Without DoD data, some of the North American breeding, migrating, and wintering bird distributions simply are not accurately estimated in eBird.
- DoD participation in eBird complies with Executive Order 13186, the resulting Memorandum of Understanding (MOU) between DoD and the U.S. Fish and Wildlife Service (USFWS), and various DoD Guidance for migratory bird management and monitoring.

Submitting Data

In most cases, eBird data are valuable information and help biologists and researchers make better decisions about the management and status of bird populations. Data submission in eBird is easy and open-ended with a range of potential end-users. Many eBird participants use the portal to find target birds of interest since observations often are tied to specific x and y coordinates. DoD bird data reported, with coordinates, in eBird can provide information not intended for the public to see without guidance. This is especially true for data entries that include sensitive species that are vulnerable to excessive human disturbance. The public birding community is a wide and diverse group that includes a small subset of naïve participants, collectors (e.g., falconers or poachers), and the overzealous. As discussed below relative to military impact areas and other sensitive sites on installations, birders need to be properly protected from themselves while also protecting natural resources. DoD needs recommendations and best practices that limit the information available to the public and shared by the public.

eBird Data Entry Recommendations

Hotspots

eBird is increasingly using hotspots to accumulate spatially comparable data at common points. eBird Hotspots are birding locations available to the public and allow observers to enter data into a shared location. These often are introduced when a rarity appears in an atypical birding location (e.g., an extremely rare European migrant shows up and settles in at someone’s backyard feeder), but the typical process for their creation is user requests. Any user can request a hotspot using an eBird checklist and a potential name. These hotspots are accepted and administered by a volunteer regional hotspot coordinator (typically at least one and often several per state). They are usually accepted if there are multiple checklists submitted at personal locations in the same geographic location, if the habitat or land ownership is different from other surrounding hotspots, and if there is a potential for multiple users to use/reuse that point for their checklists. In some cases, hotspots may be migrated and manipulated (especially combined) without notice. Storing personal data in a hotspot, therefore, has some potential

risks as to long-term accuracy. Also, hotspots have their own sets of tools that display observations attributed to them more readily to visitors and frequent birders in the area. The benefits of using them are incorporating data with that of all other site users, putting some of those data in the spotlight, and having the ability to use them for shared checklists from group trips (such as guided walks). Consider suggesting to the regional review team a generic, safe installation hotspot and then supporting that hotspot with directed user data from public events, volunteer efforts, watchable wildlife stations, and educational and promotional materials. eBird is a great tool for public outreach and participation.

If an installation already has a hotspot listed, try to work with the local eBird reviewer to edit the hotspot name so that the public understands it is located on federal land and access is restricted. eBird does not currently have descriptions available for hotspots, which could provide the public with information on how to gain access legally.

Personal Location: When entering bird observations in eBird on DoD installations, users can also select personal data points that are not included in public hotspots (i.e., those sites generally determined by users to have high local bird abundance and diversity) delineated in eBird. These points should be clearly labeled in their titles as to access conditions (e.g., Ft. Indiantown Gap corridor west – restricted access). It is recommended to pick generic points that give little detail as to the exact location of a bird. Make sure the location is safe (in terms of unexploded ordnance, training types and activities, and area sensitivity) in case aggressive (often public) users attempt to follow reports to find target species. Preferably the location will be secure as well to further reduce trespass issues. Proper eBird data entry will prevent most issues concerning improper public use of these data but there will still be instances when some members of the public, despite the seemingly obvious legal and personal safety ramifications, will ignore restrictions to try to observe a bird at a location on DoD lands. Always plan for the lowest common public denominator.

Try to tie data to single counties or parishes if there is more than one represented on installation. This makes it easier for eBird reviewers and rare bird record committees to refer back to the data. Not every habitat has to have its own point, but if certain habitats warrant special consideration, one might consider creating separate generic points to track occupation through these habitats. For example, using eBird at Naval Air Station Patuxent River, one might wish to track pelagic seabirds separately from birds using coastal shoreline habitats. One might even wish to create a third dataset for inland birds or a specialized dataset for habitats affected by a management program. eBird would prefer that data points include birds tied at least to the general habitats they occur in, but many public land hotspots invalidate this assumption.

Additional Data Entry Suggestions

Tracking

On the mobile eBird app, CLO has incorporated a tracking mechanism that allows users to record their exact path, either within a moving vehicle on a road or on foot while birding. However, these tracks can be easily toggled on and off within the Set Date & Time screen. For future security, one can exclude a specific track from a monitoring effort simply by switching the “Record track” button to off. Currently, tracks are only visible to the person who created the checklist and anyone whom they share the checklist with. There are no current plans to make these tracks visible to the public. Observers cannot change the route created but can edit the start and stop locations after “stopping” the track and before “submitting” the checklist.

This can be accomplished by pressing the green “review” button after stopping the checklist. Tap the green map icon next to the distance traveled, and then tap the pencil icon in the lower corner of the map. The track will appear on the map along with a blue slider bar that can be used to edit the start and end locations of the route.

Observation Type

Observation types are a series of protocols used to capture variables and establish data collection for specific purposes. These both standardize the data and make assumptions about their collection that can make them comparable with others.

Traveling – Use this option for trips up to 5 miles in length. If there are linear data (e.g., a road survey or Breeding Bird Survey (BBS) route), try splitting the count every 5 miles. This option is useful for walking any set distance (e.g., transects, trails), or driving between points. It is generally considered the standard observation type by public users. The technical rule is to start and end lists at changes in the habitat along the route. For example, if conducting a transect survey or a BBS through the unbroken open country at White Sands Missile Range in New Mexico, observers might be able to have a 10- or even 30-mile transect that doesn’t technically violate eBird’s intentions or model. Keep in mind that the regional editor might need to be convinced that the habitat doesn’t change for that distance. eBird suggests that traveling be used whenever observers are walking an area, even if it is only a kilometer or two. Distance is always measured “one way” and not “round-trip” so observers should discount any distance where they retrace their path (and discard any possible recounted individuals along that portion).

Stationary – Use this option when birding from a limited area (staying within 30 meters of a given point). This type is good for hawkwatches, seawatches, counts from the office, feeder counts, etc. The caveats are that the observation is continuous and that the primary focus is on birding for that duration.

Historical – A dataset that lacks at least one data constraint (start time, duration, or distance) but has an accurate and focused count of the species and their numbers, consider this seldom-used observation type. Old records and lists found in the filing cabinet are perfect for this data type, so long as birding was a primary purpose when the record was made. Caveats are to make sure that the data are reliable (especially for records collected by other birders) and that any rarities have been vetted and approved by the state or local bird record oversight committee (or are processing). The official stance is to create a “legacy” account when handling data that is not personal (e.g., “Fort Bliss Historical Observation Records”) and then document the name of the observer and the source of the data in comments.

Incidental – Use this option when heavily concentrated on other work, when observers may not have kept full track of time, when distance and area are uncertain, or when adding in historical data that lacks all necessary information. The key question is “**Was birding your primary purpose?**” If not, then enter data as incidental. When making an incidental submission, observers need to select “no” to the question “Are you submitting a complete checklist of the birds you were able to identify?” This option is also good for single-bird rarity lists to document the continued presence or historical occurrences without any data (see other notes for historical data above).

“Other” Categories – When selecting “Other” as the observation type, a dropdown list provides an option for selecting several other categories. These are not primarily used as citizen science tools,

but, if appropriate, professional observers should not feel hesitant to use them. Note that some of these protocols may be discontinued and new protocols may be introduced as eBird continues to develop and update.

Area – This option often comes in handy for observers that wander around a training area for a while, crisscrossing over the same trails multiple times and not sticking to a linear route. The key fields for this are time and area in hectares, acres, or square meters. Users often estimate the area covered. Keep in mind that the area should be searched well, so this may not be the best option for wandering through areas with limited sight and hearing perspectives.

eBird Pelagic Protocol – This is a tool for open-water ocean birding. These data typically do not fit into the traveling protocol because of distance and the fact that habitat changes are mostly unseen (i.e., benthic slopes, kelp beds, etc.). If offshore doing counts (and birding is the primary purpose), then use this protocol. Read and understand the full protocol before using the option. The protocol is available through a link after it is selected.

Random – This option is good for point counts, monitoring studies, rapid assessments, and other scientific counts that utilize a randomized location or point. The type was built on a random transect design, so distance is a necessary field. If conducting a limited-distance point count (e.g., counting birds seen/heard within 100 meters), use this limit as the distance. 0 can also be used for a standing point if necessary. The key is that this is not a location chosen for the diversity or amazing counts generated there (e.g., hawkwatches are selected for their view and are not appropriate for random). This may be a repeated visit to a point, so long as the point was originally chosen at random.

Nocturnal Flight Call Count – This is a specialized observation type that should be used after reading [eBird's written protocol](#). It was intended to capture those observations made of nocturnal flight calls, usually a point count type of observation. There are no specific guidelines as to whether this can be used for specialized surveys like owl breeding surveys or American woodcock and Whip-poor-will counts, since those surveys are selective, listening for a few key species and disregarding passerines flying through the night sky. In any case, the enforced standard is to check “no” for the complete checklist question, so the data isn’t as useful to standard research. Actual individual bird counts are very difficult to provide, considering circling birds and other count-skewing factors. If using an “X” (used to denote presence instead of quantity) instead of a true number, eBird asks that observers provide call counts in the comments. Call counts are always welcome in the comments, and eBird asks that observers type “NFC” (nocturnal flight call) in the comment fields regardless to indicate the type of data to people who aren’t viewing the entire checklist. Also, eBird encourages the use of taxonomic groups and morphospecies (customized groupings of birds based on similarity of appearance and overlapping ranges) instead of species when uncertain to try to encompass all flyovers.

Banding – The banding protocol is not meant to be a complete list protocol (check “no” to the primary purpose/complete list question). This protocol is meant to submit birds specifically captured for banding or in-hand metrics. This may include Monitoring Avian

Productivity and Survivorship (MAPS) stations as a more popular Defense use. eBird suggests keeping a complete list for the day separate from the banding protocol list.

Specialized Protocols – There are several project-specific protocols with detailed methodology. Participants should be aware of these protocols, and users who are not should get in touch with the promoting agency or state office for details. These include The Nature Conservancy (TNC) California Waterbird Count (CWC), CWC Point Count, CWC Area Search, CWC Travelling Count, California Brown Pelican Survey, Programa de América Latina para Areas Silvestres (PROALAS) Point Count (2 and 3 Bands Protocols), PROALAS Mini-transect, Audubon Coastal Bird Survey, International Shorebird Survey (ISS), Rusty Blackbird Migration Count, and the Tricolored Blackbird Winter Survey.

Merlin Bird ID

The Cornell Lab also offers a mobile app designed to help bird watchers identify birds while in the field. Users can upload photos and audio recordings of birds to obtain a recommended identification. The app utilizes millions of records from the eBird database to attempt to provide the correct identification. This is an excellent tool for beginner or intermediate birders to use as a resource for verification (or assistance) with identifications. It provides a list of likely species that may occur at a selected location, along with photos and descriptions of each species.

While the app can be extremely accurate under ideal conditions (proximity to loud birdcall, low background noise, etc.), there are instances of false identifications being uploaded to eBird. This usually occurs when novice users are fully trusting of the app and don't verify the recommended identification. As a result, extremely rare species are falsely reported. More experienced birders who are familiar with the species that occur in a region, might catch a false identification recommendation and not report it to eBird.

Protecting Sensitive Bird Data

eBird employs a sensitive data protocol that hides certain species determined by the eBird administrators to be particularly sensitive to intrusion. While this list is maintained at the national and, more often, international scale, some states have undertaken their own protocols and means of suppressing data from inappropriate use. Requesting this data along with the regular dataset requires more rigorous needs and attracts more scrutiny. These data remain hidden from the public interface.

To assist in protecting sensitive data, and to ensure that data is not publicly displayed, eBird makes several suggestions, especially in occurrences of very rare species (e.g., a European migrant shows up at Fort Drum in an area that is regularly used for armor maneuver) or very sensitive (e.g., Burrowing Owl populations at Beale Air Force Base) that will draw unwanted public attention. These include the following recommendations:

- Wait until the season is over and the sensitive bird(s) have left before reporting the birds to eBird. Checklists can be 'edited' later to include sensitive records after the birds have departed.
- Do not provide explicit coordinates or directions to sensitive records. Add these types of records to the generic "hotspot" for the installation, far removed from the actual location. For instance, the report might state that birds were seen at the main installation gate, instead of listing the exact location therein.

DoD eBirding

- Delay reporting observations for 8 days or more to keep these reports off eBird Alerts. This may be just as difficult to track, but it won't be as difficult to find as a hidden dataset. To some of the DoD users, this might be the trend anyway due to other duties and responsibilities slowing down data capture.
- Hide observations in eBird after submitting a checklist by selecting that option from the "Checklist Tools" dropdown menu from individual checklists. This tool allows users to keep informed when they have an opportunity for a personal new bird or rare bird sighting in the region. Hiding data means that the only access to that data for anyone (including researchers and analysts) is through the submitter's account. Please consider returning to this observation after two weeks and uncheck the box to allow the data to be useful. Consider using this option sparingly, as the data will not be useful for the period it's hidden, and it is easy to forget to unhide it later.

Rare bird alerts are a tool offered by eBird for recreational birders. This tool allows users to keep informed when they have an opportunity for a personal new bird or rare bird sighting in the region. The tool will generate a report in a daily or hourly summary. The rare bird alerts and needs reports track entries for about two weeks, meaning after that time there will be no concern about unwanted public attention.

eBird is primarily meant to track visible independent birds. For larger data sets (e.g., results of extensive point count sampling), DoD Partners in Flight (DoD PIF) is working with Point Blue Conservation Science to make tools such as the Avian Knowledge Network (AKN) and each of the Avian Data Centers more accessible to installation natural resources managers. Extremely sensitive data, such as nest success and location, records kept for "take" documentation, or Bird/wildlife Aircraft Strike Hazard (BASH) data, would be best kept in another medium. Quantitative nest, egg, and hatchling data should not be tracked in eBird but could be indicated in comments or breeding status. Therefore, wider participation in the many data structures available for avian data is encouraged.

Special Events

Participants of Christmas Bird Counts and Global Big Days are encouraged to enter checklists into eBird. It may be a good idea to create separate eBird accounts (e.g., Fort Hood Christmas Bird Count or Fort Hood Global Big Days) strictly for these events so that participants can share their checklists. This is an excellent way of conglomerating participants' data in one place and engaging the public to use a tool that may be new to them. While Christmas Bird Counts have been around for years, Global Big Days are a relatively new outreach effort created by eBird to celebrate a day of global birding. The idea is simple; go out and find as many birds as possible in a single day. eBird advertises these events twice a year in May and October during the peak migration periods for the spring and fall. eBird also provides guidelines about how to submit checklists for both of these events.

Rich Media

eBird stores photos, videos, and sound recordings of observations with support from the Macaulay Library at CLO. This means that the rich media previously requiring Flickr or other similar online storage can now be stored indefinitely at Cornell, preventing loss in the records from users ending or clearing those external online accounts. This option is fantastic for DoD users, as a lot of those online storage media were susceptible to security firewalls and office scrutiny since they were personal accounts. Photographs

and sound recordings are still the best means of documentation for peer and regional review. eBird users are strongly encouraged to upload their bird images taken on installations to the DoD PIF Shutterfly site (<https://dodpifphotosite.shutterfly.com/>).

Photographs and recordings should be from the encounter, and not reprinted or reused from past sightings or events. There has been some abuse from users who have submitted unrelated photographs, often other peoples' work or similar birds from previous observations and locations.

These media inclusions can come under public scrutiny. Unlike checklist entries, photographs, videos, and sound recordings can be sent back to review by any public user. Likewise, if there are doubts about the identification or anything else about a rich media entry, users can flag that item and send it to the regional reviewer's queue with their comments. This can be a good way to flag inappropriate information from the public, sensitive items in the background of the photo, or just plain incorrect data.

Be conscious of the bird's behavior in photographs. Pictures of active nests, eggs, or dead or injured birds should not be uploaded. Some installations work with endangered or vulnerable species where extra media precautions should be taken. Biologists who work with these species may be actively catching and banding adults and nestlings for research purposes. In this case, it is particularly important to not post photographs of birds in mist nets, birds being banded, or photos focused on bird bands. Photographs of birds in hand are acceptable if they are being held in the proper grip and they do not appear stressed or injured. Birds that have bands on their legs and have been released also are acceptable.

Any rich media should follow installation guidelines as to what can and cannot be recorded. Please consider operational security, installation safety, and the information that may be stored along with the observational record. Do not include any photographs that contain military training or activity or any sensitive military structures or equipment. When in doubt, crop it out.

Review Process

All data that passes through eBird is filtered and reviewed for accuracy and content. The first, coarse review is done by a filter created for a given region. This is usually applied at the county or parish level, but every case is slightly unique. Some locations even have their own site filter list. The filter is a list, by species (or subspecies), of acceptable count levels between set date ranges. American Robins, for instance, will have different tolerances for count size between breeding season, migration, and wintering. These changes may even happen on a week-by-week or day-by-day precision. Keep in mind that these filters are meant to highlight issues to the reviewers, so they might indicate rare and unusual observations or just birds that are often confused by beginning birders. For birds that do not meet the filter, the user is asked to add comments and must check a box indicating they were aware a comment was necessary.

The second level of review is done by peer editing, most often by a regional reviewer. Regional reviewers' range of authority can differ between states and between individuals. There is typically a pyramid, with several reviewers with statewide responsibilities and many reviewers with a unique region or location (such as the county level in Pennsylvania). By the nature of volunteering, many reviewers hold several counties where they have local expertise in the species and timing considered normal for that locale. These reviewers have the responsibility of assessing the data provided, requesting further data, and ultimately deciding whether the data will be accepted into the eBird dataset that is used for typical research and analysis.

The third level of review can occur as eBird senior management combs through records to assess the levels of identification accuracy or to look for other problems within the system. Flycatchers, for instance, brought a Northeast-wide review from the CLO's Marshall Iliff in 2015 after several early records took place in an otherwise late-migration year. The third level will typically send the record back to the second level for reassessment.

Getting to know the local regional reviewer is an excellent way to smooth over any issues that are arising with data being accepted. If typical birds for a property are not typical birds for the rest of a region, observers might be able to demonstrate their identification skills for the reviewer or work with the reviewer to adjust filter levels. In some cases, observers and regional reviewers can work together to hide sensitive data for an installation when the public is submitting it (such as records resulting from trespassing, birds in sensitive areas, or sensitive species that need temporary protection). Developing this relationship will help in several ways that may solve future issues, so it is encouraged to reach out to them as soon as possible.

Accessing Data

eBird data are stored in a secure facility and archived daily and are accessible to anyone via the eBird website and other applications developed by the global biodiversity information community. For example, eBird data are part of the AKN, which integrates observational data on bird populations across the western hemisphere. In turn, the AKN feeds eBird data to international biodiversity data systems, such as the Global Biodiversity Information Facility (an open-data research infrastructure funded by the world's governments and aimed at providing anyone, anywhere, access to data about all types of life on earth). In this way, any contribution made to eBird increases researchers' understanding of the distribution, richness, and uniqueness of the biodiversity on installations, across DoD lands, and the planet.

Requests

Any user can request the data set by submitting an abstract of their intended use for the data and a project title. Project types include Academic, NGO (Non-governmental Organization)/Governmental, Commercial, or General. Expect a follow-up on this request, as eBird likes to track how many publications and projects it has helped with the tool. Within the abstract, make mention of any restrictions that may need to be placed on the data (e.g., the data are needed for just one state or even a county/parish, non-reviewed data needs to be included, data from year x to year y is needed, etc.). Be prepared for a wait of up to a few days (but maybe just a few hours). eBird now has options for either the basic data set or a reference data set that includes an associated suite of climatic and landscape variables for niche modeling and other data-intensive science uses.

When it is ready, the data report will be accessed through a direct email link. The data is in a comma-separated values file (*.csv). These can be pulled directly into software like Excel, R, or ArcGIS for further manipulation. In Arc, simply set the X and Y values to the point data, and users will be able to create a feature directly from the data file. This can be crucial for separating those entries that occur on an installation and those that are off installation.

Personal Data

Of course, observers can access their data from the eBird server without a specialized request simply by using the Explore Data tab. The tab offers some simple tools like bar charts and line graphs that users can

set to only consider their data and can further stratify them to read only data from certain locations. Users can also summarize these data for statistical purposes using the Summary Tables tools.

Bar Charts

Simply select “Explore Data” and then select the location(s). Holding down control while selecting “My Locations” will allow the user to select more than one location at a time. Results can be further refined by time periods and seasons. Of course, data needs to be in the locations to make the chart accurate, so a robust dataset is required before starting to publish that bar chart as the full picture. Consider including hotspots in and around an installation to help round out the holes in the temporal data. For example, Fort Indiantown Gap NGTC (Nation Guard Training Center) in Pennsylvania has a completely surrounded state park lake within the boundary. Since all species enter and leave the lake through the installation, a user could regularly include that state park hotspot in their statistics. Rather than having to check the lake every morning from the installation-owned shoreline, the observer can rely on the public for some of the one-morning-stop rarities like Brant and Common Terns. Bar charts can be pulled directly into DODPIF-style brochures for the public to ponder.

Reports

The eBird administrators like to track reports built from their data. It is always helpful to let CLO know what has been produced when asked on post-request surveys or contact them directly. When documenting the data with a citation, please use the following for the reference page. Keep in mind that these citations will change as eBird continues to develop and update.

eBird Primary References

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292.

eBird Basic Dataset. Version: EBD_rel. May-2013. Cornell Lab of Ornithology, Ithaca, New York. May 2013.

eBird Visualizations

eBird bar charts, maps, graphs, tables, and other visualizations from the 'View and Explore Data' tab and 'My eBird' tab may be reproduced in publications without further permission provided that the figure is attributed as follows: Image provided by eBird (www.ebird.org) and created [date].

Use the following format to cite data retrieved from the eBird website:

eBird. 2012. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: <http://www.ebird.org>. (Accessed: Date [e.g., February 2, 2012]).

Use the following format if citing data from an individual checklist:

Kelling, S. 2015. eBird Checklist: <http://ebird.org/ebird/view/checklist?subID=S21742280>. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: <http://www.ebird.org>. (Accessed: Date [e.g., February 9, 2015]).

In the above example, "Kelling, S" is the name of the observer, and should be replaced with the name of the observer in the checklist being cited.

Conclusions

As eBird datasets grow with installation information, keep in mind that other eBird participants may also be inputting data within installation boundaries that could affect outcomes. While this should be encouraged, it's also important to manage when and how those data are reported. Get to know the regional reviewer(s) as they will be the key to assuring the verity of the data by accepting or rejecting observations. Given the unusual numbers and diversity of birds that inhabit DoD lands, there is a higher likelihood that data will be flagged by the reviewer's filter. Submitting data is not an intimidating process and can be easily managed, but users need to stay knowledgeable about the birding community that will use and hopefully add to DoD installation data.

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