

Florida Monitoring Program: Point Count Method to Survey Birds¹

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Background

Ornithology is the scientific study of birds. It is one of the few fields where information comes not only from trained scientists, but also from the cooperation between students, bird watchers, and scientists. Our general knowledge about birds is in part due to such cooperative efforts. Examples of cooperative efforts include the Audubon Christmas Bird Count, the Breeding Bird Survey, Project Feeder Watch, and the Breeding Bird Atlas. These efforts greatly enhance our ability to conserve birds in North America.

Bird projects usually fall into three categories: inventory, monitoring, and research. People conduct inventory projects to generate a list of species. Birds are identified by visual observation and/or song. Monitoring projects record birds in a region or study site over an extended period of time. Such projects use specific procedures to survey birds in exactly the same way each time. This is critical for comparing information over time. Research is more involved than inventory or monitoring projects, but inventory

or monitoring techniques typically are employed in research projects. Research begins by formalizing a question into a hypothesis that can be tested with a study. For example, a hypothesis may be “variation in woodpecker abundance is in part due to variation in tree density.” He or she then designs a study, collects and analyzes data, and discusses the results in terms of whether tree density affected woodpecker density.

In terms of monitoring birds, the point count method is used in all types of bird projects. Point counts are used to record a variety of birds, including those species that may not visit a feeder. It is a simple method that provides a uniform way of counting birds over time or across locations. In large areas, randomly allocated point counts can be used as representative samples for the area. Point counts are visited over a period of several days or longer to assess how many and what types of birds are in an area. To increase accuracy, one increases the quantity of point counts and the number of days a point count is repeated.

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Generally, point counts are used to compare bird differences between sites. They can be used to monitor changes in bird populations when an area is changed. They also can be used to study seasonal and annual fluctuations in bird populations. Point counts often are utilized in areas where transects are impractical. A transect is a survey method where a researcher walks a route of a determined length and counts birds on either side of the route. Transects are not practical if it is difficult to walk through a landscape or the area of interest is too small.

Monitoring projects may not begin with explicit questions about the systems being studied. However, the results are often used to generate questions that are answered with additional research. In fact, point count surveys can be used in many educational programs. Participants can look at results and develop hypotheses about why differences occur between the sites of interest. For example, one might find that woodpeckers visit Homeowner A's yard but not Homeowner B's yard. One can visit each of the homeowner's yards and look for habitat differences between the two yards. Unique hypotheses could be developed and tested. This may lead to recommendations for ways to improve Homeowner B's yard to attract woodpeckers. This comparative approach is an effective way to evaluate the impact of landscape changes on bird populations.

Further, one can evaluate the success of wildlife habitat improvements that have been made on a property. One conducts a point count before habitat changes have occurred. Then, one conducts point counts periodically over a number of years. By comparing the initial number of bird species to future numbers, one can get an idea of how changes in the landscape affected bird species on a given piece of property.

The important thing to remember is that the point count method is a standardized method of surveying birds. To insure the reliability of any comparisons, each person should conduct a point count in *exactly* the same way.

Florida Monitoring Program

The objective of the Florida Monitoring Program is to develop a database that is linked to a Web site where people can enter and view collected environmental and ecological data. Homeowners and participants from various natural resource, Cooperative Extension, and state education programs are encouraged to participate. The initial focus will be on birds. However, this initial effort will be used as a pilot to expand to other variables (such as insects, mammals, water quality, vegetation, etc.). One potential benefit of this project may be the production of a database that could be used in a state-wide monitoring effort.

The idea behind this program is to create a Web site for participants to share, view, and display data. This will allow people to interact, pose questions, compare results, discuss, and develop suggestions of how to improve their local environmental condition. For people who have gone through various extension and educational programs, this program will promote the continuation of critical thinking and learning. Participants will be able to compare their results with others. Such data comparisons lead to the development of hypotheses, alternative strategies, and solutions. For example, the University of Florida's **Backyard Wildlife Habitat** (<http://www.wec.ufl.edu/extension/fblw/index.htm>) and **Florida Yards & Neighborhoods** (<http://hort.ufl.edu/fyn/>) programs teach people ways to ecologically and environmentally improve the design and maintenance of their yards. A collection component, where data are displayed on a Web site, will promote interest and excitement among the participants. The "fruits" of their labor could be monitored and displayed, allowing a community of like individuals to interact.

Point Count Protocol

Point Counts: A point count consists of standing in a specific location and counting birds. One counts the number of individual birds (of each species) within a circle of a certain radius. In most cases, especially when gathering data to compare one point count to the next, radius size should be consistent. But what radius to choose? The radius

should be as large as possible to maximize information gathering, but not so large that birds cannot be seen or heard throughout the survey area. Also, landscapes are very different from one survey site to the next. It is difficult to select a radius that works for every situation. For this reason and based on our experiences, we suggest participants use a radius of 20 meters (65.5 ft.) for most situations. Keeping the surveyed areas the same makes comparing different point counts that much easier in the long run (Figure 1).

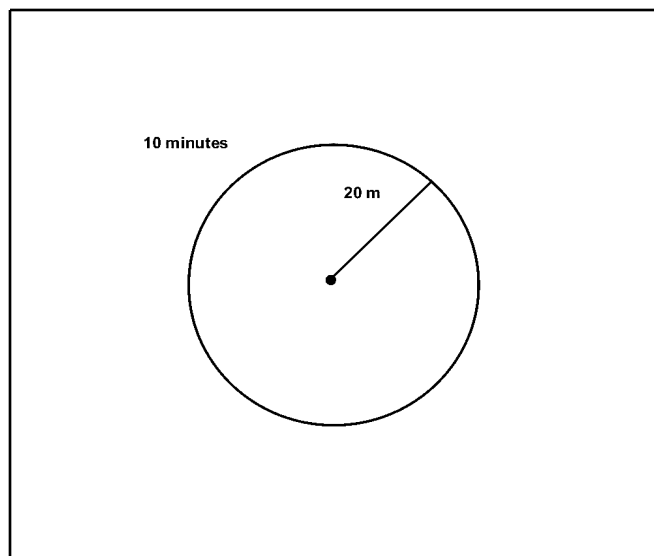


Figure 1. A typical 20 m (m=meter) radius point count where one person counts all the birds seen or heard within a 10 minute period.

In some cases, due to obstacles, the entire circle may not be possible to survey. Try to find a location where you can survey 100% of the circle. If this is not possible (such as a backyard with high walls where birds cannot be seen on the other side), just report the percentage of the circle that could be surveyed. Alternatively, various geometric areas could be surveyed (e.g., rectangles, squares, or triangles). If not using a circle, try to survey an area that equals the area of the 20 m radius circle (1256 m²).

As mentioned above, situations are different from one area to the next. Although we encourage participants to conduct a circle point count with a 20 meter radius, one can survey birds using point counts of different sizes and shapes. Certain landscapes and situations may warrant utilizing a larger or smaller radius. There are ways to account for different point

count sizes when attempting to make comparisons across different sites. Thus, any point count size and shape will work, especially if one is primarily interested in tracking birds over time at one site. The important point is to keep the size of the point count the same from the start. Changing the size of the point count in the middle of your monitoring effort would bias the data. This would have to be accounted for in final analyses.

Important Note: If you would like to do a point count with a *larger* radius, here is what we suggest. Record all birds that are seen or heard within the normal 20 meter radius. At the same time, record birds that are heard or seen within a selected distance outside this 20 meter radius. The birds counted within the 20 meter radius would be marked in the "Number of Birds" column of the data sheet (see Table 3). Birds seen or heard outside the 20 meter radius (within a specified distance) are marked in the "Outside" column of the data sheet.

For example, let us assume that a person wants to record birds within a 40 meter radius. The observer could separately record birds seen or heard within the 20 meter radius and within the 20 to 40 meter band that is outside the 20 meter radius circle. Be sure that the same bird is not counted twice during the survey. A bird that moves from the 0 - 20 meter area to the 20 - 40 meter area should not be counted twice. Count it where it first appeared.

This is a more difficult survey because one is counting birds within two different areas at once. One is counting birds within a 20 meter radius and also within a circular band outside this 20 meter radius. The purpose of surveying birds in this manner is that it allows one to compare across sites. A 40 meter radius count that contains birds seen within 20 meter radius can be compared to other 20 meter counts.

If you choose to do this, please fill-in the distance that you consistently count birds outside the 20 meter radius. This will be marked in the Site Registration section under "Optional, enter survey distance beyond 20 meters" (see Table 1). Write in the distance beyond the 20 meter radius.

Time of Counts: As with the survey area, the time devoted to point counts must be consistent. For the Florida Monitoring Project, point counts will last 10 minutes. We suggest conducting 1-3 counts per month, but one can do more if desired. Any number of months could be counted during a year. Counts should be done within three hours after sunrise. This is when birds are most active. One can also do nighttime surveys to count nocturnal species (done within three hours after sunset). During point counts, record all birds seen and heard within the survey area.

Counting the Birds: Once the survey has started, record all birds that are seen or heard within the point count. You can use your own codes to mark down the birds during the survey as long as you transcribe your codes to the full common name. One can also record, in the Outside Column (see Table 3), birds heard or seen during the count beyond the boundaries of the survey area. This is done on a casual basis. It does not represent a consistent survey of birds at a certain distance outside of the 20 meter radius (see Important Note above). This is especially useful for birds with loud calls that carry long distances, such as hawks or owls. After a count is completed, attempts should be made to identify all birds whose identity was in question.

Starting the Count: Approach your survey location quietly. Once you are at the center of the survey circle, wait for 2 minutes before you start recording birds. This allows you to get oriented, and it allows the birds to acclimate to your presence. Upon entering your point count, record on your data sheet all birds that were flushed from the survey area.

Counting FT (fly-thrus): All birds that fly through a point count area (below the tallest structure in a census area) but do not land on any structure should be counted as FT. However, if you are sure that the flying bird came from somewhere in the point count, do not count it as an FT. Record the number of birds that are FT in the FT Column of the data sheet.

Counting FO (fly-overs): All higher-flying birds (above the tallest structure in a census area) should also be noted if they are within the boundaries of the point count area. Record the number of birds that are FO in the FO Column of the data sheet.

Counting Birds Outside of Survey Area: Only birds seen or heard within the point count area should be recorded (if a bird is 1 meter outside the survey area - do not count the bird). Remember, to make results comparable, each person needs to survey birds exactly the same way. However, if it is an unusual bird or a rather vocal bird, count it in the Outside column of the data sheet. You can also note how far away this bird was heard or seen on the Additional Notes section of the data sheet. Note: If you have reserved the Outside column for birds counted within a certain distance beyond the 20 meter radius (see Important Note above), then birds heard outside the total point count area can only be recorded on the Additional Notes section. For example, birds seen or heard within a 20 - 40 meter band would be tallied in the Outside column. Birds heard beyond 40 meters would be recorded in the Additional Notes section.

Estimating Abundance: When multiple sightings of a species occur within a point count, only include multiple entries for a species if you are reasonably certain they are different individuals. Only count different individuals of a given species. All recorded species in the data sheets are assumed to be separate individuals (example: 5 house sparrows means that 5 different house sparrows were sighted). Provide estimates for large flocks of birds (e.g. blackbirds, grackles, etc.). Be sure to note that they are estimates in the Additional Notes section.

Unidentified Birds: Unidentified birds are listed as such with the closest taxonomic affiliation that can be determined, for example, Unidentified Warbler or Unidentified Sparrow. It should be emphasized that this type of recorded data is very important and can be used to estimate which type of birds are found in the area (mark on the data sheet as Unidentified _____ (fill-in closest taxonomic affiliation of the bird)). Avoid counting each unidentified bird more than once. For example, recording two Unidentified Warblers means two different, warbler-like individuals entered your point count area. This is helped by noting (mentally or otherwise) anything you can about the bird (e.g., size, direction last seen, any behaviors, etc). Also, if you record an unidentified warbler, but also saw, for example a yellow-rumped warbler, notes on general coloration

or behavior of the unidentified bird could justify naming the unidentified warbler as a yellow-rumped.

Weather: When conducting the point count, record general climatic conditions. Record wind intensity (estimate its strength: no wind, slight, gusty, strong wind), temperature (Fahrenheit), and estimate percent of cloud cover (e.g., 50 % cloud cover). This is important because climatic variables are known to affect bird activity. Avoid counting birds if it is raining or if it is extremely windy.

Additional Notes: The Additional Notes section at the bottom of the data sheet is there to record anything unusual or interesting. Record bird behaviors, dramatic changes in the habitat, etc. Notes will not be entered into data through the Web site but it is there for your own use.

Clothing Color: Clothes worn should be drab and non-colorful. Bright colors may attract curious birds, or warn others away.

Avoiding Artificial Densities: Do not use sounds that can attract birds to your site. No "spishing", "squeaking", recorded calls, or any other methods that encourage birds to show themselves or to investigate the observer. This would result in artificial densities of birds.

Set-up and Practice: Before conducting the point count, mark the boundaries of the area with some flagging or use some identifiable object (e.g., corner of building, a large tree, etc.). Also, mark the spot where you stand and observe birds. One should return to this exact place each time. Do several practice point counts. This will help you know the boundaries of your area, and you can identify any potential problems with the area that you will be surveying.

To Participate in the Florida Monitoring Program: You will need to get a User ID and a Point Count Code for your point count. Before starting the point count, please contact Dr. Mark Hostetler at 352-846-0568 or hostetlerm@wec.ufl.edu and indicate whether you are connected with an Extension program, a school, a private or public organization, or just on your own. Also, please include your phone number and E-mail address. After contacting us, we will send you a User ID and Code.

To enter survey data, you must use a fairly recent version of **Netscape Navigator** as your browser. You can download the most recent version for free from the Netscape website: <http://www.netscape.com/>.

For each Point Count, you need to fill out who established the site, where the site is, contact information (E-mail and phone number), and a general landscape description. Please fill out (completely) the forms on the website (see example in Tables 1 and 2). This is done only once, *before* entering the actual bird count data. The site description will allow people to evaluate habitat differences between sites and also will help people know where the survey was conducted.

Please Note: You can start the surveys *before* obtaining the User ID and Code (just save the data sheets). An example data sheet is provided in Table 3. A blank data sheet is provided in Table 4. You just need the ID and Code to enter the data online: **<http://bird.ifas.ufl.edu>**. Before surveying the birds, please read all of the information above.

For More Information

For more publications on wildlife and other topics, go to the UF/IFAS **EDIS** website at <http://edis.ifas.ufl.edu>.

Table 1. Site Registration

User ID _____ (use the same ID if you have multiple surveys) Enter Site Code _____ Name _____ Email _____ Phone (optional) _____ TYPE OF POINT COUNT: If Circle, enter radius of circle _____ m Enter percentage of circle actually surveyed _____ If Other, enter approximate shape of point count _____ Enter total area actually surveyed _____ m ² Optional, enter survey distance beyond 20 meters _____ m Associated with a University of Florida Extension Program? If yes, enter program name (e.g., Master gardener): _____ Associated with a school? If yes, enter name of the school: _____ Associated with any other private or public organization? If yes, enter name of organization: _____
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Table 2. Habitat description within the point count

The below is to obtain a rough description of vertical habitat structure. Within your site, estimate the percentage of structure at each of the three vertical layers. 0 – 0.15 m _____ % gravel or bare soil, _____ % pavement or building _____ % lawn _____ % other vegetation (e.g., ivy) 0.15 – 2.0 m _____ % shrubs, small trees or other vegetation > 2.0 m _____ % tree canopy
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Table 2. Habitat description within the point count

Human-made bird structures: Number of Hanging or Post-mounted Seed Feeders _____ Number of Hummingbird Feeders _____ Number of Suet/Peanut Butter Feeders _____ Number of Platform Feeders _____ Number of Bird Baths _____ Number of Bird Boxes _____
Landuse: Enter the overall landuse designation in which the site is located (e.g., single family, multi-family, school, park, industrial, etc.) _____

Table 3. A sample data sheet

Date: <u>4/7/99</u> Point Count Code: <u>AAMG-MH1</u> Weather (wind intensity, temp, and cloud cover): <u>gusty, 50 F, no clouds</u> Primary Observer's Name: <u>Mark Hostetter</u>				
TIME START: 7:50 AM				
TIME END: 8:00 AM				
SPECIES	Number of Birds	FT	FO	Outside
House Sparrow	15	1		
Mourning Dove	8			
House Finch	10		1	
Red-bellied Woodpecker				1
Additional Notes: <u>Red-bellied woodpecker heard 20 meters outside point count area on a large oak</u>				

Table 4. Blank data sheet

Date: _____ Point Count Code: _____				
Weather (wind intensity, temp, and cloud cover): _____				
Primary Observer's Name: _____				
TIME START:				
TIME END:				
SPECIES	Number of Birds	FT	FO	Outside
Additional Notes: _____				