

AVIAN POINT COUNT PROTOCOL

Mount Tabor

Prepared for

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Appendix A Survey Station Field Location Description Form

Appendix B Point Count Data Sheet

The City of Portland Bureau of Environmental Services (BES) Tabor to the River (T2R) Program is planning to remove invasive plants and install native plants in natural areas of Mount Tabor Park in SE Portland. BES is interested in conducting avian surveys in the park before, during, and after this revegetation project. As part of this survey effort, Herrera Environmental Consultants (Herrera) was contracted to set up avian point count stations and conduct avian point counts in Mt. Tabor Park. Station setup and point counts were conducted based on a protocol adapted from Huff et al. (2000), in cooperation with Dave Helzer of BES.

This technical memorandum summarizes the protocol applied when selecting and documenting avian point station locations, and when conducting avian point counts at designated stations.

Twenty-three point count stations were selected and documented for the surveys conducted at Mt. Tabor Park. Each station was visited three times in June 2009, for a total of 69 point counts. Survey results were compiled into a spreadsheet format for use by BES.

Protocol for Selecting and Documenting Point Count Station Locations

The protocol methodology defined in Huff et al. (2000) was referenced when locating point count stations, taking into account the spatial constraints of an urban park land base available for survey. Multiple revegetation project treatment areas are proposed in the park, which influenced the selection of station locations (described below).

Point Count Station Selection Criteria

The following selection criteria were discussed with BES to guide setup of the point count station location array.

1. Point count layout should be as comprehensive as possible, so that the entire study area is covered by the point count station location array.
2. A minimum distance of 150 meters between point count stations is required. Maximum distance between point count stations should be no greater than 250 meters. Ground distance or walking distance should be measured, accounting for changes in physical distance between two stations due to elevation change.
3. The critical area for avian point count data collection is a 50-meter radius around each point count station.
4. Where applicable, point count stations should be located to capture both data within different treatment areas and data in ‘control’ areas not scheduled for vegetated treatment.

5. Where applicable, the area within 50 meters of a point count station should be located entirely within a single type of treatment area or ‘control area,’ so that surveys conducted over time in different treatment areas and ‘control areas’ may be qualitatively or quantitatively compared.
6. Depending on the objective or purpose of the study, in urban park contexts roads do not necessarily need to be avoided within 50 meters of a point count station.
7. Development of an experimental project design in a way that can generate statistically significant conclusions is possible and should be considered as an option when laying out point count stations.

Point Count Station Selection Approach

1) Estimate point count station locations

- Start with a mapping exercise to plan out point count station location arrays in the study area. Begin by using a map containing key information for use and consideration during the survey, including but not limited to: the study area boundary, a recent site aerial photograph, treatment area polygons (if applicable), road locations, and trail locations.
- Map out potential point count stations based on the decision criteria above. Stations should be located a minimum of 150 meters and a maximum of 250 meters away from any other point count station. If applicable to study goals, the entire area within 50 meters of a potential point count station should be located entirely within one study or treatment area. In urban park locations, presence of roads within 50 meters of a given point count station is a consideration during layout, but does not necessarily exclude a point from inclusion in the array. Geographic information system (GIS) tools or an engineer’s scale can be used when measuring point counts, in consideration of changes in topography.
- For ease of location, enter potential point count stations into a GIS and upload into a global positioning system (GPS) unit to aid in their location in the field. If the GPS unit supports data dictionary software, additional field data may be electronically collected with it. Prior to going in the field, prepare a simple field form for recording additional information about the point count station. An example is provided in Appendix A. Information typically collected during the point counts is described below.

2) *Field locate, adjust, and record point count station locations*

- Field-verify point count stations after they are initially located on a map. Using the coordinates loaded into the GPS unit, locate the approximate location of the proposed point station location in the field. The location may be adjusted to improve physical access to the site and safety upon arrival, to improve presence of contiguous habitat within 50 meters of the station (if applicable to survey objectives), or to improve visual and audial access to the station surroundings (particularly within 50 meters of the proposed station).
- When making field adjustments, make sure that stations remain a minimum of 150 meters from each other and a minimum of 50 meters from the edge of designated treatment polygons (if applicable). A GPS unit with an accuracy of five feet or less will improve the observer's ability to make these determinations quickly and accurately in the field. Use 50-meter tape measures for physically measuring distances between point count stations and polygon boundaries.
- When a suitable location for point count station has been determined, record that location in the GPS unit.
- Take four photos of each point count station, standing approximately 10 meters away from the station in each of the four cardinal directions. It is recommended to have a field partner stand at the exact station location or to otherwise temporarily mark the exact location for reference in the photo. For consistency and ease of record, it is good practice to begin in the same cardinal direction when taking photos, and take each of the four the photos in a consistent order. For example, the observer may decide to always take the first point count station photo from the north and proceed clockwise by then taking photos in order from the east, south, and west. Record the photo numbers in the field form.
- Prepare a written description of how to get to each point count station, especially if the location cannot be marked with rebar, tape, spray paint, or other physical markers. This is best done by referencing the location of the site from a nearby, visually distinct object that is semi-permanent and can be easily located. Typical examples include a park bench, sign on a road, trailhead, or distinct tree specimen. Ideally, the point count station will be visible from the reference object. Clearly describe the reference object and its location on the field form. Record the bearing to the point count station from the reference object using a compass. Using a measuring tape, measure the distance between the reference object and the point count station and record the distance on the field form.

- Describe the actual point count station as clearly as possible, noting any distinctive features that may set it apart from its surroundings.
- After all point count stations have been identified, geolocated, and described, download field GPS data to make a working map of point count stations for reference in the field. Before going out in the field to conduct point counts, prepare copies of the point count station descriptions and photographs for reference in the field. If inclement weather is forecast, it may also be useful to print these copies on waterproof media or otherwise protect them from getting wet in the field.

Protocol for Conducting Avian Point Counts

The following definitions are from Huff et al (2000). Methodology for conducting point counts is adapted from Huff et al (2000), the Willamette Riverkeeper Bird Monitoring Program (Willamette Riverkeeper, date unknown), and the Metro Bird Monitoring Program (Metro, date unknown).

Definitions

Detection: recordable identification of the species of an individual bird by visual and/or aural cues as a fixed event in time and space

Typical detection: a detection that is habitat-specific and spatially defined. A typical detection is defined as a bird seen or heard from between the ground or water level up to the top of the surrounding vegetation, within a specified distance from the point count station itself. For the purposes of this protocol, typical detections are recorded within two distance bands – 0 to 50 meters and greater than 50 meters – and within three time periods – 0 to 3 minutes, 3 to 5 minutes, and 5 to 8 minutes.

Flyover detection: detection of a bird above the highest vegetation during a point count survey in the sky within the horizontal limits of the site boundary. There are two types of flyover detections: associated and independent. Both are recorded over three time periods during a given survey: 0 to 3 minutes, 3 to 5 minutes, and 5 to 8 minutes. No distance bands are used when recording flyover detections.

- **Associated flyover detection:** a flyover detection where a bird is actively searching, foraging, and/or traveling locally above the highest vegetation at a site.
- **Independent flyover detection:** a flyover detection where the observed bird is not using the site below it by foraging, searching, or other associated activity.

- **Juvenile detection:** detection of a young juvenile or subadult bird. These are counted separately from adult birds, as a simple tally of individuals of a given species.
- **Flush detection:** detection when a bird is disturbed by the observer as it enters or leaves the point count site, where the bird is not detected again during any of the station point counts. This detection is limited to bird detection within the 0- to 50-meter band (radius) from the point count station. Flushes that occur outside of the 50-meter radius should be recorded in the field notes.
- **UNK (unknown):** appropriate entry to make when recording a bird detection for which the species of the individual was not positively identified.

Methodology

Conduct point counts using the following protocol. A datasheet for recording avian point count information is provided in Appendix B, courtesy of Dave Helzer, Portland BES.

When to Conduct Point Counts

- Conduct at least 3 point count surveys in the time period between May 15 and June 30. Each survey includes conducting point counts at every point count station in the array for a given site.
- Begin each point count survey within 15 minutes of sunrise. Complete each survey before 10:00 a.m.
- When possible, conduct a point count survey of a given site in one day.
- Surveys of each point count station array should be separated by 7 to 10 days.

When Not to Conduct Point Counts

- Do not conduct point counts under conditions that physically prevent an observer from effectively seeing or hearing birds within 50 meters of a point count station, or that appear to affect bird behavior. Rain, cold drizzle, sleet, snow, fog, or strong winds are weather conditions that prohibit effective point counts. Light drizzle may be okay if the visual and aural capabilities of the observer(s) are not affected and birds remain active. Noise is another factor that can affect point counts.

Procedure for Conducting Point Counts

- Prior to conducting point counts, select an efficient route and method for traveling from station to station within a point count array. Consider travel distance, topography or other barriers, and available roads or trails for travel.
- Prior to conducting the point count survey, gather maps, photographs, point count station descriptions, datasheets (enough blank copies for the entire survey), GPS unit, writing instruments, clipboard, and other information and materials needed for the field work.
- Travel quietly to the first point count station. The first point count in an array should begin within 15 minutes of sunrise.
- Upon arrival at each point count station, wait quietly for two minutes before beginning the count. The observer's breathing should be normal during point counts. Record the date and time, temperature, wind speed, noise, and other relevant information on the field datasheet.
- Record detections in the appropriate column, as either a typical detection or flyover detection.
- After the two-minute quiet period, begin the point count. Count and record each individual of each species detected. When a bird is detected, record it using the appropriate four-letter common name species code. Four-letter common name species codes can be found at: <http://www.pwrc.usgs.gov/bbl/manual/sname.htm> .
- In the appropriate location on the field datasheet, record each detection according to the time period in which the bird was detected (0 to 3 minutes, 3 to 5 minutes, or 5 to 8 minutes).
- For each typical detection, record whether the species was observed within 50 meters of the point count station or greater than 50 meters from the point count station in the appropriate location on the field datasheet.
- Each bird detected is counted and recorded as a detection only once. Once a bird has been detected and recorded, it should not be counted again. For example, if a bird was detected and recorded in the first 0 to 3 minutes of a point count, and the same individual was observed during the same point count 5 minutes into the point count, it would not be recorded a second time as a detection.

- For each flyover detection, record on the field datasheet whether the detection is an associated flyover detection or an independent flyover detection.
- Record juveniles separately.
- Record flush detections, if any.
- On subsequent visits, vary the order of the stations along the survey route so that each point is surveyed at a different time of the morning over the course of the entire survey. For example, when surveying stations 1 through 10, stagger the order of survey. For example:
 - First Visit: 1,2,3,4,5,6,7,8,9,10
 - Second Visit: 10,9,8,7,6,5,4,3,2,1
 - Third Visit: 5,6,7,8,1,2,3,4,9,10

Using this approach, each point is sampled early in the morning at least once during the survey.

- Keep datasheets in order. Be sure to include page numbers, site location, point count station number, survey dates, etc. on each datasheet so that if the papers become shuffled or separated, they can be restored to order. This is very important; if this information is not provided, the point count data are not useful.

References

Huff, Mark H., Kelly A. Bettinger, Howard L. Ferguson, Martin J. Brown, and Bob Altman. 2000. A habitat-based point-count protocol for terrestrial birds, emphasizing Oregon and Washington. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station General Technical Report PNW-GTR-501

Metro Regional Parks and Greenspaces. Date unknown. Breeding Bird Monitoring Protocol. Accessed online on July 31, 2009, at <http://library.oregonmetro.gov/files/breedingbirdmonitoringprotocol.pdf>.

Willamette Riverkeeper. Date unknown. Willamette Riverkeeper bird monitoring program. Unpublished document.

ATTACHMENT A

Survey Station Field Location Description Form

Survey Station Field Location Description Form

Point # _____

Name(s) _____ Date _____

Notes

	<p style="text-align: center;">Directions</p> <p>Start Point _____</p> <p>Bearing _____ Distance _____</p>

ATTACHMENT B

Point Count Datasheet

