

# A Volunteer-Mediated Monitoring Program to Track the Effects of Habitat Restoration on Selected Bird Populations at Metro Natural Areas

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## **OVERVIEW**

The passage of Metro's open spaces, parks and streams bond measure in 1995 lead to the protection and restoration of thousands of acres of wildlife habitat in the Portland Metropolitan Area. Metro Regional Parks and Greenspaces initiated a program to monitor selected plant and wildlife populations linked to restoration projects on many of these newly protected lands. Metro selected bird and amphibians as wildlife indicators, primarily because these groups are:

- Relatively easy and inexpensive to track using standardized methods
- Allow the safe participation of volunteers yielding reliable population data
- Facilitate an evaluation of a diverse group of resident and migratory species representing a broad array of habitat types

Volunteers have played a key role in this effort. Beginning in 2004, Metro partnered with the Northwest Service Academy to sponsor three successive AmeriCorps positions charged with building a sustainable base of volunteer monitors. Volunteer wildlife monitors use standardized protocols (see Appendix) refined by Metro and based upon peer-reviewed protocol. Completing its third year, the program has been very successful at establishing a skilled and faithful volunteer base of over 90 members, contributing over 950 hours at 12 different sites and generating extremely useful and in some cases dramatic wildlife population data. Three volunteer interns from local universities were recruited to assist with the volunteer coordination.

## **METHODS**

Metro's avian monitoring program focuses on tracking selected bird populations throughout key portions of the year. The program is divided into two components: waterfowl surveys and breeding bird surveys. Waterfowl surveys

focus on tracking ducks and other readily visible waterbirds as they occur at selected Metro floodplains and off-channel ponds. Waterfowl surveys are conducted fall through spring. Breeding bird surveys track bird populations within specific habitat types during the peak of the summer breeding season from May 15<sup>th</sup> to June 30<sup>th</sup>. These surveys follow the habitat-based point count protocol created by Partners in Flight, which is presented in the Appendix.

## **STUDY SITES**

Waterfowl surveys were conducted at four sites: the Multnomah Channel Natural Area, Killin Wetlands, Gotter Prairie, and River Island.

Ten study sites were surveyed using the habitat-based point count method in 2006 (Figure 1): Multnomah Channel Natural Area, Killin Wetlands, Gotter Prairie, Coffee Lake Bottoms, Cooper Mountain Natural Area, Mount Talbert, Lovejoy Wetlands, Clear Creek Ranch, River Island, and the Smith and Bybee Wetlands Natural Area. Habitats surveyed at these sites ranged from emergent/shrub-scrub wetlands to oak woodlands. Aerial photos of the portions of the sites surveyed for breeding birds are presented in the Appendix.

## **RESULTS**

In 2006, 26 volunteers contributed over 260 hours to the avian monitoring program. Waterfowl monitors identified a total of 28 species, while breeding bird surveyors detected 102 different bird species. Study site summaries of the 2006 breeding bird survey data are presented in the Appendix.

## **DISCUSSION AND SUMMARY**

One of the primary goals of Metro wildlife monitoring program is to collect data to help evaluate our natural area stewardship program to guide better future management, evaluate the effects of natural area restoration projects, and support requests for grants to support future restoration projects.

Metro's pond-breeding amphibian monitoring program, for example, has helped demonstrate very clear positive effects of floodplain restoration on the state-sensitive northern red-legged frog (*Rana aurora aurora*) and other native amphibians, which has helped Metro manage water levels at floodplain wetlands it manages as well as raise grant funds for floodplain restoration. The immediate benefit realized from the amphibian program is strongly associated with such features as Metro's ability to markedly alter habitat (e.g., by artificially storing seasonal flood water, or planting fast-growing emergent vegetation in a flooded field that had previously been farmed.) Also, because amphibians have restricted home ranges, they are basically year-round residents to our restoration sites and therefore extremely sensitive to changes in site conditions.

In contrast, avian populations are clearly influenced by many factors beyond those we control at our natural areas, such as conditions on remote non-breeding and migratory grounds. Furthermore, the mature woody vegetation components

required by many of the region's breeding bird species cannot be managed or established as quickly as, say, the emergent vegetation required by native pond-breeding amphibians.

With a few exceptions, this is the second or third year that most sites described in this report have been surveyed – far too soon to support meaningful evaluation. However, the data being collected today contributes to Metro's overall awareness of the species that rely upon our natural areas and establishes a critical baseline from which to compare future populations. Ten years from now, the 10-foot tall Douglas-firs and Ponderosa pines at Cooper Mountain will be 40-feet tall and closing canopy. Birds will notice.

### **ACKNOWLEDGEMENTS**

On behalf of the Metro Regional Parks and Greenspaces Department, we would like to acknowledge and thank all of the volunteers that assisted with the bird monitoring in 2006:

Ben Bole, Carmen Calzacorta, Troy Clark, Tony Defalco, David Dengler, Bill Evans, Pam Farris, Diane Harris, Lori Hennings, Karla Johnson, Cindy Jones, Jay Leavens, Daniel Marks, Vanessa McClelland, Barbara McDow, Ron McDow, Ed McVicker, Casey Mills, Rachel Rounds, Millie Scott, Max Smith, Louis Sowa, Christine Steele, Elaine Stewart, Sarah Swanson and Iain Tomlinson.

A more dedicated and enthusiastic group could not be assembled. In 2006, 26 volunteers participated with the surveys, contributing over 260 hours to the project! Each year the program has expanded allowing more extensive data to be collected.

We couldn't have done it without your help. Thank you everyone!

# **APPENDICES and FIGURES**

# Metro Regional Parks and Greenspaces

## BREEDING BIRD MONITORING PROTOCOL

*- Assessing and tracking habitat quality and restoration effectiveness using breeding birds as bio-indicators*

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### **BASICS:**

Conduct timed surveys of breeding bird from fixed point count stations deployed within specific habitats. Protocol represents methods recommended by Huff et al. (2000, <http://www.fs.fed.us/pnw/pubs/gtr501.pdf>).

### **TARGET HABITATS:**

Varied but including emergent wetlands, oak savanna, oak-pine savanna restoration sites, ash forest, conifer reforestation sites and upland prairie.

### **TARGET SPECIES:**

All breeding birds

### **METHODS:**

#### **Habitat-Based Point Count Monitoring**

*(Note: Protocol steps 1 & 2 are likely already done by Metro)*

- 1.) Identify target site/habitat, considering the following:
  - Habitat type
  - Restoration activities
- 2.) Establish Point Count Stations, considering the following criteria:
  - At least 5 stations/SA
  - Each station should be  $\geq 150$  m from neighboring stations
  - Each station should be  $\geq 125$  m from the boundary
  - Flag locations 50m from point count station at N, E, S, and W compass points to help delineate count boundaries.
- 3.) Conduct point counts using following protocol (Record data on provided data sheets):

#### **Conditions**

- Do not conduct counts under the following weather conditions: Rain, cold drizzle (light drizzle okay if birds are active), sleet, snow, heavy ground fog, strong winds ( $>20$ mph).

#### **Timing of Counts:**

- Conduct  $\geq 3$  counts/season beginning May 15<sup>th</sup> and finishing by June 30<sup>th</sup>. Visits to the same point count array should be separated by 7-10 days (Note: This requires careful coordination if more than 1 team is surveying the same array). Adjustments to dates can be made if weather is unusually cool or warm.

- Try to visit sites at similar dates on subsequent years.
- Conduct all counts during period of peak bird activity (roughly between sunrise and 10:00 AM).
- Visit all points in an array in one day.

**Site Visitation Procedure:**

- Alternate initial starting station each visit (by starting at stations #1 or #5 on alternating visits to the site).
- Travel as quietly as possible between stations to avoid disturbing birds
- Wait a couple minutes at each station before beginning count to allow bird community to “settle down” (make sure you are quiet, breathing normally).
- Spend 5 minutes at each point, separating birds detected into 0-3 min. and 3-5 min.
- Record detections as either “typical” or “fly-over”. A detection is when the bird is first seen or heard in a point count. A typical detection is habitat specific and spatially defined (i.e. in relation to the 50-m radius and surrounding vegetation). A fly-over detection is defined as a bird detection above the highest vegetation (i.e. tree canopy). An associated fly-over detection is one where the bird appears actively involved in the site (habitat type), whereas an independent fly-over is not using the site below
- Record typical detections as either 0-50 meters (within the point count radius) or >50 meters.
- Tally juveniles separately. Record flush detections (birds neither seen nor heard during station counts). These are usually disturbed or flushed as a person enters or leaves a point count site, but are found within the point count radius. Flushes that occur between stations should be recorded in the field notes.
- Be careful of double counts! Once you have detected a bird once and recorded it, you do not want to note it again.
- Record species using 4-digit common name species codes. If you are unsure of this notation, or of the code for a specific species, just write out the species name. The following address can be used to look up four-letter bird codes: <http://www.pwrc.usgs.gov/bbl/manual/sname.htm>

Huff, M. H.; K. A. Bettinger; H. L. Ferguson; M. J. Brown; and B. Altman. A habitat based point-count protocol for terrestrial birds, emphasizing Washington and Oregon. U.S. Department of Agriculture/Forest Service Gen. Tech. Rep. PNW GTR-501. Available online: [www.fs.fed.us/pnw/pubs/gtr501.pdf](http://www.fs.fed.us/pnw/pubs/gtr501.pdf)



# Metro Regional Parks and Greenspaces

## AVIAN WADER & WATERFOWL MONITORING PROTOCOL

*- Assessing and tracking wetlands habitat quality and restoration effectiveness using waterfowl and wading birds as bio-indicators*

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### **BASICS:**

Survey a targeted wetland for waders (herons, egrets and cranes) and waterfowl (ducks, geese and grebes) from fixed stations located adjacent to the target wetland.

### **TARGET HABITATS:**

Emergent wetlands, Shrublands and open ponds

### **METHODS:**

*Note: Protocol 1 & 2 are likely already done by Metro*

- 1.) Identify target wetland boundaries, considering the following:
  - Habitat type
  - Management/Restoration activities
- 2.) Establish remote survey stations, considering the following criteria:
  - Identify as many stations as needed to collectively provide a view of the entire target wetland, or the greatest portion possible.
  - Locate each station far enough from the wetland so that surveys can be conducted without flushing target birds.
- 3.) Record the following data on provided data sheets:
  - Conditions:
    - Weather conditions during time of survey.
    - General degree of inundation of the target wetland (e.g., mostly dry, typically inundated, unusually high degree of flooding).
    - Presence of other people, predators or other factors that might substantially influence target bird populations.
  - Timing and frequency of surveys:
    - Conduct at least one count/month, preferably one count/week, beginning in October or when target sampling pond begins to fill, finishing by the end of June, or when wetlands dry up,

- Conduct counts between the hours of sunrise and 3pm and make every effort to conduct counts at roughly the same time of day (e.g., late morning) each visit.
- Visit all points in one day.

Survey procedure and general considerations:

- Travel as quietly as possible between stations to avoid disturbing birds. Many herons and ducks flush when approached, so it is important to approach survey points as stealthily as possible.
- Begin counting immediately at each station, as wetland birds are easily spooked. If possible, survey from a car or remote point using a spotting scope.
- Count all birds visible from each point and keep track of the area surveyed to avoid overlapping counts of the same area from different survey points.
- Make note of any birds hidden in vegetation (i.e.: rails, bitterns), if the species can be positively identified by call.
- Tally juveniles separately, especially chicks or other evidence of breeding activity on site.
- Record flush detections. These are usually disturbed or flushed as a person enters or leaves the wetlands observation point.
- Make sure to clearly label each species on your datasheet to avoid confusing similar species. If you are able, please record species using 4-digit common name species codes. If you are unsure of this notation, or of the code for a specific species, just write out the species name. The following address can be used to look up four-letter bird codes:  
<http://www.pwrc.usgs.gov/bbl/manual/sname.htm>



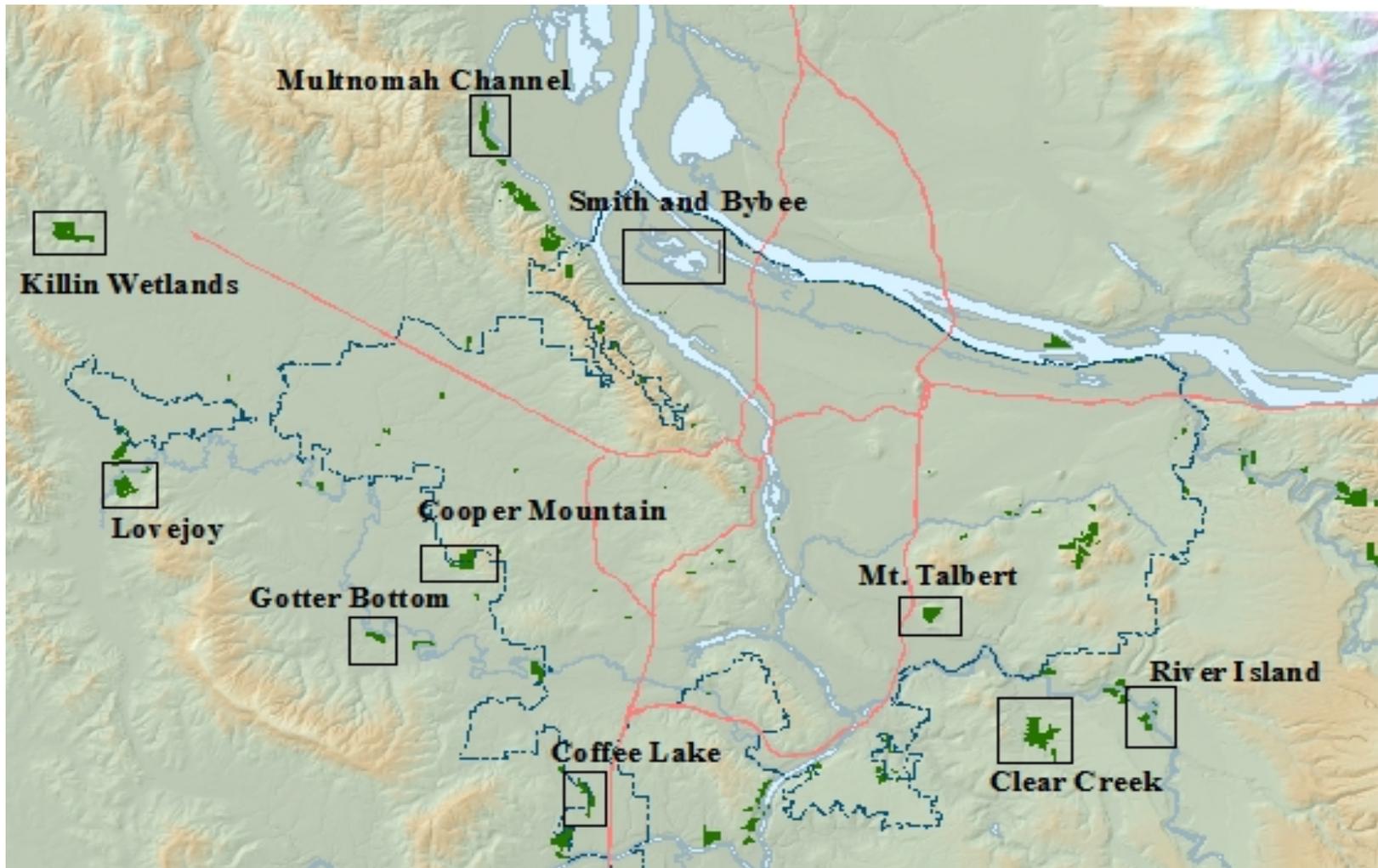
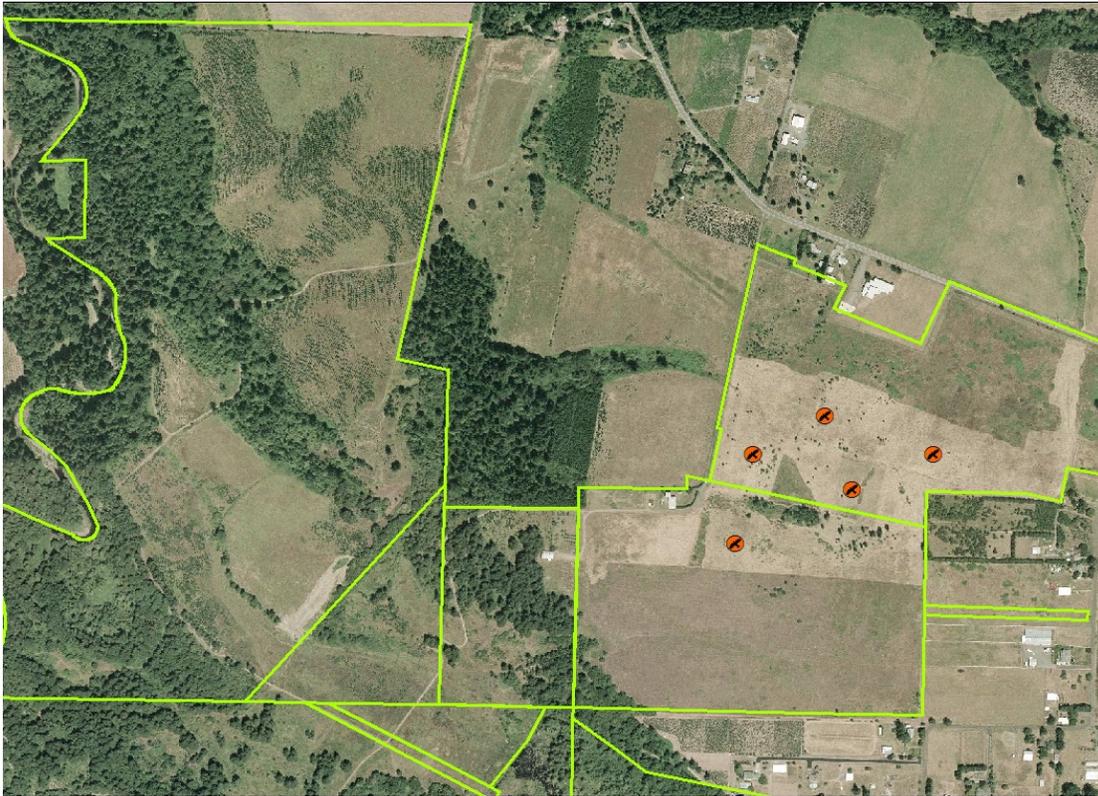


Figure. Map shows the 10 Metro natural areas where volunteers conducted bird surveys in 2006.





### Clear Creek Typical Detections 2006

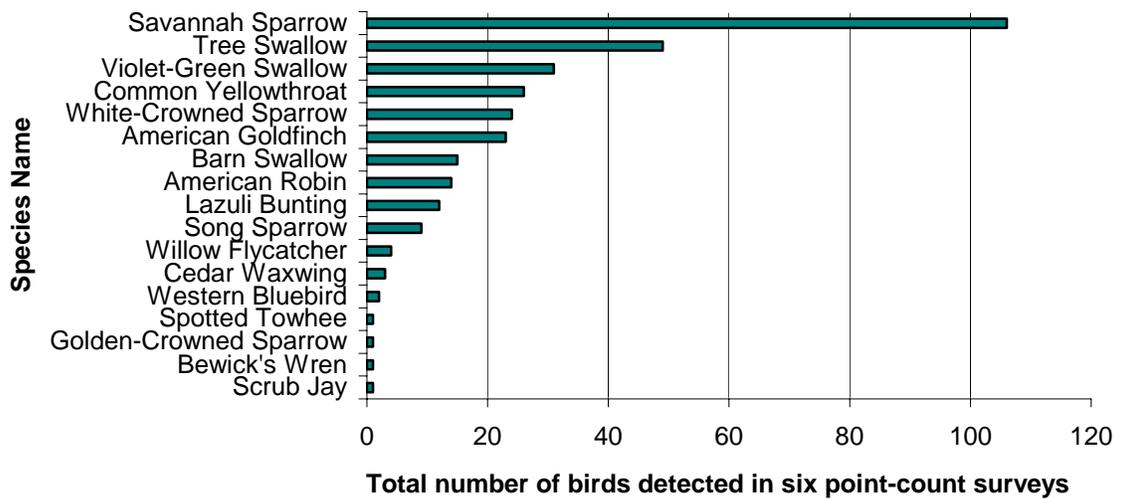


Figure. Results from Clear Creek Natural Area for typical detections in 2006. 17 species detected within stations, 41 species detected overall.



**Coffee Lake Typical Detections 2006**

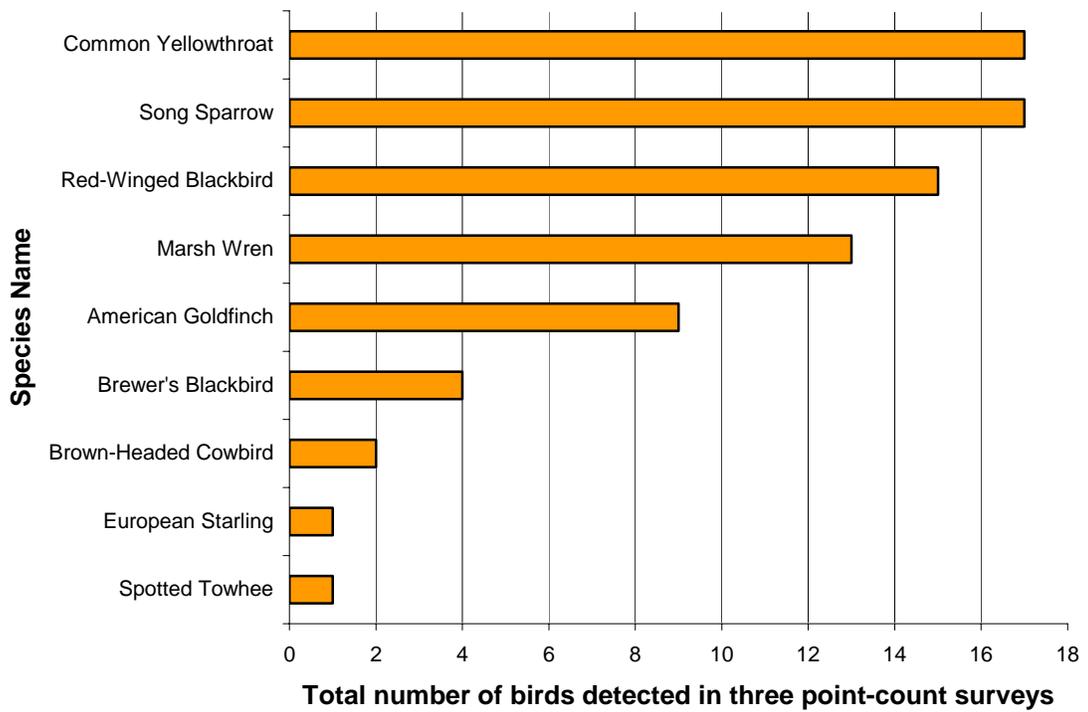


Figure. Results from Coffee Lake Natural Area for typical detections in 2006. 9 species detected within stations, 27 species detected overall.



**Cooper Mountain Oak Savanna Typical Detections 2006**

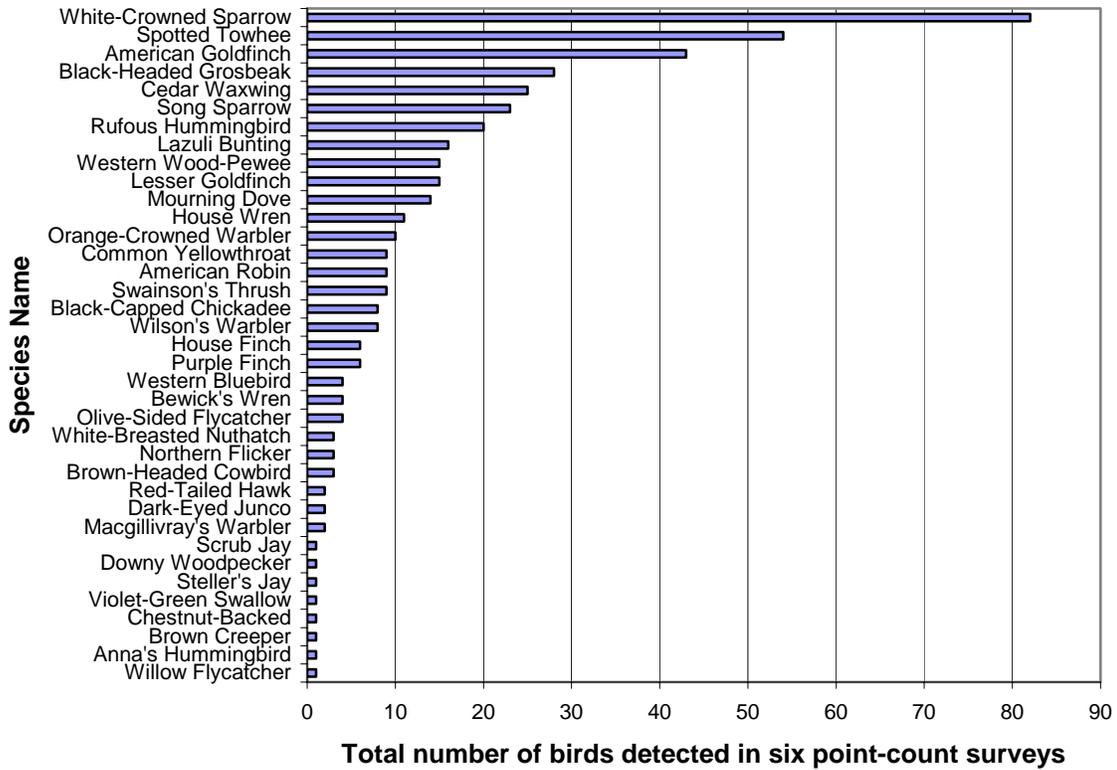


Figure. Results from Oak Savanna habitat array at Cooper Mountain Natural Area for typical detections in 2006. 37 species were detected within stations, and 43 species detected overall.



**Cooper Mountain Conifer Reforestation Typical Detections  
2006**

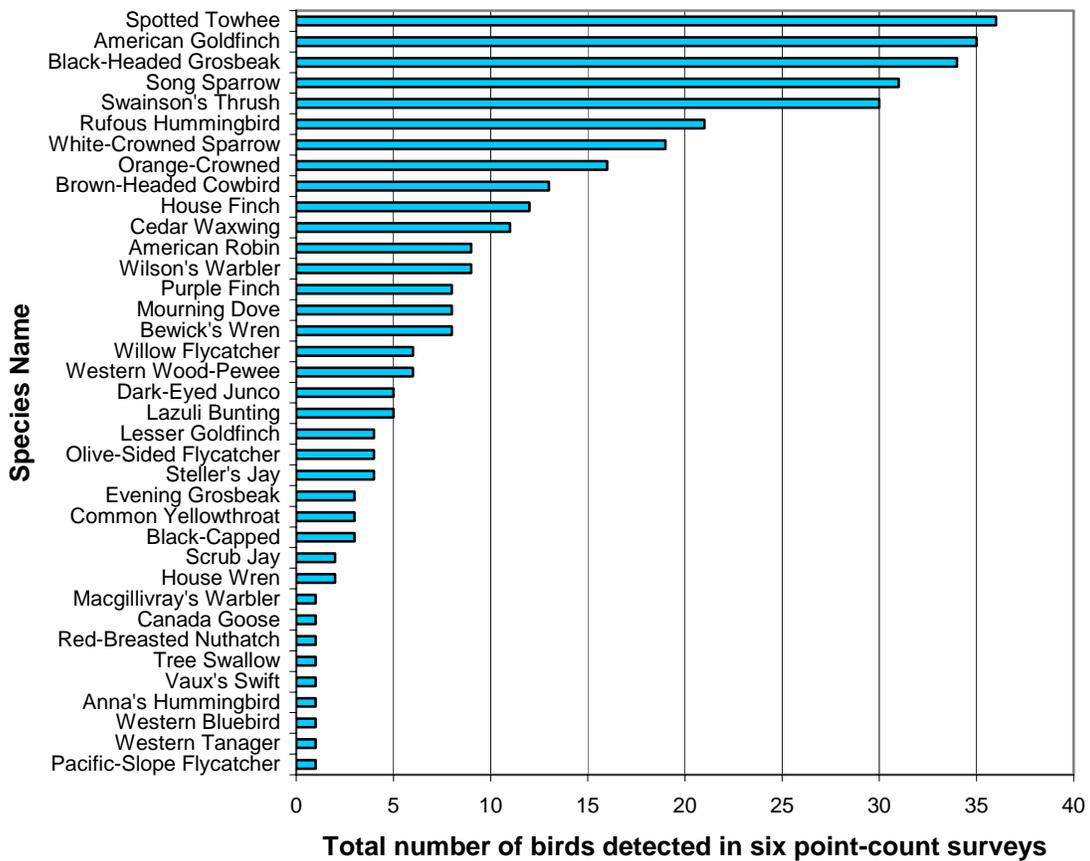


Figure. Results from Conifer Reforestation habitat array at the Cooper Mountain Natural Area for typical detections in 2006. 37 species detected within stations, 40 species detected overall.



### Gotter Prairie Typical Detection 2006

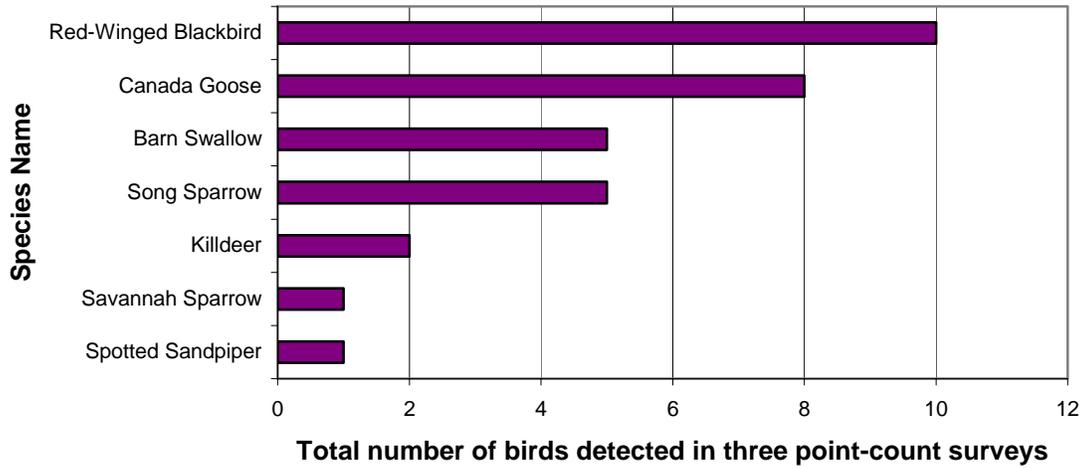
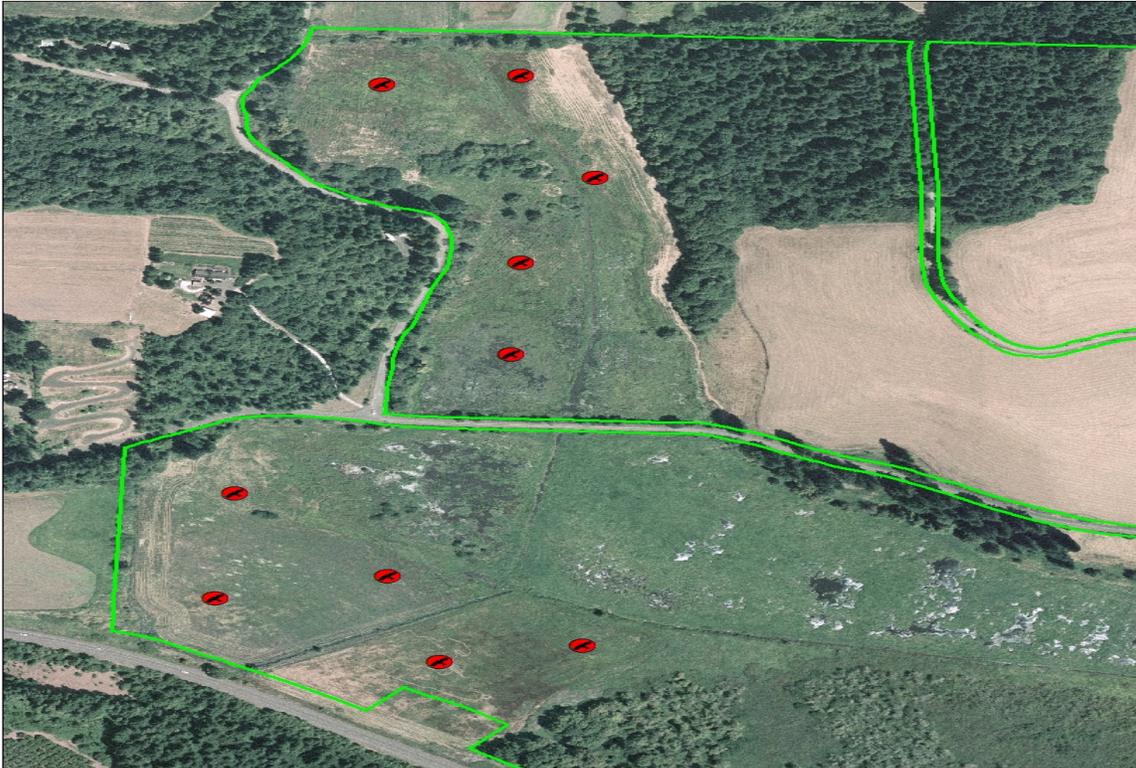


Figure. Results from Gotter Prairie Natural Area for typical detections in 2006. 7 species detected within stations, 9 species detected overall.



### Killin Wetlands Typical Detections 2006

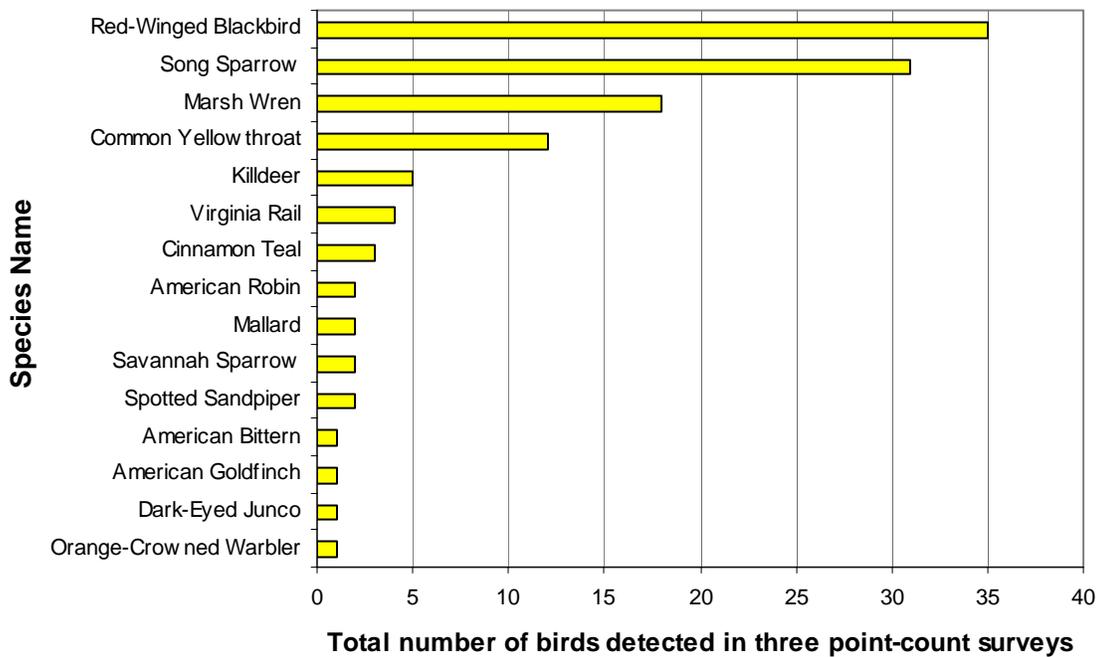


Figure. Results from Killin Wetlands Natural Area for typical detections in 2006. 15 species detected within stations, 41 species detected overall.



**Lovejoy Typical Detection 2006**

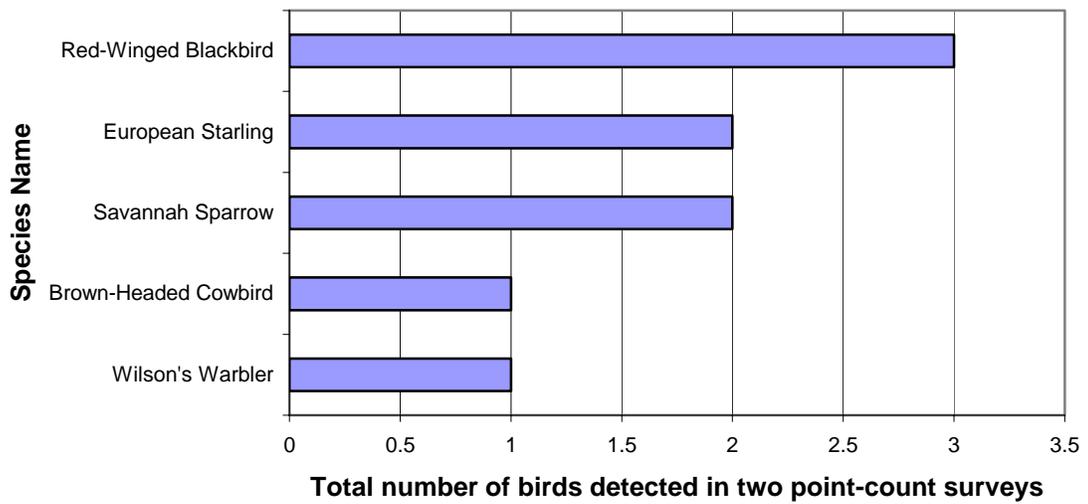
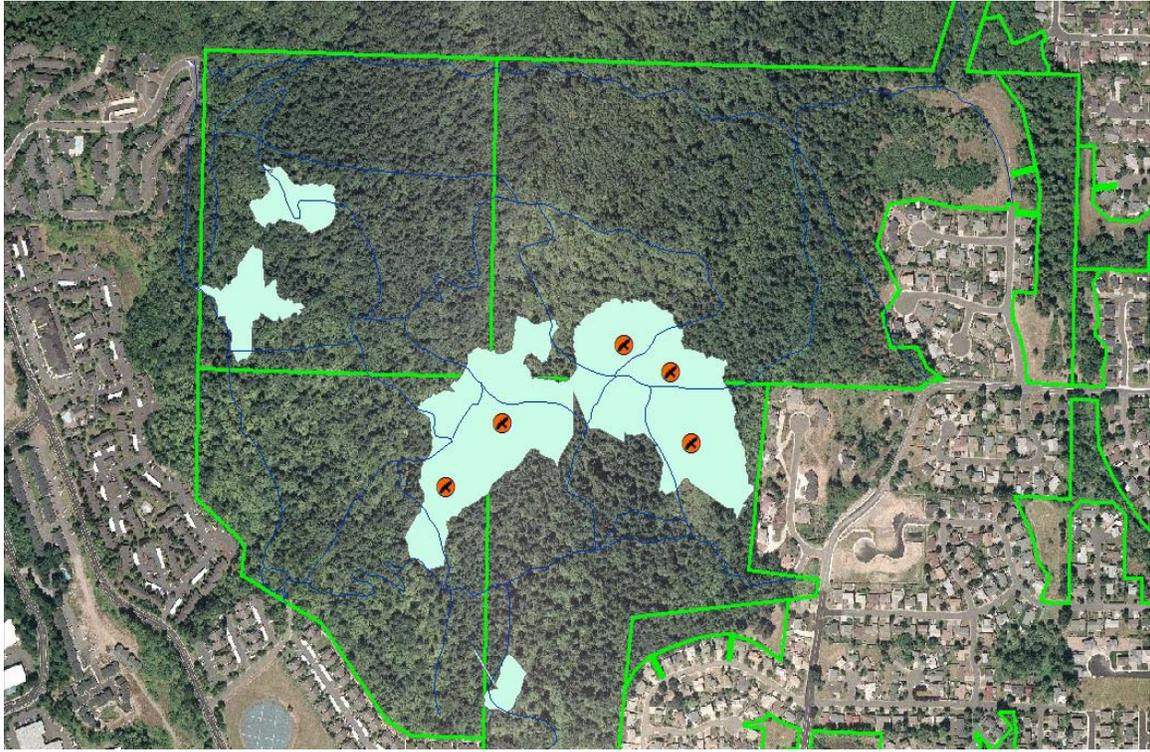


Figure. Results from prairie habitat at Lovejoy Natural Area for typical detections in 2006. 5 species detected within stations, 19 species detected overall.



**Mt. Talbert Typical Detection 2006**

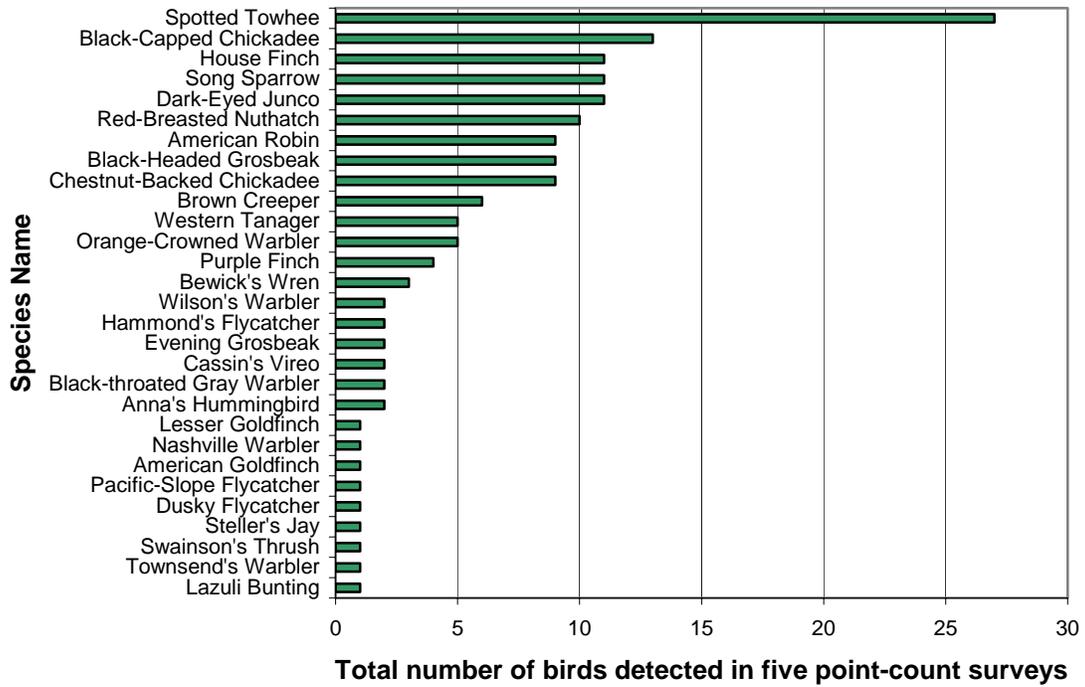
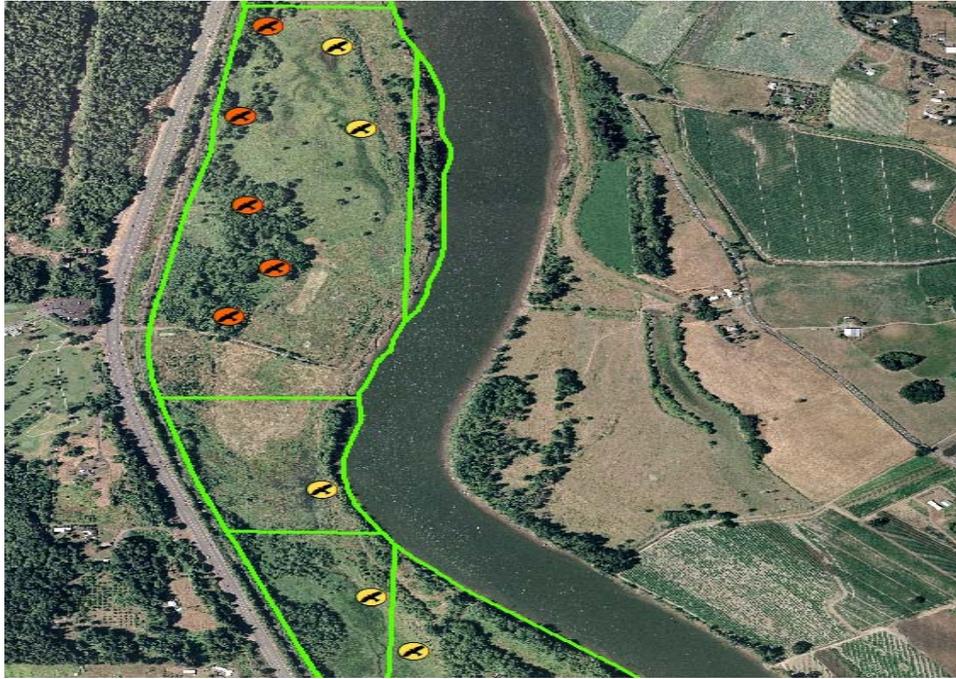


Figure. Results from Mt. Talbert Natural Area for typical detections in 2006. 29 species detected within stations, 37 species detected overall.



**Multnomah Channel Ash Forest Typical Detection 2006**

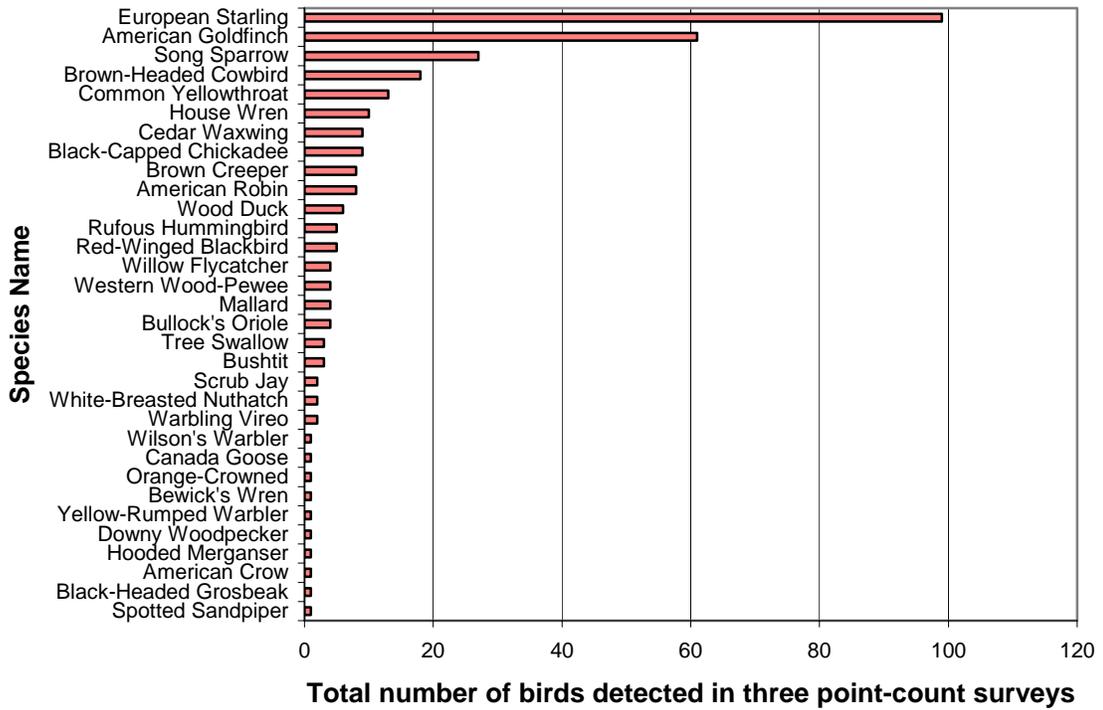
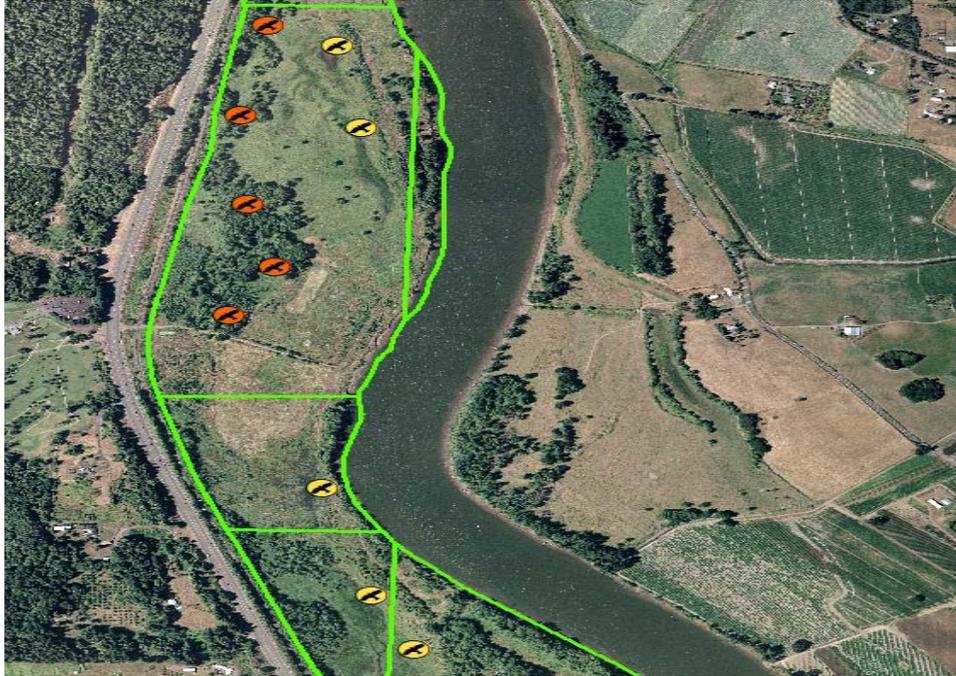
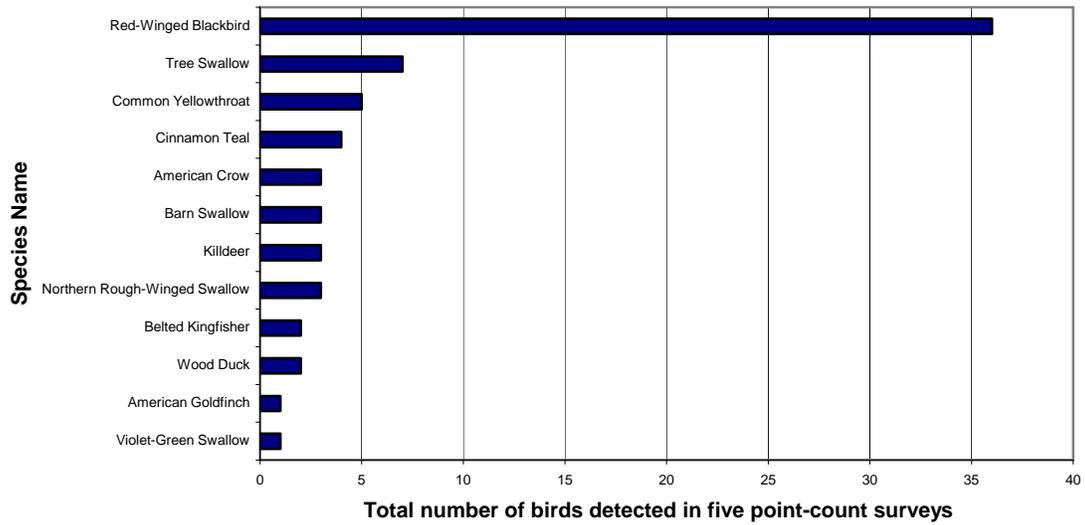


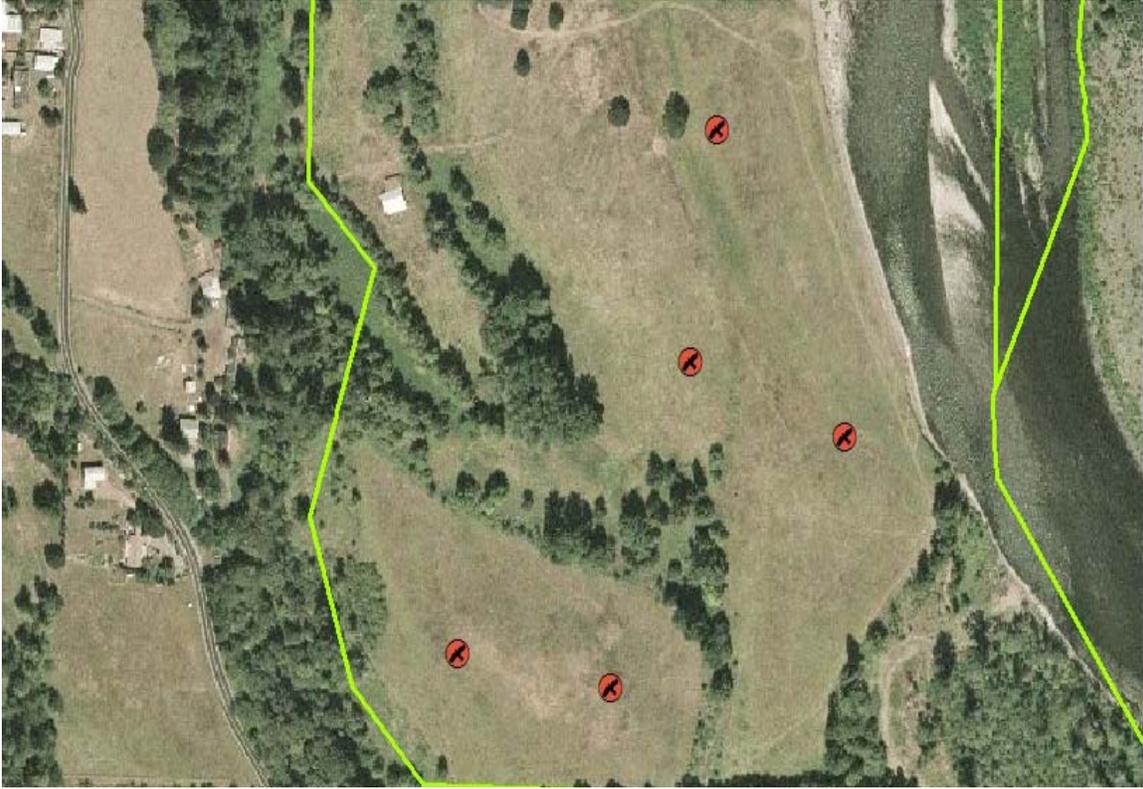
Figure. Results from Multnomah Channel Natural Area for typical detections in 2006. 32 species detected within stations, 43 species detected overall.



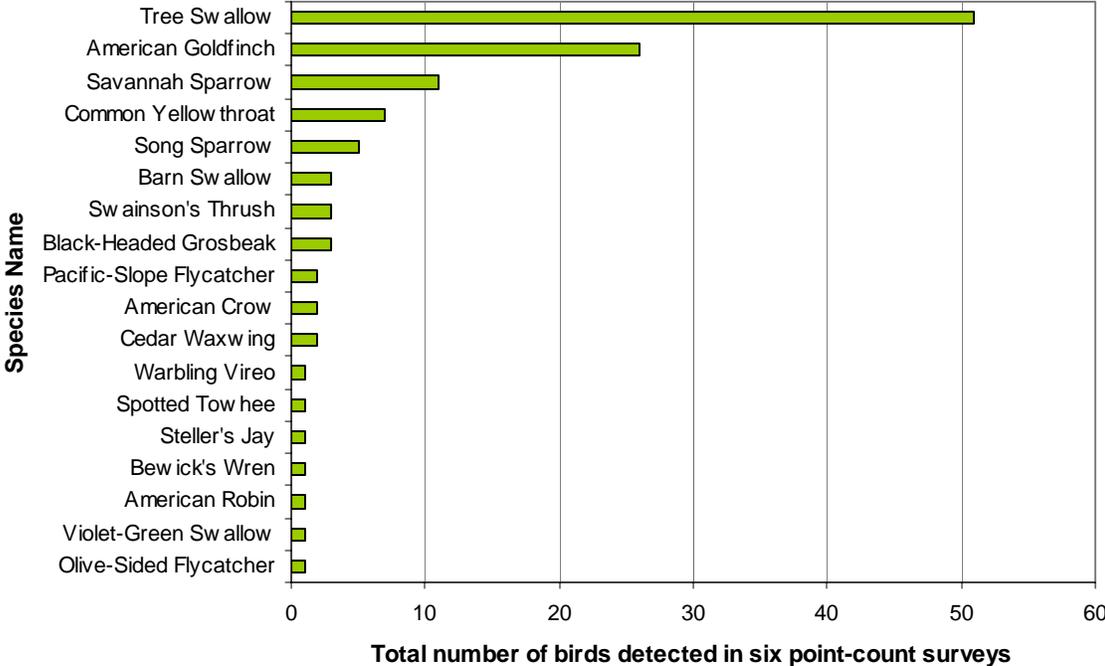
**Multnomah Channel Emergent Wetland Typical Detection 2006**



**Figure. Results from Multnomah Channel Natural Area for typical detections in 2006. 12 species detected within stations, 34 species detected overall.**



**River Island Oak Savanna Restoration Typical Detection 2006**



**Figure. Results from River Island Natural Area for typical detections in 2006. 18 species detected within stations, 36 species detected overall.**



**Smith and Bybee Wetlands Ash Forest Typical Detection  
2006**

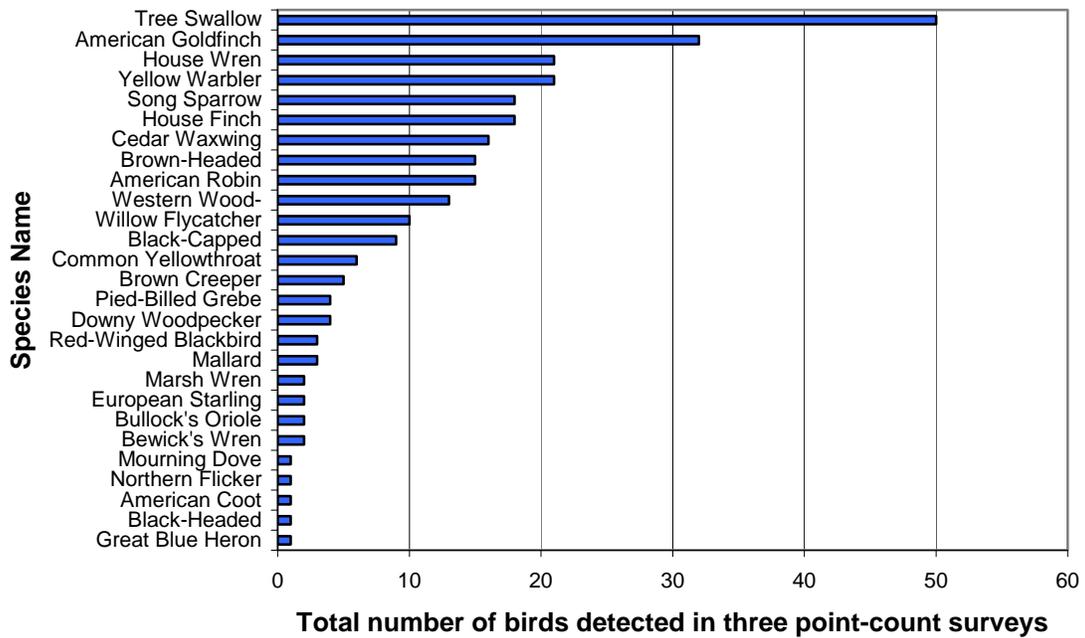
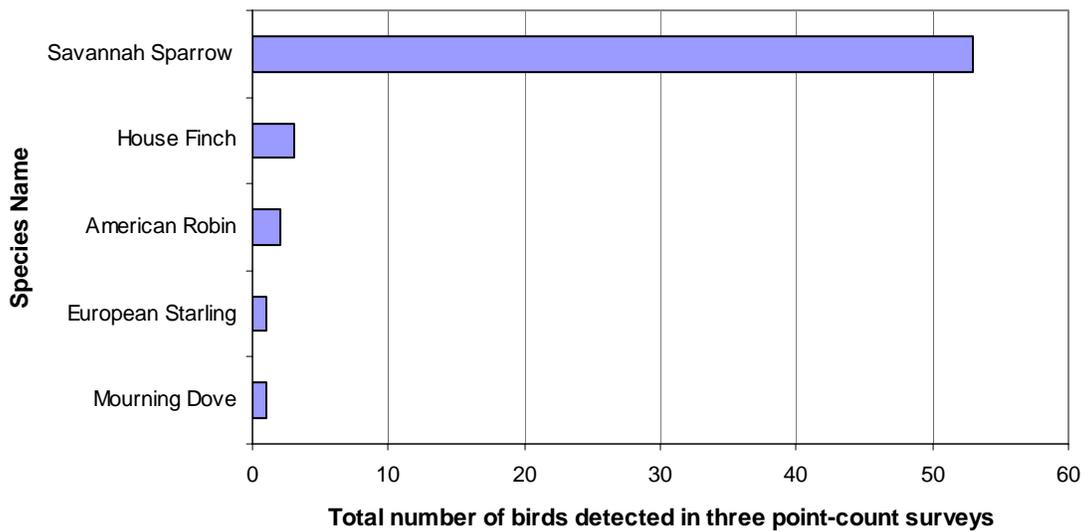


Figure. Results from Smith and Bybee Wetlands Natural Area for typical detections in 2006. 27 species detected within stations, 36 species detected overall.



**Smith and Bybee Wetlands Landfill Typical Detections 2006**



**Figure.** Results from Smith and Bybee Wetlands Natural Area for typical detections in 2006. 5 species detected within stations, 18 species detected overall.