



Baseline Bird Surveys in Future Restoration Sites in the
Presidio 2003

to

The Presidio Trust

by

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Introduction

Over the next three years, eight restoration activities will be initiated by the Presidio Trust and National Park Service, within the Presidio of San Francisco. Understanding bird response to these activities is an important aspect of restoration because it serves to measure the success of the project. The documentation of the bird response in terms of diversity and abundance over time will justify and inform future restoration efforts. Subsequent management decisions can be assisted through these types of scientific efforts that validate where funding is spent on ecological restoration.

The objective of the project is to document avian diversity and abundance during the breeding season, on each of the sites.

The project includes surveys of eight restoration sites over the next two years. Four of the sites (Fill Site 6, Disturbed Area 3, Landfill 10 and Oak Reforestation) were surveyed in nesting season 2003. The remaining four sites (Landfill 2, Fill Site 1, Landfill 8, Nike Swale) will be surveyed in the nesting season of 2004.

Area Search Method

The area search method, by design, is less rigid than other survey methodologies as observers must wander the entire plot to search for birds during the survey. With observer mobility, breeding status of target species can be more easily ascertained, while unfamiliar and secretive birds can be readily investigated (Hewish and Loyne 1989, Ralph et al. 1993). Additionally, more than one observer can participate.

Surveys were conducted from late-April/early-June to mid-June 2003. All detected bird species were counted and recorded to detection type (e.g., song, call, and/or visual). Notes on behavior, especially those related to breeding status, were recorded. Two observers with extensive experience with birds in the region (by sight and sound) conducted all surveys. Each plot was surveyed three times, with each visit separated by at least one week. Surveys began no earlier than 30 minutes following local sunrise and ended between 07:30 and 08:45 h. Surveys were not conducted during periods of inclement weather.

Although most area search protocols recommend 20-minute searches per plot (Ralph et al. 1993), I opted for doing non-time constrained surveys.

Non-time constrained surveys were employed because the objectives were to thoroughly (and efficiently) survey each plot for species composition and abundance. Additionally, the objective is to make before and after comparisons of the same plot and *not* to make comparisons across plots. Studies of area search methodologies suggest that increasing the amount of total time spent per plot greatly improves determination of species composition and perhaps abundance (Slater 1994, Dieni and Jones 2002). Slater (1994) recommended a minimum of 100–150 survey minutes, depending on the density of vegetation to adequately cover a 2-ha plot. I feel that my total survey duration per plot (see below) was adequate to index abundance and provide a fairly robust picture of species composition (especially for site attached breeders).

Data forms, metadata, instructions, databases, and data entry and proofing programs can be found at <http://www.prbo.org/tools/as/as.htm>.

Area Search Site Registration Forms were completed for each plot. These provide very general descriptions of the survey sites including size and major plant species composition.

Fill Site 6

Fill Site 6 is approximately 6 acres (2.43 ha) of grasses with a center ditch area that has redwood and acacia trees and a few eucalyptus at the north end. Himalayan blackberry is present in the center ditch. The plot is primarily a weedy field of annual grasses and some herbs including dock species, mustard, fennel, and thistle. It is to be excavated in winter 2004 and restored to a riparian corridor as part of the Tennessee Hollow creek project. Upland plant communities include oak woodland and coastal scrub. However, the plot is bordered by structures with lawns.

Bird Survey Dates 2003: 12 May, 30 May, and 16 June

Bird Survey Effort (minutes): Total = 73, average 24.33 (range 19 – 34)

A total of 17 species were detected on Fill Site 6 (Table 1). Not surprisingly, bird activity was greatest within the vegetated center ditch area and northwest end of the plot. The non-native House Sparrow was the most abundant species detected. This species was often found in flocks feeding within the tall grass areas.

A single pair of Black Phoebes nested under a structure just off plot and frequently used the plot to collect food to feed young. Similarly, a single pair of Hooded Orioles were collecting food on the plot and delivering it

to nestlings in a nearby palm tree. A very recently fledged Allen's Hummingbird juvenile was being fed at the north end of the ditch in the Himalayan blackberry patch. Hence, I strongly suspect nesting on plot for this species. Several other species may have nested on plot. For example, American Robin fledglings were seen on two survey visits and were being fed by adults on one of those.

Violet-green and Tree swallows were seen most frequently perched on wire that crosses plot.

Table 1. Number and average number of species detected and noted breeding behavior on Fill Site 6, Presidio, San Francisco County, 2003.

Species	Scientific name	Visit #			Average	Breeding Behavior*
		1	2	3		
Mourning Dove	<i>Zenaida macroura</i>	2	0	1	1	
Anna's Hummingbird	<i>Calypte anna</i>	2	2	1	1.67	
Allen's Hummingbird	<i>Selasphorus sasin</i>	0	2	2	1.33	FL
Black Phoebe	<i>Sayornis nigricans</i>	2	2	0	1.33	P,FC,N,MC, FL
American Crow	<i>Corvus brachyrhynchos</i>	1	0	0	0.33	
Violet-green Swallow	<i>Tachycineta thalassina</i>	2	1	2	1.67	
Tree Swallow	<i>Tachycineta bicolor</i>	0	2	0	0.67	
American Robin	<i>Turdus migratorius</i>	1	3	2	2	FC,FL
Northern Mockingbird	<i>Mimus polyglottos</i>	0	1	0	0.33	
European Starling	<i>Sturnus vulgaris</i>	3	0	2	1.67	
Wilson's Warbler	<i>Wilsonia pusilla</i>	1	0	0	0.33	
California Towhee	<i>Pipilo californicus</i>	2	0	0	0.67	P
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	1	1	0	0.67	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	0	0	4	1.33	
Hooded Oriole	<i>Icterus cucullatus</i>	2	0	0	0.67	P,FC
House Finch	<i>Carpodacus mexicanus</i>	0	2	3	1.67	

House Sparrow	<i>Passer domesticus</i>	4	3	5	4
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* P = pair, FC = food carry, N = nest found, MC = nest material carry, FL = fledgling.

Disturbed Area 3

Disturbed Area 3 is a 3.3-acre (1.34 ha) site above Baker Beach. It is currently coastal and dune scrub habitat and has a wet slump that includes willows and non-native trees. Shrub species include lupine, coyote brush, poison oak among others. There is some non-native ground cover including annual grasses, cape-ivy, and iceplant. This plot is bordered primarily by restored dune scrub habitat. Excavation is anticipated in the summer of 2003 (just after nesting season) and it will subsequently be restored to coastal and dune scrub plant communities.

A total of 13 species were detected on Disturbed Area 3 (Table 2). The most abundant species were White-crowned Sparrows and House Finches. The White-crowned Sparrow likely bred on plot and its numbers were high due to the presence of fledglings. The House Finch likely nested nearby but used the plot as part of their territory and post-breeding flocks were observed foraging in the grassy area of the plot. Other likely breeders include Allen's Hummingbirds, Bushtits (1 pair), Spotted Towhees (1 pair), Song Sparrow (1 pair), and American Goldfinch (1-2 pair).

Bird Survey Dates 2003: 12 May, 30 May, and 16 June

Bird Survey Effort (minutes): Total = 145, average = 48.33 (range 30 – 75)

Table 2. Number and average number of species detected and noted breeding behavior on Disturbed Area 3, Presidio, San Francisco County, 2003.

Species	Scientific name	Visit #			Average	Breeding Behavior*
		1	2	3		
Anna's Hummingbird	<i>Calypte anna</i>	1	0	1	0.67	
Allen's Hummingbird	<i>Selasphorus sasin</i>	4	2	7	4.33	D
Black Phoebe	<i>Sayornis nigricans</i>	0	0	1	0.33	
Chestnut-backed Chickadee	<i>Parus rufescens</i>	0	2	0	0.67	
Bushtit	<i>Psaltiriparus minimus</i>	2	1	8	3.67	FL
Pygmy Nuthatch	<i>Sitta pygmaea</i>	0	0	2	0.67	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	1	0	0	0.33	
Spotted Towhee	<i>Pipilo californicus</i>	2	2	1	1.67	P,FL

White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	8	8	9	8.33	C,P,FL
Song Sparrow	<i>Melospiza melodia</i>	3	0	2	1.67	P,FL
Brown-headed Cowbird	<i>Malothrus ater</i>	4	1	2	2.33	
House Finch	<i>Carpodacus mexicanus</i>	12	6	4	7.33	P,MC,FL
American Goldfinch	<i>Caruelis tristis</i>	3	2	4	3	D,P,FL

* P = pair, FC = food carry, N = nest found, MC = nest material carry, FL = fledgling.

Oak Reforestation

Oak Reforestation is a 1-acre (0.40) project that will change the historic forest from Monterey pine and cypress to coast live oak. Shrub species include California blackberry, willows, and tree tobacco among others while annual grasses and a diverse herb layer make up the ground cover. The plot is bordered by buildings on the east and north and by similar pine and cypress forests. The project is slated to take place in fall 2003 just after nesting season but tree removal had begun by my last survey date (16 June).

A total of 18 species were detected on the Oak Reforestation plot (Table 3). American Robins were the most abundant species detected primarily because of the presence of young on all survey visits. Despite the small size of this plot it contained an abundant and diverse bird community. This is likely due to the complex structure of the plant community (i.e., some open areas with dense shrub layer and diverse tree community). A Common Raven nest was located in a Monterey pine at the northwest edge of the plot. Other species that likely nested on plot were Wilson's Warblers (1 pair), American Robins (1-2 pair), and White-crowned Sparrows (1 pair). Many other species may have nested on plot or very nearby. Of note is a single pair of Hutton's Vireos that were observed on plot on two occasions and just off plot on a third.

Bird Survey Dates 2003: 30 April, 28 May, and 16 June

Bird Survey Effort (minutes): Total = 110, average = 36.67 (range 23 – 47)

Table 3. Number and average number of species detected and noted breeding behavior on Oak Reforestation, Presidio, San Francisco County, 2003.

Species	Scientific name	Visit #			Average	Breeding Behavior*
		1	2	3		
Red-shouldered Hawk	<i>Buteo lineatus</i>	0	1	0	0.33	
Mourning Dove	<i>Zenaida macroura</i>	0	0	2	0.67	
Anna's Hummingbird	<i>Calypte anna</i>	2	2	1	1.67	
Allen's Hummingbird	<i>Selasphorus sasin</i>	2	1	1	1.33	MC
Downy Woodpecker	<i>Picoides pubescens</i>	1	0	0	0.33	
Black Phoebe	<i>Sayornis nigricans</i>	0	0	2	0.67	
Hutton's Vireo	<i>Vireo huttoni</i>	0	2	1	1	
Common Raven	<i>Corvus corax</i>	2	0	2	1.33	P,N
Chestnut-backed Chickadee	<i>Parus rufescens</i>	1	2	2	1.67	
Pygmy Nuthatch	<i>Sitta pygmaea</i>	1	2	2	1.67	
Winter Wren	<i>Troglodytes troglodytes</i>	1	0	1	0.67	
American Robin	<i>Turdus migratorius</i>	1	4	2	2.33	FC,FL
Wilson's Warbler	<i>Wilsonia pusilla</i>	2	1	0	1	
California Towhee	<i>Pipilo californicus</i>	0	2	0	0.67	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	2	2	1	1.67	FL
Oregon Junco	<i>Junco hyemalis</i>	0	0	2	0.67	FL
Brown-headed Cowbird	<i>Malothrus ater</i>	0	0	1	0.33	
House Finch	<i>Carpodacus mexicanus</i>	0	2	0	0.67	

* P = pair, FC = food carry, N = nest found, MC = nest material carry, FL = fledgling.

Landfill 10

Landfill 10 is a 4.5-acre (1.82 ha) site that will be excavated in 2004. Half of the site will be restored to native plant communities. This area is at the upstream end of Lobos creek. This plot is primarily a paved parking lot with a few islands of non-native trees and a steep hillside dominated by willows. A few Monterey cypress and eucalyptus trees are also present. The plot is bordered by a large abandoned building, a willow-dominated creek, and a cypress forest.

A total of 16 species were detected on Landfill 10 (Table 4). During the first visit a small flock of spring migrants were observed using the willows

(e.g., Yellow Warbler, Orange-crowned Warbler, and Wilson's Warbler). None of these warblers were detected on plot during the subsequent 2 visits. Breeding was confirmed for a single pair of Bushtits that nested in a non-native tree in the north end of the parking lot.

Bird Survey Dates 2003: 12 May, 30 May, and 16 June

Bird Survey Effort (minutes): Total = 89, average 29.67 (range 24 – 40)

Table 4. Number and average number of species detected and noted breeding behavior on Landfill 10, Presidio, San Francisco County, 2003.

Species	Scientific name	Visit #			Average	Breeding Behavior*
		1	2	3		
Mourning Dove	<i>Zenaida macroura</i>	0	0	1	0.33	
Anna's Hummingbird	<i>Calypte anna</i>	2	2	1	1.67	D
Allen's Hummingbird	<i>Selasphorus sasin</i>	2	3	1	2	D
Western Scrub-Jay	<i>Aphelocoma coerulescens</i>	3	1	1	1.67	
Bushtit	<i>Psaltirparus minimus</i>	1	2	3	2	MC,N,FC
Pygmy Nuthatch	<i>Sitta pygmaea</i>	0	1	4	1.67	FC
American Robin	<i>Turdus migratorius</i>	1	1	1	1	FC
Northern Mockingbird	<i>Mimus polyglottos</i>	1	0	0	0.33	
Orange-crowned Warbler	<i>Vermivora celata</i>	1	0	0	0.33	
Yellow Warbler	<i>Dendroica petechia</i>	1	0	0	0.33	
Wilson's Warbler	<i>Wilsonia pusilla</i>	1	0	0	0.33	
California Towhee	<i>Pipilo californicus</i>	1	0	0	0.33	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	0	0	2	0.67	FL
Oregon Junco	<i>Junco hyemalis</i>	1	0	0	0.33	
Purple Finch	<i>Carpodacus purpureus</i>	1	0	3	1.33	P
House Finch	<i>Carpodacus mexicanus</i>	0	1	1	0.67	

* P = pair, FC = food carry, N = nest found, MC = nest material carry, FL = fledgling.

Literature Cited

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