

Birds and Wildlife of Yerba Buena Island, Initial Findings, Report and Terrestrial Habitat Management Concepts May-July 2016

Observations and document by Josiah Clark, Consulting Ecologist- September 2016

Introduction

The terrestrial habitats of Yerba Buena Island serve as a habitat for dozens of native species of resident and migrant wildlife. The island's fauna today are a mix of remaining hardy, indigenous species that have populations cut off from the mainland and more recently arrived mobile or introduced ones.

Though the adjacent manmade Treasure Island is larger it has fewer native wildlife species present, apparently lacking the intrinsic habitat elements present on Yerba Buena Island. The many habitats and plant communities of Yerba Buena Island harbor a cross section of native wildlife characteristic of the Bay Area. Wildlife reporting intends to help inform future land management goals and practices for the benefit of both humans and animals.

Wildlife Management Goals

Serving as a successful breeding area is the most important role Yerba Buena Island can play to long-standing populations of native wildlife. Preserving, maintaining and enhancing diverse native plant communities on Yerba Buena will best provide for the island's most specialized and vulnerable wildlife species. Robust, dense and structurally diverse native plant communities also provide habitat for passing wintering and migrant species, further supporting local and regional biodiversity. Human safety, preserving built infrastructure and promoting native biodiversity are all considerations in the creation and maintenance of wildlife habitats.

Existing Habitat Types

Remnant native plant communities that serve as valuable wildlife habitat on the island include coastal scrub, coast live oak woodlands and willow riparian. Far more abundant and widespread however are introduced exotic woodlands of Blue Gum Eucalyptus, Acacia and Monterey Pine. Due to the sheer coverage, exotic woodlands appear to provide for much of the wildlife on the island today.

Historic Impacts to Island Ecology

The initial construction of the Bay Bridge and the creation of the adjoining Treasure Island have surely greatly influenced wildlife communities on Yerba Buena Island in recent decades. The most significant historic impacts to wildlife on the island can be summarized as habitat destruction, the removal of large predators and the introduction of exotic species. Many more vulnerable, sedentary species disappeared while generalist and mobile species moved in, a reflection in miniature of what transpired on the mainland.

Yerba Buena Island would historically have been much more isolated to wildlife than it is today. Until 1933 this was a true island in the middle of the bay. Yerba Buena Island is now connected to the greater urban environment by bridges. Bridges also facilitate the movement of more generalist, bold and often-aggressive species including crows, ravens, raccoons and rats. Another ecological implication of increased connectivity due to the bridges is the potential for increased genetic flow between once isolated populations.

The introduction of exotic animals is also a significant impact. A long tended colony of feral cats near the coast guard station has surely had an impact on birds and small ground dwelling wildlife of the area. The presence of both Eastern Grey Squirrel and Fox Squirrel (from the southeast US) suggest humans have intentionally released species on the island in recent decades. These introduced exotic mammals are a serious threat to cup-nesting songbirds as they hunt down nests and eat eggs.

Survey Methods

These initial surveys focused on breeding birds though I made special efforts to seek out and record all other wildlife I could find. Observations on habitat were also recorded, noting important wildlife resources, specialized conditions, invasive species and management recommendations to maximize habitat for native plants and animals.

Surveys took place between May and July of 2016 meaning that virtually all of the species noted were breeding species, with wintering and migrant species already departed. Some parts of the eastern and southern island were not surveyed, as they were active construction sites or were off limits for bridge security reasons during the survey period.

Rather than a comprehensive wildlife survey, this should be considered a summery of findings from rapid assessment work done over a short period. None of the Bay Area wildlife experts I spoke with could tell me much about the island's fauna. This survey appears to be the first check in with the islands biodiversity in some time.

Summery of Findings

Twenty-seven species of birds were observed on Yerba Buena Island, twenty-five of which are native breeding species. Cedar Waxwing does not breed locally and European Starling is introduced.

Six non-migratory, resident bird species have populations that may have been isolated for a long time. At the very least they have significant dispersal challenges to and from the mainland- Downy Woodpecker, Western Scrub Jay, Chestnut-backed Chickadee, Bushtit, Song Sparrow and Nutall's White-crowned Sparrow. These would be the most vulnerable populations and the most deserving of protection.

Six species are genuine migrants, coming here from areas to the south to breed: Allen's Hummingbird, Tree Swallow, Barn Swallow, Red-breasted Nuthatch, Brown

Creeper and Wilson's Warbler. Several more species in this group are possible and their presence may increase as habitat is created.

The remaining 11 species are more mobile, edge and generalist species, which are widespread and expected throughout the Bay Area. These include Mourning Dove, Anna's Hummingbird, Black Phoebe, American Crow, Common Raven, American Robin, Dark-eyed Junco, Brewer's Blackbird, Brown-headed Cowbird, House Finch and Lesser Goldfinch. Northern Mockingbird was noted on Treasure Island but not on Yerba Buena.

Local resident birds notably absent/extirpated from appropriate habitats on the island

The following resident species are among the first to disappear in the urban landscape on the mainland and this may be happening on the island as well. Local breeding populations of these species are primarily sedentary, meaning that when they disappear from an isolated location they are unlikely to come back on their own.

Table A1.

California Quail	Hutton's Vireo
Bewick's Wren	California Towhee
Wrentit	Spotted Towhee

Raptors appeared largely absent from the islands . Predatory birds are generally common in the Bay Area and prey seemed common on Yerba Buena Island, so it was surprising that not one hawk was observed on these surveys. No owls were observed either. Osprey and Turkey Vulture were both observed just once and could potentially be breeding somewhere hidden on the island.

Wildlife Management Goals

Serving as a successful breeding area is the most important role Yerba Buena Island can play to native wildlife. Conserving isolated, longstanding island populations of wildlife is the priority. Preserving, maintaining and enhancing native plant communities on Yerba Buena will best provide for the island's most specialized and vulnerable wildlife species. Robust native plant communities also provide habitat for wintering and migrant species, further supporting local and regional biodiversity.

Noteworthy habitat resources on Yerba Buena Island

Willow Riparian: The moist, often fertile conditions of riparian areas mean that fruits and blossoms are especially abundant, making this an important foraging area for birds and other wildlife. Riparian woodlands on the island harbor a notably productive breeding bird community as is evident by the chorus of birdsong that emanates from the hillsides above Clipper Cover. The assemblages of Arroyo

Willow, Blue Elderberry and Pacific Wild Rye are novel and appear distinct from Bayshore riparian compositions on the nearby mainland.

Illustrative of the value of this habitat is the presence of the islands' only breeding Wilson's Warblers, a migrant bird that comes from Central America to breed in a relatively specialized habitat requirement. Allen's Hummingbirds were noted breeding here, noteworthy as the total range for this species is small and only present near the coast. Other breeding species of note here included several territories of Nuttall's White-crowned Sparrows and Song Sparrows.

This was an area the songs of Spotted Towhee, Bewick's Wren and Spotted Towhee seemed notably absent from the morning chorus. Areas of dense California Blackberry (*Rubus ursinus*) beneath the canopy of willows provide good structural diversity and the filtered light needed to hide the vulnerable nests of cup nesting songbirds like this.

This area also seemed to have the most abundant insect populations. Its relatively sheltered and warm location allows insects to forage and congregate. Butterflies present included Spring Azure breeding on nearby oaks, breeding Western Tiger Swallowtail on Arroyo Willows and Pipevine Swallowtail on California Pipevine.

Groups of hanging webs in the willow canopy turned out to be from colonies of some sort of spider. This is a phenomenon and a species I do not see in San Francisco, Marin or San Mateo at least and could be specialized to the island.

Recommendations: Expand riparian scrub and willow habitats. Remove Eucalyptus that is nearest the edges of existing riparian strips. Identify moist areas elsewhere on the island and prioritize eucalyptus removal in and above these areas to free up ground water so it can express at the surface.

Coastal Scrub: This is the most intact native plant community on the island, with the best stand being on the western facing bluffs and terrace entering the islands from the bridge. This narrow band of habitat harbors a colony of Nuttall's White-crowned Sparrows that exists much in the same way it would have before European settlement. This stand of coastal scrub merges with a stand of low, wind-pruned Coast Live Oaks, which harbors breeding Chestnut-backed Chickadees and Dark-eyed Juncos.

The resident Nuttall's White-crowned Sparrow is distinct from the more common wintering sub-species as it lives only near the coast and it does not migrate. This means the population on Yerba Buena Island has been separated from the mainland population for a long time, which is evident in the distinct song dialects present on the island. Smaller patches and elements of coastal scrub habitat are scattered elsewhere on the island as well, with larger patches having a significantly higher value to wildlife than small patches.

Recommendations: Protect existing scrub by planting more at the edges and create a bigger buffer. Fill empty spaces on marine terrace with California Blackberry and

coastal scrub plants. Prevent or manage trails coming into scrub from road. Clean up trash and encampments to prevent more. Remove invasive plants on terrace and steep rocky bluffs.

Coast Live Oak Woodlands: Oaks are a cornerstone of California's ecology. In coastal areas including Yerba Buena Island, Coast Live Oak trees are the only expected oak trees. This is the island's largest native tree and as such has significant relationships with surrounding systems. Oak woodlands border almost all the habitat types on the island and provide structure and foraging opportunities for birds, insects and other life. They are well suited to the island and should be phased into areas where Blue Gum Eucalyptus is being removed.

Recommendations: Favor oaks during thinning and eucalyptus removals. Locate and protect existing young sapling live oaks in the landscape with cages, sheet mulch, mapping, etc. Remove invasive Algerian Ivy from oak tree trunks to prevent strangling. Plant Coast Live Oaks, Buckeyes, Islais Cherry and other native trees in the landscapes around the island.

Native Plants of Special significance to Wildlife

Blue Elderberry (*Sambucus cerulea*) is among the most widespread native plants on the island. The platform shaped flowers provide nectar and sunning sites for pollinating insects. When this native fruit is ripe in the late summer and fall, it is among the most important food sources on the island. Local breeding birds and their young gorge on these berries late in the breeding season when they are putting on weight for winter and other food sources have become scarce. Later in the summer and early fall, migrant songbirds begin passing through and are ensured an easy food source on their long and difficult migrations. The seeds of this plant are transported around the island in bird droppings where it propagates readily.

California Blackberry (*Rubus ursinus*): The wide-ranging benefits of this common native plant make it the single most valuable wildlife resource on the island. The fruit is produced in late summer when it is readily eaten by songbirds and their young. The blossoms provide nectar, which is taken by local pollinators including hummingbirds. The foliage of the plant is the larval food for several native butterflies, five total in our region. The vine-like vegetation is the preferred nesting structure for cup nesting songbirds. The plant is spread through bird droppings, but is quite different from Himalayan Blackberry in that it has a low stature and is relatively easy to remove when necessary. It is so common it is easily overlooked as a landscape option, but should be included and planted in upcoming landscapes on the island.

Toyon (*Heteromeles arbutifolia*): This native plant reaches the stature of a tree but is generally considered a shrub. It produces summer blossoms and winter fruit that is an important food source for wintering songbirds. It is especially noteworthy as it is extremely drought tolerant and one of the few native plants that appears to thrive below monocultures of eucalyptus as well as the full exposure of wind blown bluffs.

Existing young and prominent Toyons should be pruned for health and yield. They seem an obvious choice as a background plant in low maintenance landscapes all around the island.

Exotic plants noteworthy to wildlife

Certain exotic plants are currently important food sources on the island as the native plant communities have been so diminished. Native fruit and seed sources should be phased in but until then some stands of thistles, Himalayan Blackberry and Algerian Ivy should be maintained rather than immediately removed all at once. Another example is Fennel, apparently the sole larval food for Anise Swallowtail on the island.

Containing Food and Trash in Residential Areas

Populations of ravens, crows, raccoons and skunks quickly learn to take advantage of food sources provided by people. They subsequently proliferate, become pests, health hazards and major threats to more vulnerable native biodiversity. Specifically cup-nesting songbirds and terrestrial vertebrates are at risk from these subsidized “meso-predators”.

Trash containment efforts should aim to keep all dumpsters and residential waste away from potential scavengers. Specifically dumpsters in animal proof areas, trash cans with secure lids, a general “no feeding wildlife” policy on the island, and regularly patrolled and cleaned trash storage areas are ways to prevent problems with scavenging pests and wildlife.

Mammals: The following species were recorded from the islands. No small mammal trapping or nighttime observations or bat recordings were done on this survey, so many species are surely missing from this list. Observations of tracks, scat and road kill were all methods of observation during the survey.

Table B: Some Mammals of Yerba Buena Island

Striped Skunk	American Opossum (one report from Treasure Island)	Eastern Grey Squirrel (introduced from East of Rockies)	Norway Rat (originally Europe and Asia)
Raccoon	Black-tailed Deer (skeleton found, few island records)	Fox Squirrel (introduced from the Southeast US)	House Mouse (originally Europe and Asia)

Butterflies and insects: Butterflies are one group of insects that can be readily identified to species, though there are probably ten times as many moths on the island. These charismatic insects give a tiny taste of the vast world of pollinators and other insects present in the area. Like most insects, butterflies are tied to particular plants for foraging and breeding, including larval food or “host” plants.

Many of the most specialized life forms on Yerba Buena Island are likely sedentary insects that have been isolated for hundreds or even thousands of years. Further study of insects will require specialists, perhaps from a local university.

Table C: Some Butterflies of Yerba Buena Island

Anise Swallowtail	West Coast Lady	Echo Blue
Pipevine Swallowtail	American Lady	Achmon Blue/Spring Azure
Western Tiger Swallowtail	Red Admiral	Cabbage White (exotic)
Monarch (migrant)	Buckeye	

Reptiles and Amphibians:

Western Fence Lizard (*Schleroperus occidentalis*) was the only reptile observed during these surveys. I was not able to find any species of Alligator Lizard or snake on the island though these would be the next most expected reptiles to occur.

California Slender (*Batrachaceps attenuoides*) was the only amphibian found, but other salamander species and perhaps Pacific Chorus Frog may be present. If so they will become more obvious in the wet season. These small vertebrates are vulnerable to the presence of roads and introduced predators and have no obvious way to re-colonize the island.

Appendix:

Nesting Birds of Yerba Buena Island listed by nest type

Larger nests of twigs and sticks: These tend to be more obvious and easier to find for both predators and human observers): *Table 1A:*

Mourning Dove	American Crow	Northern Mockingbird (Recorded on Treasure Island only)
Western Scrub Jay	Common Raven	Osprey (No breeding found)

Cup-nesting species: These tightly woven nests are among the best-hidden nests and are a favorite target and food source for local predators. Structural diversity, density and complexity with intersecting layers of native vegetation are the best ways to help these species hide their nests. Filtered light is a key resource. California Blackberry present on the island is the single best and most important plant for birds in this vulnerable group. *Table 1B:*

Anna's Hummingbird	Wilson's Warbler	House Finch
Allen's Hummingbird	Song Sparrow	Lesser Goldfinch
	Nuttall's White-crowned Sparrow	

Cup-nesting songbirds that breed on the ground: Similarly to the birds above these birds build a tightly woven nest. This species builds its nest on the ground however. *Table 1C:*

Dark-eyed Junco

One species on the island builds a hanging sock-like nest. These nests are relatively easy to find for both human and predators and are especially vulnerable to jays, crows and ravens. *Table 1D:*

Bushtit

One species builds its nest directly on the trunk of a mature tree, usually behind peeling bark. *Table 1E:*

Brown Creeper

Three species on the campus require mud to build their nests. The Robin puts its nest made of mud and grass in a tree while the other two species use just mud and build nests under the eaves of buildings. A local source of mud will help provide for these species will nest on the island. *Table 1F:*

Barn Swallow	Black Phoebe
American Robin	

Woodpeckers and nuthatches make cavities to raise their young in. These holes go on to serve as nesting sites for other groups of birds that do not make their own cavities. In this way woodpeckers are a true keystone species, filling a niche that creates niches for other species. *Table 1G:*

Downy Woodpecker	Red-breasted Nuthatch
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Secondary Cavity obligates rely on woodpeckers and nuthatches to make enough nesting cavities. Providing nesting boxes is another way to provide habitat for these species where cavities are scarce. *Table 1H:*

Chestnut-backed chickadee	Tree Swallow
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Nest Parasitism: This nesting strategy involves the female laying eggs in the nest of another species. Though native species cowbirds can lead have negative impacts on vulnerable cup-nesting songbirds. *Table 1I:*

Brown-headed Cowbird
