



# Marina del Rey Annual Nesting Bird Survey

## 2021 Nesting Bird Survey Report

*prepared for*

**County of Los Angeles Department of Beaches and Harbors**

Maral Tashjian

13837 Fiji Way

Marina del Rey, California 90292

Via email: [MTashjian@bh.lacounty.gov](mailto:MTashjian@bh.lacounty.gov)

*prepared with the assistance of*

**Rincon Consultants, Inc.**

250 East 1<sup>st</sup> Street, Suite 1400

Los Angeles, California 90012

**July 2021**



**RINCON CONSULTANTS, INC.**

Environmental Scientists | Planners | Engineers

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# 1 Introduction

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This report presents the results of the 2021 nesting bird surveys conducted for the Los Angeles County Department of Beaches and Harbors (DBH) in accordance with the annual nesting bird survey requirements of the 2012 Marina del Rey Local Coastal Program (LCP). Rincon, Inc. (Rincon) conducted four surveys during the nesting bird season (January 1st to September 30th) to determine the presence/absence of nesting colonial waterbirds and raptors that may nest in the trees within the unincorporated area of Marina del Rey. The nest surveys are an annual requirement in accordance with Tree Management Policies No. 23 and 34 from the Marina del Rey Land Use Plan (LUP; County of Los Angeles Department of Regional Planning 2012) and have been conducted in 2009, 2011, 2012, and 2014-2021. These surveys are used to monitor trends in nesting behavior, recommend mitigation measures regarding new plantings or nest removals, and provide information on potential public health, safety, and access concerns. This report provides colonial waterbird and raptor species background information, 2021 nest survey methodology and results, a discussion of colony trends, and recommendations on reducing potential conflicts between humans and birds.

## 1.1 Project Location

Marina del Rey is an unincorporated community in the southwestern portion of Los Angeles County, southeast of the incorporated neighborhood of Venice and north of the incorporated neighborhood of Playa del Rey. The community is surrounded by development to the north and west, and the Ballona Wetlands Ecological Reserve to the east and south (Figure 1). The 804-acre community includes 401 acres of developed land and 403 acres of water, of which 292 acres of land and 148 acres of water are leased to private entities. Numerous ornamental trees and shrubs such as coast coral tree (*Erythrina caffra*), Tasmanian blue gum (blue gum) (*Eucalyptus globulus*), rubber fig (*Ficus elastica*), rusty fig (*Ficus rubiginosa*), broad-leaved paperbark (*Melaleuca quinquenervia*), and Mexican fan palm (*Washingtonia robusta*) border roadways and pedestrian paths in Marina del Rey. Several areas within Marina del Rey have been restored or are currently undergoing restoration. These restoration areas include Oxford Retention Basin (10.27 acres of open water/marsh habitat), Wetland Park (1.46 acres of tidally influenced saltmarsh habitat at Parcel 9), and the margin of Ballona Wetlands Ecological Reserve Area A.

### Nesting Bird Survey Area

The nesting bird survey area covered the unincorporated community of Marina del Rey. The survey area is further separated into ten distinct nesting areas based on historical nesting data and to keep consistency with previous years' reports (Figure 2). Each survey area is briefly described below including general location, land use, and nesting observations from prior surveys.

#### *Admiralty Way*

The Admiralty Way nesting area is the northern-most area, located on the northern boundary of Marina del Rey. Admiralty Way is a heavily traveled, four-lane road bordered by Yvonne B. Burke Park and residences to the north.





Figure 2 Project Location and Nesting Areas



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Fig 2 Project Location

The southern side of Admiralty Way consists of residential areas, a fire station, and commercial area. The harbor is directly south of this area. A black-crowned night-heron (*Nycticorax nycticorax*, BCNH) colony has previously been documented at this location, and Peregrine falcons (*Falco peregrinus*, PEFA) have also been documented nesting in this area. No other nesting waterbird colonies have been documented within the Admiralty Way area since 2016.

#### *Bali Way*

Bali Way nesting area is located southwest of Admiralty Way, one street east of Mindanao Way, and provides access to the Marina del Rey Hotel and Harbor Basins F and G, on the east side of the Marina. Suitable nesting/roosting trees line Bali Way; however, no colonial waterbird nesting has been documented in this area since annual surveys began in 2009.

#### *Bora Bora Way*

The Bora Bora Way nesting area is south of Tahiti Way along Via Marina. The area is primarily residential with a double-crested cormorant (*Phalacrocorax auritus*, DCCO) nesting colony, historically, located in the Mariner's Village nesting area which borders the Del Rey Landing parking lot to the south along the Northwest Passage pathway between Bora Bora Way and Mariner's Village. Harbor waters are located to the north and east. Nesting by colonial waterbirds last occurred in this area in 2015.

#### *Fiji Way*

Fiji Way is located south of Burton Chace Park, across the main channel from Bora Bora Way and Mariner's Village. This area consists of a mix of commercial and residential uses, with several large parking lots. Directly south and east of Fiji Way is Ballona Creek and the Ballona Wetlands Ecological Preserve, a 600-acre conservation site. This nesting area has not been active between 2012 and 2020.

#### *Mariner's Village*

The Mariner's Village nesting area is a primarily residential area with some commercial uses interspersed between apartment complexes. Harbor waters are located to the east. Historically, great blue heron (*Ardea herodias*, GBHE) and double-crested cormorant (*Phalacrocorax auritus*, DCCO) nest colonies have been documented at this location since annual surveys began in 2009.

#### *Marquesas Way*

The Marquesas Way nesting area is south of Panay Way. It is primarily a residential area, with several apartment complexes bordering the area and harbor waters to the north, east, and south. Snowy egret (*Egretta thula*, SNEG) and BCNH nest colonies have been observed here since annual surveys began in 2009.

#### *Mindanao Way (Burton Chace Park)*

The Burton Chace Park nesting area is located east, across the main channel, from Marquesas Way. The area contains a 10-acre public park that frequently hosts fairs, festivals, and concerts for the community. Harbor waters are located to the north, south and west of the park. DCCO and BCNH nesting colonies were documented previously in this area in 2011, and 2017 through 2021. Cooper's hawk (*Accipiter cooperii*, COHA) nests were documented in 2018 and 2019.

*Palawan Way*

Palawan Way nesting area is south of Admiralty Way and provides access to Wayfarer Apartments and Basins D and E. Suitable nesting/roosting trees line Palawan Way and are incorporated into the Wayfarer Apartments landscape. No historic nesting by colonial waterbirds has been documented in this area.

*Panay Way*

The Panay Way nesting area is south of the Palawan Way nesting area, bordered by residential areas with commercial areas interspersed between residences and parking areas for the Marina. There is a public beach north of this area and harbor waters to the north, east, and south. No nesting waterbird colonies have been documented within the Panay Way area.

*Tahiti Way*

Tahiti Way nesting area provides access to numerous residential complexes and Basins A and B. The 1.46-acre Wetland Park is located on the northeast corner of Tahiti Way and Via Marina. The palm trees along Tahiti Way could be suitable nesting/roosting trees for GBHE, however most of the trees are along the far north and south sides of the street completely exposed to the elements and nesting by colonial waterbirds last occurred in this area in 2018.



## 2 Methodology

### 2.1 Literature Review

The literature review included information on the target species as defined by DBH. The LUP defines colonial waterbirds as the following five species: double-crested cormorant, great blue heron, great egret (*Ardea alba*, GREG), snowy egret (*Egretta thula*, SNEG), and black-crowned night-heron. These species have likely been nesting in Marina del Rey since the mid-1990s (Hamilton Biological 2010).

Annual nesting reports for the study area from previous years were also reviewed:

- Final Report on Nesting Waterbirds and Raptors, Marina Del Rey, Los Angeles County, CA (Hamilton Biological 2014)
- Final Report on Nesting Waterbirds and Raptors, Marina Del Rey, Los Angeles County, CA (Hamilton Biological 2015)
- Final 2016 Report on Nesting Colonial Waterbird and Raptor Survey Results for Marina del Rey, Los Angeles County, California (Rincon 2016)
- Final 2017 Report on Nesting Colonial Waterbird and Raptor Survey Results for Marina del Rey, Los Angeles County, California (Rincon 2017)
- Final Nesting Bird Survey Report Marina del Rey, Los Angeles County, California (Environmental Intelligence 2018)
- Final Nesting Bird Survey Report Marina del Rey, Los Angeles County, California (Environmental Intelligence 2019).
- Final 2020 Nesting Bird Survey Report Marina del Rey, Los Angeles County, California, Los Angeles County, California (Rincon 2020)

### 2.2 Nesting Surveys

The nesting bird surveys for colonial waterbirds were conducted by Rincon Biologist Gayle Bufo between April 23 and July 21, 2021. Table 1 provides specific details on the timing of and environmental conditions during the surveys.

Table 1 Survey Details

Survey Date	Time	Observers	Weather
April 23, 2021	0800-1400	Gayle Bufo	59-65°F, 0-5 mph, 100% cloud cover AM – 25% cloud cover PM
May 20, 2021	0815-1315	Gayle Bufo	63-78°F, 0-3 mph, 75% cloud cover AM – 10% cloud cover PM
June 16, 2021	1230-1630	Gayle Bufo	73-75°F, 0-5 mph, 50% cloud cover
July 21, 2021	1200-1530	Gayle Bufo	77-79°F, 0-5 mph, 0% cloud cover

The nesting survey area included all ten nesting areas identified in Figure 2, including the entire Survey Boundary as shown. The biologist surveyed for both active and inactive colonial waterbird nests using accepted industry standard methods and in accordance with the requirements outlined in Policies 23 and 34 in the Marina Del Rey LCP. All suitable and historic nesting sites in Marina del Rey were closely examined. The biologist made observations from the ground, surveying for existing

and remnant nest structures, whitewash, birds exhibiting breeding/nesting behavior (i.e., courtship displays, copulation, vegetation or food carries, and territorial displays), and the presence of fledglings. Where nests or young were suspected, close physical inspection of the tree was conducted to confirm presence or absence of nests or birds. Binoculars (8x35) were used to aid in the identification of birds and nests. Inaccessible areas (i.e. fenced construction zones) were also surveyed with the aid of binoculars and a spotting scope. The locations of all trees containing waterbird nests were recorded using a Lenovo Tablet Geographic Information System (GIS) tracker and Collector application.

Nests were identified as “active” based on observations of at least one adult constructing or attending the nest, including incubation, brooding, and nest maintenance. Nests with at least one offspring were also considered “active”, as were nests that appeared to be recently constructed (new nesting material and recent whitewash present on or under the nest) with an adult bird perching nearby. The survey methods documented in the 2009, 2011, 2012, and 2014 – 2020 reports for determining “active” or “likely active” nests were referenced to compare the previously documented nesting trends from 2009 onward. “Roost” trees are those that did not contain nest structures but were observed with a significant amount of white-wash underneath and/or a colonial waterbird was observed sitting on a branch.

Where possible, nests observed during the surveys were identified by avian species. Birds are referred to by their four-letter species acronym throughout this report as described in Table 2 below. In the event that a nest could not be identified to a specific species, a presumed species was assigned. Smaller colonial nests were presumed to belong to BCNH and/or SNEG if the bird was not directly observed, and larger colonial nests were presumed to belong to GBHE or GREG. Nest counts were compared with those from similar waterbird nesting surveys conducted at Marina del Rey, including: 2009 (Hamilton Biological 2010), 2014 (Hamilton Biological 2014), 2015 (Hamilton Biological 2015), 2016 (Rincon 2016), 2017 (Rincon 2017), 2018 (Environmental Intelligence 2018), 2019 (Environmental Intelligence 2019) and 2020 (Rincon 2020).

**Table 2 Species Acronyms**

Species Name	Acronym
black-crowned night heron	BCNH
snowy egret	SNEG
great blue heron	GBHE
great egret	GREG
double-crested cormorant	DCCO
American crow	AMCR
song sparrow	SOSP
dark-eyed junco	DEJU
Cooper’s hawk	COHA
peregrine falcon	PAFA
red-tailed hawk	RTHA
small colonial waterbird	SNEG/BCNH
large colonial waterbird	GBHE/GREG

## 3 Existing Conditions and Survey Results

### 3.1 Existing Conditions

Overall, the survey area conditions were similar as to previously documented, but with less human activity. Observations of pedestrian and vehicle traffic were considerably lower in 2021 while colonial waterbird nesting appeared to start earlier and in greater abundance than in 2020. Construction projects occurred along Via Marina and Admiralty Way during the 2021 surveys and required traffic controls, installation of tall fencing with noise barriers, and the use of large equipment including cranes and excavators. Both of these areas were cleared of most equipment by the July 21, 2021 survey with only minor traffic controls left in place.

### 3.2 Results

During the 2021 breeding season, 176 active colonial waterbird and 12 incidental passerine and corvid species nests were detected. The following species were observed: BCNH, SNEG, DCCO, and GBHE, including an unknown large colonial waterbird nest and several small colonial waterbird nests (Table 3). The 176 active nests were located in 40 trees within five nesting areas: Bora Bora Way (one tree), Fiji Way (one tree), Marquesas Way (25 trees), Mariner's Village (12 trees), and Mindanao Way (Burton Chace Park) (one tree) (Table 3). No active nests were observed in the Admiralty Way, Palawan Way, Panay Way, Tahiti Way, or Bali Way nesting areas in 2021. No nesting GREG were observed during the 2021 surveys. Additionally, several other non-colonial waterbird nests were observed as depicted on Figure 3. As shown, one red-tailed hawk (*Buteo jamaicensis*, RTHA) nest was observed along the eastern portion of Fiji Way, three American crow (*Corvus brachyrhynchos*, AMCR) nests were observed, one along Admiralty Way, one within Burton Chace Park and one in Mariner's Village, and one common raven (*Corvus corax*, CORA) nest was observed along Admiralty Way. An additional six unknown passerine nests and one unknown corvid nest were observed within the Survey Boundary. See Appendix B for nest photos and Appendix C for tree numbers, locations, and descriptions.

**Table 3 Active Colonial Waterbird Nests in 2021**

Location	GBHE	BCNH	SNEG	DCCO	Large Unknown	Small Unknown	Total
Bora Bora Way	0	1	0	0	0	0	1
Fiji Way	1	0	0	0	0	0	1
Mariner's Village	12	3	0	16	0	0	31
Marquesas Way	0	51	34	0	0	42	127
Mindanao Way (Burton Chace Park)	0	0	0	16	0	0	16
<b>Total</b>	<b>13</b>	<b>55</b>	<b>34</b>	<b>32</b>	<b>0</b>	<b>42</b>	<b>176</b>

#### Bora Bora Way

One active BCNH nest was observed in the Bora Bora Way nesting area (Figure 5). The BCNH nest was in a pine tree at the eastern end of Bora Bora Way. In addition, two roosting trees, one pine and one fig, were identified adjacent to the nesting tree (Figure 3).

## Fiji Way

One active GBHE nest was observed in the Fiji Way nesting area (Figure 8). The GBHE nest was in a pine tree at the southern end of Fiji Way. One active RTHA nest also was observed in a gum tree along the eastern portion of Fiji Way (Figure 3).

## Mariner's Village

A total of 31 active nests were detected in the Mariner's Village nesting area in 2021 (Figure 4). Of these 31 nests, 12 were confirmed to be GBHE nests, three were confirmed to be BCNH nests, and 16 were confirmed to be DCCO nests. The 12 confirmed GBHE nests were located within three different trees: two pines (*Pinus sp.*) and one blue gum. The 16 confirmed DCCO nests were in two different blue gum trees, and the BCNH nests were observed in a single fig tree. An active AMCR nest was also observed on the southwestern side of Mariner's Village during the June survey.

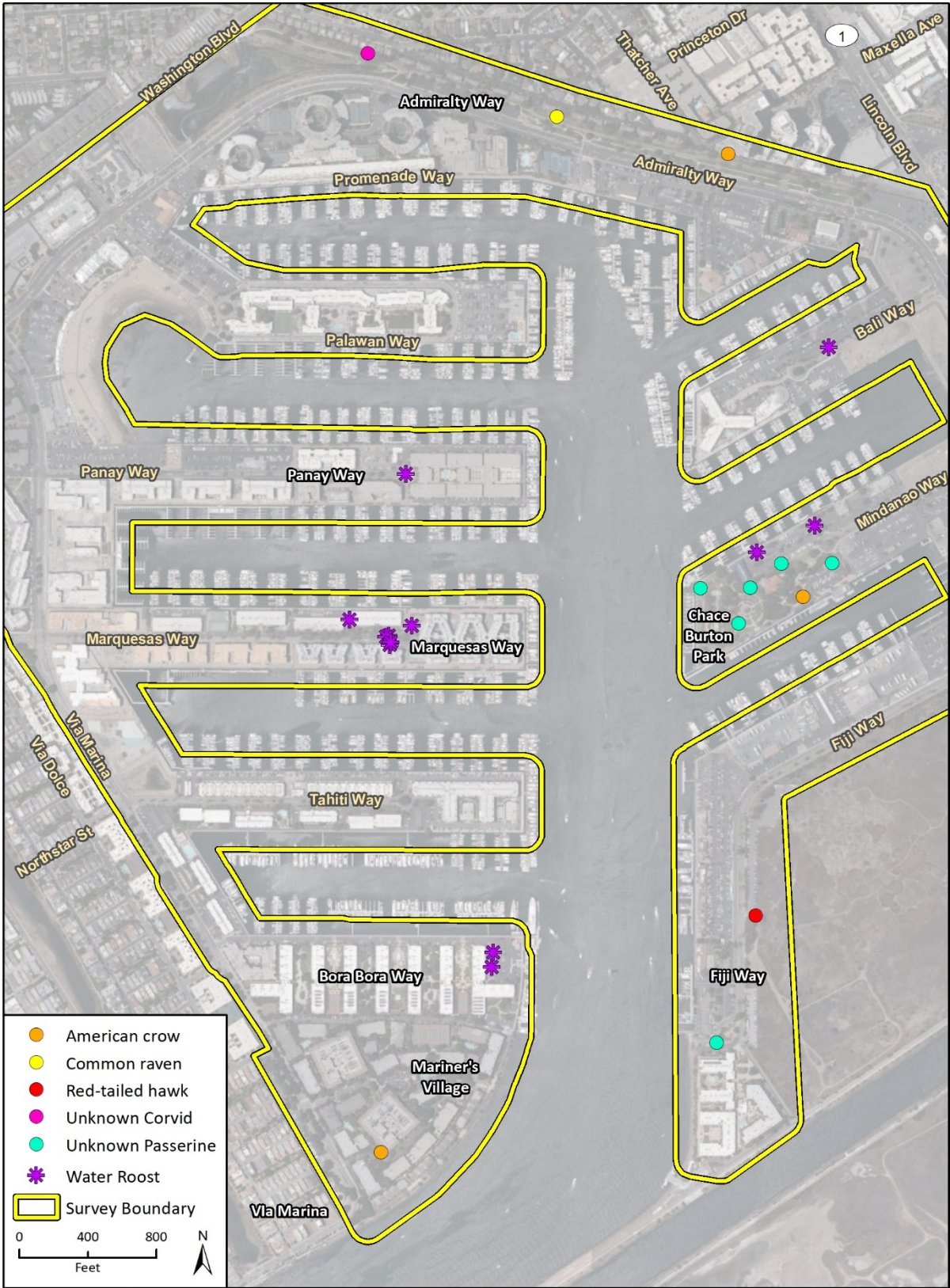
## Marquesas Way

A total of 127 active waterbird nests were observed in the Marquesas Way nesting area (Figure 6). A majority of the waterbird nests were in trees along the road median toward the eastern end of Marquesas Way. Several nests were also in an adjacent private property. The biologist determined that 51 of these nests belonged to BCNH and 34 belonged to SNEG, and 42 nests were undetermined, but presumed to have been used by either BCNH or SNEG. A majority of nests were in broad-leaved paperbark (*Melaleuca quinquenervia*) and fig trees (*Ficus sp.*), while seven nests were in pine trees, and three nests were in gum trees (*Eucalyptus sp.*). In addition, two pine trees and two fig trees used for small waterbird roosting were identified on the north side of Marquesas Way (Figure 3).

## Mindanao Way (Burton Chace Park)

Sixteen DCCO nests were observed in a single gum tree on the east side of Burton Chace Park, northeast of the boathouse building at 13640 Mindanao Way (Figure 7). In addition, two gum trees used for waterbird roosting were identified on the north side of Burton Chace Park (Figure 3). Construction within the northwestern parking lot and adjacent Santa Monica Windjammers Yacht Club during the 2020 surveys was concluded with all the fencing removed. A single AMCR nest was identified within the park along with several small inactive passerine nests. In 2019, two COHA nests were observed within a rubber fig and coastal coral tree on the southern side and northeast corner of the park, respectively. These nests were no longer active in 2021 and no COHA were observed in the vicinity of Burton Chace Park during any of the 2021 surveys.

Figure 3 Incidental Nest Locations and Waterbird Roosts



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Fig 3 Incidental Nest Locations\_20210724



Figure 4 Bora Bora Way Nesting Area



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Fig 5 Bora Bora Nest Locations\_20210724



Figure 5 Fiji Way Nesting Area







Figure 7 Marquesas Way Nesting Area



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Fig 6 Marquesas Way Nest Locations\_20210724



Figure 8 Mindanao Way (Burton Chace Park) Nesting Area



## 4 Conclusions

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Similar to previous years, nesting waterbird colonies were concentrated within three nesting areas during the 2021 nesting season: Marquesas Way, Mariners Village, and Mindanao Way (Burton Chace Park). However, one waterbird nest was also recorded at both Bora Bora Way and Fiji Way as well. Avian activity during all four surveys was moderate to high compared to the 2020 nesting season as the number of active nests for all colonial waterbird species increased from 136 in 2020 to 176 in 2021. It is important to note that nesting activity appeared to occur earlier in the season in 2021, especially for BCNH and SNEG, than previous survey years. High levels of small waterbird activity and several fledglings were observed during the first survey on April 23. As the survey period continued, waterbird activity decreased significantly as fledglings left the nests. During the July survey, very few adults were observed sitting on nests and/or feeding chicks. In 2021, a total of 42 small unknown nests were observed, in comparison to only two in 2020.

Table 4 provides waterbird population trends by species between 2009 and 2021. BCNH populations generally increased from 2009 to 2015, then declined from 2017 to 2021. Although they have decreased slightly in the last year, BCNH numbers have remained relatively stable since the initial decline seen from 2012 to 2014. Populations of SNEG have continued to fluctuate. GREGs have not nested in any areas since 2012, after a decline from an already low population. GBHE nesting has declined by about 60 percent since 2012. DCCO populations appear to be increasing since 2016 with a slight dip in population during the 2019 surveys. The study area supported more nesting waterbirds than in 2020; the 176 active nests identified represent the highest number recorded since 2011, during which 153 active nests were recorded.

Table 5 provides waterbird population trends at each nesting area between 2009 and 2021. Results continue to indicate that GBHE and DCCO are selecting nest sites in Mariner's Village and Burton Chace Park over Fiji Way. The DCCO nesting tree near Burton Chace Park contained more nests in 2021 than in previous years. Trends in BCNH and SNEG populations continue to show a shift away from the Admiralty Way nest area to the Marquesas Way nest area. Bora Bora Way and Fiji Way recorded minor nesting activity for the first time since 2016 and 2012, respectively. Nesting activity trends in each of the ten nesting areas is described in detail below.

**Table 4 Population Trends by Species, Based on Number of Active Nests<sup>1</sup>**

Species	2009	2011 <sup>1</sup>	2012 <sup>3</sup>	2014	2015	2016	2017	2018	2019	2020	2021	Trend
Black-crowned night-heron (BCNH) <sup>2</sup>	43	81	64	81	73	57	56	41	48	64	51 <sup>5</sup>	Increase, then decrease and relatively stable <sup>5</sup>
Snowy egret (SNEG)	35	24	10	18	25	26	18	33	14	32	34	Mixed
Great blue heron (GBHE)	32	25	28	22	14	16	17	13	19	12	12	Decrease, then relatively stable
Great egret (GREG) <sup>4</sup>	5	1	1	0	0	0	0	0	0	0	0	Decrease, then absent
Double-crested cormorant (DCCO)	19	22	24	30	19	22	20	26	17	26	32	Increase, then decrease, and now increase
Small Unknown	N/A	N/A	N/A	N/A	16	14	24	0	0	2	42	Increased, then consistently low. Rebounded in current year
Large Unknown	N/A	N/A	N/A	N/A	2	0	0	0	0	0	1	No clear trend
<b>Total</b>	<b>134</b>	<b>153</b>	<b>127</b>	<b>151</b>	<b>149</b>	<b>135</b>	<b>135</b>	<b>113</b>	<b>98</b>	<b>136</b>	<b>176</b>	

<sup>1</sup> This data does not include 2010 and 2013 because surveys were not conducted in those years

<sup>2</sup> Consistent with previous year's surveys, this data includes undetermined small colonial waterbird nests (SNEG/BCNH)

<sup>3</sup> Based on Hamilton Biological (2015) that noted this was from a single day survey (Point Blue Conservation Science 2012, unpublished data), so likely undercount for several species

<sup>4</sup> Includes undetermined large colonial waterbird nests (GBHE/GREG)

<sup>5</sup> An early nesting season led to a high number of unknown small waterbird nests, many of these were likely BCNH

**Table 5 Population Trends by Nesting Area, based on Number of Active Nests<sup>1</sup>**

Location <sup>1</sup>	2009	2011	2012	2014	2015	2016	2017	2018	2019	2020	2021	Trend
Admiralty Way	71	64	25	33	17	2	0	0	0	0	0	Decrease
Bora Bora Way <sup>2</sup>	N/A	N/A	N/A	11	0	1	0	0	0	0	1	Decrease
Fiji Way	25	29	12	0	0	0	0	0	0	0	1	Decrease
Mariners Village	29	18	41	53	35	37	49	38	34	32	31	Mixed, then stable
Marquesas Way	9	38	49	66	97	96	85	74	62	95	127	Overall increase
Mindanao Way (Burton Chace Park)	0	4	0	0	0	0	1	1	2	9	16	Recent increase
Tahiti Way	0	0	0	0	0	0	0	1	0	0	0	Anomaly observation in 2018 only
<b>Total</b>	<b>134</b>	<b>153</b>	<b>127</b>	<b>163</b>	<b>149</b>	<b>136</b>	<b>135</b>	<b>113</b>	<b>98</b>	<b>136</b>	<b>176</b>	

<sup>1</sup> Bali Way, Palawan Way, Panay Way, and Tahiti Way are not included as no active colonial waterbird nests were observed in those nesting areas during any of the survey years.

<sup>2</sup> No data was recorded for Bora Bora Way during the 2009, 2011, and 2012 surveys conducted by Hamilton Biological.

## Admiralty Way

No colonial waterbird nests were observed in the Admiralty Way nest area in 2021. The peregrine falcons that nested here in 2014-2016 were not observed in 2021. Incidental passerine observed during surveys included one inactive nest of an unknown species located on the western end of the park and an AMCR and common raven (*Corvus corax*, CORA) nest.

## Bora Bora Way

One BCNH nest was observed in the Bora Bora Way nesting area in 2021. Two additional trees were identified as roosting trees in the nesting area as well. Historically, DCCOs have previously nested here but have not been observed in the area since 2014. The last documented nesting waterbird was a single GBHE in 2016. The activity recorded in 2021 indicates that this area may become more favorable for small waterbird nesting moving forward but any conclusion is premature until more data is collected in future annual surveys.

## Fiji Way

One active GBHE nest was observed within the Fiji Way nesting area. This nesting area had not been active with GBHE nests since 2012, when several dying cypress trees were removed for public health and safety reasons. In 2015, Hamilton Biological theorized that the nest colony may have moved to Mariner's Village, which the 2015, 2016, and 2017 data appears to support. With the removal of the cypress trees, there may not be enough suitable nesting habitat for GBHE in this area. Fig, pine and gum trees lining the southernmost point of Fiji Way between the Ballona Creek Bike Path and the Archstone Breakwater Apartments provide nesting habitat and is where the lone GBHE nest was observed. Future data will be needed to determine if this is the beginning of a change in GBHE nesting preference.

## Mariner's Village

Mariner's Village continues to be the most active GBHE and DCCO nesting area within the study area. The number of nests in 2021 was similar to previous years and while the number of GBHE slightly decreased from 2020 to 2021, a decrease in nesting by this species has been consistent since 2014. A grove of pines at the eastern end of an apartment complex, along with decorative water features, serve as active roosting and foraging habitat. This nesting area supports larger waterbird species, which likely benefit from the mature pine tree canopy that provides suitable roosting habitat. DCCO nesting activity remained stable as well, with DCCO's utilizing blue gum trees on the northeast end of Mariner's Village. The decrease in GBHE nests from 2017 to 2021 may be attributed to the increased disturbance caused by ongoing construction activities on Via Marina. Construction on Via Marina continued in 2021 and a GBHE nest recorded in a pine in 2020 that's close to Via Marina was not observed to be active in 2021. However, GBHE are also less likely to have nest tree fidelity so may have naturally shifted to other trees in the area. All GBHE nesting activity was concentrated in the two pine trees and one eucalyptus tree near the center of Mariner's Village.

## Marquesas Way

The Marquesas Way nest area continues to be the most active SNEG and BCNH nesting area within the survey area. The total number of nests in 2021 has had a 30 percent increase, relative to 2020. However, survival rates of fledglings on Marquesas Way may still be affected by the amount of



traffic-related fledgling mortalities. Fledgling carcasses were observed on the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> surveys along Marquesas Way and several residents and nearby delivery workers have reported witnessing birds being run over by local traffic once they have fallen out of or left their nests.

A high level of advanced nesting activity (nests that were further along in stage) was observed earlier in the survey period than in previous years. Fledglings were observed during the first survey on April 23, and adult activity surrounding the nesting trees on Marquesas Way significantly declined as the survey period continued. Consistent observations of fledglings and juveniles throughout the survey period indicate that nesting success was not negatively affected by early season nesting.

BCNH young leave the nest at approximately one month of age to forage on the ground, despite their inability to fly until they are six weeks old (Hothem et.al 2010). Likewise, SNEG young are capable of leaving the nest as early as ten days of age when disturbed, although they typically return to the nest if feasible (Parsons and Master 2000). SNEG fledglings typically remain near the colony for approximately 7 to 8 weeks. The behavior of these two species presents a challenge at this particular nesting area due to the high level of vehicle and pedestrian traffic. The number of nests on Marquesas Way has remained high and increased possibly due to the decrease in vehicle traffic since the start of the COVID-19 Pandemic.

To reduce vehicle strikes, the County installed traffic caution signs in early July 2016 along Marquesas Way to encourage drivers to slow down and watch for birds. Additional enforcement of posted speed limits and general community education/outreach may help decrease the death toll of young birds in this area.

### **Mindanao Way (Burton Chace Park)**

Sixteen DCCO nests were observed in one gum tree during all four surveys. The nesting tree is located on the east side of the park adjacent to a busy parking lot. Previous nesting trees identified in the 2011, 2012, and 2017-2019 surveys located northwest of the active tree were all unoccupied in 2021. BCNH adults were observed roosting in gum trees within the park; however, no nests were found nearby. The COHA nests identified in 2018 and 2019 were no longer intact. This increase in avian activity/nesting could be attributed to the lack of construction activity observed during all four surveys, in comparison to previous years.

## 5 Potential Conflicts and Solutions

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### 5.1 Human Health and Safety

Some areas, such as the Marquesas Way nesting area, Mariner's Village nesting area, and a DCCO nesting tree within the Burton Chace Park nesting area, have been and continue to be subject to deposits of large amounts waterbird guano and other nest debris. Guano deposits appear to be accumulating in these nesting areas in greater quantities than seen in 2020. The large accumulation of debris from nests such as guano, feathers, eggs, fledglings, and/or food can pose a threat to human health. This issue is particularly prevalent along Marquesas Way where the majority of the waterbird nests are concentrated in a small area. Large deposits of guano and five dead fledglings were observed in 2021 in the median planter containing the nesting trees and in the roadway. Fledglings that have fallen out of nests could pose a safety risk to drivers and high levels of guano may be a source for disease spread and odor. With the increase in nesting activity along Marquesas Way in 2021, there is increased potential for these safety risks. For example, guano deposits have moved closer to the residential buildings along with additional nesting locations. Multiple cars and sidewalks leading to apartment buildings were observed with large guano deposits. These areas appeared to be consistently cleaned by maintenance staff but were still visible during each survey. A maintenance crew worker was observed cleaning guano from underneath tree 24 in Mariner's Village on July 21, 2021 where DCCO have nested for years. The sidewalk was stained white even after washing. Overall human activity appeared to decline from 2020 to 2021, with less vehicle traffic and less pedestrian traffic during all surveys. The COVID-19 pandemic may have contributed to this decline in human activity and allowed for all the colonial waterbirds to expand their nesting area and deposit more guano closer to the vehicles and buildings.

Since colonial waterbirds gather in large groups, guano rapidly builds up underneath nesting and roosting areas. The buildup of guano may also be a source of offensive odors. The Marina del Rey Conservation and Management Plan (Hamilton Biological 2010) discusses the many problems that a build-up of bird guano can pose to human health, including the spread of disease. It is possible for airborne particles of guano to spread a bacterium, *Chlamydophila psittaci*, which if contracted can cause severe pneumonia and other serious health problems for humans (Harkinezhad et al. 2009). General education of the community about safe practices in areas with guano deposits may be warranted.

As documented in the 2010 Conservation and Management Plan (Hamilton Biological 2010), guanotrophy can also occur in trees where there are large amounts of guano deposited into the soil. This may cause the tree's health to decline or eventually kill the tree, which may result in future safety concerns if branches were to drop or if the tree were to fall over. This may be a concern for tree 24 in Mariner's Village that no longer has leaves. The entire tree is covered in white guano and appears to be declining. Action may be needed to prevent tree 24 from becoming a hazard.

### 5.2 Nesting Modification Possibilities

The Marina del Rey Conservation and Management Plan (Hamilton Biological 2010) concludes that waterbirds tend to prefer tall trees in secluded stands located near shallow water; however, observations made in the field by the surveying biologist and previous year's reports suggest that waterbirds in Marina del Rey prefer tall stands of non-native trees between tall buildings not

necessarily next to water sources. Consistent with these findings, in the 2021 survey area the biologist observed that colonial waterbird nests were primarily found in areas that have tall, mature (non-native) trees that are fairly protected or partitioned by tall buildings, such as in the Marquesas Way and Mariner's Village nesting areas. Nests are generally located higher up in the trees where canopies are less dense. In 2021, more BCNH were observed nesting in dense rubber figs than in 2020, but the majority of BCNH nests were observed in broad-leaved paperbark trees along with SNEG nests. Alternatively, GBHE observed during 2021 appeared to prefer tall pine trees that are open near the ground with a raised canopy similar to the trees used by some BCNH. The GBHE nests were also observed further from the water in 2021 and towards the center of Mariner's Village. The large pine tree located near Via Marina Way used for nesting in 2020 was no longer active in 2021. Sewer construction activities along Via Marina Way may have contributed to this re-distribution of the Mariner's Village GBHE nesting due to the high noise levels. The colonial waterbirds have adapted to roost and nest in non-native tree species since their native habitats have been compromised by urbanization. As noted above, BCNH was observed nesting in a greater number of fig, pine, and gum trees during 2021 surveys with some new nests in trees not located between apartment buildings. These exposed nesting trees may have become more favorable for waterbirds due to the decrease in human activity.

As noted above in Section 4, nesting activity occurred earlier in the season than in previous years. Early nesting may be attributed to higher temperatures earlier in the season as the average high temperature in Marina del Rey was 68° F in March 2021 compared to 64° F in March 2020. Additionally, human vehicle and pedestrian traffic significantly decreased from 2020 to 2021 due to the COVID-19 pandemic. This may have allowed the colonial waterbirds to nest earlier and in more abundance. Bora Bora Way, for example, has not had colonial waterbird nesting since 2014 until a single BCNH nest was observed this year. Another contributing factor could be the decline in construction activities from 2020 to 2021. Sewer construction work on Via Marina continued, but the 2020 construction on Marquesas Way and near Burton Chace Park has been concluded and all fencing/equipment has been removed. This also led to a decrease in human activity near these nesting areas which may have contributed to the population increase seen in 2021.

High densities of colonial waterbird nesting can pose threats to human health and safety especially when the colonies are located directly next to residential buildings and public walkways (as observed in the 2021 surveys). All of the colonial waterbird nesting trees during the 2021 survey were in close proximity to residential and commercial buildings. For example, during the July survey, multiple fledglings were observed on a pine tree directly next to a carport on Marquesas Way. Guano deposits were observed on sidewalks leading into residential buildings, on the buildings, and on cars throughout all four surveys. It appears that the colonial waterbirds are moving closer to the buildings (as seen on Marquesas). It is likely that the buildings/carport structures provide additional protection from wind and possibly predation which increases the health and safety risk associated with human interactions. Given waterbird adaptability to the urban landscape, as noted in the LUP and previous reports, it is likely waterbirds will continue to adapt to ongoing human activities and redevelopment.

To address this apparent preference for proximity to tall buildings and to alleviate potential health and safety risks, adding more desirable trees and wind protection near more desirable nesting locations could attract colonial waterbirds away from residential and commercial areas of Marina del Rey. Another option could be the implementation of nest deterrence measures. If colonial waterbird nesting continues to move closer and closer to buildings, cars, and pedestrian spaces, deterrence measures such as netting, sprinklers, or noise makers could possibly be used. Preferred

tree species could then be planted in mitigation areas away from the dense neighborhoods in Marina del Rey in an effort to deter colonial waterbird populations away from human activity. Current nest trees in residential areas could also be replaced with less desirable nest trees. Potential options for native trees that may attract colonial waterbird nesting include box elder (*Acer negundo*), cypress trees (*Cupressus macnabiana*, *sargentii*, *macrocarpa*), coast live oak (*Quercus agrifolia*), Catalina ironwood (*Lyonothamnus floribundus*), and/or pine trees (*Pinus radiata*, *torreyana*) (Crouch et al. 2002). Previous surveys also mentioned western sycamore (*Platanus racemosa*) as an optional native tree to plant; however, western sycamores occur along Marquesas Way and 2021 survey observations suggest that the colonial waterbirds do not prefer this species over the non-native trees nearby. Non-native, non-invasive trees that may attract colonial waterbird nesting include Indian laurel (*Ficus macrocarpa*), olive trees (*Olea europaea*), strawberry tree (*Arbutus unedo*), and/or orchid tree (*Bauhinia* sp.). If trees are to be planted with the intent of attracting large colonial waterbirds outside of Marina del Rey, tall trees with raised canopies such as stone pine (*Pinus pinea*) or gum trees (*Eucalyptus* sp.) within protected stands near a shallow source of water and tall buildings or hillsides are recommended. Note that the use of deterrents could be considered an impact to colonial waterbirds and formal plan would need to be developed with potential consultation with wildlife agencies.

Previous reports have noted nearby potential mitigation areas including Oxford Retention Basin, Wetland Park, Burton Chace Park, and Ballona Wetlands. While these areas provide open space where new nesting trees could be planted, they each have restrictions. The Oxford Retention Basin serves as a space away from human interactions, but only native species can be planted (due to LUP requirements). Wetland Park provides foraging habitat for a wide variety of avian species including waterbirds. However, large non-native tree species desirable for nesting cannot be planted here also limiting the flexibility in trees species that can be used to attract waterbird nesting.

In Mariner's Village, it may be possible to plant new trees likely to be used for nesting adjacent to covered car ports or gazebos. These covered structures would provide protection from falling guano, lessening the human health risk and nuisance odors, and enable easy assessment of mitigation success. Burton Chace Park also has space for additional nesting trees. In previous years, more colonial waterbirds have nested here, and the area provides tall, open trees near water. However, there are not as many buildings in this area to provide wind protection and while human activity was minimal in 2021, this area is typically heavily used for recreational activities with lots of human disturbance. If sections of Burton Chace Park are found to have less human recreation activity areas, a pilot study could be developed with wind wall installations and additional desirable nest trees to determine feasibility.

Areas outside Marina del Rey that could be enhanced include Ballona Lagoon, Del Rey Lagoon, and Ballona Creek. However, restoration efforts in these areas would require cooperation with other municipal and/or state agencies.

If these planting sites are successful, nesting trees from Marquesas Way or Mariner's Village could be removed or netted to prevent further nesting. Replacement trees intended to deter nesting or roosting waterbirds could include shorter trees that are undesirable. However, effecting the existing habitat that is used for colonial waterbird nesting may require planting additional trees to attract nesting colonial waterbirds elsewhere to comply with federal, state, and local regulations including the California Fish and Game Code, Migratory Bird Treaty Act, 2012 Marina del Rey LCP, and the Marina del Rey LUP.

Pursuant to the LUP, Section 5.1.11, removal of any tree shall require mitigation at a 1:1 ratio. Replacement trees shall consist of native or non-native, non-invasive tree species. Additionally,

consultation with the appropriate regulatory agencies may also be necessary prior to removal of a tree supporting nesting waterbirds or raptors, regardless of whether the tree is removed during or outside of the nesting season.

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## 7 List of Preparers

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### Rincon

#### *Primary Author*

Gayle Bufo, Biologist

#### *Secondary Author*

Leslie Yen, Biologist/Project Manager

#### *Technical Review*

Brenna Vredevelde, Supervising Biologist

#### *Principal-in-Charge*

Greg Ainsworth, Principal Biologist

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# Appendix A

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Regulatory Setting



# Regulatory Setting

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## Local Jurisdiction

The Marina del Rey Land Use Plan (LUP) is a component of the Marina del Rey Local Coastal Program (LCP), which was adopted in 1996, and amended in 2012. The LUP guides development in the 804-acre County-owned marina. The LUP was developed to address future land use, new access, recreation and resource protection areas, and improvement of existing facilities. The implementation program for the LUP is the Marina del Rey Specific Plan, which is contained in County Code Title 22 (Planning and Zoning Code). According to the LUP, despite the area being completely urbanized and man-made, colonial waterbirds and their nests exist within the bounds of Marina del Rey which require policy protection as coastal resources per Coastal Act sections 30230, 30231, 30233, and 30250. This protection is also intended to be consistent with the California Environmental Quality Act. Marina del Rey is also bordered by several Environmentally Sensitive Habitat Areas (ESHA) including the Ballona Wetlands, Ballona Lagoon, and the California least tern (*Sterna antillarum browni*, CLTE) roosting area on Venice Beach. As such, Tree Management Policies 23 and 34 from the LUP of the LCP require an annual survey of breeding and nesting for federal and state-listed species, California Species of Special Concern, and waterbirds on all properties (including private leasehold properties) within the unincorporated area of Marina del Rey that are covered by the LCP.

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# Appendix B

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Site Photographs





**Photograph 1.** Tree FJ-2021 1 on Fiji Way on April 23, 2021 with GBHE nest facing south.



**Photograph 2.** Broken egg underneath tree MQ-12 on Marquesas Way during April 23, 2021 survey.





**Photograph 3.** DCCO nests in tree CP-220 on June 16, 2021 within Burton Chace Park facing north.



**Photograph 4.** BCNH and SNEG nests in tree MQ-6 on June 16, 2021 along Marquesas Way facing southwest.





**Photograph 5.** BCNH fledglings in ornamental shrub near apartment entranceway on Marquesas Way on July 21, 2021 facing north.



**Photograph 6.** Fledgling run-over on Marquesas Way during June 16, 2021 survey.





**Photograph 7.** Pine tree with GBHE nests in Mariner's Village on June 16, 2021.



**Photograph 8.** Guano deposits on pathway in Mariner's Village on July 21, 2021.





**Photograph 9.** Tree 24 in Mariner's Village with DCCO nests on July 21, 2021.



**Photograph 10.** Guano deposits on pathway and carport near Marquesas Way on July 21, 2021.



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# Appendix C

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Nest Data Table 2009-2021



Location	Tree Name	Tree Species	Year	Great Blue Heron	Large Unknown (Great Blue Heron or Great Egret)	Black-crowned Night-heron	Snowy Egret	Small Unknown (Black-crowned Night-heron or Snowy Egret)	Double-crested Cormorant	Peregrine Falcon	Cooper's Hawk
Admiralty Way	4	Ficus	2014	0	0	0	0	4	0	0	0
			2015	0	0	1	0	3	0	0	0
	5	Ficus	2011	x	x	x	x	x	x	x	x
			2012								
			2014								
			2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	0	0	0	0
	6	Ficus	2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	2	0	0	0
			2015	0	0	0	0	1	0	0	0
	7	Ficus	2009	x	x	x	x	x	x	x	x
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	0	0	0	0
	8	Ficus	2009	x	x	x	x	x	x	x	x
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	2	0	0	0	0	0
			2015	0	0	3	0	3	0	0	0
			2016	0	0	1	0	0	0	0	0
	9	Ficus	2009	x	x	x	x	x	x	x	x
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	3	0	0	0
			2015	0	0	1	0	3	0	0	0
			2016	0	0	1	0	0	0	0	0
	10	Ficus	2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	2	0	0	0	0	0
			2015	0	0	0	0	2	0	0	0
	42	N/A	2014	0	0	0	0	0	0	1	0
			2015	0	0	0	0	0	0	1	0
			2016	0	0	0	0	0	0	1	0
	43	Eucalyptus	2014	0	0	0	0	1	0	0	0
	BP-147	Ficus	2012	x	x	x	x	x	x	x	x
	BP-148	Eucalyptus sp.	2011	x	x	x	x	x	x	x	x
			2012								
			2014								
			2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	1	0	0	0
	BP-150	Eucalyptus sp.	2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	11	0	0	0
	OX-10	Eucalyptus	2011	x	x	x	x	x	x	x	x
	OX-17	Eucalyptus sp.	2018	0	0	0	0	0	0	0	1
Bali Way	BA-1	Erythrina caffra	2019	0	0	0	0	1	0	0	0
Bora Bora Way	46	Pinus	2014	0	1	0	0	0	0	0	0
			2021	0	0	1	0	0	0	0	0
	77	Pinus	2016	1	0	0	0	0	0	0	0
Fiji Way	73	Washington ia	2012	x	x	x	x	x	x	x	x
	FJ-209	Washington ia robusta	2012	x	x	x	x	x	x	x	x
	FJ-2021-1	Pinus	2021	1	0	0	0	0	0	0	0
Mariner's Village	22	Eucalyptus	2014	2	0	0	0	0	0	0	0
			2015	2	0	0	0	0	0	0	0
			2016	2	0	0	0	0	0	0	0
	22	Eucalyptus	2017	2	0	0	0	0	0	0	0
			2018	0	0	0	0	0	2	0	0
			2019	0	0	0	0	0	1	0	0
			2020	0	0	0	0	0	2	0	0
			2021	0	0	0	0	0	1	0	0
			2022	0	0	0	0	0	1	0	0
			2023	0	0	0	0	0	1	0	0
	23	Eucalyptus	2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	2	1	0	0	0	0	0	0
			2015	3	0	0	0	0	0	0	0
			2016	3	0	0	0	0	0	0	0

Location	Tree Name	Tree Species	Year	Great Blue Heron	Large Unknown (Great Blue Heron or Great Egret)	Black-crowned Night-heron	Snowy Egret	Small Unknown (Black-crowned Night-heron or Snowy Egret)	Double-crested Cormorant	Peregrine Falcon	Cooper's Hawk
	24	Eucalyptus	2017	2	0	0	0	0	0	0	0
			2018	0	0	0	0	0	1	0	0
			2019	0	0	0	0	0	2	0	0
			2021	0	1	0	0	0	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	0	0	0	19	0	0
			2015	0	0	0	0	0	19	0	0
			2016	0	0	0	0	0	22	0	0
			2017	0	0	0	0	0	20	0	0
			2018	0	0	0	0	0	21	0	0
			2019	0	0	0	0	0	12	0	0
			2020	0	0	0	0	0	16	0	0
			2021	0	0	0	0	0	15	0	0
	25	Eucalyptus	2014	1	1	0	0	0	0	0	0
			2015	2	0	0	0	0	0	0	0
			2016	1	0	0	0	0	0	0	0
			2018	0	1	0	0	0	0	0	0
	28	Pinus	2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	4	1	0	0	0	0	0	0
			2015	1	0	0	0	0	0	0	0
			2016	1	0	0	0	0	0	0	0
			2017	2	1	0	0	0	0	0	0
			2018	4	0	0	0	0	0	0	0
			2019	5	0	0	0	0	0	0	0
			2020	5	0	0	0	0	0	0	0
	29	Pinus	2014	3	1	0	0	0	0	0	0
			2015	2	2	0	0	0	0	0	0
			2016	5	0	0	0	0	0	0	0
			2017	5	0	0	0	0	0	0	0
			2018	8	0	0	0	0	0	0	0
			2019	12	0	0	0	0	0	0	0
			2020	2	0	0	0	0	0	0	0
			2021	8	0	0	0	0	0	0	0
	30	Eucalyptus	2014	1	0	0	0	0	0	0	0
			2017	0	1	0	0	0	0	0	0
			2020	0	1	0	0	0	0	0	0
	59	Eucalyptus	2014	0	2	0	0	0	0	0	0
			2015	1	0	0	0	0	0	0	0
			2016	1	0	0	0	0	0	0	0
			2017	1	0	0	0	0	0	0	0
			2018	1	0	0	0	0	0	0	0
			2019	0	1	0	0	0	0	0	0
			2020	1	0	0	0	0	0	0	0
			2021	1	0	0	0	0	0	0	0
	62	Ficus	2014	0	1	0	0	0	0	0	0
			2015	1	0	0	0	0	0	0	0
			2017	0	0	0	0	1	0	0	0
			2018	0	0	1	0	0	0	0	0
			2019	0	0	0	0	1	0	0	0
	63	Pinus	2014	0	1	0	0	0	0	0	0
			2015	1	0	0	0	0	0	0	0
			2016	1	0	0	0	0	0	0	0
			2017	2	0	0	0	0	0	0	0
			2018	1	0	0	0	0	0	0	0
			2019	1	0	0	0	0	0	0	0
			2020	4	0	0	0	0	0	0	0
			2021	3	0	0	0	0	0	0	0
	64	Eucalyptus	2015	1	0	0	0	0	0	0	0
			2016	1	0	0	0	0	0	0	0
			2017	1	0	0	0	0	0	0	0
			2018	0	0	0	0	0	1	0	0
	86	Eucalyptus	2019	1	0	0	0	0	0	0	0
	100	Eucalyptus	2020	0	0	0	0	3	0	0	0
	101	Eucalyptus	2020	0	0	0	0	4	0	0	0
	102	Eucalyptus	2020	0	0	0	0	2	0	0	0

Location	Tree Name	Tree Species	Year	Great Blue Heron	Large Unknown (Great Blue Heron or Great Egret)	Black-crowned Night-heron	Snowy Egret	Small Unknown (Black-crowned Night-heron or Snowy Egret)	Double-crested Cormorant	Peregrine Falcon	Cooper's Hawk
	103	Eucalyptus	2020	1	0	0	0	0	0	0	0
	119	Pinus	2020	0	0	2	0	0	0	0	0
	MV-2021-1	Ficus	2021	0	0	2	0	0	0	0	0
Marquesas Way	65	Pinus	2015	0	0	2	0	0	0	0	0
			2016	0	0	1	0	0	0	0	0
			2017	0	0	0	0	1	0	0	0
			2021	0	0	1	0	1	0	0	0
	66	Pinus	2015	0	0	2	0	0	0	0	0
			2016	0	0	0	1	0	0	0	0
			2017	0	0	1	0	0	0	0	0
	68	Pinus	2015	0	0	0	0	1	0	0	0
			2016	0	0	2	0	0	0	0	0
			2017	0	0	1	0	2	0	0	0
			2018	0	0	4	0	0	0	0	0
			2019	0	0	1	0	4	0	0	0
	69	Ficus	2015	0	0	3	0	0	0	0	0
	70	Melaleuca quinquener via	2015	0	0	1	0	0	0	0	0
			2016	0	0	1	0	0	0	0	0
	76	Pinus	2016	0	0	1	0	0	0	0	0
			2017	0	0	1	0	1	0	0	0
			2019	0	0	0	0	1	0	0	0
			2020	0	0	1	0	0	0	0	0
	78	Pinus	2017	0	0	2	0	0	0	0	0
			2021	0	0	1	0	0	0	0	0
	79	Pinus	2017	0	0	2	0	0	0	0	0
	81	Olea europaea	2018	0	0	1	0	0	0	0	0
			2019	0	0	0	0	1	0	0	0
			2020	0	0	1	0	0	0	0	0
			2021	0	0	0	0	1	0	0	0
	82	Olea europaea	2018	0	0	1	0	0	0	0	0
			2021	0	0	0	0	1	0	0	0
	84	Eucalyptus	2019	0	0	0	0	1	0	0	0
			2021	0	0	0	0	1	0	0	0
	87	Pinus	2019	0	0	1	0	0	0	0	0
			2021	0	0	3	0	0	0	0	0
	88	Pinus	2019	0	0	1	0	0	0	0	0
			2021	0	0	2	0	0	0	0	0
	89	Pinus	2019	0	0	0	0	1	0	0	0
	90	Pinus	2019	0	0	1	0	0	0	0	0
	91	Ficus	2019	0	0	2	0	2	0	0	0
	200	Melaleuca quinquener via	2020	0	0	1	0	0	0	0	0
	201	Pinus	2020	0	0	1	0	0	0	0	0
	203	Melaleuca quinquener via	2020	0	0	1	0	0	0	0	0
	MQ-1	Ficus elastica	2018	0	0	4	0	0	0	0	0
	MQ-2	Ficus elastica	2018	0	0	4	0	0	0	0	0
			2019	0	0	2	0	2	0	0	0
			2021	0	0	0	0	4	0	0	0
	MQ-3	Ficus elastica	2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	2	0	4	0	0	0
			2015	0	0	6	1	1	0	0	0
			2016	0	0	14	0	0	0	0	0
			2017	0	0	11	0	0	0	0	0
			2018	0	0	4	0	0	0	0	0
			2019	0	0	4	0	1	0	0	0
			2020	0	0	6	0	0	0	0	0
			2021	0	0	1	1	4	0	0	0
	MQ-4	Melaleuca quinquener via	2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	4	5	1	0	0	0
			2015	0	0	7	6	0	0	0	0
			2016	0	0	4	6	3	0	0	0
			2017	0	0	0	10	4	0	0	0
			2018	0	0	1	7	0	0	0	0
			2019	0	0	4	3	4	0	0	0



Location	Tree Name	Tree Species	Year	Great Blue Heron	Large Unknown (Great Blue Heron or Great Egret)	Black-crowned Night-heron	Snowy Egret	Small Unknown (Black-crowned Night-heron or Snowy Egret)	Double-crested Cormorant	Peregrine Falcon	Cooper's Hawk
	MQ-5	Melaleuca quinquener via	2020	0	0	5	4	0	0	0	0
			2021	0	0	1	5	3	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	2	2	1	0	0	0
			2015	0	0	3	4	0	0	0	0
			2016	0	0	2	4	0	0	0	0
			2017	0	0	2	2	0	0	0	0
			2018	0	0	1	4	0	0	0	0
			2019	0	0	5	1	0	0	0	0
	MQ-6	Melaleuca quinquener via	2020	0	0	2	4	0	0	0	0
			2021	0	0	3	4	3	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	2	3	1	0	0	0
			2015	0	0	4	3	0	0	0	0
			2016	0	0	4	4	1	0	0	0
			2017	0	0	6	0	1	0	0	0
			2018	0	0	1	4	0	0	0	0
			2019	0	0	3	3	0	0	0	0
	MQ-7	Melaleuca quinquener via	2020	0	0	6	5	5	0	0	0
			2021	0	0	6	5	5	0	0	0
			2012	x	x	x	x	x	x	x	x
			2014	0	0	2	3	1	0	0	0
			2015	0	0	5	5	1	0	0	0
	MQ-7	Melaleuca quinquener via	2020	0	0	4	6	0	0	0	0
			2021	0	0	5	3	3	0	0	0
			2016	0	0	4	4	2	0	0	0
			2017	0	0	8	1	3	0	0	0
	MQ-8	Melaleuca quinquener via	2018	0	0	1	6	0	0	0	0
			2019	0	0	3	3	3	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
	MQ-9	Melaleuca quinquener via	2014	0	0	0	1	0	0	0	0
			2015	0	0	3	1	0	0	0	0
			2016	0	0	3	2	2	0	0	0
			2017	0	0	2	2	1	0	0	0
			2018	0	0	3	0	0	0	0	0
			2019	0	0	4	1	0	0	0	0
			2020	0	0	4	2	0	0	0	0
			2021	0	0	3	3	3	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
	MQ-10	Melaleuca quinquener via	2014	0	0	6	0	0	0	0	0
			2015	0	0	8	2	0	0	0	0
			2016	0	0	4	2	3	0	0	0
			2017	0	0	9	1	1	0	0	0
			2018	0	0	2	6	0	0	0	0
			2019	0	0	5	1	0	0	0	0
			2020	0	0	3	5	0	0	0	0
			2021	0	0	4	7	2	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
	MQ-11	Melaleuca quinquener via	2014	0	0	3	2	1	0	0	0
			2015	0	0	4	3	1	0	0	0
			2016	0	0	4	1	2	0	0	0
			2017	0	0	3	2	4	0	0	0
			2018	0	0	3	2	0	0	0	0
			2019	0	0	3	1	5	0	0	0
			2020	0	0	8	2	0	0	0	0
			2021	0	0	2	4	2	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	3	1	3	0	0	0
			2015	0	0	7	0	0	0	0	0
			2016	0	0	5	1	0	0	0	0

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	MQ-12	Melaleuca quinquener via	2017	0	0	4	0	1	0	0	0
			2018	0	0	7	0	0	0	0	0
			2019	0	0	3	0	1	0	0	0
			2020	0	0	7	1	4	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	6	0	2	0	0	0
			2015	0	0	11	0	0	0	0	0
			2016	0	0	4	1	1	0	0	0
			2017	0	0	4	0	2	0	0	0
			2018	0	0	2	4	0	0	0	0
			2019	0	0	4	1	2	0	0	0
	MQ-13	Melaleuca quinquener via	2020	0	0	3	2	0	0	0	0
			2021	0	0	4	1	3	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
			2014	0	0	1	0	0	0	0	0
			2015	0	0	2	0	0	0	0	0
			2016	0	0	2	0	0	0	0	0
			2017	0	0	0	0	1	0	0	0
			2018	0	0	2	0	0	0	0	0
			2019	0	0	2	0	2	0	0	0
			2020	0	0	3	0	0	0	0	0
	MQ-16	Melaleuca quinquener via	2021	0	0	2	0	0	0	0	0
			2011	x	x	x	x	x	x	x	x
			2012	x	x	x	x	x	x	x	x
	MQ-new	Melaleuca quinquener via	2014	0	0	0	0	1	0	0	0
			2020	0	0	2	0	0	0	0	0
	MQ-2021-1	Ficus	2021	0	0	1	0	0	0	0	0
	MQ-2021-5	Ficus	2021	0	0	3	0	0	0	0	0
	MQ-2021-6	Eucalyptus	2021	0	0	0	0	1	0	0	0
Mindanao Way	80	Metrosideros	2017	0	0	1	0	0	0	0	0
	CP-8	Metrosideros excelsa	2012	x	x	x	x	x	x	x	x
	CP-66	Pinus	2012	x	x	x	x	x	x	x	x
	CP-111	Ficus rubiginosa	2019	0	0	0	0	0	0	0	1
			2020	0	0	1	0	0	0	0	0
	CP-113	Pinus pinea	2012	x	x	x	x	x	x	x	x
	CP-160	Erythrina caffra	2018	0	0	0	0	0	0	0	1
			2019	0	0	0	0	0	0	0	1
	CP-170	Metrosideros excelsa	2018	0	0	0	0	0	0	0	1
			2019	0	0	0	0	0	0	0	1
	CP-220	Eucalyptus sideroxylon	2020	0	0	0	0	0	12	0	0
			2021	0	0	0	0	0	16	0	0
	MN-23	Eucalyptus polyanthem os	2019	0	0	0	0	0	1	0	0
	MN-24	Eucalyptus sideroxylon	2018	0	0	0	0	0	1	0	0
			2019	0	0	0	0	0	1	0	0
Panay Way	49	Melaleuca	2009	x	x	x	x	x	x	x	x
	51	Melaleuca	2009	x	x	x	x	x	x	x	x
	52	Melaleuca	2009	x	x	x	x	x	x	x	x
	PN-1	Ficus elastica	2019	0	0	0	0	1	0	0	0
	PN-6	Melaleuca quinquener via	2020	0	0	0	0	3	0	0	0
Tahiti Way	58	Washingtonia	2012	x	x	x	x	x	x	x	x
	83	Eucalyptus	2018	0	0	0	0	1	0	0	0
x = species and/or number of nests undetermined											

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