



Technical Memorandum

May 21, 2021

To	Devin Kessler Project Scientist II, Trileaf Corporation	Tel	(480) 850-0575, ext. 953
Copy to	N/A	Email	(480) 850-0575, ext. 953
From	Genevieve Rozhon, Wildlife Biologist, M.Sc. (GHD)	Ref. No.	11228155.01
Subject	Assessment of Migratory Bird Migration Corridors at 1236 Cleveland Ave., Santa Rosa, California		

Introduction

Trileaf Corporation is involved in a cell phone tower relocation project at 1236 Cleveland Avenue in Santa Rosa, California (hereafter "Project:"). The City of Santa Rosa ("City") Planning Department believes that the proposed relocation site falls within a migratory bird migration route. The California Environmental Quality Act (CEQA) Appendix G Checklist, Section IV. (Biological Resources) requires that a project proponent consider whether a project will "*interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery.*" The Planning Department has requested that Trileaf provide an analysis of Project impacts (if any) on avian migration routes to support the Project's CEQA document and future Project permitting. The purpose of this Assessment is to provide information necessary to support the determination that the Project would not result in a significant impact to the environment.

Proposed Project

The proposed Project involves the relocation of an existing cell phone tower site (i.e., decommissioning) from 135 Ridgway Avenue, Santa Rosa, California to 1236 Cleveland Avenue in Santa Rosa, California (see Appendix A, Figure 1). Concurrent with the site relocation, the Project will involve updating the existing cell tower structure (existing communications tower at the Ridgway Avenue location is 105 feet tall [AntennaSearch 2009]; see Image 1 below) to an 83-foot monopine cell tower (see Image 2 below). No lighting sources are currently proposed for the monopine tower.

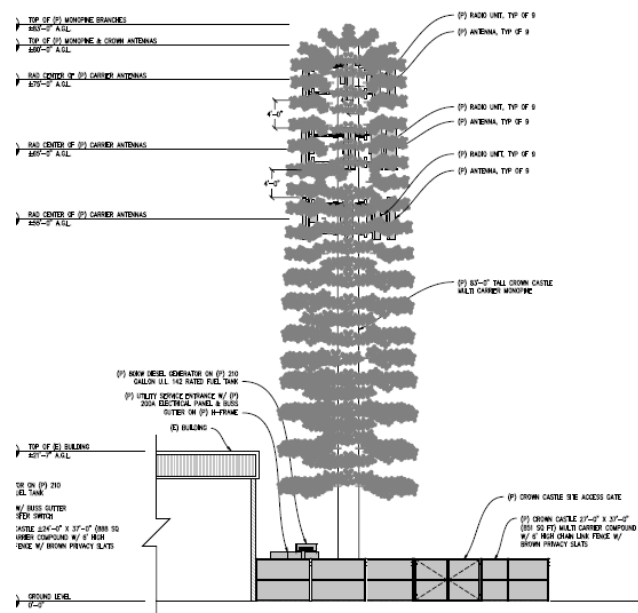


Figure 2 – Proposed New Monopine Communications Tower at 1236 Cleveland Avenue in Santa Rosa, California

Relevant Environmental Regulations

As described above, the CEQA Guidelines require an analysis of Project impacts on wildlife corridors and migration routes, including those used by migratory birds. The following federal and state environmental regulations also provide additional protections to migratory birds in the Project area.

Federal Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 (16 USC 703-712) as amended, established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. A migratory bird is defined as any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. The MBTA prohibits the take, possession, buying, selling, purchasing, or bartering of any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Only exotic species such as Rock Pigeons (*Columba livia*), House Sparrows (*Passer domesticus*), and European Starlings (*Sturnus vulgaris*) are exempt from protection.

In February of 2020, the U.S. Fish and Wildlife Service (USFWS) proposed a new rule to redefine the scope of the MBTA (85 FR 5915). The rule specified that “the Service proposes to adopt a regulation defining the scope of the MBTA’s prohibitions to reach only actions directed at migratory birds, their nests, or their eggs” and essentially codifies M-37050 (i.e., incidental take not prohibited) (85 FR 5915). The final rule was published on January 7, 2021 (86 FR 1134). However, on May 7, 2021, the USFWS issued a proposed rule (86 FR 24573) to revoke the January 2021 rule and revert to the previous (i.e., pre-2017) MBTA protections, with incidental take being prohibited. As of now (May 2021) however, the January 2021 rule remains in effect.

California Fish and Game Code (FGC)

Birds of Prey and Native Nesting Birds

Sections 3503 and 3513 of the FGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their eggs or nests. Non-native species, including the European Starling, Rock Pigeon, and House Sparrow, are not afforded protection under the MBTA or FGC.

Fully Protected Species

The California Department of Fish and Wildlife (CDFW) enforces the FGC, which provides protection for “fully protected birds” (Section 3511), among other taxonomic groups. As fully protected species, the CDFW cannot authorize any Project or action that would result in “take” of these species, even with an incidental take permit.

Migratory Bird Protection Act (MBPA)

The California Migratory Bird Protection Act (MBPA; FGC Section 3513, as amended) was introduced in the California State Assembly 2019 by Assembly Member Ash Kalra and co-sponsored by the National Audubon Society. The text of the Act specifies that it is unlawful to take or possess any migratory nongame bird as designated in the federal MBTA (16 USC 703-712) before January 1, 2017. This upholds the interpretation of the MBTA under President Clinton’s EO 13166, where “take” was defined as both “unintentional as well as intentional.” Governor Gavin Newsom signed the Act into law on September 27, 2019. The MBPA effectively closes the federal MBTA loophole on incidental take of migratory birds in California.

Santa Rosa General Plan

The Santa Rosa General Plan also includes conservation goals for wildlife, including the following for birds.:

“Ensure local creeks and riparian corridors are preserved, enhanced, and restored as habitat for fish, birds, mammals, and other wildlife” (City of Santa Rosa 2009).

Baseline Environmental Conditions

The Project relocation site is within the developed City limits. Surrounding land use consists of commercial properties and single-family homes. With the exception of landscaped residential yards and a few large conifers, deciduous trees, and ornamental trees bordering paved roads and within residential yards, natural habitat at the site and in the immediate vicinity is non-existent. Based on Google Street View imagery (Google Street View 2019), several of the largest trees in the immediate Project vicinity appear to be redwoods (*Sequoia semperivens*) (heights estimated as 60 to 80 feet or taller; compared with adjacent 40-foot-tall utility poles on imagery). While these trees are extremely isolated habitat features (individual redwoods or in small clusters of two to three trees), they likely provide some avian roosting and nesting habitat.

The closest large, undeveloped (non-hardscape) areas in the vicinity appear to be a vacant lot just south of Range Avenue and Briggs Avenue (approximately 0.2 miles to the west of the relocation site) and a vacant lot just south of Bear Cub Way and east of Ripley Street (0.28 miles to the northeast). No riparian corridors, creeks, wetlands, or natural features that would attract significant avian activity are visible on aerial imagery within 0.75 miles of the Project relocation site (Google Street View 2019, Google Earth Pro 2020). The closest water feature is an unnamed, highly channelized drainage that borders Guerneville road just west of Briggs Avenue (0.25 miles to the north), and the closest high-quality avian habitat appears to be located around Santa Rosa Creek (eBird 2021). Santa Rosa Creek splits into northern and southern tributaries west of the relocation site; tributaries are located approximately 1.5 miles to the north and south of the relocation site, respectively.

Methods

Database Searches and Literature Review

A database search for sensitive and migratory avian species that may occur in the Project vicinity was conducted by GHD on May 19th and 20th, 2021. Database searches included the California Natural Diversity Database (CNDDB) RareFind 5 online application (CDFW 2021b), BIOS (CDFW 2021a), and the USFWS Information for Planning and Consultation (IPaC) tool (USFWS 2021c). The search encompassed one U.S. Geological Survey (USGS) quadrangle (quad) centered on the Project area (Santa Rosa). In addition, citizen science databases were reviewed for additional avian information (eBird 2021, iNaturalist 2021). These database searches are included as Appendix B.

In addition, information and sources that pertain to avian resources within the Project vicinity were reviewed during this analysis. Sources include but are not limited to:

- Sonoma County Bird Watching Spots (Talcroft 2021);
- Madrone Audubon Society, *Birding in Sonoma County* (Madrone Audubon Society 2021a);
- Madrone Audubon Society, *Sonoma County Breeding Bird Atlas* (Madrone Audubon Society 2021b);
- *Sonoma County Birdwatching Parks* (Sonoma County Tourism 2021);
- *Migrating birds fill Sonoma County skies* (Johnson 2016);
- *The Avian Richness of Sonoma County* (Mast 2021);
- *About the Laguna* (Laguna de Santa Rosa Foundation 2020).

Results

Migration Routes and Habitat Connectivity

The USFWS and conservation partners manage migratory bird populations and their habitats in North and Central American through four flyways: the Pacific Flyway, the Central Flyway, the Mississippi Flyway, and the Atlantic Flyway (see Figure 3 below). The Project area falls within the Pacific Flyway management unit. In the U.S., the Pacific Flyway also encompasses the following other states: Alaska, Arizona, Idaho, Nevada, Oregon, Utah, Washington, and western Colorado, Montana, New Mexico, and Wyoming (Pacific Flyway Council 2021). Although the Project is within a federally designated migratory bird flyway (i.e., management unit), this does not indicate that any high-density migratory movements occur through the Project site itself, as discussed further below.

No large-scale mapping of specific high use migratory bird corridors has been completed at a federal level for the US (although some are available for certain species, particularly those that are federally listed under the Endangered Species Act). However, the CDFW has developed an Essential Connectivity Map for California, which highlights “a network of 850 relatively intact Natural Landscape Blocks (ranging in size from 2,000 to about 3.7 million acres) connected by 192 Essential Connectivity Areas” (CDFW 2021a). An analysis of this GIS data indicates that there are no landscape features in the Project vicinity mapped as Essential Connectivity Areas, Natural Landscape Blocks, or Natural Areas by the CDFW (CDFW 2021a).

Within the Project area itself, there are no known migration routes or intact habitat corridors that would support wildlife movement across the landscape (i.e., the Project area is hardscape, surrounded by commercial and private residences). At greater landscape scales, the primary movement corridor in the Project vicinity is likely the riparian corridor associated with Santa Rosa Creek (Talcroft 2021). There are no other habitat features in the immediate Project vicinity that would facilitate a bottleneck in terms of avian movement.



Figure 3 – Administrative Flyways in North and Central American (USFWS 2021b)

Sonoma County Avian Hotspots

The locations with the greatest bird diversity (240 or more species recorded) in the county of Sonoma are primarily clustered around Bodega Bay (eBird 2021). Within Santa Rosa proper, the top avian hotspots include the Santa Rosa Creek Trail (approximately 4.5 miles to the west of the Project area; 210 species reported), Spring Lake Region Park (approximately four miles to the east of the Project area; 205 species reported), and the Laguna de Santa Rosa Trail -- including Kelly Pond and Laguna Wetlands Preserve (approximately six miles southwest of the Project area; 193 species reported), among others (eBird 2021).

Of these locations, the Laguna de Santa Rosa is the most well-known, not only for avian diversity, but also the sheer density of birds present during migration. As the largest freshwater wetland complex on the California North Coast, the Laguna de Santa Rosa serves as an important stopover site for migratory birds moving along the Pacific Flyway during fall and spring (heading to breeding grounds in the north and wintering grounds in the south) (Laguna de Santa Rosa Foundation 2020, California Water Boards 2021). The Laguna also serves as an important wintering and breeding site for many avian migrants (Laguna de Santa Rosa Foundation 2020).

As the Project is located several miles from any of these hot spots and is not connected by any habitat features (e.g., riparian corridors) or landscape features (e.g., ridges or water courses) that would channelize avian movement or flight paths, Project activities will not impede avian access or habitat connectivity to these locations.

Avian Hotspots Within One Mile of the Project Site

There is a known heron and egret rookery along West Ninth Street in Santa Rosa (approximately 0.85 miles to the southwest of the Project) (Talcroft 2021). Species at this location typically include Black-crowned Night Herons (*Nycticorax nycticorax*), Great Egrets (*Ardea alba*), Snowy Egrets (*Egretta thula*), and Cattle Egrets (*Bubulcus ibis*). Of these species, Cattle Egrets are seasonal migrants (and breeders). The rest are year-round residents. Highest activity levels at the rookery are during the breeding season, from March through June. As with the other avian hot spots described above, there are no habitat or landscape features that would direct avian movement from this rookery to or through the Project area.

Review of Threats to Migratory Birds from Communication Towers

According to the USFWS, approximately 7 million migratory birds collide with and are killed by communication towers in the United States every year (USFWS 2021a). The majority of these collisions occur during spring and fall migration, when birds are moving between wintering and breeding grounds. The greatest number of mortalities are of night-migrating passerines (USFWS 2021a, 2021d). There are several reasons why these collisions may occur. For example, there is evidence that birds are attracted to steady-burning nighttime lights on these communication towers and fly toward them, colliding with structures and guy wires in the process (Cochran and Graber 1958, Erickson et al. 2005, Gauthreaux and Belser 2006, Gehring et al. 2009). In addition, collisions may occur during periods of low visibility such as fog, during low-cloud ceilings, or other inclement weather conditions (Ball et al. 1995). Mortality is also known to increase exponentially with tower height (i.e., taller towers may extend into the typical flight altitude of many neotropical passerine migrants) (Longcore et al. 2012).

The USFWS (2021a) and American Bird Conservancy (2021) consider communication towers that meet the following characteristics to be of the highest risk to migratory birds.:

- Towers are taller than 300 (ABC 2021) or 350 (USFWS 2021a) feet in height.
- Towers are supported by guy wires.
- Towers use steady-burning nighttime lights.
- Towers are sited in areas of high bird concentrations and along major migratory routes (e.g., ridgelines, wetlands, and coastal areas).

- Inclement weather conditions that reduce visibility are common in the tower vicinity (e.g., fog).

Recommended Best Management Practices (BMPs)

To minimize potential mortality (“take” under the federal Migratory Bird Treaty Act) of migratory birds in association with communications, the USFWS recommends that project proponents implement BMPs in *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning* (USFWS 2021d). A select few BMPs related to this Project are reprinted below.

Siting and Construction

- *“Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or federal refuges, staging areas, rookeries, and Important Bird Areas), or in known migratory bird movement routes, daily movement flyways, areas of breeding concentration, in habitat of threatened or endangered species, key habitats for Birds of Conservation Concern...”*
- *“Towers should avoid ridgelines, coastal areas, wetlands or other known bird concentration Areas...”*
- *During construction, “[s]chedule all vegetation removal and maintenance (e.g., general landscaping activities, trimming, grubbing) activities outside of the peak bird breeding season to reduce the risk of bird take... When vegetation removal activities cannot avoid the bird breeding season, conduct nest clearance surveys... Surveys should be conducted no more than five days prior to the scheduled activity to ensure recently constructed nests are identified... Timing and dimensions of the area to be surveyed vary and will depend on the nature of the project, location, and expected level of vegetation disturbance... If active nests are identified within or in the vicinity of the project site, avoid the site until nestlings have fledged or the nest fails. If the activity must occur, establish a buffer zone around the nest and no activities will occur within that zone until nestlings have fledged. The dimension of the buffer zone will depend on the proposed activity, habitat type, and species present. The buffer should be a distance that does not elicit a flight response by the adult birds and can be 0.5 – 1 mile for hawks and eagles.”*

Tower Design

- *“It is recommended that new towers should be not more than 199 ft. above ground level (AGL). This height increases the mean free airspace between the top of the tower and average bird flight height, even in weather conditions with reduced cloud ceiling...”*
- *“We recommend using free standing towers such as lattice towers or monopole structures.”*
- *“Lights are a primary source of bird aggregation around towers, thus minimizing all light is recommended... No tower lighting is the preferred option if Federal Aviation Administration (FAA) regulations and lighting standards...permit... Security lighting for on-ground facilities, equipment, and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination while still allowing safe nighttime access to the site.”*

Tower Operation

- *“If birds are nesting on communication towers that require maintenance activities, contact the state natural resource protection agency and/or the USFWS for permits, recommendations, and requirements. Schedule construction and maintenance activities around the nesting and activity schedule of protected birds. Minimize excess wires and securely attach wires to the tower structure to reduce the likelihood of birds becoming entangled on the tower. Consider installing a bird nest exclusion device on the towers where birds frequently nest.”*

Discussion

At 83 feet in height, the proposed Project's monopine communication tower will blend in with existing habitat conditions in the immediate Project vicinity (i.e., will be similar visually to the few 60 to 80+ foot tall isolated redwoods trees on adjacent streets and private properties). In addition, tower specifications including height as well the lack of guy wires and lighting features (specifically no steady-burning lights), are in line with current USFWS and FAA guidance on safe tower design for birds (FCC 2017, USFWS 2021d). Eighty-three feet is well below the average migration height for most avian species, therefore minimizing the potential for collisions during night flights or low visibility (e.g., fog) conditions (Nowak 2005, USFWS 2021d). The lack of guy wires will further minimize the potential for any collisions and eliminate the potential for avian entanglement. Finally, the lack of any lighting in association with the monopine tower will prevent birds from congregating or being attracted to the structure in any great numbers.

In addition, while the proposed location of the monopine communication tower falls within the general Pacific Flyway, is not in or near any natural habitat or topographic features that would result in high-density, channelized avian movement across or immediately adjacent to the Project site. Further, there are no known avian hot spots, roosts, or breeding locations in the immediate Project vicinity (i.e., within 0.25 miles or less) that would lead to dispersal movement through the Project area (eBird 2021, Madrone Audubon Society 2021b, Talcroft 2021).

Conclusion

Based on the analysis herein, with the incorporation of the BMPs listed above, the proposed Project is not expected to *"interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery"* per the Appendix G Checklist. The Project will have no impact on avian migratory movements and migration corridors.

Genevieve Rozhon
Senior Wildlife Biologist, M.Sc.
Project Manager

Author Qualifications

Genevieve is a senior wildlife biologist and project manager with over 13 years of national and international experience in her field. Her expertise includes endangered species, impact analysis, environmental compliance, and biological monitoring, with a taxonomic focus on birds (particularly raptors). She serves as the company's expert advisor on ornithological issues in North America and is frequently called upon ensure project compliance with federal, state, and local regulations on migratory birds (though surveys, development of BMPs, legal interpretations, stakeholder presentations, etc.).

As a technical lead, she is frequently involved in all stages of a project, from initial planning and biological investigations to post-construction monitoring. This involves meeting a wide variety of client needs such as managing field efforts and budgets, coordinating with regulatory agencies and stakeholders, writing technical reports, and serving as an expert advisor on environmental regulations. She supports clients in impact assessment, project permitting, and construction on everything from transportation, mining, agriculture, and tourism to remediation and restoration projects. She has managed environmental contracts and projects (municipal, federal, and private clients) throughout Northern California and the Midwest and has served in key technical roles on over 70 projects.

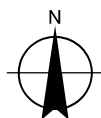
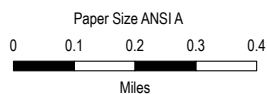
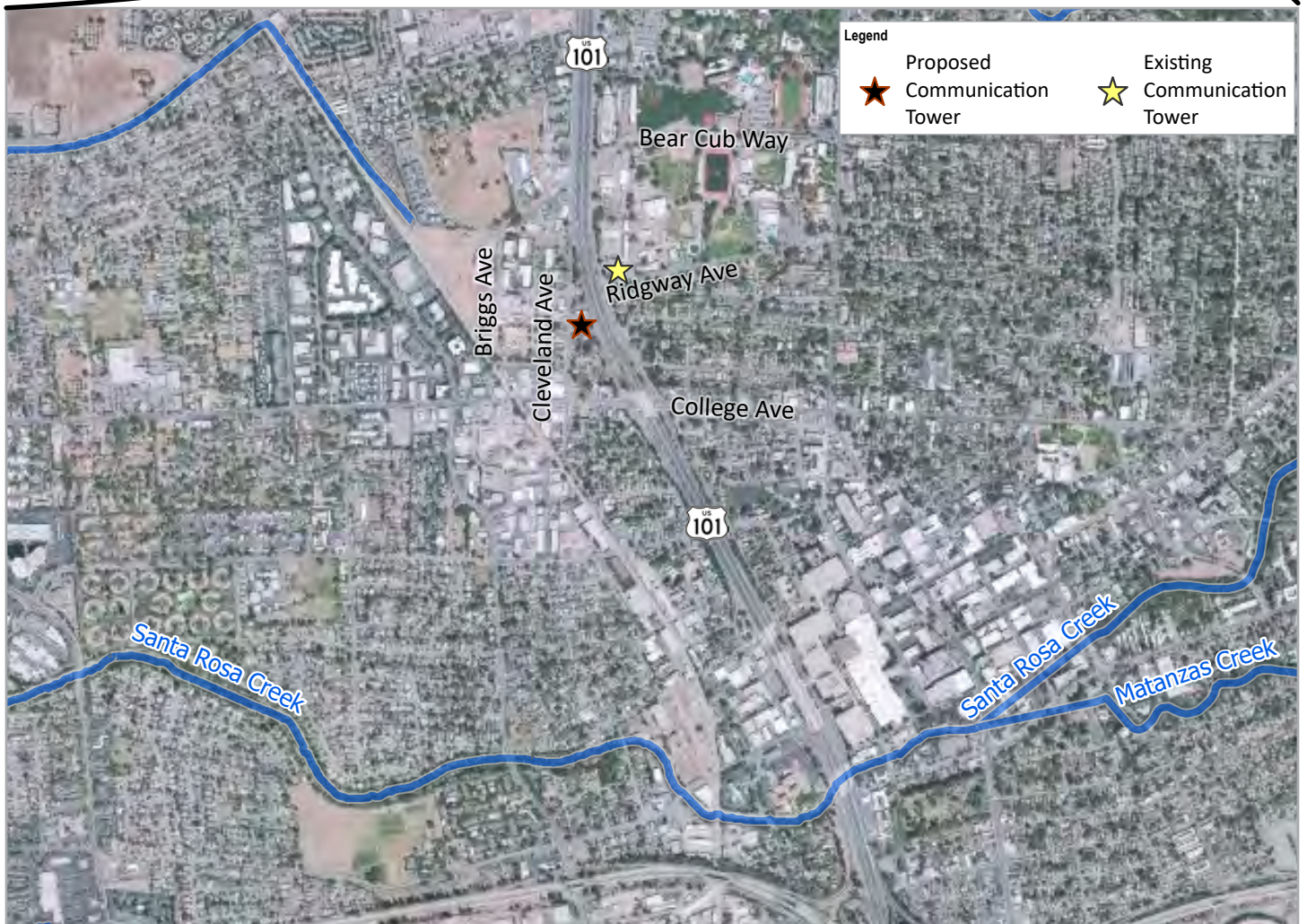
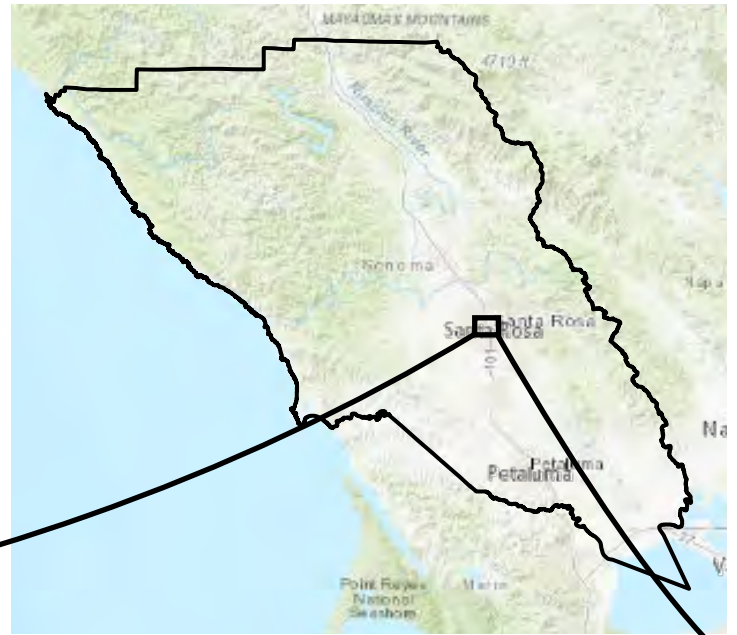
Literature Cited

- American Bird Conservancy (ABC). 2021. Stop bird tower collisions. <https://abcbirds.org/stop-bird-tower-collisions/> (05/20/2021)
- AntennaSearch. 2009. Tower Structures - (135 Ridgeway Ave, Santa Rosa, CA 95401). <http://www.antennasearch.com/sitestart.asp?sourcepagename=reportviewer2&prevsessionidnum=675921185&prevordernum=1&previtemnum=1§ionname=towerreview&pagename=towerreview&pagenum=1&mdrequest=pagehandler> (05/20/2021)
- Ball, L., K. Zyskowski, and G. Escalona-Segura. 1995. Recent bird mortality at a Topeka Television Tower. *Kansas Ornithological Society* 46:33-39.
- California Department of Fish and Wildlife (CDFW). 2021a. Biogeographic Information and Observation System (BIOS). State of California, Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California, USA. <https://wildlife.ca.gov/data/BIOS> (05/20/2021)
- California Department of Fish and Wildlife (CDFW). 2021b. California Natural Diversity Database (CNDDDB) RareFind 5. State of California, Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California, USA. <https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx> (05/20/2021)
- California Water Boards. 2021. Laguna de Santa Rosa - hydrologic Sub-areas 114.21, 114.22, 114.23. North Coast Regional Water Quality Control Board. https://www.waterboards.ca.gov/northcoast/water_issues/programs/watershed_info/russian_river/laguna_de_santa_rosa/ (05/20/2021)
- City of Santa Rosa. 2009. Santa Rosa General Plan 2035. <https://srcity.org/DocumentCenter/View/24327/Santa-Rosa-General-Plan-2035-PDF---July-2019> (05/20/2021)
- Cochran, W. W. and R. R. Graber. 1958. Attraction of nocturnal migrants by lights on a television tower. *The Wilson Bulletin* 70:378-380.
- Gehring, J., P. Kerlinger, and A. M. Manville II. Communication towers, lights, and birds: successful methods of reducing the frequency of avian collisions. *Ecological Application* 19:505-514.
- Erickson, W. P., G. D. Johnson, and D. P. Young Jr. 2005. A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. <https://www.fws.gov/migratorybirds/pdf/management/ericksonetal2005comparisonofmortality.pdf> (05/21/2021)
- Federal Communications Commission (FCC). 2017. Opportunities to Reduce Bird Collisions with Communications Towers While Reducing Tower Lighting Costs. <https://www.fws.gov/migratorybirds/pdf/management/fccopportunitiestoreducebirdcollisions.pdf> (05/20/2021)
- Gauthreaux, S. A. Jr. and C. G. Belser. 2006. Effects of Artificial Night Lighting on Migrating Birds in Ecological Consequences of Artificial Night Lighting. Island Press, Washington, D.C., USA.
- Google Earth Pro. 2020. 30°26'55.43" N 122°43'33.02" W. Imagery date 10/4/2020. <http://www.google.com/earth/index.html> (5/20/2021).
- Google Street View. 2019. Digital images from Google Maps. <http://maps.google.com>. Photograph of 1236 Cleveland Avenue, Santa Rosa, California, taken April 2019.
- iNaturalist. 2021. Observations. iNaturalist Department, California Academy of Sciences and National Geographic Society, San Francisco, California, USA. <https://www.inaturalist.org> (05/20/2021)

- Johnson, C. 2016. The Press Democrat. Migrating birds fill Sonoma County skies.
<https://www.pressdemocrat.com/article/lifestyle/migrating-birds-fill-sonoma-county-skies/?sba=AAS>
 (05/20/2021)
- Laguna de Santa Rosa Foundation. 2020. About the Laguna. Laguna de Santa Rosa Foundation, Santa Rosa, California, USA. http://www.lagunadesantarosa.org/about_overview.html (05/20/2021)
- Longcore, T. et al. 2012. An Estimate of Avian Mortality at Communication Towers in the United States and Canada. PLoS one 7:e3405.
- Madrone Audubon Society. 2021a. Local Hotspots - Birding in Sonoma County.
<http://www.madroneaudubon.org/birds-local-hotspots.php#santarosa> (05/20/2021)
- Madrone Audubon Society. 2021b. Sonoma County Breeding Bird Atlas.
<http://www.madroneaudubon.org/birds-sonoma-county-breeding-bird-atlas.php> (05/20/2021)
- Mast, B. 2021. The Avian Richness of Sonoma County. Golden Gate Audubon Society.
<https://goldengateaudubon.org/blog-posts/the-avian-richness-of-sonoma-county/> (05/20/2021)
- Nowak, M. 2005. Neotropical Migrant Birds – The Basics. A Wisconsin Society for Ornithology Publicity Committee Fact Sheet. The Wisconsin Society for Ornithology, Inc.
https://wsobirds.org/images/pdfs/FS_neotropical_migrants.pdf (05/21/2021)
- Pacific Flyway Council. 2021. Coordinated Management. <http://www.pacificflyway.gov/> (05/20/2021)
- Sonoma County Tourism. 2021. Sonoma County Birdwatching Parks.
<https://www.sonomacounty.com/articles/best-birdwatching-parks> (05/20/2021)
- Talcroft, C. 2021. Sonoma County Bird Watching Spots - A Practical Guide to Bird Watching in Sonoma County, California. http://www.colintalcroft.com/Sonoma_County_Bird_Watching_Spots/SCBWS_front_page.html (05/20/2021)
- U.S. Fish and Wildlife Service (USFWS). 2021a. Communication Towers. <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php> (05/20/2021)
- U.S. Fish and Wildlife Service (USFWS). 2021b. Flyways.
<https://www.fws.gov/birds/management/flyways.php> (05/20/2021)
- U.S. Fish and Wildlife Service (USFWS). 2021c. IPaC - Information for Planning and Consultation. U.S. Department of the Interior, Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California, USA. <https://ecos.fws.gov/ipac/> (05/19/2021)
- U.S. Fish and Wildlife Service (USFWS). 2021d. Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning. USFWS, Falls Church, Virginia, USA. <https://www.fws.gov/migratorybirds/pdf/management/usfwscommtowerguidance.pdf> (05/20/2021)

Appendices

Appendix A – Figures



Trileaf Corporation
Migratory Bird Migration
Corridor Assessment

Project No. 11228155
Revision No. -
Date 5/20/2021

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

Vicinity Map

FIGURE 1

Appendix B – Database Searches

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sonoma County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

Salt Marsh Harvest Mouse *Reithrodontomys raviventris*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/613>

Birds

NAME

STATUS

Northern Spotted Owl *Strix occidentalis caurina*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.<https://ecos.fws.gov/ecp/species/1123>Yellow-billed Cuckoo *Coccyzus americanus*

Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.<https://ecos.fws.gov/ecp/species/3911>

Reptiles

NAME

STATUS

Green Sea Turtle *Chelonia mydas*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6199>

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

Wherever found

There is **final** critical habitat for this species. Your location overlaps the critical habitat.<https://ecos.fws.gov/ecp/species/2891>California Tiger Salamander *Ambystoma californiense*

Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.<https://ecos.fws.gov/ecp/species/2076>

Fishes

NAME

STATUS

Delta Smelt *Hypomesus transpacificus*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/321>

Insects

NAME

STATUS

San Bruno Elfin Butterfly *Callophrys mossii bayensis*

Endangered

Wherever found

There is **proposed** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/3394>

Crustaceans

NAME

STATUS

California Freshwater Shrimp *Syncaris pacifica*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7903>

Flowering Plants

NAME

STATUS

Burke's Goldfields *Lasthenia burkei*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4338>

Clara Hunt's Milk-vetch *Astragalus clarianus*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3300>

Kenwood Marsh Checker-mallow *Sidalcea oregana ssp. valida*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1622>

Many-flowered Navarretia *Navarretia leucocephala ssp. plieantha*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2491>

Pitkin Marsh Lily <i>Lilium pardalinum</i> ssp. <i>pitkinense</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/570	Endangered
Sebastopol Meadowfoam <i>Limnanthes vinculans</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/404	Endangered
Showy Indian Clover <i>Trifolium amoenum</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6459	Endangered
Sonoma Alopecurus <i>Alopecurus aequalis</i> var. <i>sonomensis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/557	Endangered
Sonoma Spineflower <i>Chorizanthe valida</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7698	Endangered
Sonoma Sunshine <i>Blennosperma bakeri</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1260	Endangered
Vine Hill Clarkia <i>Clarkia imbricata</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7044	Endangered
White Sedge <i>Carex albida</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3063	Endangered
Yellow Larkspur <i>Delphinium luteum</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3578	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Red-legged Frog <i>Rana draytonii</i> https://ecos.fws.gov/ecp/species/2891#crithab	Final
California Tiger Salamander <i>Ambystoma californiense</i> https://ecos.fws.gov/ecp/species/2076#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds
<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

Breeds Feb 1 to Jul 15

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Black Swift *Cypseloides niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8878>

Breeds Jun 15 to Sep 10

Burrowing Owl *Athene cunicularia*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9737>

Breeds Mar 15 to Aug 31

California Spotted Owl *Strix occidentalis occidentalis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/7266>

Breeds Mar 10 to Jun 15

California Thrasher <i>Toxostoma redivivum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Rufous Hummingbird *Selasphorus rufus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Song Sparrow *Melospiza melodia*

Breeds Feb 20 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee *Pipilo maculatus clementae*

Breeds Apr 15 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

Tricolored Blackbird *Agelaius tricolor*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that

- week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

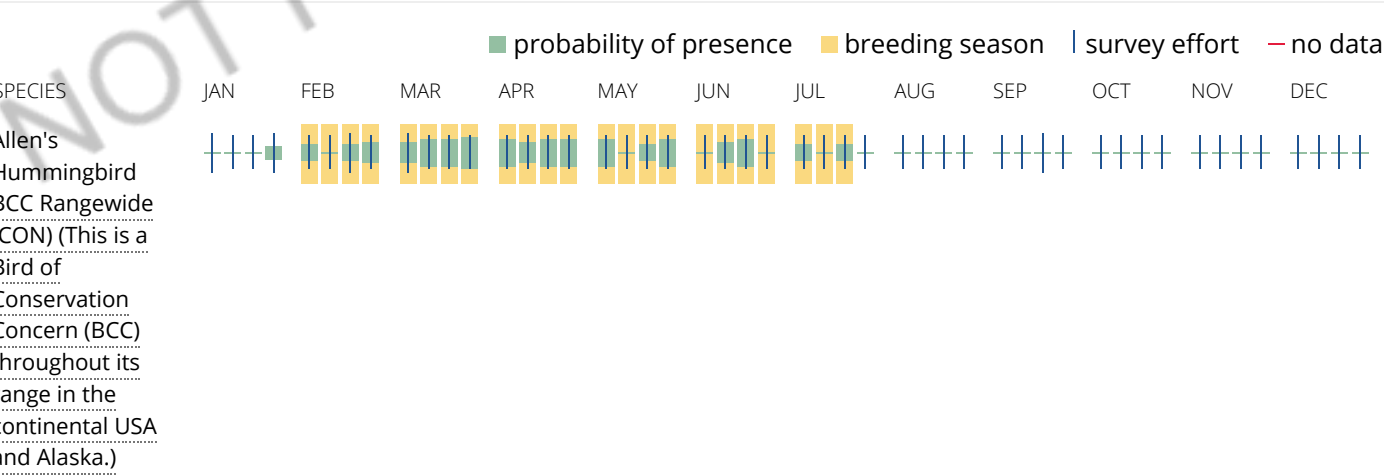
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

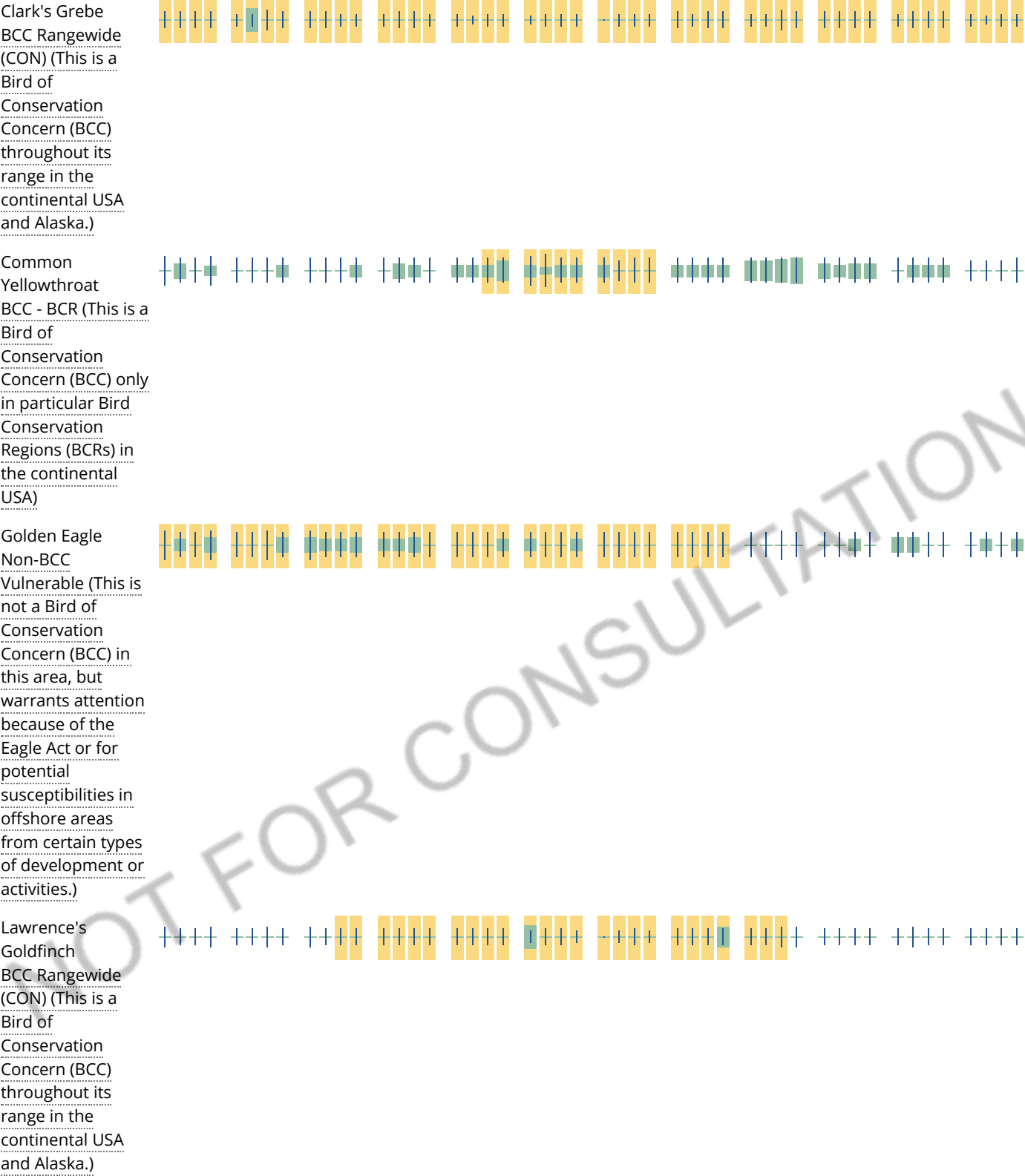
A week is marked as having no data if there were no survey events for that week.

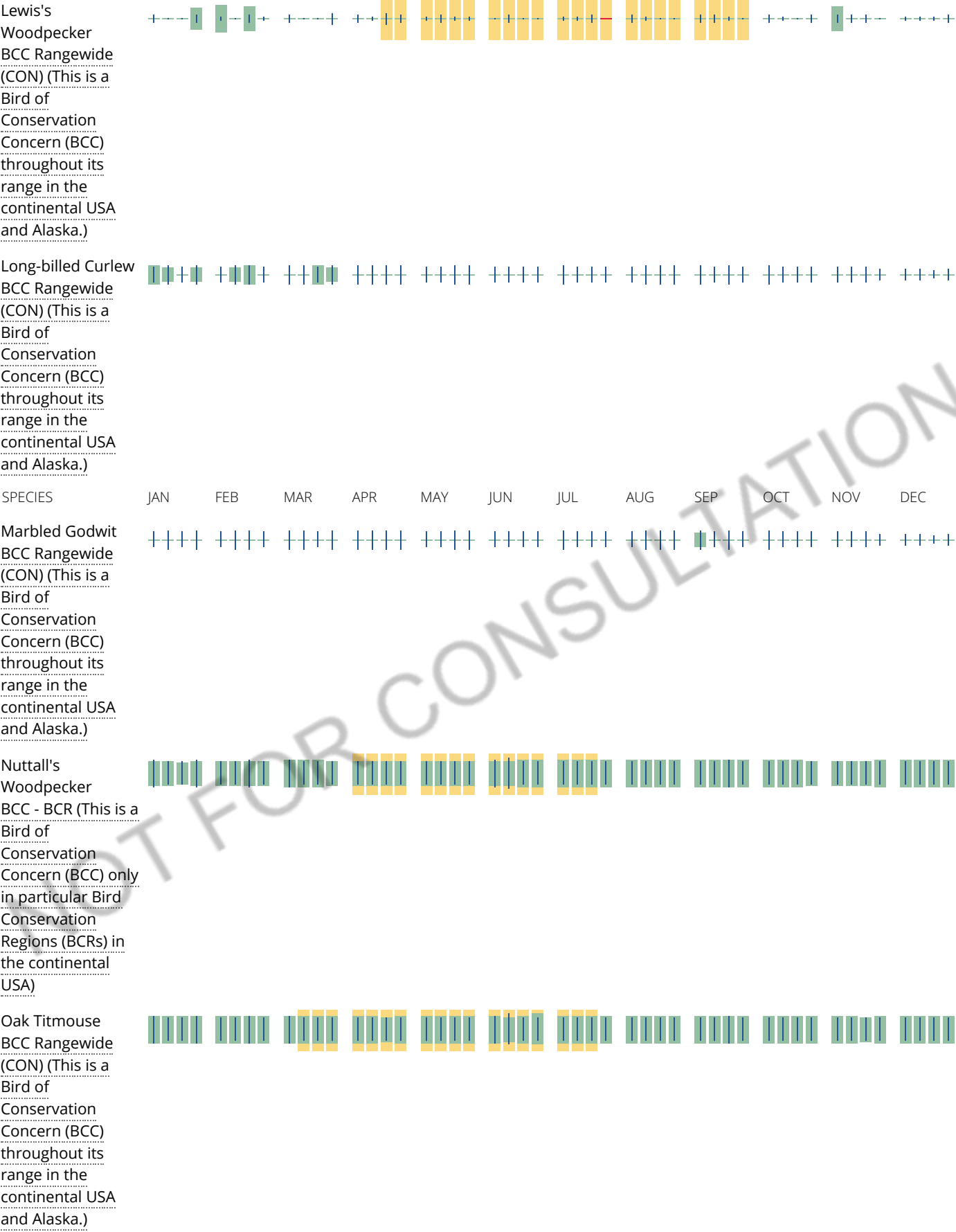
Survey Timeframe

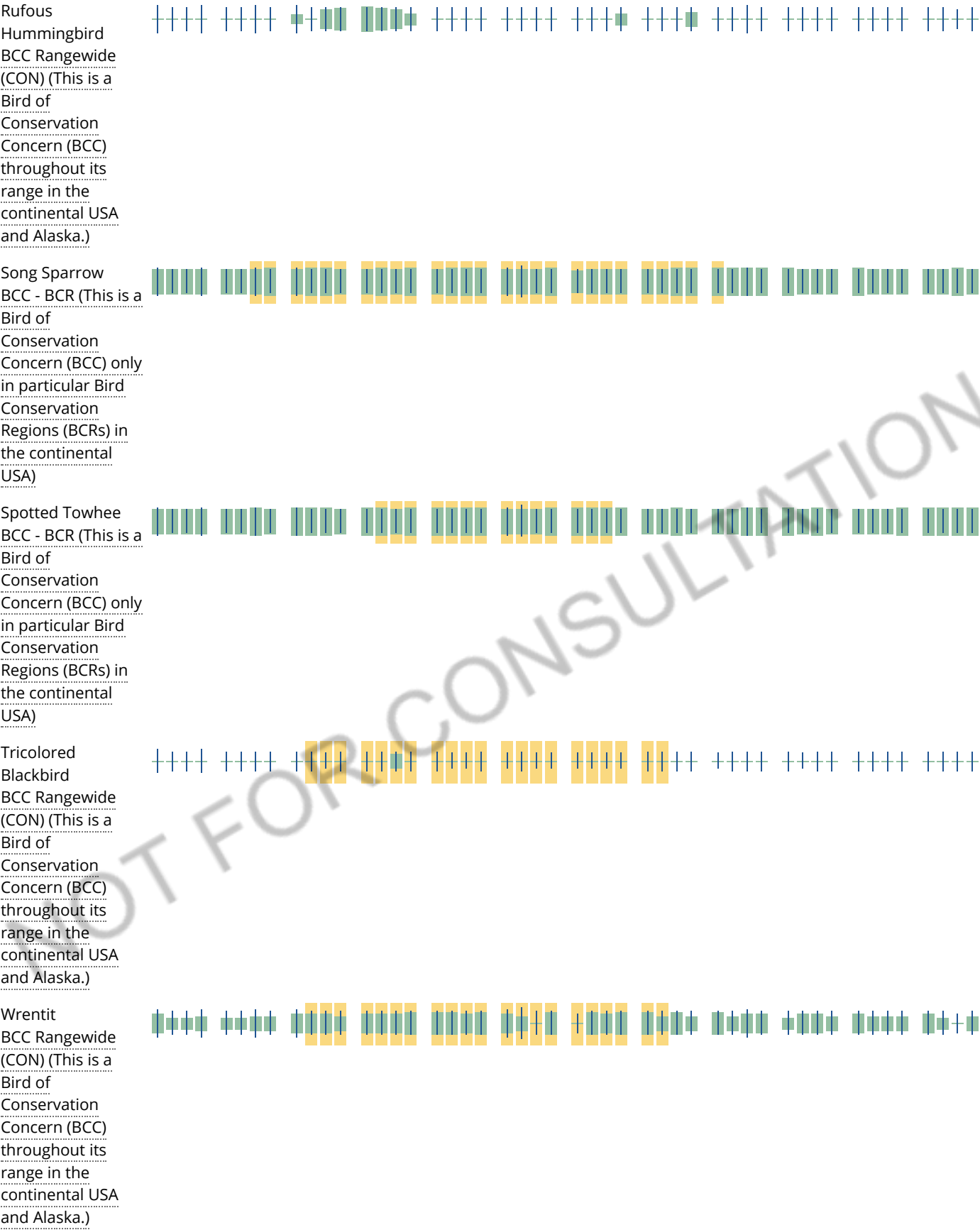
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.











Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and

avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird

impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM](#)

[PEM1Fx](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFOA](#)

FRESHWATER POND

[PUS](#)

[PUBH](#)

[PUBHh](#)

[PUBHx](#)

LAKE

[L1UBH](#)

[Lh](#)

RIVERINE

[R4SBC](#)

[R5UBF](#)

[R5UBFx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (Santa Rosa (3812246))
 AND Taxonomic Group IS (Birds)

Map Index Number: 55394 **EO Index:** 55394
Key Quad: Santa Rosa (3812246) **Element Code:** ABNKC06010
Occurrence Number: 77 **Occurrence Last Updated:** 2004-05-10

Scientific Name: *Elanus leucurus* **Common Name:** white-tailed kite
Listing Status: **Federal:** None **Rare Plant Rank:**
State: None **Other Lists:** BLM_S-Sensitive
CDFW_FP-Fully Protected
IUCN_LC-Least Concern
CNDDDB Element Ranks: **Global:** G5
State: S3S4

General Habitat: **Micro Habitat:**
ROLLING FOOTHILLS AND VALLEY MARGINS WITH SCATTERED OAKS & RIVER BOTTOMLANDS OR MARSHES NEXT TO DECIDUOUS WOODLAND. OPEN GRASSLANDS, MEADOWS, OR MARSHES FOR FORAGING CLOSE TO ISOLATED, DENSE-TOPPED TREES FOR NESTING AND PERCHING.

Last Date Observed: 2003-05-20 **Occurrence Type:** Natural/Native occurrence
Last Survey Date: 2003-05-20 **Occurrence Rank:** Good
Owner/Manager: PVT **Trend:** Unknown
Presence: Presumed Extant

Location:
SOUTH OF HEARN AVENUE AND 0.4 MILE WEST OF HIGHWAY 101, SOUTHERN SANTA ROSA.

Detailed Location:

Ecological:

NEST WAS NOT VISIBLE, BUT COURTSHIP ACTIVITY INDICATED NESTING; LOCATED IN AN OF AREA LOW-DENSITY RESIDENTIAL WITH MATURE LANDSCAPE TREES AND FORAGING HABITAT CONSISTING OF ANNUAL GRASSLANDS TO THE WEST.

Threats:

THREATENED BY FUTURE DEVELOPMENT TO THE WEST WHICH WILL ELIMINATE THE FORAGING HABITAT.

General:

2 ADULTS OBSERVED IN COURTSHIP/NESTING ON 20 MAY 2003.

PLSS: T07N, R08W, Sec. 34 (M) **Accuracy:** 80 meters **Area (acres):** 0
UTM: Zone-10 N4251675 E524207 **Latitude/Longitude:** 38.41299 / -122.72272 **Elevation (feet):** 120

County Summary:

Sonoma

Quad Summary:

Santa Rosa (3812246)

Sources:

CUR03F0001 CURLETTE, J. - FIELD SURVEY FORM FOR ELANUS LEUCURUS (NEST SITE) 2003-05-20



Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database



Map Index Number:	B1287	EO Index:	113183
Key Quad:	Santa Rosa (3812246)	Element Code:	ABNKC12040
Occurrence Number:	138	Occurrence Last Updated:	2018-10-31

Scientific Name:	<i>Accipiter cooperii</i>	Common Name:	Cooper's hawk
Listing Status:	Federal: None State: None	Rare Plant Rank:	
CNDDB Element Ranks:	Global: G5 State: S4	Other Lists:	CDFW_WL-Watch List IUCN_LC-Least Concern

General Habitat:	Micro Habitat:
WOODLAND, CHIEFLY OF OPEN, INTERRUPTED OR MARGINAL TYPE.	NEST SITES MAINLY IN RIPARIAN GROWTHS OF DECIDUOUS TREES, AS IN CANYON BOTTOMS ON RIVER FLOOD-PLAINS; ALSO, LIVE OAKS.

Last Date Observed:	2014-XX-XX	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	2014-XX-XX	Occurrence Rank:	Good
Owner/Manager:	PVT	Trend:	Unknown
Presence:	Presumed Extant		

Location:
NORTH SIDE OF SUNSET AVE JUST EAST OF BURBANK AVE, SANTA ROSA.

Detailed Location:
MAPPED TO PROVIDED COORDINATES.

Ecological:
NEST IN ORNAMENTALLY PLANTED REDWOOD TREE IN RESIDENTIAL NEIGHBORHOOD.

Threats:
General:
NESTING PAIR WITH YOUNG BEGGING FOR FOOD SEEN AND HEARD IN MAY 2009. BIRDS WERE HEARD OR SEEN NESTING AT THIS SITE UNTIL 2014.

PLSS:	T07N, R08W, Sec. 27, NW (M)	Accuracy:	80 meters	Area (acres):	5
UTM:	Zone-10 N4253180 E523196	Latitude/Longitude:	38.42658 / -122.73425	Elevation (feet):	133

County Summary:	Quad Summary:
Sonoma	Santa Rosa (3812246)

Sources:

TAT09F0005	TATARIAN, T. & G. TATARIAN (WILDLIFE RESEARCH ASSOCIATES) - FIELD SURVEY FORM FOR ACCIPITER COOPERII 2009-05-30
TAT09F0020	TATARIAN, T. - FIELD SURVEY FORM FOR ACCIPITER COOPERII 2009-05-03



Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database



Map Index Number:	A5239	EO Index:	106953
Key Quad:	Santa Rosa (3812246)	Element Code:	ABNME01010
Occurrence Number:	9	Occurrence Last Updated:	2017-07-10

Scientific Name:	<i>Coturnicops noveboracensis</i>	Common Name:	yellow rail
Listing Status:	Federal: None State: None	Rare Plant Rank:	
CNDDDB Element Ranks:	Global: G4 State: S1S2	Other Lists:	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern

General Habitat:	Micro Habitat:
SUMMER RESIDENT IN EASTERN SIERRA NEVADA IN MONO COUNTY.	FRESHWATER MARSHLANDS.

Last Date Observed:	1912-11-17	Occurrence Type:	Natural/Native occurrence
Last Survey Date:	1912-11-17	Occurrence Rank:	Unknown
Owner/Manager:	UNKNOWN	Trend:	Unknown
Presence:	Presumed Extant		

Location:
VICINITY OF RINCON VALLEY.

Detailed Location:
LOCALITY GIVEN ONLY AS "RINCON VALLEY, NEAR SANTA ROSA." EXACT COLLECTION LOCATION UNKNOWN, MAPPED GENERALLY TO RINCON VALLEY.

Ecological:
STOMACH EXAMINATION CONDUCTED ON SPECIMEN; CONTENTS WERE 18 CLOVER SEEDS AND GRASS.

Threats:

General:

1 COLLECTED ON 17 NOV 1912.

PLSS:	T07N, R07W, Sec. 6 (M)	Accuracy:	1 mile	Area (acres):	1,987
UTM:	Zone-10 N4259022 E528979	Latitude/Longitude:	38.47906 / -122.66776	Elevation (feet):	283

County Summary:	Quad Summary:
Sonoma	Santa Rosa (3812246)

Sources:

BRY13A0001	BRYANT, H. - THE RESULTS OF SOME MISCELLANEOUS STOMACH EXAMINATIONS. CONDOR 15(2):92-93. 1913-03-XX
SHE12S0006	SHELTON, A. - MVZ #23339 COLLECTED FROM RINCON VALLEY NEAR SANTA ROSA. 1912-11-17