

May 22, 2020

Travis Duncan
Sares | Regis
901 Mariners Island Boulevard, Suite 700
San Mateo, CA 94404

Subject: Cityline Subblock 3 South – Avian Collision Risk Assessment (HTH #4439-01)

Dear Mr. Duncan:

Per your request, H. T. Harvey & Associates has performed an assessment of avian collision risk for the proposed Cityline Subblock 3 South project in Sunnyvale, California. It is our understanding that the project consists of the construction of two mixed-use 12-story buildings, and that the City of Sunnyvale is requiring the project to comply with Option 2 of the City's *Final Bird Safe Building Design Guidelines*. This report summarizes our analysis of bird collision hazards associated with the project, as well as our recommendations for appropriate bird-safe measures that can be implemented to comply with the City's guidelines, for purposes of internal review by the project team.

Statement of Qualifications

This assessment was prepared by Steve Rottenborn and me. Briefly, our qualifications are as follows (résumés attached):

- I am a wildlife ecologist with a B.S. in Ecology from the University of California, San Diego and an M.S. in Fish and Wildlife Management from Montana State University, where my Master's thesis focused on factors affecting the nest survival of yellow warblers (*Setophaga petechia*), dusky flycatchers (*Empidonax oberholseri*), and warbling vireos (*Vireo gilvus*). Trained as an ornithologist, I specialize in the nesting ecology of passerine birds, with a broad range of avian field experience from across the United States. I am an avid birder, and I volunteered as a bird bander for the San Francisco Bay Bird Observatory, where I have banded, sexed, and aged resident and migrant passerine species from 2010–2020. I have spent hundreds of hours in the field conducting nesting bird surveys for H. T. Harvey & Associates projects over the past 13 years, and have found hundreds of passerine nests as well as many nests of raptors.
- Steve Rottenborn has a Ph.D. in biological sciences from Stanford University, where his doctoral dissertation focused on the effects of urbanization on riparian bird communities in the South San Francisco

Bay area. He has been an active birder for more than 35 years and has conducted or assisted with research on birds since 1990. He has served for 9 years as an elected member of the California Bird Records Committee (including 3 years as chair) and for 13 years as a Regional Editor for the Northern California region of the journal *North American Birds*. He is a member of the Scientific Advisory Board for the San Francisco Bay Bird Observatory, the Technical Advisory Committee for the South Bay Salt Ponds Restoration Project, and the Board of Directors of the Western Field Ornithologists.

I conducted a reconnaissance-level survey of the project site on May 18, 2020 to characterize potential bird use of the site and immediately surrounding areas.

Although the subject of bird-friendly design is relatively new to the West Coast, we have performed avian collision risk assessments and identified measures to reduce collision risk for several projects in the Bay Area, including projects in the cities of San Francisco, Oakland, South San Francisco, Redwood City, Menlo Park, Palo Alto, Mountain View, Santa Clara, Sunnyvale, and San José.

Assessment of Bird Use

Existing Conditions

Habitat conditions and bird occurrence in the immediate vicinity of the project site (i.e., on the site and on immediately adjacent lands) are typical of much of the urbanized San Francisco Bay area. The site consists of a parking lot and Redwood Square, a public park with walking paths, benches, vegetated lawn areas, and several locally nonnative coast redwood (*Sequoia sempervirens*) trees. The site is surrounded by high-density urban commercial and residential development.

Habitat conditions on the site and in immediately surrounding areas are of low quality for most native birds found in the region due to the near absence of vegetation, the lack of any native vegetation, the absence of well-layered vegetation (e.g., with ground cover, shrub, and canopy tree layers in the same areas), the small size of the vegetated habitat patches, and the amount of human disturbance by vehicular traffic and occupants of buildings on and/or adjacent to the project site, which is developed as a commercial shopping center. Nonnative vegetation supports fewer of the resources required by native birds than native vegetation, and the structural simplicity of the vegetation further limits resources available to birds. Nevertheless, there is a suite of common, urban-adapted bird species that occur in such urban areas that are expected to occur on the site regularly. These include the native Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), Bewick's wren (*Thryomanes bewickii*), northern mockingbird (*Mimus polyglottos*), bushtit (*Psaltiriparus minimus*), dark-eyed junco (*Junco hyemalis*), and house finch (*Haemorhous mexicanus*), as well as the non-native European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*). All of these birds are year-round residents that can potentially nest on or immediately adjacent to the site. A number of other species, primarily migrants or winter visitors (i.e., nonbreeders), are expected to occur occasionally on the site as well, including the white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), and yellow-rumped warbler (*Setophaga coronata*). For example, low numbers of migrants are expected to forage in the redwood trees on the

site. However, no bird species are expected to occur on the site in large numbers, and all of the species expected to occur regularly are regionally abundant species. No special-status birds (i.e., species of conservation concern) are expected to nest or occur regularly on the site.

The project site is located in a highly urbanized area, and is surrounded by commercial development, residential development, and busy roadways. No sensitive habitats are located in the site vicinity. The nearest open area to the project site is the approximately 12-acre Washington Park located 0.4 mile to the northwest. The park consists of a baseball field, tennis and basketball courts, a swimming pool, play area, and multi-use building, with many nonnative coast redwood and magnolia (*Magnolia* sp.) trees. Due to the extensive hardscape, predominantly nonnative vegetation, and high levels of disturbance due to pedestrian traffic and adjacent roadways, as well as the highly urbanized surrounding context, the park is not expected to provide especially valuable habitat for birds or attract large numbers of birds.

The project site is not located in a landscape position that would result in high numbers of birds, especially migratory birds, to be moving past the project site. Although a number of birds move along the edges of San Francisco Bay, the site is located approximately 3.2 miles from the edge of baylands habitats and is separated from those habitats by dense urban development. Because the project site is well inland from the baylands edge, waterbirds using habitats around the Bay would not commute in the direction of the project site. As a result, waterbirds associated with San Francisco Bay are not at risk of colliding with the proposed buildings. Moderate numbers of migratory songbirds are often concentrated at the edge of the bay during spring and fall migration. However, they tend to use more heavily vegetated areas such as riparian corridors or large, well-vegetated parks such as Coyote Point in San Mateo, Shoreline Park in Mountain View, or Sunnyvale Baylands Park in Sunnyvale. No heavily vegetated areas or natural habitat such as riparian vegetation is present in the vicinity of the project site, and the project site is not located between two high-quality habitat areas such that birds would be flying past the site at an altitude as low as the proposed building. Similarly, the nearest urban parks that provide habitat for large numbers and high diversities of birds are the Ulistac Natural Area approximately 4.5 miles to the northeast and the Sunnyvale Baylands Park approximately 3.0 miles to the northeast; the project site is isolated from both locations by miles of dense commercial and residential development. As a result, there is no expectation that migratory songbirds would be particularly attracted to, or would make heavy use of, the habitats in the immediate project vicinity.

Proposed Conditions

The numbers of birds that currently use the site are expected to increase somewhat following project construction due to the proposed expansion of landscape areas. The project's preliminary planting plans include nonnative red maple (*Acer rubrum*), redbud (*Cercis texensis*), crape myrtle (*Lagerstroemia* sp.), African sumac (*Rhus lancea*), Chinese elm (*Ulmus parvifolia*), and London plane tree (*Platanus acerifolia*) as well as various flowering herbaceous plants and mixed native and nonnative grasses. This vegetation is likely to attract somewhat greater numbers of landbirds, perhaps including more migrant songbirds, than under existing conditions; however, none of the tree and plant species proposed to be planted on the site are not known to provide particularly valuable food, nesting, or cover resources for native birds. In addition, the relatively small numbers of these

trees and plants, coupled with the lack of structural diversity, would not provide high-quality habitat for native birds, and any increase in bird abundance as a result of the proposed landscaping would be modest.

Assessment of Collision Risk

Because birds do not necessarily perceive glass as an obstacle¹, windows or other structures that reflect the sky, trees, or other habitat may not be perceived as obstacles, and birds may collide with these structures. Similarly, transparent windows can result in bird collisions when they allow birds to perceive an unobstructed flight route through the glass (such as at corners), and when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through glass to reach vegetation. A number of factors play a role in determining the risk of bird collisions with buildings, including the amount and type of glass used, lighting, properties of the building (e.g., size, design, and orientation), type and location of vegetation around the building, and building location.

As noted above, relatively low numbers of native, resident birds and occasional migrants occur in the project vicinity, but even during migration, the number of native birds expected to occur on the site will be low. As a result, the glass façades of the proposed buildings on the Cityline Subblock 3 South project site are expected to result in relatively few bird collisions, even in the absence of added bird-safe design. Further, several features of the architecture of the proposed buildings would reduce the potential for avian collisions. Based on the project plans, the proposed buildings include a number of balconies, overhangs, mullions, and opaque wall panels that break up the glassy façades (Figure 1). These features would prevent the buildings' façades from appearing as unbroken panes of glass, and would break up the reflection of the sky or vegetation with the glass. As a result, birds would be better able to perceive these areas as solid obstructions to flight than if the glassy surface appeared more uniform.



Figure 1. The facades of Building 1 incorporate opaque wall panels, overhangs, mullions, and balconies that increase the visibility of glazed areas to birds.

There are some features evident in the project's plans where bird collisions are more likely to occur compared to other locations because they may not be as easily perceived by birds as physical obstructions. For example, the plans show transparent glass corners in many locations, as well as free-standing glass railings along some balconies and rooftops. Where these features are located along potential flight paths that birds may use when

¹ Sheppard, C. and G. Phillips. 2015. Bird-Friendly Building Design, 2nd Edition. American Bird Conservancy. The Plains, VA, 60 pages.

traveling to and from landscape vegetation on the site, the risk of bird collisions is higher because birds may not perceive the intervening glass and may therefore attempt to fly to vegetation on the far side of the glass. (Figure 2).



Figure 2. Free-standing glass railings extend along the margins of rooftops (an example from the roof of Building 1 is shown in red). Where these railings are located adjacent to landscape vegetation, they pose a collision hazard to birds that may try to fly towards landscape vegetation on the far side of the glass.

The glazing proposed on the building façades also poses some collision risk to the small numbers of birds that use the site. Collision risk with these façades is expected to be highest along the portion of the east façade of Building 1 and the south façade of Building 2 that face the future public plaza where landscape vegetation will be present. The greatest risk of avian collisions with these façades is in the area within 60 feet of the ground, because this is the area in which most bird activity occurs². However, as discussed above, the glazing on these façades is visually disrupted by opaque wall panels and balconies, which increase the visibility of these façades to birds. Due to the limited extent of vegetation that will be planted in the plaza, the presence of features that break up the glazing on the adjacent building façades, and the low numbers of birds expected to be present on the site following project construction, it is our opinion that this glazing does not represent a substantial collision hazard to birds.

In summary, we expect low numbers of avian collisions with glass façades on the proposed buildings to occur; such collisions are likely to be most frequent at free-standing glass railings transparent glass corners that are located along flight paths to and from landscape vegetation. However, due to the overall low abundance of birds on and immediately adjacent to the site, we expect the overall frequency of such collisions to be low. As a result, avian injury or mortality due to bird collisions with the proposed building would not meet the threshold of having a substantial adverse effect on populations of common, urban-adapted bird species that use the site,

² San Francisco Planning Department. 2011. Standards for Bird-Safe Buildings. Planning Department. July 14, 2011.

in our opinion. Thus, we consider this impact to be less than significant under the California Environmental Quality Act (CEQA).

Recommendations to Comply with the City of Sunnyvale's Bird-Safe Design Guidelines

It is our understanding that the City of Sunnyvale is requiring the project to comply with Option 2 of the City's *Final Bird Safe Building Design Guidelines*. The City of Sunnyvale identifies nine bird-safe design guidelines under Option 2. The following section provides our assessment of the proposed project's compliance with each of these guidelines, with recommendations to incorporate bird-safe measures into the project design to comply with these guidelines, as necessary based on both the City's requirements and our opinion regarding whether compliance with each guideline would effectively result in substantial reductions in bird collision risk.

1. Avoid large expanse of glass near open areas, especially when tall landscaping is immediately adjacent to the glass walls.

Currently, there are no open spaces adjacent to the project site. The project includes the construction of an approximately 1-acre public plaza adjacent to the south façade of Building 2 and a portion of the east façade of Building 1. However, as discussed above, the plaza will include only limited vegetation, and none of the vegetation proposed to be planted on the site is known to provide particularly valuable food, nesting, or cover resources for native birds. In addition, the glazing on the facades that face plaza is visually disrupted by opaque wall panels and balconies, which increases the visibility of these facades to birds. Thus, in our opinion, the glazing on the buildings does not represent a "large expanse" of glazing near an open area that creates a collision hazard for birds. As a result, it is our opinion that the project is in compliance with this guideline.

2. Avoid the funneling of open space towards a building face.

The proposed buildings will be connected at a 90-degree angle surrounding a plaza, and this design does not represent a configuration that would funnel birds towards building facades. Thus, in our opinion, the project design avoids funneling birds towards building facades, and is in compliance with this guideline.

3. Prohibit glass skyways or free-standing glass walls.

No glass skyways are included in the project design; however, a number of free-standing glass railings are shown on the project plans along the margins of community open space areas on roofs as well as a number of private balconies.

To reduce the potential for bird collisions with free-standing glass railings, we recommend treating all free-standing glass railings that are located along a potential flight path for birds (i.e., railings adjacent to or surrounding areas with landscape vegetation) with a bird-safe treatment that will increase the visibility of glazing to birds by allowing them to perceive the glass as a solid surface. Based on our review of the project plans, free-standing glass railings are located along potential flight paths for birds on the community rooftops on Levels 2, 9, and 11 of Buildings 1 and 2, and we recommend that free-standing glass railings along the peripheries of

these roofs be treated. While this approach is not consistent with the City's guideline (free-standing glass walls would still be present), it is our opinion that the treatment of this glass with a bird-safe frit pattern is an appropriate approach to reduce the potential for bird collisions with these hazards. In our opinion, free-standing glass railings located on private balconies do not need to be treated because no landscape vegetation is proposed at these locations, and thus these railings are not located along potential flight paths for birds such that birds would be expected to collide with these railings.

It is our understanding that glazing on all free-standing glass railings on Buildings 1 and 2 will be treated with a fritted bird-safe treatment to increase the visibility of this glazing to birds; however, the specifications for this frit have not yet been determined. Bird-safe glazing treatments may include fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing, or ultraviolet patterns visible to birds. We recommend that vertical elements of the window patterns be at least ¼-inch wide at a minimum spacing of 4 inches, and horizontal elements be at least ⅛-inch wide at a minimum spacing of 2 inches to ensure that the pattern minimizes bird collisions with the glazing.

4. Avoid transparent glass walls coming together at building corners to avoid birds trying to fly through the glass.

Transparent glass corners are present in a number of locations on Buildings 1 and 2. To eliminate transparent glass corners, the glazing would need to be removed from corners in the project design. Alternatively, the City may accept that this criterion has been met if the glass panels adjacent to building corners are treated with a visible frit pattern to increase the visibility of the glass to birds. While this would not comply with the City's requirement per se, it would reduce bird collisions at these locations and, in our opinion, adequately meet the objective of the City's requirement (i.e., to avoid creating a feature-related hazard that results in a high number of bird collisions).

To reduce the potential for bird collisions with transparent glass corners, we recommend treating glazing at corners that are located along potential flight paths for birds (i.e., corners in areas with landscape vegetation).

Based on our review of the project plans, transparent glass corners are located along potential flight paths for birds on Level 1 and on community open space rooftops on Levels 2, 9, and 11 on Buildings 1 and 2, and we recommend that transparent glass corners in these locations be treated. In our opinion, transparent glass corners located elsewhere on Buildings 1 and 2 do not need to be treated because no landscape vegetation is proposed at these locations, and thus these corners are not located along potential flight paths for birds such that birds would be expected to collide with glazing at these corners.

The recommended approximate treatment areas are shown on Figures 3–9; treatment should extend as far from each building corner as it is possible to see through to the other side of the building.

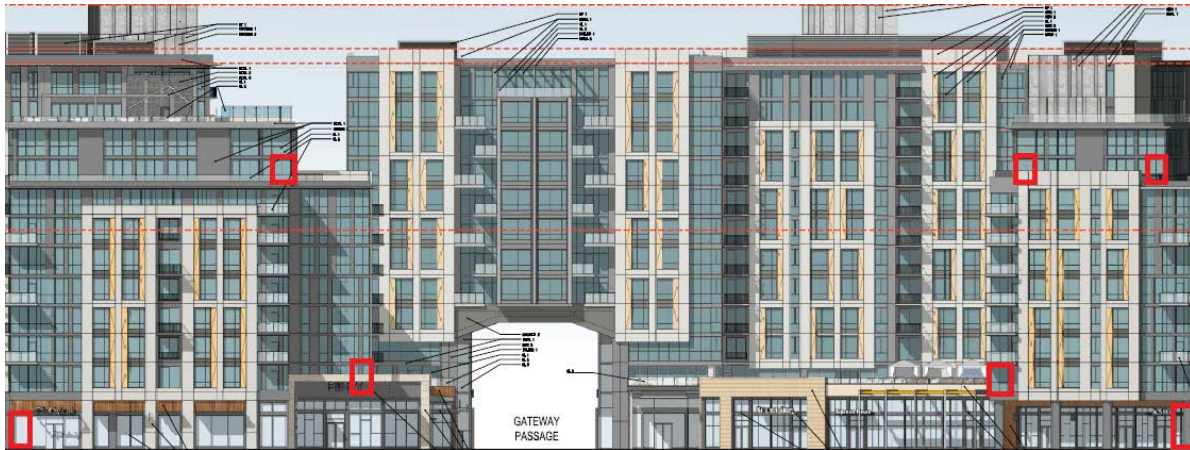


Figure 3. The south facades of Buildings 1 and 2 as seen from McKinley Street. Transparent glass corners that are located along potential flight paths for birds, and hence represent potential collision hazards, are shown in red. In our opinion, these areas should be treated with a bird-safe glazing treatment to comply with the City's guidelines.



Figure 4. The north facades of Buildings 1 and 2 as seen from New Street. Transparent glass corners that are located along potential flight paths for birds, and hence represent potential collision hazards, are shown in red. In our opinion, these areas should be treated with a bird-safe glazing treatment to comply with the City's guidelines.



Figure 3. The west facade of Building 1 as seen from Taaffe Street. A transparent glass corner that is located along a potential flight path for birds, and hence represents a potential collision hazard, is shown in red. In our opinion, this area should be treated with a bird-safe glazing treatment to comply with the City's guidelines.



Figure 6. The east facade of Building 2 as seen from Murphy Avenue. Transparent glass corners that are located along potential flight paths for birds, and hence represent potential collision hazards, are shown in red. In our opinion, these areas should be treated with a bird-safe glazing treatment to comply with the City's guidelines.

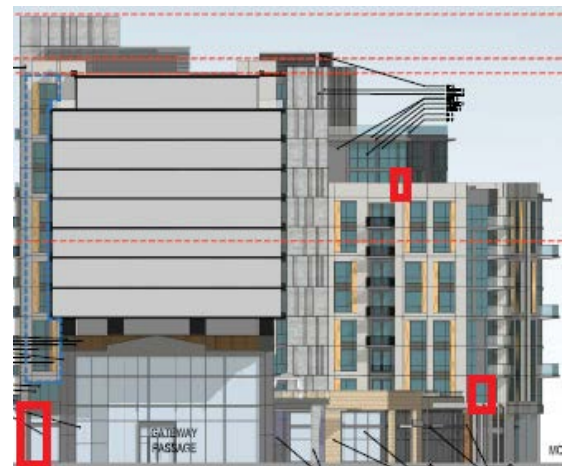


Figure 7. The west facade of Building 2 as seen from the public plaza. Transparent glass corners that are located along potential flight paths for birds, and hence represent potential collision hazards, are shown in red. In our opinion, these areas should be treated with a bird-safe glazing treatment to comply with the City's guidelines.



Figure 7. The north façade of Building 1 as seen from the Level 2 roof. A transparent glass corner that is located along a potential flight path for birds, and hence represents a potential collision hazard, is shown in red. In our opinion, this area should be treated with a bird-safe glazing treatment to comply with the City's guidelines.

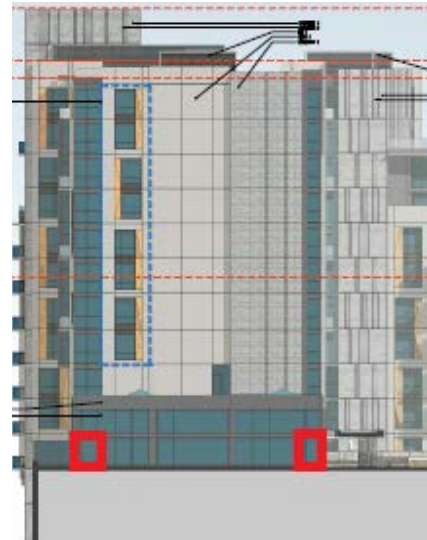


Figure 8. The west façade of Building 2. Transparent glass corners that are located along potential flight paths for birds, and hence represent potential collision hazards, are shown in red. In our opinion, these areas should be treated with a bird-safe glazing treatment to comply with the City's guidelines.



Figure 9. The east façade of Building 1 as seen from the public plaza. Transparent glass corners that are located along potential flight paths for birds, and hence represent potential collision hazards, are shown in red. In our opinion, these areas should be treated with a bird-safe glazing treatment to comply with the City's guidelines.

5. Reduce glass at tops of buildings, especially when incorporating a green roof into the design.

The proposed project includes plans for landscape vegetation on roofs on Levels 2, 9, and 11 of Buildings 1 and 2. As discussed above, the potential for birds to collide with the facades of these buildings is limited because the glazing is visually disrupted by opaque wall panels, overhangs, mullions, and balconies, which increase the visibility of these facades to birds. As a result, glazing located at the tops of buildings above and below green roofs is not expected to result in high numbers of bird collisions, and it is our opinion that the treatment or reduction of this glazing would not result in a substantial reduction in bird collisions with the buildings.

However, birds traveling in between areas of landscape vegetation on roofs and/or between vegetation on roofs and the ground would fly past the free-standing glass railings and transparent glass corners on and surrounding the community roofs on Levels 2, 9, and 11 of Buildings 1 and 2. Because these features are located along flight paths, they represent a collision risk for birds. To reduce the potential for bird collisions with glazing adjacent to landscaped roofs, we recommend treating all glazing on the free-standing glass railings surrounding these roofs as well as all transparent glass corners on these roofs with a bird-safe treatment that will increase the visibility of this glazing to birds by allowing them to perceive the glass as a solid surface, as described under guideline #3 above. While this approach is not consistent with the City's guideline (a green roof will still be present near glass), it is our opinion that the treatment of these hazards with a bird-safe frit pattern is an appropriate approach to reduce the potential for bird collisions associated with the green roofs.

6. Prohibit up-lighting or spotlights.

It is our understanding that no exterior up-lighting and spotlights are included in the project's lighting design. Thus, in our opinion, the project will comply with this guideline.

7. Shield lighting to cast light down onto the area to be illuminated.

It is our understanding that exterior lighting will be shielded to avoid spilling light outwards to adjacent areas. Thus, in our opinion, the project will comply with this guideline.

8. Turn commercial building lights off at night or incorporate blinds into window treatments to use when lights are on at night.

It is our understanding that interior building lights in commercial portions of the building will be turned off at night, except as needed for safety. Thus, in our opinion, the project will comply with this guideline.

9. Create smaller zones in internal lighting layouts to discourage wholesale area illumination.

It is our understanding that the building's lighting plan creates smaller zones to avoid wholesale area illumination. Thus, in our opinion, the project will comply with this guideline.

Summary

Because birds are present in the vicinity of the proposed buildings, and the glassy façades of these buildings may not always be perceived by birds as physical impediments to flight, we expect some avian collisions with the proposed buildings to occur. Among the project components, we expect collision risk to be highest at free-standing glass walls and transparent glass corners that are located in areas with landscape vegetation.

However, we expect the frequency of bird collisions to be relatively low compared to circumstances in which similar buildings occur within more natural habitats or along regular flight paths between areas of high-quality habitat. We base this conclusion on (1) the relatively low numbers of birds expected to occur in the immediate vicinity of the proposed project site due to habitat conditions, (2) the low numbers of birds expected to approach the project site from more natural habitats along the San Francisco Bay several miles to the north, and (3) the absence of any features such as dense, native vegetation or water features on or immediately adjacent to the site that might otherwise attract birds to the vicinity.

Although building collisions by some migrant songbirds are likely to occur, we would expect that the majority of bird strikes would be by resident species, both because the low-quality habitat on the site is more conducive to use by urban-adapted resident birds than by migrants and because resident birds would spend far more time near the proposed buildings than would birds that are migrating through the region. The resident species occurring on the project site are all common, urban-adapted species that are widespread in urban, suburban, and (for many species) natural land use types throughout the San Francisco Bay area. As a result, these species have high regional populations, and the number of individuals that might be impacted by collisions with the project building would represent a very small proportion of regional populations. Therefore, the project would not result in the loss of a substantial proportion of any species' Bay-area populations or any Bay-area bird community, and according to CEQA standards, we would consider such impacts to be less than significant.

Nevertheless, the project is committed to compliance with Option 2 of the City of Sunnyvale's Bird-Safe Design Guidelines. The project currently implements the following measures to comply with these guidelines:

- All glazing on free-standing glass railings will be treated with a bird-safe treatment that will increase the visibility of the glazing to birds by allowing birds perceive the glass as a solid surface.
- Exterior up-lighting and spotlights will be avoided in the project's lighting design.
- All exterior lighting will incorporate shielding to ensure that lighting is not directed outward into adjacent areas.
- Interior lights will be programmed to turn off at night, except as needed for safety.
- The building's interior lighting plan creates smaller zones to avoid wholesale area illumination.

We recommend that the project implement the following additional measures to comply with the City's bird-safe guidelines:

T. Duncan
May 22, 2020
Page 13 of 13

- All glazing at transparent glass corners located in areas with landscape vegetation should be treated with a bird-safe treatment that will increase the visibility of the glazing to birds by allowing birds perceive the glass as a solid surface.
- For areas where bird-safe treatment is recommended (i.e., on free-standing glass railings and at transparent glass corners), bird-safe glazing treatments may include fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing, or ultraviolet patterns visible to birds. We recommend that vertical elements of the window patterns be at least 1/4-inch wide at a minimum spacing of 4 inches, and horizontal elements be at least 1/8-inch wide at a minimum spacing of 2 inches to ensure that the pattern minimizes bird collisions with the glazing.

Please feel free to contact me at (408) 458-3246 or rcarle@aharveyecology.com, or Steve Rottenborn at (408) 722-0931 or srottenborn@harveyecology.com, if you have any questions regarding this assessment. Thank you very much for contacting H. T. Harvey & Associates about this project.

Sincerely,

A handwritten signature in blue ink that reads "Robin Carle". The signature is written in a cursive, flowing style.

Robin Carle, M.S.
Senior Wildlife Ecologist/Project Manager

Attachments: Résumés



Stephen C. Rottenborn, PhD Principal, Wildlife Ecology

srottenborn@harveyecology.com
408.458.3205



H. T. HARVEY & ASSOCIATES

Ecological Consultants

HIGHLIGHTS

- Avian ecology
- Wetlands and riparian systems ecology
- Endangered Species Act consultations and compliance
- Environmental impact assessment
- Management of complex projects

EDUCATION

PhD, Biological Sciences, Stanford University

BS, Biology, College of William and Mary

PERMITS AND LICENSES

- USFWS 10(a)(1)(A) recovery permit, authorized to conduct surveys for snowy plover, California Ridgway's rail
- CDFW MOU to conduct broadcast surveys for California Ridgway's and black rail
- CDFW scientific collecting permit

PROFESSIONAL EXPERIENCE

Principal, H. T. Harvey & Associates, 1997–2000,
2004–present

Ecology Section Chief/Environmental Scientist,
Wetland Studies and Solutions, Inc., 2000–04

Independent Consultant, 1989–97

MEMBERSHIPS AND AFFILIATIONS

Chair, California Bird Records Committee,
2016–present

Member, Board of Directors, Western Field
Ornithologists, 2014–present

Scientific Associate/Scientific Advisory Board, San
Francisco Bay Bird Observatory, 1999–2004,
2009–present

PUBLICATIONS

Rottenborn, S. C. 2000. Nest-site selection and reproductive success of red-shouldered hawks in central California. *Journal of Raptor Research* 34:18-25.

Rottenborn, S. C. 1999. Predicting the impacts of urbanization on riparian bird communities. *Biological Conservation* 88:289-299.

Complete list of publications available upon request.

PROFESSIONAL PROFILE

Dr. Steve Rottenborn is a principal in the Wildlife Ecology group at H. T. Harvey & Associates. He specializes in resolving issues related to special-status wildlife species and in meeting the wildlife-related requirements of federal and state environmental laws and regulations. Combining his research and training as a wildlife biologist and avian ecologist, Steve has built an impressive professional career that is highlighted by a particular interest in wetland and riparian communities, as well as the effects of human activities on bird populations and communities. Steve's experience extends to numerous additional special-status animal species. The breadth of his ecological training and project experience enables him to expertly manage multidisciplinary projects involving a broad array of biological issues.

He has contributed to more than 600 projects involving wildlife impact assessment, NEPA/CEQA documentation, biological constraints analysis, endangered species issues (including California and Federal Endangered Species Act consultations), permitting, and restoration. Steve has conducted surveys for a variety of wildlife taxa, including a number of threatened and endangered species, and contributes to the design of habitat restoration and monitoring plans. In his role as project manager and principal-in-charge for numerous projects, he has supervised data collection and analysis, report preparation, and agency and client coordination.

PROJECT EXAMPLES

Served as principal-in-charge of H. T. Harvey's work on all biological resources tasks for the **Envision San José 2040 General Plan Update** and its EIR.

Served as senior wildlife ecologist for the **Coyote Creek Trail Master Plan for the City of San José**.

Spearheaded **biological planning, permitting, and Federal Endangered Species Act consultation** for several large redevelopment projects involving both development and habitat restoration, including the Candlestick Point – Hunters Point Shipyard project, Alameda Point project, and Concord Reuse project.

Served as project manager or principal-in-charge for **more than 65 task orders for Santa Clara Valley Water District on-call projects**.

Served as **senior wildlife ecology expert on the South Bay Salt Pond restoration project** — the largest (~15,000-acre) restoration project of its kind in the western United States.

Serves as principal-in-charge for H. T. Harvey's work performing biological resources-related planning for the Santa Clara Valley Water District's seismic retrofit projects involving **Anderson, Calero, Guadalupe, and Almaden dams**.



Robin J. Carle, MS

Senior Wildlife Ecologist

rcarle@harveyecology.com
408.458.3241



H. T. HARVEY & ASSOCIATES

Ecological Consultants

HIGHLIGHTS

- Avian ecology
- Environmental impact assessments (NEPA/CEQA)
- Nesting bird surveys, monitoring, and deterrence
- Protocol-level surveys for burrowing owls and California Ridgeway's rails
- California red-legged frog and California tiger salamander surveys
- San Joaquin kit fox surveys
- San Francisco dusky-footed woodrat surveys and relocations

EDUCATION

MS, Fish and Wildlife Management, Montana State University

BS, Ecology, Behavior, and Evolution, University of California, San Diego

PERMITS AND LICENSES

USFWS 10(a)(1)(A) for the California tiger salamander

CDFW Scientific Collecting Permit for mammals, amphibians, reptiles, and vernal pool/terrestrial invertebrates

Listed under CDFW letter permits to assist with research on bats, California tiger salamanders, California Ridgeway's rails, and California black rails

PROFESSIONAL EXPERIENCE

Senior wildlife ecologist, H. T. Harvey & Associates, 2015–present

Wildlife ecologist, H. T. Harvey & Associates, 2007–2014

Volunteer bird bander, San Francisco Bay Bird Observatory, 2010–present

Avian field technician, West Virginia University, 2006

Graduate teaching assistant, Montana State University, 2003–2006

Avian field technician, Point Blue Conservation Science (formerly PRBO Conservation Science), 2004

PROFESSIONAL PROFILE

Robin Carle is a wildlife ecologist and ornithologist at H. T. Harvey & Associates, with more than a decade of experience working in the greater San Francisco Bay Area. Her expertise is in the nesting ecology of passerine birds, and her graduate research focused on how local habitat features and larger landscape-level human effects combine to influence the nesting productivity of passerine birds in the Greater Yellowstone region.

With an in-depth knowledge of regulatory requirements for special-status species, Robin has contributed to all aspects of client projects, including NEPA/CEQA documentation, environmental impact assessments, habitat conservation plans, biological constraints analyses, special-status species surveys and documentation, and construction monitoring. Her strong understanding of CEQA and of the state and federal Endangered Species Acts allows her to prepare environmental documents that fully satisfy the regulatory requirements of the agencies that issue discretionary permits. In addition, Robin has spent hundreds of hours conducting surveys for nesting birds and burrowing owls for H. T. Harvey & Associates projects and has worked extensively with amphibians and mammals. Robin has conducted diurnal, nocturnal, and larval surveys for California tiger salamanders and California red-legged frogs; acoustic and visual surveys for roosting bats; surveys and nest resource relocations for San Francisco dusky-footed woodrats; den surveys for San Joaquin kit foxes and American badgers; trail camera surveys to document wildlife movement; and burrow-scoping surveys using fiber-optic orthoscopic cameras. She has been approved as a qualified biologist on numerous project-specific USFWS and CDFW permits to conduct biological monitoring and site surveys for state and federally protected wildlife species.

PROJECT EXAMPLES

Served as project manager for issues related to nesting birds for various **Stanford University** and **Stanford University Medical Center** construction projects from 2016–2017.

Served as project manager for the preparation of a NES and BA to facilitate FESA and CESA consultation for the **Highway 101 Pedestrian/Bicycle Overcrossing** project in Palo Alto, California from 2015–2017.

Prepared bird-safe design recommendations, compliance documentation, and/or bird-strike monitoring plans for the **Charleston East, Microsoft Silicon Valley Campus, 1625 Plymouth**, and **Shashi Hotel** projects in Mountain View, California in 2016 and 2017.

Assisted with the preparation of a NES and BA to facilitate FESA and CESA consultation for the **Stevens Canyon Road Bridges** project, and served as project manager for all preconstruction surveys and construction monitoring work from 2015–2017.