



9 December 2011

Rob Eastwood
County of Santa Clara
County Government Center
70 West Hedding Street
East Wing, 7th Floor
San Jose, CA 95110-1705

SUBJECT: Protocol-Level Burrowing Owl Survey and Impact Assessment for the Reid-Hillview Airport Master Plan (HTH #3174-01)

Dear Mr. Eastwood:

Per your request, H. T. Harvey & Associates has conducted protocol-level surveys for burrowing owls (*Athene cunicularia*) at the Reid-Hillview Airport in San Jose, California. The purpose of these surveys was to determine whether burrowing owls are present on the site, to assess the extent and quality of habitat for burrowing owls, and to provide a basis for an assessment of the potential for the proposed Reid-Hillview Airport Master Plan (Master Plan) to impact burrowing owls and their habitat. This report documents our findings with respect to owl use of the site during June 2010, extent and suitability of burrowing owl habitat on the site, and potential impacts of proposed development under the Master Plan on burrowing owls and their habitat.

Burrowing Owl Biology

The burrowing owl is a small, terrestrial owl of open country. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies, but they will use a wide variety of open, even disturbed, habitats dominated by grasses and/or forbs. In California, burrowing owls are typically found in close association with California ground squirrels (*Spermophilus beecheyi*); owls use the abandoned burrows of ground squirrels for shelter and nesting. The nesting season as recognized by the California Department of Fish and Game (CDFG)¹ runs from 1 February through 31 August. After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may migrate (Rosenberg et al. 2007)²; young birds disperse across the landscape from 0.1 miles to 35 miles from their natal burrows (Rosier et al. 2006)³. Burrowing owls occur year-round in Santa Clara County breeding locations (Trulio 2007)⁴, and are commonly present in open, agricultural, or grassland areas with active squirrel burrows. Burrowing owls exhibit strong site fidelity, and may return to a nesting site and attempt to nest even after the site has been developed.

¹ [CDFG] California Department of Fish and Game. 1995. Staff report on Burrowing Owl mitigation. 9 pp.

² Rosenberg, D. K., L. A. Trulio, D. Catlin, D. Chromczack, J. A. Gervais, N. Ronan, and K. A. Haley. 2007. The Ecology of the Burrowing Owl in California. Unpublished report to Bureau of Land Management.

³ Rosier, J. R., N. A. Ronan, and D. K. Rosenberg. 2006. Post-breeding Dispersal of Burrowing Owls in an Extensive California Grassland. *American Midland Naturalist* 155: 162-167.

⁴ Trulio, L. A. 2007. Burrowing Owl *Athene cunicularia*. Pp 236-237 In: Bousman, W.G., (ed.). *Breeding Bird Atlas of Santa Clara County*. Santa Clara Valley Audubon Society, Cupertino, California. 547 pp.

Survey Methods

The area that was surveyed consisted of the entire Reid-Hillview Airport Master Plan area. This area is bounded to the northwest by Ocala Avenue, to the southwest by development (largely residential), to the southeast by Tully Road, and to the northeast by Capitol Expressway (Figure 1).

This survey was conducted according to the California Burrowing Owl Consortium's protocol⁵, which is the protocol recommended by the California Department of Fish and Game (CDFG), to determine whether owls are currently present on the site and to identify areas providing suitable habitat for the species. Based on our knowledge of the site, gained from previous work at the airport and in nearby areas, we knew that the ruderal/grassland habitat on the site provided potentially suitable habitat for burrowing owls. Therefore, the initial habitat assessment focused primarily on determining the locations of burrows that might be used by burrowing owls and on looking for evidence of owl use of the site, rather than being a preliminary survey to determine whether suitable habitat was present.

On 21 June 2010, H. T. Harvey & Associates ecologists Robin Carle, M.S., Nellie Thorngate, M.S., Steve Carpenter, B.S., and Brian Cleary, M.S., all of whom have considerable experience conducting burrowing owl surveys, conducted an initial survey of the Master Plan area. They walked the entire site and all areas within 250 feet of the site. In the more extensive grassy areas, they walked transects with observers spaced no more than 100 feet apart, while in more irregularly shaped and/or smaller areas of potential habitat, observers walked throughout the potential habitat areas. Using these methods, 100% visual coverage of all areas of potential habitat was achieved. During these surveys, observers looked for and mapped the locations of any California ground squirrel (*Spermophilus beecheyi*) burrows that might be used as nesting or roosting sites by burrowing owls. The observers also examined each burrow for owls or evidence of recent owl occupation (*i.e.*, presence of feathers, whitewash, pellets, or prey remains), and they looked for such evidence (particularly feathers, which can reveal burrowing owl use of sites for foraging, even if the owls are not roosting or nesting on those sites) throughout the entire site. In addition, the observers scanned the study area ahead of and around them with binoculars throughout the surveys to look for owls.

Follow-up surveys, focusing on areas that were identified as providing burrows but covering potential foraging habitat as well, were conducted on 22, 23, 28, and 29 June to look for owls. Thus, the survey period was conducted in the heart of the 1 February – 31 August breeding season identified by the CDFG for the burrowing owl.

Survey Results

Individual Burrowing Owls

No burrowing owls, nor any evidence of burrowing owl use of the site, were observed on or within 250 feet of the site during the survey. Although it is conceivable that burrowing owls

⁵ California Burrowing Owl Consortium. 1993. Burrowing owl survey protocol and mitigation guidelines.

might have attempted nesting earlier in the season, but vacated the site prior to our surveys, the complete absence of any evidence of burrowing owl presence suggests otherwise. Burrowing owl burrows often show feathers or other evidence of owl use long after owls have vacated them (S. Rottenborn, pers. obs.), yet no such evidence was observed. In addition, if owls had successfully nested on the site in 2010 prior to our surveys, we expect that adults and/or young would still have been present on the site during our survey. Therefore, based on the absence of any evidence of burrowing owl use of the site, it is our opinion that burrowing owls did not nest in the Master Plan area in 2010.

Potential Burrowing Owl Habitat

Much of the Master Plan area is occupied by existing buildings, hardscape (e.g., on runways, taxiways, roads, and parking areas), graveled lots, and other developed features (Figure 1). While it is possible that burrowing owls may occasionally catch prey in such areas, owl use of such land uses would be very infrequent, if it occurs at all. Therefore, such areas were not considered potential owl habitat.

The remainder of the study area was found to be dominated by grasses and forbs, largely non-native, that are typical of urban areas that are periodically disturbed by mowing and other site maintenance activities. Valley pocket gopher (*Thomomys bottae*) burrows were numerous and widespread in these areas, and California ground squirrel burrows were present in several areas as well.

Although no burrowing owls were detected during the survey, the portions of the site dominated by ruderal (i.e., disturbed) grassland are consistent with suitable habitat for the species. Therefore, if burrowing owls occupy the site in the future, if they use the site only during the nonbreeding season (1 September – 31 January), or if they nest or roost in nearby areas and only forage on the site, the site could still provide habitat that is used to some extent by burrowing owls.

Approximately 88.7 acres of the Master Plan area are dominated by ruderal grassland habitat that provides potential foraging habitat for burrowing owls (Figure 1). As mentioned previously, burrows of valley pocket gophers were observed to be numerous in these areas; these gophers provide potential prey for burrowing owls. In addition, other small mammals (such as mice and voles), a number of species of invertebrates, and possibly small reptiles such as western fence lizards (*Sceloporus occidentalis*) provide prey that could be used by burrowing owls.

Of these 88.7 acres, 12.8 acres supported burrows excavated by California ground squirrels that provide potential nesting and roosting habitat for burrowing owls (Figure 1). We observed approximately 118 burrows of California ground squirrels in the following locations in the Master Plan area:

- At the northwest corner of the site, along the fenceline and in the adjacent open field near a solar panel. These burrows are associated with ground squirrels that move onto the site from the adjacent school, where many burrows are present.

- At the southwest ends of the grassy area between runways 31 L and 31 R and the grassy area between runway 31 R and the taxiway.
- Throughout the grassy lot at the corner of Capital Expressway and Tully Road, and in the adjacent grassy median.
- In the large dirt spoils pile inside the chain link fence along Tully Road.
- Along the hilled grassy area that occurs between Swift Lane and the airport's southernmost hangars.
- At the corner of Swift Lane and Cunningham Avenue.

Burrows excavated by pocket gophers are often plugged with earth and are too small for use by burrowing owls. No artificial features providing potential nesting or roosting sites, such as small culverts, were detected during the survey.

Despite the absence of burrowing owls from the site during our survey, the ruderal habitat between and adjacent to the runways provides what is at least ostensibly moderate-quality burrowing owl habitat. Vegetation was generally low during our survey, which is consistent with suitable habitat for ground squirrels and for burrowing owls. However, it was observed to be up to 2 feet high in a number of areas in May (S. Rottenborn, pers. obs.), prior to the start of our survey, suggesting that vegetation may have been high enough during the spring period, when owls were prospecting for nesting sites, to discourage use of these areas for nesting. The abundance of pocket gophers within the potential habitat areas suggests that these areas are functioning as natural grasslands, and thus prey abundance is expected to be high enough to provide suitable foraging conditions for burrowing owls.

The use of the site by airplanes is expected to constrain habitat quality on the site to some extent, as some burrowing owls may be intolerant of the noise and movement of the airplanes. However, burrowing owls have habituated to much higher levels of noise and activity at sites such as the Mineta San Jose International Airport, so the use of the site as an airport certainly does not preclude its use by burrowing owls. Although the runways themselves do not provide suitable habitat conditions for owls, they maintain the broad, open expanses (with unobstructed views) that are typical of high-quality burrowing owl habitat, and that allow burrowing owls to see approaching predators from a distance.

Smaller or narrower patches of ruderal habitat, particularly along the northern edge of the Master Plan area, provide lower-quality habitat for burrowing owls. However, some owls in Santa Clara County have nested and roosted in narrow medians along roads or within parking lots, and thus any area dominated by ruderal habitat was considered to provide at least low-quality habitat.

Impact Assessment

No burrowing owls were detected on or immediately adjacent to the Reid-Hillview Airport during our protocol-level, breeding-season surveys. Therefore, for purposes of impact assessment using the 2010 breeding season as a baseline, implementation of the Master Plan would not result in impacts to habitat that is currently occupied by breeding owls.

However, burrowing owls have been present at, and in the general vicinity of, the Reid-Hillview Airport historically. Surveys by Harvey and Stanley Associates in 1983 detected three burrowing owls (two adults and a juvenile) in the grassy area between the taxiway and one of the runways⁶. Burrowing owl surveys conducted as part of a habitat assessment by H. T. Harvey & Associates at Reid-Hillview Airport in 1995 detected two owls, one in the grassland area between the runways and another at the corner of Capitol Expressway and Tully Road⁷. The CDFG documented burrowing owls at the Reid-Hillview Airport in 2004 at the corner of Capitol Expressway and Tully Road⁸. Surveys of the South San Jose Region in 2008 and 2009 by Albion Environmental detected owls at Meadowfair Park, approximately 0.9 miles south of the Reid-Hillview Airport⁹. Airport personnel have reported seeing burrowing owls at the airport regularly until a few years ago (Carl Honaker, pers. comm.).

Because owls have historically used the airport, they could potentially re-occupy the site in future years. In addition, it is possible that owls are currently nesting in other areas outside the study area for this survey (e.g., perhaps at Lake Cunningham Park), and that they are foraging undetected in the Master Plan area. Also, owls could potentially be occupying and/or foraging on the site during the nonbreeding season, use of the site that would not have been detectable during our breeding-season survey. For these reasons, and based on the general suitability of ruderal grassland on the site for use by burrowing owls, the site's ruderal grassland habitat should be considered suitable burrowing owl habitat. Therefore, Master Plan activities that result in the loss of such habitat would represent an impact to burrowing owl habitat.

The Master Plan proposes to expand the Runway Safety Areas and Object Free Areas at the south end of the parallel runways, and to add a west side parallel taxiway. In addition to these improvements, the Master Plan includes the construction of additional hangars, additional commercial buildings, and a solar array. These activities will result in the conversion of grassland habitat that currently provides potential nesting, roosting, and/or foraging habitat for burrowing owls to other uses that are not conducive to burrowing owl use.

For the purpose of assessing impacts to potential burrowing owl habitat, we used AutoCAD files showing the proposed improvements provided by Mead & Hunt, with some modifications provided separately by David Dietz of Mead & Hunt, and with the location of the solar array provided by the County.

The modifications described in the Master Plan will permanently impact a total of 26.7 acres of ruderal grassland habitat that provides potential foraging habitat for burrowing owls (Figure 1). Because it is unknown whether burrowing owls currently use the site (e.g., while breeding in nearby areas, or during winter), or how many owls might use the site while breeding in nearby areas, in winter, or in the future, we are unable to equate the loss of 26.7 acres of habitat with the number of individuals, or pairs, of owls that would be affected. Table 1 summarizes the acreage

⁶ Harvey and Stanley Associates. 1983. Reid-Hillview Airport Tiedown Project State Parcel Biological Assessment. County of Santa Clara Transportation Agency.

⁷ H. T. Harvey & Associates. 1995. Letter Report to David J. Powers & Associates.

⁸ Mead & Hunt. 2007. Reid-Hillview Airport Master Plan Update. Prepared for the County of Santa Clara.

⁹ Albion Environmental, Inc. 2008. 2008 Nesting Burrowing Owl Survey. Santa Clara Valley Habitat Conservation Plan / Natural Communities Conservation Plan (HCP/NCCP).

of areas that currently provide potential burrowing owl habitat, the acreage of potential habitat that will be impacted, and the acreage of potential habitat that will remain following implementation of Master Plan improvements.

Table 1. Summary of Existing and Anticipated Post-Construction Burrowing Owl Nesting, Roosting, and Foraging Habitat at the Reid-Hillview Airport.

	Current Extent (ac)	Permanent Impacts (ac)	Extent Following Implementation of the Master Plan (ac)
Potential burrowing owl nesting, roosting, and foraging habitat	12.8	8.9	3.9
Potential burrowing owl foraging (only) habitat	75.9	17.8	58.1
Total	88.7	26.7	62.0

In addition, if owls occupy burrows on the site prior to the initiation of construction of these Master Plan improvements, injury or mortality of individuals could occur during grading, construction, and movement of heavy equipment. Owls could suffer mortality by being trapped in burrows that are blocked or compacted by heavy equipment or as a result of grading, and young owls in particular could be injured or killed due to collisions with construction equipment. If construction is initiated close to occupied owl nests during the breeding season, owls that are not habituated to the intensive construction activity could abandon nests, possibly resulting in the loss of eggs or young. Master Plan-associated development could also result in nest failure if substantial foraging habitat surrounding a nest is eliminated during the breeding season. Owls occupying burrows near construction activity during the nonbreeding season are unlikely to suffer injury or mortality, but they may be disturbed to the point of having to relocate to new burrows on- or off-site.

The Santa Clara Valley Habitat Plan identified the South San Jose region as an area where little remaining habitat is available for burrowing owls, and where few owls are presently known to occur¹⁰. The Habitat Plan determined that the South San Jose region primarily provides connectivity between known populations of burrowing owls that occur to the north and south. Because few burrowing owls occur in the region, no owls were detected during our protocol-level surveys, and only one pair of owls was recorded (0.9 miles south of the airport) during surveys of the site vicinity in 2008 and 2009 by Albion Environmental¹¹, it is possible that the proposed Master Plan activities will have little actual impact to burrowing owl populations. However, as the remaining grassland habitat in the San Jose area is developed, populations of burrowing owls in the South Bay face extirpation due to a lack of sufficient, suitable nesting, roosting, and foraging habitat and due to isolation from other populations. Therefore, impacts to

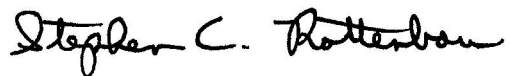
¹⁰ICF Jones & Stokes. 2009. Santa Clara Valley Habitat Plan 2nd Administrative Draft. Prepared for the County of Santa Clara Planning Office. http://www.scv-habitatplan.org/www/site/alias__default/292/administrative_draft_habitat_plan.aspx

¹¹ Albion Environmental, Inc. 2008. 2008 Nesting Burrowing Owl Survey. Santa Clara Valley Habitat Conservation Plan / Natural Communities Conservation Plan (HCP/NCCP).

burrowing owls and their habitat from increased disturbance and development in the region have a cumulative, significant impact on burrowing owl populations in the South Bay, and the loss of approximately 26.7 acres of potential burrowing owl habitat due to implementation of the Master Plan will contribute to that cumulative impact.

Please feel free to contact me by email at strottenborn@harveyecology.com, or by phone at (408) 458-3205, if you have any questions regarding our findings. Thank you for contacting H. T. Harvey & Associates regarding this project.

Sincerely,

A handwritten signature in black ink that reads "Stephen C. Rottenborn". The signature is written in a cursive style with a large, prominent "S" at the beginning.

Steve Rottenborn, Ph.D.
Principal - Wildlife Ecologist

