

Results of Long-Term Bat Mitigation Monitoring: Artificial Replacement Habitat Supports Rare Townsend's Big-Eared Bat, as well as Maternity Roosts of Common Bat Species

Matt Sharp Chaney¹, Kim Briones²

¹Midpeninsula Regional Open Space District, Los Altos, CA, USA

²H.T. Harvey and Associates, Los Gatos, CA, USA

Mitigation for the loss of bat habitat is often a requirement under the California Environmental Quality Act. However, artificial habitat does not always maintain the same habitat value as previously available habitat, particularly for habitat specialist species like the Townsend's big-eared bat (*Corynorhinus townsendii*) or habitat that supports maternity roosting bat colonies. From 2015 to 2023 the Midpeninsula Regional Open Space District, with technical expertise from H.T. Harvey and Associates, worked to develop and implement a bat exclusion and habitat replacement plan to address a loss of habitat due to the demolition of buildings found within Bear Creek Redwoods Open Space Preserve, in Santa Clara County, California.

This work included the construction of two new freestanding structures, as well as the modification of an existing structure specifically to attract and support Townsend's big eared bats, a California State Species of Special Concern, as well as a variety of more common crevice roosting species. The new and modified structures were monitored for bat activity by conducting annual emergence surveys during the maternity roosting season, as well as opportunistic daytime surveys during non-sensitive seasons. In-situ temperature probes were also utilized to determine annual thermal characteristics of the interior of the structures to determine habitat suitability and inform management decisions. Surveys have documented an increase in bat use through time, as well as confirmed maternity roosts of common bat species, at each of the replacement habitat structures. Townsend's big-eared bat have been documented utilizing the interior of the modified existing structure as a presumed bachelor roost. Exterior bat boxes on all structures support the majority of individual bats on-site and are utilized by four common species of bats. The habitat use, number of individual bats, as well as species composition on-site is similar to what was documented by surveys prior to the demolition project.

Habitat value at these structures is dynamic as exterior boxes degrade and require replacement, vandalism of structures requires ongoing maintenance and modification, and new crevice roosting habitat becomes available as the structures shift and degrade through time. The findings from this project can inform bat mitigation and monitoring work, particularly for Townsend's big-eared bat, and offer strategies for improved outcomes.

Contact Information: Matt Sharp Chaney, Midpeninsula Regional Open Space District, 5050 El Camino Real, Los Altos, CA, USA 94022, Phone: 650-625-6573, Email: mchaney@openspace.org