



SF Bay Area Herpetofauna Habitat Research Project



STUDY PURPOSE



Nomad Ecology has developed a novel method for collecting habitat data for special-status herpetofauna species (amphibians and reptiles), focused on the San Francisco Bay Area, that provides land managers the opportunity to evaluate changes in their habitat quality over time. Data are collected for all observed herpetofauna species, but efforts focus on California red-legged frog, California tiger salamander, and western pond turtle. This methodology sets a baseline to compare breeding sites and aquatic features that have presence and lack presence of these amphibians and reptiles to better understand regional habitat requirements. Nomad's methodology goes beyond wildlife agency protocols by recording specific data on water quality variables and plant species composition, in addition to assessing each species' abundance using larval dipnet surveys and seine surveys. Nomad has created an access database to store sampling data, and allow for qualitative and quantitative analysis throughout long-term monitoring, and compile San Francisco Bay Area data.

To date, Nomad biologists have surveyed over 80 ponds in Alameda and Contra Costa counties and are looking to collect data in other Bay Area counties. By expanding this long-term study to capture data from across the San Francisco Bay Area, our database will provide a detailed picture of microhabitat requirements of



target special-status species in the region, which may be specific depending on what part of this region a pond is located in. These data will offer opportunities for improved assessment of pond health and quality, and inform specific recommendations for habitat management and restoration efforts for supporting special-status herpetofauna species.

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APPLICATIONS

Nomad biologists have used study results to provide land managers with baseline data of special-status herpetofauna species distributions, water quality parameters, and vegetation structure and composition.

Additionally, we have provided specific recommendations for habitat management and restoration efforts, including:

- Advising on locations where management techniques such as reducing grazing, desilting ponds, and repairing berms could benefit special-status herpetofauna species populations and facilitate species dispersal
- Providing ongoing water quality monitoring
- Identification of threats to special-status species populations, such as bullfrog presence, and suggested approaches for non-native species removal
- Recommended locations for installation of basking habitat
- Identified invasive plant species that may become detrimental to long-term health of breeding habitats.
- Detailed recommendations for integrating the standardized methodology into long-term monitoring and adaptive management plans.

WATER QUALITY SAMPLE RESULTS

CATEGORY	CRLF PRESENT (AVERAGE)	CTS PRESENT (AVERAGE)
Water Temperature (°F)	69	69
Conductivity (SPC)	941	1240
Salinity (ppt)	0.47	0.64
Dissolved Oxygen (mg/L)	9.94	10.2
Turbidity (NTU)	21.17	189.9
Nitrates (mg/L)	0.52	1.26
pH (1-14)	8.41	8.42
Total Dissolved Solids (ppm)	611	795