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**ENDEMIC ENVIRONMENTAL SERVICES**
California Spotted Owl (*Strix occidentalis occidentalis*) Photo By/Credit: Rick Kuyper/USFWS
**ENDEMIC BIOLOGISTS  
PRESENT AT THE  
WILDLIFE SOCIETY'S  
ANNUAL CONFERENCE**

Presented by Barry Nerhus


**RESILIENCY OF THE SOUTHWESTERN  
POND TURTLE**

Southwestern pond turtle populations have been consistently declining throughout their range. This growing concern for population decline is exacerbated by increasing drought, urbanization, and fragmentation. Despite this, focused studies at the San Joaquin Marsh in Orange County, California have demonstrated continuous population growth and stability in the past ten years. We hypothesized that southwestern pond turtle populations at the San Joaquin Marsh demonstrate population stability and resilience despite two years of drought-like conditions.

We analyzed the population demographics to determine the impacts on population stability in the context of drought. We conducted a mark-recapture survey study over two years (2019-2020) at the San Joaquin Marsh that was then compared to previous pre-drought data (2008-2012). We found that the population estimate at this location had significantly increased in comparison to the previous status reports, even in the face of drought-like conditions. However, we also observed lower juvenile recruitment and a lower proportion of females in reference to males when compared to the previous study conducted prior to drought conditions. Our results indicate a need for conservation and water system management for southwestern pond turtles.

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FRAGMENTATION".**



# THE LOSS OF CALIFORNIA WETLANDS TO INVASIVE SPECIES

Presented by Anita Arenas

## IMPACTS OF YELLOW IRIS ON INVERTEBRATE COMMUNITIES

About 90% of wetlands have been lost in California. Of those that remain, many are degraded by invasive species, such as Yellow Iris. Iris has invaded freshwater, brackish, and marine wetlands in Southern California estuaries. The objective of our study was to determine if Iris impacts the invertebrate community relative to uninvaded areas in Los Peñasquitos Lagoon in North County San Diego. Preliminary data showed no difference in the abundance of aerial insect communities in fresh water and brackish, but there was a higher abundance in marine wetlands.

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The aerial insect community composition differed among sites with more mosquitos and house flies in freshwater, higher Leafminer Flies in brackish, and higher Thirps in marine wetlands. Pitfall traps showed differences among sites and plot types where freshwater sites had higher abundance compared to brackish sites, and abundance was higher in sites without Yellow Iris. Community composition showed more Argentine Ants and Beach hoppers in the freshwater compared to brackish. Exploring the impacts of Yellow Iris on insect communities can inform and prioritize management strategies by determining the extent of impacts and most impacted locations.







# THE PRESIDENTS CORNER

A word from CEO of Endemic Environmental Barry Nerhus

## ➤➤➤ REGARDING RECENT WILDLIFE NEWS

Endemic sponsored and attended the Western Section of The Wildlife Society's recent annual meeting, and I am quite glad we did. It was a success in promoting research, our company, networking, and team building. The wildlife symposium created an opportunity to share our team's research while learning about the research findings from others in the field. In addition to making new connections and planting seeds for new professional collaborations, we strengthened the existing relations within our team.

It was great seeing the team together and also getting a chance to see a few members deliver great presentations and research. Lyell and Anita delivered great oral presentations on pond turtles (Lyell) and an invasive iris (Anita), while Raquel presented an interesting poster on snake disease surveillance. Regarding recent wildlife news, the U.S. Fish and Wildlife Service proposed two distinct populations of California spotted owls (A separate species from the Northern Spotted Owl). The Sierra Nevada's distinct population segment (DPS) is warranted as threatened, and Coastal-Southern California's DPS is being declared as endangered. The USFWS is currently accepting public comments and materials regarding the newly proposed rules.

### FUN FACT

By Crazy Critters Inc

Southwestern Pond Turtles actually sleep. They pick a secluded spot with a constant, acceptable temperature; these reptiles then stop moving around and assume a particular posture, usually withdrawing into their shell for protection during "downtime."

*Thank you for reading and supporting Endemic in its mission to navigate today's environmental challenges with innovative solutions.*

