

- 1) **Type of Presentation:** Oral
- 2) **Special Symposium?:** Yes
 - a) **Name of Symposium** – Ecology of wildlife in urban areas
 - b) **Name of Organizer** – Robert N. Fisher

Title: Impacts of habitat loss, fragmentation, and the introduction of non-native species as a result of urbanization on the western pond turtle in southern California.

Short Title: Impacts of urbanization on the western pond turtle.

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Abstract:

More than 90% of southern California's riparian and aquatic habitats have been destroyed or modified by agriculture and urbanization. This has had profound effects on species dependant on these habitats including the western pond turtle, *Actinemys marmorata*, the only freshwater aquatic turtle native to southern California. We have been monitoring the southern California pond turtle populations since 2001 and have documented their decline. This decline is a result of the direct and indirect effects of urbanization including habitat loss, habitat alteration, habitat fragmentation, the introduction of non-native species, and recreation activities. Our trap efforts have detected a minimum of 15 species of non-native turtles in southern California with red-eared sliders and spiny softshell the most common. At sites occupied by non-native turtles, non-native turtles outnumber the native turtles. We have also documented a negative correlation between pond turtle presence and sites with recreational use, while non-native turtles are positively correlated with recreational use. Finally pond turtle presence is positively correlated with the naturalness of a site while non-natives were more likely to occur at modified or artificial sites. Only a few viable pond turtle populations remain in southern California, most populations are male-biased with little to no recruitment. Currently, we are developing programs such as long-term monitoring, genetics microsatellite analysis, habitat suitability assessment, habitat restoration and creation, translocation, head starting, and captive breeding to be used as tools to promote the recovery of self-sustaining populations of the pond turtles in southern California.