California Native Plant Society and highlight collaborative activities between vector control, public health, and nuisance problems, while implied, could be better articulated.

This poster will present some of these relationships and highlight collaborative activities between vector and weed control agencies.

### Findings

**Integrated Pest Management in Relation to Mosquito Control:**

Successful control of larvae and pupae is the primary emphasis, reducing the need for aerial spraying. Predators – native species in natural habitats and introduced predators, (Mosquito Fish, Gambusia affinis) in artificial ones – are important. Biorational larvicides, such as toxins from Bacillus thuringiensis ssp. israelensis (Bt), Bacillus sphaericus (Bsp), and maturation inhibitors such as IGR, Methoprene distributed as granules or briquettes, serve to reduce larval populations, supplementing the effectiveness of predators. Waterways degraded by invasive weeds tend to promote mosquito breeding and interfere with predator activity. Control of invasive aquatic plants improves water quality, discourages mosquito breeding, encourages return of natives, and enhances predator effectiveness.

**Freshwater Invasives:**

Invasives reduce circulation and inhibit predators. Two studies presented at the 2008 MVCAC Conference showed reduction of predation by both introduced native fish (1) and mosquito fish (2). Water Evening-primrose, Ludwigia spp. is one of the principal problem plants and can be very difficult to control. It can thrive in six feet of water and be dense enough to walk on. Infiltrations can be so dense that granules and briquettes cannot reach the water. In canals it has been called “The Yellow Brick Road.” An intense multi-agency control effort in the Laguna de Santa Rosa Project had little impact, but significant lessons were learned. (3) One successful control project was on Kumeyaay Lake, at Mission Trails Regional Park in San Diego. (4)

**Saltmarsh Invasives:**

In estuarine habitats, Smooth Cordgrass, Spartina spp., and especially the hybrid S. densiflora x foliosa (5) invade near-shore salt marshes displacing native species, invade deeper waters, and inhibit tidal fluctuation leaving slack-water areas where Saltmarsh Mosquitoes, Aedes spp., far-flying, aggressive day biters, proliferate.

### Summary and Conclusions

1. Invasive aquatic and riparian weeds are a major threat to waterways, displacing the native vegetation that supports wildlife. They also degrade water quality and availability and increase the risk of disease-carrying and nuisance mosquitoes. They also interfere with mosquito control efforts.

2. Control of these invasive plants enhances wildlife, water quality, and aesthetic values as well as restoring mosquito control efforts.

3. Collaboration among agency and non-governmental weed control and vector control organizations can result in satisfactory and cost-effective outcomes.

### References

2. David A. Popko 2008: The influence of water quality and vegetation on Mosquito Fish (Gambusia affinis) in mosquito control programs in wastewater wetlands: Presented at the 2008 MVCAC Conference
5. Debra R. Ayres, et al. 2007. Hybridization between Invasive Spartina densiflora (Poaceae) and native S. foliosa in San Francisco Bay, California, USA
6. The San Francisco Estuary Invasive Spartina Project; http://www.spartina.org
7. Peggy R. Doshen, Editor 2000: Baylands Ecosystem; Species and Community Profiles.

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### Notes

1. Invasive aquatic and riparian weeds are a major threat to waterways, displacing the native vegetation that supports wildlife. They also degrade water quality and availability and increase the risk of disease-carrying and nuisance mosquitoes. They also interfere with mosquito control efforts.

2. Control of these invasive plants enhances wildlife, water quality, and aesthetic values as well as assisting mosquito control efforts.

3. Collaboration among agency and non-governmental weed control and vector control organizations can result in satisfactory and cost-effective outcomes.