



Invasive *Ludwigia* sp. Ecology and Physiology

USDA-ARS Exotic & Invasive Weeds Research Dr. Brenda Grewell is investigating the recent aggressive spread of exotic Uruguayan primrose-willow (*Ludwigia* sp.) that has impacted sensitive wetlands of the Laguna de Santa Rosa and greater Russian River watershed. This perennial, creeping emergent weed can rapidly form dense floating mats that displace native vegetation and open water habitat, degrade water quality, increase flood risk, and inhibit effective mosquito control. Variable growth responses to environmental conditions have complicated species identification and management options. Dr. Grewell and her colleagues have initiated ecological, cytological and genetic studies to confirm species identity in California and to assess factors influencing invasion success. Development of effective management strategies for *Ludwigia* control requires information regarding weed tolerance and response to a range of environmental conditions. Their experimental approach includes an identification of *Ludwigia* growth responses to biotic and abiotic factors, life cycle vulnerability, and the effects of *Ludwigia* growth and control strategies on native plant community restoration. To inform managers, they are specifically evaluating *Ludwigia* establishment, growth, nutrient allocation, and decomposition dynamics across environmental gradients in field and mesocosm experiments. Preliminary results suggest that hydrologic manipulations and reduced sediment inputs will facilitate weed control. To support habitat restoration they are assessing sediment seed bank dynamics, plant and animal species interactions with exotic *Ludwigia*, ecological attributes and biogeochemical functions of reference and invaded wetlands, and the potential for directed succession of plant communities to inhibit *Ludwigia* establishment. With South American collaborators, they are investigating the ecology and population controls of *Ludwigia* in its native range.

<http://www.plantsciences.ucdavis.edu/plantsciences/people/affiliates/affiliates.htm>

<http://www.ars.usda.gov/Research/docs.htm?docid=15083&page=1>