Ecologically-based Adaptive Management of Perennial Pepperweed for Endangered Species and Tidal Marsh Recovery. Brenda J. Grewell and Caryn J. Futrell, USDA-ARS Exotic & Invasive Weeds Research Unit, UCD, Davis, CA, USA. bjgrewell@ucdavis.edu

Dense infestations of perennial pepperweed (*Lepidium latifolium* L.) are recognized threats to tidal wetland habitat that undermine ecosystem restoration goals in California's San Francisco Bay-Delta Estuary. A collaborative partnership developed and implemented an adaptive plan for herbicide-based management of pepperweed and secondary invaders at Southampton Bay Wetland Natural Preserve to serve as a model for comprehensive invasive weed control to support endangered species and habitat recovery. The project includes annual, high-resolution mapping of the distribution and abundance of multiple invasive weed and endangered species populations. Experimental research has provided critical scientific input to refine spatially explicit management actions through evaluation of monitoring methods, efficacy of weed-management actions, distribution and demographic responses of rare-plant populations to management, and plant community succession. Collaborative sharing of knowledge and effective communication among interdisciplinary team members has broadened our understanding of the ecology and dynamics of the target weed and endangered plant populations, and has led to effective annual adjustments in management. In five years, pepperweed was reduced to trace levels throughout the marsh, and active control of secondary invaders is underway. During the project, the area occupied by a population of endangered soft bird's-beak (*Chloropyron molle* subsp. *molle*) increased by more than 200%. Likewise, resident special status birds [California black rail (*Laterallus jamaicensis coturniculus*) and Suisun song sparrow (*Melospiza melodia maxillaris*)] have maintained population levels.