Oct 28, 2004

To: Board of Directors, Sonoma County Water Agency
Mr. Robert Floerke, Regional Manager, Central Coast Region, California Department of Fish and Game

From: The Sonoma County *Ludwigia* Task Force

Re: Control of *Ludwigia hexapetala* infestations in Laguna and Wilfred/Bellevue flood control channels, and the Laguna Wildlife Area, Sonoma County, California

CC: Sonoma County *Ludwigia* Task Force members; Representative Lynn Woolsey; Representative Mike Thompson; Assemblywoman Patty Berg; Assemblywoman Patricia Wiggins; Senator Wes Chesboro; Santa Rosa City Council; Rohnert Park City Council; Sebastopol City Council; Cotati City Council; Friends of the Russian River; Northern California River Watch; Community Clean Water Institute; Occidental Arts and Ecology Center; Brenda Adelman; Marin-Sonoma Weed Management Area; California Invasive Plant Council; Santa Rosa Press Democrat; Sonoma West Times and News

Dear SCWA Board of Directors, and Mr. Floerke,

The Sonoma County *Ludwigia* Task Force (Task Force) has completed a preliminary evaluation for the management and control of the invasive aquatic plant, *Ludwigia hexapetala* (*Ludwigia*) in the Laguna de Santa Rosa (Laguna) watershed. In light of the public and environmental health threats potentially engendered by this weed, the Task Force recommends aggressive control of dense *Ludwigia* infestations on those Sonoma County Water Agency (SCWA) and California Department of Fish and Game (CDFG) properties identified as top-priority problem areas. Control operations should begin as soon as possible.

West Nile Virus concerns

Dense stands of *Ludwigia* impact public health by creating protective breeding habitat for mosquito species that transmit West Nile Virus (WNV) – a disease affecting humans, horses and wildlife which reached Sonoma County this summer. Since its arrival in California in 2003, WNV has caused 753 human infections and 21 fatalities statewide, as of October 19, 2004. WNV also causes high mortality in many bird species, with serious implications for the abundant birds that reside in the Laguna wetlands or use the Laguna as a migratory rest-stop on the Pacific Flyway. Until dense, widely-distributed stands of *Ludwigia* are eliminated from the Laguna, the Marin/Sonoma Mosquito and Vector Control District (MSMVCD) cannot effectively control mosquitoes in these areas, diverting resources and energy from other parts of the County (over $80,000 expended to control mosquitoes in *Ludwigia* areas for 2003-04 alone).

Other environmental concerns

The Task Force recognizes that densely-growing *Ludwigia* can also have direct, negative effects on native wetland plant and wildlife communities. It has drastically reduced or eliminated shallow open-water habitats that are critically important to herons, egrets, waterfowl and other wildlife. Furthermore, seasonal sloughing of dead plant material contributes to eutrophication and a degraded fish habitat – particularly for salmonids. In addition, *Ludwigia* may contribute to flooding in the Laguna system as plant biomass fills in flood control channels, reducing hydraulic capacity and potentially increasing sedimentation rates.

The IPM approach

To respond to public health and environmental concerns, we recommend an integrated pest-management (IPM) approach for *Ludwigia* control – based on the biology of this plant and on ecosystem-level restoration and management objectives. The integrated approach should include a variety of short-term (annual) and long-term projects. As part of the IPM program, a set of Best Management Practices (BMPs) will be developed to insure full evaluation of options and to comply with regulatory requirements. The Task Force recognizes that other aquatic weeds can also hinder control of mosquito populations: the IPM approaches and BMPs developed for *Ludwigia* will inform the management of other problem species in the Laguna watershed.

Immediate or near-term response

To control *Ludwigia* in the near-term, we recommend the use of systemic herbicides in an active eradication and monitoring effort – having a scope of at least five years. Where feasible, the Task Force recommends removing residual biomass so that decomposing plant material does not create further environmental problems. Control operations should be adjusted to site-specific conditions, and may vary among and within treatment areas: with details to be finalized during the permitting process. Overall, the IPM effort should be undertaken with great care and sensitivity to the Laguna ecosystem, and include careful long-term monitoring of environmental impacts – seeking to minimize effects on non-target plants and wildlife. Implementation should follow adaptive management principles, fine-tuning planning and control efforts based on perceived effectiveness and monitoring information. The Task Force will develop a public-outreach element to inform residents in treatment areas; describing the comparative toxicities of herbicides and mosquito-control products, and the potential risk for transmission of WNV.

Long-term control through restoration

The most desirable solution for *Ludwigia* control is to restore the natural processes that reduce *Ludwigia* growth in the Laguna system. The worst infestations appear to be associated with symptoms of wetland degradation: thick sediments in shallow, slow-moving, nutrient-rich waters in full sun. The Task Force therefore strongly recommends a concurrent planning and implementation effort for long-term control strategies that include restoration of riparian areas; improved water quality to reduce nutrient loads and sedimentation; and possible modification of the current flood-control system to encourage higher-quality habitat development. These restoration measures will have additional benefits to wildlife and the overall health of the Laguna ecosystem. Long-term control must also be pursued within an adaptive management framework: making adjustments to control measures based on the response of *Ludwigia*, mosquito populations, and associated plant and wildlife communities.

Priority areas for *Ludwigia hexapetala* control

The top-priority areas for short-term *Ludwigia* control, based on mosquito production and plant density, are the Laguna channel approximately from Stony Point Road to the confluence of the Laguna and Gossage Creek in Rohnert Park; the Wilfred/Bellevue flood control channel from Millbrae Avenue to its confluence with the Laguna channel, both managed by the Sonoma County Water Agency; and the Laguna channel and flood-plain parcels of the California Department of Fish and Game Laguna Wildlife Area between Occidental and Guerneville Roads.

Request for Action

The Task Force requests the Sonoma County Water Agency and the California Department of Fish and Game acquire National Pollutant Discharge Elimination System permits for the application of aquatic herbicides to waterways, and any required California Environmental Quality Act documentation, and move forward with short and long-term control efforts under a joint partnership coordinated by the Laguna de Santa Rosa Foundation. The Task Force members are committed to participate in funding and to support control efforts as best we are able.

Sincerely,

The members of the Sonoma County *Ludwigia* Task Force:

Anna Sears, Ph.D.; Population Biologist, Research Director, Laguna de Santa Rosa Foundation
Dan Schurman; Executive Director, Laguna de Santa Rosa Foundation
Jim Wanderscheid; Manager, Mosquito and Vector Control District
Chuck Krause; Operations Manager, Mosquito and Vector Control District
Erik Hawk; Vector Ecologist, Mosquito Vector Control District
Ron Keith; Entomologist, Mosquito Vector Control District
Piper Kimball; Vector Ecologist, Mosquito Vector Control District
Lily Verdone; Plant Ecologist, Biology Master's program, Sonoma State University
J. J. Krug; Director, Sonoma County Environmental Health
Walter Kruse; Incoming Director, Sonoma County Environmental Health
Leigh Hall, M.D.; Deputy Public Health Officer, Sonoma County Department of Health Services
Allan Buckmann; Wildlife Biologist, California Department of Fish and Game
Gene Cooley; Botanist, California Department of Fish and Game
Bill Cox; Fisheries Biologist, California Department of Fish and Game
Joel Trumbo; Pesticide Use Coordinator, California Department of Fish and Game
Mike Thompson; Deputy Chief Engineer for Maintenance, SCWA
Keenan Foster; Botanist, Senior Environmental Specialist, SCWA
David Cuneo; Senior Environmental Specialist, SCWA
John Short; Senior Water Resource Control Engineer, RWQCB
Andrew Jensen; Environmental Scientist, RWQCB
Dick Butler; Team Leader, National Marine Fisheries Service
Dan Logan; Fisheries Biologist, National Marine Fisheries Service
Denise Cadman; Natural Resource Specialist, City of Santa Rosa
Caroline Christian, Ph.D.; Senior Scientist, Plant Ecologist, the Nature Conservancy
Bruce MacArthur; Senior Biologist, Sonoma County Agricultural Commission

Jake MacKenzie, Ph.D.; City of Rohnert Park, Aquatic Botanist, retired EPA regulator
Lars Anderson, Ph.D.; Lead Scientist, USDA-ARS Exotic and Invasive Weed Research, Davis CA
J. Hall Cushman, Ph.D.; Conservation Biologist, Sonoma State University Faculty
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Mike Reilly; Fifth District Supervisor, Sonoma County Board of Supervisors