

<http://www.alt2tox.org/pdfs/Blossey-Feb08.pdf>

From the expert declaration of Dr. Bernd Blossey on behalf of Californians for Alternatives to Toxics for the Humboldt County Superior Court:

The Purple Loosestrife Project (PLP), as outlined by the California Department of Parks and Recreation estimates the purple loosestrife population in the treatment area [*on the main stem and south forks of the Eel River*] has increased from 75 sites in 2001 to >200 sites in 2003. More recent estimates are not available but it appears likely that the plant has further increased its abundance and colonized new sites. In my professional opinion, I found it puzzling that there is no recent update on the number of sites, their detailed locations, or the number of plant individuals at the sites. The clearly stated objective of the PLP is eradication. An eradication plan needs to outline how to tackle the different populations spatially and monitor success, none of it is evident in the documents I was able to review. Within a watershed, the most upstream populations should be targeted first to stand any chance of success. In addition, there is no long-term financial plan to maintain treatments once the current grant runs out. Eradication success and ability to finance control efforts are intimately linked. Letting the funding lapse for just a year may ruin all efforts of past years. I am not convinced that logistical and financial concerns have been appropriately addressed. I see reference for potential grant applications but none that is convincing.

In the following, I will address the concept of eradication put forth by the PLP. I am unable to find a reference (and I am sure there is none) that the PLP has used to assess the feasibility of eradication given that >200 purple loosestrife populations exist along the Eel River. I see no particular circumstance, no improvement in treatments methods, or any other abiotic or biotic difference between thousands of control projects conducted across the country over the past decades and the PLP proposed here. I find it difficult to understand why eradication efforts would work on the Eel River when they failed everywhere else. I can only conclude that the PLP uses the term eradication either inappropriately, or in an attempt to downgrade other control options. In my own opinion, herbicide use is the only option for eradication, yet time for purple loosestrife eradication on the Eel River has long passed. My assessment of the plan is that it will fail in eradicating the target plant, it will become cost prohibitive, it will introduce significant amounts of herbicide into the environment with potential non-target effects and further delays in the development of an appropriate management plan. Thus the PLP will have a significant impact, but not the one intended by the plan.

I find the declaration that there will be no impact on any riparian species problematic, to say the least. Evidence from other control programs, particularly in Minnesota, where data were at least collected, suggest that herbicide treatments accelerate decline of native species and further favor purple loosestrife. This is a direct cause of the ability of purple loosestrife to respond to newly available habitat through regeneration from the seed bank or from remnant viable root fragments not killed by herbicides. The ability of purple loosestrife to respond to such an opportunity is much greater than the ability of native species to take advantage of the same scenario. I see no reason to assume fundamental differences between the situation in Minnesota and in California, although plant species identities will be different.

Integrated management of purple loosestrife on the Eel River.

The documents I was able to review suggest that purple loosestrife on the Eel River occurs in scattered populations of variable abundance from single plants to hundreds of individuals. The most sophisticated approach would be the development of an integrated management plan targeting individual plants (5-10) of the most upstream locations that can be located with herbicide. In addition to herbicide treatments of individual plants, biological control releases

should be attempted. The PLP does not use the most appropriate or recent evidence in rejecting biological control options. In separate email messages to various participants I have already outlined my assessments (which were rejected because the PLP option is eradication) and I will not repeat them here. Most importantly, a combination of different insect species attacking leaves and roots should be attempted and releases should be conducted over multiple years until an assessment about establishment and suppression can be made. At least 3-5 years are needed to allow herbivores to build sufficient populations. Appropriate release sites do not need hundreds of purple loosestrife plants, 50 is sufficient since more sites are available along the river.

Summary.

Purple loosestrife has firmly established itself on the shores of the Eel River. Populations are sufficiently large and widespread that eradication is no longer an option. The PLP states that purple loosestrife populations are still small enough to be eradicated without providing any evidence that this can be accomplished. I am not aware of any published evidence for herbicide eradication if populations measure more than just a few individuals. The PLP does not provide any evidence that eradication can succeed on the Eel River when similar attempts across North America have persistently failed. Continued use of herbicide will have large financial and potentially harmful ecological consequences (negative impact on native plants) that may lead to accelerated invasion by purple loosestrife. A better alternative is an integration of herbicide (targeting individual plants or small upriver populations of no more than 10 individuals) and biological control. The goal of the program can no longer be eradication by prevention or reduction of negative effects of purple loosestrife. Biological control appears to be the best method of choice, or it should at least be tried although there is no guarantee for success. Regardless of the methods of choice, the PLP should incorporate a detailed monitoring plan (digital photographs are insufficient) to assess how control treatments are working. Monitoring should include purple loosestrife plus the associated plant communities.

Bernd Blossey, Associate Professor and director, Ecology and Management of Invasive Plant Species Program at New York's Cornell University, is a nationally recognized expert on invasive species, biological control agents and purple loosestrife. His webpage can be accessed at <http://www.invasiveplants.net/>

Californians for Alternatives to Toxics filed suit against the California Department of Parks and Recreation for approving the Purple Loosestrife Project without complying with the California Environmental Quality Act, which requires the involvement of the public in an environmental review of projects of significant environmental effect.

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