

Progress Report for 2016
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**Developing an Integrated Management Strategy
for
Flowering Rush (*Butomus umbellatus*)**

Activities in 2016:

Peter Rice has been administering and coordinating the project, continuing liaison work with Flowering Rush Biocontrol Consortium, Columbia River Flowering Rush Working Group, & Montana Biocontrol Group. As well as working with Jenifer Parsons (Washington Dept of Ecology), to provide CABI Switzerland with native plant species from North America for no-choice host-specificity tests with *Bagous nodulosus*.

CABI has completed *Bagous nodulosus* no-choice development tests on 35 plant species with no successful ovipositing. Rearing of this weevil has been better than 1st reported but still needs improvement. *Bagous validus* was found at 4 sites in Slovakia.

CABI has found in Europe a white smut (*Doassansia niesslii*) with potential for high damage and flowering rush populations from the US have been successfully inoculated.

Through contacts with Rachael Croisser, past Director of the Washington Invasive Species Council Virgil Dupuis initiated discussions with the Montana Invasive Species Council, the Confederated Salish and Kootenai Tribes, and the State of Montana on flowering rush issues related to impacts of invasive fish, particularly northern pike, on native salmonids in the mid Columbia and Upper Flathead.

Salish Kootenai College, the University of Montana, and the USFS Rocky Mountain Research Station submitted and received USDA funding to continue investigations into flowering rush food web interactions and invasive fish that may impact native trout and salmon. A part of the study will initiate a northern pike genetics evaluation of the middle Columbia and Upper Flathead populations to determine the level of connectedness of the populations, and help answer whether upstream northern pike populations are supplementing downstream populations. The Washington Kalispell and Spokane Tribes of Indians and the Confederated Salish and Kootenai Tribes in Montana, as well as the State of Montana are partners on the project.

Virgil Dupuis contacted all Montana Tribes on issues of invasive plants affecting tribal resources. Four tribes completed the invasive species assessment and all the tribes attended the State Invasive Species Summit in Helena.

The Bonneville Power Administration and State of Montana hosted two telephone calls concerning northern pike and impacts to native fisheries. Virgil Dupuis participated in these conference calls. Discussions with fisheries managers from the mid-Columbia to Upper Flathead River included the Kalispell, Spokane, and Confederated Salish and Kootenai Tribes, Bonneville Power Administration, and Montana Fish, Wildlife, and Parks managers.

Virgil Dupuis also participated with the Columbia River Flowering Rush Working Group sharing information on flowering rush.

Virgil Dupuis gave two presentations at the Northern Rockies Invasive Plant Council flowering rush biological control symposium meeting in Boise Idaho concerning flowering rush. He also assisted Nathan Harms from the US Army Corps of Engineers collecting flowering rush samples searching for potential fungal biological agents acting on flowering rush.

Upcoming Activities for 2017:

In cooperation with Jennifer Andreas, Washington State University Biological Control Program, we are planning a spring flowering rush meeting in the Spokane area focusing on issues related to flowering rush and potential impacts to native fisheries important to the Spokane and Kalispell Tribes and regional managers.

Virgil Dupuis will be attending the Alberta Invasive Species Meeting in March 2017 to provide a flowering rush update on collaborations and projects, environmental impacts, and control results, including herbicide treatments, from the Upper Flathead to middle Columbia River.

Peter Rice and Jennifer Andreas are seeking additional funding from the Montana Department of Natural Resources to draft a TAG petition and begin negotiations with TAG to get permission to bring *Bagous nodulosus* to the United States. Jennifer Andreas, Jenifer Parsons, and Carol Randall (USFS) are seeking a US quarantine facility to accept this weevil.

CABI Objectives for 2017:

- Continue host-specificity tests with *Bagous nodulosus*
- Continue improving rearing method for *B. nodulosus*
- In case successful, conduct impact experiment
- Continue investigating biology of *B. validus* and setup rearing
- Collect additional *P. ornata* to study its biology and develop methods for host range tests
- Provided triploid flowering rush infected and life cycle known, conduct host-specificity tests with the white smut