

**Of interest on page 2:**

- **Spartina Bio-Control**
- **Olympic Experimental Forest LMS**



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[www.onrc.washington.edu](http://www.onrc.washington.edu)



## Director's Message

**John Calhoun**

The long-term health of any organization ultimately depends upon the people who work there. We are particularly blessed with an outstanding staff. I can truthfully say that there has never been a time, over the seven years of my association with the Center, when we have had a more professional, competent staff. They work together like clockwork, each complementing the strengths of the others.

We are just completing the process of adding two new persons to our organization.

These positions are made possible by reorganization of duties and vacancies created over the last two years. Now we are ready to proceed with enhanced programs of educational outreach and Geographic Information System (GIS) services.

I am pleased to welcome Ellen Matheny to our staff as the Director of Education and Outreach at ONRC. Ellen has resided in our community for some time now, working part time with the Forks Chamber of Commerce. She brings

outstanding credentials for the position; BS in Secondary Education, MA in Special Education, MS in Industrial Engineering and a Certificate in Web-based Business Management. Ellen will report November 1<sup>st</sup>, joining an already outstanding professional staff.

Interviews for the GIS position continue; many outstanding applications have been received.

Strong competent people build a strong organization. Many factors influence our ability to succeed in our mission, but chief among them is the quality of our staff.

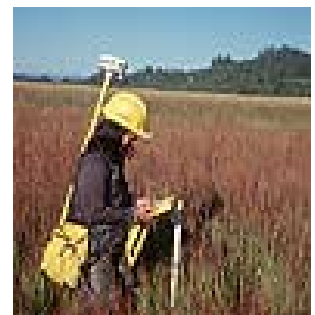
## Marine Program Happenings

**Miranda Wecker, Marine Program Manager**

The development and utilization of a GIS-based decision support tool remains an important focus of ONRC's *Spartina* control program. ONRC's GIS-based planning tool is evolving rapidly into a tool of great importance. GIS Specialist Teresa Alcock and her colleague Keven Bennett have tailored this ARCVIEW application to bring together all available and relevant data layers describing Willapa resources, incorporated a dynamic model, and designed special features to assist in planning the control program and assessing costs. The team was asked by the US Fish and Wildlife Service

to evaluate their 6-year comprehensive plan for eradication of *Spartina*. That analysis showed that the Service greatly underestimated the requirements of eradication. The ONRC analysis was used to support the need for a Congressional appropriation of \$1.2 million per year for 6 years to match the state allocation of \$1.2 million per year for Willapa Bay. At present, ONRC-GIS is in the process of evaluating the state agencies' 3-year management plan. ONRC has prepared numerous displays and maps to help visualize the state and federal control programs, analyze the

portion of the infestations on private land and monitor the progress of the control program.



*GIS Specialist Teresa Alcock locating bio-control research sites on Willapa Bay*

## Research Program Update

*Jason Cross, Research Coordinator*

ONRC's current research efforts are focused on landscape planning. Specifically, we're working with the DNR to create management plans for two units - Reade Hill and Goodman Creek - on the Olympic Experimental State Forest (OESF). The most fundamental aspects of landscape management planning are stating (clearly) the management objectives and defining success in measurable terms. While the State has a fiduciary responsibility in managing these (Trust) lands, requirements stemming from Washington's Habitat Conservation Plan (HCP) limit the intensity of management across these landscapes.

DNR's stated management objectives for these units are: creation and maintenance of habitat for the Northern spotted owl (both old-forest and sub-mature), marbled murrelet, and Roosevelt elk; and managing the landscape in the financial interests of the Trustees. DNR has also defined success for these objectives in measurable terms.

We have examined the current composition of the landscape and captured the variability in groups. Combining current forest conditions with management objectives and measurable criteria for success, we have created a set of silvicultural pathways (prescriptions for stands over long periods of time). By applying different silvicultural pathways to a stand with its given set of initial conditions, we can gauge the relative degree of success across various management (silvicultural) alternatives, and the relative speeds by which we achieve one or more management objectives.

We hope to provide the DNR a matrix of alternatives for these two landscapes within the next month. DNR can then compare simultaneously the relative costs and benefits of all management alternatives in terms of each management objective – allowing them to select the alternative (or create their own) that best achieves their management objectives.

## Weed-eating insects may be the solution to Spartina problem in Willapa Bay

*Fritzi Grevstad, Bio-Control Specialist*



*Prokelisia marginata* nymphs and adults on a leaf of *Spartina alterniflora*. The winged adults are 3-4 mm in length.

**The ONRC Spartina Biological Control Program** is employing insects to battle *Spartina alterniflora* in Willapa Bay, WA. For the past century, this invasive grass has been spreading through the intertidal mudflats eliminating habitat that is critical for shorebirds, waterfowl, a variety of fish, and native and cultivated shellfish. The growth of Spartina has been explosive in recent decades---the area covered has been increasing

at a rate of 20% per year. A variety of control tactics are being used to battle the problem. ONRC has taken the lead on a biological approach, using a planthopper insect called *Prokelisia marginata* that lives on the east coast and in California but did not previously occur in Washington. This insect feeds only on Spartina so it won't harm other plants.

Biological control is an ecologically sound, economical, and in many cases, highly effective means of eliminating large scale weed problems. And it is safe, provided the feeding habits of the organisms are thoroughly tested ahead of time to make sure they aren't going to eat up native or otherwise desirable plants. An important advantage is that, once introduced and established, the insects will multiply and spread on their own. And they will continue to exert pressure on the weed long term without additional input. Our job is to make

sure populations of these insects get fully established at lots of sites throughout the bay so they can begin to do their job.

At this point, we've introduced a total of about 400,000 insects at 16 sites over the past 3 years. While it's still too early to know what kind of impact they will have, the early results are encouraging. On average, planthopper populations increased by a factor of 4.3 in the summer months and have reached localized densities up to

49,000 per square meter. The insects have also demonstrated that they can reduce the biomass of Spartina in large field cages by 50% during the course of one summer. The greatest challenge for these insects is surviving the winter. Mortality factors include winter storms, tidal action, and spiders which prey on the planthoppers. We are currently experimenting with ways to boost winter survival so that they start off in greater abundance in the spring.



*Spartina alterniflora* growing in tidal mudflats of Willapa Bay. The round clonal patches grow larger each year, eventually coalescing into dense meadows.