

Integrating Conservation Biological Control on Farms: Banking on Beetles in Oregon

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www.beetlebank.org

Background

*In 2005, several vegetable farmers attending Farmscaping for Beneficial events expressed an interest in constructing beetle banks as a conservation biological control method on their farms.

*Beetle Banks are undisturbed, grassy mounds constructed in the field that provide essential over-wintering habitat for predatory beetles and spiders that act as generalist feeders among crops throughout the growing season. The beetles and spiders have the potential to limit numbers of many kinds of crop pests.

* In 2006, four farmer cooperators and Gwendolyn Ellen were awarded this two-year SARE Agricultural Professional and Farmer Grant entitled Banking on Beetles in Oregon. Banking on Beetles in Oregon is a project that helps farmers develop experimental beetle banks of their own design on their farms. This involves developing techniques for beetle bank construction and establishment and making preliminary assessments of their value as pest management tools in vegetable farming systems. The banks are a focus for evaluation, learning and feedback among growers using various participatory, community integrated pest management (IPM) approaches.

*In 2006, we set our targets on development of bank construction techniques, bank establishment and sharing techniques through farm walks and meetings. In 2007, we worked on fine tuning bank establishment, maintenance and weed management in addition to fulfilling our objectives of understanding the characteristics of the selected native grasses and the occurrence and diversity of predacious ground beetles on the farms.

*The program consists of:

- Farmer-to-farmer information exchanges
- Farm walks and demonstrations of techniques
- On-farm research and development
- Emphasis on farm planning as well as the techniques themselves

Outreach/Actions



Four farm walks, two farmer dinners, two farmer panels, farmer and poster presentations at 5 regional conferences, one watershed meeting, and five Bugscaping Games (an interactive habitat planning session) have exposed hundreds of Pacific Northwest growers to diverse farming systems, a variety of functional agricultural biodiversity techniques used by farmers, including the construction of beetle banks in Oregon and what we are learning about the predacious ground beetles associated with them. The images above show a farm walk at Gathering Together Farm, Philomath, Oregon, "bugscaping" Fry Family Farm in Central Point, Oregon with farmer cooperator Vince Alionis, and a beetle bank tour at a farmer dinner at Persephone Farm, Lebanon, Oregon.

Farmer Collaborators and Beetle Banks

Since 2005, six beetle banks have been created on cooperating farms, two failed and two new ones are planned for 2008. The successful establishment of the banks requires implementation methods that fit within the farm production plan, knowledge of cultivating native grasses, farm weed and pest cycles and the ecology and biology of the predacious ground beetles.



Mulched hand-raised beetle bank at 47th Ave Farm, Portland, Oregon



Above, one of three banks at Persephone Farm fall broadcast seeded with *Alopecurus geniculatus* in Lebanon, Oregon



Plowing to raise the beetle bank (right) and mulching the bank (far right) during a farm walk at Whistling Duck Farm, Grants Pass, Oregon



Transplanting the beetle bank (top left) at Gathering Together Farm, Philomath, Oregon. The same bank with established *Elymus glaucus* the following spring (above)

Benefits

Grass trial banks at the end of the rainbow on OSU's Hyslop Research Farm



Organisms found in beetle bank winter soil samples in 2006



Flamed 6 week-old Gathering Together Farm bank to manage weeds

A few of the many benefits from Banking on Beetles in Oregon include:

- * Developing successful beetle banks in organic systems and successful weed management techniques such as flaming, mulching and site preparation, bank raising techniques, and choosing appropriate native grass species.
- * Collecting preliminary data on predacious ground beetles populations on Oregon farms and other organisms that may be associated with beetle banks.
- * Increasing the adoption of beetle banks in the PNW. At least three non-project beetle banks are known to have been constructed in Oregon with two more planned in 2008, two have been constructed in Washington with three more planned.
- * Developing collaborations with Oregon's Natural Resource Conservation Service, Oregon Metro, The Xerces Society for Invertebrate Conservation, Oregon Tilth and the Northwest Farmer to Farmer Network

