



# Beauty with BENEFITS

**R**estoring native sagebrush steppe habitat in and near vineyards and wineries in central Washington could attract more than just beneficial insects to the vineyard. By serving as a home for butterflies, the vineyards and wineries could also attract consumers interested in sustainability, low-input farming, and experiencing nature's beauty up close.

Before agriculture came to central Washington and the Columbia Basin, the area was a vast sagebrush steppe landscape, consisting of low, wiry shrubs interspersed with clumps of perennial grasses. What looks like semiarid desert is actually home to about 30 species of butterflies, though most species have declined with the rise of agriculture, said Washington State University's Dr. David James.

The WSU entomologist believes that grape growers can play a key role in bringing back butterflies while improving the biological control of pests within their vineyards.

He's launched a multiyear research and extension project dubbed "Beauty with Benefits," explaining that the native flowers and butterflies are the beauty component and the beneficial insects and cover cropping potential the benefits.

**Butterflies could be a symbol of the Washington wine industry's commitment to sustainability and local biodiversity.**

by Melissa Hansen  
photos by David James

The project has received a total of \$250,000 for the first three years from the Western Sustainable Agriculture Research and Education, Northwest Center for Small Fruits Research, and the Wine Advisory Committee. However, James hopes to receive additional funding to carry the project beyond three years.

The project's outcome will be a habitat restoration model for eastern Washington grape growers. The model will guide selection of plant species for ground covers to enhance sustainable conservation biological control efforts, integrated pest management programs, and aid in the conservation of threatened insects like butterflies and native pollinator bees. A Web site will contain project information to assist growers.

### Butterfly conservation

"Butterflies are arguably the most popular of insects, embodying beauty, color, romance, freedom, and environmental health," he said in a summary of his research proposal. He believes butterflies could be a symbol of the Washington wine industry's commitment to sustainability and local biodiversity.

Establishing colonies of butterflies within and near vineyards would have been impossible ten years ago for two reasons, James said. For one, nurseries weren't growing native perennial plants a decade ago, and plants and seeds were very limited. Moreover, growers were using broad-spectrum pesticides that often harmed beneficial insects. But now, most Washington vineyardists use soft chemicals, and the industry has moved towards low-input farming.

He believes the timing is now ripe for viticulture and butterflies to coexist. "To actually have an agricultural industry helping to conserve species of insects is a novel idea." He



The red admiral (*Vanessa atalanta*) needs stinging nettles to breed on.



The largest butterfly in the western United States, the two-tailed swallowtail (*Papilio multicaudatus*), will live in and near Yakima Valley vineyards if its caterpillar host, the chokecherry, is nearby.



The world-famous monarch butterfly is occasionally common in the Yakima Valley and breeds on showy milkweed.



Common blue butterflies (*Plebejus icarioides*) drink moisture from damp ground. Planting desert lupine will provide food and encourage them to live in and near vineyards.

points out that Washington's wine grape industry will be the first agricultural enterprise in the United States to play a key role in butterfly conservation.

"There are a number of butterfly species that just need their host plant. If you bring back their host, you will bring the butterfly back," he said, adding that certain species could become established in the vineyards and stay on-site instead of migrating through the area.



The purplish copper (*Lycaena helloides*) likes to live in croplands. Leaving a few curly dock weeds will encourage this butterfly to breed.



Sara's orange tip (*Asara entral*) butterfly, one of the first spring butterflies, breeds on native mustards.

James included an insect conservationist from the Xerces Society as a project cooperator.

Xerces is a nonprofit organization that protects wildlife through the conservation of invertebrates and their habitat, and has been particularly active in pollinator and butterfly conservation efforts.

"There's a lot of grower and industry interest in this," James said, noting that sustainability has been a high priority of the state's wine industry, evident in the creation of sustainable guidelines for growers and winemakers (VineWise and WinWise) and regional sustainability programs. Initially, about 20 growers expressed interest in participating as a demonstration site. He now is whittling the list down to four locations.

"A lot of growers are already headed in this direction," he said. "I started work in this area because I realized that growers were doing it on their own without guidelines, based on limited knowledge." (See "Bringing the Desert Back," June 2010 issue of Good Fruit Grower for a story about grower Jim Holmes's efforts to find native plants to serve as cover crops in his vineyard.)

Past WSU research has demonstrated the value of annual flowering plants to attract and retain beneficial insects, but germination and survival of the cover crops were generally poor. Eastern Washington's characteristically dry climate makes it difficult for grape producers to grow ground covers or cover crops, especially if the vineyard is irrigated with drip emitters. Some growers have installed dual irrigation systems that can water the row middles where ground covers are grown; others have tried moving the drip line to help water the cover crop in the row middle.

Native perennial plants have an advantage over other types of cover crops because they are adapted to the local climate and most are drought tolerant. Once established, they should require little to no maintenance, James said.

Part of the research will be to identify plant species that can be easily established in the vineyard. "Some may need a little babying with water to get them started the first year, but if the plant can't survive, then it's not what we want. We're after plants that will aid biological control and pest management but not need specific looking after."

Monitor the progress of the Beauty with Benefits research at [www.wavineyardbeautywithbenefits.com](http://www.wavineyardbeautywithbenefits.com).



School children are regular visitors of the vineyard nature walks in New Zealand's Waipara Valley. Rhiannon James gets to know this butterfly up close.



### BUTTERFLY book

David James recently coauthored *Life Histories of Cascadia Butterflies*, a book about 160 butterfly species in the Pacific Northwest, to be released later this fall by Oregon State University Press. The book's second author is David Nunnallee, who has studied butterflies for 15 years, cofounded the Washington Butterfly Association, and has 200 of his photographs published in field guides and public displays.

The coffee-table book, with its descriptions and photographs of every life stage of virtually all Cascadia butterfly species and information about the biology, ecology, and rearing of the species, should appeal to anyone from naturalists and gardeners to scientists and conservationists. The book, representing more than 20 years of research, should also be a resource for biological-based farming enterprises interested in conserving butterflies.

For information, send an e-mail with "butterflies" in the subject line to: [osu.press@oregonstate.edu](mailto:osu.press@oregonstate.edu). Visit <http://oregonstate.edu/dept/press> for information about Oregon State University Press. —M. Hansen