

Conservation SHOWCASE



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Mosaic of Niche Ecosystems: Tree Farmers Restore Oak Woodlands to Benefit Wildlife

BROWNSVILLE, Ore.—Ed and Jim Merzenich wanted to improve the hunting grounds on their Oak Basin Tree Farm, a 961-acre woodland perched on the north Coburg Hills in the Willamette Valley. As they examined their land, however, they realized the existing habitat was not ideal for the local blacktail deer or Roosevelt elk because a tangle of invasive shrubs covered much of the ground, preventing the growth of native

grasses and wildflowers that these animals depend on. “You couldn’t get through the blackberries,” said Ed. “They were 15 feet tall everywhere.”

Areas where Douglas-fir trees had been heavily logged on their farm had not been managed or replanted, and the native oak stands were too dense to allow grass growth for wildlife. Thick waves of Scotch broom, milk thistles, Himalayan blackberries, and Canadian thistles engulfed the forest understory and choked the meadows.

The brothers turned to the **USDA Natural Resources Conservation Service (NRCS)** and other natural resource partners for advice and assistance, and they learned that both brush removal and oak restoration were key elements in beginning to manage the property for wildlife use.

“Oak woodlands and savannas in the Willamette Valley have been radically diminished by urban growth, clearing for agricultural purposes, and

ABOVE: Jim Merzenich sits amidst the Fender’s blue butterfly habitat, which he has been improved through conservation projects. Jim and his brother Ed were named 2012 Tree Farmers of the Year in Linn County.



Stands of Oregon White Oak have been outcompeted by invasive conifers, causing a dramatic drop in population.

vegetative changes due to the cessation of the use of fire to control undergrowth,” said Nathan Adelman, NRCS District Conservationist for Linn County. Only seven percent of historic oak woodlands and four percent of oak savannas still exist today in the Willamette Valley. This dramatic alteration of habitat has had a damaging effect on some of the local wildlife.

Management of blackthorn and other invasive shrubs is aided by a Caterpillar Skid Steer™, a multi-use Cat that can dive in to a thicket and cut, pull, remove, and pile brush.



The first step to improve conditions on the farm was to release the land from the weeds and invasive brush using both mechanical and chemical methods. The **NRCS Wildlife Habitat Incentives Program (WHIP)** provided the Oak Basin Tree Farm with a combination of technical and financial assistance for the eradication of those non-native shrubs and weeds on about 60 acres, as well as for the thinning and trimming of the trees on an additional 100 acres. With support from the U.S. Fish and Wildlife Service (FWS) Partners for Fish and Wildlife Program and the Oregon Department of Fish and Wildlife, hundreds more acres of Himalayan blackberries were mowed while native grasses and wildflowers were seeded to help improve wildlife habitat and forest health.

The brothers began to manage their forest stands to thin crowded trees and to remove bigleaf maple, blackthorn, and hawthorn. Following the clearing of these less desirable species, native Oregon white oak (*Quercus garryana*) tree seedlings were planted. There is strong scientific evidence that oak savannas and woodlands were dominant in the Willamette Valley until the Kalapuya Indians

(also known as Calapooya or Calapooia) burned them to spur the growth of grass prairies that would support larger herds of wild deer and elk. However, Douglas-fir trees sprang up in the burned clearings, outcompeting the Oregon white oak.

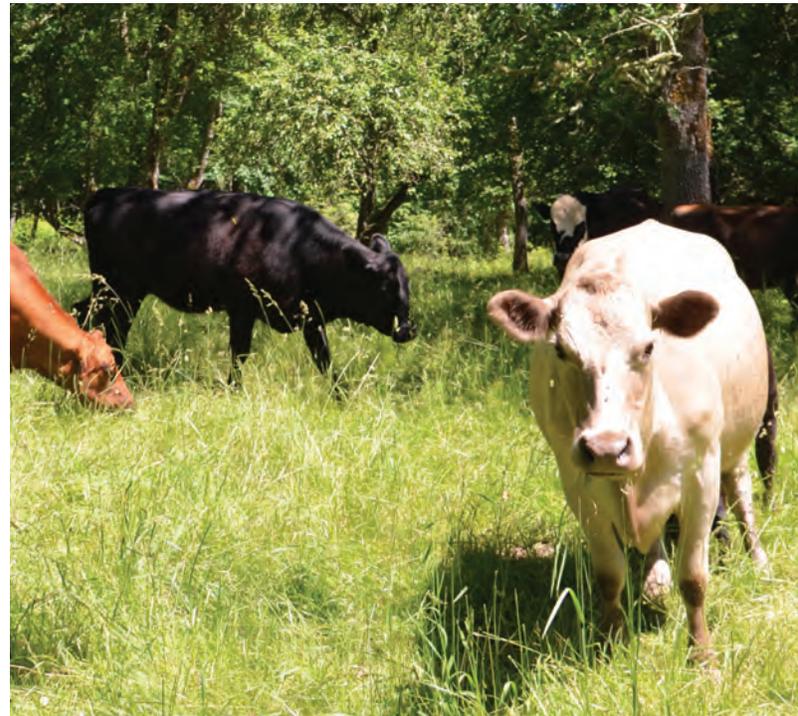
Restoring oak habitat will allow diverse populations of grasses, forbs, and shrubs to grow on these sites, which will in turn help threatened species on Oregon’s Sensitive Species List, such as the Western Gray Squirrel, Acorn Woodpecker, and some neo-tropical songbirds. Most notably, it will help the endangered Fender’s blue butterfly and the threatened Kincaid’s lupine, a plant that the butterflies are entirely dependent on.

Steve Smith, Fish and Wildlife Biologist with the Oregon Department of Fish and Wildlife and a partner on this project from the start, observed that as Ed and Jim learned more about conservation, “They became interested in a broader ecological perspective. It started with wanting to know how to improve their property for hunting, but as they learned the role oak plays in supporting those species, how habitat diversity fits into that, and then just the uniqueness of the other habitats they had here, they became very interested in making sure that was a consideration they carried on.”

Woodlands of Douglas-fir and Valley Ponderosa Pine are now balanced by oak stands on the Oak Basin Tree Farm. Native grasses, forbs, and wildflowers are encouraged to grow in the meadows and between the trees.

“Ed and Jim are managing their land for multiple objectives,” said Brad Withrow-Robinson, Oregon State University Forestry Extension Agent. “They are creating a mosaic of various little niche ecosystems that serve a lot of different species of plants and animals. This is a very diverse slope for this size property.”

While Jim and his brother have emphasized oak restoration, Jim explained that “I am a forester, and we have lots of areas where the oak is overly



Grazing cattle in the woodland prevents grass from becoming a fire ladder fuel and improves butterfly habitat.

dense, so we are going to start thinning those stands.” He plans to begin harvesting them as commercial oak saw logs for flooring and other uses.

Oak Basin Tree Farm includes a range of elevations from the valley floor to the 1,500-foot ridgeline. All the upland habitats have been incorporated into the management strategy for the farm. “It’s an amazing opportunity to support native fish and wildlife,” said Steve.

As Jim walked on the ridgeline on a warm July day, he pointed out a meadow near the top of his property that, through his improved land management and conservation efforts, is now home to the endangered Fender’s blue butterfly. “Our only population is on this hill. I couldn’t believe it, as it didn’t seem like we had enough lupine to support a population,” Jim explained.



Oregonive photo

Fender’s blue butterfly.



Mariposa Lilies provide a source of nectar source in the Fender's blue butterfly habitat on Oak Basin Tree Farm.

The Fender's blue butterfly (*Icaricia icarioides fenderi*) is endemic to the Willamette Valley prairies. It was believed to be extinct from 1937 until it was rediscovered in 1989. It is now listed as endangered under the federal Endangered Species Act, highlighting the importance of the Merzenichs' hard work to maintain and improve habitat that will ensure the recovery of the species.

The Fender's blue butterfly lays its eggs on the Kincaid's lupine, and the caterpillar later feeds on the plant's leaves. These endangered plants grow at several different locations on the tree farm.

Once they emerge, however, the butterflies prefer to dine on the nectar of Mariposa lilies, checker mallows, and wild irises, the flowers of which are easy to open and have nectar within reach of the butterfly's short proboscis. Since tall perennial ryegrass can make it difficult for the butterflies to find these flowers, Jim has been spraying the meadows to keep the non-native grass short. Cattle are also used on the property to keep the grass at a healthy length. This not only improves the butterfly habitat but also prevents the grass from extending above the understory, becoming what is known as a ladder fuel that allows fires to climb into the tree canopy and spread.

The butterflies here are thought to be living at the highest elevation of any of the 32 populations documented in the Willamette Valley. While this group is small at only 50 butterflies, Jim is hopeful the number will swell to 200, at which point it would be a genetically viable colony. To encourage the butterflies to expand to additional locations on the tree farm, Jim is planning to limb up some trees so the butterflies will see light and find the connecting meadows, improving the chance that the butterflies will expand their territory and grow in number.

Ed and Jim's efforts to better manage their woodland have not gone unnoticed. They were recently named the 2012 Linn County Tree Farmer of the Year. With the help of the NRCS Wildlife Habitat Incentive Program along with assistance from the Oregon Department of Fish and Wildlife, Oregon State University Extension Service, and other partners, Ed, Jim, and their families will continue to manage their property using the conservation methods they have learned and to continue their intensive effort to help the Fender's blue butterfly and other wildlife species thrive on their incredibly diverse and rich woodland.