

## Case Study: Protecting Pollinators While Fighting an Invasive Pest

There is a strong history of conservation management in Mike Omeg's family. As the fifth generation to farm on his family's land, Mike takes the land's history, and its conservation, seriously. Currently, Omeg Orchards grows 350 acres of sweet cherries in The Dalles, Oregon. Wild bees first came across Mike's radar through his approach to pest management, which included establishing insectary plantings to support beneficial predatory insects. The plantings did their job, drawing in lacewings, lady beetles, and other beneficial insects that suppressed a number of cherry pests, allowing Mike to reduce insecticide sprays. The plantings also attracted pollinators, and Mike began to notice that trees near the plantings had increased yield due to improved pollination. Soon after, Mike worked to establish additional habitat on the farm to support both bees and beneficial insects, installing insectary plantings and hedgerows near orchards, along roadsides, and near outbuildings.

Pollinator and beneficial insect protection from pesticides has been a key component of Mike's IPM program. Mike could keep his key pests under damaging thresholds by utilizing products such as insect growth regulators or *Bt* that were not harmful to bees or beneficial insects. Wild bees and beneficial insects were more abundant than ever. But with the arrival over four years ago of a new invasive pest, spotted wing drosophila (*Drosophila suzukii*), pest management strategies had to change. Unlike other fruit flies that need damaged fruit in order to lay their eggs and have only one generation a year, spotted wing drosophila (SWD) can cut into undamaged fruit to inject their eggs (introducing fungal diseases in the process) and can complete several generations during the growing season. Unfortunately, there is limited knowledge of the biology of SWD, so its susceptible life stages, the best ways to monitor it, and damage thresholds are not fully known. As a result, IPM for SWD is still in early stages. In order to control SWD, Mike and other tree fruit and small fruit growers across the country have had to resort to products that are much more harmful to bees. Before the arrival of SWD, Mike hadn't applied pyrethroids, a group of insecticides highly toxic to bees, on his land for 20 years.

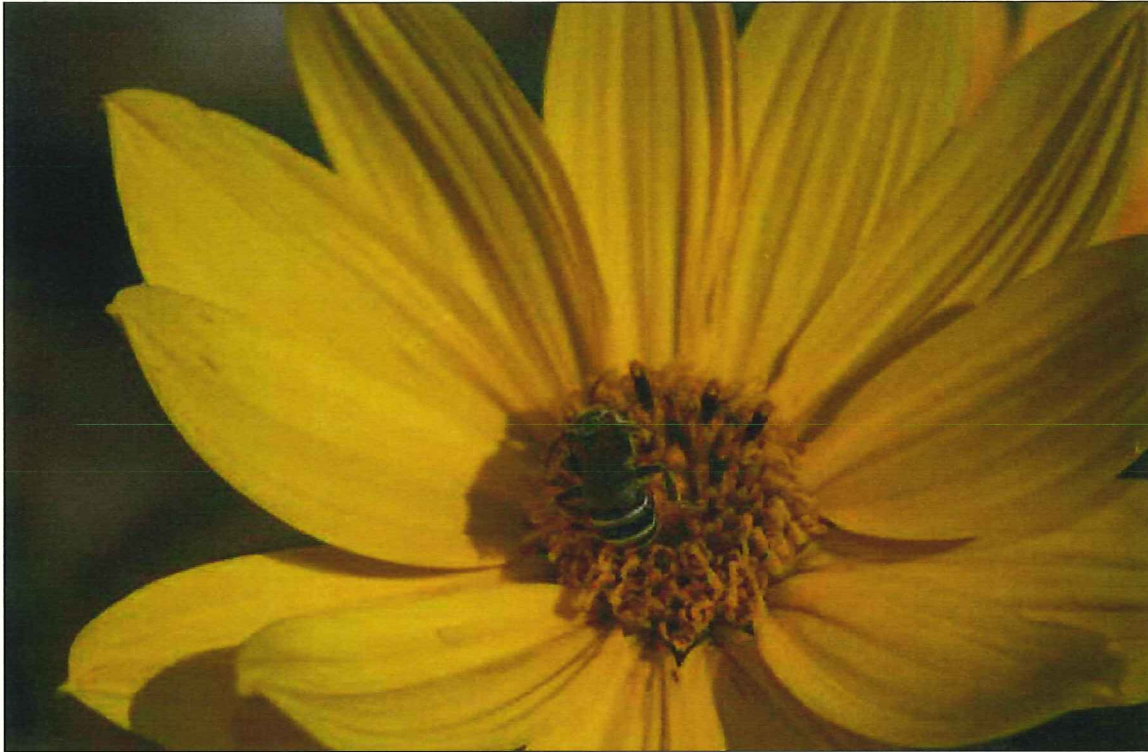
Nuttall's sunflowers draw pollinators and increase yields in adjacent trees at Omeg Orchards, in The Dalles, Oregon. (Photograph by Mace Vaughan, The Xerces Society.)



With the arrival of SWD, Mike was forced to adapt to less pollinator-friendly pest management strategies. Despite the obstacles of SWD control, Mike has worked to reduce risks to pollinators whenever possible. Although he must sometimes use chemical products that are toxic to bees, he reduces exposure to bees by spraying at night when bees are not active, and by not applying products during the cherry bloom. He has also started to mow down any blooming plants within the orchards before spraying for SWD, so bees are not exposed by drift onto non-crop flowers. Mike is focusing on encouraging early blooming shrubs like golden currant and serviceberry, as well as late blooming wildflowers like goldenrod and sunflowers to support bees. These plants all bloom outside the period of application to treat to SWD. Plantings in the understory of non-bearing orchards, which are not treated for SWD, also serve as a refuge for bees.

Though the situation is less than ideal, Mike's steps to protect pollinators and beneficial insects despite heavy pest pressure from SWD mean that he still sees some bees on the farm. He is hopeful that IPM tools will soon become available that will allow him to return to a more bee-friendly system.





Long-horned bee using Nuttall's sunflower, a late blooming resource, at Omeg Orchards. Sunflowers bloom outside the period of application to treat spotted wing drosophila. (Photograph by Mace Vaughan, The Xerces Society.)

Despite the challenges of novel pests, Omeg Orchards still practices IPM and supports native bees with habitat plantings. (Photograph by Mace Vaughan, The Xerces Society.)

