

# Keeping wild bees and wild grasslands healthy

**Ellen Morris Bishop**  
Wallowa County Chieftain

Sandy DeBano waded through Zumwalt Prairie's tall, dry bunchgrass and swept her long, white net deftly through late July's fading flowers. "Got 'em" she said. The net held treasures: two bumble bees, a sweat bee and multiple small flies — all late-season pollinators. The catch would help define how fire and grazing practices may benefit some and imperil other wild pollinators in grassland ecosystems on The Nature Conservancy's Zumwalt Prairie Preserve. "The outcome will help TNC to manage grazing as well as fire and invasive plants, so that pollinators thrive and grasslands flourish," said TNC Zumwalt Prairie Project Manager Jeff Fields.

Dr. DeBano, an Oregon State University Associate Professor of Wildlife Ecology, specializes in wild pollinators. More specifically, she studies how human management affects bees, butterflies, beetles and other tiny invertebrates, and the ecosystem services they provide.

Most of us know that honeybees — the imported European honeybee that pollinates many commercial crops is in trouble. Disease and the mysterious colony collapse disorder continue to take their toll.

But many native bee species are also struggling. These wild pollinators ensure our backyard garden's fecundity, and the overall health and productivity of grassland ecosystems for wildlife, people and livestock.

The Nature Conservancy is collaborating with Oregon State University at its Zumwalt Prairie Preserve to study how wild bees respond to fire, invasive plants and grazing. "The study's overall goal is to increase our understanding of how these factors affect native bees so that we don't accidentally hurt bees while we are managing the prairie for the other things we care about," Fields said.

The three-year-study on TNC's preserve kicked off in the spring of 2018, and will continue through 2020. Its \$660,000 budget is supported by the Foundation for Food and Agriculture's Pollinator Health Fund, with additional contributions from The Nature Conservancy, and Oregon State University. It's part of the continuing research on the Zumwalt Prairie Preserve.

"Not all the results from the summer of 2018 are tabulated yet," DeBano said. But previous work at the Zumwalt provides a glimpse of what they'll find.

"Bumble bees are one of the most abundant types of bee pollinator," said Heidi Schmalz, TNC Zumwalt Prairie biologist. "They comprise about 30% of all the bee species out here. They are really important on the Zumwalt."

For example, there are only two known pollinators of the rare, threatened Spalding's Catchfly. Both are bumble bees — the yellow bumble bee and the white-shouldered bumble bee, according to a 2012 study by DeBano and TNC ecologist Rob Taylor. While other insects may help pollinate the Spalding Catchfly's complex flowers, only these



Photos by Ellen M Bishop  
**Sandy DeBano inspects her net for pollinating insects.**



**Bumblebees comprise about 30% of pollinators on the Zumwalt Prairie Preserve. They are semi-solitary bees that prefer cooler, aspen-rich sites and unglazed areas according to research by Dr. Sandy DeBano and others.**



**Not all pollinators are bees. This hover fly does its fair share of pollinating flowers on Zumwalt Prairie.**

the grazed areas because for them, the more compacted and exposed soils provided prime nesting habitat.

"In the current study, we'll be looking at these questions in more detail," DeBano said.

Could sweat bees, which increase in grazed areas, do the pollinating work of bumble bees that avoid them? "Sweat bees generally visit flowers that have different shapes and sizes than the flowers visited by bumble bees. We don't know that sweat bees could step in to fill their roles," DeBano said.

There's much still to learn about the relations between wild pollinators, grazing, fire and invasive plants. How do the flowering species differ between burned and unburned areas? What effect does this have on both pollinators and grazing animals including deer, elk, and cattle? Does fire directly effect pollinators? Do invasive plants support or diminish specific pollinators? And how do pollinators, fire, invasive plants, and grazing all interact here?

These and other questions will be addressed during the upcoming, second year of the study.

"Wild pollinators are important," Fields said. "Livestock grazing is also an important and a very prevalent use of this landscape. If we are going to have both thrive here on the Zumwalt, we need to understand all this better."

**'BUMBLE BEES ARE ONE OF THE MOST ABUNDANT TYPES OF BEE POLLINATOR!'**

Heidi Schmalz, TNC Zumwalt Prairie biologist

have striped abdomens, or be greenish or bluish with an attractive metallic sheen. "They are beautiful bees," DeBano said. "They live in

solitary nests in bare, compacted ground in contrast to bumble bees who nest in abandoned rodent burrows and other cavities, or at the

base of grass tussocks — not compacted soils."

A 2012 study by DeBano and others found that areas with higher grazing intensity saw declines in bumble bees and increases in sweat bees. The probable reasons: bumble bees avoided areas where grazing had removed many of the flowers they needed for pollen. But the sweat bees were attracted to



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