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.

two long-tongued bumble

bees were observed gather-

ing pollen from the deeply

bumble bee numbers are

decreasing, according to

the Xerces Society, a sci-

ence-based nonprofit ded-

icated to pollinator and

invertebrate conservation.

Some bumble bee species

have experienced rapid and

dramatic declines. Accord-

ing to Xerces Society data,

about 28% of all North

American bumble bees

are facing some degree of

extinction risk. One spe-

cies, the western bumble

bee was the most abundant

bumble bee in Oregon until

the 1990s when an imported

viral disease decimated their

populations. They vanished

from the Willamette Valley,

and were considered virtually extinct across Oregon.

Zumwalt. "We found our

first western bumble bee in

2006 when we first started

surveying pollinators on the

Zumwalt," DeBano said.

'Since then, we've contin-

ued to find them. We seem

to have a pretty good popu-

ern bumble bees survived

here," DeBano said, is that

the disease that decimated

the bumble bees on the west

side never made it over the

Cascades. "Our work at the

Zumwalt was the first to

show there are fairly healthy

populations of these bees

east of the Cascades," she

said. Still, the western bum-

ble bee is fairly rare. "It's

about 1 to 2% of all the bum-

ble bees out here on Zum-

walt. Not super common.

But it could be an import-

ant pollinator for a certain

plant species." A study of

pollen that the western bum-

ble bees carry on their legs

will help DeBano and her

students determine which

plants these rare bumble

of many types of pollinators

on Zumwalt. Sweat bees —

so named because they seem

to be attracted to the mois-

ture of human sweat — are

relatively small bees nearly

equal in importance to their

larger cousins. Late in the

year, they are often more

abundant. Sweat bees may

Bumble bees are only one

bees frequent.

One likely reason west-

lation out there."

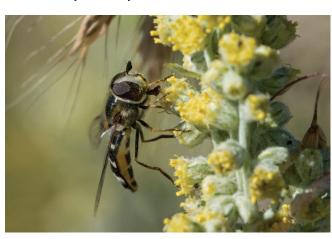
But there's good news for these bumble bees on

Across North America,

indented blossoms.



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.

'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

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

prime nesting habitat.

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

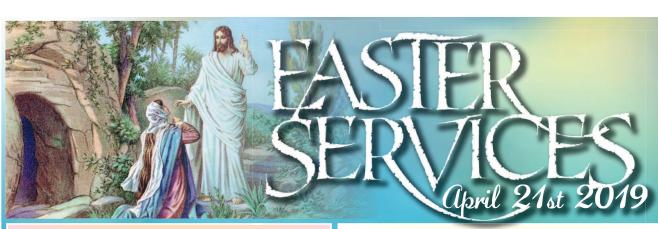
DeBano said.

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."



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Maunday Thursday
Thursday 5:30pm

Easter Brunch at 9:30am Easter Service Begins at 11am



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Thursday
Maunday Thursday Communion 7:00pm

Maunday Thursday Communion 7:00pm
Friday
Community Good Friday Service 7:00pm

Sunday
Sunrise Service at 6:30am
Easter Worship Service at 9:00am
(Nursery provided)

Coffee cake, rolls, muffins from 8:00-9:00 a.m.











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