OSU professor releases destructive moths, wasps into orchards

Eli Francovich
Columbia Insight

Each week for the past three months Christopher Adams, a professor at Oregon State University, has released upward of 4,000 codling moths into the Columbia Gorge's fertile orchards.

The drab, half-inch nonnative insects don't look like much, but when they lay their larvae inside apples, pears, walnuts or other crops, they wreak havoc.

According to one 2018 analysis, they cost Washington apple growers more than half-a-billion dollars in damages.

And that's exactly why Adams has released the moths.

No, he's not an agroterrorist. Each moth he's let into the wild has been sterilized.

"These sterilized male and females fly around and mate with any wild (moths)," Adams says. "Because they are sterilized you don't get any offspring."

Adams is an assistant professor of tree fruit bugology at Oregon State University's Hood River extension.

His summer release of sterilized moths is just one of several ongoing research projects he's directing, all under the broad umbrella of an agricultural technique known as Integrated Pest Management.

Hood River orchardists 'way ahead'

More a strategy than specific tool, Integrated Pest Management (IPM) focuses on a stable of techniques, in addition to pesticides, to control pest populations. These include the introduction of natural predators, habitat modification and genetic tinkering.

Orchardists and farmers in the Hood River area are "way ahead of most other regions" when it comes to these sorts of interventions, Adams says.

The sterilized moth release from this summer is modeled after a long-standing project in British Columbia.

The Okanagan-Kootenay Sterile Insect Release Program has sterilized and released codling moths into the Okanogan Valley area since 1992. That's led to a 94% reduction in the moth population, which in turn has reduced the quantity of pesticides deployed by 96%.

The Okanagan-Kootenay rearing facility is the only one in the world, Adams says.

His rather modest introductions this summer aim to prove that a similar program could work in the Columbia Gorge area.

And while early, Adams hopes to build a Columbia Gorge rearing facility in the future, one that instead of using radioactive cobalt would use X-rays to sterilize moths.

While the original goal of the B.C. project was eradication, Adams says that it proved untenable.

"Eradication is a difficult thing with insects," he says. "They are so good at surviving. If you have an apple tree in your backyard, that's enough. You can be harboring the last remaining population."

'Playing God' with nature

Other projects Adams has worked on this summer include the introduction of a tiny wasp, *Trissolcus japonicas* or "samurai wasp," which lays its eggs in the brown marmorated stinkbug's eggs.

The stinkbug is a nonnative species from Asia that, like the Codling moth, can destroy crops.

While the stinkbug has no predators in North America, the samurai wasp is native to the stinkbug's home. The wasp is already present in the United States, and Oregon.

This year Adams released nearly 20,000 of the 1- to 2-millimeter-long wasps.

"In their native range they provide 80-90% control of this stinkbug," he says.

Most orchardists, he says, are happy to use non-pesticidal controls, particularly because all insects eventually become resistant to pesticides.

Playing God with natural systems can be a risky game, and there have been high-profile and devastating examples of experimental pest management going awry. None more so than the introduction of Cane toads into Australia in 1935.

The toads, native to South America, were brought to control the Cane beetle population. However, the voracious and poisonous amphibians mostly ignored the beetles, instead decimating other native species while reproducing like rabbits.

Currently there are an estimated 200 million Cane toads in Australia.

That epic failure is burned into researchers' and managers' minds, Adams says, and now any ecological tinkering goes through multiple levels of scientific and political review.

"I don't think we're at that cavalier stage," he says. "If I could equate it to being an 18-year-old and thinking we're 10 feet tall and bulletproof, as a scientific community we're beyond that. There is a huge process in place for making decisions. No one person decides if it's OK to release anything."

Eli Francovich is a journalist covering conservation and recreation. Based in eastern Washington his book about the return of wolves to the western United States will be published in April 2023.

Columbia Insight, based in Hood River, Oregon, is nonprofit news site focused on environmental issues of the Columbia River Basin.

Matthieu

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The granite monument erected 120 years ago, where farmers, missionaries and trappers gathered on May 2, 1843, and voted to establish a Provisional Government, at Champoeg State Park in St. Paul, seen on Feb. 9, 2021.
BRIAN HAYES / STATESMAN JOURNAL

Now in its second year, the permit system is loathed by some and beloved by others, but what has become obvious is that scoring a Friday or Saturday overnight permit for a nice mountain lake is among the biggest challenges.

Yet there are some backdoor ways to reach popular mountain lakes, even on the weekend, if you're willing to hike a bit farther than normal and take advantage of what I've dubbed the "extra effort loophole."

It's not really a loophole, and was actually planned into the permit system as a way to spread people out, but finding a good one does feel a bit like gaming the system.

Here's how it works: at each trailhead there are only so many overnight permits available each day in the three wilderness areas. It's designed to only let so many people enter from each location, so those areas don't get overcrowded, as was happening in the late 2010s.

My destination was the Matthieu Lakes and the main trailhead to reach it is Lava Camp Trailhead. But alas! When I went to Recreation.gov, all the permits were gone.

Rather than despair, I started looking at other nearby trailheads. After browsing the Sisters and Washington wilderness maps, I found my backdoor entry point — the McKenzie Pass Pacific Crest Trailhead. There are frequently open permits here, and it only adds about 2 miles to the trip.

From the PCT trailhead, it's about 7 to 8 miles round-trip to both north and south lakes, instead of 5 to 6 miles round-trip from the Lava Camp trailhead. There's maybe 700 to 900 feet of elevation gain, making it a trip of moderate difficulty.

In fact, I'd actually recommend starting at the PCT trailhead for a more interesting hike. It swings through open lava fields with striking views of Washington, Jack, Jefferson and the Sisters spread out around you. Eventually, you connect to the main route heading through mostly forest burned in the 2017 Milli Fire.

After two right turns, following signs, you drop into Matthieu Lakes area.

Sparkling lakes, brook trout and great swimming

There are two Matthieu lakes, and despite the similar name, they're pretty different places.

North Matthieu Lake, the first one you reach, is tucked into the forest below a large lava flow and has a decidedly peaceful feel. It's full of clear sparkling water and features seven established backcountry campsites that take you up and away from the lake. If you want to camp here, you have to use the sites, and no campfires are allowed. There are day-use areas at nice swimming spots along the lake's shoreline.

To find the second lake, it's a 0.7 mile uphill hike to South Matthieu, which sits in a much more exposed and windswept spot with a striking view of North Sister just beyond its blue waters. There are three campsites at this much smaller lake.

I made camp at North Matthieu, which just felt cozier, with campsites that offer more privacy and more fun things to do.

Foremost among the things to do at North Matthieu is fishing. The lake is stocked every other year and I spent a glorious morning walking around the lake and casting spinners. I caught two brook trout and just missed a third, having the best success on the southwest side of the lake, between the shoreline and a little island that's fun to swim out to.

In addition, there's a really fun little scramble up the lava flow of rocks that rises above the lake. It's not too tough to rock-hop your way to the top, and when you do, you're rewarded with striking views of the lake below and volcanoes in every direction: Jefferson and Washington in one direction and a long lava flow below the Sisters in the other.

I've been told that before the permit system came in, the campsites at the two lakes were always packed on weekends. I didn't have any issues finding a site.

A day-trip to the two lakes also makes sense, and again, is either 6 or 8 miles round-trip with a bit of elevation gain for a moderately difficult trek.

Lakes named for 'the man whose vote saved Oregon'

The spelling of the two lakes should probably give away that they were named for a French Canadian — in this case, Francis Xavier Matthieu. He was quite a character.

Born in Quebec in 1818, he was forced to flee his native country after becoming involved in an armed rebellion against British rule in Canada from 1837 to 1838.

Here's how Wikipedia describes the event: "In 1835 Matthieu became involved with a paramilitary organization which waged an uprising against British rule. (Matthieu) was engaged making musket shot and cartridges and transporting arms to the scene of the fighting. The group's armed struggle was regarded as treasonous by the British government, who executed captured participants by hanging. Matthieu's participation was discovered and the youth was forced to flee Canada for refuge in the United States, crossing the border there by means of a forged passport."

He joined the fur trade in the Midwest before making his way west to the Oregon County at a pivotal moment. He was part of the gathering in 1843 at what is now Champoeg State Heritage area north of Salem for a vote over the question of whether settlers would form a provisional government.

Again, our friends at Wikipedia: "Some 102 people were present — a majority of the European population of the Oregon Territory at that time. These were initially evenly divided, 51-51, over the question.

"As tension over the standoff mounted, Matthieu was one of two individuals to break ranks with backers of British rule, voting instead for formation of an independent Provisional Government of Oregon. Matthieu's vote therefore proved decisive, and he would be celebrated in his twilight years as the man 'whose vote saved Oregon for the United States."

The title is probably a bit over the top, and overemphasizes the importance of the vote.

Even so, if you head to the Matthieu Lakes, whether by the Lava Camp Trailhead or by taking the extra effort loophole via the Pacific Crest Trail, spare a thought for the man whose vote saved Oregon while you fish, swim and camp in the alpine country of the Three Sisters Wilderness.

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A permit is needed to enter the Three Sisters Wilderness. ZACH URNESS / STATESMAN JOURNAL

Matthieu Lakes

In a nutshell: Two popular alpine lakes in the Three Sisters Wilderness near Mckenzie Pass.

Difficulty: Moderate difficulty

Red tape: An overnight permit from Recreation.gov is required to camp here. Get a permit to enter from either Lava Camp Trailhead or PCT Mckenzie Pass. No campfires. Must camp at designated sites with a post.

Length: About 6 miles round-trip from Lava Camp Trailhead, 8 miles from McKenzie Pass PCT Trailhead.

Directions: Drive to McKenzie Pass on state Highway 242 and navigate to Lava Camp Trailhead (marked by signs just east of Dee Wright Observatory or PCT McKenzie Pass Trailhead, which is on the left just before Dee Wright Observatory.