

## People &amp; Places

## Artificial intelligence IDs insects

By BRAD CARLSON  
Capital Press

Artificial intelligence promises to make identifying insects faster and easier, the University of Idaho's Marek Borowiec and his research teammates believe.

USDA's National Institute of Food and Agriculture agreed. In April, the institute awarded Borowiec's team a Cyberinformatics Tools grant for \$499,500.

The project, aimed at harnessing artificial intelligence to identify insects, will aid integrated pest management in small-grain production.

"The motivation here is essentially to make the process a little bit more efficient and easier for growers, and potentially the extension researcher or educator," Borowiec said. "We want to come up with a system that will assist in identifying, correctly documenting and sharing information about pests."

Successful IPM hinges on correct insect identification. But since it requires time and expertise, many growers forgo it and apply pesticides unnecessarily.

Immediate insect identification and classification is one element of the planned system. Information sharing via a free mobile app is another. It will focus on the Inland Northwest but be designed so it can be extended to other regions.

Borowiec, an assistant professor of entomology, plant pathology and nematology, said growers would immediately be able to see the correctly identified insect,



Courtesy of Aryn Baxter

**Marek Borowiec is working on a new system that will allow farmers to quickly and easily identify insects.**

follow what other farmers in their region are experiencing, access online resources and connect with specialists.

Now, when they see an unfamiliar insect on a crop they have to contact a university extension agent or other researcher. He said smartphones, online alert networks and information portals help but require identification, documentation and other steps that can take time.

The artificial intelligence is "basically the capacity to attach a certain name or classification to a photograph," feasible for computers only in the past four to five years. The problem is complex since a photo includes many

variables, ranging from angle and background to the subject's size, position and distance.

Researchers will collect images of insects on cereals and legumes. The images will be used to "train" an artificial-intelligence algorithm.

For example, photos of cereal grass aphids — an important emerging pest, Borowiec said — and the English grain aphid were used to "train" a preliminary version.

"You have to have lots of examples of these pests in photos so it can learn the important features," he said.

Later in the four-year project, researchers will

design the free identification and analysis tool, get feedback from stakeholders and work on improvements.

"On a parallel track, we plan to collect more data and more images to make the ID algorithm work better and make the interface friendly to users," Borowiec said.

An advisory board to include cereal crop growers and possibly commodity commission representatives is planned.

The system "has the potential of being as accurate or more accurate than a human expert, with a fraction of the time needed for making a determination," he said. It aims to enable farmers to



**Western  
Innovator**

**MAREK  
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Title: Assistant professor, entomology, plant pathology and nematology, University of Idaho.

Education: Bachelor's and master's degrees, University of Wroclaw, Poland; Ph.D., University of California-Davis.

Age: 36

Hometown: Moscow, Idaho.

Family: Engaged to Aryn Baxter, lecturer on education in leadership for organizations, University of Dayton.

Hobbies: Outdoor activities including hiking, trail running, skiing.

Research team: Arash Rashed, Sanford Eigenbrode and Lucas Sheneman, and postdoctoral researcher Subodh Adhikari.

more quickly optimize pesticide management decisions.

"The idea is to not have to work as hard to improve your decision process, be more likely to make a good decision, and even save some money," he said.

## Shovels in hand, students learn about reforestation

By CRAIG REED  
For the Capital Press

GLIDE, Ore. — In an outdoor classroom, the subjects were forestry management, the impact of wildfires, recovery plans following a fire and reforestation.

Forty students from Glide and South Umpqua high schools listened to the presentations from public and private forestry officials on a recent morning as they stood in a blackened landscape. The site was northeast of Glide on Bureau of Land Management land that had been severely burned during the Archie Creek Fire that torched 131,542 acres last September.

After the presentations, the students went to work planting Douglas fir and sugar pine seedlings. Cody Trent and Paul Kercher, Glide High freshmen, estimated they planted 36 seedlings as they climbed a mountainside.

"It's been a fun day," Trent said. "I'm glad I was able to come out here and help. When I go to sleep tonight, I'll know I did something special today."

Marlee Rogers and Angelica Navalta, South Umpqua freshmen, worked in a group of four.

"Seeing this is sad," Rogers said of the blackened terrain.

"Being out here shows how we can help," Navalta said. "It feels great to help our environment. It makes me proud to be part of the recovery."

Communities for Healthy Forests, a nonprofit organization, has been coordinating



Craig Reed/For the Capital Press

**Cheyne Rossbach, assistant field manager for the Bureau of Land Management, talks to students about forest management and recovery after a wildfire at a BLM site that was burned during the Archie Creek Fire in September. The students listened to several forestry officials about forest and fire before getting the experience of planting seedlings in the burned area.**

seedling planting field trips for students for about 15 years. The Bureau of Land Management, the U.S. Forest Service, Lone Rock Timber and the Society of American Foresters also helped with the event.

The mission of CHF, a Roseburg, Ore.-based group, is to inform the public and policy makers with facts supporting both pre- and post-forest management in regards to wildfire.

"We hope to broaden the understanding of young people in the causes and the opportunities to mediate through pre-fire management and post-fire management in regards to the impact of wildfire," said Doug Robertson, CHF's executive director.

"Today, the emphasis was on post-fire recovery. What they did today was on

a small scale, but to talk to them about reforestation in a highly severe burn area is important."

Robertson explained to the students that it would be generations before any meaningful forest resource returned to the land because there is no natural seed source for natural regeneration.

"You have to give nature a hand to get this forest growing again, so you, your kids, your grandkids have the opportunity to enjoy what we enjoyed before it burned down," he said to the students.

John Campbell, the ag instructor and FFA adviser at South Umpqua, said his students are in an Introduction to Ag class and presently studying the Forest Fire unit.

"I hope the kids learn

we have some control over wildfire with the proper forest management," Campbell said. "We're learning about the balance between prescribed burns and wildfires."

"Being out here is the ideal ag environment," he added. "The students are fully engaged, using shovels, holding and planting seedlings. It's so different than being in the classroom."

Tim Freeman, a Douglas County commissioner, said it was a great learning experience for the students to listen to the forestry officials talk about forest management and wildfire. He added it's important for the kids to know that the private land burned in the Archie Creek Fire will be "mostly reforested and become a green forest again" under the guid-

ance of the Oregon Forest Practices Act while "most of the Forest Service and BLM lands will not be replanted or reforested" because of more restrictive federal regulations.

"I think it's important for the students to hear that when they come up this road in 20 years, the private land will have at least 30-foot tall trees while on the public land will be tall brush," Freeman said.

Robertson said he was pleased with the planting effort and the response from the students.

"Even though what they did was on a small scale, getting this next generation of trees growing is so important because the recovery of the forest, the wildlife, the watershed will be expedited because of their planting efforts today," he said.

## CALENDAR

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**MONDAY-THURSDAY  
MAY 24-27**

**Natural Products Expo West (online):** Virtual presentations and an online trade show focusing on natural products and foods. Website: [www.expowest.com/](http://www.expowest.com/)

**WEDNESDAY-FRIDAY  
JUNE 9-11**

**World Pork Expo:** Iowa State Fairgrounds, Des Moines. The world's largest pork indus-

try-specific trade show brings together pork producers and industry professionals from around the world for three days of education, innovation and networking. Website: <https://worldpork.org/>

**THURSDAY-SATURDAY  
JUNE 24-26**

**United Fresh Convention and Expo (in person and online):** Los Angeles Convention Center. Whether online or in person, United Fresh is your partner connecting the global fresh produce industry. Sponsored by the United Fresh Produce Association and the Fresh Produce and Floral Coun-

cil. Website: <https://www.unitedfresh.org/united-fresh-convention-expo-2021/#>

**TUESDAY-THURSDAY  
AUG. 10-12**

**2021 Cattle Industry Convention & Trade Show:** Gaylord Opryland Resort, Nashville, Tenn. The convention will include educational seminars, exhibits and networking. Website: <http://convention.ncba.org>

**AUG. 20-29**

**Western Idaho Fair:** Expo Idaho, 5610 Glenwood St., Boise. Check back later for more information. Website: [www.idahofair.com](http://www.idahofair.com)

**SEPT. 3-11**

**Eastern Idaho State Fair:** Eastern Idaho Fairgrounds, 97 Park St., Blackfoot, Idaho. The daily schedule and entertainment line-up will be published in June. Website: <https://funatthefair.com/>

**TUESDAY-SATURDAY  
SEPT. 28-OCT. 2**

**World Dairy Expo:** Alliant Energy Center, 1919 Alliant Energy Center Way, Madison, Wis. Among the many events held are contests and a trade show. Website: <https://world-dairyexpo.com>



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