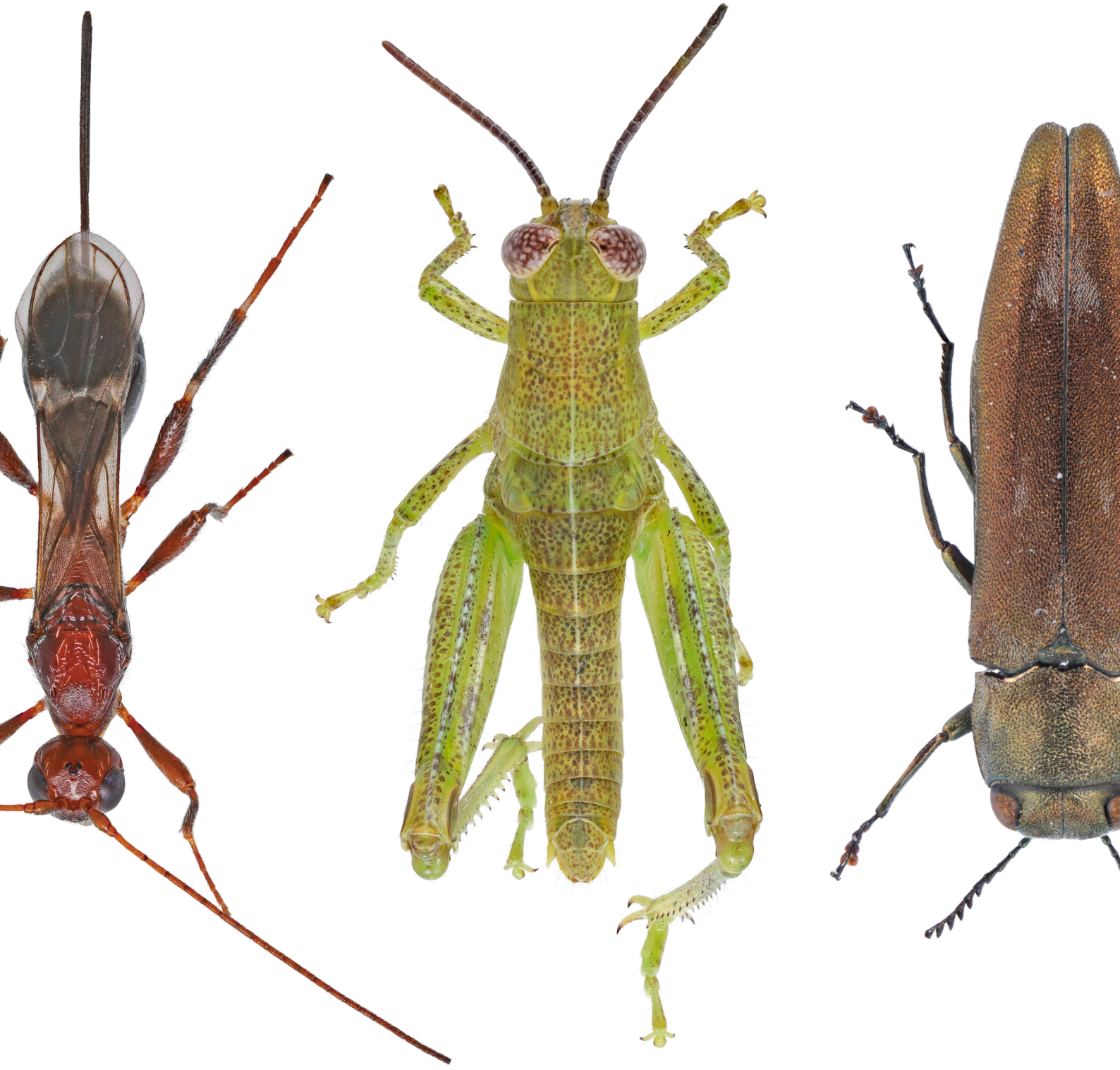
ANNUAL REPORT 2024

INSECT PEST PREVENTION AND MANAGEMENT



OREGON DEPARTMENT OF AGRICULTURE

IPPM ANNUAL REPORT 2024

Below: *Feralia deceptiva* a native moth. **Front:** *Spathius agrili*, *Melanoplus foedus*, *Agrilus mali*
Back cover: *Lycorma delicatula* and *Pyrausta inornatalis*
All images by IPPM except where attributed

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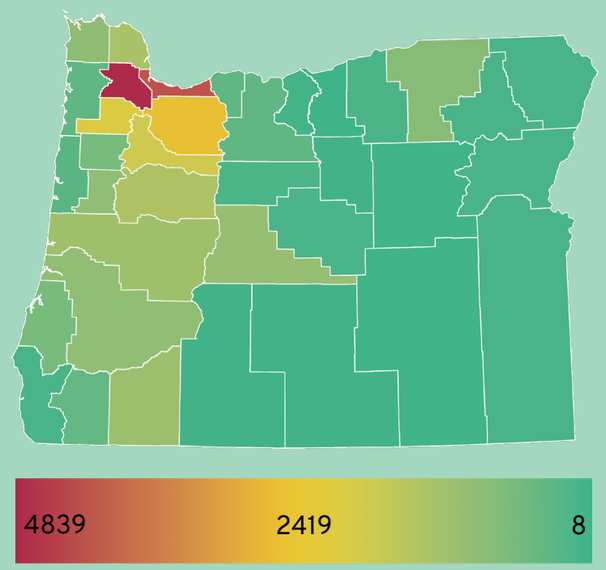
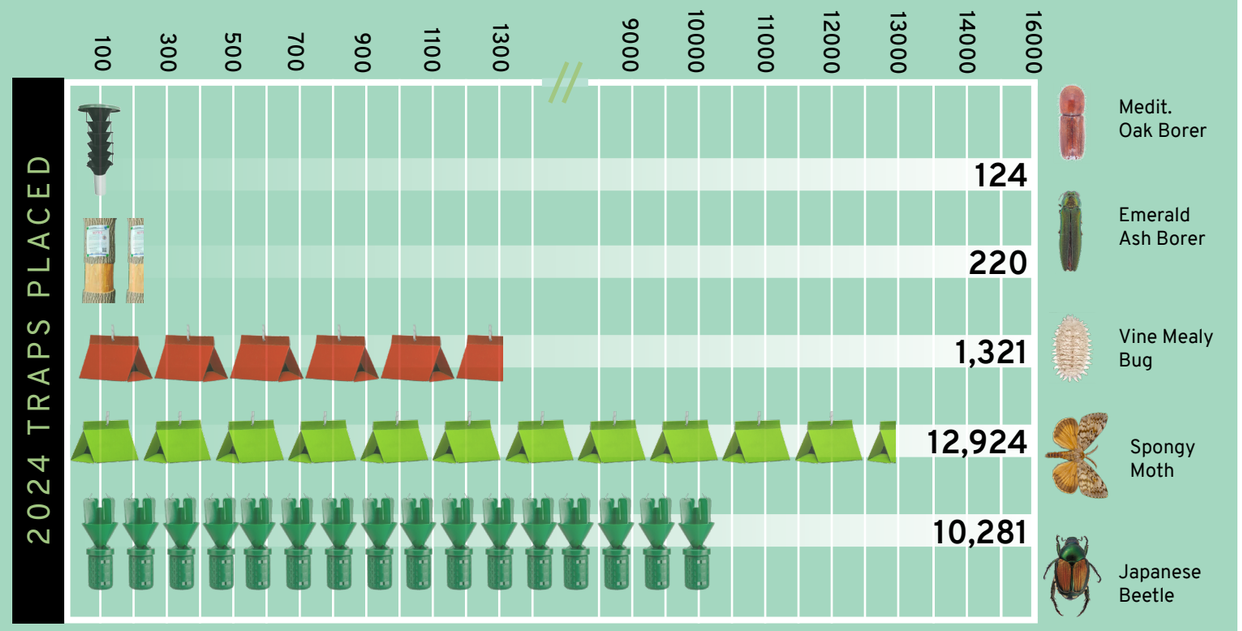
INSECT PEST PREVENTION AND MANAGEMENT PROGRAM: OUR MISSION

The Oregon Department of Agriculture's Insect Pest Prevention and Management (IPPM) program is dedicated to protecting Oregon's agriculture, horticulture, environment, and quality of life from damaging insect pests. Our team achieves this mission through regulations and enforcement, consisting of state and federal quarantines designed to exclude exotic pests from entering Oregon and enforcing control area orders to help slow the spread of those pests within Oregon. Secondly, IPPM conducts one of the nation's most aggressive and diverse exotic species surveillance efforts. When an exotic species is detected in Oregon, eradication or control programs are promptly implemented if feasible. Other services provided by IPPM include: expertise regarding benign (such as pollinators) and destructive invertebrates; eradication and biological control of invasive and pest invertebrates; insect identification services for the public and cooperators nationwide; development of pest risk assessments; development and dissemination of educational outreach materials such as pest alerts.



Above: a map detailing the total number of traps placed by IPPM programs in each of Oregon's counties, ranging from 4839 traps deployed in Washington County to 8 traps placed in Wheeler county. **Below:** a graph showing the number of traps or trap trees deployed for 5 pests of major concern.



In 2024 IPPM placed a total of **25,493** traps across Oregon's 36 counties

A mating pair of Japanese beetles collected during ODA trapping and eradication efforts- each female produces as many as 60 offspring in her lifetime

JAPANESE BEETLE

Ashley Toland

IPPM entered its eighth year of treatment for the Japanese beetle (JB) eradication program in the greater Portland area. In the winter, IPPM staff educated residents and businesses in the treatment area about the importance of the eradication program, and gathered consent for treatment from residents. Residents were informed about treatment by email, letters, door notices, and our website. The majority of residents continued consenting to treatment in 2024.

Treatment for the beetles occurred from April to July. Most properties were treated with a single application of the granular larvicide Acelepryn® G (Chlorantraniliprole) on lawns and ornamental planting beds. This season the granular treatment area included approximately 4,500 properties spread over approximately 1,300 acres. Successful eradication of several small pockets of beetles allowed the treatment area to be almost half the size it was in 2023. In previous seasons, ODA applied a supplementary foliar spray (Acelepryn®) in areas with high Japanese beetle density. However, in 2024 the supplementary foliar spray was canceled due to a severely reduced budget. The future of the supplementary foliar spray is unclear and dependent on future funding.

A large infestation in and around a single 2.4-acre blueberry farm have made up a majority of Japanese beetle trap catches since 2022. Beetles were first detected on the farm in 2020. IPPM was not able to treat until 2023. ODA treated the edible plants with a product called Altacor® (Chlorantraniliprole), which attacks JB at both the larval and adult stages. Since the infestation was so severe at the farm, two treatments were applied in 2024: one larval treatment and one supplementary foliar spray treatment.

In 2024, ODA placed 10,272 traps throughout the state in all 36 counties. All JB traps were set by June 15th, and the last traps were removed in October.

Japanese beetles in trap

Setting Japanese beetle trap

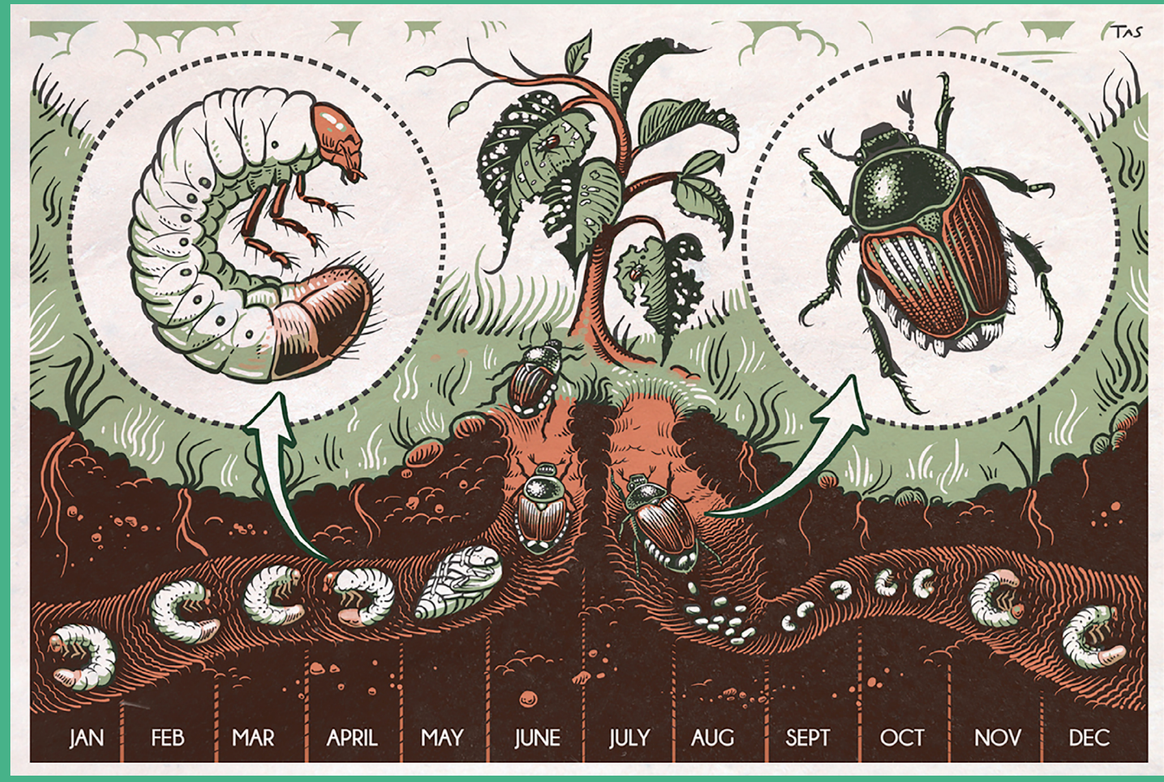
Beetle feeding on rose

This season some lower risk traps were removed early due to budget constraints. ODA trapped 5,467 Japanese beetles, a 15% decrease from the number of beetles trapped in 2023 (see table on right). However, most trap catches (~76%) were isolated to the one blueberry farm. Only 1,348 beetles were trapped outside the blueberry farm, similar to the numbers trapped outside the blueberry farm in 2023 (1,069 beetles). So, while the total number of beetles trapped increased from 2022, trap catch numbers continue to shrink in areas ODA has been treating. The treatment area will continue to shrink next season, as the planned 2025 map is 950 acres or a 30% decrease from the 2024 map. The treatment area shrinking in size shows that IPPM is nearing its goal of eradication, as we have eliminated many small pockets of JB throughout the Portland area.

> "IPPM is nearing its goal of eradication"

TREATMENT ACREAGE AND BEETLES TRAPPED

Year	Acres Treated	Beetles Trapped (Blueberry)	Beetles Trapped (Residential)	Beetles Trapped (Total)
2016	X	0	369	373
2017	~1000	0	23,480	23,480
2018	~2,500	0	17,473	17,473
2019	~3,000	0	7,782	7,782
2020	~4,000	372	4,118	4,490
2021	~4,200	793	2,859	3,652
2022	~3,500	1,635	1,619	3,254
2023	~2,500	5,332	1,067	6,339
2024	~1,300	4,119	1,348	5,467
2025	~970	TBD	TBD	TBD



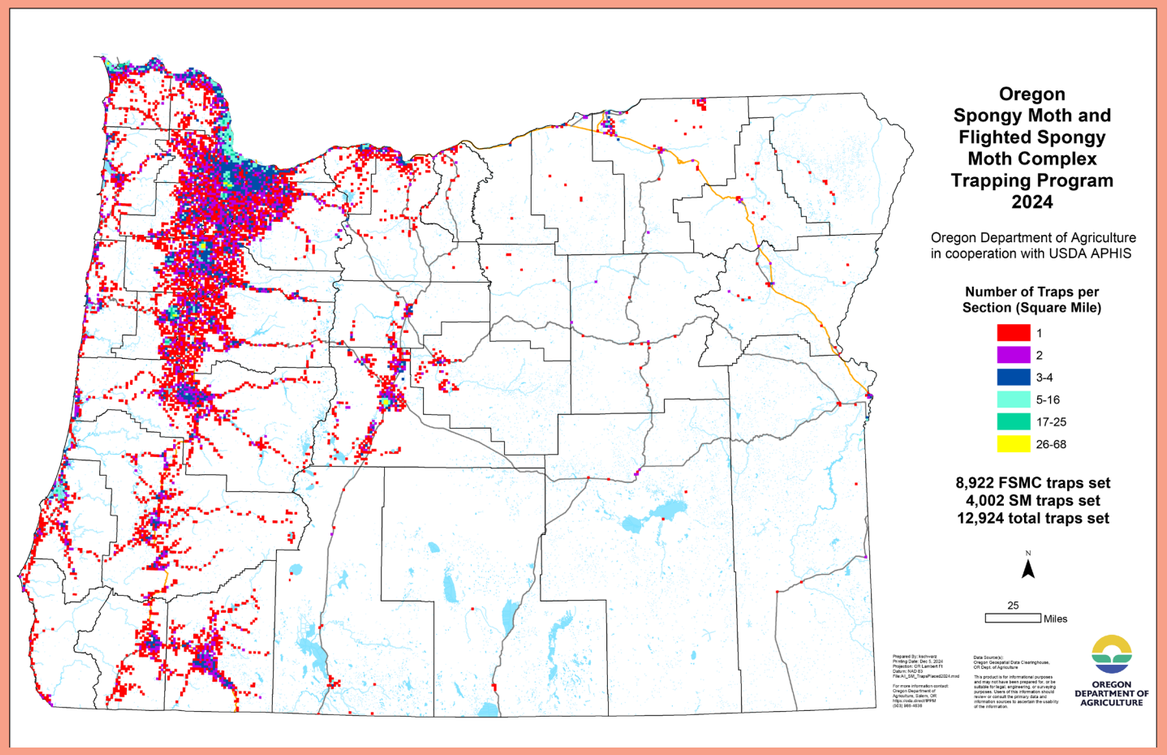
Japanese Beetle Life Stages: Female beetles lay 40 to 60 whitish eggs in soil 5-7.6 cm deep. The eggs develop for two weeks and hatch during July and August. The grubs grow quickly and by September are almost full-sized (about 2.5 cm long). Grubs feed on the roots of turf grasses and vegetable seedlings. During the winter months they migrate deeper into the soil to overwinter. The following spring the grubs migrate up to the root zone to feed for four to six weeks. Fully-grown grubs pupate in an earthen cell and remain as pupae for about two to three weeks. Adults emerge from late June to early August. Adults mate soon after emergence and live about 30 to 45 days. After mating, female beetles lay eggs in the soil to start the next generation.

SPONGY MOTH AND FLIGHTED SPONGY MOTH COMPLEX SURVEYS

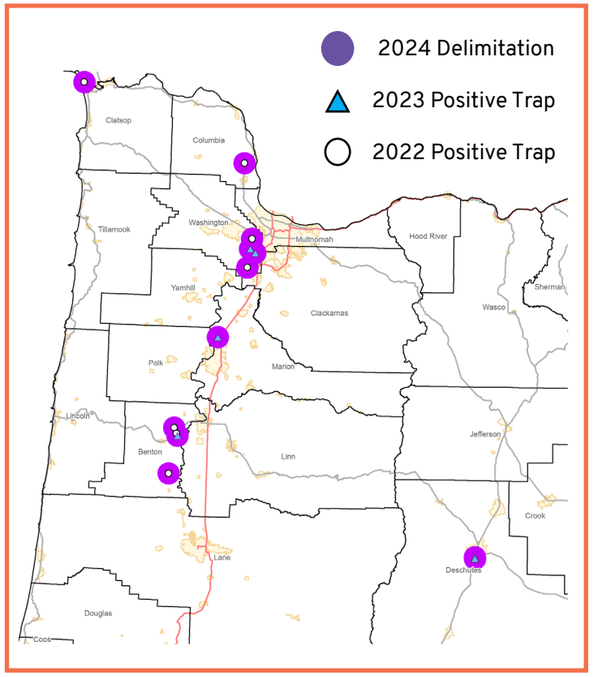
Kerri Schwarz

Spongy moth (SM), *Lymantria dispar dispar*, is one of the most destructive and well-established forest pests in the eastern US. It is slowly moving westward on its own, but it can also move more quickly and farther by car, moving truck, recreational vehicle, storage pods, etc. to non-infested states to start new isolated populations. Related to SM and not yet established in the US, are four Asian spongy moth subspecies which belong to the flighted spongy moth complex (FSMC). FSMC has the potential to become an even more destructive pest than SM. The caterpillars of this subspecies complex feed on a wider host range and, unlike the better known SM, the female moths are capable of flight. Since no SM species are established in Oregon, IPPM routinely conducts extensive survey programs to detect any new introductions. In the spring and summer of 2024 thousands of traps were placed across the state. These were focused in populated areas, ports and waterways, campgrounds, previously positive sites, and other high-risk sites (map 1). In areas where SM was detected in 2023 and 2024, delimitation traps were placed to locate any additional moths (map 2). In the 2024 season only two SM were trapped in the state within the Bend (Deschutes County) delimitation area where moths were first caught in 2023 (map 3). Extra (or "add on") traps were placed immediately after catching the first live SM. The pathway for the Bend introduction is unknown. It is possible egg masses or pupae could have been transported to the area as there have been many recent home sales, summer rentals, and residents with recreational vehicles and trailers. The plan for the 2025 season is to continue statewide detection trapping and delimitation trapping at the 2023 and 2024 positive sites. Precision trapping will be done within the Bend delimitation to pinpoint the infestation, if one exists (map 4).

Map 1: Oregon SM and FSM Trapping Program 2024



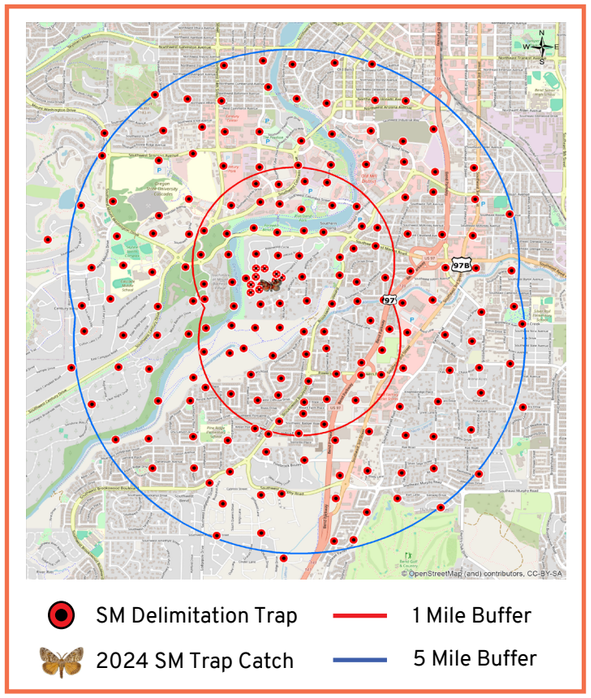
Map 2: Spongy Moth Delimitations 2024



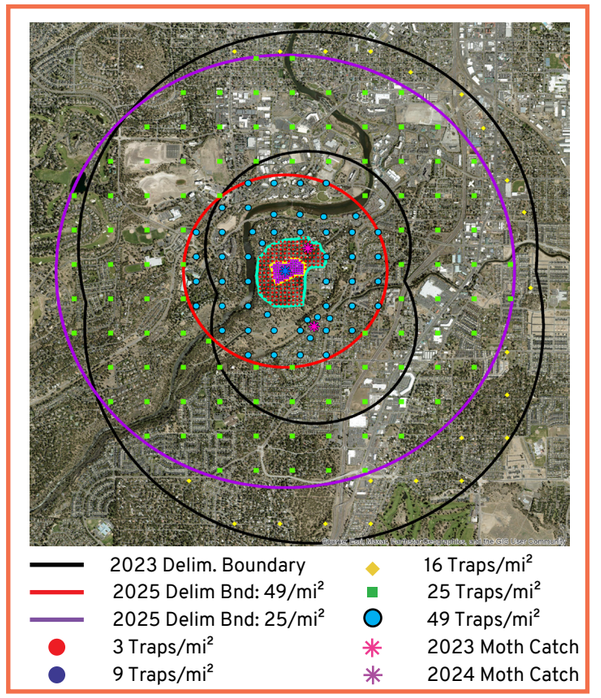
Male *Lymantria dispar*

8,922 FSMC traps + **4,002** SM traps = **12,924** total traps

Map 3: 2024 SM Delimitation Deschutes County



Map 4: Proposed 2025 SM Delimitation and Trapping



MEDITERRANEAN OAK BORER

Corwin Parker

The Mediterranean oak borer (MOB), *Xyleborus monographus*, is a European species of ambrosia beetle that tunnels into the wood of many oak species including Oregon white oak (*Quercus garryana*). The beetle itself is very small, about 3 mm in length, with a brown, cylindrical shape (Fig. 1). Though they tunnel into the wood of trees they do not eat wood but rather carry the spores of fungi (e.g. *Raffaelea montetyi* and *Fusarium solani*) which digest the wood and are then eaten by the larvae. As these fungi spread from the beetle galleries, they clog water-conducting tissues causing a wilting disease in susceptible trees. This disease can cause entire branches to die. After a tree is infested for multiple years greater portions of the crown may die, eventually leading to mortality.

Figure 1: Female MOB
Actual size ~1/10th of an inch.

The first detection of MOB was at Chinook Landing in Fairview, OR, in 2018. By 2022, two other trees in Troutdale and Wilsonville were found heavily infested. Since 2022 our trapping efforts have been focused on the Willamette Valley, setting up a variety of small delimitation zones around positive sites, as well as a wide net of detection traps on the western side of the state (Map 2).

In addition to the trapping effort done by ODA in 2024, we also conducted a collaborative trapping effort with 8 other local agencies/organizations across the Western portion of Oregon. These groups contributed 28 additional traps across 25 sites to the existing 98 for a total of 126 MOB traps (Map 1).

Altogether, 774 MOB were caught in detection and delimitation traps across the state in 2024, a dramatic increase from previous years (Table 1), with the majority of those being in Clackamas, Multnomah, and Washington counties (Table 2). In 2023 , 8 MOB were trapped in Marion County but none in 2024, which may indicate a smaller population there, for now .

The story of MOB in Oregon is still unfolding and there is much more to learn about the species and how its presence will affect the state. Entomological research continues to search for viable chemical and biological control options. Currently, our best strategy is to reduce the spread of this pest. Often insects like these are transported through improperly treated firewood. We recommend that people burn their wood close to where they source it from; as a general guideline, 50 miles is too far and 10 miles or less is best.

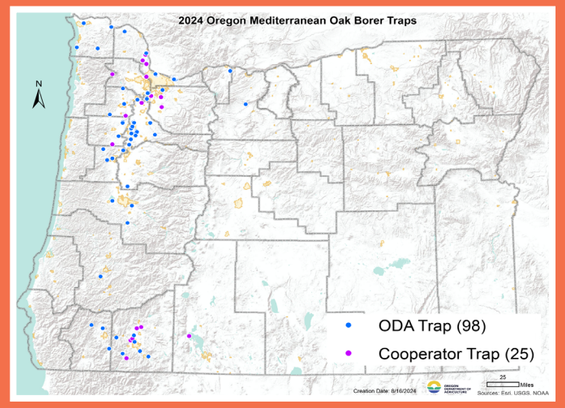
Table 1: MOB Detected in Oregon by Year

Year	MOB
2018	1
2019	0
2020	0
2021	1
2022	23
2023	29
2024	774

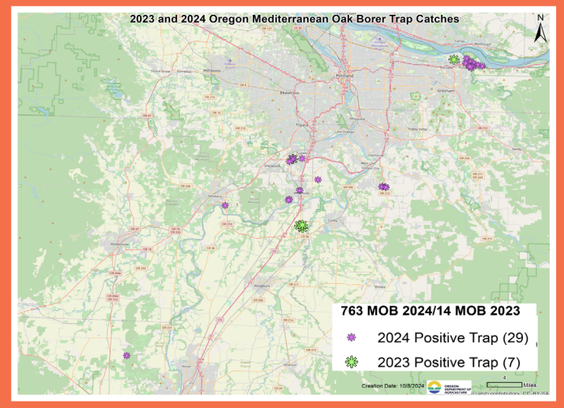
Figure 2: Black fungal growth in valley oak from California. Image by Bob Rabaglia, USFS

Table 2: MOB Detected by County

County	2018-2023	2024
Clackamas	4	391
Marion	8	0
Multnomah	51	288
Polk	0	1
Washington	8	91
Yamhill	3	3

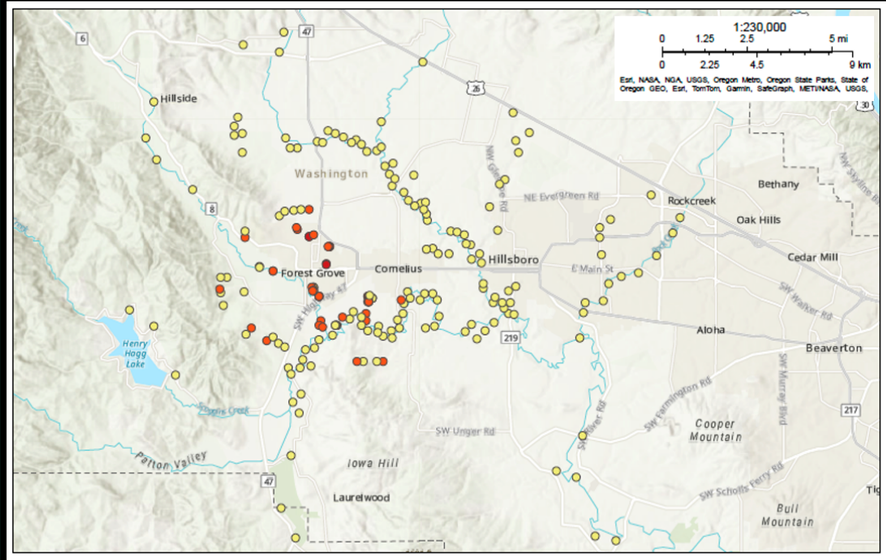


Map 1: 2024 MOB Trap Locations



Map 2: 2023 and 2024 Catches

Emerald Ash Borer in Oregon: 2024 SLAM Results



EAB Per Tree

- 51- 183
- 1- 51
- 0

220 trap trees were created around the Forest Grove infestation and 40 were positive for Emerald Ash Borer

EAB larvae in wood

Conducting visual survey

"In North America... ash species have no natural defense against the invasive beetle, and healthy trees will be killed within 3-6 years"

Investigation of EAB infested tree

Trunk injection with GTS 1

EMERALD ASH BORER

Emily Perkins

Emerald ash borer (EAB) is a devastating wood boring beetle that has been spreading across North America for the last two decades. North American ash trees have no natural defense against this invasive beetle, and healthy trees are killed within 3-6 years after infestation. The first detection of EAB in Oregon occurred in 2022, when a trained arborist identified the beetle in Forest Grove. This marked the first confirmed sighting of EAB west of Colorado. By 2024, EAB presence had been confirmed in three additional counties.

ODA has taken the lead in organizing and overseeing the interagency task force responding to the EAB threat. The task force includes over 65 agencies, organizations, companies, and other entities. It is structured into six subcommittees: survey and monitoring, wood waste utilization, research, communications, localized management and steering.

EAB larvae kill ash trees by eating away the inner bark for 1 or 2 years, forming S-shaped galleries under the bark. Damage caused by EAB can be detected by carefully observing ash trees for specific signs and symptoms. Signs of EAB include bark splits, D-shaped exit holes, woodpecker damage, and a thinning canopy. ODA has surveyed over 5,000 ash trees around the EAB infestation areas to monitor and assess the spread of the beetle.

Three species of stingless wasp that parasitize EAB have been found in the beetle's native range. These wasps lay their eggs inside the beetle's larvae and eggs, then hatch and feed on them, killing the beetles before they can spread. These wasps have been studied for over a decade and have shown to be harmless to other species. ODA has released these wasps in the infested area to help control the EAB population.

Emerald ash borer can survive in both live and cut wood, such as firewood, "live edge" furniture, and nursery plants. Firewood is a common way the beetle spreads, so it's important to not move it. Currently, four counties in Oregon are under a quarantine that was enacted by ODA: Washington, Marion, Clackamas, and Yamhill. Moving ash, white fringe tree, or olive wood outside these counties is illegal and can result in fines.

The Slow Ash Mortality (SLAM) program uses insecticide treatments and trap trees to contain the known populations of EAB. A trunk injection involves injecting a specialized insecticide directly into the trunk of an ash tree. In 2024, we treated 284 trees which will have protection from EAB for 2-3 years. A trap tree is created by removing a strip of bark around the trunk of the tree, the tree becomes stressed and more attractive to the invasive beetles. The trees are then felled and the bark removed to look for signs of emerald ash borer. We created 220 trap trees this year and found evidence of EAB in 40 of those trees, all within a 3-mile radius of the center of the infestation. Clusters of trap trees and treated trees were set up every quarter mile around Forest Grove creating a "Ring of Fire" to contain the beetles.

VINE MEALY BUG

Josh Vlach

Vine mealybug (VMB), *Planococcus ficus*, is the most significant vineyard pest in many areas where it occurs, including neighboring California. Aside from causing physical damage through its feeding, it also transmits viruses, most notably leafroll viruses. If allowed to spread through Oregon's wine growing areas, conservative estimates put annual treatment costs in the millions of dollars.

Statewide Survey: No additional counties were found to be infested in 2024. There were 659 trap sites in 16 Oregon counties (Benton, Clackamas, Columbia, Douglas, Hood River, Jackson, Lane, Linn, Marion, Multnomah, Polk, Umatilla, Wasco, Washington, and Yamhill). One new infestation was detected in Douglas County for a total of two in that county.

Planococcus on leaf

"If allowed to spread through the state's wine growing areas, conservative estimates put annual treatment costs in the millions of dollars..."

Grapevine leaf roll virus

VMB has been in CA since at least 1994 and has been in all major CA grape growing regions since 2008. Oregon's regulations have managed to keep it out of the state for well over a decade. The Grape Quarantine was updated and strengthened in 2020.

VMB was detected for the first time in Oregon in 2021. The two infested sites, located in Jackson County, are about one mile apart. As of 2023, infestations were found in 2 additional counties: Douglas, and Linn.

The legislature awarded ODA funds to continue delimitation efforts in Jackson County, initiate a voluntary statewide survey, and reimburse infested growers for 2024 treatments.

Delimitation: Delimitation, a type of high-density trapping, has been deployed in all three infested counties in 2024. There were 111 traps in Douglas county, 232 in Linn county, and 387 in Jackson county. The Douglas and Jackson County delimitations did not detect VMB in the infested locations. Linn County did result in positive detections albeit at significantly lower levels than 2023.

Treatment Reimbursement Program: All positive vineyards were treated with systemic insecticides and mating disruption. In order to support suppression of this pest, funds were available to reimburse growers for the cost of products to treat their infested vineyards. Five facilities received reimbursement for product costs.

BIOCONTROL

Max Raggozino

Biological control is a pest management strategy that uses naturally occurring parasites, parasitoids (a parasite which develops in or on the host, slowly killing it) or predatory species to control invasive pests. When biological control proves effective, it provides long-term permanent reduction of invasive pests. IPPM has worked on biological control since the 1980s, providing control for invasive pests like cereal leaf beetle and ash whitefly.

In recent years IPPM has targeted three species for biological control: spotted wing drosophila (SWD) *Drosophila suzukii*; brown marmorated stink bug (BMSB) *Halyomorpha halys*; and emerald ash borer (EAB) *Agrilus planipennis*. IPPM raises colonies of SWD and BMSB and in turn, use those insects to raise colonies of their natural enemies.

The parasitoid enemies of spotted wing drosophila do not have common names, but their scientific names are *Ganaspis kimorum* and *Leptopilina japonica*. These are tiny "stingless" wasps, which can't harm other animals or humans, and have been extensively studied to make sure they do not hurt Oregon's environment. USDA APHIS raises the biocontrol parasitoids of emerald ash borer at their facility in Brighton, MI and sends them to us to release. There are three natural enemies of emerald ash borer released in Oregon. The scientific names of these parasitoids are *Oobius agrili*, *Spathius galinae* and *Tetrastichus planipennisi*. In 2024, we released five species of beneficial insects that targeted two of these species, spotted wing drosophila and emerald ash borer.

Biocontrol By the Numbers: Releases in 2024

Target Pest	 Spotted-wing Drosophila size: ~3 mm		 Emerald Ash Borer size: 8- 14 mm		
Control Agent	*Ganaspis kimorum*  size: ~1.5 mm	*Leptopilina japonica*  size: ~1.5 mm	*Spathius galinae*  size: ~4.5 mm	*Oobius agrili*  size: ~1 mm	*Tetrastichus planipennisi*  size: ~4 mm
	13,246	21,723	2,791	3,500	4,305

FRUIT AND FIELD CROP COMMODITY SURVEYS

Richard Worth

Each year the Oregon Department of Agriculture (ODA) conducts surveys for federally regulated plant pests and pathogens* as well as those that are of priority to state agricultural producers to protect production areas and to maintain market access for agricultural commodities. As part of that mission, the IPPM program surveys selected pests grouped together based on targeted commodities. These small surveys provide an opportunity to survey for a relatively large number of target pest species, usually aimed at protecting one of Oregon's higher valued commodity groups, at a relatively low cost. Efficiently grouping target species together allows us to look for damaging insects that otherwise would not be possible if surveyed for individually. Like other efficiently grouped surveys done by the IPPM team, these surveys specifically help protect food, feed, or seed production crops.

In 2024, the IPPM program received funding through USDA's Cooperative Agricultural Pest Survey (CAPS) and Plant Protection Act (PPA) 7721 funding sources for three commodity surveys: small fruits (berries), field and nursery fruit tree and grape vines, and corn. The latter two surveys were done jointly with the Oregon Department of Agriculture's Plant Health program which looked for important and/or regulated disease pathogens.

For each of the following surveys samples have been processed by the IPPM lab, and no target species were found.

Corn Survey: The IPPM team surveyed a variety of commercial corn production sites in high-risk areas statewide for exotic corn pests of regulatory significance. Presence of these pests and diseases could endanger the pest-free status that enables corn seed to be exported around the world as well as cause direct damage to Oregon's total corn industry, valued at approximately $119 million in 2022 (USDA National Agricultural Statistics Service). Preventing establishment of these pests and diseases in Oregon also helps protect the US and North America from negative impacts including loss of crop value and increased pesticide use. This project further benefits adjacent production areas of California, Washington, and Idaho due to interstate movement of agricultural equipment and packing house commodities.

For 2024 we set one trap/target species at each of 15 sites statewide in the following ten counties: Baker, Benton, Clackamas, Malheur, Marion, Morrow, Multnomah, Polk, Umatilla, and Union. Traps were placed for the following target insect species: false codling moth (*Thaumatotibia leucotreta*), European corn borer (*Ostrinia nubilalis*), old world bollworm (*Helicoverpa armigera*), silver-Y moth (*Autographa gamma*), Mediterranean corn borer (*Sesamia nonagrioides*), small brown plant hopper (*Laodelphax striatellus*), and cucurbit beetle (*Diabrotica speciosa*). Traps were set by late May and periodically monitored during the season until removal in late September to early October. Funding provided via PPA 7721.

Larva of *Helicoverpa armigera*

W. Billen, Pflanzenbeschaustelle, Weil am Rhein, Bugwood.org

Larva of *Ostrinia nubilalis*

W. Billen, Pflanzenbeschaustelle, Weil am Rhein, Bugwood.org

Larva of *Autographa gamma*

Charles Olsen, Charles Olsen Insect Collection, USDA APHIS PPQ, Bugwood.org Bugwood.org

Adult of *Cryptoblabes gnidiella*

Hanna Royals, Screening Aids, USDA APHIS PPQ, Bugwood.org

Adult *Ephiphyas postvittana*

Adult *Paralobesia viteana*

Todd M. Gilligan and Marc E. Epstein, TortAI: Tortricids of Agricultural Importance, USDA APHIS PPQ,

Fruit/ Grape Survey: In 2022 the value of Oregon's greenhouse and nursery stock production was estimated at near $1.22 billion. Oregon nurseries are significant producers of various fruit tree and vine stock including *Vitis* spp. rootstock and scion wood for both landscape and nursery markets, as well as for fruit and grape production. Additionally, grapevine acreage continues to increase to support a robust wine industry with an economic impact of $7.19 billion in 2022.

Early detection, and if needed, rapid response to mitigate infestations, is critical to protect Oregon's commercial nursery stock producers. Negative survey results provide evidence that these exotic pests of regulatory significance are not present in Oregon's commercial production areas. This enables Oregon producers to maintain market access domestically and internationally.

We set one trap per target species at each of 12 sites in northwestern and eastern Oregon in the following seven counties: Benton, Lane, Linn, Marion, Umatilla, Washington, and Yamhill. Traps were placed for the following target species: European grapevine moth (*Lobesia botrana*), Christmas berry webworm (*Cryptoblabes gnidiella*), summer fruit tortrix moth (*Adoxophyes orana*), European grape berry moth (*Eupoecilia ambiguella*), light brown apple moth (*Epiphyas postvittana*), grape berry moth (*Paralobesia viteana*), and grape root borer (*Vitacea polistiformes*).

Traps were set by late May and monitored during the season until removal in late September to early October. Each trap site was visually surveyed for spotted lanternfly (*Lycorma delicatula*) once during late summer or early fall when the best chance of finding late instar or adult insects was possible. Funding via USDA CAPS.

Small Fruit Survey: The three target species in this survey are significant berry fruit pests: strawberry blossom weevil (A*nthonomus rubi*), summer fruit tortrix moth (*Adoxophyes orana*), and lastly the light brown apple moth (*Ephiphyas postvittana*). The previously noted strawberry blossom weevil and summer fruit tortrix are both APHIS priority pests as well. All three pests are high-profile production pests where establishment could lead to export restrictions by trade partners, both domestically and internationally. In 2018 the combined value of Oregon's blackberry, raspberry, and strawberry crop production was $48.5 million. Proactive surveys like this are the most effective means of detection shortly after introduction, offering the best chance for timely and cost-efficient eradication.

The survey focused on areas where risk of importation was high and included plant nurseries selling berry plants, commercial areas with high risk of hitchhiking introduction, and large volume producers that routinely acquired large numbers of plants.

IPPM set one trap per target species at each of 20 sites in northwestern Oregon in the following nine counties: Benton, Clackamas, Hood River, Lane, Linn, Marion, Multnomah, Washington, and Yamhill. Traps were set by mid-May and monitored during the season until removal in late September to early October. Funding via PPA 7721.

Funding

USDA CAPS:

Small Fruit Survey

PPA 7721:

Fruit Survey

Corn Survey

* for information on findings of pathogens, please contact: **planthealth@oda.oregon.gov** *

COLLEGE CAMPUS SURVEY

Josh Vlach

Monitoring pathways is an important part of invasive species mitigation. College campuses can be vectors as many students travel long distances to attend. Oregon has had spongy moth introductions associated with the college and university pathway. In 2017 and 2018, spongy moth was detected near university housing in Corvallis Oregon. Trapping and treatment resulted in a successful eradication program in 2019. The Spotted lanternfly (SLF), *Lycorma delicatula*, is a damaging pest to many economically significant plants, especially grape. SLF, much like spongy moth, can be a cryptic hitchhiker and will lay its eggs on hard surfaces, including vehicles. In 2024 we surveyed for 3 pests at 10 campuses: SLF, box tree moth (*Cydalima perspectalis*), and the spongy moth (*Lymantria dispar dispar*). Tree of heaven, a favorite host of SLF, was also documented in and around college campuses. ODA conducted outreach and developed a new SLF poster (see opposite page) to further public awareness. Samples are still being processed. A dead adult SLF was reported from a Eugene college campus. However, visual surveys did not find additional lanternflies. Most likely the campus specimen was transported with equipment from Pennsylvania brought by contractors and is not thought to be a sign of an introduction or established population. Additional surveys will be conducted over the upcoming summer season of 2025.

NATIONAL IDENTIFICATION CENTER

Josh Vlach

A core part of early detection and rapid response (EDRR) is rapid identification of potentially exotic insect specimens. There are currently four National Identification Centers in the US supported by APHIS PPQ, and IPPM is one of those four. In addition, USFS funds IPPM as an identification center as part of their EDRR program for woodboring pests. These identification services are utilized each year and are in high demand, due to the small number of facilities across the US that have this scope of specialty. Consequently, IPPM taxonomists have acted as a western Regional Identification Center for Woodborers (funded via the Plant Protection Act 7721) since 2008 to provide identification services to other states and agencies in the US. In 2020, IPPM transitioned to a National Identification Center for Invertebrates, providing identification services for most types of invertebrates targeted by invasive species surveys. Types of submitted samples include unsorted trap samples, moth specimens in sticky traps, specimens in alcohol, specimens mounted on pins, and e-mailed images. During 2024, we received and processed samples from surveys of at least 10 other states: Arizona, California, Connecticut, Colorado, Idaho, Michigan, Montana, Oklahoma, and Utah. Samples are still being received and processed through the winter months.

ODA entomologist examining insect specimens

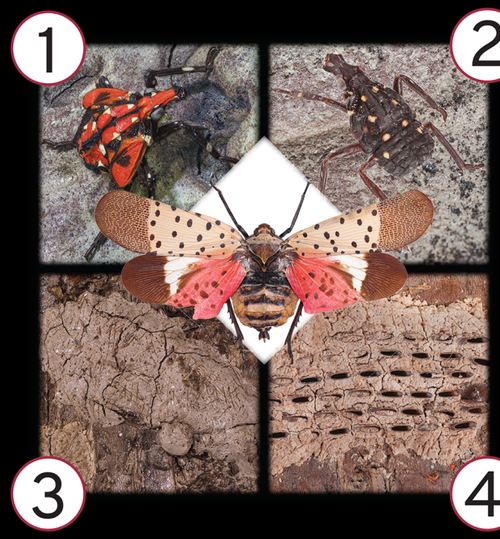
Guess Who's Crashing the Party!

Danger ahead! Spotted Lanternfly (SLF), an exotic pest known to attack over 70 plant species, has now been detected in Oregon.

All life stages can be transported. Adults, eggs and immatures can all travel on furniture, moving and storage boxes, house plants, vehicles, backpacks and other goods.

Life Stages

Eggs: look like inch long mud smears. Fresh eggs (3) are laid on any hard surface (wood, planters, crates, equipment, etc) and are the stage most likely to be moved around. Hatched cases (4) are similar but with rows of score markings. Immatures: hatchlings (2) are black with white spots. Older immatures (1) are red with white spots. Adults (center and on right) are about 1" long, peach-grey colored with black spots and bright ruby hindwings, which are not visible when folded.



If you believe you have seen SLF in Oregon please notify the ODA immediately. Take a picture or capture the insect and contact us at:

Phone: 503.986.4636 or
Email: pestreport@oda.oregon.gov

OREGON DEPARTMENT OF AGRICULTURE

College themed poster produced for the college campus survey

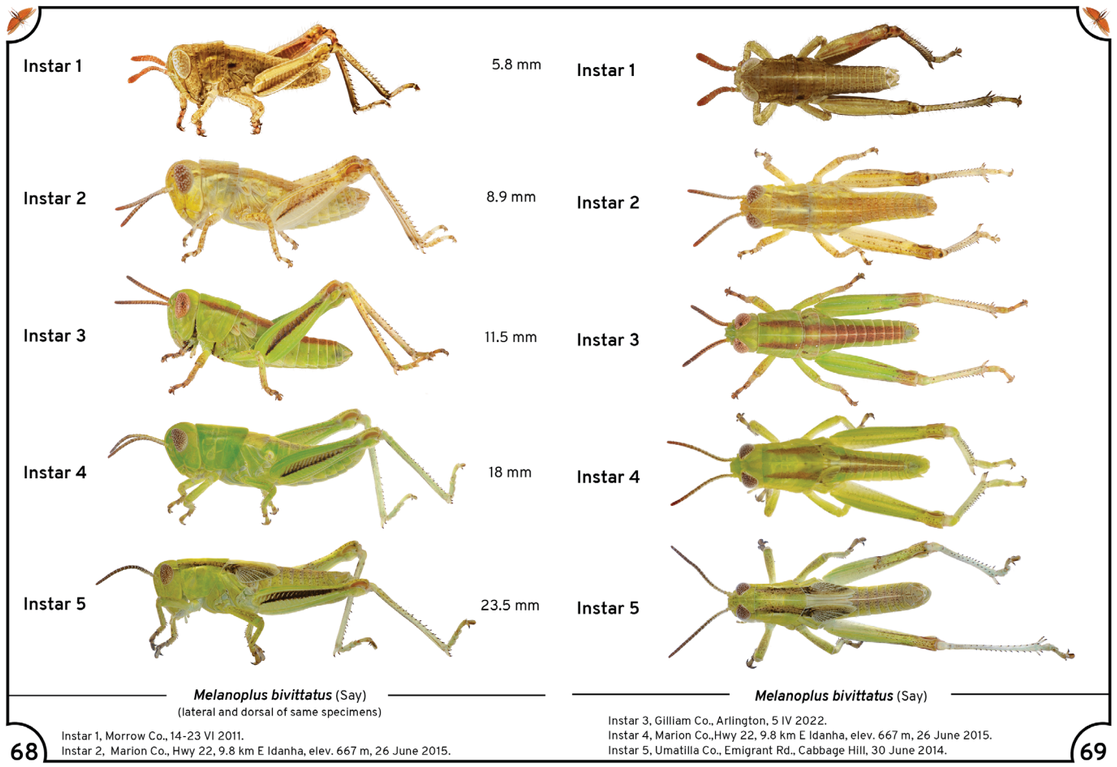
GRASSHOPPER AND MORMON CRICKET PROGRAM

Todd Adams

In 2024, surveys to track populations of grasshoppers (GH) and Mormon crickets (MC) began April 17th and were completed by September 5th. The nymphal survey takes place early in the season. This helps locate potential outbreak areas that require suppression for that current season. The adult survey took place July 6th – September 5th. This data is then used to predict the areas of concern for the following season.

If there are eight or more adult GH per square yard, it is regarded as reaching or exceeding the economic damage threshold. A total of 4056 sites were visited: 2,945 for nymphal GH survey and 1,116 for adult GH survey. The survey found that approximately 10.8 million acres across 18 counties in eastern Oregon had GH densities at or greater than the economic damage threshold. Of these, 8.5 million of the infested acres were concentrated in 5 counties: Baker, Harney, Klamath, Lake, and Malheur Counties. Malheur County had the highest economically infested acres, with 2.7 million.

In the Arlington area, the principal focus has been the assessment of the MC population. For the last seven years, the Arlington community has worked in collaboration with IPPM and OSU Extension. They have done a tremendous job to manage the MC population. These suppression efforts may be paying off, there were no outbreaks or high levels of MC found in the Arlington area this season. In Wallowa County, what was thought to be a MC population was found to be a closely related species called Coulee crickets (*Peranabrus scabricollis*). Despite the common name of Coulee crickets they are actually wingless katydids and do not reach outbreak levels like MC can obtain. The MC continues to be an issue as they spread deeper into Harney County, coming west from Idaho and north from Nevada.



Two pages from ODAs "Pest Grasshoppers in Oregon", a guide to species included in the ODA GH surveys

PEST GRASSHOPPERS IN OREGON: A FIELD GUIDE

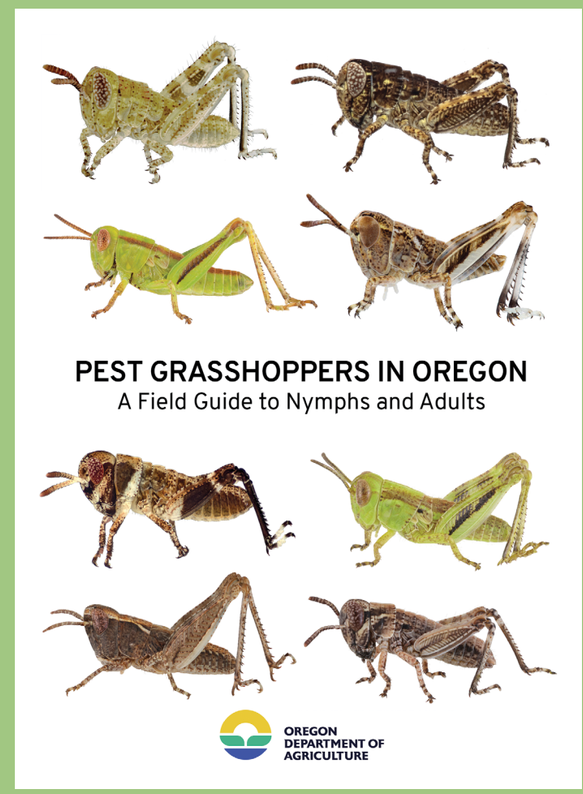
Tom Valente

"Pest Grasshoppers in Oregon: A Field Guide to Nymphs and Adults" is a new identification guide produced by the IPPM Entomology Laboratory. People managing grasshoppers need a tool to use to identify all life stages of pest species. ODA produced an identification guide to nymphs and adults of the nine major Oregon pest grasshoppers. The guide is image-based, non-technical, and pocket-friendly (5"x7"). It is intended for grasshopper scouts in areas where internet-based references are not practical. There are many references for identifying adult grasshoppers but not immatures. This ODA produced guide is the first of its kind. Grasshopper specimens, especially the immature (nymph) stages, discolor rapidly after death. Early identification of grasshopper nymphs is necessary for rapid management response.

ODA has been monitoring and imaging nymphal grasshoppers for at least ten years. By doing so, we can understand the color variation of the species involved in outbreaks. Live (anesthetized) grasshoppers were photographed by the ODA's state-of-the-art extended-depth-of-field imaging system. They were suspended in transparent gel in order to precisely positioning each specimen. Dorsal and lateral views of the same specimens demonstrate variation in color and pattern. This imaging procedure gives the best-of –both-worlds between live photographs and laboratory scientific imaging. Our images show color as it appears in the field, and small physical characteristics. Specimens were collected by rangeland sweep net sampling throughout the 18 counties in eastern Oregon. The guide includes all the species involved in grasshopper outbreaks in Oregon in the last 50 years. These species are also the most likely to invade agricultural fields from rangeland.

The format of "Pest Grasshoppers in Oregon" is based on ODA's prior successful pocket guides. It includes an illustrated dichotomous key to grasshopper nymphs. Young nymphs (1st to 3rd instar) are displayed separately from large nymphs (4th and 5th instars). Non-pest species are not covered by this guide. Many native grasshopper species are not pests. If a grasshopper scout uses this key on a non-pest species, it will be identified simply as "not pest species".

Each species page has accompanying image plates that emphasize physical characteristics. These aide in field recognition of young nymphs (1st instars if different, and 2nd and 3rd instars), large nymphs



Cover of "Pest Grasshoppers in Oregon"

(4th and 5th instars), and adults. Adult females and males are illustrated for each species. Similar species that may be confused are noted with information to distinguish between them. A county distribution map for each species is included, based on specimen records in both the ODA collection and the OSU arthropod collection. The guide ends with a checklist of 101 grasshopper species in Oregon represented by specimens in the ODA and OSU collections.

APHIS NATIONAL HONEY BEE SURVEY

Jessica Rendon

In 2024 IPPM participated in the National Honey Bee Survey. This survey documents honey bee diseases, pests, and pathogens, on a state-by-state basis, throughout the US. Additionally, the survey monitors for the presence of invasive species that may pose a threat to honey bee health. These species include the Asiatic honey bee (*Apis cerana*), the Asiatic parasitic brood mite (*Tropilaelaps clareae*), and the slow bee paralysis virus. The survey also assessed the variety and quantity of pesticides present in honey bee hives. Sampling included commercial, sideline, and hobbyist beekeepers. In total, between June and October, 20 different apiaries were sampled from 13 counties. Although many hives appeared healthy, others exhibited, beginning in spring and into fall, various brood disease symptoms. This included chalkbrood, European foul brood, sacbrood as well as maladies associated with mites- such as deformed wing virus and parasitic mite syndrome. Varroa mites were also observed at a few apiaries on adult honey bees. Wax moth was observed at 3 apiaries. Discussions with the beekeepers included the importance of monitoring pest and disease levels, and the contributions of the survey to the national effort of documenting colony health and exotic species status. Most participating beekeepers expressed interest in pesticide and virus data, and an eagerness to obtain their results. Northern giant hornet concerns were also frequently expressed. Overall, this survey has been an informative experience for us at IPPM and the participating beekeepers.

EXOTIC WOODBORER AND HORNET SURVEY

Josh Vlach

Exotic woodborers continue to invade the US and Oregon. Although not currently found in Oregon, Asian hornets, are spreading worldwide and threatening honey bee populations. The Northern giant hornet was found in Washington and Canada and is now considered eradicated. The yellow legged hornet has also been found in North America and can disrupt native pollinators. Fifteen sites were surveyed targeting nine exotic wood borers, mostly conifer pests, and Asian hornets in the genus *Vespa*. Hornets and woodborers were surveyed together to maximize the available funding provided by the USDA.

“Northern giant hornet is considered eradicated”

Sites were chosen for survey because they receive international shipments that could enable the introduction of these invasive pests. In the 2024 field season, 7,563 woodborers were caught in traps placed by ODA. Fortunately, none of the target pest species were found, nor any other species new to Oregon.

Vespa mandarina, the northern giant hornet predator of small insects, including honey bees

NEW DETECTIONS OF EXOTIC SPECIES

Josh Vlach

The IPPM program utilizes all the tools at its disposal to detect new invasive species. These include insect traps as part of our funded surveys, visual surveys or inspections, and reports by the public or other cooperators. In 2024, ODA fielded over 883 calls, emails, texts, and in-person requests from the public. These included contacts from other agencies, programs, or counties within Oregon, and from other states. There were 15 new exotic species detected in Oregon this year. Ten of these are established or additional data is needed. Five failed to establish due to mitigative actions or other factors. Ten is slightly less than the 10.4 species/year average establishment rate that has been observed in Oregon since 2007. Reports from the general public were mostly organisms known from Oregon but included some notable pests: spotted lanternfly, brown widow, crazy snake worms, Mediterranean oak borer, emerald ash borer, and more.

Invading pests that have been prevented/not established include: a southwestern species of termite- western drywood termite (*Incisitermes minor*) in a shipment with wood packaging; brown widow (Latrodectus geometricus) which have become well established in southern California; and citrus mealybug (*Planococcus citri*), which, in spite of its name, is a pest of hundreds of plant species and a vector of plant pathogens. There were also three detections of the spotted lanternfly (*Lycorma delicatula*) in 2024. All of these were single, dead adults, but at least one of them appeared fairly fresh. With three other detections in previous years, one being a viable egg mass in 2023, it is a matter of time before we see live adults in Oregon.

> "...15 new exotic species detected in Oregon this year. Ten of these are established"

Of the 10 potentially established species, one is especially noteworthy. The Lablab bug (*Megacopta cribraria*), also known as bean plataspid, or kudzu bug, is a bean pest, especially of soybeans. This species, native to tropical and temperate areas of south and east Asia, is well established in the eastern US. Trapping will occur for lab lab bug in 2025.

New Species Detections 2024

Scientific Name	Common Name	Origins
Trionymus bambusae	bamboo mealybug	Asia, Europe
Labena grallator	NA	eastern N.A.
Takecallis taiwana	bamboo shoot aphid	CA, WA, Asia
Trisetacus spp.	rust mite	NA
Megacopta cribraria	lablab bug	SE US and Asia
Anelaphus parallelus	oak twig pruner	eastern N.A.
Leptostylus transversus	longhorned beetle	eastern N.A
Heriades truncorum	large-head resin bee	Europe, MD
Ectobius pallidus	tawny cockroach	Europe
Colopha compressa	gall aphid	Europe

Incisitermes minor

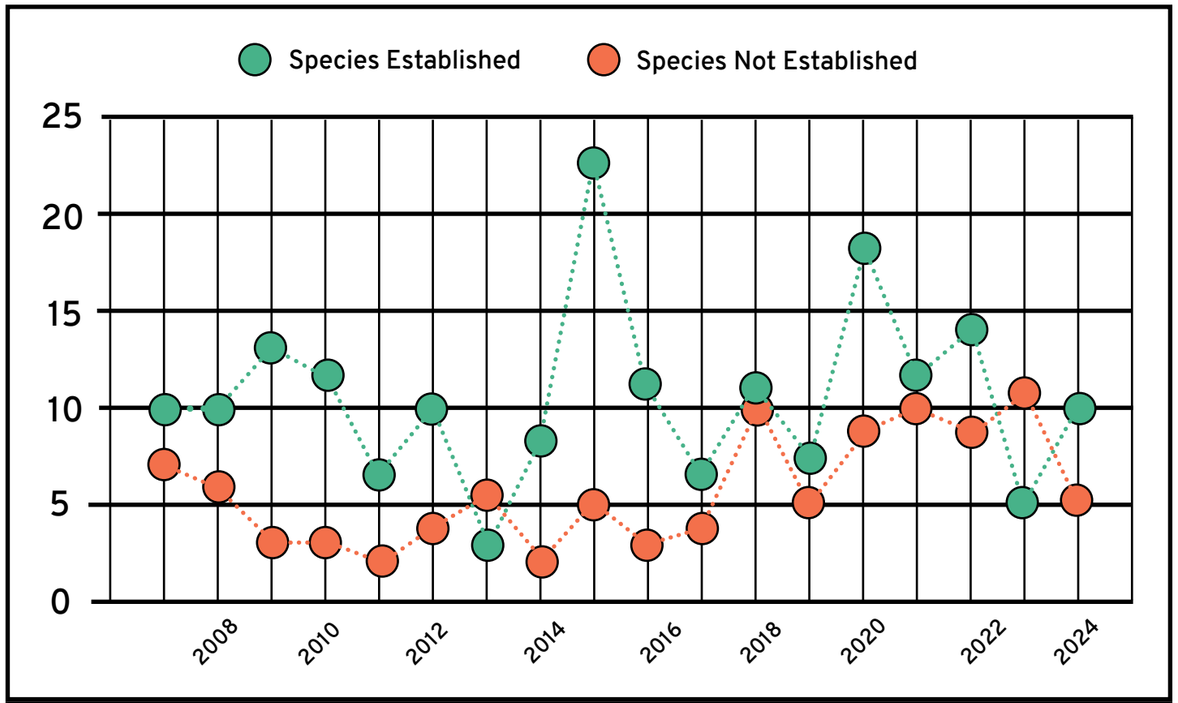
Ansel Oommen, Bugwood.org

Latrodectus geometricus

Karlamalie from commons.wikimedia.org

Leptostylus transversus

Lingafelter and Micheli doi:10.3897/zookeys.17.217



New Detections by Year 2007- 2024

Megacopta cribraria

Ectobius pallidus

Barry Walter www.inaturalist.org/photos/181559380

Anelaphus parallelus

Smithsonian Environmental Research Center

2024 IPPM PUBLICATIONS

IPPM staff operate in a regulatory space but add to scientific knowledge when they can. This year our staff participated in 11 noteworthy publications. This does not include various other reports, pest alerts and posters. A great deal of work on Pacific Northwest bees has come from Josh Dunlap's imaging efforts. And Rick Westcott, retired, made major contributions to the jewel beetle genus Acmaeodera. We're also pleased to be able to present two labors of love. First, the grasshopper identification guide, a decade long project led by Tom Valente. The second being the adventive weevil book Jim LaBonte worked on for nearly as long.

Best, L.R., Dunlap, J.B., A.S. Jackson, and J.W. Rivers. 2024 (Version 2, print). Bees of the Pacific Northwest: key to genera (Hymenoptera: Anthophila). Fish and Wildlife Habitat in Managed Forests Research Program, Oregon State University, Corvallis, Oregon. 70pp.

Best, L.R., Dunlap, J.B., A.S. Jackson, J.W. Rivers, and P.H. Williams. 2024 (Version 2, print). Bees of the Pacific Northwest: key to bumble bee species for females (Hymenoptera: Apidae: *Bombus*). Fish and Wildlife Habitat in Managed Forests Research Program, Oregon State University, Corvallis, Oregon. 26pp.

Fouani, J.M, N.G. Wiman, M. Ragozzino, P. Ryan, V. Walton, V. Verrastro, V. Mazzoni, and G. Anfora. 2024. Dose-response and sublethal effects from insecticide and adjuvant exposure on key behaviour of *Trissolcus japonicus*. Entomolagia Gernalis. 44(3):633-641. https://doi.org/10.1127/entomologia/2023/2152

Hansen, J. A. and R. L. Westcott. 2024. A new species of *Acmaeodera* from the state of Michoacán, Mexico. Insecta Mundi 1065: 1–4.

Hoebeke, E.R., J.R. LaBonte, and K.E. Loeffler. Adventive Weevils Recorded from North America: A Review and Illustrated Manual for their Identification (Coleoptera: Curculionoidea, Excluding Scolytinae). (Images also by J.B. Dunlap and S. Valley). Coleopterists Society. 603pp.

Kippenhan, M.G. 2024. A new Species of *Nemozoma* Latreille, 1804 (Coleoptera: Cleroidea: Trogossitidae) from the French Antilles and New Distributional Records for *Nemozoma fleutiauxi* Lepesme, 1947. The Coleopterists Bulletin. 78(3):379-387 (images by J.B. Dunlap)

Looney, C., D. Kitchen, J.J. Vlach, and N.M. Schiff. 2024. New records for the horntail wasp *Tremex columba* (Linnaeus, 1763) (Hymenoptera: Siricidae) in Oregon and Washington State. The Pan-Pacific Entomologist. 100(1): 5pp.

Valente, T., J.B. Dunlap, S. Valley, and T. Shahan. 2024. Pest Grasshoppers in Oregon: A Field Guide to Nymphs and Adults. Oregon Department of Agriculture. 103pp.

Vlach, J.J., J.B. Dunlap, and R.L. Westcott. 2024. An Identification Guide to the *Acmaeodera* of North America North of Mexico (digital only). Oregon Department of Agriculture. 276pp.

Westcott, R. L. 2024. New state records of Buprestidae (Coleoptera) for Idaho, USA. Insecta Mundi 1029: 1-3.

Westcott, R. L. 2024. Two new species of *Acmaeodera* Eschscholtz, 1829 (Coleoptera: Buprestidae) from southern Mexico. The Pan-Pacific Entomologist 100(1):70–74.

REPORT A PEST AND FURTHER INFORMATION

To report pests of interest contact us at:

oregoninvasiveshotline.org **Phone:** 1-866-INVADER (1-866-468-2337)

To learn more about IPPM and our work or how to submit images of invertebrate pests for identification by ODA entomologists please visit us online at:

oda.direct/IPPM

In addition to our online resources you can contact IPPM with questions at:

Email: plant-entomologists@oda.oregon.gov Phone: 503-986-4636

Oregon Department of Agriculture
Insect Pest Prevention & Management Program
26755 SW 95th Ave. Suite 101
Wilsonville, OR 97070

2024 Insect Pest Prevention and Management Team

Front row (left-to-right): Amber Basting, Holly Wantuch, Emily Perkins, Todd Adams, Ashley Toland, Kerri Schwarz, Amber Reed, Sierra Christensen **Back row (left-to-right):** Cody Holthouse, Daniel Mix, Jessica Rendon, Madeline De Funiak, Jon Chayse, Eric Weist, Dan Clark, Josh Vlach, Max Ragozzino, Josh Dunlap, Corwin Parker.
Not pictured: Tom Valente, Rich Worth.

Oregon.gov/ODA

ANNUAL REPORT 2024

INSECT PEST PREVENTION AND MANAGEMENT

Protect.

OREGON DEPARTMENT OF AGRICULTURE

Prosper.

Promote.

Funding and Acknowledgements

The Oregon Department of Agriculture Insect Pest Prevention and Management program is supported by state and federal funds to conduct the work included in this text. This report was made possible, in part, by a cooperative agreement from USDA's Animal and Plant Health Inspection Service (APHIS). It may not necessarily express APHIS' views. Work on vine mealybug (p. 11) was supported by the Oregon Wine Board. EAB work (p. 10) and Surveys of the Mediterranean oak borer (pp. 7-8) were supported in part by the Oregon Department of Forestry and US Forest Service. We thank Jackson Soil & Water Conservation District, Oregon Parks and Recreation Department, Clackamas Community College, Oregon State University, Scappoose Bay Watershed Council, West Multnomah Soil & Water Conservation District, US Forest Service, and Clackamas Soil and Water Conservation District for help deploying MOB traps.

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