

INVASIVE PEST

news & notes

Extension
UtahStateUniversity.



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Cooperative Agricultural Pest Survey Program & Plant Health

Fall 2024



An invasive species detection dog searching inflatable watercraft for invasive mussels.
Working Dogs for Conservation

Canine Heroes: Dogs Detecting Invasive Species

In the ongoing battle against invasive species, early detection is more effective and less costly than attempting to eradicate a well-established population. Dogs—with their incredible “sniff”—have become the unsung heroes in early detection. Their olfactory system contains up to 300 million scent receptors while a human’s has 5 million. Additionally, the part of a dog’s brain dedicated to analyzing smells is about 40 times larger than that of a human, relative to brain size. This enables dogs to identify specific scents of invasives, such as unique pheromones and chemical signatures, at very low concentrations.

Dogs in Action

Dogs have long been “employed” at airport terminals and warehouses, seaports, and mail facilities for decades, and have stopped thousands of invasive pests from being introduced. They are trained at the USDA National Detector Dog Training Center who

selects rescue dogs that may otherwise be euthanized. Dogs and their handlers participate in a 13-week training program and are then deployed to their respective assignment.

To protect agriculture and native ecosystems, dogs are detecting invasive insects such as emerald ash borer, red imported fire ants, and European spongy moth. The spotted lanternfly (SLF) is one of the newest insect invaders, spreading throughout eastern U.S. and damaging many crops, including grapes. Researchers at Virginia Tech University and the Texas Tech University Canine Olfaction Lab have started a citizen science project, where dogs can be trained to sniff out eggs of SLF in return for collecting results from their work in grape vineyards. Initial results have shown excellent detection of the tiny egg masses hidden in cracks and crevices.

SLF has a wide host range beyond grapevines, including native forest trees. A recent study

Helpful Links

[Utah Cooperative Agricultural Pest Survey Program](#)

[Utah Plant Pest Diagnostic Lab](#)

[Utah Department of Agriculture and Food](#)

[Don't Move Firewood](#)

[How Invasive Species Spread](#)

[PlayCleanGo](#)





The Cooperative Agricultural Pest Survey (CAPS) program supports the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service’s (USDA APHIS) mission to safeguard the nation’s agricultural and environmental resources from harmful plant pests and diseases. The Utah CAPS Committee is comprised of experts from multiple state and federal agencies as listed below. Members meet once a year to discuss and plan ongoing and future priorities and strategies. The next meeting is March 9, 2023 at 10 AM. The committee welcomes other stakeholders to participate. Email caps@usu.edu for more information.

U.S. Department of Agriculture,
Animal and Plant Health Inspection
Service

Utah State University Extension

Utah Department of Agriculture
and Food

Utah Weed Supervisors
Association

U.S. Forest Service

U.S. Homeland Security Customs
and Border Protection

Utah Division of Forestry, Fire &
State Lands

www.invasives.usu.edu

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from the New York Invasive Species Research Institute showed that trained dogs demonstrated a nearly three-fold accuracy in detecting spotted lanternfly adults in forests over humans.

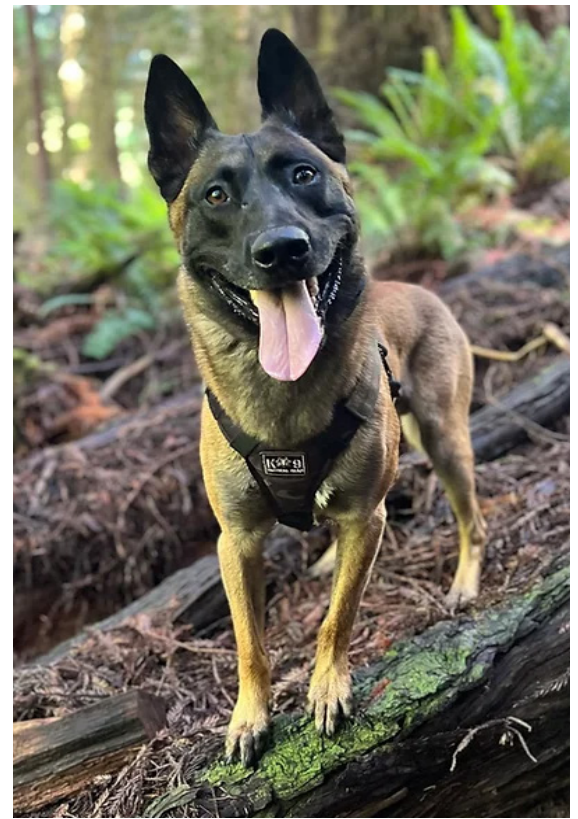
Detection dogs are also being used to combat aquatic invaders. In Washington, dogs are trained to detect invasive mussels like zebra and quagga mussels, which pose a severe threat to water ecosystems and infrastructure. These mussels clog water intake pipes, damage boats, and out-compete native species. By using dogs to identify mussel infestations early, authorities can take swift action—whether it’s treating an infested area or implementing biosecurity measures to prevent further spread.

Another aquatic invader is invasive carp species, which were intentionally released to certain U.S. rivers to combat algae. Invasive carp are fast-growing, prolific feeders, harmful to native fish, and leave a trail of environmental destruction. It is feared that they will someday enter the Great Lakes. A newer detection measure is to analyze water samples for carp DNA. This process is expensive and costly. A study by researchers in New Zealand compared dogs to DNA detection of carp. When dogs were given a bowl of water from a carp-infested area, they detected the fish as well as DNA detection. In fact, they were able to detect a population level of 2 to 4 adult carp per hectare (at 2 meters deep), which is a manageable eradication density level.

Other dog hero detections include:

- **Invasive Plants:** Dogs have been trained to sniff out invasive weeds such as garlic mustard, giant hogweed, and Japanese knotweed. These plants can disrupt local ecosystems by out-competing native vegetation.
- **Invasive Mammals:** In the Chesapeake Bay, dogs are locating nutria, a large rodent that damages wetlands. On islands such as French Polynesia, dogs detect the black rat, which poses a threat to native bird populations.
- **Invasive Reptiles:** In Guam, dogs are detecting invasive reptiles such as the brown tree snake, which has caused significant declines in native bird populations.

The integration of detection dogs into invasive species management programs represents a significant advancement in protecting ecosystems and biodiversity. These canine heroes, with their unparalleled olfactory abilities, are detecting invasive species more effectively than ever before and will make a lasting impact in the fight against invasive species.



Invasive species detection dog searching in a forest.
Dogs With Jobs

Marion Murray, Extension IPM Specialist
Meg Kast, Extension IPM Associate

Dotted Paropsine Leaf Beetle Threatens Eucalyptus

The flourishing cut flower industry faces a new pest, the dotted paropsine leaf beetle (DPLB, *Paropsis atomaria*). This beetle could threaten eucalyptus crops, known for their ornamental beauty and aromatic properties. It has been detected in southern California and many cut flower operations in Utah grow eucalyptus.

Identification and Biology

Adults are 5-8 mm long, tan with orangish-brown dots and darker spots on the wings. This beetle is native to Australia but has spread to various parts of the world, including areas where eucalyptus is cultivated commercially.

The life cycle of DPLB occurs primarily on eucalyptus plants with two generations per year. Females lay small clusters of eggs on the underside of leaves. These eggs are yellowish to white and can vary in number, ranging from 20 to 100 per cluster. Once the eggs hatch, larvae feed on the leaves. This stage is particularly destructive as the larvae are voracious feeders. They

are yellowish in color, developing black stripes as they age. They grow through several instars (growth phases), shedding their skin between each stage. When larvae mature, they drop to the ground to pupate. Adults emerge from the pupa stage and are also responsible for feeding on the foliage, leading to substantial damage to the plants. Adult beetles overwinter in sheltered areas and reemerge in the spring.

Management Strategies

This beetle does not yet occur in Utah, so no control is needed until its detection. We urge eucalyptus growers to learn about this pest and inspect plants carefully for signs (larvae and adults) and symptoms (chewed leaves). If you spot a "suspect" please contact the Utah Plant Pest Diagnostic Lab at upddl@usu.edu.

Where it does occur, growers manage it by hand-picking or applying an organic insecticide containing spinosad.

Meg Kast, IPM Associate
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Top: Dotted paropsine leaf beetle adult. Pest and Diseases Image Library , Bugwood.org

Bottom: Dotted paropsine leaf beetle larvae. (c) Michael Keogh, inaturalist.org

Dotted paropsine leaf beetle feeding damage.
Mark Schutze, www.cabidigitallibrary.org/

The Spread of Invasive Ants

Invasive ants are a growing concern across the United States, causing disruptions in ecosystems, threatening native species, and biting humans. Understanding how these pests spread is crucial for effective management and prevention.

One of the most significant avenues for the spread of invasive ants is global trade. Shipping containers, cargo shipments, and international travel often transport these pests unwittingly. Ants can hitch rides in packaging materials, wooden pallets, and even personal luggage. For instance, the Argentine ant (*Linepithema humile*) was first introduced to California via ships arriving from South America. Once established, these ants can rapidly spread into surrounding urban and natural areas.

Roads, highways, and railways also serve as critical routes for the movement of invasive species. As people travel across states and regions, they can inadvertently transport invasive ants in vehicles, including personal cars and delivery trucks. Infestations can occur in tire treads, undercarriages, or even within items transported. For example, the red imported fire ant (*Solenopsis invicta*) has significantly expanded its range due to human travel and the movement of goods along these transportation corridors. Although fire ants have not been detected in Utah, localized populations could occur in the southern part of the state. They are aggressive and deliver a painful sting.

Urban construction activities also contribute to spread, disturbing the soil and local ecosystems, creating new habitats for invasive species. Ants can be introduced through construction materials, such as soil, mulch, or sod brought in from infested areas. The little fire ant (*Wasmannia auropunctata*) has been found in urban settings such as Los Angeles and parts of Florida, spreading through the transport of contaminated landscaping materials.

Recreational activities such as camping, hiking, and outdoor events can also inadvertently transport ants. Fire ants can climb onto camping gear, backpacks, and clothing, spreading to new locations when people venture into natural areas. This movement can lead to the establishment of new colonies in parks, forests, and other recreational sites.

The spread of invasive ants has profound implications. They disrupt local ecosystems by out-competing native species for resources, leading to declines in biodiversity. In urban areas, invasive ants can invade homes, contaminate food supplies, and pose health risks through bites. Their presence can also lead to increased costs for pest control and management efforts.

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(Left) Red imported fire ant. Pest and Diseases Image Library, Bugwood.org. (Right) Little fire ant. Eli Sarnat, PIAkey: Invasive Ants of the Pacific Islands, USDA APHIS PPQ, Bugwood.org



Recent News Highlights

Innovative FishPass Project Tackles Invasive Sea Lampreys

Michigan State University researchers are spearheading the FishPass project in Traverse City, which aims to create a selective fish barrier to control invasive sea lampreys while allowing native fish species, like lake sturgeon and walleye, to pass freely. Funded by the Great Lakes Fishery Commission, this decade-long initiative employs advanced technologies, including size sorting and smart panels for trapping lampreys, contributing to broader river restoration efforts. FishPass seeks to establish a replicable model for invasive species management, with success measured by monitoring native fish populations and sea lamprey presence.



Sea lamprey. Lee Emery, US Fish and Wildlife Service, Bugwood.org

Texas Warns Against Releasing Aquarium Fish After Cichlid Discovery

Texas officials are warning against releasing aquarium pets into local waters after a non-native hybrid peacock cichlid was found in the South Fork of the San Gabriel River. Native to East Africa's Lake Malawi, this vibrant fish poses a threat to local ecosystems. The Texas Parks and Wildlife Department (TPWD) stressed that dumping aquarium fish can introduce invasive species, threatening local ecosystems. This is the first documented case of a peacock cichlid in U.S. waters. TPWD previously issued warnings about other invasive species such as marbled

crayfish. Fishermen who find exotic fish are urged to report them.



Peacock cichlid. The Consolidated Fish Farms INC

Students Innovate Eco-Conscious Trap for Japanese Beetles

University of Minnesota students have developed an eco-friendly method to trap and kill Japanese beetles, a significant pest affecting gardens and crops. Their approach utilizes a combination of pheromone lures and an eco-friendly insecticide that immobilizes and kills the beetles as they fall into the trap's netting. The students' project aims to provide an alternative to conventional pesticides.



Japanese beetle adult. David Cappaert, Bugwood.org

USDA Seeks Public Help to Combat Asian Longhorned Beetle

The USDA APHIS is seeking public assistance in identifying and reporting signs of the Asian longhorned beetle, an invasive pest that poses a threat to hardwood trees. The agency emphasizes the importance of community involvement

in monitoring trees for symptoms of the beetle, such as large holes in bark and sawdust. Public reporting can help mitigate the spread of this pest, which has already affected several regions in the U.S.



Asian giant longhorned beetle adult. Donald Duerr, USDA Forest Service, Bugwood.org

USDA Enhances State Efforts to Combat Invasive Yellow-Legged Hornet

The USDA is supporting efforts in southeastern states to combat the invasive yellow-legged hornet, which poses a threat to local ecosystems and agriculture. The agency is providing resources and funding to help state programs effectively track and eliminate these hornets, aiming to protect pollinators and maintain agricultural productivity. Through collaboration and research, the USDA emphasizes the importance of managing this invasive species to safeguard both the environment and farming communities.



Yellow-legged hornet adult. Allan Smith-Pardo, Invasive Hornets, USDA APHIS PPO, Bugwood.orgService, Bugwood.org

Recent U.S. Border Interceptions

- June 2024 - The Truckee, CA, Border Protection Station reports the first discovery of spotted lanternfly (*Lycorma delicatula*) eggs in California, found on a large metal art installation. Initially, 11 viable egg masses were identified, leading to the shipment's rejection. Further inspection in Nevada uncovered an additional 30 egg masses. The sculpture was power washed and allowed to proceed to Sonoma County under a warning hold. Native to parts of Asia, spotted lanternflies have been in the U.S. since 2014 and pose a significant threat to agriculture, particularly vineyards, by feeding on grapevine sap, which can cause serious crop damage. The California Department of Food and Agriculture (CDFA) has a response plan in place to address the potential establishment of these pests.
- June 2024 - U.S. Customs and Border Protection (CBP) intercepted 90 giant African land snails (*Achatina fulica*) at Detroit Metropolitan Airport. The snails were discovered during a secondary inspection of a passenger arriving from Ghana, who had declared some fresh food items. A bag with an unusual odor led agriculture specialists to uncover the live snails, which ranged from 3 to 6 inches in

length. The passenger did not declare the snails, which are considered an invasive species in the U.S. To prevent ecological harm, the snails were seized and euthanized. Acting Port Director John Nowak highlighted the economic threat posed by such invasive species, as these snails can damage crops and pose public health risks. They can grow up to 8 inches, feed on numerous plants, and even cause structural damage to buildings.

- August 2024 - Minnesota has reported its first detection of the elm zigzag sawfly (*Aproceros leucopoda*), an invasive insect originally from East Asia, located on the University of Minnesota Twin Cities campus. First identified in the U.S. in 2021, this sawfly is notable for the zigzag patterns its larvae create on elm leaves. Although it causes defoliation, most elm trees are capable of recovering, and effective management strategies are yet to be established. The finding was triggered by a citizen report on iNaturalist, which prompted a college student to alert experts at the Smithsonian Institute. The larvae, which are green with a black band on their heads and T-shaped markings on their legs, can also be recognized by their distinctive appearance.

- August 2024 - The Washington Department of Fish and Wildlife recently announced the discovery of zebra mussels (*Dreissena polymorpha*) on a Marimo moss ball, an aquarium decoration, shipped from a Renton city supplier. Native to the Caspian and Black Seas, zebra mussels have D-shaped shells with distinctive black and cream stripes. They first appeared in the U.S. in the late 1980s and had not been seen in Washington since 2021. Zebra mussels pose significant risks to both infrastructure and the environment. Their ability to attach to hard surfaces can clog water pipes, costing power plants millions in maintenance. If they establish a presence in Washington, state officials predict it could exceed \$100 million annually in related costs. Environmentally, zebra mussels threaten native species by competing for resources and disrupting ecosystems through their aggressive feeding on algae, which are crucial for local marine life.

Note that shipments that are found to contain pests are refused entry to the U.S., and prohibited food items that are deemed high risk for spreading invasive pests and diseases are seized and destroyed.



Spotted lanternfly. Rebekah D. Wallace, University of Georgia, Bugwood.org



Elm zigzag sawfly. Gyorgy Csoka, Hungary Forest Research Institute, Bugwood.org



Zebra mussels. Randy Westbrooks, Invasive Plant Control, Inc., Bugwood.org

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