

# IDAHO STATE DEPARTMENT OF AGRICULTURE (ISDA) DIVISION OF PLANT INDUSTRIES

## 2012 SUMMARIES OF PLANT PESTS, INVASIVE SPECIES, NOXIOUS WEEDS, PLANT LAB, NURSERY AND FIELD INSPECTION PROGRAMS, WITH SURVEY RESULTS



### INTRODUCTION

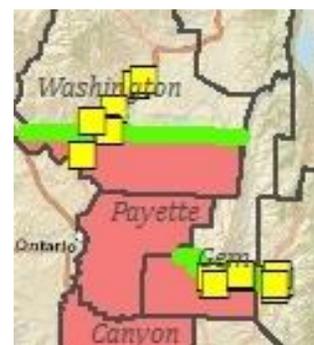
ISDA's Division of Plant Industries derives its statutory authority from multiple sections of Idaho Code, Title 22, including the Plant Pest Act, the Noxious Weed Law, the Nursery and Florist Law, and the Invasive Species Act. These laws give the Division of Plant Industries clear directives to conduct pest surveys and manage invasive species and plant pests with the purpose of protecting Idaho's agricultural industries that are valued at over \$4 billion, which include crops, nursery, and ranching. The Division of Plant Industries also cooperates with other agencies, including the Idaho Department of Lands (IDL), the University of Idaho (UI), the United States Forest Service (USFS), the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Services (APHIS), Plant Protection and Quarantine (PPQ), county governments, Cooperative Weed Management Areas (CWMA), industry groups and other stakeholders to protect Idaho's landscapes and environments from invasive species. Finally, the Division of Plant Industries helps accomplish the ISDA's broader mission to *serve consumers and agriculture by safeguarding the public, plants, animals and the environment through education and regulation*. This report summarizes the comprehensive and cooperative programs conducted during 2012 to enforce Idaho statutes and fulfill the broader mission of ISDA.

### PEST SURVEYS



#### APPLE MAGGOT (AM) (*Rhagoletis pomonella*)

In 1990, ISDA established by administrative rule an AM-free regulated area (the "Apple Maggot Free Zone" or AMFZ) that encompasses the major apple production areas of the state. Every year, ISDA conducts an area-wide survey for AM using yellow panel traps and ammonium carbonate bait.



2012: Yellow squares depict positive AM finds. The red area represents the AMFZ.

#### Summary of trapping for apple maggot in Idaho, 2012

County	Total number of AM traps placed	Positive AM traps	Negative AM traps
Boise	20	8	12
Canyon	111	0	111
Gem	94	10	84
Owyhee	33	0	33
Payette	66	0	66
Washington	105	15	90
<b>TOTAL</b>	<b>429</b>	<b>33</b>	<b>396</b>

In 2012, 429 traps were placed in commercial apple orchards and home landscape trees in Boise, Canyon, Gem, Owyhee, Payette and Washington counties. Positive specimens were identified by the ISDA entomologist. Five of the 15 AM adults trapped in Washington County were located within the AMFZ, and all 10 of the positive finds in Gem County were located within the AMFZ. All AM located within the AMFZ were found on traps that had been placed in hawthorn trees or in undermanaged or neglected apple trees in non-commercial settings.



Red "Attract-and-Kill" sphere

*ISDA response:*

In response to the positive finds of AM within the AMFZ in 2012, ISDA placed 200 “Attract-and-Kill” spheres around those sites to reduce AM populations. In May 2012, the Black Canyon Irrigation District in Gem County killed or removed problematic abandoned apple trees along Plaza Road at ISDA’s request. In 2013, ISDA will contact Orchard Review Boards in Washington and Gem counties if further action is needed to manage or remove problem trees.

During 2013, ISDA will continue to conduct detection surveys in the six-county area. In Washington and Gem counties, ISDA will set out supplementary detection traps and place additional red AM “Attract-and-Kill” spheres at all locations that were positive for AM in 2012. *See page 37 of this report for a map of 2012 AM survey activity in Idaho.*

**BROWN MARMORATED STINK BUG (BMSB) (*Halyomorpha halys*)**

In addition to being a notorious household pest, the brown marmorated stink bug can act as an agricultural pest that, when populations are high, can cause widespread damage to fruit and vegetable crops. The insect, native to parts of Asia, was first found in the U.S. in Pennsylvania in 1998. It has since spread throughout much of the eastern U.S. In recent years, BMSB has also been found in Colorado, Oregon and Washington.



BMSB adult

On May 20, 2012, ISDA collected a live BMSB adult from a household in Nampa, ID after a concerned homeowner reported finding it on his property. The homeowner had recently moved to Idaho from Maryland, where BMSB is endemic; it is likely that the insect “hitchhiked” to Idaho as a stowaway in household items. While unpacking boxes inside the house and bringing out lawn furniture from the garage, the homeowner discovered several specimens of BMSB, both living and dead. He immediately contacted ISDA, and specimens were collected and identified by the ISDA entomologist as BMSB. Over the summer, a few more specimens were found in the house. In July, viable eggs were discovered on an outdoor ornamental plant. An additional live specimen was collected inside the house in October.

*ISDA response:*

Identification of the insect was confirmed by the ISDA entomologist. After the initial find, the homeowner was instructed to notify the agency of any further finds, which were then collected by the entomologist. To determine the extent of the problem, the public, including area growers, was notified of the find through press releases and meetings. They were invited to send suspicious specimens to ISDA for identification. Over 200 specimens of insects were received; none proved to be BMSB.

In 2013, ISDA will place light traps in the area surrounding the home in Nampa, and will also conduct visual surveys for the insect in crops. If BMSB is found in either situation, ISDA will implement further delimitation activities and determine a further course of action.

**WESTERN CHERRY FRUIT FLY (WCFF) (*Rhagoletis indifferens* Curran)**

ISDA routinely conducts an annual trapping program to detect first emergence of WCFF. The agency also tracks degree-day accumulation calculations as required by the California Department of Food and Agriculture (CDFA) to comply with their WCFF quarantine, which is aimed at states wishing to export fresh sweet cherries into or through California. **In 2012, WCFF adults were first observed on ISDA sentinel traps on May 18 in Canyon and Gem counties.**



Adult WCFF

To comply with the California Quarantine Permit statutes, and at the request of the Idaho Cherry Commission, commercial cherry growers were notified by mail during the week of May 21, 2012 that the 1,060 degree day threshold

had been reached, and that the time to begin treatments for WCFF was fast approaching. In addition, electronic notifications were sent out with assistance from the University of Idaho Cooperative Extension Service via the NW Pest Alert Network Web Site (<http://www.pnwpestaalert.net/index.php>).

**2008-2012: Degree day accumulations relevant to the start of pesticide treatments for WCFF**

Site	2012 Forecast for first treatment (recommended at 1,060 degree day)	2011	2010	2009	2008
		<i>Historical 1060 degree day accumulations forecast dates</i>			
Boise	May 28	June 15	June 12	June 3	June 17
Caldwell	May 24	June 12	June 12	June 6	June 16
Homedale	June 2	N/A	N/A	N/A	N/A
Nampa	May 28	June 17	June 13	June 4	June 16
Deer Flat Dam	May 30	N/A	N/A	N/A	N/A
Ontario	May 28	June 17	June 11	May 31	June 13
Parma	June 2	June 17	June 12	June 1	June 14
Emmett	June 3	June 21	N/A	N/A	N/A

Degree day calculations used to decide when to begin pesticide treatments for WCFF are determined by use of a degree-day computer model from the Department of Entomology at Oregon State University. Control applications are recommended on or prior to accumulations of 1,060 degree-days according to the publication, "Orchard Pest Management", published by the Good Fruit Grower, Yakima, WA, in 1993.



WCFF maggots

**SPOTTED WING DROSOPHILA (SWD) (*Drosophila suzukii*)**

In August 2012, extension entomologists at the University of Idaho confirmed the first state record of spotted wing drosophila, an Asian vinegar fly that damages a wide variety of soft fruits, from berries and cherries to grapes and peaches. SWD has previously been found in Oregon and Washington, and is fast becoming a problem in the Pacific Northwest. A homeowner in Moscow, Idaho (Latah County) first found the insects on Bing cherry trees on his property. SWD was later found in 2012 in Nez Perce and Canyon counties.



SWD adult male

Although the insect is not regulated by ISDA, its discovery in the state is of concern to Idaho orchardists, grape growers and gardeners, who are encouraged to monitor for the pest by placing appropriate traps. If SWD is found, spraying or other control methods are an option. Those who suspect they've found SWD are encouraged to submit specimens to University of Idaho Extension offices for identification. Insect specimens and infested fruit should be preserved in alcohol and packaged in crush-proof containers. *Note: Absolutely no live specimens should be sent in the mail.* Visit <http://www.uidaho.edu/extension> to locate the nearest extension office.

**EUROPEAN PINE SHOOT MOTH (EPSM) (*Rhyacionia bouliana*)**

The Idaho EPSM survey is conducted annually to comply with California and Montana's quarantines by tracking the insect's movement within the state. In 2012, ISDA staff placed 133 EPSM traps in nurseries and pine tree plantations throughout 12 Idaho counties. Recent mild winters and urbanization have contributed to increased EPSM trap densities over recent years, especially in nurseries growing Austrian pines, but **no new confirmed infested counties were reported in 2012.** Finding effective control regimes and complying with Montana and California EPSM quarantines continue to challenge this segment of the Idaho nursery industry. *A map of Idaho counties positive for EPSM is located on page 36*



EPSM adult

of this report.

### **ELM SEED BUG (ESB) (*Arocatus melanocephalus*)**

In 2012, a new invasive insect, the elm seed bug, was confirmed in several Idaho counties, including Ada, Canyon, Elmore, Gem, Owyhee and Payette. ESB, which has never before been found in the U.S., is common in central-southern Europe. ESB, which are related to boxelder bugs, stink bugs and other seed bugs, most likely arrived in Idaho in packing containers from Italy. The insect preferentially feeds on the seeds of elm trees, but has also been observed on seeds of other trees. ESB adults are 1/3 inch long and dark chocolate-colored with rusty red triangular markings on their backs. The insect does not damage trees or buildings, nor does it present any threat to human health. However, due to its habit of entering houses and other buildings in large numbers to escape summer heat and later to overwinter, it can pose a significant nuisance to homeowners. Pesticides are not considered effective in managing ESB in homes; excluding them from buildings by sealing cracks around windows and doors and removing those inside with a shop vacuum cleaner are the best ways to control them. Although ESB is not regulated by ISDA or USDA, ISDA will continue to track the movement of ESB as it is found in new counties within the state.



ESB adults

### **GYPSY MOTH (GM) (*Lymantria dispar*)**

*(Report provided by Neal Kittelson of the IDL, Coeur d'Alene, Idaho)*

In 2012, gypsy moth trappers across Idaho placed 4,263 gypsy moth detection traps in the state. The number of traps placed by each agency in 2012:

- Idaho Department of Lands (IDL): 2,076 traps
- Idaho Department of Agriculture (ISDA): 1,525 traps (plus 36 EGM delimiting traps in Meridian, ID)
- United States Forest Service R-1: 103 traps
- United States Forest Service R-4: 523 traps



Adult male gypsy moth

Between 05/01/12 and 11/01/12, staff members from each participating agency completed the placement and subsequent removal of gypsy moth traps for the detection program in Idaho. **No gypsy moths were found in Idaho during the 2012 trapping season.**

2012 was the second year of delimit trapping in Meridian, where 36 GM traps were placed in a one square mile grid surrounding the 2010 capture site. For the next two consecutive years (2011 and 2012), **no gypsy moths were captured during the delimiting survey in Meridian, ID**, making 2012 the final year for delimiting the site. The Meridian area has subsequently been returned to the regular trapping rotation schedule.

The 2012 Idaho Gypsy Moth Report was prepared and distributed in December 2012. ISDA's Program manager/entomologist delivered a presentation on the Idaho Gypsy Moth Trapping Program at the 2012 National Gypsy Moth Review (November 1-3, 2012) in Portland, Oregon.

In 2013, funding cuts throughout USDA APHIS will necessitate a change of strategy for Idaho's Gypsy Moth Program. To accommodate the reduced budget, cooperators will decrease trapping density from the current level of 2-4 traps/square mile to 1 trap/square mile. Although this decreases the overall number of traps by approximately 50%, this schedule still allows all trap zone areas to be covered in 2013.

The complete report on the 2012 Gypsy Moth Survey in Idaho may be viewed at the IDL website at: <http://www.idl.idaho.gov/bureau/forasst.htm#gm>



**Molecular Report (viruses)** (through December 31, 2012)

Virus	% Idaho apiaries where present	Notes
IAPV	0	Israeli Acute Paralysis Virus, common in some regions, has been associated with colony losses.
CBPV	0	Chronic Bee Paralysis Virus, rare, can cause colony losses.
DWV	88.9%	Deformed Wing Virus, very common, often associated with Varroa mites.
ABPV	0	Acute Bee Paralysis Virus, rare.
SBPV	0	Slow Bee Paralysis Virus, not known to be in the U.S.
BQCV	94.4%	Black Queen Cell Virus, very common, strongly associated with <i>Nosema</i> disease.

**Nosema species, exotic bee and mite species, and parasite results** (through December 31, 2012)

Target	% Idaho apiaries where present	Notes
<i>Nosema ceranae</i>	61.1 %	Parasitic fungus. Newer species, common, in the U.S. since at least 1984. This screen is for active <i>Nosema</i> growth and might under-estimate spore presence.
<i>Nosema apis</i>	0	Parasitic fungus. Was common before <i>N. ceranae</i> invasion, becoming rare.
<i>Apis mellifera capensis</i>	0	South African honey bee sub-species. Serious problem for beekeepers there. Not known to be in the U.S.
Tracheal mite	0	Small parasitic mites that infest and breed in the tracheal tubes.

**Microscopic and Visual Reports**

Target	Results	Notes
Varroa mites present	VM were present in 87.5% of apiaries. Average number mites counted per apiary = 6.8 (excluding outliers).	
Varroa mites per 100 bees	Average = 0.6 mites per 100 bees (excluding outliers)	Varroa mites detected at more than 3-10 mites/100 bees are thought to cause damage and colonies exceeding this threshold should be treated to reduce mite loads ASAP.
Average <i>Nosema</i> load per bee (millions of spores/bee)	Average load per bee = 0.67 million spores per bee	<i>Nosema</i> spore counts in excess of 1 million spores per bee are thought to cause damage, and colonies with infection levels above this threshold should consider treatment.
<i>Apis cerana</i>	0	Asian honey bee that can be an invasive pest. Not known to be in the U.S.
Average prevalence of <i>Tropilaelaps</i>	0	<i>Tropilaelaps</i> mites are parasitic mites native to Asia. They are not known to be in the U.S.

The following pesticides were detected in pollen samples in the three reports we received as of September 14, 2012. (Sample 1 originated in Blaine County; sample 2 in Lemhi County, and sample 3 in Payette County):

- Coumaphos (samples 1\*, 2 and 3)
- Coumaphosoxon (sample 1)

- Fenpyroximate (sample 1\*)
- Thymol (samples 1 and 2\*)
- 2,4 Dimethylphenylformamide (sample 3\*)
- Chlorpyrifos (sample 3)
- Fluvalinate (sample 3)

\* Level exceeds national average

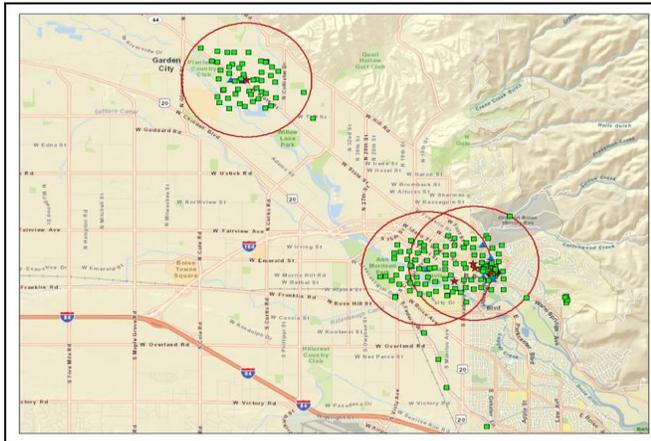
At the time of this writing, ISDA is waiting on reports from USDA regarding live and preserved adult specimens from 17 surveys.

### JAPANESE BEETLE (JB) (*Popillia japonica* Newman)

The Japanese beetle is a highly destructive invasive plant pest that can be very difficult and expensive to control. Feeding on grass roots, JB grubs damage lawns, golf courses, and pastures. Japanese beetle adults attack the foliage, flowers, or fruits of more than 300 different ornamental and agricultural plants. Originally from Japan, JB was first found in the U.S. in New Jersey in 1916. It is now known to occur in most states east of the Mississippi River, although its presence in the West remains spotty. Quarantines for JB are maintained and vigorously enforced by the state governments of Idaho, California, Oregon, Utah, and Washington. Establishment of the beetle in Idaho would seriously affect exports to the above-listed states and British Columbia. Eastern Idaho is at increased risk for a JB infestation due to the amount of nursery stock coming in from infested eastern states.



Since 1990, ISDA has regularly deployed about 300 JB traps a year in the state. These routine surveys have resulted in the capture of single specimens of JB in Ada County in 1992 and in Gooding County in 1997. A single JB adult was captured near a nursery in Filer, ID during the summer of 2011. On July 30, 2012, two adult JB were found in ISDA traps in Boise City (Ada County), one beetle in Julia Davis Park near downtown Boise, and the other at a commercial nursery approximately 5.5 miles west of the park.



Delimiting blocks in Boise in 2012.  
Each square mile block contained 49 traps.

ISDA immediately placed several delimiting traps around these locations. More JB were found during August through October. By the end of the 2012 Japanese beetle trapping season, a total of 61 JB adults had been caught in the state: 4 near a nursery in Kootenai County, 1 near a nursery in Bannock County, and the remaining 56 in the city of Boise. No further catches were made in Filer at the site of the single beetle find in 2011. Most of the beetles caught in Boise in 2012 were trapped in

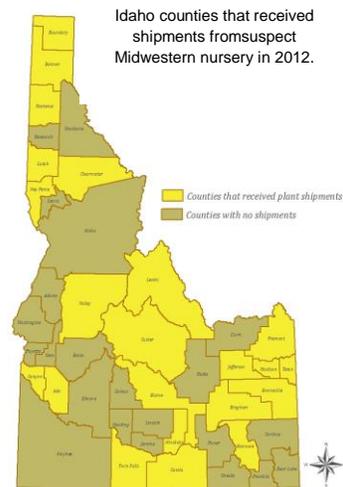
a residential area in the eastern part of the city. In total, with the addition of 222 delimiting traps at various sites of capture, ISDA managed 596 JB traps throughout the state in 2012, including those at nurseries, turf farms, urban landscape sites, airports, and in areas with significant risk factors such as recent landscaping. Most of the 222 delimiting traps were set in the 3 delimiting blocks in Boise. Each square block contained 49 traps.

### Summary of JB catches in Idaho, 2012

County	No. of negative traps	No. of positive traps	No. of JB caught in county
Ada	187	21	56
Bannock	1	1	1
Kootenai	111	1	4
<b>Total</b>	<b>299</b>	<b>23</b>	<b>61</b>

At ISDA's request, the affected nurseries in Ada, Kootenai, and Bannock counties applied appropriate pesticide treatments to their properties soon after JB was found in 2012, as did the Boise Parks and Recreation Department. ISDA is in the process of planning 2013 treatments for properties in the eastside residential areas where JB was found in 2012, if funding is available.

It appears that the source of the Japanese beetles ISDA found in 2012 may be a single Midwestern commercial nursery business that shipped stock to Idaho and other nearby states, where similar problems have arisen. There are a total of 52 nurseries throughout Idaho that received shipments from the business in question. In 2013, ISDA will set approximately 10 JB traps around each site, even in places where JB was not detected in 2012. Full delimiting surveys of 49 traps per square mile will be continued in 2013 for sites in Boise where JB was found in 2012. A JB trap distribution map for the state is located on page 33 of this report.



### EMERALD ASH BORER SURVEY (EAB) (*Agilus planipennis*)

The emerald ash borer was first identified in North America in southeastern Michigan and the Windsor, Ontario areas in 2002. Since then, it has been found in 18 states in the eastern half of the U.S. and parts of Canada. Larvae of this extremely destructive tree pest feed on tissues beneath the bark of ash trees (*Fraxinus* spp.), effectively girdling and consequently killing the trees. Adult EAB are generally active from mid-May to September.



EAB adult

As part of USDA's 2012 National EAB Survey, USDA PPQ installed and monitored a total of 80 purple sticky traps at 25 locations throughout Idaho. Sites included ports of entry, parks, and urban ash plantings. In 2012, manuka oil lures used in the traps were supplemented with Z3 hexanol lures. **No EAB were captured in Idaho in 2012, or in any previous years.**

### CORN COMMODITY SURVEY



Corn is a major agronomic crop in Idaho. The USDA National Agricultural Statistical Service reported 300,000 acres planted in the state in 2009, and the production value for grain corn alone was estimated at \$61.2 million. In addition to grain, Idaho corn is used for silage, processed sweet corn and sweet corn seed (Idaho ranks as the top production state for hybrid sweet corn seed varieties). Idaho sweet corn seed companies export to U.S. and international markets, making phytosanitary issues and data on

freedom from exotic insects and pathogens of vital concern to the state's corn industry.

In 2012, ISDA, in cooperation with the USDA APHIS PPQ's Cooperative Agricultural Pest Survey program (CAPS), conducted surveys for a variety of exotic organisms that could threaten Idaho corn crops. The 2012 Corn Commodity Survey is summarized in the following table:

**Summary of 2012 CAPS Corn Commodity Survey in Idaho**

Organism	Photo	No. of traps/inspections performed in 2012	Results of traps/inspections
<p><b>False codling moth (FCM)</b> <b>(<i>Thaumatotibia leucotreta</i>)</b></p> <p>FCM is native to Ethiopia and sub-Saharan Africa. The first detection of false codling moth in the U.S. was in Ventura County, California in 2008.</p> <p>FCM is a threat to many of Idaho's fruits, vegetables and other crops. Increased international trade and tourism have increased the risk of introduction of this pest.</p> <p>FCM can survive in climates described as tropical, dry or temperate. It is estimated that approximately 20 percent of the continental United States may be suitable habitat for FCM.</p>	<p><i>See page 34 of this report for a map of the 2012 FCM survey activity in Idaho</i></p> 	<ul style="list-style-type: none"> <li>• 326 traps were placed in corn fields by June 15, 2012 in the six main corn production counties in Idaho (Ada, Canyon, Gem, Owyhee, Payette, and Washington).</li> <li>• Traps were checked every 2 weeks, and were removed by September 1, 2012.</li> </ul>	<p><b>All negative</b></p>
<p><b>Cotton cutworm (CCW)</b> <b>(<i>Spodoptera litura</i>)</b></p> <p>CCW is an insect pest of many important food plants. It is native to Asia, and was first detected in the U.S. in Hawaii.</p> <p>This noctuid moth is a general feeder on over 100 host plants including corn. CCW poses a significant threat to production of corn and other crops in Idaho and the rest of the Western region.</p>	<p><i>See page 34 of this report for a map of 2012 CCW survey activity in Idaho.</i></p> 	<ul style="list-style-type: none"> <li>• 326 traps were placed by June 15, 2012 in the six main corn production counties (Ada, Canyon, Gem, Owyhee, Payette, and Washington).</li> <li>• The traps were checked every 2 weeks and were removed by September 1, 2012.</li> </ul>	<p><b>All negative</b></p>

**WHEAT COMMODITY SURVEY**

Wheat, which is grown in 42 of 44 Idaho counties, is a prominent crop in Idaho with its largest production areas in the eastern part of the state and the north central Palouse region. In 2010, Idaho’s 4,200 wheat growers planted nearly 1.4 million acres of wheat, which yielded over 107 million bushels with an overall production value of over \$672 million. The number of acres planted in wheat in Idaho in 2011 increased substantially, by 33%, from 2010.

The success of the Idaho wheat industry depends greatly on its ability to export crops to external markets, including the Asian market where a significant amount of the soft white wheat grown in the state is exported for use in pastry and noodle making. In 2012, ISDA, in cooperation with the USDA’s Cooperative Agricultural Pest Survey Program (CAPS), conducted surveys for a variety of exotic organisms that could threaten Idaho’s small grain crops.

The 2012 Grain Commodity Survey is summarized in the following table:

**Summary of 2012 CAPS Small Grains Commodity Survey in Idaho**

Organism	Photo	No. of traps/inspections performed in 2012	Results of traps/inspections
<p><b>Egyptian cotton worm (ECW) (<i>Spodoptera littoralis</i>)</b></p> <p>ECW, also known as the African cotton leafworm, Egyptian cotton leafworm and the Mediterranean brocade, is native to Africa and Israel, and widely found in both Africa and Mediterranean Europe. It has been recorded several times in the U.K., and even though it has been intercepted at U.S. ports, it is not known to be established in North America.</p> <p>ECW is considered a pest of national concern and may result in quarantine and/or regulatory actions if detected. It is a pest of vegetables, fruits, flowers, and other crops. The establishment of Egyptian cottonworm in the continental U.S. would negatively impact trade.</p>	<p><i>See page 35 of this report for a map of the 2012 ECW survey activity in Idaho.</i></p> 	<ul style="list-style-type: none"> <li>• 277 traps were placed by June 15, 2012 in 11 main corn production counties in Idaho (Bingham, Bonneville, Canyon, Cassia, Gooding, Idaho, Latah, Minidoka, Owyhee, Power, and Twin Falls).</li> <li>• Traps were checked every 2 weeks, and were removed by September 1, 2012.</li> </ul>	<p><b>All negative</b></p>

<p><b>Wheat stem rust (WSR)</b> <b>(<i>Puccinia graminis</i> subsp. <i>tritici</i> Race Ug99)</b></p> <p>WSR Race UgG99 is a new, virulent, physiological race of wheat stem rust first found in Uganda in 1999. In that same year, large crop losses from wheat stem rust were observed in Kenya. Unlike other rusts which usually cause only partial loss of wheat crops, Ug99 can cause losses in excess of 70%. The pathogen is currently spreading across Africa, Asia and most recently the Middle East. It is, apparently, becoming more virulent as it spreads.</p> <p>The introduction of this organism into Idaho wheat crops or any wheat crops in the U.S. would require immediate and drastic action.</p>		<ul style="list-style-type: none"> <li>• Visual surveys for wheat stem rust were conducted in July 2012 in the following counties: Bingham, Bonneville, Canyon, Cassia, Gooding, Idaho, Latah, Minidoka, Owyhee, Power, and Twin Falls.</li> <li>• No. of fields visually inspected in Idaho: 51.</li> </ul>	<p><b>All negative</b></p>
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**POTATO CYST NEMATODE (PCN) (*Globodera pallida*)**

(Report provided by Brian Marschman, Idaho State Plant Health Director, USDA APHIS PPQ)

*Pale Cyst Nematode Eradication Program: Idaho*

- Production acres surveyed: 28,988
- Seed acres surveyed: 242
- Number of counties surveyed: 7
- Fields positive for PCN: 5 new, 19 fields total are now considered infested.

In 2012, USDA APHIS PPQ confirmed 5 new pale cyst nematode-infested fields in Bingham and Bonneville County, Idaho. All 17 known infested fields are located within a 5-mile radius that spans a portion of northern Bingham County and southern Bonneville County. PPQ regulated as many as 16,566 acres in Bingham and Bonneville Counties in 2012 as a result of the new infested field detections. The current regulated area is 14,042 acres. Of those total acres, 1,915 are infested.



Potato cyst nematodes

Greenhouse bioassays are currently underway at the University of Idaho in Moscow, Idaho on seven infested fields in the eradication program that had no viable nematodes according to a non-vital staining analysis conducted at the PPQ laboratory in Idaho Falls. Cysts collected from these fields advanced to greenhouse bioassay, which is the next step toward determining eradication success. Greenhouse bioassay assesses the nematodes' ability to hatch from a cyst, infect a host plant, and reproduce. The entire greenhouse bioassay process takes at least 18 months to complete. One field successfully completed the greenhouse bioassay process in 2012, making it eligible to return to potato production in 2013 with certain regulatory limitations. Additional results of greenhouse bioassay are expected in 2013.

In May 2012, PPQ treated six of the fifteen infested fields known at that time with methyl bromide. Of the nine fields that were not treated, three had already triggered bioassay in 2010-2011, and six had previously

received more than two methyl bromide treatments. Additional treatments for those fields were not feasible due to lack of funds. Grain or corn crops were grown in the untreated fields for harvest instead. Tricon 80/20 (80% methyl bromide/20% chloropicrin) was used again this year. To increase retention of fumigant in the soil and overall fumigant efficacy, a special tarp material (totally impermeable film) was used in the fields.

In 2012, PPQ did not treat any of the infested fields with the nematicide Telone II due to lack of funds. Telone II had been used in the infested fields during 2007-2011, with the exception of 2009 when there was a worldwide shortage of the chemical.

In March 2012, PPQ held a 5-year program review that was attended by PPQ, ISDA, the Idaho Potato Commission, and representatives of the potato farmers and other rural stakeholders. In January, February, June, July and November 2012, eradication planning meetings were held with the infested field owners and operators. Stakeholder updates were distributed in April and June. Outreach was also conducted at the Potato Conference in Pocatello, the Idaho Nursery and Landscape Association Horticulture Expo in Boise, and the University of Idaho Snake River Weed Tour in Aberdeen.

The cooperative program received an APHIS Administrator’s award in September 2012 for the “exceptional cooperative efforts in assisting potato farmers and other rural stakeholders in response to the invasive Pale Cyst Nematode discovery in eastern Idaho”.

*Sampling Information:*

To date, the Pale Cyst Nematode Program has collected more than 408,000 soil samples in Idaho to ensure Idaho’s freedom from pale cyst nematode outside of the 17 known infested fields. More than 66,000 samples have been collected from the eradication fields in order to monitor eradication progress and to provide cysts to several institutions for pale cyst nematode research.

To date, the pale cyst nematode laboratory in Idaho Falls has screened more than 382,000 soil samples collected in Idaho and approximately 48,400 samples from other potato-producing states. There have been no pale cyst nematode detections in the U.S. outside of Idaho.

Since program inception the viability of 707 cyst samples collected from infested fields has been analyzed before and after fumigation treatments. Viable potato cyst nematode cysts are no longer detected in five of the treated fields and the average viability in the other treated fields has declined by more than 99% since eradication treatments began.

Since 2009, approximately 70,500 soil samples have been collected in support of the Idaho State Department of Agriculture’s post-regulation survey of fields deregulated by the USDA.

**KARNAL BUNT (KB) (*Tilletia indica*)**

The smut fungus pathogen, *Tilletia indica*, causes a fungal disease in wheat referred to as karnal bunt. Karnal bunt is known to occur in Arizona, New Mexico, California, and Texas, where quarantines are in place, while efforts are made to eradicate the disease. ISDA has conducted surveys in Idaho for KB since 1996. In 2012, ISDA collected 65 wheat samples from 17 counties in Idaho and tested them for the pathogen. **Results from this year’s survey were negative; karnal bunt has never been found in Idaho.**



Karnal bunt in wheat kernels

**2012 Karnal Bunt Survey in Idaho (all samples negative)**

County	Number of Samples	County	Number of Samples
Bear Lake	1	Lewis	5
Bingham	18	Lincoln	1
Boundary	1	Madison	4
Canyon	2	Nez Perce	6

Cassia	6	Owyhee	1
Clearwater	1	Power	6
Elmore	1	Teton	2
Fremont	3	Washington	1
Jefferson	6		

### DISEASES AND PESTS FOUND DURING 2012 FIELD INSPECTIONS FOR EXPORT CERTIFICATION

In 2012, 50 seed companies submitted field inspection requests representing 30 crops. Total acres submitted for inspection numbered 24,102, with 50,045 acres actually inspected, due to multiple inspections required for some crop diseases. This is an increase in firms from the 41 participants in 2011, and a 4% decrease in acreage from the 25,193 acres submitted in 2011.

Year	# Participating Firms	# of Crops	Submitted Acres	Inspected Acres
2003	41	27	43,433	71,357
2004	44	27	46,282	79,671
2005	43	28	42,961	74,905
2006	47	30	37,859	70,692
2007	48	32	30,938	58,218
2008	50	32	34,439	66,114
2009	43	33	36,541	72,184
2010	46	35	32,495	62,608
2011	41	30	25,193	51,404
2012	50	30	24,102	50,045

**Alfalfa seed:** A total of 1,366.95 acres were submitted for inspection during the 2012 growing season. *Cercospora medicaginis*, *Clavibacter michiganensis subsp. insidiosus*, *Cuscuta spp.*, *Ditylenchus dipsaci*, *Euphorbia esula*, *Verticillium albo-atrum* or *V. dahliae*, and *Xanthomonas campestral pave alfalfae* were not observed during the 2012 field inspection season.

**Allium (excluding garlic):** A total of 1,081.89 acres of chives and onions were submitted for inspection. All fields inspected were found apparently free from *Peronospora destructor*, *Urocystiscepulae*, *Puccinia asparagi*, *Colletotrichum circinans*, *Ditylenchus dipsaci*, and *Sclerotium cepivorum*. In onions, *Botrytis aclada* was found in 6.3 acres, *Botrytis allii* was confirmed in 38.3 acres. *Sclerotinia spp.* was confirmed in 5 acres.

**Beans, dry:** In 2012, there were 1,198.55 acres of garden beans submitted for individual inspection. In total, 2,616.2 acres were inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Bean Seed (*Phaseolus*) Species in Idaho, all fields submitted were also inspected for halo blight, common blight, fuscus blight, brown spot, bacterial wilt, and anthracnose. In addition, there were no reported observations of bean common mosaic potyvirus, *Colletotrichum truncatum*, peanut stunt cucumovirus, or tobacco streak ilavirus in fields requested to be inspected for these diseases.

**Beans, garden:** In 2012, there were 9,295.5 acres of garden beans submitted for individual inspection. In total there were 23,187.5 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Bean Seed (*Phaseolus*) Species in Idaho, all fields submitted were also inspected for halo blight, common blight, fuscus blight, brown spot, bacterial wilt, and anthracnose. There were no observations of bean yellow mosaic virus, *Colletotrichum*

*truncatum*, pea seed-borne mosaic virus, peanut stunt virus, *Phoma exigua* var. *diversispora*, or tobacco streak virus in fields requested to be inspected for these diseases. Ten acres of garden beans were found positive for *Fusarium oxysporum*.

**Brassicas:** A total of 146 acres of brassicas, collards, mustard, and turnips were submitted and inspected in 2012. No fields were found positive for *Leptosphaeria maculans*, *Xanthomonas campestris* pv. *campestris*, *Pseudomonas syringae* pv. *maculicola*, *Alternaria brassicola* or *Sclerotinia* spp.

**Carrot:** A total of 1,292.87 acres were inspected in 2012. *Alternaria radicina* was found in 4 acres, and *Sclerotinia* spp. occurred in 92.6 acres. There were no observations of *Alternaria dauci*, *Pectobacterium carotovorum* pv. *carotovorum*, or *Xanthomonas campestris* pv. *carotae*.

**Corn:** In 2012, there were 5,441.93 acres of corn submitted for individual inspection. In total, there were 10,883.52 acres inspected due to multiple inspection requirements for certain diseases. Disease occurrence was confirmed as follows: high plains virus (HPV) found in 310.62 acres; maize dwarf mosaic virus (MDMV) found in 63.12 acres; wheat streak mosaic virus found in 40.92 acres; *Gibberella fujikuroi* found in 54.6 acres; *Rhizopus arrhizus* found in 1.36 acres; *Sporisorium reilianum* found in 15.9 acres; *Fusarium subglutinans* found in 36.7 acres; *Ustilago zaeae* (common smut) was reported in 1,762.99 acres. Sugarcane mosaic potyvirus was not observed in Idaho in 2012. These statistics include 92.8 acres in 9 fields submitted for inspection and testing for export to Australia. Of these fields, 52 acres in 4 fields met the Australian guidelines. Five fields with 40.8 acres failed due to testing positive for various combinations of high plains virus, maize dwarf mosaic virus and wheat streak mosaic virus.

**Garlic:** A total of 7.36 acres were inspected and found free from any disease symptoms of quarantine significance, including *Sclerotium cepivorum* (onion white rot).

**Grain:** A total of 346.1 acres of barley, grain sorghum, oats, rye, triticale, and wheat were inspected. No diseases of significance were observed.

**Lettuce:** In 2012, 174.82 acres of lettuce were submitted for inspection. Lettuce mosaic potyvirus (LMV) was observed in 16 acres.

**Mint:** A total of 158 acres were inspected and found apparently free from *Verticillium dahliae*, mint root borer (*Fumibotys fumalis*), and mint stem borer (*Pseudobaris nigrina*).

**Peas:** In 2012, 3,354.94 acres of peas were submitted for individual inspection. In total, 8,024.36 acres were inspected due to multiple inspection requirements for certain diseases. *Cladosporium cladosporioides* spicicola, *Mycosphaerella pinodes*, *Phoma medicaginis*, and *Ascochyta pisi* were not found in any of the fields inspected. In addition, no symptoms of pea seed-borne mosaic virus were observed during 2012 inspections.

**Potato:** No potato fields were submitted for inspection in 2012.

**Radish:** There were 339.5 acres of radishes submitted for inspection. All fields were found apparently free from *Colletotrichum higginsianum*, *Xanthomonas campestris* pv. *campestris*, and *X. campestris* pv. *raphani*.

**Tomato:** A combined total of 0.01 acres were inspected during 2012. No symptoms of diseases of quarantine significance were observed.

**Vine crops:** A total of 15.8 acres of vine crops including, melon, pumpkin, squash and watermelon were submitted for inspection during 2012. No fields were found positive for *Pseudomonas syringae* pv.

*lachrymans*, *Colletotrichum orbiculare*, *Acidovorax avenae* subsp. *citrulli*, *Xanthomonas cucurbitae* or cucumber mosaic virus.

**ACREAGE SUBMITTED FOR INSPECTION UNDER THE IDAHO RULES FOR PHYTOSANITARY AND POST-ENTRY CERTIFICATION AND RULES GOVERNING THE PLANTING OF BEANS (*Phaseolus*) SPECIES IN IDAHO FOR THE 2012 FIELD SEASON**

<b>SPECIES</b>	<b>SUBMITTED ACRES</b>	<b>INSPECTED ACRES</b>
Alfalfa	1,366.95	1,366.95
Barley	47.72	93.94
Beans, Dry	1,198.55	2,616.20
Beans, Garden	9,295.50	23,187.50
Brassicas	6.00	6.00
Carrot	1,292.87	1,292.87
Chive	8.00	16.00
Collards	24.00	24.00
Corn	5,441.93	10,883.52
Endive	5.00	5.00
Garlic	7.36	7.36
Grain Sorghum	121.06	242.12
Lettuce	300.5	300.5
Melon	1.21	1.72
Mint	79.00	158.00
Mustard	14.00	14.00
Oats	0.30	0.30
Onion	1,073.89	1,242.08
Peas	3,354.94	8,024.36
Peppers	1.92	3.84
Pumpkin & Winter Squash	12.96	12.96
Radish	339.50	432.50
Rye	0.03	0.03
Summer Squash	1.33	1.33
Tomato	0.01	0.01
Triticale	0.03	0.03
Turnip	102.00	102.00
Watermelon	0.30	0.30
Wheat	5.68	9.68
<b>TOTALS:</b>	<b>24,102.54</b>	<b>50,045.10</b>

Garry West, Program Manager, Division of Plant Industries, Twin Falls, (208) 736-2195, and Emilee Douglas, Program Manager, Division of Plant Industries, Nampa, (208) 332-8650 compiled the field disease report.

**EXPORT CERTIFICATION FOR THE 2012 CALENDAR YEAR**

The ISDA issued 3,921 Federal and 336 state phytosanitary certificates for 196 different types of commodities to 97 countries. The Division of Plant Industries certified over 307 million pounds of seed and other commodities for export. The ISDA operates this program under a Memorandum of Understanding with the USDA.

**PLANT PATHOLOGY SUMMARY REPORT**

In 2012, the ISDA Plant Pathology Lab received a total of 1,118 samples, on which 6,726 tests were run. The following is a breakdown of the number of samples, tests and significant organisms detected.

The **Bean Program** received 140 seed samples for testing prior to planting in Idaho. All of these samples were tested for *Pseudomonas syringae* pv. *syringae*, *P. savastanoi*pv. *phaseolicola*, *Xanthomona saxonopodis* pv. *phaseola* (*varfuscans* as well), *Curtobacter flaccumfaciens*, and *Colletotrichum lindemuthianum*. Five samples tested positive for *Pseudomonas syringae* subsp. *syringae* (brown spot), and one sample was positive for *Pseudomonas savastanoi* pv. *phaseolicola* (halo blight). Positive lots were denied green tags for planting in Idaho.

Eleven lots of potatoes were submitted for "year out" testing. In Idaho, growers are allowed to plant back seed potatoes to their own ground for one year past the last level of certification (IDAPA 02.06.39). The rule requires that the growers provide ISDA with proof of prior certification. The rule also states that the tubers be tested for disease prior to planting. The diseases tested for must be the same as those tested for under the Idaho Crop Improvement seed certification rules. The tubers must be tested for Potato Virus Y, Potato Virus A, Potato Leaf Roll Virus, and *Clavibacter michiganensis* subsp. *insidiosus* (bacterial ring rot). Each potato lot is cleared for planting after testing unless bacterial ring rot is present. Potato lots with bacterial ring rot are rejected for planting. There were no rejected lots in 2012.

Other seed crops were also tested in 2012. The ISDA Seed Lab ran a total of 90 tests on 53 seed samples. Of significance, 7 lots of alfalfa from California were determined to be infected with *Clavibacter michiganensis* subsp. *insidiosus*. The lab conducted grow out tests on 4 lots of sweet corn to test for high plains virus, which consisted of planting 10,000 seeds per lot, and testing 1,000 subsamples of 10 plants each, for each lot, for a total of 4,000 tests. Two lots were positive for the virus.

There was a new memorandum of understanding (MOU) between China and the U.S. which allowed for the export of baled hay to China. To be compliant with the MOU, shippers from the U.S. had to have their hay tested and found free from the fungus *Verticillium albo-atrum*. The ISDA plant pathology lab did this test for 466 lots of hay. No *V. albo-atrum* was detected.

The lab received 324 samples from ISDA field inspectors, and ran approximately 1,300 tests. Of these samples, several were positive for diseases (see Table 1 below). The average turnaround time for testing was 40 days.

<b>Table 1. Pathology Lab: Field Crop Positive Reports</b>		
<b>Crop</b>	<b>Disease</b>	<b># of Positive Fields</b>
<b>Beans</b>	<i>Fusarium oxysporum</i>	1
	Bean Common Mosaic Potyvirus	1
<b>Carrot</b>	<i>Sclerotinia</i> sp.	5
	<i>Alternaria radicina</i>	1
<b>Corn</b>	<i>Fusarium subglutinans</i>	1
	<i>Gibberella fujikuroi</i>	6
	High plains virus	35
	Maize dwarf mosaic potyvirus	9

	<i>Rhizopus arrhizus</i>	1
	<i>Sporisorium reiliania</i>	1
	<i>Ustilago maydis</i>	30
	Wheat streak mosaic tritimovirus	11
<b>Lettuce</b>	Lettuce mosaic potyvirus	2
<b>Onion</b>	<i>Sclerotinia</i> sp.	1
	<i>Botrytis allii</i>	2
	<i>Botrytis aclada</i>	1

### Black Stem Rust

The ISDA plant pathology lab participated in a survey for black stem rust, which was sponsored by the USDA Cooperative Agricultural Pest Survey (CAPS) program. During this survey, wheat was examined for the presence of the fungus *Puccinia graminis*, which is the causal agent of black stem rust of wheat. The fungus *Puccinia graminis*, like most rust fungi, has a second host other than wheat. For *P. graminis*, the alternate host is the barberry plant (*Berberis* sp.).

Black stem rust is considered a major pathogen of wheat in the Midwest "rust" belt. However, it has not been much of a problem in the Pacific Northwest since the 1970s, when the USDA began a program to eradicate barberry plants from the region, thus eliminating the disease from the area. This changed recently when black stem rust, along with some barberry plants, was detected in northern Idaho.

Along with the reemergence of this disease in northern Idaho, a new strain of the disease has developed in Africa. The African strain of *Puccinia graminis*, "UG99," is pathogenic to 90% of all varieties of wheat tested so far. It has moved from Africa to Iran, and to parts of Asia.

ISDA looked at 55 fields in 10 counties of Idaho for any signs of black stem rust. Any suspicious finds were to be sent to USDA scientists to determine for analysis. **Fortunately, no sign of stem rust was found in Idaho during this survey.**

### SEED LAB SUMMARY

The Idaho State Seed laboratory (ISSL) received 2,645 samples and completed 3,729 service tests in 2012. Top crops for service testing were grains, trees, alfalfa, onion, wheatgrass, beans, peas, bluegrass, fescues, and straw. In all, 144 regulatory enforcements were checked for licensing and truth-in-labeling requirements; 57 of these checks resulted in inspector actions. A total of 655 seed dealer licenses were issued bringing in \$104,100.00 in revenue.

ISSL continues to work with both state and federal agencies in developing new testing methods. In 2012, ISSL worked with the Bureau of Land Management (BLM) in Eugene, Oregon on a new method for germinating fir tree seeds. This research project was beyond standard lab testing methods and helped to provide BLM with some useful data for their nursery.

### CULL ONION INSPECTIONS AND ACTIONS

In 2012, inspections of cull onion sites began during the first week of March in Canyon, Washington, and Payette counties. These inspections were conducted to identify areas of high concern for cull onions before the March 15<sup>th</sup> disposal deadline. Once the deadline was reached, visits were conducted and dispersal of Information, including copies of Idaho rules pertaining to cull onion disposal, was distributed among land owners and responsible parties. Return inspections were scheduled during those visits to check on disposal progress.

Eleven investigations were conducted in 2012, including 4 cases involving onion packing plants, 3 involving dairy operations, 3 with sheep operations and 1 with a private landowner. One after-season investigation was conducted; the case was ultimately referred to DEQ for further investigation.

ISDA inspectors contacted onion packing plants to inform them to remove cull onion piles. In some cases, timely compliance was difficult due to wet spring weather. In those cases, numerous follow-up investigations were conducted after the weather improved. Cull onion piles were then removed and compliance was reached. No further visits were required.

To meet compliance, dairy operations disposed of cull onions by chopping them into silage. ISDA conducted follow-up visits to the dairies to ensure that all new deliveries were disposed of properly and time deadlines were met. In one instance, a complaint was received about a dairy operation receiving cull onions. Upon inspection, the suspected cull onions were determined to be processed onion sludge, and no further action was required.

Sheep owners disposed of cull onions by feeding them to their livestock according to ISDA rules and guidelines.

Private landowners in Washington County disposed of cull onions by approved methods of field tillage and pit burial disposal. Cull onion pits located in Parma were not covered until well into the cull onion regulative season. These pits were documented every week until covered.

#### **OTHER REGULATORY INSPECTIONS AND ACTIONS**

ISDA, under the authority of Title 22, Chapters, 4, 5, 23, & 24 of the Idaho Code, and IDAPA defined pest quarantines, conducted 5,565 inspections and consequently took action against various pest threats and other violations. In 2012, there were 1,787 licensed nurseries in the state; of those, 689 were inspected for compliance under statutes of the Idaho Nursery and Florists Law and were examined for the presence of plant pests and noxious weeds. In addition, specific checks were made for compliance with other state laws, quarantines and pests of particular concern. The results of these inspections and regulatory actions are listed below:

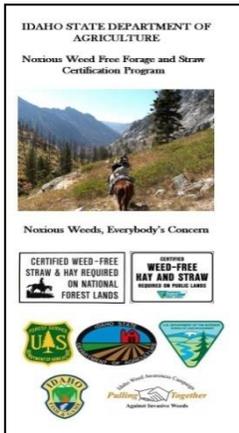
#### **Regulatory inspections and actions conducted by ISDA in 2012**

<b>Quarantine/Pests</b>	<b>No. of inspections</b>	<b>No. of incidents</b>	<b>No. of corrective actions</b>	<b>Stop Sales</b>
Certified Seed Potatoes	97	2	0	0
Aphids	566	7	1	0
Crop Management Zone	47	0	0	0
European Corn Borer	353	0	0	0
Grape Quarantine	203	8	1	8
Gypsy Moth	443	0	0	0
Hops	142	0	0	0
Red Imported Fire Ants	366	0	0	0
Japanese Beetle	452	0	0	0
Late Blight	359	0	0	0
Mint Quarantine	209	0	0	0
Nematodes	1	0	0	0
Noxious Weeds	465	6	0	0
Peach Tree Quarantine	219	0	0	0
Pine Shoot Beetle	248	0	0	0
Retail Potatoes	43	0	0	0
Idaho Seed Law	222	29	2	24
Snails	442	2	0	1

Sudden Oak Death	443	0	0	0
Onion White Rot	221	30	2	28
General Pests	24	19	0	1
Day Lily Rust	0	0	0	0
<b>Total Inspections</b>	<b>5,565</b>	<b>103</b>	<b>6</b>	<b>62</b>

### ISDA NOXIOUS WEEDS / INVASIVE SPECIES PROGRAMS

During 2012, ISDA's Noxious Weeds Program continued to work with Cooperative Weed Management Areas (CWMA), county governments, Native American tribes, landowners, and Federal partners to provide leadership, training and support for noxious weed management in the state. A total of 33 CWMA's were formed, bringing people together across agency and administrative boundaries to manage the spread of noxious weeds. Their efforts helped protect wild land habitat, ecosystem diversity, recreational opportunities, and agriculture in Idaho. During 2012, ISDA distributed a total of \$1.55 million from cost share grants to CWMA's for on-the-ground integrated weed management. Program applicants provided over \$5.37 million in matching contributions, which allowed for treatment of a total of over 332,131 acres of noxious weeds, and for nearly 1.1 million acres to be surveyed and mapped. Education and prevention are essential to the success of Idaho's program; over 1.6 million contacts were made statewide for noxious weed education and awareness.



### Noxious Weed-Free Forage and Straw (NWFFS)

In 1996, the United States Forest Service (USFS) began requiring all forage and straw used on their properties to be certified as **noxious weed free (NWF)** to prevent the introduction and spread of noxious weeds into the environment. In March of 2011, the

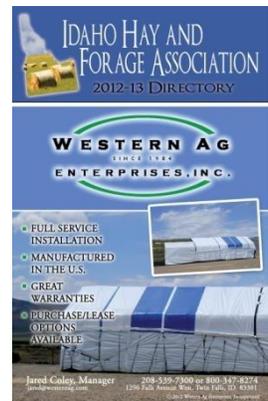
Bureau of Land Management (BLM) implemented the same rule. ISDA administers this program to facilitate compliance for equine users and re-vegetation managers. In 2012, ISDA trained 87 people, the majority NWFFS inspectors, at eight sites. Private landowners and agency partners were also invited to this event. In 2012, the ISDA NWFFS brochure was updated to include BLM lands.

ISDA continues to partner with the Idaho Horse Council by attending and giving presentations about noxious weeds at their annual meeting. This council represents all equine recreation organizations (currently over 150 groups) in Idaho.



During the year, over 13,369 acres of forage and straw, with a farm value of \$4.7 million, were inspected and certified NWF by trained county cooperators. This program makes certified NWF products such as hay bales, forage cubes and pellets, twice-compressed forage bales and straw bales increasingly accessible to equine recreationalists.

Education continues to be a focus of the NWFFS program. ISDA advertises the NWF message in the Idaho Hay Association directory as well as in Idaho Fish and Game's big game regulations publication. NWFFS manned education booths at the Idaho Hay Association conference and Idaho Horse Expo. ISDA also participated in the South Fork Boise River Cooperative Weed Management Area (CWMA) and Boise Basin CWMA hay exchange annual meetings. These hay

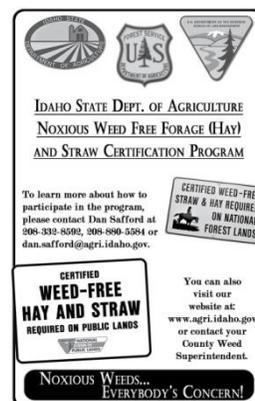


exchanges are conducted during big game hunting season to educate hunters with pack stock on using NWF forage. The NWFFS program plays an important role in protecting Idaho's wild places from the introduction of noxious weeds.

ISDA continues to work with the Idaho Hay and Forage Association (IHFA). ISDA has set up a booth at their annual conference for the last eight years. In addition, the ISDA NWFFS Program Manager has participated on its board as an ex-officio member for eight years.

ISDA's NWFFS program has a comprehensive Website at:

<http://www.agri.idaho.gov/Categories/PlantsInsects/NoxiousWeeds/nwffs.php>



## IDAHO INVASIVE SPECIES PROGRAM

### Program highlights

- ISDA worked cooperatively with several local governments to establish and operate 15 mandatory boating inspection stations statewide during the 2012 season.
- The Idaho Invasive Species Program inspected boats from 43 states during the 2012 season.
- The State of Idaho has conducted approximately 154,000 mandatory watercraft inspections since July 4, 2009.
- A total of 93 mussel-fouled boats have been intercepted and decontaminated before they were allowed to launch into Pacific Northwest waters.
- Idaho worked successfully with other western states to share education and outreach messages on various invasive species, providing consistent messaging to the traveling public.
- More than 300 Idahoans have been trained to inspect watercraft for zebra and quagga mussels.
- To date, no zebra or quagga mussels have been detected in Idaho's waterbodies.

### Background

The Idaho Invasive Species Program was initiated in 2005 to improve the coordination of activities within the State. The program coordinates efforts throughout Idaho by working with state and federal agencies, local governments, and non-governmental organizations to address the state recommendation to "ensure that a comprehensive invasive species program in Idaho is not diluted by competing efforts among various agencies." In order to carry this out, a full-time Invasive Species Coordinator was budgeted within ISDA in 2007. The Idaho Invasive Species Council was established by Executive Order (E.O. 2001-11). Per this Executive Order (which was continued as E.O. 2006-28), the Director of the Idaho State Department of Agriculture (ISDA) chairs the Council. Membership includes a representative from the Office of the Governor, and the directors (or their designee) of the Idaho Department of Environmental Quality, the Idaho Department of Parks and Recreation, the Idaho Department of Fish and Game, the Idaho Department of Lands, the Idaho Department of Water Resources, the Idaho Department of Commerce & Labor, the Idaho Department of Health and Welfare, and the Idaho Transportation Department. Representatives and members of federal entities, local government organizations, tribal governments, Idaho universities, and private and not-for-profit organizations with an interest in invasive species also participate.

The Idaho Invasive Species Law (Title 22 Chapter 19 Idaho Code) was enacted by the Legislature in 2008. The intent of this law is to address the increasing threat of invasive species in the State of Idaho by providing policy direction, planning and authority to combat invasive species, and to prevent the introduction of new invasive species to the state. This law establishes the duties of the ISDA and the Director, authorizes the Director to promulgate rules, and gives authority to conduct inspections as necessary. It also establishes the Idaho Invasive Species Fund (IISF).

The Invasive Species Prevention Sticker Rules (IDAPA 26.01.34) were enacted by the Legislature in 2009. They require motorized and non-motorized boats to have an Invasive Species Sticker to launch and operate on Idaho's waters. The sticker program is administered by the Idaho Department of Parks and Recreation. Revenue generated by this program is deposited in the IISF. The IISF is administered by the Idaho State

Department of Agriculture. While the sticker program and the invasive species programs are linked through the IISF, the programs are independent in nature.

Through revenue generated by the Invasive Species Prevention Sticker Rules, (and deposited in the IISF), ISDA developed a comprehensive statewide program designed to educate the public about invasive species, monitor Idaho water bodies for possible introduction of those species, and inspect and decontaminate watercraft that travel to and through Idaho.

### The 2012 Program

Idaho developed a comprehensive statewide prevention program to educate the public about invasive species, monitor Idaho water bodies, and inspect and decontaminate watercraft that travel into and through the state of Idaho beginning in 2009. In addition to the watercraft inspection program, the Idaho Invasive Species Council also worked cooperatively with the Oregon Invasive Species Council and the Washington Invasive Species Council to educate the public about other invasive species issues such as feral hogs and the dangers of moving firewood into the Pacific Northwest.

### 2012 Education and Outreach Activities

The State of Idaho ran printed advertisements in many newspapers and recreational guides during 2012. Utility stuffers, posters, brochures, and other outreach materials were distributed statewide on a continual basis. Information was distributed at inspection stations and at Idaho campgrounds. ISDA also worked cooperatively with retailers, such as Cabela's, to educate the public.

In 2012, the state of Idaho launched a campaign, “Don’t Let It Loose, Idaho.” The goal of this campaign is to educate the public about responsible pet ownership and the dangers associated with releasing plants and animals into the wild. ISDA is working cooperatively with the Idaho Humane Society and retail pet stores to distribute materials and promote alternative solutions for abandoned and unwanted species.



The invasive species councils of Washington, Oregon, and Idaho joined forces in 2012 to launch the regional outreach project, “Squeal on Pigs.” The purpose of this campaign is to prevent the establishment of feral pig populations in Idaho by educating people about wild pigs and encouraging them to report feral pig sightings on a toll-free, public hotline. Idaho is working to eradicate the only known population of feral hogs in the state in the Bruneau River Valley of Owyhee County. Oregon officials estimate that as many as 5,000 wild pigs are roaming their state, most having migrated from California where there are estimated to be 70,000 pigs. There are no known established populations in Washington, though individual feral pigs have been reported over the years.



The invasive species councils of Washington, Oregon, and Idaho worked closely together to share materials, consistent messages, and content relative to invasive species. During the summers of 2010-2012, the three states implemented an awareness campaign to inform the public about the threat of firewood as a vector for invasive species in the Pacific Northwest. The three states worked together to develop consistent, shared messaging about the importance of buying and burning local firewood in the Pacific Northwest.

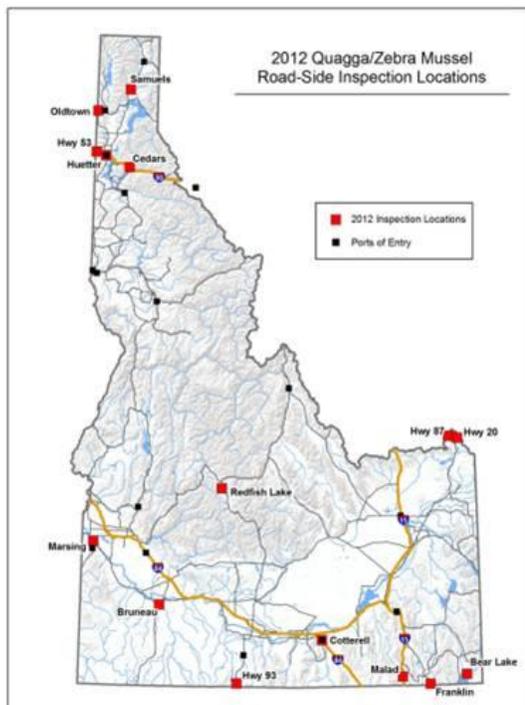
ISDA facilitated more than a dozen Watercraft Inspection Trainings (WITs) for more than 300 individuals in Boise, Caldwell, Glens Ferry, Redfish Lake, Bruneau, Twin Falls, Pocatello, Malad, Island Park, Lewiston, Sandpoint and Coeur d'Alene. Idaho's watercraft inspectors distributed outreach packets at all state inspection stations. The packets included "Zap the Zebra" brochures, Idaho-specific Invasive Species Prevention Sticker Rules information, stickers and other locally important invasive species related material. Posters targeting the travelling public were placed at highway Visitor's Centers.

Commercially hauled boats are considered a high-risk pathway. More than half of the mussel-fouled boats intercepted in Idaho during 2012 were commercially-hauled.



ISDA partnered with the Idaho Transportation Department (ITD) to initiate an education and outreach campaign for oversized load haulers that bring boats through (and to) Idaho. Through the oversized load permitting process, ITD notifies ISDA when an oversized watercraft is destined for Idaho.

ISDA contacts the boat transporter directly to inform the hauler of state laws related to possessing and transporting invasive species in Idaho. The staff at Idaho's Ports-of-Entry (POE) were also trained to inspect oversized load boats when they scale through a POE. Fourteen mussel-fouled boats were intercepted at Idaho POEs during 2012.



### Operational Inspection Stations

Quagga and zebra mussels are native to Eastern Europe and Western Asia and were introduced into the Great Lakes in the 1980s via ships' ballast water. By the 1990s, the mussels had spread throughout all five of the Great Lakes and much of the Mississippi River Basin. Because zebra and quagga mussels can attach themselves to trailered boats and hitchhike between water bodies, there is great potential for them to continue to spread to uninfested waters, including the Columbia River Basin. It is by this vector that quagga mussels made the overland jump to Lake Mead (NV) in January 2007.

Following the Lake Mead invasion, quagga mussels have spread to connected lakes and reservoirs in Arizona and southern California waters (via the California Aqueduct and Central Arizona Project). Quagga and/or zebra mussels have also now invaded other water bodies in Nevada, Arizona, California, New Mexico, Colorado, and Utah.



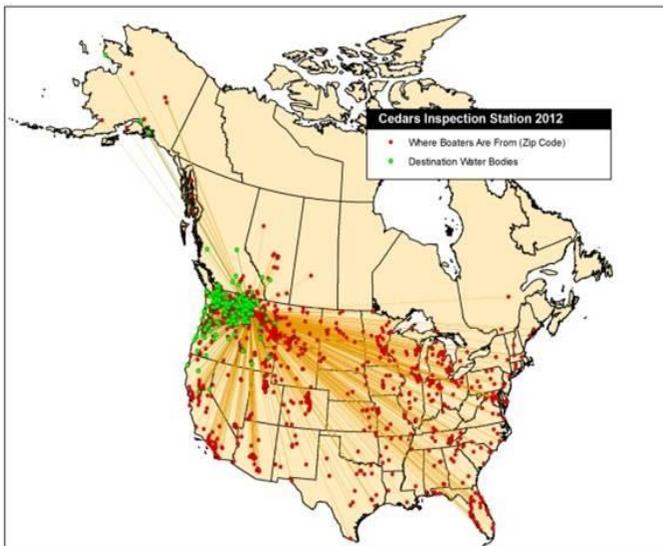
The invasion of mussels to western water bodies has resulted in increased prevention efforts across the region by resource management agencies. At the state level, numerous western states have increased their efforts in mussel prevention through enhanced monitoring, public outreach and watercraft inspection programs.

It is notable that the western watercraft inspection programs are funded with few federal dollars, since nearly all states, including Idaho, fund the programs with state boater license fees, user fees, or sticker fees. Of particular concern to many western states is the continued interception of mussel-fouled watercraft originating from federally-managed water bodies in the Lower Colorado River. Idaho's resource managers have developed a proactive prevention program to minimize the risk of introduction to Idaho's waters via mussel-fouled watercraft. In 2012, ISDA operated 15 watercraft inspection stations on highways and major roads. Many of these stations were run with the assistance of local

governments and conservation districts. The data collected at the inspection stations during the previous (2009-2011) boating seasons allowed staff to prioritize routes into the state for the 2012 season. Some stations were moved or adjusted to strategically maximize contact with out-of-state and high-risk boats.

Idaho's inspection stations are placed on major highways at or near the Idaho state line. This strategy is taken to maximize contact with boats that are travelling into the state from impacted states. The inspection stations on the southern and eastern borders of the state intercepted the majority of the mussel-fouled boats.

Boats that have been in mussel-infested states recently (within the last 30 days), watercraft coming from another state (especially commercially hauled boats), boats that show a lot of dirt, grime, or slime below the waterline, or boats that have standing water on board are considered "High-risk" to the state of Idaho.



High-risk inspections are intense and include a thorough inspection of the exterior and interior parts of the boat. The inspection includes a thorough and complete visual and tactile inspection of all portions of the boat, including compartments, bilge, trailer and any equipment, gear, ropes, or anchors. If any biological material is found on the boat or equipment, the inspectors conduct a roadside "hotwash" of the watercraft. This is done to prevent the spread of other invasive species such as New Zealand mudsnail, Eurasian watermilfoil and hydrilla.

The map to the left shows where boats came from (red) and where they were going (green) when they were inspected on I-90 at the ID-MT state line.

More than 47,000 watercraft inspections were conducted between February and October, 2012. Fifty-seven mussel-fouled boats were intercepted in Idaho during the 2012 season. More than 154,000 inspections have been conducted since July 2009. Ninety-three mussel-fouled boats have been intercepted in Idaho since 2009.

### Stopping the Spread of Quagga Mussels at the Source

While states in the Pacific Northwest are doing their best to intercept contaminated boats coming into the region, inspection and decontamination at the source of infested water bodies is lacking. As evidenced by the watercraft inspection data in Idaho, the majority of infested boats entering the Northwest region come from the lower Colorado River and Lake Mead in particular. A consortium of states have joined Idaho, as well as the Northwest Power and Conservation Council, The Nature Conservancy, the Pacific Northwest Economic Region, and Lake Tahoe to advocate for inspections and decontaminations of departing watercraft from federally managed quagga-infested waters. In particular, the group has asked the National Park Service and U.S. Department of Interior to implement a mandatory inspection and decontamination program for moored watercraft at the Lake Mead National Recreation Area.

ZEBRA MUSSEL



QUAGGA MUSSEL



To date, 93 mussel-fouled boats have been intercepted by the Idaho prevention program. The state plans to continue this important work, and encourages federal partners that manage mussel-infested waterbodies, such as Lakes Mead, Mojave, Havasu, and Pleasant, to institute mandatory inspections and decontaminations at the

"point sources" on the Lower Colorado system.

## The Idaho Passport

In 2011, ISDA began issuing voluntary Invasive Species Passports to local boaters. This system gives Idaho and Pacific Northwest boaters an expedited “fast pass” when they repeatedly come through Idaho’s stations. Boaters were issued a uniquely numbered passport booklet at the beginning of the season. They showed the assigned number to inspectors during subsequent inspections. Inspectors asked the boaters if they have left the Pacific Northwest in the last 30 days. If the answer was no, the boat received an expedited inspection, the passport was stamped with the inspection station location, and the boater’s information is logged with a handheld data unit. This dramatically reduced field data collection time and allowed for tracking of repeat boaters.



Several stations (such as I-90 eastbound at Heutter) inspect a large volume of boats that travel between the Spokane (WA) area and the lakes of northern Idaho. This system allows inspectors to quickly screen boaters based on risk. This was especially critical during busy times when inspectors were able to give low risk boats an expedited inspection and spend additional time scrutinizing high-risk boats that have come into the region from elsewhere. The system was well received by the boating community.

## Monitoring

The early detection mussel monitoring program in Idaho waters uses several methods, including plankton tow sample collection for veliger detection and static substrate and shoreline monitoring for adult detection. Sampling is focused on high-use and high-risk waters that have been identified by the Idaho Waterbody Ranking Assessment.

Plankton tow samples for veliger detection are collected following the US Bureau of Reclamation (BOR) protocols. Sampling is conducted on waterbodies throughout the state, with the highest sampling frequency focused on high-use, “Critical” ranked waterbodies. Waterbody ranking also determines sampling frequency, varying from one sampling event per season in lower risk waters to sampling at three week intervals at multiple locations in “Critical” waterbodies.

Sampling for settled adult mussels involves the use of static substrate samplers and shoreline surveys at high-use waterbodies throughout the state. Samplers are deployed on or adjacent to high watercraft use areas and they are inspected several times per season. The substrate sampling effort was led by the Idaho Department of Environmental Quality. Other partners, including state and federal agencies, lake associations, tribes, and canal companies, also monitor substrate samplers throughout the season. In the 2012 season, more than 500 plankton tow samples from 76 waterbodies were collected and analyzed for mussel veligers in Idaho. **No evidence of mussels was found during the 2012 season.**

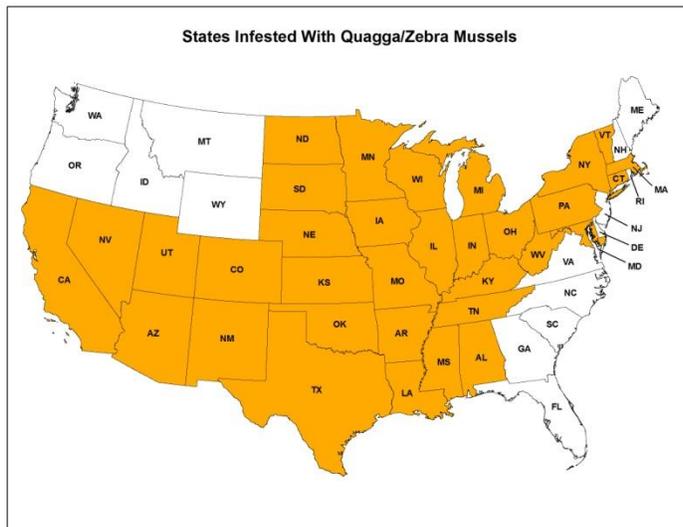
## Contingency Planning

Although the chances of eradicating a new population of zebra or quagga mussels are small, outcomes depend directly on the ability of the state to respond quickly and effectively once a population is detected. There is an urgent need to develop control technologies for zebra and quagga mussels in Idaho’s systems. Water managers in impacted western states (California, Nevada, Arizona, and Texas) have been forced to scramble to develop control technologies within water delivery infrastructure systems. This work began shortly after the discovery of the mussels in the Lake Mead National Recreation Area in 2007. Unfortunately, control options for lakes, rivers, and naturally flowing river systems are poorly-developed.

To date, there are no known control technologies available for use outside of closed (infrastructure-type) systems. Applied research is needed to find new tools to eradicate or contain these species in an Idaho field

response situation. Waterbodies such as the Snake River have numerous private and public stakeholders that have access or management authorities. Diversion facilities for irrigation, hydroelectric power generation, municipal water systems, aquaculture and recreation are just a few of the uses and management influences on the river.

In order to initiate this work, the Idaho Invasive Species Council convened a roundtable of stakeholders to determine what steps should be taken to prepare the state for a zebra or quagga mussel outbreak. These stakeholders included conservation groups, water users, canal companies, irrigation districts, utilities, municipal water companies, and germane state and federal agencies. The roundtable participants were asked to weigh options in the event these species are discovered in the state. Given the complexities of preventing and treating waterbodies in the event quagga or zebra mussels are discovered in Idaho, the group recommended that the state develop an “Exclusion Strategy and Contingency Plan.”



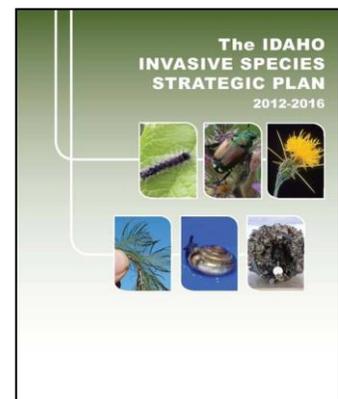
The goal of the “Exclusion Strategy and Contingency Plan” is to compile a summary of Idaho’s waterbody data, available control technology options and assess Idaho’s technical and regulatory gaps, including Endangered Species concerns. The “Exclusion Strategy and Contingency Plan” was completed in early 2012.

**The Idaho Invasive Species Strategic Plan (2012-2016)**

Idaho’s first Strategic Plan for Managing Noxious Weeds (1999) was published as a result of the Governor’s Weed Summit held in 1998. This forward-thinking plan set into motion a wide variety of efforts to coordinate weed management in Idaho. This plan sparked the nationally-recognized

Cooperative Weed Management Area (CWMA) concept and established the Idaho Weed Coordinating Committee (IWCC). The IWCC updated the Strategic Plan for Managing Noxious Weeds in 2005, and continues to strive to promote cooperation among participating agencies and entities.

In 2005, the newly-established Idaho Invasive Species Council (IISC) prepared Idaho’s Action Plan for Invasive Species for then-Governor Kempthorne. In the past 5 years, the Council and partners have completed many of the tasks laid out in the Action Plan. Idaho now has a comprehensive Invasive Species Law, a dedicated Invasive Species Fund, and a progressive statewide prevention program. The 2005 weed and invasive species strategies have successfully guided the two programs for the last five years. Idaho has surpassed most of the benchmarks these plans established. In addition, Idaho’s programs have become a model for many western states. This 2012 strategy aims to build off those successes and develop an “all taxa” blueprint for the next five years.



Two other related plans interconnect with the 2012 effort. Idaho’s 2007 Aquatic Nuisance Species (ANS) Plan identified 21 gaps in state programs needed to effectively prevent and control aquatic nuisance species. Idaho’s Strategic Plan for Biological Control of Noxious and Invasive Weeds (2008-2018) identifies five program goals developed by local, state, and federal partners.

Invasive species issues span geographic boundaries in Idaho; thus, efforts to prevent and manage invasive species must be coordinated across taxa and jurisdictional boundaries. The 2012 Strategy is the first combined revision of the previous Noxious Weed and Invasive Species Plans. This document will guide

efforts (including overall cross-taxa strategies and objectives) to prevent, control, and minimize invasive species and their impacts in Idaho over the next five years. The IWCC, IISC, state, federal and local agencies, non-governmental organizations, private industry partners, industry stakeholders, and other experts have provided input in drafting this revision.

### **Eurasian Watermilfoil (EWM) (*Myriophyllum spicatum*)**

Eurasian watermilfoil is one of the most problematic invasive aquatic plants in North America. It out-competes native vegetation and degrades aquatic habitats by reducing biodiversity. EWM forms dense canopies of growth in water, which can make boating and fishing impossible. Dense plant growth also degrades water quality, reduces property values, and creates mosquito habitat. ISDA initiated an aggressive treatment program in 2006 to prevent further spread of EWM and to eradicate the plant in treated areas.

The year 2012 marks the seventh year of the EWM program in Idaho. Treatment and prevention efforts continue throughout the state, where over 12,800 acres of EWM has been treated since 2006 using herbicides, diver-assisted suction harvesting, and benthic barriers. Nearly \$600,000 was allocated in 2012 for treatment, education, survey, and prevention projects. As a result, 175 acres were treated under the program in 2012, which targeted high priority and high use areas. Surveys have demonstrated a significant reduction in EWM populations in treated bodies of water. Surveys have also found that the abundance and diversity of native plants has increased following EWM treatment, improving habitat for invertebrates, fish and waterfowl. Treatments have also resulted in improved boater access and improved recreational opportunities.



Eurasian watermilfoil

Projects in 2012 included EWM treatment on Lake Pend Oreille, Priest Lake, Hayden Lake, Cocolalla Lake, and Payette Lake. Prevention projects supported by milfoil funds included five watercraft inspections stations in Bonner and Kootenai Counties and two watercraft inspection stations near Henrys Lake in Fremont County. Statewide, ISDA conducted over 26,000 watercraft inspections utilizing EWM funds in 2012. Of these, over 30 watercraft were found contaminated with EWM or curly leaf pondweed. These vessels were subsequently hot-washed to remove all plant material.

### **Hydrilla (*Hydrilla verticillata*)**

Hydrilla is an extremely aggressive and invasive aquatic plant that inhibits recreation and irrigation. It was discovered in the Bruneau River system in 2007 and an aggressive eradication program was initiated in 2008. The identification of hydrilla in Idaho represents the only known hydrilla population in the Pacific Northwest and eradication is a priority to prevent its movement downstream into CJ Strike Reservoir or the Snake River.

Four seasonal employees were dedicated to the project in 2012 and they surveyed, mapped, and removed hydrilla from July through October. As a result of persistent treatment efforts, significant reductions of hydrilla have been observed throughout the area. The hydrilla eradication project in 2012 was funded through grants from BLM and USDA APHIS and eradication efforts are planned to continue in 2013.



Hydrilla

### **Water Hyacinth (*Eichhorniacrassipes*)**

Water hyacinth is considered one of the most problematic aquatic plants in the world. It obstructs water flow, degrades water quality and out-competes native species. Idaho's first free living water hyacinth population was identified in the Snake River near Hagerman in 2012.

In August 2012, Idaho Power employees reported to ISDA that they had found water hyacinth in the Snake River near Hagerman, Idaho. A thorough survey of this area was conducted with the assistance of Twin Falls, Cassia, Jefferson, and Madison County staff, as well as staff from Idaho Fish and Game and U.S. Fish and Wildlife Service. The survey identified hyacinth plants in 11 miles of river with the source population in a private geothermally influenced pond that flows into the Snake River. Dense hyacinth was observed in the 0.5 acre pond and dense growth was also found in several areas along the shoreline of the river. Twin Falls County and ISDA conducted an eradication project in this pond and all visible water hyacinth was removed from this area. Surveys will be conducted throughout the pond and the river in 2013 and eradication efforts will continue in the area.



Water hyacinth

### **ISDA AND USDA COOPERATIVE RANGELAND GRASSHOPPER AND MORMON CRICKET SUPPRESSION PROGRAM**



Destruction by grasshoppers and Mormon crickets continues to be one of the most serious pest problems for Idaho rangelands and adjacent croplands. Based on annual surveys conducted by USDA APHIS, Idaho has experienced very serious pest outbreaks in previous years. The management and timely control of grasshopper and Mormon cricket populations are high priorities for ISDA and USDA APHIS. Congress addressed this issue with special funding to the impacted states of Idaho, Utah, and Nevada.

#### **Background**

Sixty-four percent of Idaho lands are administered by the Federal Government, with 43% of the state's land (21.8 million acres) classified for use as rangeland. The BLM manages 11.8 million acres in Idaho, much of it prime grasshopper/Mormon cricket habitat. A significant area of habitat can be found on federal lands that border private rangeland and irrigated cropland in the state. Cyclical outbreaks of a combination of Mormon crickets and grasshoppers (primarily involving about six different species) have caused recurring economic problems in the state, particularly in southern Idaho. In recent years, however, significant outbreaks have also occurred in north central and northern Idaho.

#### **Summary of Grasshopper Survey Results**

The grasshopper outbreaks in 2012 with damage to crops were very light compared to previous years. In 2012, the cool wet weather from April to late May kept soil temperatures lower than normal for the second consecutive spring. Emergence of first instar grasshoppers were delayed throughout the state and the infestations did not reach the population densities that were common in the years prior to 2011. Grasshopper populations were primarily a mixture of the migratory grasshopper, (*Melanoplus sanguinipes*); two-striped grasshopper, (*Melanoplus bivittatus*); valley grasshopper, (*Oedaleonotus enigma*); and clear-winged grasshopper, (*Camnula pellucida*) species. The requests for assistance from private landowners were due to grasshopper infestations instead of crickets or katydids. State lands in Boise and Owyhee Counties were treated by ISDA for grasshopper infestations. The treatment of state lands in Owyhee County was limited due to the extreme fire hazard of 2012. No environmental factors occurred in September or October of 2012 that would reduce the number of grasshoppers laying eggs from the current grasshopper population. The continued reduction in request for evaluations from private landowners in 2011 and 2012 indicates that

limited grasshopper outbreaks and damage to crop production from grasshoppers may continue into the 2013 growing season.

### Summary of Mormon Cricket Survey Results

The Mormon cricket (*Anabrus simplex*) outbreaks continued to decrease in 2012 in comparison to 2011. No request for assistance from private landowners due to Mormon cricket infestations were received at ISDA in 2012. Scouting of state lands by ISDA personnel did not find any Mormon cricket infestations that met the criteria to consider treatment of state lands.

### Summary of ISDA Program

In 2012, ISDA continued to suppress outbreaks of grasshoppers. No suppression of Mormon crickets and related katydids were necessary in 2012. Forty-two private landowners in 15 counties received assistance in the form of 35,550 lbs of bait valued at \$28,440 in 2012, a decrease of 56,600 lbs of bait distributed in 2011 to private landowners. No cost-share spray projects were conducted in 2012 for this program. In addition, ISDA protected 267 acres on impacted state lands in Boise and Owyhee Counties. For additional information, go to the ISDA website at:

<http://www.agri.idaho.gov/Categories/PlantsInsects/GrasshopperMormonCricketControlProgram/indexgrasshopperMChome.php>

### 2012 ground treatments with carbaryl on county roads rights-of-way and state lands

County	Total lbs. carbaryl bait applied	Acres Treated
Boise	250 lbs	24 Acres
Owyhee	2,400 lbs	243 Acres
<b>Total</b>	<b>2,650 lbs</b>	<b>267 Acres</b>

### Multi-year summary of carbaryl treatments on county road rights-of-way and state lands

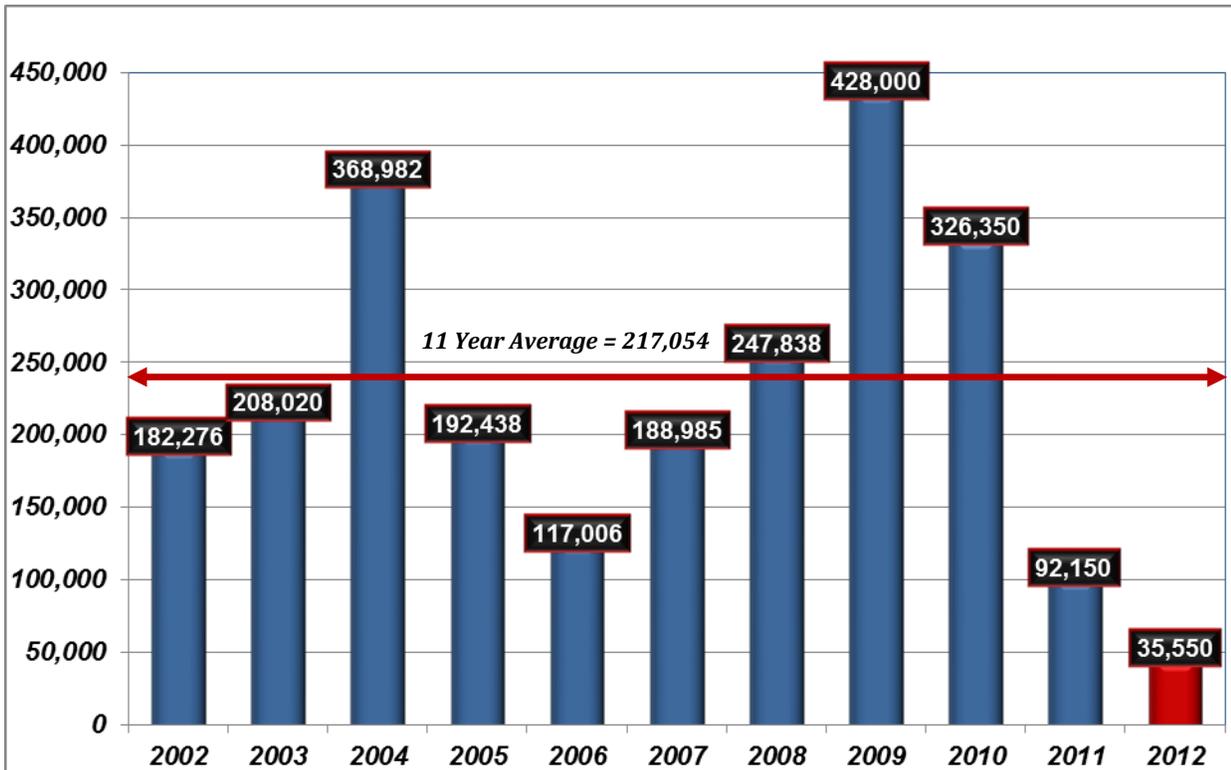
Year	Total Pounds Applied	Acres Treated
2005	12,175	1,218
2006	6,612	661
2007	3,906	340
2008	3,750	194
2009	21,200	1,446
2010	4,300	428
2011	900	92
2012	2,650	267

### 2012 bait distributions to private landowners for suppression of Mormon crickets and grasshoppers

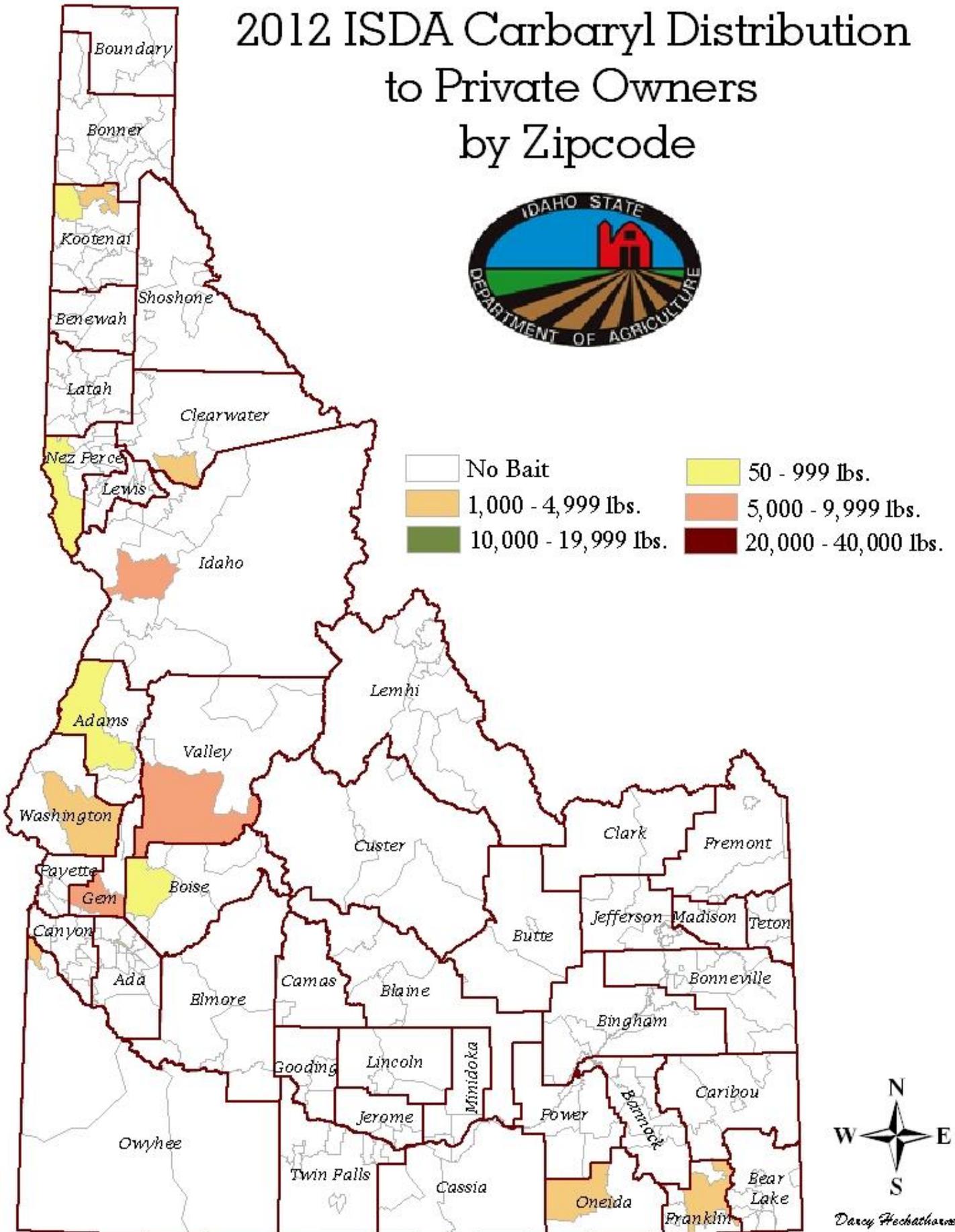
Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
1	Valley	8,850	8
2	Idaho	7,850	9
3	Gem	5,000	2
4	Ada	3,550	1
5	Clearwater	2,500	6
6	Washington	2,100	2
7	Franklin	1,500	5
8	Owyhee	1,200	1
9	Bonner	1,050	2
10	Oneida	1,000	1

11	Bannock	500	1
12	Adams	150	1
13	Boise	100	1
	Kootenai	100	1
	Nez Perce	100	1
<b>Totals:</b>	<b>15 Counties</b>	<b>35,550</b>	<b>42</b>

ISDA, Division of Plant Industries, Carbaryl Bait Distribution to Private Land Owners for Grasshopper and Mormon Cricket Suppression



# 2012 ISDA Carbaryl Distribution to Private Owners by Zipcode



### Major cooperators for the Grasshopper/Mormon Cricket Program

During the 2012 season, the following cooperators provided significant help in bait distributions and overall program delivery:

- University of Idaho, Extension Service, Elmore County
- University of Idaho, Extension Service, Franklin County
- Randy Rowe Trucking Company, Twin Falls, ID.
- Primeland Cooperative, Grangeville, ID.

### Program Contacts

ISDA, Plant Industries Division

- Dan Safford, Program Specialist ([dan.safford@agri.idaho.gov](mailto:dan.safford@agri.idaho.gov); 208-332-8620)
- Garry West Program Manager ([garry.west@agri.idaho.gov](mailto:garry.west@agri.idaho.gov); 208-736-2195)
- Mike Cooper, Bureau Chief ([mike.cooper@agri.idaho.gov](mailto:mike.cooper@agri.idaho.gov), 208-332-8620)
- Breann Hipwell, Technical Records Specialist ([breann.hipwell@agri.idaho.gov](mailto:breann.hipwell@agri.idaho.gov); 208-332-8650)

### 2012 PUBLIC OUTREACH AND EDUCATIONAL PRESENTATIONS ON INVASIVE SPECIES, PEST SURVEY AND DETECTION, AND GRASSHOPPER MANAGEMENT PROGRAMS

#### Presentations given in 2012 by ISDA staff -

Date	ISDA Staff	Event	Target Audience
January 19, 2012	Dan Safford	Noxious Weeds Overview	Horticulture industry
January 19, 2012	Dan Safford	Noxious Weeds Overview for High School kids	High school students- Horticultural show
January 24, 2012	Jodie Ellis	"Invasive Species and their Impact on Idaho", Mountain Home Rotary Club	Public
January 24, 2012	Dan Safford	Noxious Weeds	Pesticide applicators
February 2, 2012	Dan Safford	Noxious Weed Prevention and NWFFS Program	Pesticide applicators
February 7, 2012	Jodie Ellis	"ISDA's Invasive Species Program", University of Idaho Fruit Growers Conference	Growers
February 17, 2012	Jodie Ellis	"Stink Bugs and Regulatory Entomology", Washington State Pest Management Conference	Pesticide applicators
February 29, 2012	Dan Safford	Plant identification of noxious of noxious weeds	ISDA Organic Food Program staff meeting
March 2, 2012	Dan Safford	NWFFS Overview	Idaho Hay and Forage Association Annual Conference Attendees
March 15, 2012	Dan Safford	NWFFS update, Noxious Weed Free Materials update, ARRA Update	Pesticide applicators
May 3, 2012	Jodie Ellis	"Insect Invaders of the U.S. and Idaho", Washington County Master Gardeners Program	Master Gardeners
May 9, 2012	Dan Safford	Broadleaf weed identification	Home owners
May 17, 2012	Jodie Ellis	"Invasive Insects of Concern to Fruit Growers", Gem County Fruit Growers Association	Growers
May 29, 2012	Jodie Ellis	"The CAPS Program in Idaho", Idaho Invasive Species Council	Stakeholders
May 31, 2012	Jodie Ellis	"Insect Invaders of the U.S. and Idaho", Gem County Master Gardeners Program	Master Gardeners
September 29, 2012	Jodie Ellis	"Japanese Beetles and Other Invasive Insects", The Garden Gal Radio Show, KIDO AM	Public
October 1, 2012	Jodie Ellis	"The Japanese Beetle in Idaho", ICIE's Elemental Idaho radio program	Public
October 5, 2012	Dan Safford	Noxious weed identification	Ada County Extension Master Gardeners

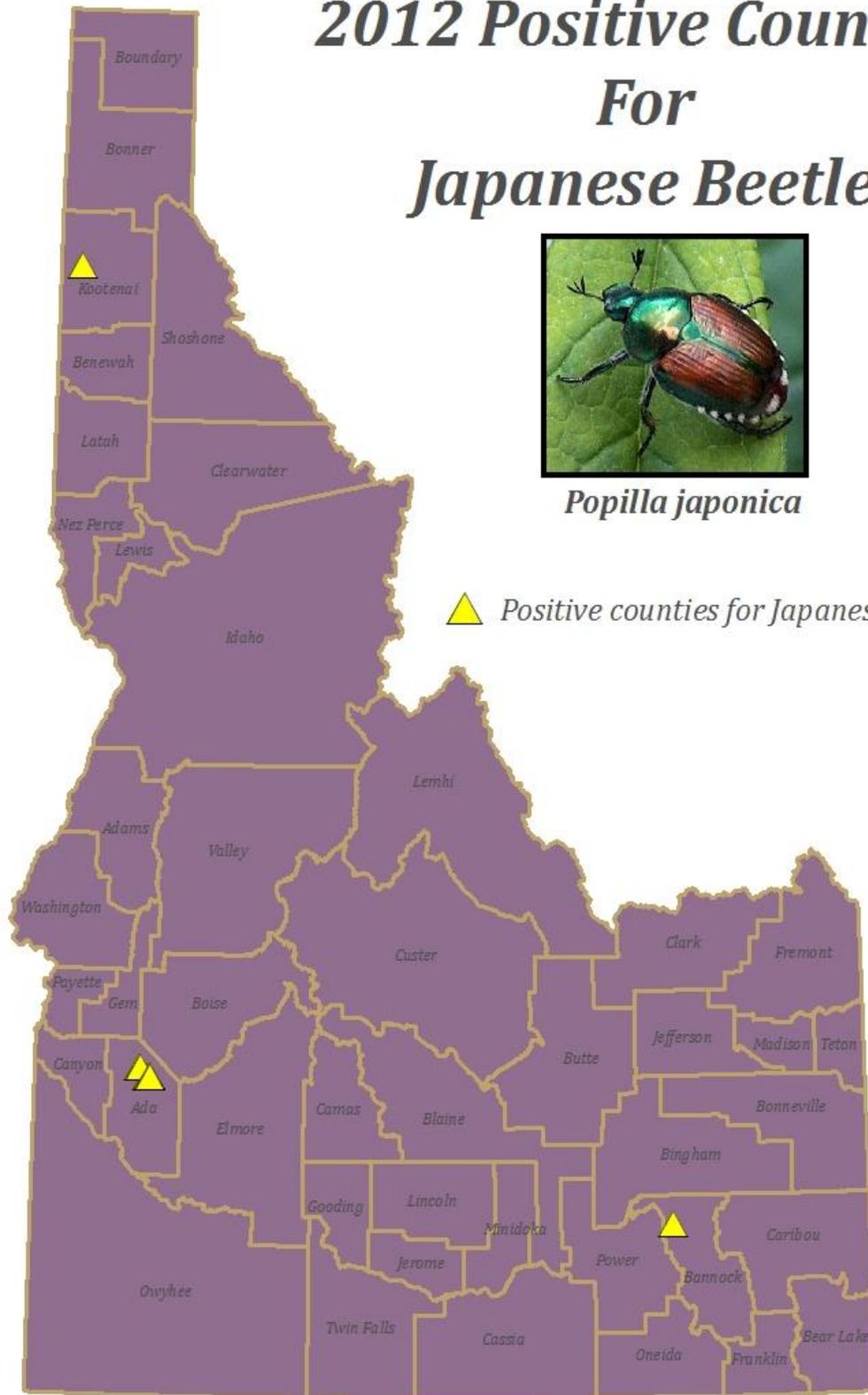
October 16, 2012	Jodie Ellis	"ZomBees in the Pacific Northwest", Treasure Valley Beekeepers	Stakeholders
October 30, 2012	Jodie Ellis	"The Japanese Beetle Situation in Idaho", National Gypsy Moth Review (Portland, OR)	Industry, Government, Stakeholders
November 1, 2012	Dan Safford	NWFFS overview for office staff that work directly with the public	Idaho Fish and Game employee
November 7, 2012	Jodie Ellis	"Japanese Beetle and Brown Marmorated Stink Bug in Idaho", Idaho Association of Plant Protection	Researchers
November 10, 2012	Dan Safford	NWFFS and noxious weeds	Idaho Horse Council members
November 14, 2012	Jodie Ellis	"Four New Insect Invaders of Concern in Idaho", Southwest Idaho Soil and Water Conservation District Annual Meeting	Local government, growers, stakeholders
November 29, 2012	Jodie Ellis	"Honey Bee Pests and Diseases in Idaho 2011-2012", Idaho Honey Industry Association	Stakeholders
December 2, 2012	Liz Vavricka	Viruses in Corn	IEOSA
December 5, 2012	Dan Safford	Idaho Noxious Weed book, how to use more effectively	Pesticide applicators
December 11, 2012	Dan Safford	Noxious weeds and the NWFFS program	Pesticide applicators
December 12, 2012	Jodie Ellis	"Four New Insect Invaders of Concern in Idaho", Canyon County Extension Meeting	Pesticide applicators
January 19, 2012	Dan Safford	Noxious Weeds Overview	Horticulture industry
January 30, 2012	Liz Vavricka	Incidence of black leg in Canola	Boundary County Grain Growers

# 2012 Positive Counties For Japanese Beetle



*Popilla japonica*

▲ Positive counties for Japanese Beetle



*Idaho Department of Agriculture*

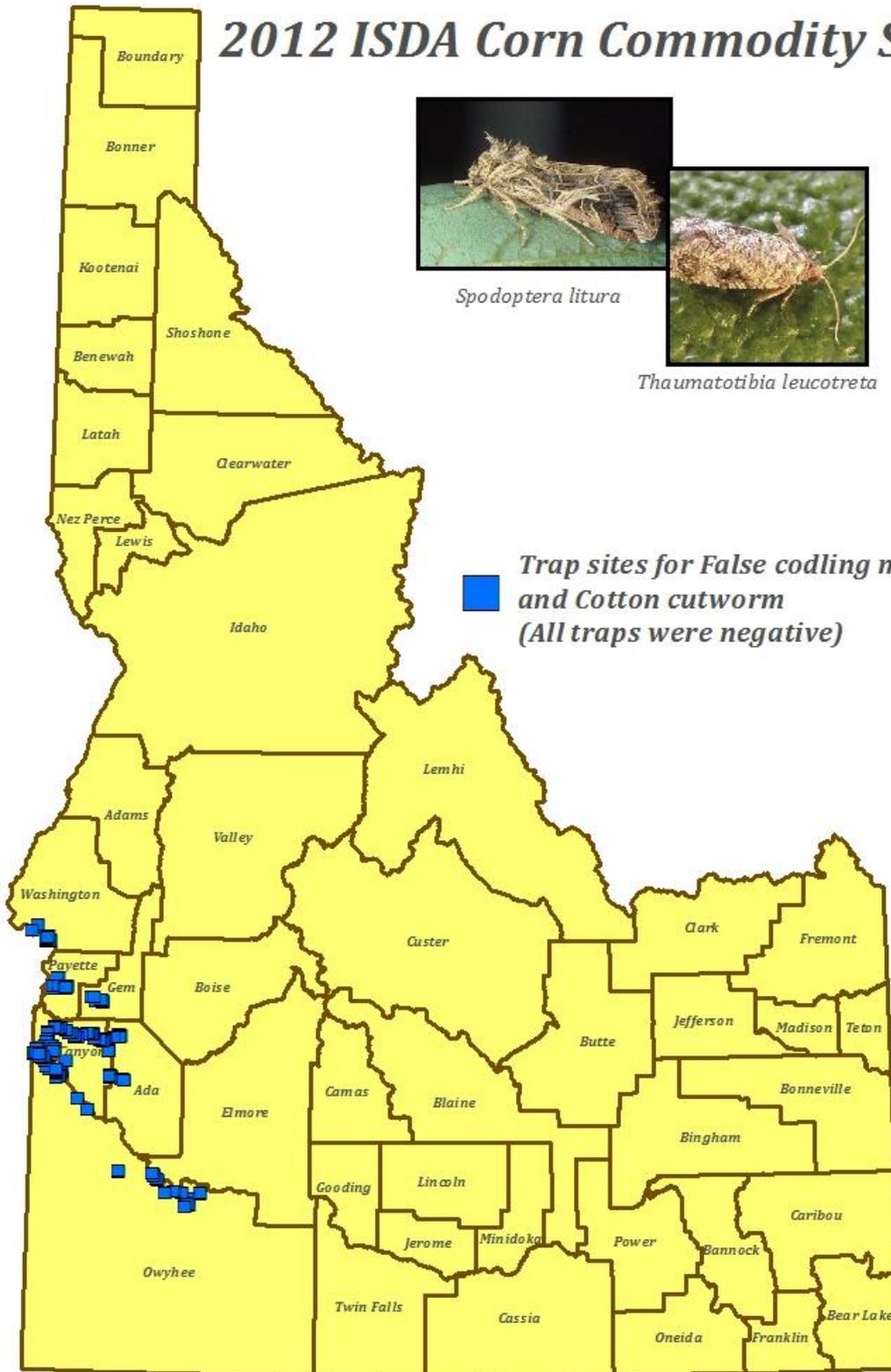
# 2012 ISDA Corn Commodity Survey



*Spodoptera litura*



*Thaumatotibia leucotreta*



# 2012 ISDA Grain Commodity Survey



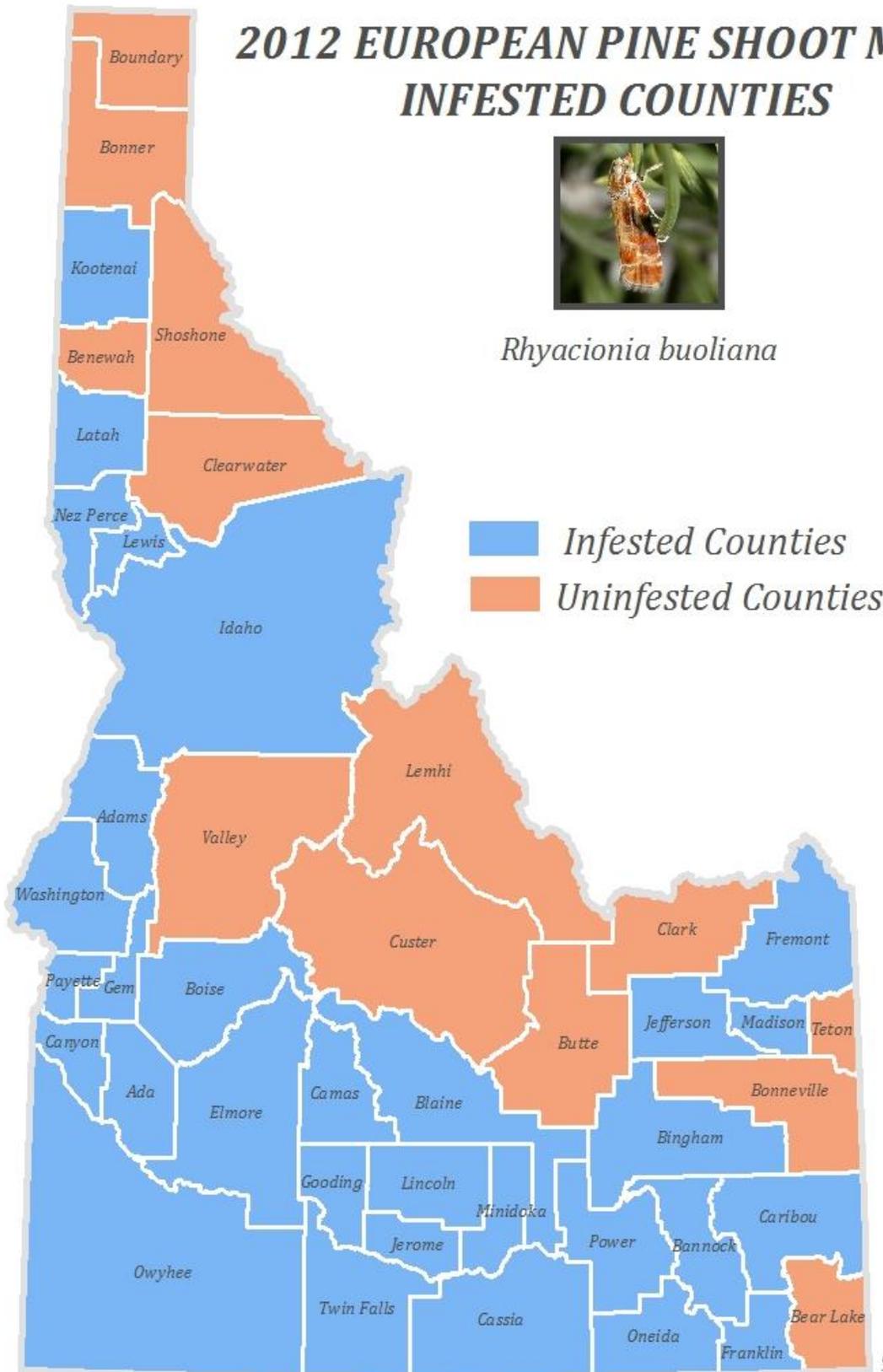
*Spodoptera littoralis*



# 2012 EUROPEAN PINE SHOOT MOTH INFESTED COUNTIES



*Rhyacionia buoliana*

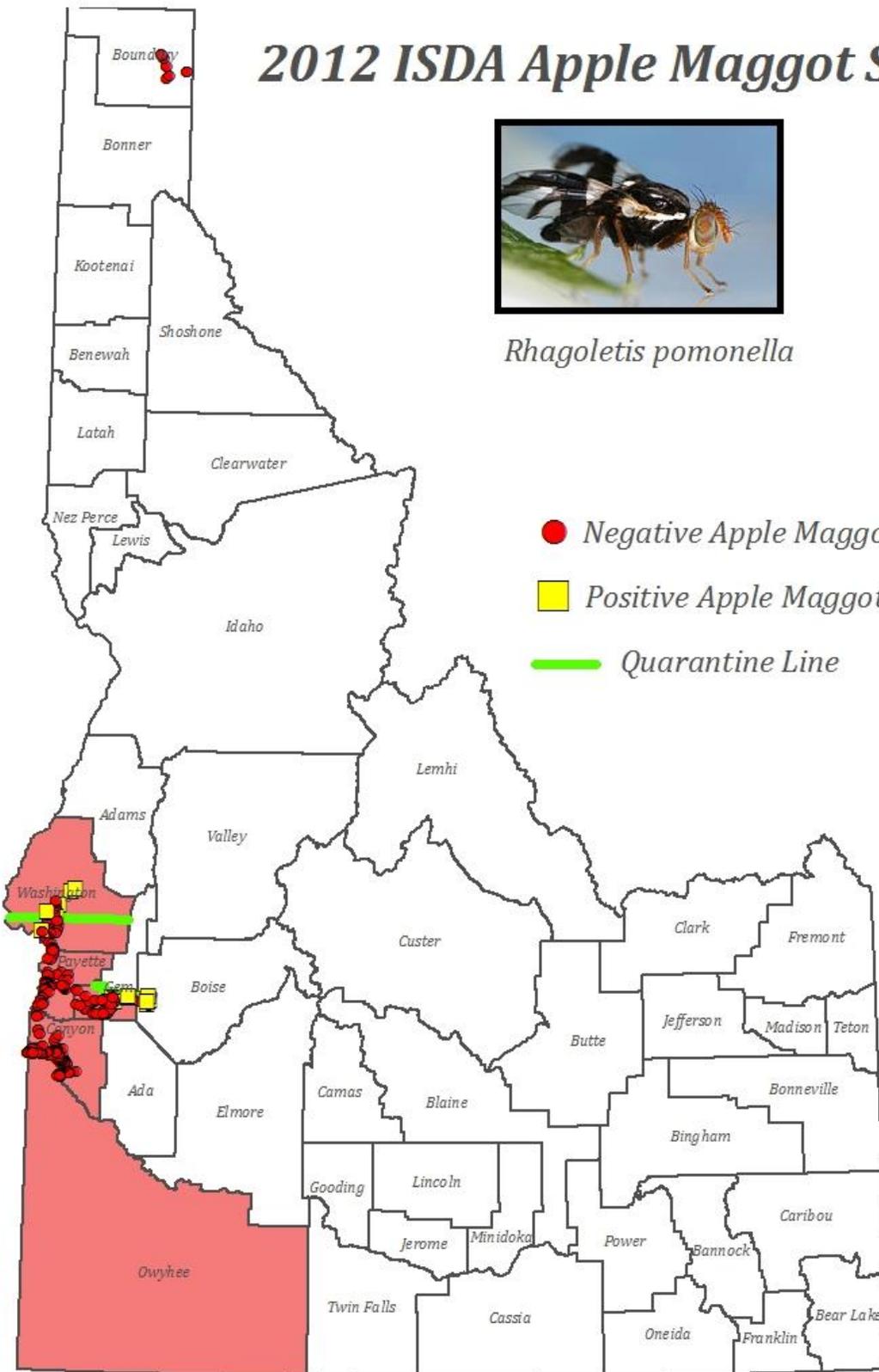


*Darcy Heckathorn*

# 2012 ISDA Apple Maggot Survey



*Rhagoletis pomonella*



- Negative Apple Maggot Trap Sites
- Positive Apple Maggot Trap Sites
- Quarantine Line



*Darcy Heskethorne*