



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

2013 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 for the purpose of protecting Idaho's agricultural industries, 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 2013 to enforce Idaho statutes and fulfill the mission of ISDA.

PEST SURVEYS

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

In 1990, ISDA established by administrative rule an AM-free regulated area (the "Apple Maggot Free Zone" or AMFZ) encompassing 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.

2013 Summary of trapping for apple maggot in Idaho

County	Total number of AM traps placed	Positive AM traps	Negative AM traps
Boise	20	10	10
Boundary	14	0	14
Canyon	127	1	126
Gem	92	8	84
Owyhee	35	0	35
Payette	69	1	68
Washington	97	9	88
TOTAL	454	29	425



In 2013 454 traps were placed in commercial apple orchards and home landscape trees in Boise, Boundary, Canyon, Gem, Owyhee, Payette and Washington counties. Positive specimens were identified by the ISDA entomologist. ISDA had two new finds: 1 AM in Canyon and 1 AM in Payette County. Seven of the 9 AM traps in Washington County were located within the AMFZ, and all 8 of the positive traps 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. Gem and Washington counties are considered partially infested and regulated under a state interior quarantine. <http://adminrules.idaho.gov/rules/current/02/0608.pdf>

During 2014, ISDA will continue to conduct detection surveys in the seven-county area. In Canyon, Gem, Payette and Washington counties, ISDA will set out supplementary detection traps around the positive locations. See page 44 of this report for a map of 2013 AM survey activity in Idaho.

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

The Brown Marmorated Stink Bug is an invasive insect native to Asia. It was accidentally introduced near Allentown, PA in 1996 and has spread since then. In recent years BMSB has been found in Colorado, Oregon and Washington. BMSB is an agricultural pest because it feeds on a wide range of tree fruits, seed pods and vegetables including tomatoes, peppers, and corn. For homeowners it is mainly a nuisance pest as it invades houses in the winter looking for a place to overwinter.



In 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 so most likely this insect “hitchhiked” to Idaho as a stowaway in household items. In July 2012, viable eggs were discovered on an outdoor ornamental plant and in October an additional live specimen was collected inside the house. In 2013 ISDA received a call from a Meridian, ID resident who believed he had caught a BMSB in his yard. An ISDA official was sent to retrieve the specimen. It was later determined that the specimen was not a BMSB and was a native stink bug. During 2013 ISDA conducted visual surveys for BMSB on corn fields in several Idaho counties. These results (all negative) are detailed in the Corn Commodity Survey section of this report.

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

ISDA routinely conducts an annual trapping program to detect first emergence of WCFF. In 2013 WCFF adults were first observed in ISDA sentinel traps on May 23rd near Caldwell in Canyon County and on May 24th near Emmett in Gem County. 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. 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 28, 2013 that the 1,060 degree-day threshold had been reached, this having been established as an indicator to begin pesticide treatment for WCFF. In addition, electronic notifications were sent out with assistance from the University of Idaho Cooperative Extension Service via the PNW Pest Alert Network Web Site (<http://www.pnwpestaalert.net/index.php>).

2009-2013: Degree-day accumulations relevant to the start of pesticide treatments for WCFF

Site	2013 Forecast for first treatment (recommended at 1060 degree-days)	2012	2011	2010	2009
		Historical 1060 degree day accumulations forecast dates			
Boise	June 2	May 26	June 15	June 12	June 3
Caldwell	May 26	May 26	June 12	June 12	June 6
Nampa	May 31	June 1	June 17	June 13	June 4
Ontario	May 30	May 30	June 17	June 11	May 31
Parma	June 4	May 25	June 17	June 12	June 1
Emmett	June 2	June 2	June 21	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.

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

Spotted Wing Drosophila, an Asian vinegar fly, can damage a wide variety of soft fruits, such as berries, cherries, grapes, peaches, apricots and plums. In the US SWD was initially found in California and is fast

becoming a problem in the Pacific Northwest. In 2012 a homeowner in Moscow, Idaho (Latah County) reported the first SWD in Idaho on Bing cherry trees on his property. Later that year SWD was found in Nez Perce and Canyon counties. In August of 2013 SWD was detected in Payette County by extension entomologists at the University of Idaho.



Spotted Wing Drosophila

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 pests 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. **specimens should be sent through the mail.** Visit <http://www.uidaho.edu/extension> to locate the nearest extension office.

Note: Absolutely no live

EUROPEAN PINE SHOOT MOTH (EPSM) (*Rhyacionia bouliana* Denis & Schiffermuller)

The Idaho EPSM survey is conducted annually to comply with California and Montana quarantines by tracking the insect's presence within the state. In 2013 ISDA staff placed 65 EPSM traps in nurseries and pine tree plantations throughout the 13 Idaho counties in which EPSM have, so far, never been detected. In addition, at the request of nurseries seeking phytosanitary data to allow export of nursery stock, traps were deployed and monitored in four counties where EPSM had been captured in the past. No newly confirmed infested counties were reported in 2013. 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 historically positive for EPSM is located on page 43 of this report.



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

Elm Seed Bug, which until 2012 had never been found in North America, is common in central-southern Europe. It was first detected in the US in the following Idaho counties: Ada, Canyon, Elmore, Gem, Owyhee and Payette. During 2013 ESB was confirmed in four more counties in Idaho: Bannock, Bingham, Bonneville and Twin Falls. 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 be viewed as 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. A map of Idaho counties positive for ESB is located on page 45 of this report.



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

During 2013 2,349 Gypsy Moth detection traps were deployed throughout the state. The number of traps placed by each agency was:

- Idaho Department of Lands (IDL): 1,375 traps
- Idaho Department of Agriculture (ISDA): 477 traps
- United States Forest Service R-1: 84 traps
- United States Forest Service R-4: 413 traps



Due to funding cuts from APHIS nationwide, the Idaho GM Program instituted a reduction in number of detection traps for the 2013 season.

Without changing the area of the current trap zones, trap density was reduced from 2-4 traps/sq mile to 1 trap/sq mile. ISDA trapped only Category 1 zones while all other cooperators deployed traps in Category 1, 2, and 3 zones.

Between 05/01/13 and 11/01/13 staff members from each participating agency completed the placement and subsequent removal of gypsy moth traps throughout the state. In 2013 one gypsy moth was captured in Idaho. This moth was determined, by the OTIS Methods Development Lab, to be of the European/North American strain (EGM) and was caught in northern Idaho (French Gulch, Shoshone County). In this trap zone there were, according to Idaho Department of Transportation, a total of 20 move-ins from quarantined eastern states between May 2012 and April 2013.

For the 2014 trapping season current plans are to re-implement the historical rotating schedule for trap zones and return trap densities to original levels in selected, generally more remote, areas. Delimitation trapping (36 traps/sq mi) will be conducted at the location in French Gulch where the single male EGM was captured in 2013.

The complete report on the 2013 Gypsy Moth Survey in Idaho may be viewed at the IDL website at:

http://www.idl.idaho.gov/forestry/forest-health/gm_report2013.pdf (Report provided by Stephani Sandoval and Gina Davis of the IDL, Coeur d'Alene, Idaho)

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

The Japanese Beetle is a highly destructive invasive plant pest that, if established, can be very difficult and expensive to control. Feeding on grass roots, JB grubs damage lawns, golf courses, and pastures. JB adults attack the foliage, flowers, or fruits of more than 300 different ornamental and agricultural plants. Originally from Japan, JB was first noticed in the US 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 340 JB detection traps a year in the state. These routine surveys have resulted in the capture of single specimens of JB in Ada County (1992), Gooding County (1997) and Twin Falls County (2011).

In late summer 2012 ISDA detected a total of 61 JB in Idaho: four near a nursery in Kootenai County, one near a nursery in Bannock County and 56 in Boise in Ada County. Extensive detection and delimitation trapping was conducted in 2013 with 1,553 traps set state wide. The only catches were in Boise, however, 2,999 beetles were caught there.



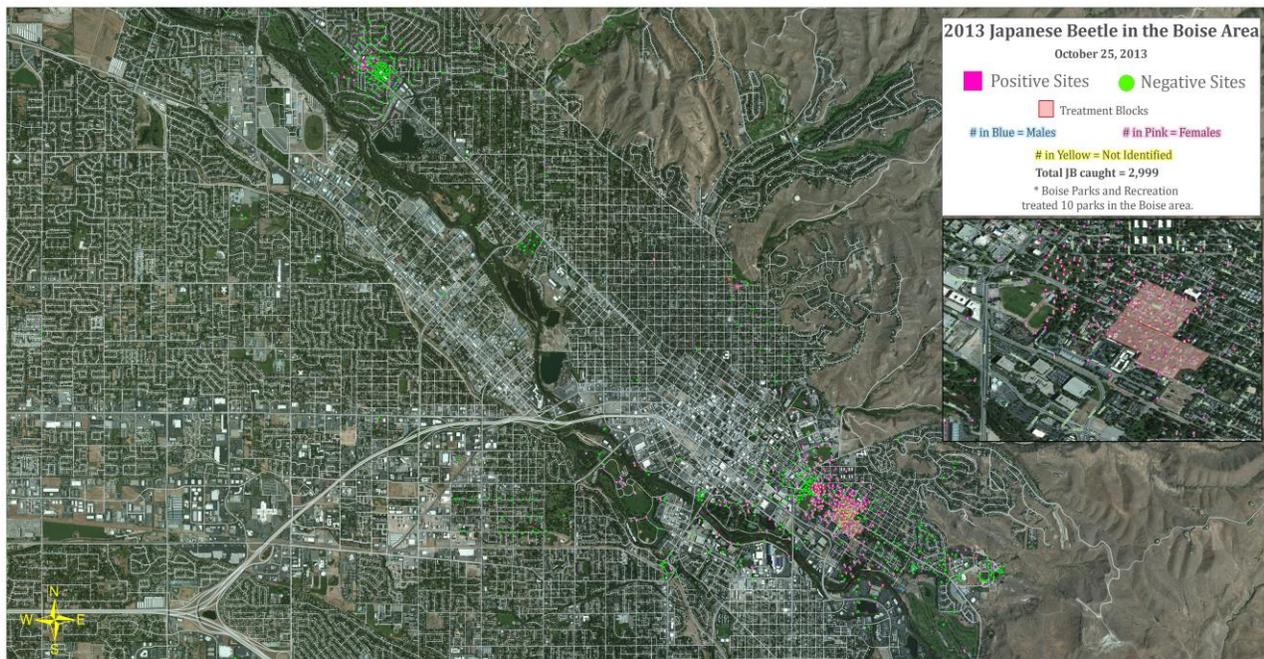
Most were in a residential area on the city's east side. Simultaneous with the survey 95 residential properties and 11 city parks were treated with insecticides in an attempt to eradicate JB grubs and adults.

Plans for 2014 include an increased level of detection and delimitation trapping as well as a more extensive area of pesticide treatment. A 2013 JB trap distribution map for the state is located on page 38 of this report.

Summary of 2013 JB catches in Idaho

County	No. of negative traps	No. of positive traps	No. of JB caught in county
Ada	74	688	2,999
Bannock	34	0	0
Kootenai	167	0	0
Other Idaho Counties	590	0	0
Total	865	688	2,999

Map of east Boise indicating locations of traps positive and negative for JB throughout the season



EMERALD ASH BORER SURVEY (EAB) (*Agrilus planipennis* Fairmaire)

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.



As part of USDA's 2013 National EAB Survey, USDA PPQ installed and monitored a total of 28 purple sticky traps at 28 locations throughout Idaho. Sites included ports of entry, parks, and urban ash plantings. In 2013 manuka oil lures used in the traps were supplemented with Z3 hexanol lures. As in previous years, no EAB were captured in Idaho in 2013. (Report provided by Brian Marschman, Idaho State Plant Health Director, USDA APHIS PPQ)

CORN COMMODITY SURVEY

Corn is a major agronomic crop in Idaho. The USDA National Agricultural Statistical Service reported 360,000 acres planted in the state in 2012, and the production value for grain corn alone was estimated at \$190.0 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 2013, ISDA, in cooperation with the USDA APHIS PPQ's Cooperative Agricultural Pest Survey program (CAPS), conducted surveys for three exotic organisms that could threaten Idaho corn crops. The 2013 Corn Commodity Survey is summarized in the following table:

Summary of 2013 CAPS Corn Commodity Survey in Idaho

Organism	Photo	No. of traps/inspections performed in 2013	Results
<p>Asian Corn Borer (ACB) <i>(Ostrinia furnacalis)</i></p> <p>ACB is well known as an agricultural pest on several crops, especially corn. Its distribution extends from China to Australia. It is one of the worst corn pests in Japan and China.</p> <p>ACB is an invasive pest of corn, and poses a significant threat to Idaho's sweet corn and field corn crops. The damage from ACB unlike many other insect pests is not restricted to one part of the plant. ACB larvae feed aggressively on the leaves, stalks, tassels, ears and roots, which extends their life cycle and increases their survival rate significantly.</p> <p>Asian corn borer had not yet been surveyed for in Idaho or anywhere in the Pacific Northwest until this year.</p>	<p>See page 40 of this report for a map of the 2013 ACB survey activity in Idaho.</p>  <p>Asian Corn Borer Mark Dreiling Bugwood.org</p>	<ul style="list-style-type: none"> • 248 traps were placed in corn fields by June 15, 2013 in the seven main corn production counties in Idaho (Canyon, Cassia, Elmore, Gooding, Jerome, Owyhee and Twin Falls). • Traps were checked every 2 weeks, and were removed by September 11, 2013. 	<p>All negative</p>

<p>Silver Y Moth (SYM) (<i>Autographa gamma</i>)</p> <p>SYM is a migratory moth and is widespread across Europe and parts of Asia and North Africa.</p> <p>SYM is another threat to Idaho's corn industry which, if it were to become established in the state or in other parts of the U.S., could cause significant economic losses.</p> <p>SYM feeds on more than 200 different plant species, including several plants of economic importance to Idaho such as alfalfa, corn, grapes, dry beans, potato, sugar beets and wheat.</p> <p>This year ISDA conducted SYM trapping not only in the corn commodity survey, but the grape commodity survey and the small grains commodity survey.</p>	 <p><i>Silver Y Moth</i> Paolo Mazzei Bugwood.org</p>	<ul style="list-style-type: none"> • 248 traps were placed in corn fields by June 15, 2013 in the seven main corn production counties in Idaho (Canyon, Cassia, Elmore, Gooding, Jerome, Owyhee and Twin Falls). • The traps were checked every 2 weeks and were removed by September 11, 2013. 	<p>All negative</p>
<p>Brown Marmorated Stink Bug (BMSB) (<i>Halyomorpha halys</i>)</p> <p>BMSB is an agricultural pest that can cause widespread damage to fruit and vegetable crops, including corn.</p> <p>Unlike most native species, both the nymph and adult stages of BMSB, feed through the husk and damage the developing ear, which results in unfilled or shrunken kernels. This damage may not be noticed until husks are opened later in the growing season.</p>	 <p><i>Adult Brown marmorated stink bug</i> David R. Lance, USDA APHIS PPQ Bugwood.org</p>	<ul style="list-style-type: none"> • 124 corn fields in seven main corn production counties in Idaho (Canyon, Cassia, Elmore, Gooding, Jerome, Owyhee and Twin Falls) were visual inspected twice through the summer for BMSB • The visual inspections of 20 plants per field were conducted in August and September 2013. 	<p>All negative</p>

GRAPE COMMODITY SURVEY

Idaho's wine grape industry, one of the fastest growing ventures in the state, added \$73 million to the state economy in 2009. Wine grape vineyards rank second in total Idaho fruit acreage. Recent estimates indicate vineyard acreage near 1,800 acres with 66 vineyards operating in the state. In addition, production of table grapes is emerging as an alternative crop in southwestern Idaho. There are an estimated 500 acres for table grape production.

The wine grape and table grape industries are at risk for exotic plant pests and pathogens especially with the proliferation of uninspected *Vitis* spp. sales at wholesale and retail nursery operations. Early detection and rapid response to invasive species is critical. If any of these target organisms were to be introduced and become established in the Pacific Northwest, they could cause significant damage to the region's grape industry. In addition any crop loss could hinder the industry's ability to participate in domestic and international export markets.

During 2013 to help protect the state's valuable wine and table grape commodities from invasive pests and diseases ISDA, with funding provided by USDA Farm Bill, conducted surveys for the pests detailed below:

Summary of 2013 Farm Bill Grape Commodity Survey in Idaho

Organism	Photo	No. of traps/inspections performed in 2013	Results
<p>European Grapevine Moth (EGM) (<i>Lobesia botrana</i>)</p> <p>EGM was first reported in the United States from Napa County vineyards in October 2009. Native to Southern Italy, it was first described from Austria and is now found throughout Europe, North and West Africa, the Middle East and eastern Russia. Most recently introduced to Japan and Chile.</p> <p>EGM is primarily a pest found on grapevine flowers and fruit; it has been known to infest fruit trees as well. This pest poses a serious agricultural threat due to its potential to become established anywhere grapes are cultivated. This moth is active 4 to 6 weeks before grape flowers are present.</p>	<p>See page 41 of this report for a map of 2013 Grape Commodity survey activity in Idaho.</p>  <p>European Grapevine Moth William Cochran, California Department of Food and Agriculture</p>	<ul style="list-style-type: none"> • 90 traps were placed by June 15, 2013 in 10 grape production counties in Idaho (Ada, Canyon, Elmore, Gem, Gooding, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013. 	<p>All negative</p>
<p>Silver Y Moth (SYM) (<i>Autograph gamma</i>)</p> <p>SYM is a migratory moth and is widespread across Europe and parts of Asia and North Africa.</p> <p>SYM is another threat to Idaho's grape industry which, if it were to become established in the state, could cause significant economic losses.</p> <p>SYM feeds on more than 200 different plant species, including several plants of economic importance to Idaho such as alfalfa, corn, grapes, dry beans, potato, sugar beets and wheat.</p> <p>SYM was also part of the small grains and corn commodity surveys during 2013.</p>	 <p>Silver Y Moth Paolo Mazzei Bugwood.org</p>	<ul style="list-style-type: none"> • 90 traps were placed by June 15, 2013 in 10 grape production counties in Idaho (Ada, Canyon, Elmore, Gem, Gooding, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013 	<p>All negative</p>
<p>European Grape Berry Moth (EGBM) (<i>Eupoecilia ambiguella</i>)</p> <p>EGBM is primarily a pest of grapes, but can utilize several other horticultural and native plants as hosts. EGBM is widely distributed across the Palearctic, where it is more common in cooler and humid climates. It is not considered to be established outside of Europe and Asia.</p>	 <p>European Grape Berry Moth Todd Gilligan Bugwood.org</p>	<ul style="list-style-type: none"> • 90 traps were placed by June 15, 2013 in 10 grape production counties in Idaho (Ada, Canyon, Elmore, Gem, Gooding, Latah, Nez Perce, Owyhee, Payette 	<p>All negative</p>

<p>The chances of EGBM becoming established in the US are considered high if it should be introduced into the country's grape growing regions.</p>		<p>and Twin Falls).</p> <ul style="list-style-type: none"> • Traps were checked every 2 weeks, and were removed by August 31, 2013 	
<p>Summer Fruit Tortrix (SFT) <i>(Adoxophyes orana)</i></p> <p>SFT is an insect pest native to Europe and Asia. It feeds on a wide variety of plants with preference for Rosaceous plants especially apple and pear. This moth is reported to feed on more than 50 plant species including fruits, forest trees and ornamentals. The introduction and establishment of SFT poses serious risks in economic crop loss, costs of control measures, and potential trade barriers for export of fruit.</p>	 <p><i>Summer Fruit Tortrix</i> Jae-Cheon Sohn Bugwood.org</p>	<ul style="list-style-type: none"> • 90 traps were placed by June 15, 2013 in 10 grape production counties in Idaho (Ada, Canyon, Elmore, Gem, Gooding, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013 	<p>All negative</p>

STONE FRUIT COMMODITY SURVEY

Idaho's stone fruit industry is an important sector of the state's agricultural economy. In 2009 2,609 acres dedicated to stone fruit production in Idaho included land for cherries, peaches, plums and prunes and realized a production value of \$11.25 million. These commodities are exported to several western states, Mexico and some countries in the Pacific Rim.

Potential pests targeted in this survey pose significant risks to production, commerce and trade in the region, which could have a devastating effect on local economies. Common pathways for introduction of stone fruit pests are numerous and include fruit and nursery stock shipments from overseas and other U.S. states via railroad, truck hubs, interstates and highway systems.

In 2013 to help protect the state's valuable stone fruit commodities from invasive pests and diseases ISDA, with funding provided by USDA Farm Bill, conducted surveys for the following pests:

Summary of 2013 CAPS Stone Fruit Commodity Survey in Idaho

Organism	Photo	No. of traps/inspections performed in 2013	Results
<p>Cherry Bark Tortrix (CBT) (<i>Enarmonia formosana</i>)</p> <p>CBT is an exotic moth whose larvae primarily attack fruit and flowering trees. Native to Europe, CBT was first introduced in North America in 1989 in British Columbia, Canada. The first U.S. contact was in northwestern Washington in 1991. All woody shrubs or trees in the rose family are susceptible.</p> <p>CBT feeding can cause damage to trees but in many cases does not kill trees. Infestations leave the host vulnerable to secondary organisms and environmental stress.</p>	<p>See page 42 of this report for a map of 2013 Stone Fruit Commodity survey activity in Idaho.</p>  <p>Cherry Bark Tortrix Ian Kimber Bugwood.org</p>	<ul style="list-style-type: none"> • 137 traps were placed by June 15, 2013 in 9 stone fruit production counties in Idaho (Ada, Canyon, Gem, Idaho, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013 	<p>All negative</p>
<p>European Grapevine Moth (EGM) (<i>Lobesia botrana</i>)</p> <p>EGM was first reported in the United States from Napa County vineyards in October 2009. Native to Southern Italy, it was first described from Austria and is now found throughout Europe, North and West Africa, the Middle east and eastern Russia. Most recently introduced to Japan and Chile.</p> <p>EGM is primarily a pest found on grapevine flowers and fruit; it has been known to infest fruit trees as well. This pest poses a serious agricultural threat due to its potential to become established anywhere grapes are cultivated. This moth is active 4 to 6 weeks before grape flowers are present.</p>	 <p>European Grapevine Moth William Cochran, California Department of Food and Agriculture</p>	<ul style="list-style-type: none"> • 137 traps were placed by June 15, 2013 in 9 stone fruit production counties in Idaho (Ada, Canyon, Gem, Idaho, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013 	<p>All negative</p>
<p>Plum Fruit Moth (PFM) (<i>Grapholita funebrana</i>)</p> <p>PFM is a native of Europe, this important pest of plum, peach, cherry and other stone fruits and is considered to be a significant threat, because it can develop on many wild and cultivated stone fruits as well as other plants in the Rosaceae family.</p> <p>If introduced into the United States, it has the potential to become established within 79 percent of the continental US. This pest currently thrives in Europe, the Middle East, and northern Asia with reported crop and plant losses ranging from 25 to 100 percent.</p>	 <p>Plum Fruit Moth Todd Gilligan, CSU Bugwood.org</p>	<ul style="list-style-type: none"> • 137 traps were placed by June 15, 2013 in 9 stone fruit production counties in Idaho (Ada, Canyon, Gem, Idaho, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013 	<p>All negative</p>

<p>Summer Fruit Tortrix (SFT) (<i>Adoxophyes orana</i>)</p> <p>SFT is an insect pest native to Europe and Asia. It feeds on a wide variety of plants with preference for Rosaceous plants especially apple and pear. This moth is reported to feed on more than 50 plant species including fruits, forest trees and ornamentals. The introduction and establishment of SFT poses serious risks in economic crop loss, costs of control measures, and potential trade barriers for export of fruit.</p>	 <p>Summer Fruit Tortrix Jae-Cheon Sohn Bugwood.org</p>	<ul style="list-style-type: none"> • 137 traps were placed by June 15, 2013 in 9 stone fruit production counties in Idaho (Ada, Canyon, Gem, Idaho, Latah, Nez Perce, Owyhee, Payette and Twin Falls). • Traps were checked every 2 weeks, and were removed by August 31, 2013 	<p>All negative</p>
<p>Plum Pox Virus (PPV) (<i>Potyvirus</i>)</p> <p>Plum pox is the most devastating viral disease of stone fruit. The disease is caused by the plum pox virus (PPV), and its different strains may infect a variety of stone fruit species including peaches, apricots, plums, nectarines, almonds, and sweet and tart cherries. Wild and ornamental species of <i>Prunus</i> may also become infected by some strains of the virus. Its first detected presence in North America was in Pennsylvania during 1999.</p> <p>The virus is transmitted by aphids and by the transfer of infected plant material to new locations. In addition to reducing production, plum pox disease can ruin the marketability of stone fruit by causing excess acidity and deformities. The only way to manage the disease is to destroy all infected trees, which can result in significant economic loss.</p>	 <p>Plum Pox Virus Symptoms John Hamond, USDA Agricultural Research Service Bugwood.org</p>	<p>ISDA planned to collect and complete diagnostics on a total of 1,000 samples from orchards or nursery production sites in seven Idaho Counties (Boundary, Canyon, Gem, Idaho, Nez Perce, Payette and Twin Falls). Preliminary diagnostics were to be completed at the ISDA Plant Lab, with final virus diagnostics provided by USDA APHIS if any presumptive positive samples were uncovered with initial ELISA tests.</p> <p>Nursery stock production areas in Boundary County were sampled during 2013 (50 samples). All were determined to be negative for PPV.</p> <p>Canyon, Gem, Idaho, Nez Perce, Payette and Twin Falls counties will be surveyed for PPV in 2014.</p>	<p>All negative</p>

SMALL GRAINS COMMODITY SURVEY

Wheat and barley industries play important roles in Idaho’s economy. Idaho grain farmers generated nearly \$500 million in cash receipts from sales of wheat and barley, accounting for over 11% of all agricultural receipts in Idaho. 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 2013 wheat acres were down slightly compared to 2012, but higher yields due to favorably wet weather accounted for an increase in total bushels. The 2013 wheat crop tallied in at 101 million bushels: 62 million bushels of winter wheat and 39 million bushels of spring wheat.

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 2013, ISDA, in cooperation with the USDA's Cooperative Agricultural Pest Survey Program (CAPS), conducted surveys for two exotic organisms that could threaten Idaho's small grains crops.

The 2013 Small Grains Commodity Survey is summarized in the following table:

2013 CAPS Small Grains Commodity Survey in Idaho

Organism	Photo	No. of traps/inspections performed in 2013	Results
<p>Egyptian Cotton Worm (ECW) (<i>Spodoptera littoralis</i>)</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>See page 39 of this report for a map of the 2013 ECW survey activity in Idaho.</p>  <p><i>Egyptian cotton worm</i> Bernard Fransen Bugwood.org</p>	<ul style="list-style-type: none"> • 196 traps were placed by June 15, 2013 in 14 grain producing counties in Idaho (Latah, Lewis, Idaho, Canyon, Cassia, Minidoka, Twin Falls, Bingham, Bonneville, Fremont, Power, Bannock, Madison and Jefferson). • Traps were checked every 2 weeks, and were removed by September 1, 2012. 	<p>All negative</p>
<p>Silver Y Moth (SYM) (<i>Autographa gamma</i>)</p> <p>SYM is a migratory moth and is widespread across Europe and parts of Asia and North Africa. SYM is another threat to Idaho's small grains industry which, if it were to become established in the state, could cause significant economic losses.</p> <p>SYM feeds on more than 200 different plant species, including several plants of economic importance to Idaho such as alfalfa, corn, grapes, dry beans, potato, sugar beets and wheat.</p> <p>SYM was also part of the grape and corn commodity surveys during 2013.</p>	 <p><i>Silver Y Moth</i> Paolo Mazzei Bugwood.org</p>	<ul style="list-style-type: none"> • 196 traps were placed by June 15, 2013 in 14 grain producing counties in Idaho (Latah, Lewis, Idaho, Canyon, Cassia, Minidoka, Twin Falls, Bingham, Bonneville, Fremont, Power, Bannock, Madison and Jefferson). • Traps were checked every 2 weeks, and were removed by September 1, 2012 	<p>All negative</p>

PALE CYST NEMATODE (PCN) (*Globodera pallida*)

Pale Cyst Nematode Eradication Program: Idaho

- Production Acres Surveyed: 10,956
- Seed Acres Surveyed: 798
- Number of Counties Surveyed: 7
- Fields Positive: 4 new, 21 fields total are now considered infested.



PPQ confirmed 4 new pale cyst nematode-infested fields in Bingham County, Idaho in 2013. All twenty-one 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 14,042 acres in Bingham and Bonneville Counties in 2013 as a result of the new infested field detections. The current regulated area is 8,478 acres. Of those total acres, 2,300 are infested.

Greenhouse bioassays are currently underway (at the University of Idaho in Moscow, Idaho) of cysts from six 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 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. By the end of 2013, seven fields successfully completed the first of three bioassay rounds with negative results for PCN reproduction. Bioassay samples from one field still showed signs of cyst viability, likely the result of soil disturbance and reintroduction of viable cysts from under a roadway that was removed during a sewer construction project. Soil survey and stain-based viability testing of cysts from this field will resume in 2014 and will continue annually until it once again triggers the bioassay step with negative viability results.

In May 2013, a contractor treated eight of the twenty-one infested fields known at that time with methyl bromide. Of the thirteen fields that were not treated:

- 9 fields had already triggered bioassay in 2010-2013
- 1 field had already received two methyl bromide treatments
- 1 field's owner opted out of methyl bromide for 2013
- 2 fields were already planted with their 2013 crop when PCN was confirmed, thus making them unavailable for treatment.

Grain or corn crops were grown in the untreated fields for harvest instead. Tricon 80/20 (80% methyl bromide/20% chloropicrin) was used again in 2013. 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 2013 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 2007-2011, with the exception of 2009 when there was a worldwide shortage of the chemical.

In March 2013, PPQ held a PCN research review meeting in Boise that was attended by PPQ, Idaho State Department of Agriculture, Idaho Potato Commission, representatives of the infested field operators, and researchers from the University of Idaho (Moscow, Aberdeen, and Parma) and Agricultural Research Service (Oregon, and Washington). Stakeholder updates were distributed in January, April, and June. Outreach was also conducted at the Potato Conference in Pocatello, the Far West Agribusiness Association meeting in Twin Falls, and the Shoshone-Bannock Tribal Farmer's meeting in Fort Hall. PCN Program updates were also given to the Idaho State House Agricultural Affairs Committee and the Idaho Senate Agricultural Affairs Committee.

The PCN Program collaborated with the Idaho Potato Commission (IPC) to build seven pressure-washing trailers that are available to stakeholders, free of charge, for performing their own sanitation treatments on

equipment moving from non-infested regulated fields. Funding for the trailers was provided by a Farm Bill grant awarded to the IPC. The PCN Program designed and built the trailers and will provide upkeep and maintenance to them into future years. The trailers, put into use at the end of September, were an enormous benefit to stakeholders who were without PCN Program support during the 16-day government shutdown in October.

The PCN Program collaborated with the Idaho Potato Commission (IPC) and the General Potato and Onion Distributors (GPOD) of Idaho to establish a permanent sanitation area for pressure-washed equipment moving out of infested fields. The sanitation area, to be used by APHIS for conducting steam sanitation treatments, consists of a large asphalt pad surrounded by a wide perimeter of gravel and a drainage basin. Funding for the wash area was provided by a Farm Bill grant awarded to the IPC. The pad is located on GPOD property which is in the vicinity of the infested fields. The wash pad will provide a convenient and safe location for program stakeholders to have their equipment steamed.

SAMPLING INFORMATION: To date, the PCN Program has collected 442,940 soil samples in Idaho to ensure Idaho's freedom from PCN outside of the 21 known infested fields. More than 69,900 samples have been collected from the eradication fields in order to monitor eradication progress and to provide cysts to several institutions for PCN research.

To date, the PCN laboratory in Idaho Falls has screened 448,755 soil samples collected in Idaho and approximately 49,880 samples from other potato-producing states. An additional 63,862 samples collected in Idaho were screened at the Idaho Food Quality Assurance Laboratory and the University of Idaho Parma laboratory between 2006 and 2009. There have been no pale cyst nematode detections in the U.S. outside of Idaho. Since program inception, the PCN Program has analyzed the viability of 761 cyst samples collected from infested fields before and after fumigation treatments. The average PCN viability in fields that have been fumigated with methyl bromide two times has declined by more than 99% since eradication treatments began.

Since 2009, 80,712 soil samples have been collected and screened in support of the Idaho State Department of Agriculture's (ISDA) post-regulation survey of fields deregulated by the USDA. (Report provided by Brian Marschman, Idaho State Plant Health Director, USDA APHIS PPQ)

KARNAL BUNT (KB) (*Tilletia indica*)

The smut fungus pathogen *Tilletia indica* causes a fungal disease in wheat referred to as karnal bunt (KB). It 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. During 2013 ISDA collected 48 wheat samples from 18 counties in Idaho and tested them for the pathogen. Results from this year's survey were negative. To date KB has never been detected in Idaho.



2013 Karnal Bunt Survey in Idaho (all samples negative)

County	Number of Samples	County	Number of Samples
Ada	1	Gooding	1
Bannock	2	Idaho	6
Benewah	3	Jerome	2
Bonneville	6	Kootenai	1
Butte	2	Latah	8
Caribou	3	Minidoka	4
Clark	1	Oneida	1
Franklin	1	Payette	1
Gem	1	Twin Falls	4

DISEASES AND PESTS FOUND DURING 2013 FIELD INSPECTIONS FOR EXPORT CERTIFICATION

In 2013, 57 seed companies submitted field inspection requests representing 32 crops. Total acres submitted for inspection numbered 23,785, with 50,157 acres actually inspected, due to multiple inspections required for some crop diseases. This is an increase in firms from the 50 participants in 2012, and a 1% decrease in acreage from the 24,102 acres submitted in 2012.

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
2013	57	32	23,785	50,157

Alfalfa seed: A total of 1,388.43 acres were submitted for inspection during the 2013 growing season. *Cercospora medicaginis*, *Clavibacter michiganensis* subsp. *insidious*, *Ditylenchus dipsaci*, *Euphorbia esula*, *Verticillium albo-atrum* or *V. dahliae*, and *Xanthomonas campestris* *pave alfalfae* were not observed during the 2013 field inspection season. *Cuscuta* spp. was confirmed in 50 acres. Alfalfa mosaic alfamovirus was found in 0.18 acres. *Cirsium arvense* was confirmed in 27 acres.

Arugula: A total of 3.75 acres were submitted for inspection during the 2013 growing season. No diseases of significance were observed.

Allium (excluding garlic): A total of 1,100.53 acres of onions were submitted for inspection. There were no chive fields submitted in the 2013 growing season. All fields inspected were found apparently free from *Peronospora destructor*, *Urocystis cepulae*, *Puccinia asparagi*, *Colletotrichum circinans*, *Ditylenchus dipsaci*, and *Sclerotium cepivorum*. In onions, *Botrytis aclada* was found in 16.85 acres, *Botrytis allii* was confirmed in 58.60 acres. *Sclerotinia* spp. was confirmed in 5.10 acres. *Fusarium Oxysporum* was found in 0.15 acres.

Beans, dry: In 2013, there were 1,352.35 acres of dry beans submitted for individual inspection. In total, 2,995.45 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 *Colletotrichum truncatum*, peanut stunt cucumovirus, or tobacco streak ilavirus in fields requested to be inspected for these diseases. In dry beans, bean common mosaic potyvirus was found in 18 acres. *Pythium* spp. was confirmed in 13 acres.

Beans, garden: In 2013, there were 8,048.47 acres of garden beans submitted for individual inspection. In total there were 20,159.49 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. Five acres of garden beans were found positive for Bean common mosaic potyvirus.

Beans, Trial Grounds: In 2013, there were 240.57 acres of trial beans submitted for individual inspection. In total there were 1,216.92 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.

Brassicas: A total of 178.7 acres of brassicas, collards, mustard, and turnips were submitted and inspected in 2013. 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 1,000.04 acres were inspected in 2013. *Sclerotinia* spp. occurred in 86.93 acres. There were no observations of *Alternaria radicina*, *Alternaria dauci*, *Pectobacterium carotovorum* pv. *carotovorum*, or *Xanthomonas campestris* pv. *carotae*.

Coriander: A total of 8 acres of coriander were submitted in 2013. No diseases of significance were observed.

Corn: In 2013, there were 5,636.92 acres of corn submitted for individual inspection. In total, there were 11,244.37 acres inspected due to multiple inspection requirements for certain diseases. Disease occurrence was confirmed as follows: high plains virus (HPV) found in 266.67 acres; wheat streak mosaic virus found in 35.90 acres; *Gibberella fujikuroi* found in 46.20 acres; *Sporisorium reilianum* found in 0.05 acres; *Fusarium subglutinans* found in 27.10 acres; *Ustilago zaeae* (common smut) was reported in 3,081.67 acres. Maize dwarf mosaic virus (MDMV), Sugarcane mosaic potyvirus, and *Rhizopus arrhizus* were not observed in Idaho in 2013. These statistics include 62 acres in five fields submitted for inspection and testing for export to Australia. Of these fields, 40 acres in 3 fields met the Australian guidelines. Two fields with 22 acres failed due to testing positive for various combinations of high plains virus, maize dwarf mosaic virus and wheat streak mosaic virus.

Endive: In 2013, a total of 3 acres were submitted for inspection during the growing season. No diseases of significance were observed.

Garlic: A total of 11.17 acres were inspected and found free from any disease symptoms of quarantine significance, including *Sclerotium cepivorum* (onion white rot).

Grain: A total of 310.33 acres of barley, grain sorghum, oats, rye, triticale, and wheat were inspected. No diseases of significance were observed.

Kale: A total of 13 acres of kale were inspected in 2013. No diseases of significance were observed.

Lettuce: In 2013, 318 acres of lettuce were submitted for inspection. There was no observation of Lettuce mosaic potyvirus (LMV).

Mint: : A total of 80 acres of peppermint were inspected and found apparently free from *Verticillium dahliae*, mint root borer (*Fumibotys fumalis*), and mint stem borer (*Pseudobaris nigrina*).

Pak Choi: In the 2013 growing season, 8 acres of pak choi were inspected. No diseases of significance were observed.

Peas: In 2013, 3,694.12 acres of peas were submitted for individual inspection. In total, 9,135.68 acres were inspected due to multiple inspection requirements for certain diseases. *Cladosporium cladosporioides* sp. *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 2013 inspections. *Fusarium* spp. was found in 15 acres. *Mycosphaerella pinodes* was confirmed in 10 acres.

Potato: No potato fields were submitted for inspection in 2013.

Radish: There were 280 acres of radishes submitted for inspection. All fields were found apparently free from *Colletotrichum higginsianum*, *Xanthomonas campestris* pv. *campestris*, and *X. campestris* pv. *raphani*.

Sunflowers: In 2013, 109 acres of sunflowers were submitted for inspection. No diseases of significance were observed.

Tomato: A total of 0.10 acres of tomatoes were submitted during 2013. No symptoms of diseases of quarantine significance were observed.

Vine crops: A total of 0.58 acres of vine crops including, cantaloupe, watermelon, and zucchini were submitted for inspection during 2013. 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 2013 FIELD SEASON

SPECIES	SUBMITTED ACRES	INSPECTED ACRES
Alfalfa	1,388.43	1,388.43
Arugula	3.75	3.75
Barley	55.21	109.84
Beans, Dry	1,352.35	2,995.45
Beans, Garden	8,048.47	20,159.49
Beans, Trial Grounds	240.57	1,216.92
Brassicas	15.00	15.00
Cantaloupe	0.38	0.38
Carrot	1,000.04	979.04
Collards	70.50	70.50
Coriander	8.00	8.00
Corn	5,636.92	11,244.37
Endive	3.00	3.00
Garlic	11.17	11.17
Grain Sorghum	251.18	473.24
Kale	13.00	13.00
Lettuce	318.00	318.00
Mint	80.00	160.00
Mustard	18.20	18.20
Oats	2.05	4.06
Onion	1,100.53	1,245.31
Pak Choi	8.00	8.00
Peas	3,694.12	9,135.68
Radish	280.00	280.00
Rye	0.06	0.06
Sunflower	109.00	218.00
Tomato	0.10	0.20
Triticale	0.03	0.03
Turnip	75.00	75.00
Watermelon	0.10	0.20
Wheat	1.80	2.27
Zucchini	0.10	0.10
TOTALS:	23,785.06	50,156.69

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

APIARY INSPECTIONS AND REGISTRATION FOR FY 13/14

The ISDA registered 126 Beekeepers and 105,672 colonies during this period. Six Apiaries were examined for the presence of American foulbrood. Four were found to be positive, one of which showed moderate resistance to the antibiotic Terramycin. Most of the hives and equipment were destroyed. In one case the infection was very light and the infested frames destroyed and replaced with new frames and wax foundation and treated with Terramycin and no foulbrood was seen to have returned to that colony.

EXPORT CERTIFICATION FOR THE 2013 CALENDAR YEAR

During 2013, ISDA issued 4,511 Federal and 288 state phytosanitary certificates for 226 different types of commodities to 85 countries. (Note: 3,921 Federal and 336 state phytosanitary certificates were issued in 2012.) The Division of Plant Industries certified over 566 million pounds of seed, hay, lumber, and other commodities for export. The ISDA operates this program under a Memorandum of Understanding with the USDA.

PLANT PATHOLOGY SUMMARY REPORT

In 2013 the Idaho State Department of Agriculture (ISDA) Plant Pathology Lab received 1,226 samples for examination. 2,773 tests were conducted on this material. Average turnover time per sample was 32 days.

Of interest this year, the Plant Pathology Lab detected two lots of bean seed that were positive for regulated bacteria. These lots were not planted in Idaho. No regulated bacterial pests were found in bean fields planted in Idaho this year. Also, no other regulatory pests were found during other (non-bean) seed testing.

In the field samples, similar to last year, a significant amount of Common Corn Smut (*Ustilago maydis*) was recorded. Only one field was found contaminated with Head Smut (*Sporisorium reilianum*). Another disease of note in this year's field inspections was Aster Yellows *Phytoplasma* in onion. This pathogen occurs mostly in early season crops, and has very noticeable symptoms. Quite a few fields of carrots were reported to be infected with *Sclerotinia* sp. This is not a new fungus for Idaho, but it was quite prevalent this year. Please see the table below for other details.

Outside of the usual seed testing and field inspection work, the Plant Pathology Lab participated in two surveys. The first was our annual Karnal Bunt (*Tilletia indica*) survey. 48 samples were collected from 18 counties and were assessed for Karnal Bunt by the USDA in Phoenix, AZ. All samples were negative.

The second survey in which the Plant Pathology Lab participated was a Cooperative Agricultural Pest Survey (CAPS) for Plum Pox Virus in *Prunus* sp. This survey will be continued in the 2014 growing season. All 50 samples taken in 2013 (from Boundary County) were negative for the virus.

Finally, ISDA worked with USDA/APHIS in tracing nursery samples shipped into Idaho, from out of state facilities contaminated with *Phytophthora ramorum*. *P. ramorum* is a fungus that causes Ramorum Blight and Sudden Oak Death. It is a federally regulated pest, and nurseries within infected states are closely monitored. None of the plants that came to Idaho from the contaminated out-of-state facilities tested positive for the fungus.

Sample Type	# of Samples	# of Tests	# of Positives (Organism)
Bean Seed (Serology)	180	900	1 (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)
			1 (<i>Pseudomonas savastanoi</i> pv. <i>phaseolicola</i>)
China Export Hay	409	409	
Seed Tests			
Alfalfa	11	20	
Barley	5	9	
Carrot	7	7	
Coriander	1	1	
Corn	1	1	1 (<i>High Plains Tenuivirus</i>)
Grass	1	1	
Radish	7	12	
Spinach	1	1	
Tomato	2	2	
Wheat	10	20	1 (<i>Urocystis</i> sp.)
Potato Year Out	7	28	Potato Virus A
			Potato Virus Y
			Potato Leaf Roll Virus

			<i>Clavibacter michiganensis</i> subsp. <i>Sepidonicus</i>
Misc.			
Soil samples	17	17	<i>Fusarium</i> identification
Nursery	3	3	1 (<i>Pestalotiopsis</i> sp.)
Surveys			
Prunus sp.	49	49	
Wheat	48	48	
Field Samples			
Alfalfa	14	20	1 (<i>Alfalfa Mosaic Alfamovirus</i>)
			1 (<i>Cuscuta</i> sp.)
Beans	72	108	4 (<i>Bean Common Mosaic Potyvirus</i>)
			1 (<i>Pythium</i> sp.)
			6 (<i>Sclerotinia</i> spp.)
Collards	2	3	
Corn	282	998	4 (<i>Wheat Streak Mosaic Tritimovirus</i>)
			81 (<i>Ustilago maydis</i>)
			1 (<i>Sporisorium reilianum</i>)
			29 (<i>High Plains Tenuivirus</i>)
			3 (<i>Gibberella fujikuroi</i>)*
			2 (<i>Fusarium subglutinans</i>)
Grain sorghum	8	8	
Onion	17	17	3 (<i>Botrytis aclada</i>)
			4 (<i>Botrytis allii</i>)
			1 (<i>Fusarium oxysporum</i>)
			1 (<i>Aster Yellow Phytoplasma</i>)
			1 (<i>Sclerotina</i> sp.)
Pea	39	56	1 (<i>Fusarium</i> sp.)
			2 (<i>Mycosphaerella pinodes</i>)
Peppermint	4	4	
Radish	5	6	
Sunflower	3	4	
*Asexual stage of the fungus found			

SEED LAB SUMMARY

The Idaho State Seed laboratory (ISSL) received 2,197 samples and completed 3,269 service tests in 2013. The most common crops submitted for service testing during this timeframe were alfalfa, grains, onion, beans, mixtures, turnip, lettuce, carrot, Timothy, and compost. In all, 108 regulatory enforcements were checked for licensing and truth-in-labeling requirements; 57 of these checks resulted in inspector actions. A total of 657 seed dealer licenses were issued.

In 2013 the merger of two seed companies and the subsequent closing of their remaining local lab to all service samples resulted in an influx of samples to the Seed Lab and an increase in tests requested in the latter half of the year. This new business has significantly increased sample numbers over the same timeframe from the year prior. We anticipate this increase will sustain through 2014.

CULL ONION INSPECTIONS AND ACTIONS

In 2013, 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 15th disposal deadline. Once the deadline was reached, visits were conducted and cull onion piles were then removed and compliance was reached.

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.

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

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 5,410 inspections and consequently took action against various pest threats and other violations. In 2013, there were 1,839 licensed nurseries in the state; of those, 677 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 2013

Quarantine/Pests	No. of inspections	No. of incidents	No. of corrective actions	Stop Sales
Certified Seed Potatoes	104	6	0	6
Aphids	551	2	0	0
Crop Management Zone	121	0	0	0
European Corn Borer	294	0	0	0
Grape Quarantine	160	13	0	13
Gypsy Moth	422	0	0	0
Hops	123	0	0	0
Red Imported Fire Ants	323	0	0	0
Japanese Beetle	433	2	0	2
Late Blight	337	0	0	0
Mint Quarantine	197	0	0	0
Nematodes	62	0	0	0
Noxious Weeds	440	4	0	1
Peach Tree Quarantine	191	0	0	0
Pine Shoot Beetle	292	0	0	0
Retail Potatoes	114	0	0	0
Idaho Seed Law	209	41	0	41
Snails	408	0	0	0
Sudden Oak Death	421	0	0	0
Onion White Rot	197	37	8	37
General Pests	11	2	1	0
Day Lily Rust	0	0	0	0
Total Inspections	5,410	115	9	108

ISDA NOXIOUS WEEDS / INVASIVE SPECIES PROGRAMS

During 2013, 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

IDAHO INVASIVE SPECIES PROGRAM

Program highlights

- ISDA worked cooperatively with several local governments to establish and operate 14 mandatory inspection stations statewide during the 2013 boating season.
- The Idaho Invasive Species Program inspected boats from 50 states during the 2013 season.
- The State of Idaho has conducted approximately 197,990 mandatory watercraft inspections since July 4, 2009.
- A total of 12 mussel-fouled boats have been intercepted and decontaminated before they were allowed to launch into Pacific Northwest waters.
- Idaho is working successfully with other western states to share education and outreach messages on various invasive species, providing consistent messaging to the travelling 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 water bodies.
- Early detection rapid response (EDRR) of a water hyacinth population discovered in the Snake River proved successful in 2012-13 eradication efforts.
- ISDA's Noxious Weeds Cost Share Program had participation from 34 CWMA's who treated 191,632 acres throughout Idaho.

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 agencies, federal agencies, local governments, non-governmental organizations, and Canada to address the state recommendation to "ensure that a comprehensive invasive species program in Idaho is not diluted by competing efforts among various agencies."

The **Idaho Invasive Species Council** was established by Executive Order (E.O. 2001-11). Per this Executive Order (which was continued as E.O. 2010-14), 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. 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 2013 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.

2013 Education and Outreach Activities

The State of Idaho ran a variety of mass media advertisements during 2013. Outdoor media consisted of six strategically positioned billboards along Idaho interstate highways, as well as one in Utah. Broadcast media listed multiple ads and communicated over 48 radio stations. Other outreach materials such as posters and brochures were distributed statewide per interest group request, inspection station inquiry, and State fair display. ISDA continued to work cooperatively with retail pet stores and individuals to spread awareness for the “Don’t Let It Loose, Idaho” campaign. This program promotes and implements alternative solutions for abandoned and unwanted species. In 2013, several red-eared sliders were reported to ISDA, and then delivered to Petco for relocation in a native range.

The invasive species councils of Washington, Oregon and Idaho have been working closely to share materials, consistent messages, and content relative to invasive species. During the summers of 2010, 2011 and 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. This effort continued into the early part of 2013 but grant funding had to be turned back due to staffing changes.

ISDA facilitated over a dozen Watercraft Inspection Trainings (WIT) for more than 300 individuals in Boise, Redfish Lake, Bruneau, Twin Falls, St. Anthony, Malad, Preston, Bear Lake, Wallace, Lewiston, Sandpoint and Coeur d’Alene in 2013.

Idaho’s water craft 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 vessels are considered to be a high-risk pathway for the transport of invasive species. Inspection of commercially hauled watercraft showed marked improvement in 2013 over 2012, which had more than half of the mussel-fouled boats intercepted in Idaho as commercially-hauled. In 2013, that number dropped to less than a third. Improvements are attributed in part by the partnering of ISDA and the Idaho Transportation Department (ITD) through the initiation of an educational outreach campaign for oversize load haulers traveling into the state, as well as the continued development of aggressive prevention programs in neighboring states. Through the oversize load permitting process, ITD notifies ISDA when an oversize 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. Staff at Idaho Ports-of-Entry’s (POEs) continually participate in training with ISDA staff to effectively inspect these oversized vessels as haulers scale through a POE.

2013 Aquatic Invasive Species (AIS) Program

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 2013 marks the eighth year of the EWM program in Idaho. Treatment and prevention efforts continue throughout the state, where over 12,900 acres of EWM have been treated since 2006 using herbicides, divers, education, survey, and prevention projects. As a result, 150 acres were treated under the program in 2013, 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.



Projects in 2013 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 inspection stations in Bonner and Kootenai Counties and two watercraft inspection stations near Henry's Lake in Fremont County. Statewide, ISDA conducted over 29,000 watercraft inspections utilizing EWM funds in 2013. Of these, more than 30 water craft were found contaminated with EWM or curlyleaf pondweed. These vessels were subsequently hot-washed to ensure that they no longer transported aquatic invasive species.



Flowering Rush (*Butomus umbellatus*) Flowering rush is an expanding problem throughout the Pacific Northwest. It has been rapidly expanding in the Lake Pend Oreille system over the past several years and it is beginning to interfere with recreation and boater access lake-wide. Several experimental projects have been conducted in cooperation with the US Army Corps of Engineers and ISDA to investigate the efficacy of dry ground treatments for flowering rush. Treatments were conducted during periods of lake drawdown to determine the efficacy of herbicides and mechanical methods on suppressing flowering rush growth. None of

these treatments significantly reduced the growth of rush; however, ISDA is continuing to investigate options for flowering rush treatment in this area.

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 to CJ Strike Reservoir or into the Snake River. Four employees were dedicated to the project in 2013 and they surveyed, mapped and removed hydrilla from June through October. As a result of persistent treatment efforts, significant reductions of hydrilla have been observed throughout the area. The hydrilla eradication project in 2013 was supported by a grant from BLM and eradication efforts are planned to continue in 2014.

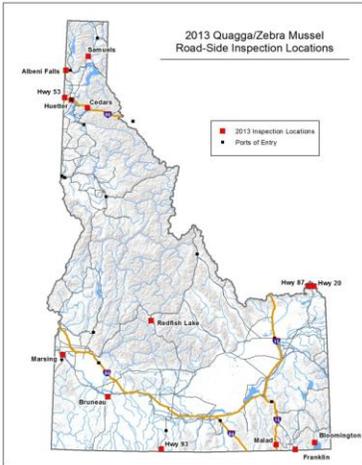


Water Hyacinth (*Eichhornia crassipes*) Water hyacinth is considered one of the most problematic aquatic plants in the world. It obstructs water flow, degrades water quality and out-competes native species. Idaho's first free living water hyacinth population was identified in the Snake River near Hagerman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

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 removal project in this pond and all visible water hyacinth was removed from this area. Surveys conducted in the area in 2013 found eight plants early in the spring and repeated surveys during the summer found no plants in the pond or in the Snake River. Surveying will continue in the area in 2014, but it is hoped that this population is now eradicated.

Operational Inspection Stations

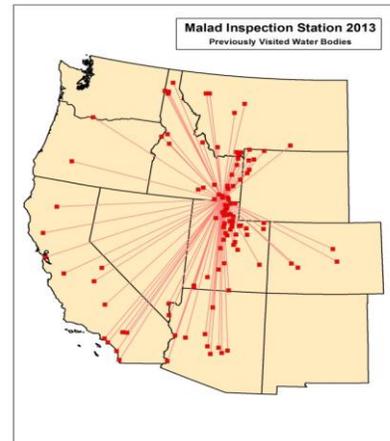
Quagga and zebra mussels are native to eastern Europe and western Asia, and were introduced into the Great Lakes in the 1980s via ships' ballast water. By the 1990s, the mussels had spread throughout all five of the Great Lakes and much of the Mississippi River Basin. With the ability of zebra and quagga mussels to attach themselves to boats and hitchhike between water bodies via trailered vessels, there is great potential for continued spread to uninfested waters which include the Columbia River Basin. It is through this vector that quagga mussels made the overland jump to Lake Mead (NV) in January 2007.



Following the Lake Mead invasion, quagga mussels spread to connected lakes and reservoirs in Arizona and southern California (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 resulted in an increase in prevention effort 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 developed a proactive prevention program to minimize risk of introduction to Idaho's waters via mussel-fouled watercraft. In 2013, ISDA operated 14 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 (2009-2012) boating seasons allowed staff to prioritize travel routes into the state for the 2013 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 has maximized our contact with boats traveling into the state from impacted waterways. Inspection stations located on our southern and eastern borders have intercepted the majority of the mussel-fouled boats found. Inspectors are trained to look for watercraft that have recently visited mussel-infested states (within the last 30 days), are coming from another state (especially commercially hauled boats), are dirty (slime and grime at the waterline), or have standing water on board. These vessels are considered "high-risk" to the state of Idaho and upon encountering, a thorough inspection of the exterior and interior commences. The inspection includes a complete visual and tactile inspection of all vessel components, including compartments, bilge, trailer as well as any equipment, gear, ropes or anchors found onboard. If any biological material is found during the inspection, the inspector conducts 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. Between February and October 2013, over 43,000 watercraft inspections were conducted with 12 mussel-fouled vessels intercepted. This is a marked reduction of the 57 intercepted in 2012. Since July 2009, almost 198,000 inspections have been conducted with an overall total of 105 mussel-fouled watercraft intercepted to date.



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 2013 season, more than 525 plankton tow samples from 68 water bodies were collected and analyzed for invasive mussel veligers in Idaho. Static substrate samplers were inspected upon being encountered with no attachment observed. No evidence of invasive mussels was found during the 2013 season.

Contingency Planning

Although the chances of eradicating a new population of zebra or quagga mussels are small, those chances depend directly on the ability of the state to respond quickly and effectively once a population is detected. The water managers of infected western states (California, Nevada, Arizona, Texas) have had to scramble to develop control technologies within water delivery infrastructure systems. This work began shortly after the discovery of mussels in the Lake Mead National Recreation Area in 2007. Unfortunately, control options for lakes, rivers, and naturally flowing river systems are, as of now, poorly developed. With the ever growing threat of colonization by zebra and quagga mussels, there is an urgent need to develop effective control technologies for Idaho waterways. 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 invasive mussels in an Idaho field response situation. Water bodies, such as the Snake River, have numerous private and public stakeholders who have access and/or management authority. Diversion facilities for irrigation, hydroelectric power generation, municipal water systems, aquaculture, and recreation are just a few of the use 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 that either of these species is discovered in the state. Given the complexity of the situation in the event quagga or zebra mussels are discovered in Idaho, the group recommended that the state develop an "Exclusion Strategy and Contingency Plan." Completed in early 2012, the "Exclusion Strategy and Contingency Plan" was designed to compile a summary of Idaho's water body data, available control technology options, and assess Idaho's technical and regulatory gaps, including endangered species concerns.

ISDA Cost Share Program

A total of 34 CWMA's participated in ISDA's Noxious Weeds Cost Share Program in 2013. Submitted End of Year (EOY) reports documented that 191,632 total acres were treated using a combination of chemical, mechanical, and biological methods statewide. Total acres mapped were just over 750,000 with more than 1,300,000 educational contacts reached. Total match produced equaled \$4,303,971.12, with a 3.46:1.0 gross match ratio.

ISDA AND USDA COOPERATIVE RANGELAND GRASSHOPPER AND MORMON CRICKET SUPPRESSION PROGRAM

Grasshoppers and Mormon crickets continue to be serious pest problems for Idaho rangelands and adjacent croplands. Based on annual surveys conducted by the United States Department of Agriculture (USDA),



Animal Plant Health Inspection Service (APHIS), Idaho has experienced very serious pest outbreaks in previous years. The management and the timely control of grasshopper and Mormon cricket populations are high priorities for the Idaho State Department of Agriculture (ISDA) and our cooperators at USDA, APHIS. Congress addressed this issue in 2004 with special one-time funding to the impacted states of Idaho, Utah and Nevada.

Background

Sixty-four percent of Idaho lands are administered by the Federal Government. Forty-three percent or 21.8 million acres in Idaho is classified for use as rangeland. The Bureau of Land Management administers 11.8 million acres in Idaho, much of it prime grasshopper/Mormon cricket habitat. There is a significant area of grasshopper and Mormon cricket habitat on federal lands that borders private rangeland and irrigated cropland in the state. Mormon crickets and grasshoppers (primarily about six species) are cyclical economic

pest problems, particularly in southern Idaho. In recent years, however, significant outbreaks have also occurred in north central and northern Idaho.

Summary of Grasshopper Survey Results

Grasshopper outbreaks in 2013 increased from 2012. In 2013, drought conditions in Southwest Idaho allowed for early spring scouting at higher elevations that normally are snowbound. The drought also resulted in seasonal streams not flowing during 2013. Despite these drought conditions, insect emergence was normal. *Camnula* was the main genus to reach economic thresholds statewide. In central and north Idaho, carbaryl bait was distributed in five counties to fifteen landowners. One of those landowners who requested and applied Carbaryl bait was the Coeur d'Alene, Idaho airport.



In southern Idaho, Valley County (elevation 5,000) reported the most damage statewide, with damage to dry land and irrigated grazing lands. A cost-share spray project was conducted in this county (see next section). Three complaints of infestation were also received from Elmore County. These complaints were treated with Carbaryl bait by the landowners.

In southeast Idaho there were also reports of grasshoppers, most notably south and east of Preston, Idaho. However, only four complaints were treated with Carbaryl bait by the landowners. One of those requests treated was the Bear Lake County Airport.

No state lands or county or state road rights-of-way were treated by ISDA for grasshopper or Mormon cricket infestations.



Summary of actions in Valley County

ISDA became aware of a grasshopper problem in Valley County the first week of June. An ISDA scout visited a ranch on June 7, 2013 and documented that grasshoppers were at an economic threshold (over 8 per square yard). In the next 35 days, ISDA scouts made nine visits to Valley County, scouting agricultural properties that were at or beyond the economic threshold for treatment. These property owners were given Carbaryl bait and liquid Diflubenzuron. APHIS and ISDA provided bait spreaders for landowners to use on their ATVs. Most of these

properties were dry land (non-irrigated) grazing lands. On July 11, 2013, ISDA and APHIS scouts came to the conclusion that the southern portion of Valley County was heavily infested with flying adult grasshoppers. Two-striped Grasshopper, (*Melanoplus bivittatus*) and Clearwinged Grasshopper, (*Camnula pellucida*) were the most common species. Estimated densities of fifty grasshoppers per square yard were found during these surveys. Most of the effected properties were irrigated grazing lands. Under the Idaho Plant Pest Act of 2002, ISDA declared this a grasshopper emergency area.

ISDA officials met and decided to conduct a cost-share program with landowners. ISDA officials also discussed which insecticides would be best for control. Carbaryl bait was ruled out because of its lack of efficacy on irrigated lands and residue impacts on pollinators. Diflubenzuron was ruled out because of the lateness of the season and its lack of efficacy on adult grasshoppers. ISDA used Cheminova Fyfanon AG ULV (Malathion) aerially at eight ounces per acre. This product was chosen based on several factors including: growth stage of insect, efficacy, cost, and environmental concerns. Grasshopper populations were defoliating livestock grazing lands and livestock producers told ISDA that without treatment, they would have to remove their livestock 30 days sooner than normal (this high elevation region only has a 150 day grazing season). This would result in higher feed costs, especially for the calves that are weaned and removed 30 days sooner than the cows. This program was an emergency cooperative effort requested by landowners and Valley County officials. Only private lands were treated and participation in this program was voluntary. ISDA set a deadline for participating in the aerial program and thirty-eight landowners committed to approximately 25,000 acres. Additional landowners contacted ISDA after the deadline to participate in the aerial treatment. These landowners were provided Carbaryl bait or liquid Malathion. Valley County used 82% of the Carbaryl bait distributed statewide in 2013 (55,050 total pounds), which covered approximately 2,753 acres (at 20



pounds per acre). Valley County used 100% of the liquid Malathion distributed statewide to be applied by ground application, which covered approximately 991 acres (at 1.4 pints per acre). The aerial Malathion treatment controlled grasshoppers on 21,040 acres of private land and prevented adults from reproducing. Approximately 4,000 acres were not treated aerially because of environmental concerns and terrain hazardous to the applicator. Post treatment inspections indicated excellent control and landowners were pleased with the results of the project. Hatching bed areas were located and recorded by ISDA and AHPIS staff. This information should give ISDA a good starting point for initiating surveys in 2014.

Total acres treated in Valley County

Aerial, Fyfanon (liquid Malathion):	21,040
Ground, Carbaryl bait (estimated.):	2,753
Ground, Malathion, liquid (estimated.):	991
Ground, Dimilin, liquid (estimated)	128

Total:	24,912

In 2013, seventy-four private landowners in eleven counties received assistance in the form of 67,400 pounds of Carbaryl bait valued at \$60,997.00 (2013 cost of \$0.905 per pound). This was an increase of 31,850 pounds in bait distributed from 2012 to private landowners.

Total 2013 Landowner Assistance

Cost Share-Aerial, Malathion & Application:	\$ 73,640.00
Carbaryl bait:	\$ 60,997.00
Malathion, liquid:	\$ 5,653.00

Total:	\$140,290.00

For additional information, go to the ISDA website www.agri.idaho.gov and search under the Plants and Insects tab for the Grasshopper/Mormon Cricket Program.

**2013 COST-SHARE PROJECTS WITH PRIVATE LANDOWNERS FOR GRASSHOPPER SUPPRESSION
- ONE CONDUCTED IN 2013**

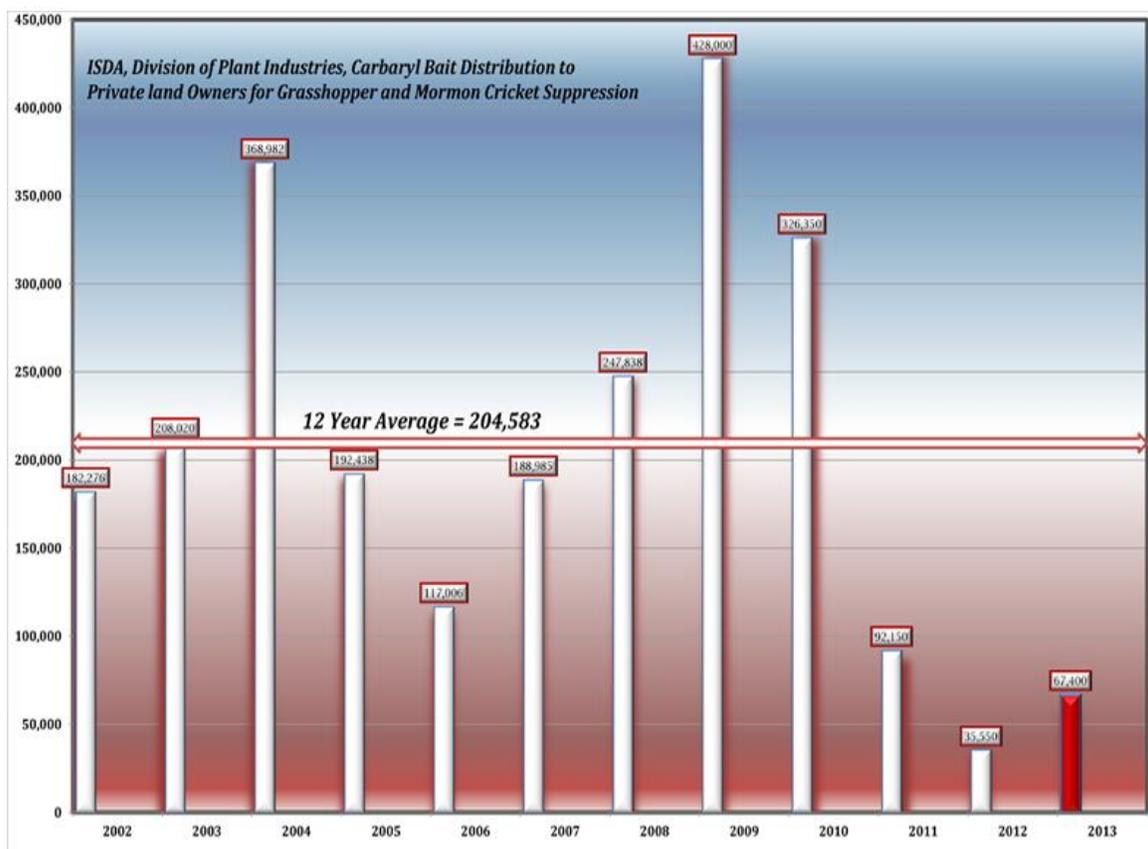
Project Location: Valley County	Acres Treated	Total Protected Acres	Insecticide	Cost to ISDA (1/2)	Cost to Private Landowner (1/2)	Total Project Cost	Cost Per Acres Protected
Totals	21,040	21,040	Fyfanon (Malathion) ULV AG	\$73,640	\$73,640	\$147,280	\$7

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
2013	0	0

2013 BAIT DISTRIBUTIONS TO PRIVATE LANDOWNERS FOR GRASSHOPPER SUPPRESSION

Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
1	Valley	55,050	59
2	Elmore	3,350	3
3	Kootenai	2,800	7
4	Oneida	2,500	1
5	Idaho	1,300	4
6	Bonner	750	2
6	Franklin	750	1
7	Latah	400	1
8	Bear Lake	300	1
9	Lincoln	100	1
9	Nez Perce	100	1
Totals	11 Counties	67,400	81



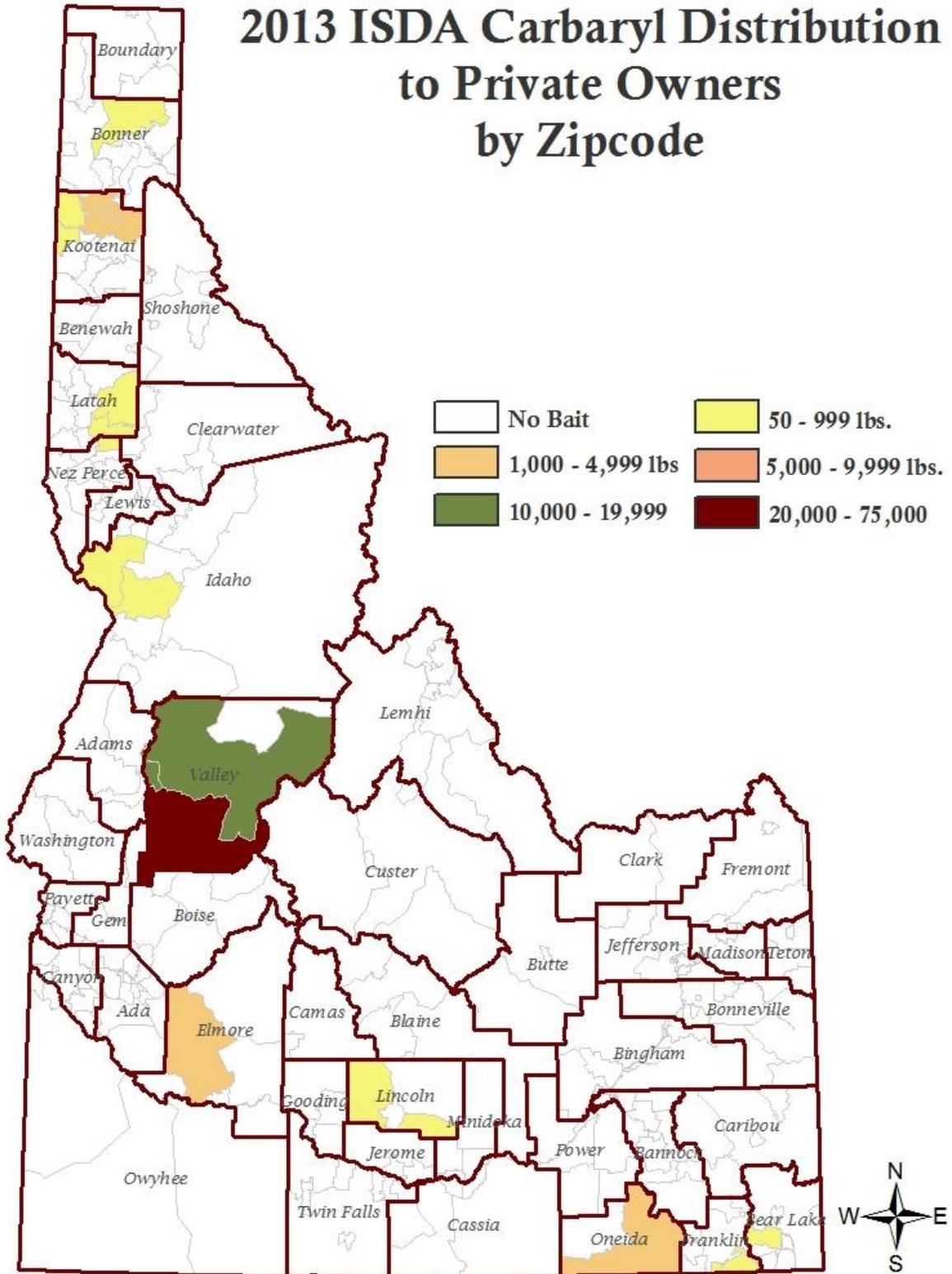
2013 LIQUID MALATHION AND DIMILIN DISTRIBUTIONS TO PRIVATE LANDOWNERS FOR GRASSHOPPER SUPPRESSION

RANK	COUNTY	AMOUNT DISTRIBUTED GALLONS	NUMBER OF DISTRIBUTIONS
1	VALLEY	173.5 (MALATHION)	44
1	VALLEY	12 (DIMILIN)	2

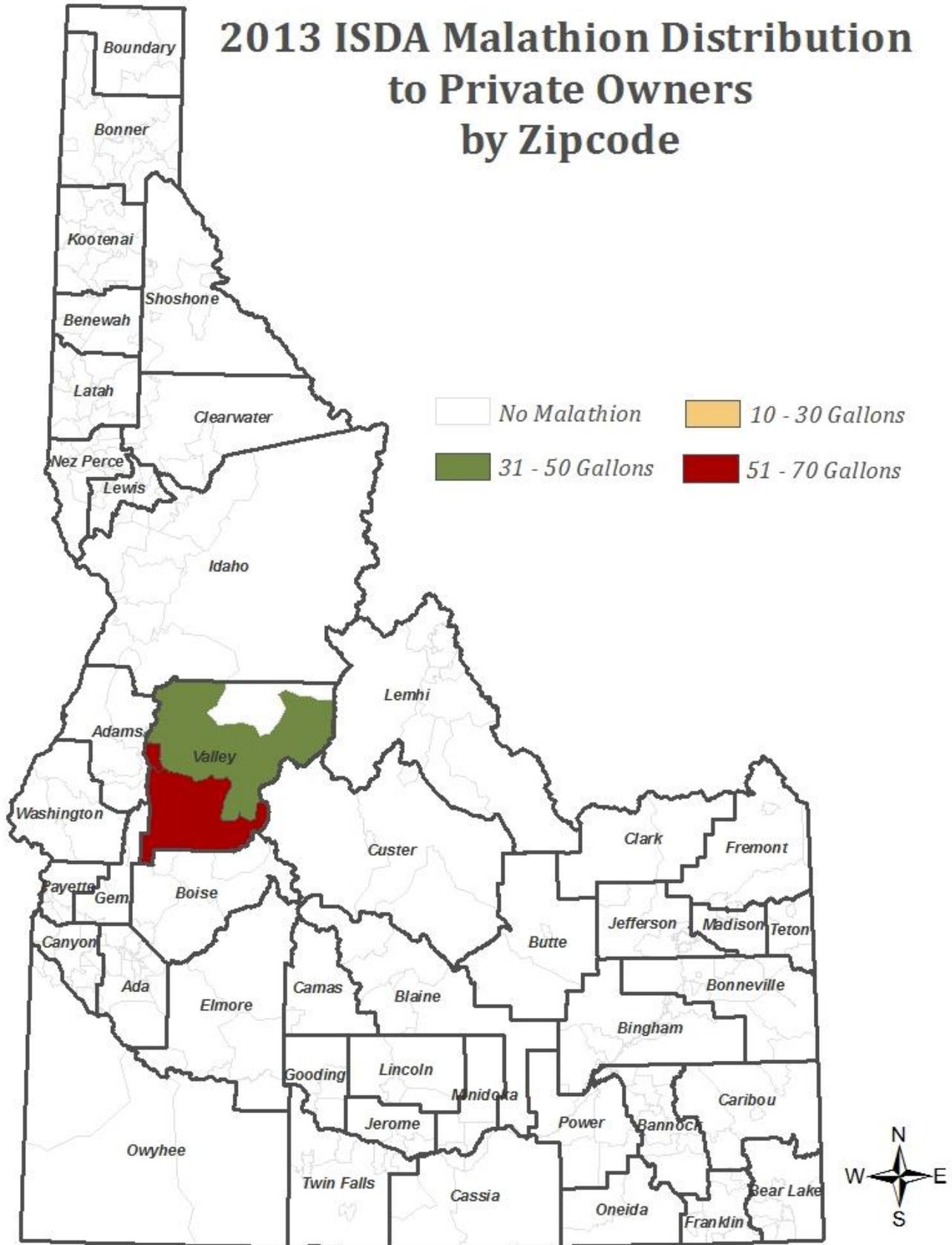
2014 Forecast

Carbaryl bait usage from 2002 to 2013 indicates that bait distribution tends to peak one to two years after the lowest year of usage (2012); however, as always, winter and spring weather has a significant effect on insect population numbers. ISDA will be out scouting in April in the lower elevations and keeping a close eye on Valley County grasshopper populations. ISDA will also be educating landowners to do the same. While there were few grasshopper complaints from southern and southeastern Idaho, there were significant population levels noted in some areas in 2013. These areas will be scouted early in 2014.

2013 ISDA Carbaryl Distribution to Private Owners by Zipcode



2013 ISDA Malathion Distribution to Private Owners by Zipcode



Major cooperators for the Grasshopper/Mormon Cricket Program

During the 2013 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.

2013 PUBLIC OUTREACH AND EDUCATIONAL PRESENTATIONS ON INVASIVE SPECIES, PEST SURVEY AND DETECTION, AND GRASSHOPPER MANAGEMENT PROGRAMS

Presentations given in 2013 by ISDA staff

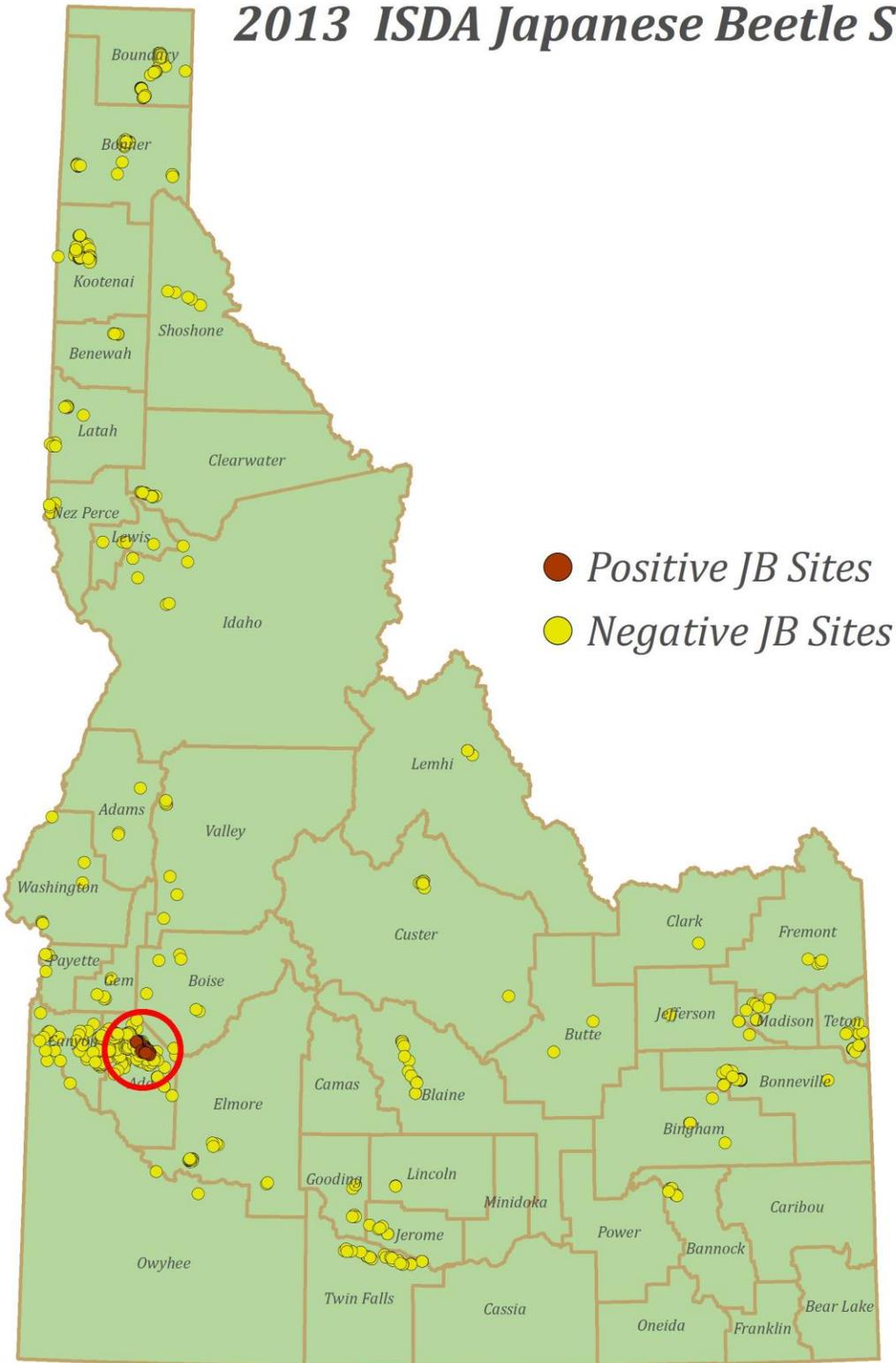
Date	ISDA Staff	Event	Target Audience
January 15, 2013	Jodie Ellis	Talk: Treasure Valley Beekeepers "Bee Pests and Diseases: Part II" (Boise, ID)	Beekeepers
January 25, 2013	Jodie Ellis	Talk: Idaho Horticulture Expo "Japanese Beetle Identification and Update" (Boise, ID)	Gardening public and industry professionals
January 29, 2013	Dan Safford	Caldwell Ag Show	Public
January 31, 2013	Thomas Woolf	Idaho Noxious Weed Conference, Boise. "Aquatic Invasive Species Identification and Survey" and "Idaho Invasive Species Program Update"	Noxious weed professionals
February 6, 2013	Thomas Woolf	Watercraft Inspection Training, Smelterville.	Watercraft inspectors and the public
February 9, 2013	Thomas Woolf	Eastern Lakes Conference. "Aquatic Invasive Species: Help Protect Your Lake"	Lake Associations and the watershed managers
February 20, 2013	Thomas Woolf	Hayden Watershed Association. "Aquatic Invasive Species Update"	Hayden Watershed Residents
February 22, 2013	Jodie Ellis	Talk: Kootenai Valley Nursery Growers Workshop "Japanese Beetle in Idaho" (Post Falls, ID)	Nursery professionals
February 26, 2013	Thomas Woolf	Clearwater / Palouse CWMA Noxious Weed Clinic, Orofino: "Aquatic Invasive Species"	Public
February 27, 2013	Thomas Woolf	Clearwater / Palouse CWMA Noxious Weed Clinic, Lewiston: "Aquatic Invasive Species"	Public
March 13, 2013	Thomas Woolf	Aquatic Construction Contractor Regulatory Meeting, Hayden: "Aquatic Invasive Species Prevention"	Construction Contractors
March 13, 2013	Jodie Ellis	Talk: "New Invaders in Idaho" Bonneville	Master Gardeners

		County Extension (Idaho Falls, ID)	and general public
March 14, 2013	Jodie Ellis	Talk: "New Invaders in Idaho" Bingham County Extension (Blackfoot, ID)	Master Gardeners and general public
March 14, 2013	Dan Safford	SW Idaho Weed Control Association Spring Meeting	Idaho Weed Superintendents
March 16, 2013	Dan Safford	Idaho Backcountry Horsemen State Convention	Public
March 26, 2013	Thomas Woolf	Western Aquatic Plant Management Society: "Idaho's Eurasian Watermilfoil Program"	Aquatic plant management professionals
March 28, 2013	Thomas Woolf	Northern Interior Columbia Basin Aquatic Invasive Species Workshop, Dover: Host and moderator.	Public
April 5, 2013	Thomas Woolf	Watercraft Inspection Training, Post Falls	Watercraft inspectors and the public
April 17, 2013	Thomas Woolf	Western Fisheries Society, Boise: "Idaho's Invasive Species Program"	Western fisheries managers
April 17, 2013	Thomas Woolf	Idaho Mosquito Control Association, Boise: "Aquatic Invasive Species Survey"	Idaho mosquito control professionals
April 18, 2013	Jodie Ellis	Talk "New Insect Invaders", IMVCA meeting (Boise, ID)	Mosquito control professionals
April 18, 2013	Jodie Ellis	Talk: "New Invaders That Could Be a Problem for Fruit in Idaho", Gem County Fruit Growers (Emmett, ID).	Fruit growers industry
April 22, 2013	Thomas Woolf	Pend Oreille Basin Commission, Sandpoint: "Idaho Invasive Species Program Update"	Public
April 25, 2013	Thomas Woolf	Cocolalla Lake Association, Cocolalla: "Idaho's Invasive Species Program and Plans for Cocolalla in 2013"	Lake Association members
May 1, 2013	Jodie Ellis	Talk and display: "Japanese Beetle in Your Neighborhood", East End Neighborhood Association (Boise, ID)	Neighborhood affected by Japanese beetles
May 2, 2013	Nic Zurfluh	Idaho Parks and Rec Marine deputy training	Marine Deputies
May 8, 2013	Nic Zurfluh	Bruneau/Marsing Boat Inspection Training	Inspectors
May 9, 2013	Thomas Woolf	University of Florida Short Course for Aquatic Plant Management, Coral Springs: "Idaho's Aquatic Invasive Species Program"	Aquatic plant management professionals
May 14, 2013	Nic Zurfluh	Henry's Lake Boat Inspection Training	Inspectors
May 16, 2013	Thomas Woolf	Sandpoint Master Naturalists, Pend Oreille: "Invasive Species Identification"	Master Naturalists
May 22, 2013	Thomas Woolf	Watercraft Inspection Training, Dover.	Watercraft Inspectors and the public

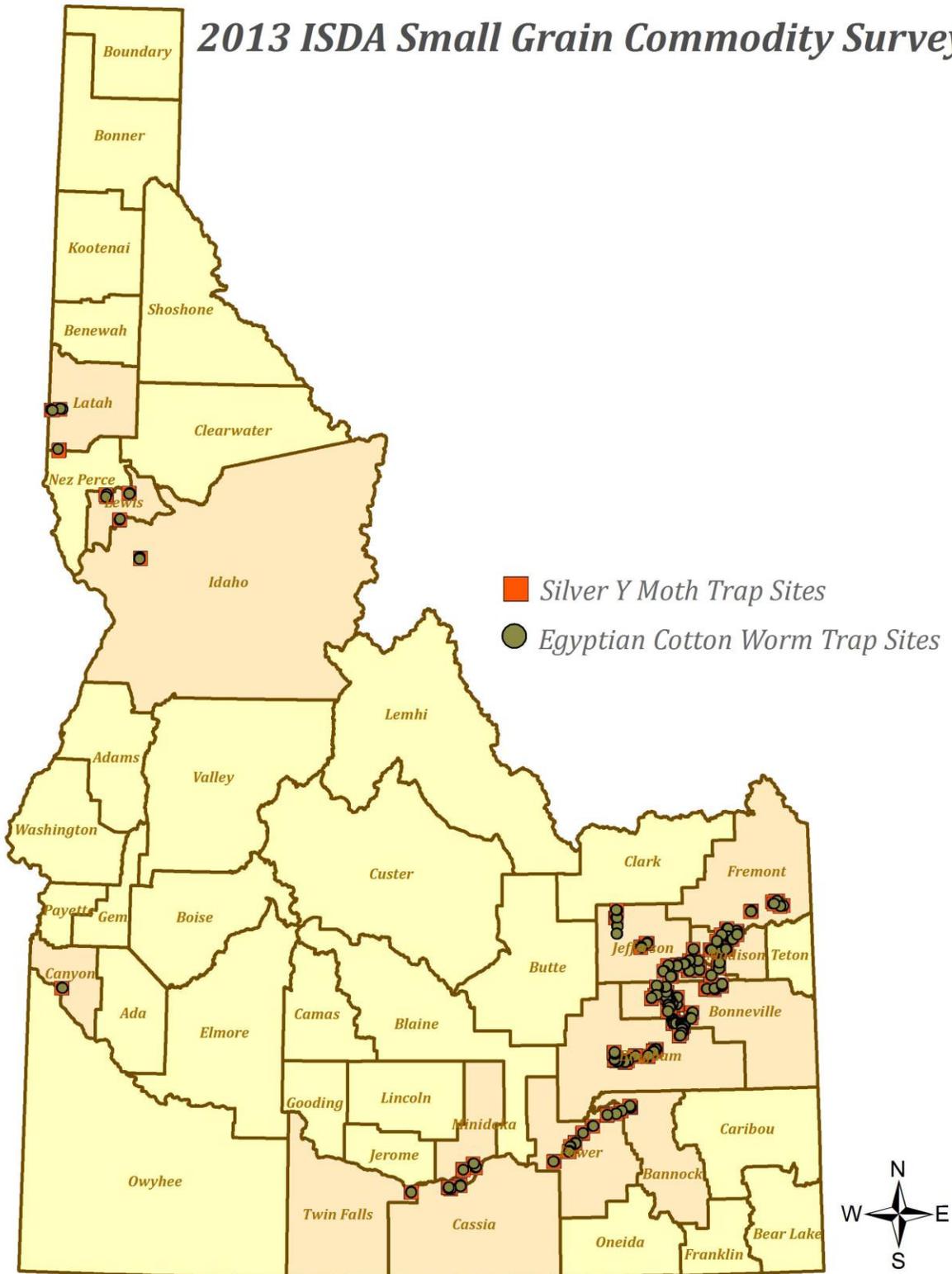
May 24, 2013	Thomas Woolf	Kootenai County Marine Deputies, Coeur d'Alene: "Idaho Invasive Species Statute"	Law enforcement
June 8, 2013	Jodie Ellis	Radio interview with Debbie Cook (D&B Garden Show) re: Japanese beetle (Boise, ID)	Gardeners and general public
June 11, 2013	Thomas Woolf	Shoshone County Noxious Weed Board, Kellogg: "Idaho's Invasive Species Program"	Noxious weed management professionals
June 12, 2013	Nic Zurfluh	Bruneau River Soil Water Conservation District	Hydrilla update
June 12, 2013	Dan Safford	Lower Weiser River CWMA sponsored middle school teacher ag in the classroom	Educators
June 20, 2013	Nic Zurfluh	Redfish Lake Boat Inspection Training	Inspectors
June 20, 2013	Thomas Woolf	Watercraft Inspection Training, Redfish Lake.	Watercraft Inspectors and US Forest Service staff
June 29, 2013	Thomas Woolf	Twin Lakes Association Annual Meeting: "Idaho's Invasive Species Program"	Lake association members and the public
July 16, 2013	Nic Zurfluh	Gem State Fly Casters	Recreational Group
August 6, 2013	Thomas Woolf	Annual Priest Lake Volunteer Invasive Species Survey. "Invasive Species Identification"	Public
September 17, 2013	Mike Cooper	Treasure Valley Beekeepers Club "Small Hive Beetle Biology and Update"	Beekeepers
September 19, 2013	Thomas Woolf	Bonner County Waterways Board, Sandpoint. "Invasive Species Update"	County staff and public
October 15, 2013	Thomas Woolf	100 th Meridian Initiative Columbia Basin Team. "Idaho Invasive Species Program Update"	Regional invasive species managers
October 16, 2013	Thomas Woolf	Washington Lake Protection Association. "Invasive Species Identification"	Lake Associations, Watershed managers and the public
October 17, 2013	Dan Safford	Idaho Dept. of Fish and Game	State Employees
November 6, 2014	Mike Cooper	Idaho Association of Plant Protection "Japanese Beetle and Other Invasive Insects"	U.I. Researchers, Consultants and Growers
November 6, 2014	Dan Safford	Idaho Association of Plant Protection "ISDA Grasshopper and Mormon cricket program Update"	U.I. Researchers, Consultants and Growers
November 16, 2013	Dan Safford	Idaho Horse Council annual meeting	Public
November 20, 2013	Dan Safford	SW Idaho Weed Control Association, fall meeting	Idaho Weed Superintendents
November 20, 2013	Nic Zurfluh	SW Idaho Weed Summit	Weed Group
November 22, 2013	Dan Safford	Ada County Master Gardner group	Gardeners
December 5, 2013	Mike Cooper	Eagle / Garden City Rotary Club "Japanese Beetle and Other Invasive Insects"	Businessmen / Club Members

December 11, 2013	Mike Cooper	Gem County Extension Recertification seminar "Japanese Beetle and Other Invasive Insects"	Growers
December 12, 2013	Mike Cooper	Canyon County Extension Recertification seminar "Japanese Beetle and Other Invasive Insects"	Growers
December 18, 2013	Dan Safford	Elmore County Extension Recertification seminar "ISDA Grasshopper and Mormon cricket program Update"	Growers
December 18, 2013	Mike Cooper	Elmore County Extension Recertification seminar "Japanese Beetle and Other Invasive Insects"	Growers

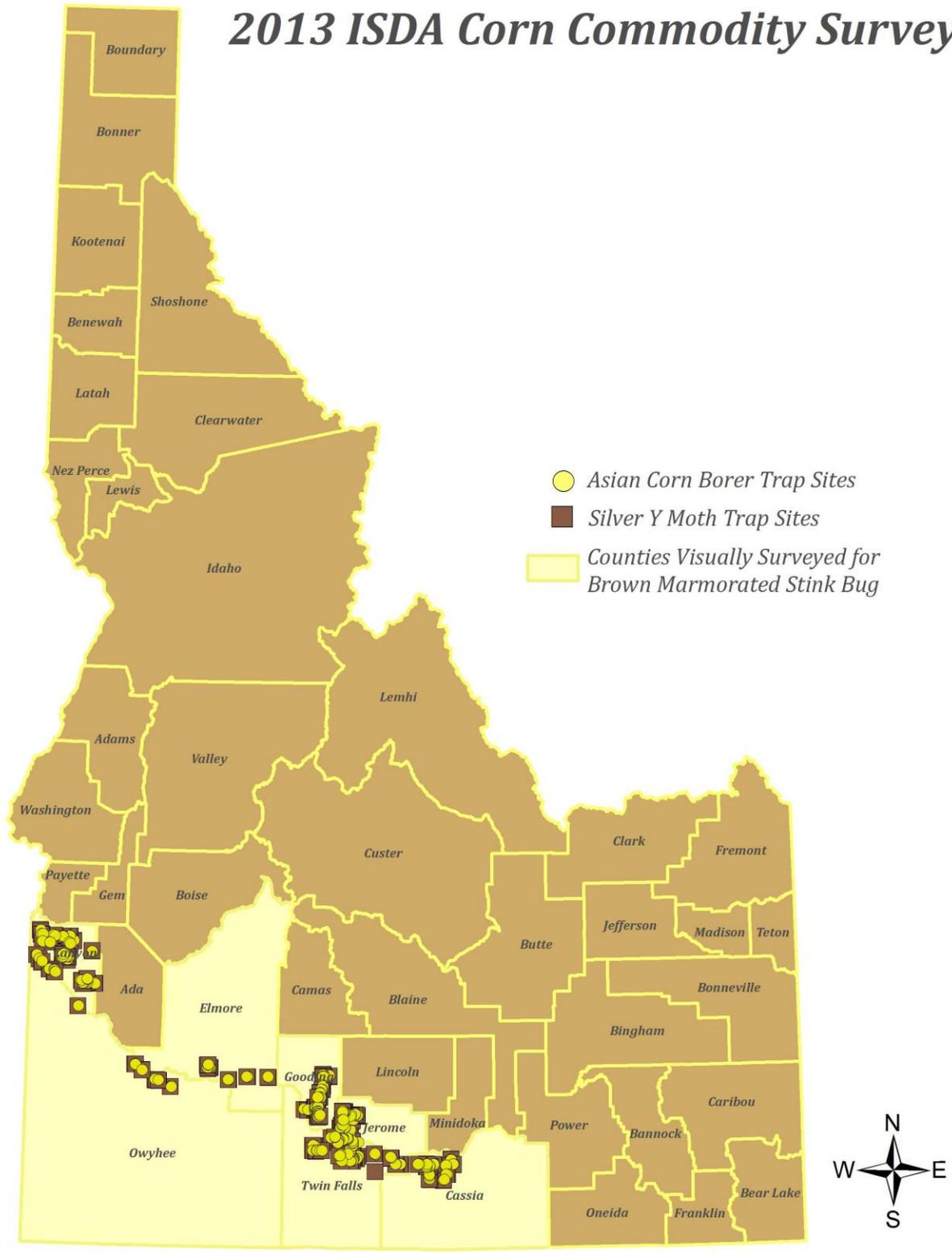
2013 ISDA Japanese Beetle Survey



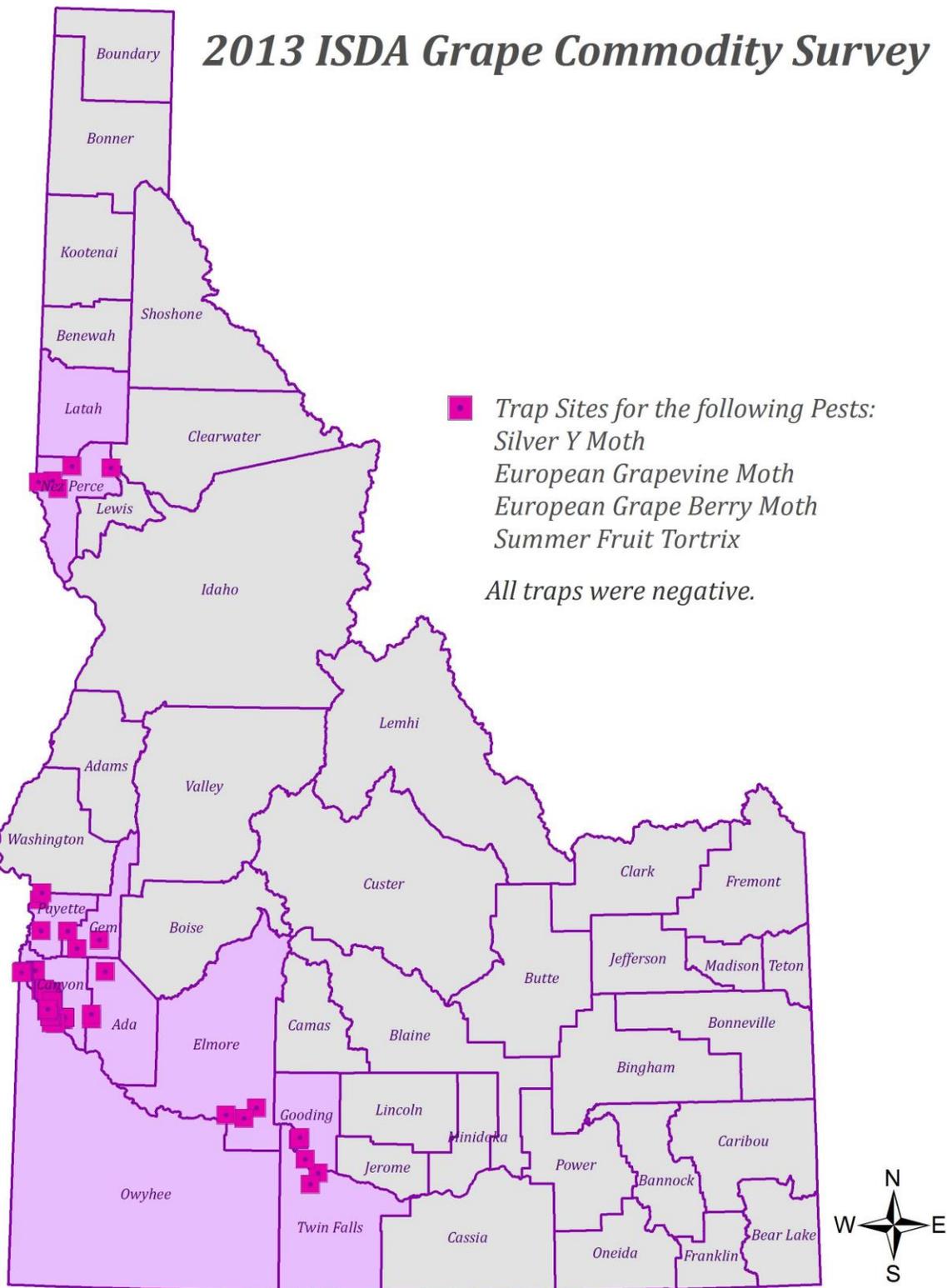
2013 ISDA Small Grain Commodity Survey



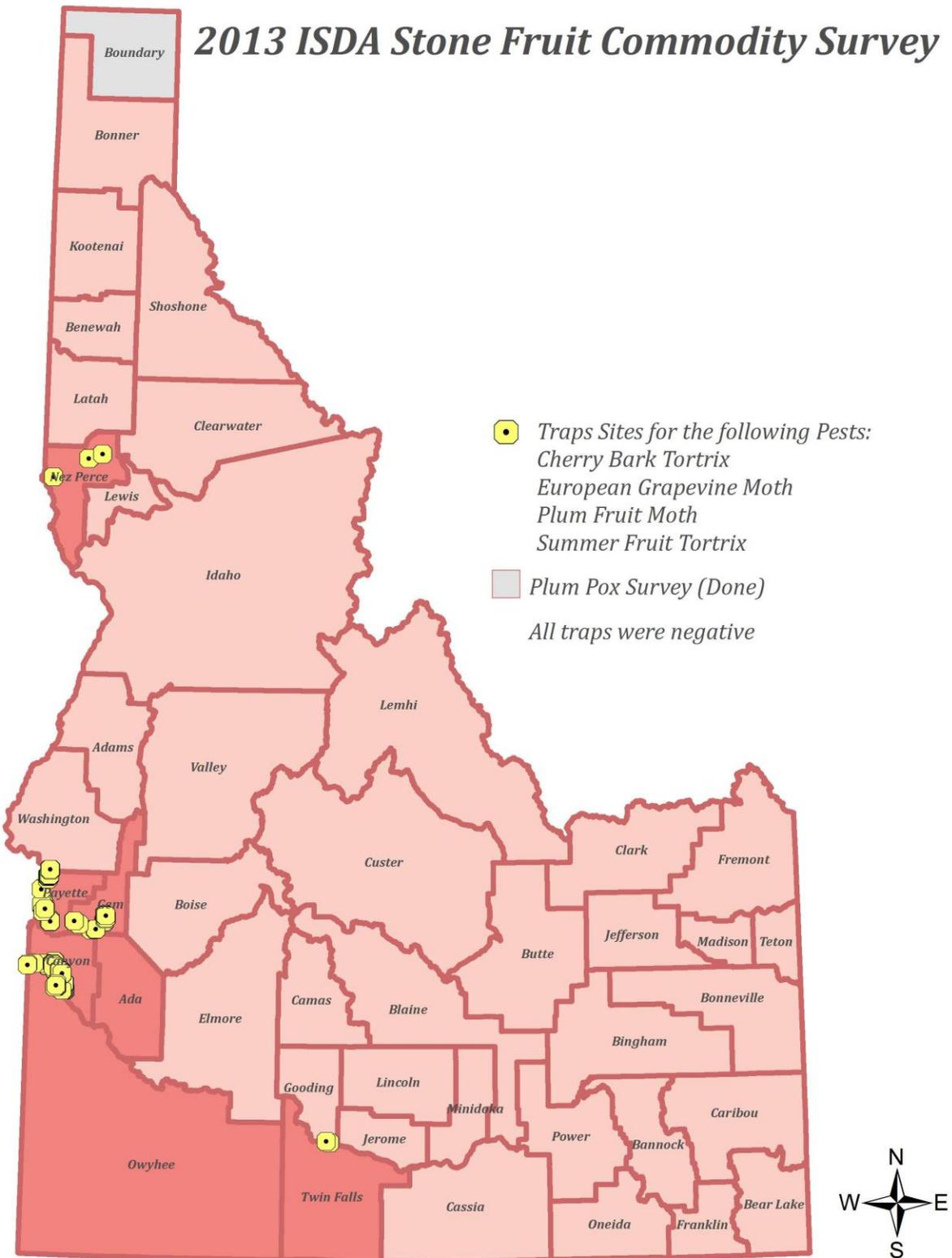
2013 ISDA Corn Commodity Survey



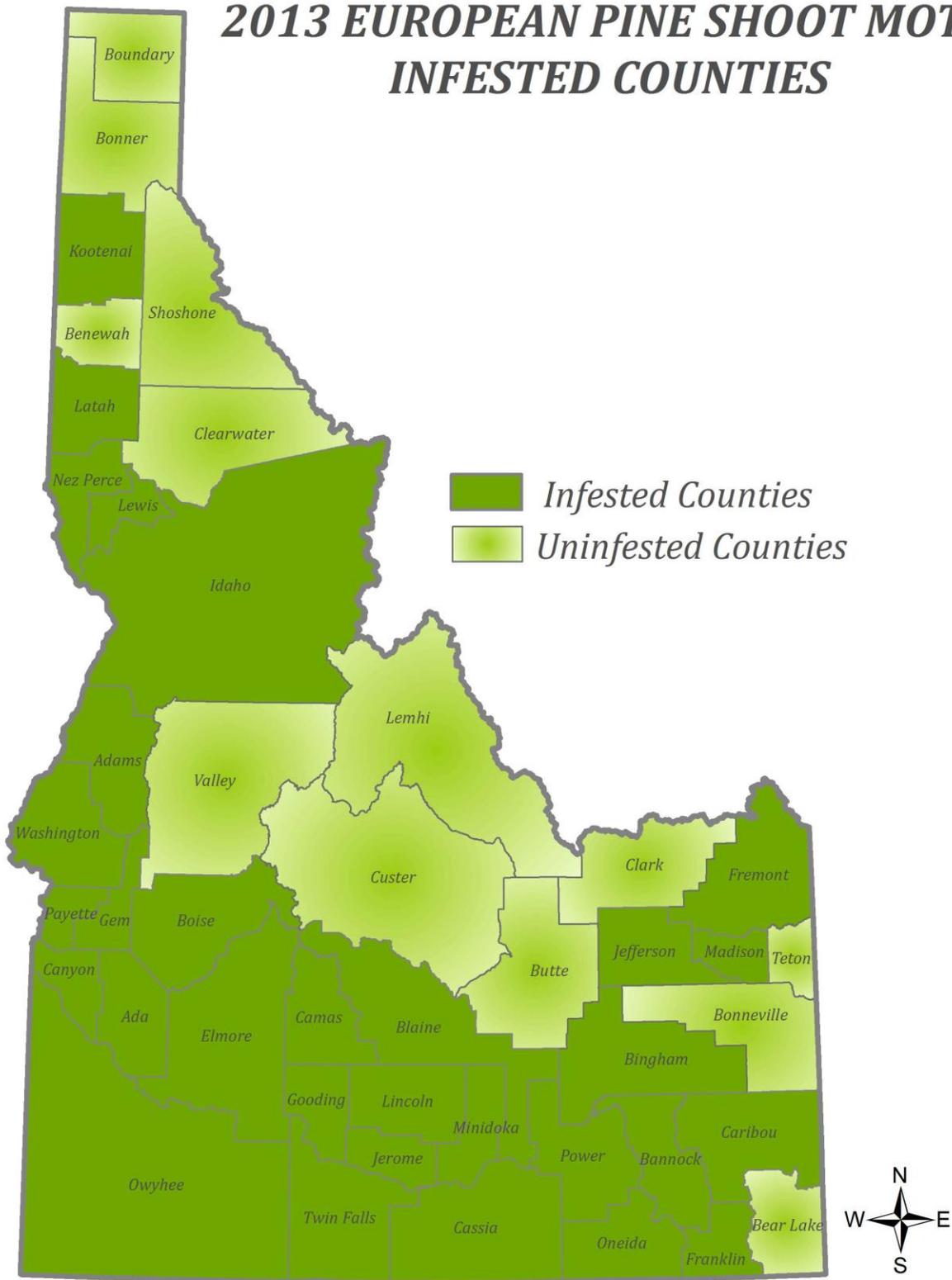
2013 ISDA Grape Commodity Survey



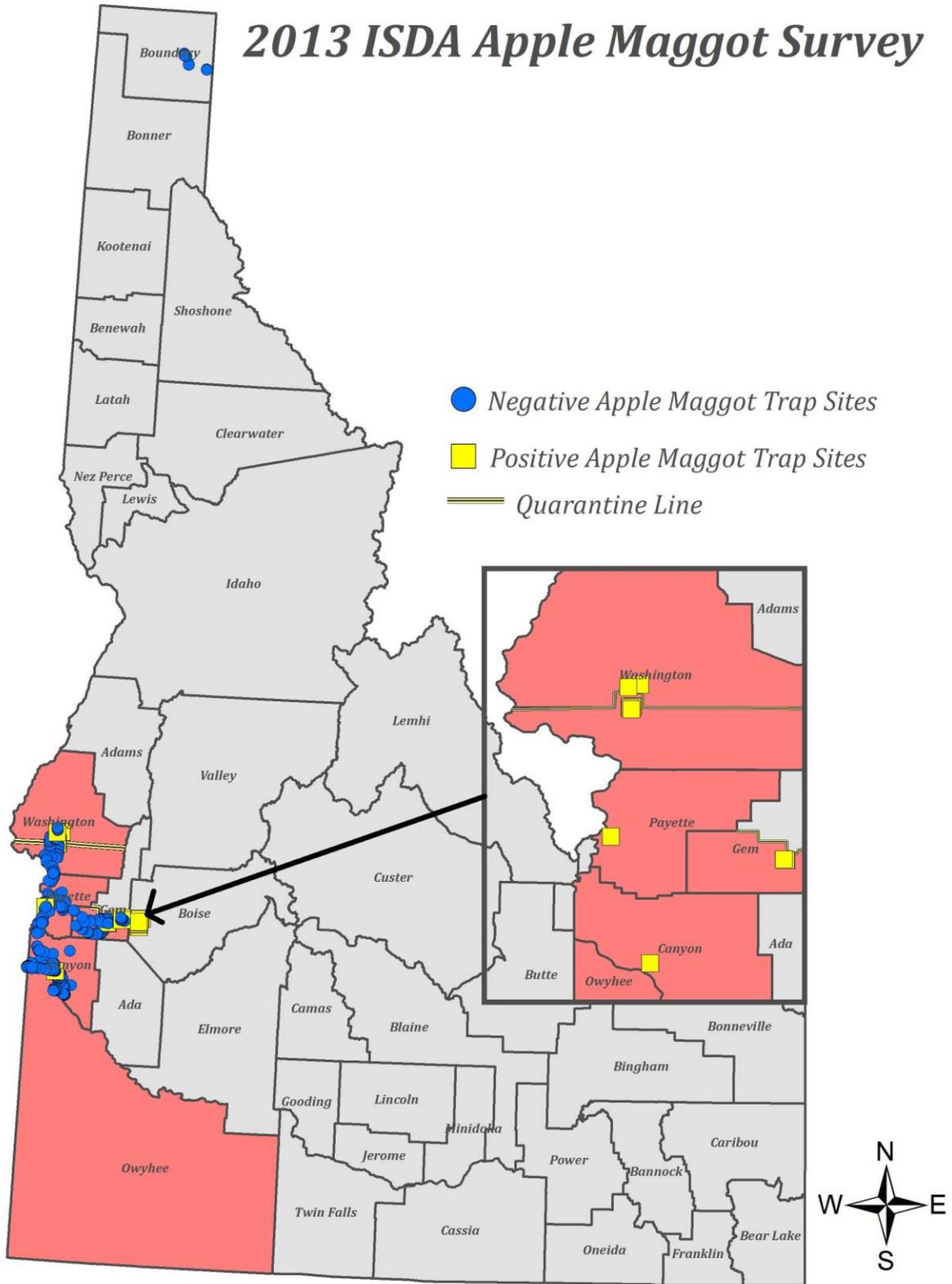
2013 ISDA Stone Fruit Commodity Survey



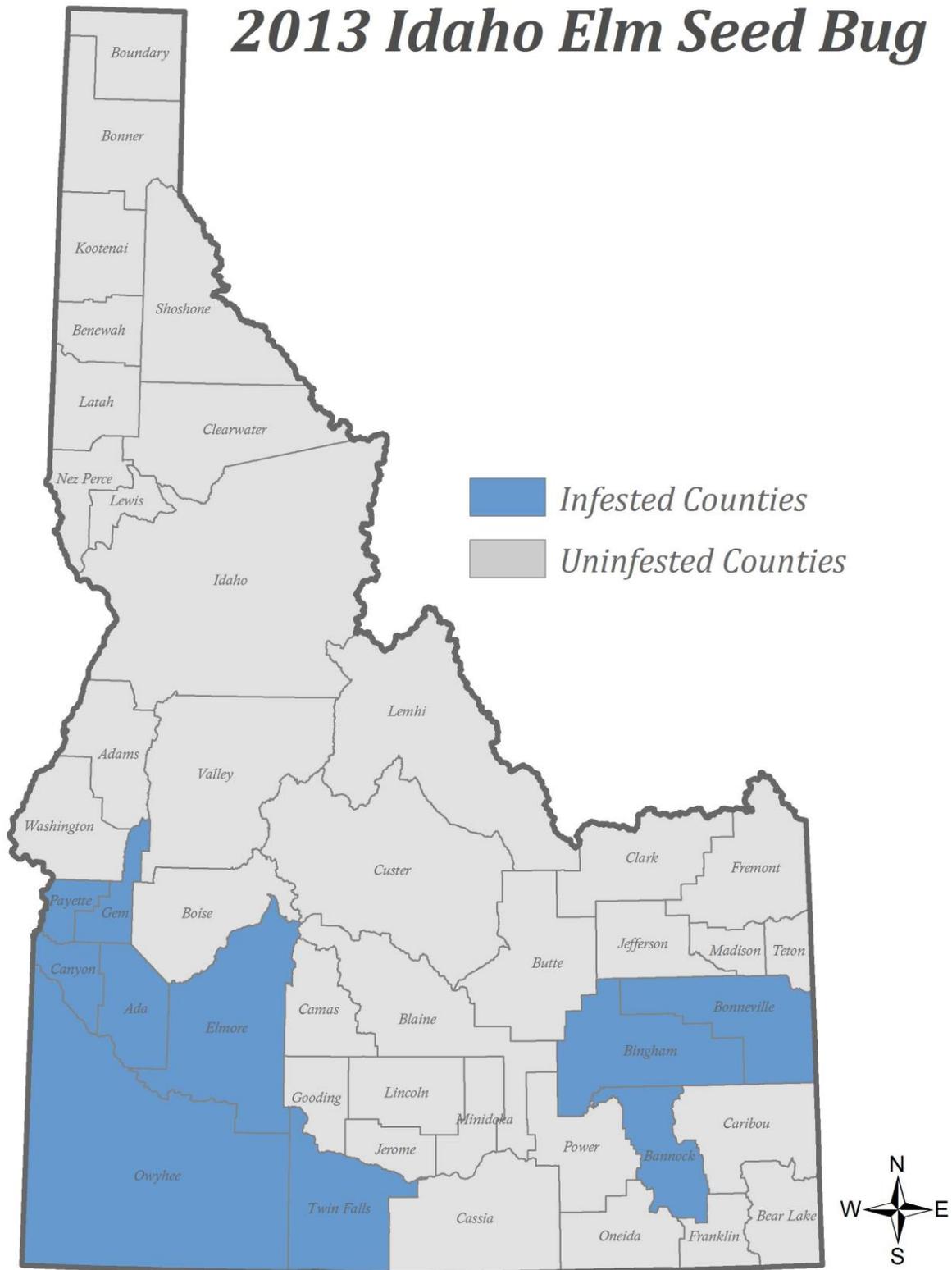
2013 EUROPEAN PINE SHOOT MOTH INFESTED COUNTIES



2013 ISDA Apple Maggot Survey



2013 Idaho Elm Seed Bug



PROGRAM CONTACTS:

Jared Stuart, Field Services Section Manager, 208-332-8620 Jared.Stuart@agri.idaho.gov
Darcy Heckathorne, Pest Survey Coordinator, 208-332-8620, Darcy.Heckathorne@agri.idaho.gov
Dan Safford, Program Specialist, 208-332-8592, Dan.Safford@agri.idaho.gov
Paul Castrovillo, Program Manager and Entomologist, 208-332-8620, Paul.Castrovillo@agri.idaho.gov
Liz Vavricka, Program Manager and Plant Pathologist, 208-332-8640, Liz.Vavricka@agri.idaho.gov
Matt Voile, Noxious Weeds Section Manager, 208-332-8528 Matt.Voile@agri.idaho.gov
Garry West, Program Manager, Twin Falls Office, 208-736-2195, Garry.West@agri.idaho.gov
Tom Woolf, Aquatic Program Manager, 208-332-8564 Thomas.Woolf@agri.idaho.gov

ISDA Website: www.agri.idaho.gov This report, as well as past years' summary reports, are available at the ISDA Website:

<http://www.agri.idaho.gov/Categories/PlantsInsects/RegulatedAndInvasiveInsects/Insectsformreports.php>