

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

**2010 INVASIVE SPECIES, PLANT PESTS, NOXIOUS WEEDS, PLANT LAB, NURSERY AND
FIELD INSPECTION PROGRAM SUMMARIES AND SURVEY RESULTS**

INTRODUCTION

The Division of Plant Industries derives its statutory authority from multiple sections of Idaho Code, Title 22, such as the Plant Pest Act, the Noxious Weed Law, the Nursery and Florist Law, and the Invasive Species Act. These laws give the Division clear responsibilities to conduct pest surveys, manage invasive species and plant pests to protect Idaho's \$4 billion agricultural industries including crops, nursery and ranching. The Division also cooperates with other agencies, such as Idaho Department of Lands (IDL), University of Idaho (UI), United States Forest Service (USFS), United States Department of Agriculture (USDA), Plant Protection and Quarantine (PPQ), Counties, Cooperative Weed Management Areas (CWMA), and industry groups to protect all of Idaho's landscapes and environments from invasive species threats. Finally, Plant Industries helps fulfill the broader mission of the Department 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 2010 to enforce Idaho Statutes and meet the broader mission of the Department.



APPLE MAGGOT (AM) (*Rhagoletis pomonella* Walsh) – ISDA established, by Administrative Rule, an AM-free regulated area containing the major apple productions of the state. Every year ISDA conducts an area-wide survey using yellow panel traps and ammonium carbonate dispenser for AM. In 2010, 411 traps were placed in six counties (Boise, Canyon, Gem, Owyhee, Payette and Washington) in commercial apple orchards and home landscape trees. **Again, this year, the major tree fruit production areas of Payette, Canyon and Owyhee counties were all negative for AM; building on a multi-year record of being AM-free.** ISDA trappers placed 103 yellow panel traps in Washington County in three host trees - apple, crabapple and

hawthorn. Higher density detection surveys targeted the Mann's Creek area and parts of the Weiser river watershed north of the town of Weiser. Ten positive traps were found in Washington County near the quarantine line. Of these sites, six were **outside** of the AM-free zone and four positive sites were recorded **just within** the AM-free zone. In Gem County ISDA trappers set out 79 yellow panel traps and out of those sites there were three positive locations within the AM-free control zone.

In 2005, ISDA started deploying the red AM attract and kill spheres that were provided by Dr. Starker Wright, United States Department of Agriculture (USDA), Agricultural Resources Services (ARS). For the last five years ISDA has been using the red AM attract and kills spheres as a prophylactic control measure, these traps are deployed at sentinel and positive sites in Washington County and a few in Gem County at two old positive sites. With using the red kill spheres, the number of positives has been reduced or eliminated.



The plans for 2011 are to continue with an area-wide detection survey. In Washington and Gem Counties ISDA will deploy more detection traps and add additional red AM attract and kill spheres around all positive locations. Species confirmations were made through genitalia dissections performed by the ISDA entomologist.

Apple Maggot Nine-Year Survey Data Summary, Washington County Area of Concern 2002-2010

Year	Total # sites	Total # traps	Total Positive Traps	% positive traps
2002	28	46	4	8.6
2003	61	121	10	8.3
2004	60	123	3	2.4
2005	59	108	8	7.4
2006	59	102	4	3.9
2007	62	104	4	3.8
2008	60	99	1	1.0
2009	68	103	9	8.7
2010	66	103	10	10



WESTERN CHERRY FRUIT FLY (CFF) (*Rhagoletis indifferens* Curran) - ISDA conducts a trapping program to detect first emergence and tracks degree-day accumulation calculations for CFF. The California Department of Food and Agriculture (CDFA) require this for compliance with their Western Cherry Fruit Fly Quarantine for states wishing to export fresh sweet cherries into or through California. The cherry import permits for all NW states were reviewed and efforts to streamline the permitting process continues. Fruit flies were first caught in yellow panel traps at a site near the Sunnyslope area of Canyon Co. on June 23, 2010 and at a site in Gem County on June 16, 2010. A degree-day model was also used to forecast adult emergence. The dates that the 1060 degree-day treat threshold accumulation were met or exceeded over the past few years is summarized in the table below. Cherry fruit fly spray alert letters were sent out to all Idaho cherry growers in cooperation with the Idaho Cherry Commission. Electronic notification was sent out with cooperation from University of Idaho, Extension Service via the NW Pest Alert Network Web Site. The degree-day calculations are made from the Oregon State University, Department of Entomology degree-day computer model. Control applications are recommended on, or prior to 1060 degree-day accumulations according to the publication, "Orchard Pest Management" as published by the Good Fruit Grower, Yakima, WA 1993.

Western Cherry Fruit Fly Degree Day Accumulations 2005 - 2010

Site	2010 Forecast 1 st Treatment Recommended 1060 degree-day	2009	2008	2007	2006	2005
Boise	June 10	June 3	June 17	June 1	June 4	May 26
Caldwell	June 10	June 6	June 16	June 3	June 1	May 27
Emmett	Not available	Not available	Not available	June 6	June 11	May 30
Nampa	June 10	June 4	June 16	June 3	June 5	May 26
Ontario	June 9	May 31	June 13	May 24	May 31	June 1
Payette	Not available	Not available	Not available	May 31	May 31	May 20
Parma	June 9	June 1	June 14	June 1	June 3	May 23



SPOTTED WING DROSOPHILA (SWD) (*Drosophila suzukii*) – The Spotted wing Drosophila is a pest of soft fruit, native to Southeast Asia; it is also established in Hawaii and Spain. It was found in California starting in 2008, and in 2009 was found in Washington, Oregon, Florida, and British Columbia. In August 2010, it was found in Utah. This fly is of concern because unlike most of its family members, which only attack overripe or decaying fruit, it will attack ripe, healthy fruit. Fruit targeted by this pest are strawberry, raspberry, blueberry, plum, peach, cherry, and grape. ISDA staff placed six clear cup traps baited with vinegar, around two of Idaho’s largest fruit production areas in Canyon County. The survey ran from

July to September. **No SWD were detected.** ISDA also collected fruit samples that came in from Oregon to local fruit stands and grocery stores. These samples were brought into the Idaho State Seed Lab and placed in an incubator set at 77 °F. The average rearing duration was eight days. The fruit samples brought into the lab were mainly blackberries, raspberries and blueberries.



EUROPEAN PINE SHOOT MOTH (EPSM) (*Rhyacionia bouliana* Denis & Schiffmuller) - This survey is performed to track EPSM’s movement within the state for compliance with California and Montana quarantines. ISDA staff placed 177 EPSM traps in nurseries and pine tree plantations spread over 12 counties. **No new confirmed infested counties were reported this year** Recent mild winters and urbanization have contributed to increased EPSM trap densities over recent seasons, especially in Austrian pine nurseries. Idaho pine tree growers are experiencing increased EPSM pest pressure. Finding effective control regimes and complying with Montana and California EPSM

quarantines, continue to challenge this segment of the Idaho nursery industry. A map showing Idaho counties found positive for EPSM is located on page 45.



GYPSY MOTH (GM) (*Lymantria dispar* (Linnaeus)) – Report provided by Neal Kittelson Idaho State Department of Lands, Coeur d’Alene, Idaho, 208-666-8626

ABSTRACT

In 2010, one gypsy moth was captured in Idaho. This moth was determined by the OTIS Methods Development Lab (OTIS) to be of the European/North American strain (EGM). This one moth was caught in southwest Idaho, in Meridian, Ada County (Figure 1, page 9). Delimitation trapping was conducted at two locations in southern Idaho this season and at one location in northern Idaho. In southern Idaho, the first delimitation trapping was surrounding the 2009 capture site of one male EGM in Rexburg, in Madison County (Figure 2, page 10), the second location was surrounding the 2008 capture site of two male EGM in Meridian, in Ada County (Figure 3, page 11), In northern Idaho, the delimiting survey was surrounding the 2008 capture site of one male EGM in Hayden, in Kootenai County (Figure 3, page 11).

INTRODUCTION

The gypsy moth is a destructive defoliator of forest and shade trees as well as some conifers. Since introduction of the European gypsy moth (EGM) into the United States in 1869, it has spread throughout New England and has become permanently established in all or part of 19 Northeast and Midwest states. Once a pest becomes established, eradication is usually not possible, and this has been the case for the European Gypsy Moth. The Asian gypsy moth (AGM) was first discovered in North America in 1991 near the port of Vancouver in British Columbia, Canada. Since that time, AGM have been discovered and eradicated in California, Idaho, North Carolina, Oregon, Texas, and Washington State. Generally, AGM are introduced by ships moving cargo from overseas, whereas EGM are most often introduced to the west by people moving household items from generally infested areas of the United States. The State of Idaho has eradicated all introductions of both EGM and AGM. As a result, Idaho has no established infestations of gypsy moths. It is the purpose of the Idaho Gypsy Moth Survey Program to detect new introductions of gypsy moths in a timely manner, before they become large enough to require extensive treatment for eradication.

Delimitation and eradication can then be achieved with the least expense and least risk of environmental impact.

LIFE CYCLE

The gypsy moth goes through four life stages: egg, caterpillar (larva), pupa and adult moth. It has one generation per year and overwinters in the egg stage. Each female lays 50-1,000 eggs in one mass which is covered with velvety golden, or buff-colored hairs from the female's abdomen. The egg mass is about ¾ inch wide and 1- 1 ½ inches long and is attached to trees, logs, rocks, buildings, sandbox toys, and on outdoor household articles.

Caterpillars hatch from eggs in mid-April to mid-June. This is the only damaging stage. A single caterpillar can eat up to three square feet of leaves in its lifetime. The caterpillars are voracious feeders and can grow to 2" in length. Larger (older) caterpillars have five pairs of blue spots and six pairs of rusty red spots along their backs. They typically feed in the treetops at night but migrate down the trunk to the ground each day as protection from the heat and birds. Once a caterpillar matures, it transforms into a non-feeding stage called the pupa. The pupa is an immobile stage during which the caterpillar changes into an adult moth. Pupae may gyrate if they are disturbed, but left alone they will appear still as the change occurs. They are dark reddish brown and leathery. A mature caterpillar may produce a flimsy "cocoon" with strands of silk which is used to attach themselves as a pupa to vertical surfaces. They are usually found in crevices on tree trunks or on larger branches. Pupae may also be found buried in leaf litter.

Adult moths emerge in late July and could be present until early October, depending upon location. Females have tan bodies from 1" to 2" long. Their wings are cream-colored with dark brown zigzag markings. They are heavy and do not fly. Instead, females emit a scent (pheromone) to attract a mate. Scientists have been able to produce this pheromone synthetically and use it to trap male moths. Males are medium sized (approx 1½ inch wingspan), brownish gray, have feathery antennae and fly in the late afternoon. Adult moths live for about one week, during which time the sexes mate. Females lay eggs during August and early September, starting the life cycle over again.

HOSTS

The gypsy moth caterpillar generally prefer oaks as hosts; however, they have the ability to feed on several hundred species of trees and shrubs. Preferred broadleaf hosts include: oak, apple, alder, aspen, filbert, willow, birch and plum. Coniferous species, such as Douglas-fir and western hemlock, are suitable hosts as well.

HISTORY

Surveys to detect the introduction of the gypsy moth, *Lymantria dispar L.*, have been conducted in Idaho each year since 1974 (Table 1, page 5). The first gypsy moth was discovered in 1986 at Sandpoint in Bonner County. The following year, numerous additional moths were caught in Sandpoint and Coeur d'Alene. Ground treatments were conducted in 1988 and aggressive aerial spray eradication programs followed in 1989 and 1990 using a naturally occurring bacterium, *Bacillus thuringiensis var. kurstaki (B.t.k.)* as the pesticide (Tisdale and Livingston 1990, Livingston 1990). No gypsy moths have been caught in the treated areas since 1989. Another small infestation (5 moths) was detected near Huetter, ID (in between Coeur d' Alene and Post Falls) in 1998. An eradication program was initiated in 1999 consisting of an aerial application of B.t.k to 35 acres surrounding the capture site. No moths were caught in detection or delimit traps in this area in subsequent years. In 2004, a gypsy moth determined to be of the Asian variety (AGM) was caught near Hauser, Idaho (Lech and Livingston 2004). A 600 acre aerial spray eradication program in Kootenai County, near Hauser, was conducted in 2005 using *B.t.k.*. Gypsy moths have been caught in various areas throughout the state in the annual detection surveys from 1986 through 2010 (Table 1, page 5), however, no eradication programs have occurred since 2004.

Cooperating agencies, with accompanying responsibilities in the Idaho gypsy moth program, include the following:

- Idaho Department of Lands - Overall program coordination and trapping in northern Idaho, except in Forest Service campgrounds.
- Idaho Department of Agriculture - Trapping in southwestern Idaho and submission of data to the National Agricultural Pest Information System (NAPIS) data library.
- USDA, APHIS - Provides cost share funding, traps, baits and technical expertise.
- USDA Forest Service, Region 4 - Trapping in southeastern Idaho.
- USDA Forest Service, Region 1 - Trapping in Forest Service campgrounds in northern Idaho.
- Idaho Department of Transportation – Provides monthly reports of vehicle registrations in Idaho from states that are generally infested with gypsy moths.
- University of Idaho, Moscow – Technical assistance.

Table 1 - Gypsy moth trapping history in Idaho.

YEAR	NUMBER OF TRAPS SET				NUMBER OF MOTHS CAUGHT ⁶				#POS. TRAPS	ACRES TREATED
	DET. ²	DEL. ³	MASS ⁴	TOTAL	DET. ²	DEL. ³	MASS ⁴	TOTAL		
1974 ¹										
1975	45			45						
1976	254			254						
1977	232			232						
1978	248			248						
1979 ¹										
1980	121			121						
1981	95			95						
1982	35			35						
1983 ¹										
1984 ¹										
1985 ¹										
1986	208			208	1			1	1	
1987	420			420	35			35	9	
1988	1558	1457		3015	8	414		422	210	5 <i>B.t.k.</i>
1989	2248		7303	9551	17		51	68	54	380 <i>B.t.k.</i>
1990	5640	358	3268	9266	4	2		6	3	1055 <i>B.t.k.</i>
1991 ⁵	4641	121		4762	4			4	4	
1992	4823	130		4953	2	1		3	3	
1993	4314	115		4429	2			2	1	
1994	4239	96		4335	1	2		3	3	
1995	4522	136		4658	1			1	1	
1996	4290	117		4407						
1997	5085	20		5105						
1998	4904			4904	7			7	3	
1999	4837	155	90	5082						35 <i>B.t.k.</i>
2000	5398	36		5434						
2001	5346			5346	2			2	2	
2002	5024	35		5059						
2003	5582	35		5617						
2004	5875			5875	1 <i>AGM</i>			1	1 <i>AGM</i>	
2005	4989	1441		6430	1			1	1	600 <i>B.t.k.</i>
2006	5380	1473		6853						
2007	4882	1475		6357	2			2	2	
2008	4157	69		4226	3			3	3	
2009	4972	419		5391	1			1	1	
2010	4373	380		4753	1			1	1	

¹Trapping did occur in Idaho in these years, and no moths were found. However, records are not complete as to the exact number of traps placed.

²Detection.

³Delimitation.

⁴Mass trapping for control at approximately 9 traps/acre.

⁵Number of traps set in 1991 revised after receipt of final data.

⁶All moths captured in Idaho have been of the European variety, except as noted in 2004.

Table 2 – Total number of gypsy moth traps placed, by agency, in Idaho in 2010.

AGENCY	DETECTION TRAPS	DELIMIT TRAPS	MASS TRAPS	TOTAL TRAPS
Idaho Dept. of Lands	2160	49	0	2209
Idaho Dept. of Agriculture	1738	297	0	2035
USFS - Region 4	391	34	0	425
USFS - Region 1	84	0	0	84
TOTALS	4373	380	0	4753

2010 European Gypsy Moth Program

EGM SURVEY:

Detection Trapping - In 2010, the cooperating agencies in the Idaho gypsy moth detection program placed 4,373 detection traps throughout the state (Table 2). Trapping costs for the 2010 gypsy moth survey program in Idaho are shown in Table 3 (page 7). Table 4 (page 7) shows trap placements by county. Pheromone-baited traps were placed on a grid basis at a density of approximately 2-4 traps per square mile. Traps were placed throughout the state in cities, towns, surrounding urban areas and rural communities in accordance with a pre-determined rotation schedule. Cities and communities where 20 or more move-ins occurred were trapped irrespective of their place in the schedule. A move-in is defined as an individual or family moving to Idaho from a state that is generally infested with gypsy moths. This information is derived from vehicle registration information supplied on a monthly basis by the Idaho Department of Transportation. Most infestations are initiated when an egg mass or other life stage of the gypsy moth arrives on an outdoor household article brought by someone moving into the area. Between May 2009 and April 2010, there were 5,746 move-ins to the state; a 27% decrease over the previous year. Campgrounds, tourist attractions, and other high-risk locations were also trapped. One gypsy moth was captured in detection traps in 2010 in Meridian, Ada County. This moth was determined by the OTIS Methods Development Lab (OTIS) to be of the European/North American strain (EGM).

At the Idaho Gypsy Moth Technical Advisory Committee (TAC) meeting in February, 2010, a continuing effort to optimize survey methods while maintaining an effective detection program was discussed. In the past couple of years, several tools for optimizing the survey have been developed and implemented. A trap reduction tool was developed and implemented in 2007. This trap density reduction process was accomplished by utilizing a GIS scripting tool designed by Elizabeth Delmelle, GIS Analyst, Sr., and Gretchen Lech, former IDL Gypsy Moth Program Coordinator. The Idaho Gypsy Moth “Move-in” database had major upgrades in 2009. The database now holds addresses and geocoded locations of people moving in from gypsy moth-infested states. We can now map move-ins using ArcGIS. The Idaho Gypsy Moth Hazard/Risk map, an ongoing project, was started 2007 and implemented in 2009. This model includes a hazard map, produced using BioSim and utilizing historic weather data from across Idaho. The hazard map shows the probability of establishment, if gypsy moth is introduced. The model also includes a risk map, which was developed using available GIS layers including: vegetation (hosts), roads, highways and railroads (GM entrance pathways), lakes and rivers (tourism and vacation areas) and cities (based on population). These layers were chosen based on the fact that they all affect the introduction rate of gypsy moth to Idaho. All of the layers were combined to give us an all risk model for Idaho. The Hazard/Risk Map will continue to be updated as new and updated data/layers become available. The combination of the above tools allow for analysis of a the trap zones to determine if changes (additional traps or reductions) to trap zones are necessary. These tools also allow for improved placement if additions are needed.

Delimitation Trapping – Delimitation trapping for European gypsy moths was conducted at three locations in 2010; one in northern Idaho and two in southern Idaho. The first year of delimitation trapping was conducted surrounding the 2009 capture of one male EGM in Rexburg, Madison County, Idaho. The Rexburg delimit consisted of 34 traps; no moths were caught in 2010. The second year of delimiting was conducted surrounding the 2008 capture site of one male EGM in Hayden, Idaho. The Hayden survey consisted of 49 traps, and no moths were captured in 2010. The second year of delimiting was also conducted surrounding the 2008 capture sites of two male EGMs in Meridian, Idaho. The Meridian delimit was expanded to 303 traps, due to the large amount of “move-ins” in 2008. One male EGM was caught within the 2008 Meridian delimit in 2010. The one moth was caught at the edge of the 2008 delimit, in the expanded part of the delimit zone. This capture is being considered a new introduction because it was caught on the edge of the larger-than- required zone and because of the decrease in move-ins, so the 2008

delimit zone is going to be discontinued and a new delimit zone will be established surrounding the 2010 capture site.

Mass Trapping – No mass trapping for EGM was conducted in Idaho in 2010.

2010 AGM PROGRAM

The relative risk of introduction of the Asian gypsy moth continues to increase. The capture of one male AGM in Idaho in 2004 is an indication that other routes, besides ports, need increased vigilance. Detection trapping will be adjusted, as necessary, based upon relative risk of AGM introductions.

AGM ERADICATION:

Aerial Spray- No eradication projects were conducted in Idaho during the 2010 season.

AGM SURVEY:

Delimitation Trapping –The final year of the delimitation trapping surround the AGM capture site near Hauser Lake, Idaho was 2007 and the infestation in this area has been declared eradicated. There were no delimit surveys for AGM in 2010 and none are planned for 2011.

2011 PROGRAM

Eradication - No eradications are proposed for the 2011 season.

Delimitation Trapping – Delimitation trapping will be conducted at two locations in 2011. The first is surrounding the 2009 capture site of one male EGM in Rexburg (second year). A new delimit survey will be conducted in Meridian following the capture of one male EGM there in 2010. The trap density will be between 16 and 36 traps/ mi² at each location.

Table 3 – Estimated costs of the 2010 gypsy moth survey and treatment program.

AGENCY	COST	
	European GM	Asian GM
State Funds to Idaho Department of Lands and Idaho State Department of Agriculture	\$77,000	
USDA – APHIS Cooperative Grant to ISDA and IDL	\$22,500	
US Forest Service- Region 1	\$3,000	
US Forest Service- Region 4	\$15,000	
USDA- APHIS Direct Costs for traps, baits and travel	\$3,000	
Total	\$120,500	
GRAND TOTAL	\$120,500	

Table 4 - 2010 Trap placements by county

County Name	No.	DETECTION 2-4/MILE ²	DELIMITATION 16 -36/MILE ²	MASS 9/ACRE	TOTAL TRAPS
Ada	1	374	297		671
Adams	2	40			40
Bannock	3	103			103
Bear Lake	4	4			4
Benewah	5	121			121
Bingham	6	28			28
Blaine	7	168			168

County Name	No.	DETECTION 2-4/MILE²	DELIMITATION 16 -36/MILE²	MASS 9/ACRE	TOTAL TRAPS
Boise	8	50			50
Bonner	9	533			533
Bonneville	10	102			102
Boundary	11	198			198
Camas	12	4			4
Canyon	13	212			212
Caribou	14	10			10
Cassia	15	19			19
Clark	16	2			2
Clearwater	17	201			201
Custer	18	18			18
Elmore	19	103			103
Franklin	20	8			8
Fremont	21	19			19
Gem	22	62			62
Gooding	23	16			16
Idaho	24	247			247
Jefferson	25	6			6
Jerome	26	42			42
Kootenai	27	685	49		734
Latah	28	35			35
Lemhi	29	20			20
Lewis	30	7			7
Lincoln	31	4			4
Madison	32	15	34		49
Minidoka	33	12			12
Nez Perce	34	63			63
Owyhee	35	68			68
Payette	36	51			51
Power	37	13			13
Shoshone	38	88			88
Teton	39	8			8
Twin Falls	40	244			244
Valley	41	235			235
Washington	42	53			53
Totals		4291	380	0	4671

Figure 1: State of Idaho 2010 Gypsy Moth Capture Sites

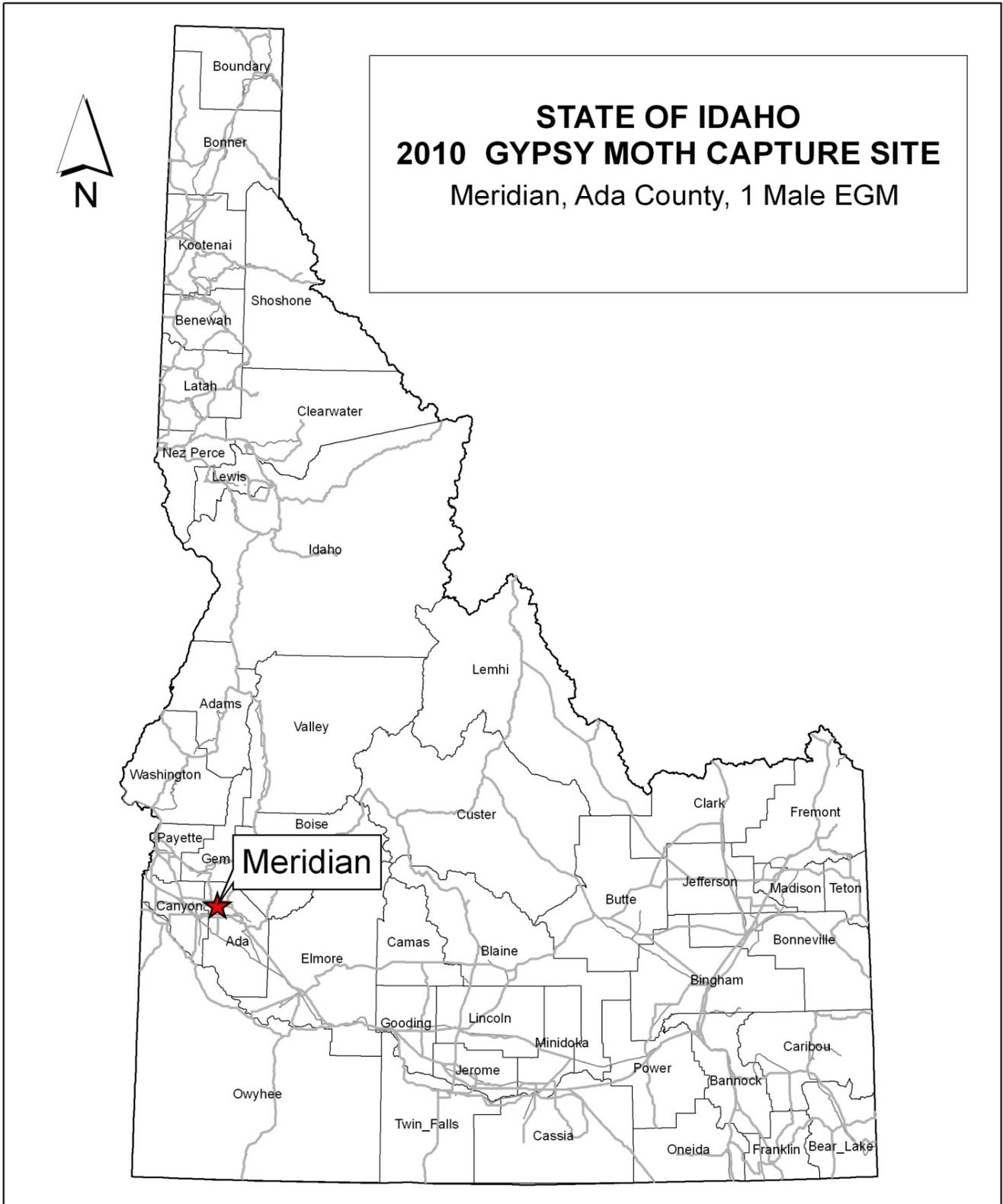


Figure 2: State of Idaho 2009 Gypsy Moth Capture Sites

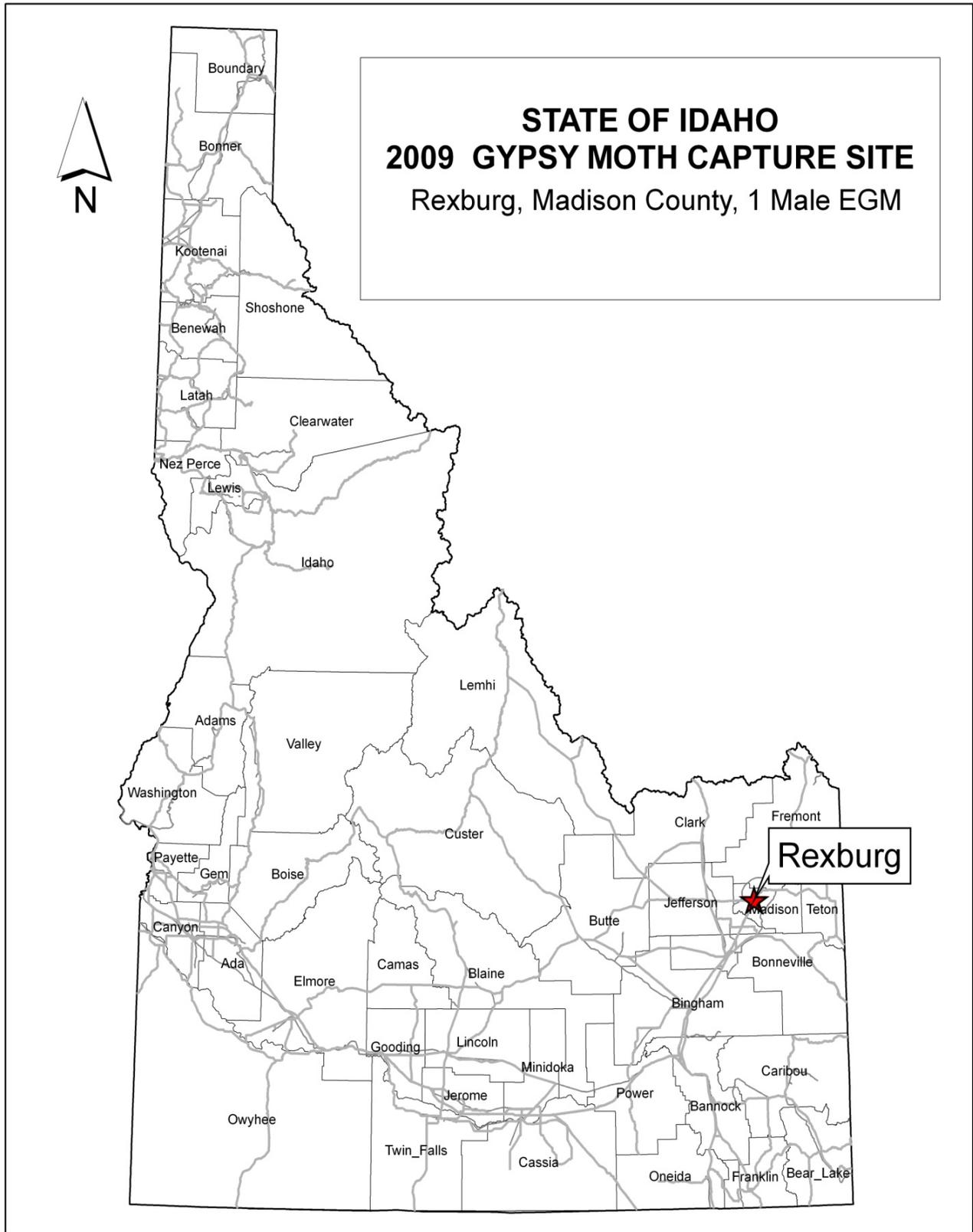
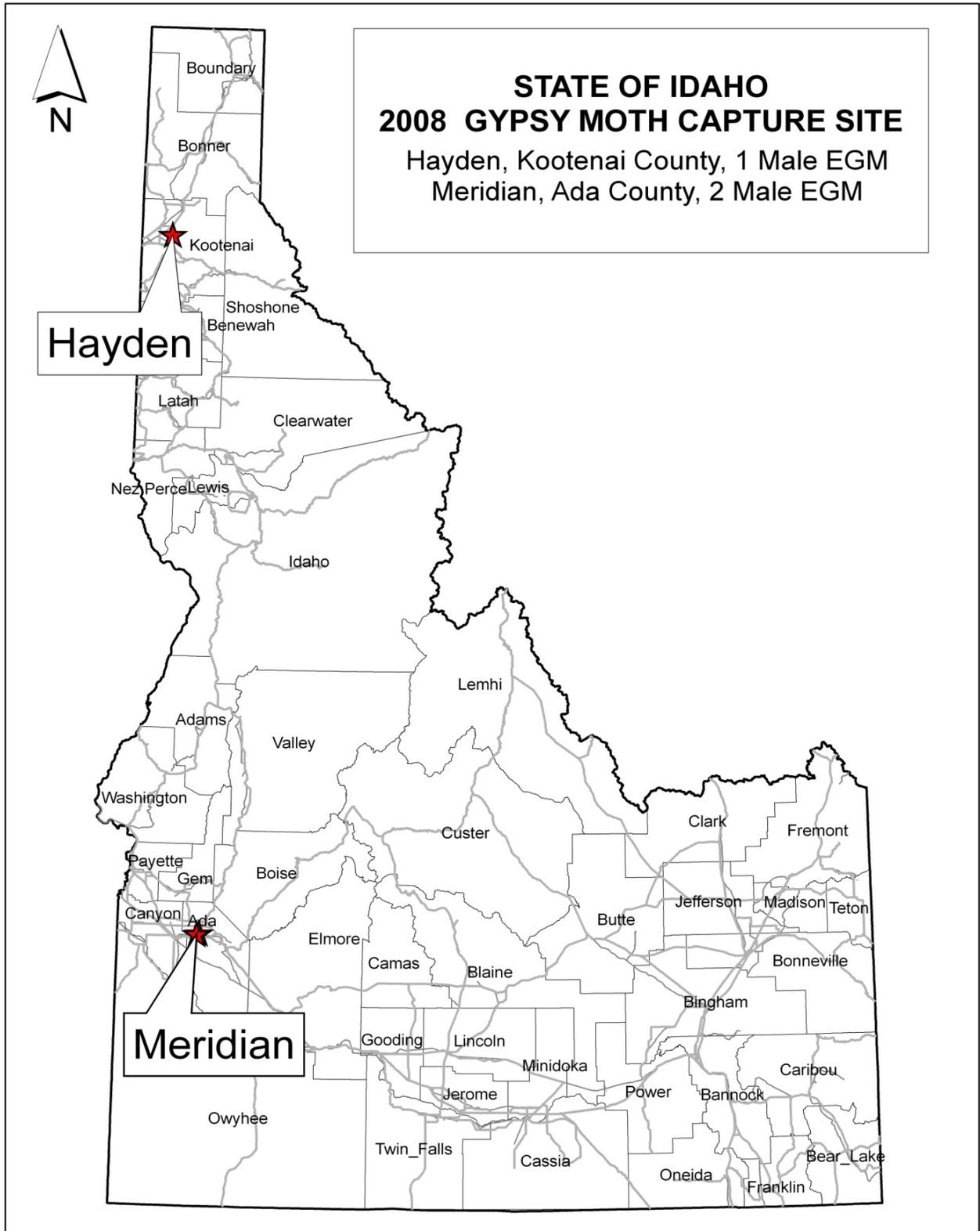


Figure 3: State of Idaho 2008 Gypsy Moth Capture Site





JAPANESE BEETLE (JB) (*Popillia japonica* Newman) – JB quarantines are maintained and vigorously enforced by California, Idaho, Oregon, Utah and Washington. This beetle and its larval form are known to infest over 400 horticultural and ornamental plants, including sod. Establishment of the beetle in Idaho could seriously affect exports to the above-listed states and British Columbia. The beetle is known to infest most states east of the Mississippi River. Eastern Idaho is at increased risk for a possible JB infestation, due to the amount of nursery stock coming in from infested eastern states. In Idaho, 319 traps were placed in 44 counties in 2010. This is a statewide survey of nurseries, turf farms and urban landscape sites in high risk areas. This annual survey started in 1992 and has been ongoing for the past 18 years, averaging 200 traps per season. This was the highest trap year in the history of ISDA surveys. **No JB were captured in 2010 or in the previous ten years.** Visual

inspections of nursery premises are also performed. **All traps and visual inspections were found negative.** Both the Boise Airport and Mountain Home Air Force Base are also trapped annually because of the concern of beetles being transported in passenger, cargo and military aircraft originating from JB infested states. These traps were all negative. A shipment of container roses was shipped to Idaho from an Oklahoma nursery, a state known to be JB infested. To verify that the shipment was in compliance with the ISDA JB quarantine, residue samples of the potting soil were tested for the insecticide listed on the phytosanitary certificate. The soil residue tests came back positive for bifenthrin residues confirming that the required shipment protocol was followed. A JB trap distribution map for the state is located on page 43.



EMERALD ASH BORER SURVEY (EAB) (*Agrilus planipennis*) - The emerald ash borer was first identified in North America in southeastern Michigan in 2002. Larvae of this beetle feed in the tissues under the bark of ash trees (*Fraxinus* spp.), causing the girdling and death of branches and entire trees. Adults of the species are active from mid-May until September. Since its discovery in Michigan, the beetle has been detected in Ohio, Maryland, Virginia, Indiana, Illinois, West Virginia, Pennsylvania, Wisconsin, Missouri, Minnesota, Kentucky, and New York in U. S. and Ontario, Quebec in Canada.

PPQ installed and monitored a total of 105 Emerald Ash Borer traps at 33 sites across Idaho. Sites included ports of entry, parks, cemeteries, transportation corridors and campgrounds. In an exotic wood boring beetle survey, PPQ placed 70 Lindgren funnel traps at 34 sites across Idaho. Sites included ports of entry, campgrounds, parks, forest product manufacturers and pallet recycling facilities. Traps were serviced biweekly throughout the summer and a total of 788 beetles were submitted to the Oregon Department of Agriculture for identification. Of those, three specimens were identified as new state records for native beetles: *Carphoborus intermedius* (Wood), *Tremex columba* (Linnaeus) and *Ips hunteri* (Swaine). ISDA and USDA investigated alleged infestations of Emerald ash borer in the Treasure Valley. These infestations were identified later as Lilac/Ash borer (*Podosesia syringae*) which is a native species for this area.



POTATO TUBERWORM SURVEY (PTW) (*Phthorimaea operculella* Zeller) - The results of the recent surveys are provided in the table below. The highest number of male PTW captured was 19 in 2005. In 2006 and 2007, the PTW numbers dropped off to a statewide total of six and five respectively. Since the large scale detection surveys revealed extremely low populations of the pest, ISDA scaled back the survey in 2008 to potato fields within a five-mile radius of the 2007 positive trap locations. No PTW moths were captured in the 2008 survey, which ran from July 14 to October 30. In 2009, ISDA set PTW traps at 10 sites on, or in close proximity to the University of

Idaho, Parma Experiment Station, five adult male PTW were captured. For 2010, ISDA placed traps at 10 sites around the University of Idaho, Parma Experiment Station, where six adult male PTW were captured. No reports of tuber damage have been reported during the six-year adult survey.

Year	Detection Traps (Potato Production Counties)	Total Male PTW Captured	Counties with Positives
2005	461	19	Canyon, Payette, Elmore
2006	468	6	Canyon
2007	491	5	Canyon, Owyhee
2008	54 (Canyon Owyhee)	0	none
2009	10 (Parma, ID)	5	Canyon
2010	10 (Parma, ID)	6	Canyon



LIGHT BROWN APPLE MOTH (LBAM) (*Epiphyas postvittana*) - The exotic tortricid, LBAM, has been detected in several counties in California. USDA, Plant Protection and Quarantine (PPQ) has elevated this pest to a national priority status, funding surveys in most states. Larvae of this species have a plant host range in excess of 150 plant genera in over 70 families. Potential hosts in Idaho include: nursery stock, cut flowers, stone fruit (peaches, plums, nectarines, cherries and apricots), pome fruit (apples and pears), and grapes.

Information from regions where LBAM is reported (England, New Zealand, Australia) was analyzed by USDA, PPQ. LBAM has only been reported in USDA Plant Hardiness zones 7 and above. In Idaho, areas of the Treasure Valley and around Lewiston, ID are classified as zone 7. A total of 409 traps were deployed in 14 counties. Of those counties, 59 traps were placed in vineyard sites and 350 traps placed in retail nurseries and other urban landscape sites. Jackson traps with LBAM pheromone lures provided by the Otis Lab, USDA PPQ, Cape Cod, Massachusetts were used in the survey. The average trapping period was 97 days. **No LBAM were detected in this survey.**



EUROPEAN GRAPEVINE MOTH SURVEY IN IDAHO VINEYARDS (EGVM) (*Lobesia botrana*) - The first North American record for EGM, *Lobesia botrana*, was reported from a vineyard near Oakville, Napa County, California, in October 2009. This tortricid has a host range that includes grapes, olives, blackberries, cherries, nectarines, persimmons and pomegranates. It is a serious multivoltine pest of grapes feeding on the flowers and fruit. As part of this season's exotic grape insect survey, 59 traps in eight counties were deployed for this species. ISDA used red plastic delta traps baited with pheromone lures provided by the OTIS Lab, USDA

PPQ, Cape Cod, Massachusetts. The average trapping period was 103 days. **No target species were detected.** Also, no conspicuous indigenous non-target species appeared to be attracted to the EGM pheromone.



EUROPEAN GRAPE BERRY MOTH SURVEY IN IDAHO VINEYARDS (EGBM) (*Eupoecilia ambiguella*) EGBM is an insect pest of Grapes. This pest is found throughout Europe and parts of Asia. Due to its large range in similar climates, EGBM may be able to become established in a large part of the United States. The larva feed on various shrubs including alder buckthorn, dogwood, honeysuckle, and ivy, consuming the berries. This year the EGBM was part of ISDA's exotic grape survey, where 59 traps in eight counties were deployed. ISDA used white plastic Pherocon VI traps baited with pheromone lures provided by the OTIS Lab, USDA PPQ, Cape Cod, Massachusetts. The average trapping period was 103 days. **No target species were detected.**





VINE MEALYBUG (VMB) (*Planococcus ficus*) SURVEY IN IDAHO VINEYARDS - VMB is an invasive species recently established in several California grape producing areas and is established as far north as Napa and Sonoma Counties. Both wine and table grape plantings were surveyed for VMB. A total of 60 vineyards were selected in eight Idaho counties. The survey utilized green delta traps baited with synthetic female pheromone for the VMB provided by Dr. Jocelyn Millar, Entomology Department, University of California, Riverside. The trapping duration for the VMB males averaged 103 days. **No VMB males were captured at any of the vineyard sites, nor were any infestations of VMB found in the grape plantings.**



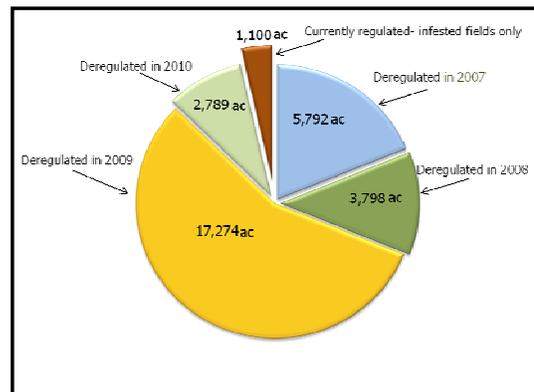
AFRICAN BLACK BEETLE/BLACK MAIZE BEETLE SURVEY IN IDAHO VINEYARDS (ABB/BMB) (*Heteronychus arator*) – The African black beetle also known as the black maize beetle is a poliphagous, univoltine pest of pasturelands, turf, and agricultural crops in Australia, New Zealand, and Africa. These scarab beetles spend their entire lifecycle belowground, with the exception of the adult stage. The adult is the main pest stage, it is the only stage that comes aboveground and is capable of flight. The beetles are of considerable economic importance because they attack a wide range of plants like pastures, particularly newly-sown ryegrass and perennial grasses, millets, corn, grape vines, ornamental plants, and newly planted trees. Impact on a newly planted grapevine and eucalyptus seedling can be severe in patches within a vineyard or plantation, leading to areas of total loss amongst the plant stands. This year ISDA seasonal staff did a visual survey in vineyards around Ada, Canyon, Elmore, Gem, Owyhee, Payette, and Twin Falls counties. **No target species were detected.**



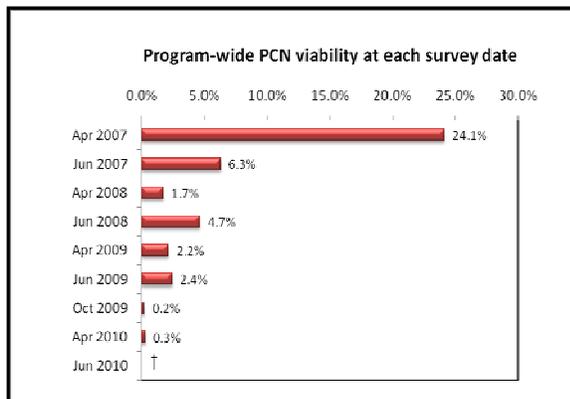
POTATO CYST NEMATODE (PCN) (*Globodera pallida*) – PCN is a pest of both state and national regulatory concern. PCN infestations are currently limited to nine fields near Shelley, Idaho, covering an area of 1,100 acres. The final Federal quarantine rule for PCN in Idaho was published in April of 2009. Parallel ISDA rules are still in effect. USDA and ISDA continue a cooperative multi-faceted eradication effort in the regulated area. Cooperative Agreements between ISDA and impacted growers, for the management of the PCN, are in place and functioning. Since the initial detection of PCN in April of 2006, more than 301,764 soil samples have been collected and 275,042 analyzed to support Idaho’s freedom from PCN. No additional PCN infestations have been detected, to date, beyond the current 1,100 acres. Research is ongoing at the University of Idaho, Plant Soils and Entomological Sciences Department, to determine the efficacy of selected fumigation treatments used in the PCN eradication effort. Bio-secure greenhouse studies will help clarify the relative performance of the treatments. Preliminary results of these experiments and the continued post treatment sampling data from regulated fields give cautious optimism for the eventual eradication of PCN from Idaho.

Regulation-Deregulation Summary

- Since program inception, a total of 30,753 acres have been regulated due to their infestation or association with an infested field.
- Non-infested, associated fields have been eligible for federal deregulation following a sequence of soil surveys with no PCN detections.
- To date, 29,653 acres have been released from federal regulation.



- Currently, 1,100 acres (only the nine PCN-infested fields) remain regulated. The infested fields are still undergoing eradication treatments.
- ISDA is conducting follow-up surveys in federally deregulated fields. Follow-up surveys typically occur after harvest of the first host crop after deregulation. To date, 6,411 acres of deregulated farmland has been surveyed by ISDA.



Average program-wide PCN viability by date: April and June, 2007 averages are based on viability results from the first seven infested fields. April, 2008, and all subsequent survey dates, include viability data from the eighth infested field which entered the eradication program in April, 2008. April 2009 and all subsequent survey dates include viability data from the ninth infested field which entered the eradication program in April, 2009.

All Idaho PCN data reports are supplied by the USDA APHIS, PPQ office in Idaho Falls.



KARNAL BUNT (KB) (*Tilletia indica*) – ISDA collected wheat samples from 19 counties in Idaho for the 2010 Karnal Bunt survey. These samples were tested for the presence of a fungus (*Tilletia indica*) that causes a wheat disease known as Karnal Bunt. Karnal Bunt is known to occur in AZ, NM, CA and TX, but is under quarantine with efforts being made to eradicate. ISDA has been conducting surveys in Idaho for this disease since 1996. Results prior to this date have all been negative. Results from this year's survey are still pending.

COUNTY	Number of KB Samples	COUNTY	Number of KB Samples
Bannock	2	Jefferson	4
Bear Lake	1	Lewis	5
Bingham	12	Lincoln	1
Boundary	1	Madison	3
Canyon	3	Nez Perce	6
Cassia	7	Owyhee	1
Clearwater	1	Power	8
Elmore	1	Teton	1
Fremont	3	Washington	1
Gooding	1	Total	62

**DISEASES AND PESTS FOUND DURING 2010 FIELD INSPECTIONS FOR EXPORT CERTIFICATION
NUMBER OF FIELDS AND 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 2009 FIELD SEASON**

In 2010, 46 seed companies submitted a total of 2,520 fields representing 35 crops. Total acres submitted for inspection was 32,495, with the number of acres actually inspected being 62,608.17 acres, due to multiple inspections required for some crop diseases. This is an increase in firms from the 43 participants in 2009, but an 11% decrease in acreage from the 36,541 submitted in 2009.

Year	# Participating Firms	# of Crops	# Fields	Submitted Acres	Inspected Acres
2003	41	27	3,016	43,433	71,357
2004	44	27	3,355	46,282	79,671
2005	43	28	2,987	42,961	74,905
2006	47	30	2,880	37,859	70,692
2007	48	32	2,439	30,938	58,218
2008	50	32	2,674	34,439	66,114
2009	43	33	3,532	36,541	72,184
2010	46	35	2,520	32,495	62,608

Alfalfa seed: A total of 1041.15 acres were submitted for inspection in 47 fields during the 2010 growing season. There were 14 acres that tested positive for Alfalfa mosaic virus. *Cercospora medicaginis*, *Clavibacter michiganensis subsp. insidious*, *Cuscuta spp.*, *Ditylenchus dipsaci*, *Euphorbia esula*, *Verticillium albo-atrum* or *V. dahliae*, and *Xanthomonas campestris pv. alfalfae* were not observed during the 2010 field inspection season.

Allium (excluding Garlic): One hundred eighteen fields totaling 1263.71 acres of Chive and Onion were inspected. All fields inspected were found apparently free from *Peronospora destructor*, *Urocystis colchici*, *Puccinia asparagi*, *Colletotrichum circinans*, *Ditylenchus dipsaci*, *Sclerotinia spp.* and *Sclerotium cepivorum*. In onions, *Alternaria porri* was observed in 48.8 acres and *Botrytis aclada* was found in 70.

Beans, Dry: A total of 82 fields with 1,419.35 acres were submitted for inspection in 2010. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Bean Seed (*Phaseolus*) Species in Idaho, all fields submitted were inspected for Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, and Anthracnose, none of these diseases were observed. Approximately 18 acres were found to be infected with *Sclerotinia spp.* In addition, there were no reported observations of Bean common mosaic potyvirus, *Colletotrichum truncatum*, Peanut stunt cucumovirus, or Tobacco streak ilavirus in fields requested to be inspected for these diseases.

Beans, Garden: A total of 12,669.73 acres in 689 fields were submitted for inspection in 2010. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Bean Seed (*Phaseolus*) Species in Idaho, all fields submitted were inspected for Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, and Anthracnose none of these diseases were observed. 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. Bean common mosaic virus was found in 14 acres of garden beans.

Brassicas: A total of eight fields and 146 acres of Collards, Kohlrabi, Mustard, Pak Choi and Turnip were submitted and inspected in 2010. No fields were found positive for *Leptosphaeria maculans*, *Xanthomonas campestris pv. campestris* or *Pseudomonas syringae pv. maculicola*.

Carrot: A total of 1,264.99 acres in 355 fields were inspected in 2010. *Alternaria radicina* was found in 29 acres, and *Sclerotinia spp.* occurred in 18 acres. There were no observations of *Alternaria dauci*, *Pectobacterium carotovorum pv. carotovorum*, *Xanthomonas campestris pv. carotae*.

Coriander: Two fields with a combined acreage of 50 acres were submitted for inspection.

Corn: In 2010, there were 11,455.36 acres in 676 fields individually inspected. High plains virus (HPV) was observed in 451.6 acres, 112 acres were found positive for Maize dwarf mosaic virus (MDMV) and Wheat streak mosaic potyvirus (WSM) was observed in 115.8 acres. *Sporisorium holci-sorghii* was observed in 1.05 acres and *Ustilago zaeae* was reported in 3,150.42 acres. Sugarcane mosaic potyvirus was not observed in 2010. These statistics include 104.3 acres in seven fields submitted for inspection and testing for export to Australia. Of these fields, 9.5 acres in one field met the Australian guidelines. Six fields with 94.8 acres failed due to testing positive for various combinations of High plains virus, Maize dwarf mosaic virus and Wheat streak mosaic virus.

Dill: One field with 15 acres was submitted for field inspection. There were no cases of *Cercospora carotae* or *Pythium spp.* during inspection.

Endive: There were five acres inspected in one field of Endive during the 2010 season. No Lettuce mosaic potyvirus (LMV), Tomato spotted wilt tospovirus, *Xanthomonas axonopodis pv. vitians* or *Septoria lactucae* was observed.

Garlic: Seven fields totaling 3.49 acres were inspected and found free from any disease symptoms of quarantine significance, including *Sclerotium cepivorum* (Onion white rot). These fields were allowed to be grown by growers with special permits from ISDA.

Grain Seeds: A total of 57.95 acres in 25 fields of Barley, Grain Sorghum, Oats and Wheat were inspected.

Lettuce: There were 280.5 acres submitted in 37 fields of Lettuce in 2010. No Lettuce mosaic potyvirus (LMV) was observed.

Mint: Thirteen fields totaling 60 acres were inspected and found apparently free from *Verticillium dahliae*, Mint root borer (*Fumibotys fumalis*), and Mint stem borer (*Pseudobaris nigrina*).

Peas: In 2010, there were 6,546.53 acres of peas submitted for individual inspection in 390 fields and 1,436 acres in 22 fields submitted for area inspection. In total there were 15,656.4 acres inspected due to multiple inspection requirements for certain diseases. *Pseudomonas syringae* pv. *pisi* was found in 78 acres, *Cladosporium cladosporioides pisicola* was positive in one acre, *Erwinia rhapontici* was found in 22 acres, 24 acres were found positive for Pea enation mosaic virus, two acres were found to have *Phoma pinodella* and *Fusarium oxysporum* was observed in 37 acres. *Ascochyta pisi* was not found in any fields inspected. In addition, no symptoms of Pea seed-borne mosaic virus were observed during the 2010 inspections.

Pepper: One acre of bell and 0.5 acres of hot peppers were submitted in 2010 for inspection. No diseases of concern were observed during inspection.

Potato: There were no potato fields submitted for inspection in 2010.

Radish: There were 283 acres submitted for inspection in 18 fields. All fields were found apparently free from *Colletotrichum higginsianum*, *Xanthomonas campestris* pv. *campestris*, and *X. campestris* pv. *raphani*.

Red Clover: Three fields of red clover were submitted for inspection in 2010. Fifty-nine acres were inspected, and no symptoms of *Alfalfa mosaic alfamovirus*, *Clavibacter michiganensis* ssp. *insidiosus*, *Ditylenchus dipsaci*, *Verticillium albo-atrum*, *Verticillium dahlia*, or *Xanthomonas alfalfa* ssp. *alfalfa* were observed.

Sunflower: Three fields totaling 63 acres were inspected and found apparently free from *Plasmopora halstedii*.

Tomato: One field of 0.01 acre was inspected during 2010. No symptoms of diseases of quarantine significance were observed.

Vine Crops: Eighteen fields totaling 10.55 acres of Cantaloupe, Melon, Pumpkin, Squash and Watermelon were submitted and inspected in 2010. No fields were found positive for *Pseudomonas syringae* pv. *lachrymans*, *Colletotrichum orbiculare*, *Acidovorax avenae* subsp. *citrulli*, *Xanthomonas cucurbitae* or Cucumber mosaic virus.

NUMBER OF FIELDS AND 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 2010 FIELD SEASON

SPECIES	NUMBER OF FIELDS	SUBMITTED ACRES	INSPECTED ACRES
Alfalfa	47	1,041.15	1,041.15
Barley	19	44.70	44.70
Beans, Dry	82	1,419.35	3,991.10
Beans, Garden	689	12,669.73	30,433.16
Cantaloupe	10	0.48	0.48
Carrot	353	1,264.99	1,264.99
Chive	1	8.00	8.00
Collards	1	8.00	8.00
Coriander	2	50.00	50.00
Corn	676	5,818.93	11,455.36
Dill	1	15.00	15.00
Endive	1	5.00	5.00
Garlic	7	3.49	3.49
Grain Sorghum	4	11.00	11.00

SPECIES	NUMBER OF FIELDS	SUBMITTED ACRES	INSPECTED ACRES
Kohlrabi	1	15.00	15.00
Lettuce	37	280.50	280.50
Melon	2	1.00	1.00
Mint	13	60.00	120.00
Mustard	1	10.00	10.00
Oats	1	0.25	0.25
Onion	117	1,255.71	1,255.71
Pak Choi	1	9.00	9.00
Peas	390	6,546.53	15,656.40
Peas, Area	22	1,436.00	0.00
Pepper, Bell	2	1.00	1.00
Pepper, Hot	1	0.50	0.50
Pumpkin	1	2.00	2.00
Radish	18	283.00	283.00
Red Clover	3	59.00	59.00
Squash	4	5.07	5.07
Sunflower	3	63.00	63.00
Tomato	1	0.01	0.01
Turnip	4	104.00	104.00
Watermelon	4	1.30	1.30
Wheat	1	2.00	2.00
TOTALS	2,520	32,494.69	66,200.17

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

EXPORT CERTIFICATION FOR THE 2010 CALENDAR YEAR – The ISDA issued 5,261 Federal and 453 State Phytosanitary Certificates for 84 different types of commodities to 92 countries. The Division of Plant Industries certified over 255 million pounds of seed and other commodities for export. The ISDA operates this program under a Memorandum of Understanding with the USDA.

PLANT PATHOLOGY LAB SUMMARY

In 2010, the Plant Pathology Laboratory at Idaho State Department of Agriculture received 1,921 samples for testing. Approximately 3,180 tests were run on the samples, with an average turnaround time of 31 days.

In particular, nearly 350 lots of bean seed were tested for bacteria and fungi. Twenty-one lots were discovered to be infected with at least one of the target organisms (see table below). No bean field samples were positive for bacteria this year. However, both Bean common mosaic virus and Cucumber mosaic virus were found in the field.

In the other seed testing, some levels of infection of *Clavibacter michiganense f.sp. insidiosum* were found in Alfalfa. These were not in lots grown in Idaho, however. *Salmonella* infection was also found in some radish seeds destined for the sprout market.

Seventeen lots of potatoes were received for permission to be planted back on to private land without certification (22-503). The average level of virus infection in these lots is listed in the table below.

The lab tested over 300 field samples in 2010 for a variety of diseases. Of interest this year was the early detection of Pea enation mosaic enamovirus in one field. This disease has occurred in Idaho in the past, but isn't all that common. There was also a late outbreak of common rust (*Puccinia sorghi*) on corn this year, which is fairly uncommon in Idaho.

The lab participated in three surveys this year. The first was a national Plum Pox Virus survey. The lab received 909 samples for *Prunus* spp. to test. All were negative (summary report page 21). The lab also participated in an annual Karnal Bunt survey of wheat (summary report page 15). And finally, the grape survey was continued from last year. This year, unfortunately, several more viruses, were discovered coming into the state in nursery crops (summary report page 21).

CROP	# SAMPLES	# TESTS	POSITIVES (Organism)
Bean			
seed	349	1,147	2 (<i>Xanthomonas campestris</i> pv. <i>phaseoli</i>)
			17 (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)
			2 (<i>Curtobacter flaccumfaciens</i>)
field	96	181	2 (Bean Common Mosaic Potyvirus)
			2 (Cucumber Mosaic Cucumovirus)
			1 (<i>Sclerotinia</i> sp.)
Misc Seed			
alfalfa	26	49	7 (<i>Clavibacter michiganense</i> f.sp. <i>insidiosum</i>)
barley	1	1	
broccoli	2	4	
corn	5	10	
clover	1	1	
garbonzo bean	1	1	
onion	1	2	
pea	5	5	
radish	9	18	2 (<i>Salmonella</i> sp.)
spinach	3	3	1 (<i>Verticillium dahliae</i>)
wheat	2	3	
wheat straw	74	147	8 (<i>Urocystis agropyri</i>)
			1 (<i>Tilletia controversa</i>)
Potato	17	66	Average level (Potato Virus Y) = 14.67%
			Average level (Potato Virus A) = 3.85%
			Average level (Potato Leaf Roll Virus) = 1.29%
Sudden Oak Death			
Trace forwards	12	12	
Nursery survey	8	8	
Plum pox Survey	907	907	
Karnal Bunt Survey	66	66	
Misc Field			
Alfalfa	7	7	1 (Alfalfa Mosaic Alfamovirus)

CROP	# SAMPLES	# TESTS	POSITIVES (Organism)
Barley	3	4	
Carrot	23	23	2 (<i>Alternaria radicina</i>)
			1 (<i>Sclerotinia sp.</i>)
Clover	1	2	
Corn	144	318	26 (High Plains Virus)
			1 (<i>Nigrospora sp.</i>)
			4 (<i>Ustilago maydis</i>)
			8 (Wheat Streak Mosaic Virus)
			2 (Maize Dwarf Mosaic Virus)
			9 (<i>Puccinia sorghi</i>)
			1 (<i>Drechslera turcica</i>)
			1 (<i>Sporisorium reilianum</i>)
Garlic	2	2	1 (<i>Pyrenochaeta sp.</i>)
Grain (fish food)	2	2	2 (<i>Tilletia foetida</i>)
Grape	1	1	
Indian Hawthorne	1	1	1 (<i>Entomosporium sp.</i>)
Lettuce	2	3	
Mustard	1	1	
Onion	21	21	1 (<i>Alternaria porii</i>)
			3 (<i>Botrytis allii</i>)
Pea	108	142	1 (Pea Enation Mosaic Enamovirus)
			1 (<i>Fusarium oxysporum</i>)
			1 (<i>Sclerotinia sp.</i>)
			2 (<i>Pseudomonas syringae pv. pisi</i>)
			1 (<i>Phoma medicaginis</i>)
			5 (<i>Sclerotinia sp.</i>)
			2 (<i>Erwinia rhapontici</i>)
Pepper	2	2	
Peppermint	6	6	
Pine	1	1	
Radish	6	8	
Solanestemnon	1	1	
Squash	2	2	
Sunflower	1	1	
TOTALS	1920	3179	

SUDDEN OAK DEATH (SOD) (*Phytophthora ramorum*) – ISDA, cooperating with PPQ, conducted *Phytophthora ramorum* trace-forward inspections and lab diagnostics for nurseries that received host material from potential infected suppliers. Plants from Hines Nursery, in Oregon, were found infested with *Phytophthora ramorum* in the spring of 2010, after they were shipped into Idaho. ISDA inspectors conducted a trace-forward search of all facilities that received plants from the infected nursery. Twelve plants were found and tested for the presence of *Phytophthora ramorum*. In addition, ten symptomatic tomato plants from other nurseries were tested for the presence of *Phytophthora ramorum*. **All plants were negative for the fungus.**



Greenhouse Sampled	County	Number of Samples	Traceforward or Survey Sample
K-Mart	Ada	1	Survey
Walgreens	Ada	3	Survey
Gem Variety #70	Power	1	Survey
D & B Supply	Canyon	3	Survey
Lowes	Twin Falls	1	Survey
Parma M & W	Canyon	1	Survey
Home Depot – Federal Way	Ada	2	Hines Traceforward
Home Depot – Chubbuck	Bannock	2	Hines Traceforward
Home Depot – Couer d’ Alene	Kootenai	1	Hines Traceforward
Home Depot – State Street	Ada	1	Hines Traceforward
Home Depot – Idaho Falls	Bonneville	2	Hines Traceforward
Home Depot – Cassia Street	Ada	2	Hines Traceforward
Home Depot – Twin Falls	Twin Falls	2	Hines Traceforward



PLUM POX VIRUS SURVEY (Plum Pox Potyvirus) - Plum pox is a virus that affects stone fruits, like peaches, apricots, cherries and plums. It can cause premature fruit drop, as well as disfiguring blemishes on the fruits. Prior to 1999 it was not known to occur in the US, but was found in Eastern Europe. Since then, it was discovered in NY and PA. Efforts began immediately to discover the extent of the infestation, and to eradicate the disease where ever found. Idaho surveyed for this pest in 2000 and 2001, with no positive results. It was surveyed for again this year.



The focus of the sampling was on Peach trees, although some other Prunus sp. were included. Peaches are the most susceptible to the strain of Plum Pox infecting the US. Eight orchards in seven counties were surveyed and 907 samples were taken. Each sample represents two trees. The total number of samples represent approximately 0.5% of the peach trees grown in Idaho. Samples were taken according to USDA/PPQ protocols. **No evidence of the disease was found.**

Orchard ID	COUNTY	NUMBER OF SAMPLES
Apple Creek Propagators	Boundary	8
Symms	Canyon	258
Williamson	Canyon	280
Plaza Fruit Ranch	Gem	66
Fiddle Creek	Idaho	68
E. Anderson	Lemhi	31
Henegelters	Payette	152
Powers Orchard	Twin Falls	44



GRAPE VIRUS SURVEY - In 2010, 29 grape plants were purchased from retail nurseries in 17 different counties of the state. The grape plants originated from eight other states and ID. Both types of grapes (table and wine) were purchased and tested. The viruses that were tested for were; Grapevine Leaf-Roll Virus strains 1-9 (LRV1 -9), Grapevine Virus A (GVA), Grapevine Virus B (GVB), Grapevine Syrah Virus (GSyV), Grapevine Fleck Virus (GFkaV), Grapevine Feathering Virus (GVFV), Grapevine Fan Leaf Virus (GFLaV), Arabis Mosaic Virus (AMV), Rupestris Stem Pitting Virus (RsPaV), Australian Grapevine Viruoid (AGVd), Pear Blister Canker (PBCVd), and Grapevine Fleck 2 (GAMaV). The results are set out in the table on page 47.

Several plants were found with many different viruses. In 2010, LR1, a strain of leafroll virus was predominant. Three new strains of leafroll were introduced this year 2RG, LR4 and LR9. Leaf roll viruses are vectored by the grape mealy bug, which is common in the state's orchards. RsPaV and GFkaV were new virus finds for the state. Both viruses can be problematic diseases in certain cultivars. GSyV and GVFV were fairly common, but these viruses are of uncertain importance in causing disease, and may be carried asymptotically. Thankfully, neither GFLaV nor ArMV were found. These are nematode vectored viruses that can cause significant problems when present. Although some plants were apparently virus free, it was also apparent that no exporting state was totally "virus free," as plants from each state tested positive for some viruses.



SEED LAB SUMMARY - The Idaho State Seed Laboratory received 2,587 samples in 2010 and completed 4,283 service tests. Top crops for service testing were grains, beans, wheatgrass, alfalfa, onion, pine, pea, corn, fir and sagebrush. Two hundred twenty-one regulatory enforcements were checked for licensing and truth in labeling requirements, where 142 two required laboratory testing. One hundred twenty-nine violations were issued with 108 resulting in inspector actions. Six hundred forty-one seed dealer licenses were issued bringing in

\$102,650.00. This past spring/summer was the first season where Idaho Transportation Department roadside projects were required to have their seed purchased for landscaping tested at the Idaho State Seed Laboratory. In a joint effort to protect both state and federal dollars, the Seed Lab was able to spot several situations where noxious weeds were present or the viability did not meet minimum specifications. The Seed Lab has been working with each district Resident Engineer to open communications between both the districts and the lab to minimize testing and prevent the spread of noxious weeds, as well as the potential purchase of low-quality seed.



CULL ONION INSPECTIONS AND ACTIONS - The 2010 Cull Onion season started by visually monitoring Owyhee, Canyon and Washington counties to identify areas of concern before violations occurred. Owyhee County had no apparent areas of concern. Two areas were monitored in Canyon County, a private landowner who fed sheep with cull onions and Dorsey Dairy in Caldwell. A complaint had been called in about Dorsey Dairy having large piles of onions. A regulatory visit was made and the dairy owner cleaned up the piles; no formal action was taken. In Washington County, three areas where sheep were feeding

on cull onions were monitored. All three stayed in compliance by feeding no more onions than what the sheep could consume in seven days and disking in onion debris. In Payette County, Ferreira Dairy in New Plymouth had repeated odor complaints from neighbors. After three regulatory visits to the dairy and communications with the onion suppliers, Dickersons Frozen Food Inc and Partners Produce, the dairy came into compliance for the duration of the law's enforcement period. Cull onion disposal enforcement is handled on a complaint basis only.

OTHER REGULATORY INSPECTIONS AND ACTIONS - ISDA, under the authority of Title 22, Chapters, 4, 5, 23, & 24, Idaho Code, and IDAPA defined pest quarantines, conducted over 7,432 inspections and took action against various pest threats and other violations. In the 2010 calendar year, there were over 1,857 licensed nurseries, and of those, 1,045 were inspected for compliance with the Idaho Nursery and Florists Law 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:

Quarantine/Pests	NO. OF INSPECTIONS	Incidents	Corrective Action	Stop Sales
Certified Seed Potatoes	151	15	2	10
Onion White Rot	340	37	2	35
European Corn Borer	330	0	0	0
Japanese Beetle	701	0	0	0
Mint Quarantine	112	0	0	0
Crop Management Zone	51	0	0	0
Grape Quarantine	273	9	1	7
Peach Tree Quarantine	197	0	0	0
Sudden Oak Death	582	8	0	5
Pine Shoot Beetle	420	0	0	0
Gypsy Moth	666	0	0	0
Red Imported Fire Ants	443	0	0	0
Noxious Weeds	749	22	8	2
Idaho Seed Law	228	1	1	0
Nematodes	3	0	0	0
Aphids	870	12	2	0
Late Blight	479	1	0	0
Hops	11	0	0	0
Retail Potatoes	76	1	0	0
General Pests	40	34	2	4
Snails	710	4	1	1
Day Lily Rust	0	0	0	0
Total Inspections	7432	144	19	64

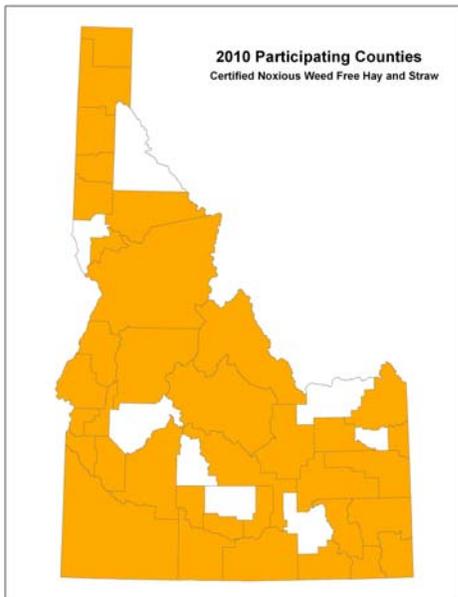


ISDA NOXIOUS WEED PROGRAM SUMMARY - In the battle against noxious weeds, 2010 was another productive year. The Noxious Weeds Program at ISDA continues to work with Cooperative Weed Management Areas (CWMA), Counties, Tribes, landowners, and Federal partners to provide leadership, training and support for noxious weed management in Idaho. A total of 33 CWMA's have been formed and begun the collective battle against noxious weeds in Idaho to date. CWMA's in Idaho continue to excel at bringing people together across agency and administrative boundaries to fight the spread of noxious weeds.

Their efforts helped to protect wild land habitat, ecosystem diversity, recreational opportunities and agriculture in Idaho. A total of \$1.76 million was distributed in 2010 from cost share grants to CWMA's for on-the-ground integrated weed management.

Program applicants provided over \$5.7 million in matching contributions, which resulted in a total of over 230,000 acres of noxious weeds treated and nearly 800,000 acres surveyed and mapped. Education and prevention are key to the success of Idaho's program and over 2.7 million contacts were made state-wide for noxious weed education and awareness.

Noxious Weed Free Forage and Straw (NWFFS) - The U.S. Forest Service requires all forage and straw possessed on their lands to be certified as noxious weed free (NWF) to prevent the introduction and spread of noxious weeds. The Bureau of Land Management (BLM) will institute a similar rule in March of 2011. ISDA administers this program to facilitate compliance for equine users and re-vegetation managers. In 2010 ISDA trained 80 NWFFS Inspectors throughout the state. Over 11,636 acres of forage and straw was inspected and certified NWF by trained CWMA's and County cooperators for a farm value of \$3.5 million. NWF products, such as hay bales, forage cubes, twice-compressed forage bales, straw bales, and pellets, are increasingly more accessible and available to horse and mule recreationalists. Education continues to be a focus of the NWFFS program. ISDA has an in-depth NWFFS website, please google "ISDA Weed Free Hay." ISDA advertises the NWF message in the Idaho Hay Association hay directory, as well as in the Idaho Fish and Game big game regulations. A NWFFS education booth was set up at the Idaho Hay Association conference, Idaho Horse Expo, and Idaho Diabetes Horse Ride. In addition, ISDA participated in the Upper Payette Cooperative Weed Management Area (CWMA) and South Fork of the Boise River CWMA hay exchange. These hay exchanges are conducted during big game hunting seasons to educate hunters using pack stock to use only use NWF forage. The NWFFS program plays an important role in protecting Idaho's wild places from noxious weed introduction.



An example of NWFFS education/outreach booth at the 2010 Idaho equine event, 200 riders participated



This is a map of participating NWFFS counties and the advertisement that is placed annually in the Idaho Hay Association hay directory.



Eurasian Watermilfoil update 2010 - Eurasian watermilfoil (EWM) is one of the most problematic invasive aquatic plants in North America. EWM out-competes native vegetation and degrades aquatic habitats by reducing biodiversity. EWM forms dense canopies of growth in the water which can make boating and fishing impossible. Dense plant growth degrades water quality and fisheries and encourages mosquito growth. An aggressive treatment program began in 2006 to prevent further spread of EWM and to eradicate the plant from treated waterbodies.

Two thousand ten is the fifth year of the Eurasian watermilfoil program. Treatment and prevention efforts continue throughout Idaho. Over 12,000 acres of EWM has been treated in Idaho since 2006 using herbicides, diver-assisted suction dredging, and benthic barriers. The EWM program was allocated \$780,000 in 2010 for treatment, education, survey, and prevention projects throughout the state. For 2010, the EWM program treated 256 acres and inspected over 14,000 watercraft. Surveys have illustrated a significant reduction of EWM populations in treated waterbodies and EWM no longer interferes with recreation in those areas. The survey has also illustrated that native plant abundance and diversity has increased following EWM treatment providing improved habitats for invertebrates, fish and waterfowl.



The milfoil program also funds prevention projects throughout the state. Five watercraft inspections stations were supported by milfoil funds in Bonner and Kootenai Counties and three stations inspecting watercraft on Henrys Lake in 2010. Over 100 watercraft were found to be carrying EWM and other aquatic weeds. These watercraft were hot water washed to prevent the spread of invasive aquatic species.



Hydrilla - Hydrilla is the most aggressive and resilient aquatic noxious weed in North America. It is an Early Detection / Rapid Response (EDRR) noxious weed in Idaho and it was identified in Bruneau and Boise in 2008. Hydrilla eradication efforts continued in 2010 funded by grants from USDA APHIS and BLM. Treatments of the Bruneau River population included herbicide, diver-assisted suction harvesting, and hand-pulling along the 12 miles of river where hydrilla plants were found. Significant reductions in hydrilla were observed throughout the system. Areas that have historically been very dense (see above photo) only had a handful of plants to remove this season. No hydrilla has been found downstream in CJ Strike Reservoir or in the Snake River. Treatment and survey efforts are ongoing and eradication efforts will

continue in 2011. A second hydrilla population was identified in Boise in 400 meters of a geothermally- influenced ditch. This population was treated by hand-removal two times in 2010 and very few plants were found. No hydrilla was found in the downstream canal system or in the Boise River; however, survey efforts are ongoing. Eradication of this population will also continue in 2011.

Flowering Rush - Flowering Rush is an aggressive emergent aquatic plant that has invaded several lakes and rivers around the region. It has been found in and around American Falls Reservoir and in the Clark Fork and Pend Oreille systems. There are no good treatment options for the control of this invasive plant. To help get some answers, ISDA applied for and received a grant from the US Army Corps of Engineers to conduct drawdown treatment trials on flowering rush populations in Lake Pend Oreille. Herbicides, fabric barriers and mechanical means will be evaluated to determine the best methods for use in flowering rush control under lake drawdown conditions. Treatments will be conducted in the spring of 2011 and results should be available following plot evaluation in 2012.



ISDA INVASIVE SPECIES PROGRAM SUMMARY - 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 and non-governmental organizations to address the state recommendation to “ensure that a comprehensive invasive species program in Idaho is not diluted by competing efforts among various agencies.” In order to carry this out, a full-time “**Invasive Species Coordinator**” was budgeted within the Department of Agriculture in 2007.

The **Idaho Invasive Species Council** was established by Executive Order (E.O. 2001-11). Per this Executive Order (which was continued as E.O. 2006-28), the Director of the Idaho State Department of Agriculture (ISDA) chairs the Council. Membership includes a representative from the Office of the Governor and the directors (or their designee) of the Idaho Department of Environmental Quality, the Idaho Department of Parks and Recreation, the Idaho Department of Fish and Game, the Idaho Department of Lands, the Idaho Department of Water Resources, the Idaho Department of Commerce & Labor, the Idaho Department of Health and Welfare and the Idaho Transportation

Department. Representatives and members of federal entities, local government organizations, tribal governments, Idaho universities and private and not-for-profit organizations, with an interest in invasive species, also participate.

The **Idaho Invasive Species Law** 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 Law** was enacted by the Legislature in 2009. It requires motorized and non-motorized boats to have an Invasive Species Sticker to launch and operate on Idaho's waters. The sticker program is administered by the Idaho Department of Parks and Recreation. Revenue generated by this program is deposited in the IISF. The IISF is administered by the Idaho State Department of Agriculture. While the sticker program and the invasive species programs are linked through the IISF, the programs are independent in nature.



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

The Need for Prevention A Zebra and Quagga Mussel Case Study



Zebra and quagga mussels are native to the Black and Caspian Seas. Both species of mussel can wreak havoc when introduced to a new environment by disrupting the natural food chain and crowding out native species. They are prolific and range in size from microscopic to the size of a fingernail, attaching themselves to hard and soft surfaces. They were introduced to North America's Great Lakes in ballast water from Russia in the late 1980s.

Soon after introduction, the invasive mussels spread throughout the Great Lakes region, resulting in hundreds of millions of dollars in damage to water delivery systems in the east. They were first detected in the western United States in January 2007 in the Lake Mead National

Recreation Area. They have since spread throughout the Colorado River system and are now found in several other western states.

Although the mussels are not established in Idaho's lakes and reservoirs, most waters of the state are vulnerable to future invasion by the species. The mussels are primarily transported by watercraft, so state resource managers have been forced to develop programs to ensure that the invasive mussels are not introduced to Idaho's waters via mussel-fouled boats that have been in mussel-infested waters to the south and the east.

In addition to devastating environmental impacts, zebra and quagga mussels pose an economic threat to Idaho. The mussels can colonize on hulls, engines and steering components of boats, other recreational equipment, and can damage boat motors and restrict cooling. The invasive species also attach to aquatic plants, and submerged sediment and surfaces such as piers, pilings, water intakes, and fish screens. In doing this, water intake structures can be clogged, hampering the flow of water. The mussels frequently settle in massive colonies that can block water intake and threaten municipal water supply, agricultural irrigation and power plant operations.



Congressional researchers estimated that an infestation of zebra mussel in the Great Lakes cost the power industry alone \$3.1 billion in the 1993-1999 period, with a total economic impact to industries, businesses and communities of more than \$5 billion. Given the well-documented impacts these species have had in the Great Lakes, many western states are on high alert to contain, control and prevent the spread of these mussels in the West. The states of Nevada, California, Arizona, Colorado and Utah each have detected these species in critical water supply systems, and are attempting to minimize impacts. Quagga mussel veligers (the immature stage of the mussels) have been found in a Utah waterbody that is 130 miles from the Idaho state line. Zebra and quagga mussels have **not** been

found in Idaho waters to date. In order to understand the potential impacts of these species to Idaho, staff examined existing databases and published research to generate estimates on comparable occurrences in Idaho. The results reflect an estimated cost due to direct and indirect impacts on infrastructure and facilities that use surface water. Most of the published data examined does not report annual costs, however annual maintenance costs would be expected to increase for all of the categories examined. In some cases, economic impacts could not be estimated. For example, no comparable economic data exists for mussel impacts on irrigation systems, therefore they are excluded from the potential cost estimates. The estimates are considered conservative and for the most part are reported in 1997 dollars, not adjusted for inflation.

The following categories were examined:

Hydropower - These estimates were based on a Bonneville Power Administration (BPA) -commissioned study that examined the estimated hydropower maintenance costs associated with zebra mussel by examining the Bonneville Dam First Powerhouse, costs associated with Asian clam control at Bonneville, and a survey of zebra mussel mitigation costs at other hydropower generation facilities in North America. The study estimated the costs for installing sodium hypochlorite systems and applying antifouling paint to 13 federal hydroelectric projects in the Columbia River Basin. The Idaho estimate was based on the BPA average cost per project (\$1.8 million) for the 26 hydropower dams in Idaho (Phillips et al. 2005).

Other Dams - Other dams include water impoundment structures not associated with power generation. These structures will incur maintenance costs associated with mussel fouling of pipes and structures. The estimate is based on figures from O'Neil (1997) for navigational lock structures (\$1,700 per structure) applied to 86 structures in the state.

Drinking Water Intakes - The drinking water facilities included in this analysis are facilities that draw surface water for municipal or public drinking water use. Mussels foul intake piping and water processing infrastructure, increasing maintenance costs and degrading water flavor due to mussel waste and decomposition in water lines. Private single family home water intakes for drinking and irrigation are not included in this estimate. The estimates are based on O'Neill (1997) figures from water treatment facilities (\$42,000 per facility) applied to 100 facilities in Idaho.

Golf Courses - Golf courses are at risk for additional maintenance costs for irrigation systems. Fouling of pipes and pumps and clogged sprinklers are projected to increase operating expenses. Estimates are based on O'Neill (1997) costs from golf courses (\$150 per facility) applied to 114 Idaho courses.

Boating Facilities - Boating facilities include marinas, docks and boat launches. Increased cost estimates are based on maintenance associated with dock and boat launch fouling. Estimates are based on O'Neill (1997) figures from marinas (\$750 per facility) applied to 380 Idaho facilities.

Fish Hatcheries and Aquaculture - Hatcheries and aquaculture facilities are vulnerable to zebra / quagga mussel fouling. Pipes, pumps and raceway structures are all subject to increased operations and maintenance costs. Estimates based on O'Neill (1997) figures for hatcheries and aquaculture impacts (\$5,800 per facility) applied to 163 facilities in Idaho.

Boater Costs - More than 90,000 motorized boats were registered in the state of Idaho in 2007. Potential increases in boater costs are based on estimates for anti-fouling paints and increased per-boat maintenance costs. Estimates are based on Vilaplana et al. (1994) for increases in boater maintenance costs (\$265 per boat).

Fishing Use - Recreational fishing is a \$430 million industry in Idaho. Research on impacts of mussels on fisheries is limited, but reductions of fish numbers are likely. Vilaplana et al. (1994) found a 4% decrease in boater recreation because of mussel introduction. Estimates are based on a 4% reduction of use applied to 2,917,972 Idaho fishing trips a year averaging \$150 per trip (IDFG 2003).

Irrigation – Over 56,175 points of diversion (POD) were identified in Idaho by the Idaho Department of Water Resources. Multiple points of use (POU) may be associated with each POD. Each POD and POU could be affected by the introduction of zebra or quagga mussels. These mussels can grow up to 0.5mm / day under ideal conditions and could impact water conveyances that are seasonally dry. Fouling from mussel establishment is cumulative and increased fouling and flow reduction would occur in ditches, pipes, pumps, fish screens and diversion structures over time. Published research on mussel-related flow reduction in irrigation systems is minimal, but mussel establishment in pipes and pumps is well documented. The true impacts of zebra and quagga mussel introduction on irrigated agriculture in Idaho are uncertain, but there is a high likelihood that these mussels will increase maintenance costs for operations that rely on surface water for irrigation.

Facility	Number	Estimated Cost Per Unit	Estimated Cost State-Wide
Hydro Power	26	\$1,817,000.00	\$47,242,000.00
Other Dams	86	\$1,730.00	\$148,700.00
Drinking Water	100	\$42,870.00	\$4,287,000.00
Golf Courses	114	\$150.00	\$17,100.00
Boat Facilities	380	\$750.00	\$285,000.00
Hatcheries/Aquaculture	194	\$5,860.00	\$1,136,800.00
Boat Maintenance	90,000	\$265.00	\$23,850,000.00
Angler Days(4% reduction)	2,917,927	\$150.00	\$17,507,500.00
Irrigation POD	56,175		
Total Estimate			\$94,474,100.00

The 2010 Program

The revenue generated by the Invasive Species Prevention Sticker Law allowed ISDA to develop a comprehensive statewide prevention program to educate the public about invasive species, monitor Idaho water bodies for the possible introduction of zebra and quagga mussels, and to inspect and decontaminate watercraft that travel into and through the state of Idaho. In addition to the watercraft inspection program, the Idaho Invasive Species Council also worked cooperatively with the Oregon Invasive Species Council and the Washington Invasive Species Council to secure a Farm Bill grant to educate the public about the dangers of moving firewood into the Pacific Northwest.

Summary of 2010 Education and Outreach Activities

Live read radio to educate the public about the Invasive Species Prevention Sticker Law and the watercraft inspection station program ran in the Boise, Idaho Falls, Pocatello, Twin Falls, Spokane (WA) and Logan (UT) markets from June to September, 2010.

A highway “Clean, Drain, Dry” billboard campaign continued on all major highways entering the state throughout the boating season.



Utility stuffers, posters, brochures and other outreach materials were distributed statewide on a continual basis.

Highway signage to warn incoming vessel owners about the threat, penalties, and contact information for obtaining free inspections were fabricated by Idaho Correctional Industries, and installed by the Idaho Transportation Department. Thirty



seven highway signs were erected at the state line.

Public boat launches were posted with signs advising the public to “Clean, Drain and Dry” watercraft and the need to have an Invasive Species Prevention Sticker to launch and operate on Idaho’s waters.

ISDA facilitated more than a dozen Watercraft Inspection Trainings (WIT) for more than 300 individuals in Boise, Caldwell, Glens Ferry, Redfish Lake, Bruneau, Twin Falls, Pocatello, Malad, Island Park, Lewiston, Sandpoint and Coeur d’Alene.

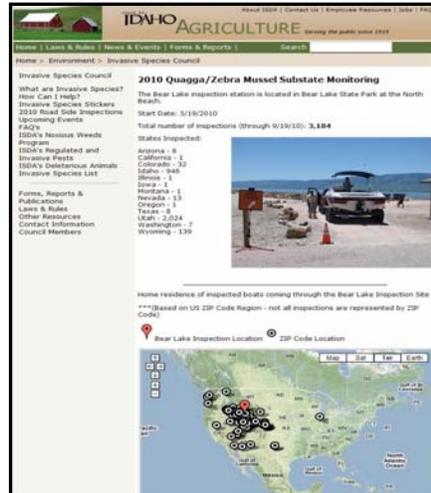


Idaho watercraft inspectors distributed outreach “packets” at all inspection stations. The packets included “Zap the Zebra” brochures, Idaho-specific Invasive Species Prevention Sticker Law information, stickers and other locally important invasive species related material.

ISDA activated a (near) realtime mapping application online for each inspection station location. It allows individuals to track inspections and boat traffic and origin of inspected boats for each station throughout the season. It is available here:

www.agri.idaho.gov/Categories/Environment/InvasiveSpeciesCouncil/Inspection_Stations2010.php

Click on the hotlinks for each station to access detailed up-to-date information.



ISDA partnered with the Idaho Transportation Department (ITD) to initiate an outreach campaign for oversized load haulers that bring boats through (and to) Idaho. Through the oversized load permitting process, ITD notifies ISDA when an oversized watercraft is destined for Idaho. ISDA contacts the boat transporter directly to inform the hauler of state laws related to possessing and transporting invasive species in Idaho.

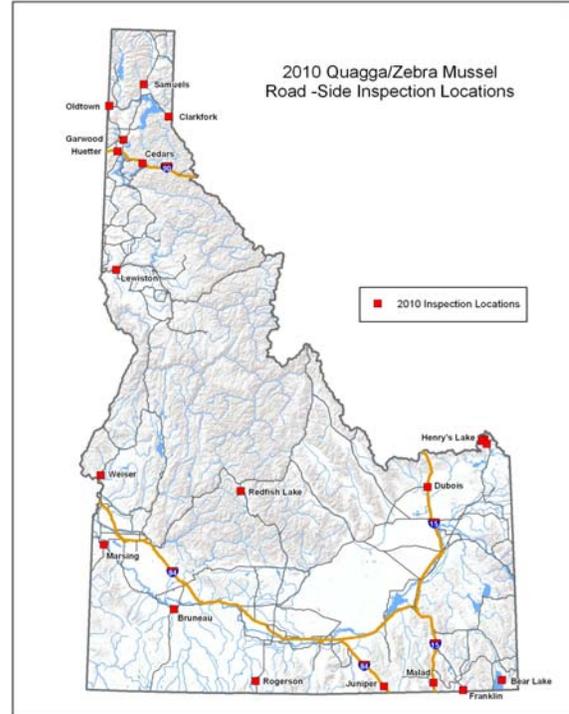
Over the past three years, the invasive species councils in Washington, Oregon, and Idaho have been working closely to share materials, consistent messages, and content relative to invasive species. During the summers of 2010, the three states launched an awareness campaign to inform the public about the threat of firewood as a vector for invasive species in the Pacific Northwest. The campaign is funded by USDA-Animal Plant Health Inspection Service and is coordinated by the Oregon, Washington, and Idaho Invasive Species Councils. This project will benefit industries and environments that are at risk or are currently threatened as a result of importation of firewood from other states. The three states are working together to develop shared messaging about the importance of buying and burning local firewood. The tri-state councils shared billboard and various advertising designs to brand this issue in the Pacific Northwest.



Operational Inspection Stations

Idaho's inspection stations are placed on major highways at or near the Idaho state line during the summer boating season. Additional stations are placed at high-risk waterbodies, such as Redfish Lake. Boats that have been in impacted states recently (within the last 30 days), watercraft coming from another state (especially commercially-hauled boats), boats that show a lot of dirt, grime or slime below the waterline or boats that have standing water on board are considered "High Risk" to the state.

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



If the inspectors find zebra or quagga mussels on the watercraft during the course of the inspection, the boat is impounded. A more detailed decontamination and re-inspection is conducted on the watercraft before it is allowed to launch into Idaho's waters.

In 2010, ISDA operated 20 roadside inspection stations (see map). 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) boating season allowed staff to prioritize routes into the state for the 2010 season. Some stations were moved or adjusted to strategically maximize contact with out-of-state and high-risk boats. More than 43,000 inspections were conducted on boats from 49 different states between April 15 and September 15, 2010. Eight fouled boats were decontaminated in Idaho during the 2010 season.



The State of Idaho has conducted more than 60,000 watercraft inspections since July 4, 2009. A total of 11 fouled boats have been intercepted and decontaminated before they were allowed to launch into Idaho's waters.

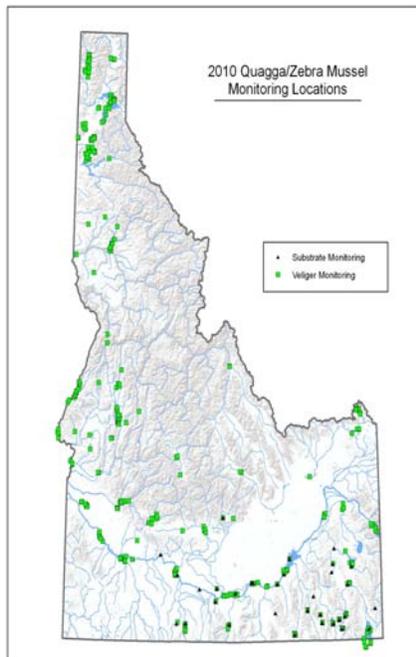
Monitoring

Monitoring is an important component of the state's Early Detection and Rapid Response (EDRR) program. In the event that zebra or quagga mussels are found in the state, early detection will be key to successful eradication. The monitoring program consists of tow net and substrate sampling. Idaho's waterbodies have been prioritized based on calcium levels, numbers of launches, and use by recreational boaters. The aim of the prioritization exercise is not to provide a definitive list of which waterbodies are likely to be invaded in any particular order; rather, it is a tool to enable the focused use of limited resources. In order to focus resources when planning to prevent an invasive species, it is necessary to predict which habitats are at most risk from invasion, and therefore, the most vulnerable.



Ninety "Critical" and "Very High" risk waterbodies have been identified for sampling. The statewide monitoring effort was enhanced in 2010. ISDA worked cooperatively with the Idaho Department of Fish and Game (IDFG) to collect nearly 600 plankton tow samples in high priority waterbodies. Idaho waterbodies were sampled several times throughout the year in an effort to "catch" spawning events and/or detect veliger presence.

Other cooperators (i.e. DEQ, Idaho Power) and volunteers also monitored several hundred substrate samplers statewide. ITD dive teams were trained in mussel identification and inspected bridge pilings as part of routine maintenance activities. All monitoring locations – plankton tow and substrate - in Idaho are available on an online map with collection information (name, date, etc.).



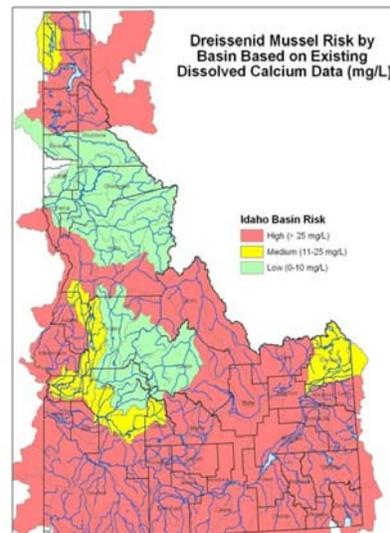
Contingency Planning

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. There is an urgent need to develop control technologies for zebra or quagga mussels in Idaho's systems. Water managers in impacted western states (CA, NV, AZ, TX) have been forced to scramble to develop control technologies within water delivery infrastructure systems. This work began shortly after the discovery of these mussels in the Lake Mead National Recreation Area and Hoover Dam in 2007. Unfortunately, control options for lakes, rivers, and naturally flowing river systems are poorly-developed.

To date, there are no known control technologies available for use outside of closed (infrastructure-type) systems. Applied research is needed to find new tools to eradicate or contain these species in an Idaho field response situation. Waterbodies, such as the Snake River, have numerous private and public stakeholders that have access or management authorities. Diversion facilities for irrigation, hydroelectric power generation, municipal water systems, aquaculture and recreation are just a few of the uses and management influences on the river. In order to initiate this work, the Idaho Invasive Species Council convened a roundtable of stakeholders to determine what steps should be taken to prepare the state for a zebra or quagga mussel outbreak.

These stakeholders included conservation groups, water users, canal companies, irrigation districts, utilities, municipal water companies and germane state and federal agencies. The roundtable participants were asked to weigh options in the event these species are discovered in the state. Given the complexities of preventing and treating waterbodies in the event quagga or zebra mussels are discovered in Idaho, the group recommended that the state develop an “Exclusion Strategy and Contingency Plan.”

The goal of the “Exclusion Strategy and Contingency Plan” is to compile a summary of Idaho’s waterbody data, available control technology options and assess Idaho’s technical and regulatory gaps, including Endangered Species concerns. The “Exclusion Strategy and Contingency Plan” will be completed in early 2011.



2010 Program Highlights

- ISDA worked cooperatively with several local governments to establish and operate 20 mandatory inspection stations statewide during the 2010 boating season.
- The Idaho Invasive Species Program inspected boats from 49 states during the 2010 season.
- The State of Idaho has conducted more than 60,000 mandatory watercraft inspections since July 4, 2009.
- A total of 11 fouled boats have been intercepted and decontaminated before they were allowed to launch into Idaho’s 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 waterbodies.



ISDA AND USDA COOPERATIVE RANGELAND GRASSHOPPER AND MORMON CRICKET SUPPRESSION PROGRAM

Introduction

Grasshoppers and Mormon crickets continue to be one of the most 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 during the last few 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 has addressed this issue with special funding to the impacted states of Idaho, Utah and Nevada.

Background

Sixty-four percent of Idaho lands are administered by the Federal Government. 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

Idaho experienced major grasshopper outbreaks in 2010 with damage to crops from moderate to very heavy, depending on location and the time of year. The cool wet weather from April to mid-June kept soil temperatures

lower than normal. Emergence of first instar grasshoppers was delayed throughout the state, resulting in many infestations of both young instars and adult grasshoppers in a given location. Infesting populations were primarily a mixture of the *Melanoplus sanguinipes*, and *Camnula pellucida* grasshopper species. ISDA increased the number of aerial applications from one treatment in 2009, to nine treatments in 2010 that were concentrated in the southern Idaho counties of Ada, Jerome and Lincoln, to protect crop production on over 24,000 acres in response to increased grasshopper infestations. Ada and Elmore Counties had significant increases in the distribution of bait for grasshopper control in 2010 as well. No environmental factors occurred that would significantly reduce the grasshopper numbers from laying eggs this fall. It is reasonable to expect significant grasshopper outbreaks to continue in several areas of the state during the 2011 season.

Summary of Mormon Cricket Survey Results

The Mormon cricket, *Anabrus simplex*, outbreak decreased in 2010, compared to 2009, with the primary infestations still occurring in Owyhee and Washington Counties. The Owyhee County infestation was primarily along the eastern slope of the Owyhee Mountains. A late hatch and migration of Mormon crickets did occur in September on the Murphy plains area near Oreana. The Washington County infestation was significantly less in 2010, compared to 2009.

The long-legged cricket, *Anabrus longipes*, was found for the third consecutive year, but in fewer numbers per acre, in Kootenai County. The shield-backed katydid, of the genus *Stieroxys*, was found for the second consecutive season in the Rathrum Prairie of Kootenai County, but in fewer numbers than in 2009. The probable species was *Stieroxys borealis*, or the boreal grass katydid. The coulee cricket, *Peranabrus scabricollis*, was found in reduced numbers in 2010, compared to 2009, on the Joseph Plains near Canfield in Idaho County.

Summary of ISDA Program

In 2010, ISDA continued to suppress outbreaks of grasshopper and Mormon crickets statewide. Over 300 landowners in 27 counties received assistance in the form of bait or cost-share spray projects. A total of 326,350 lbs. of bait, valued at \$254,500, was distributed to private landowners in 2010, a decrease of 101,650 lbs. from the bait distributed in 2009, but still the third highest distribution of bait in 11 years. Nine cost-share projects were conducted to protect 24,769 acres from grasshopper infestations with ISDA assistance of \$24,957.07 to cover 1/2 of the treatment costs. In addition, ISDA protected 428 acres on impacted state lands and county road rights-of-way in Owyhee and Washington Counties.

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.

2010 – COST SHARE PROJECTS WITH PRIVATE LANDOWNERS FOR GRASSHOPPER SUPPRESSION

Project Location	Acres Treated	Total Protected Acres	Insecticide	Cost to ISDA (1/2)	Cost to Private Landowner (1/2)	Total Project Cost	Cost Per Acres Protected
Ada County	335	335	Malathion ULV	\$1,047	\$1,047	\$2,094	\$6.25
Blaine County	320	320	Malathion ULV	\$637	\$637	\$1,274	\$3.98
Gem County	320	320	Dimilin 2L	\$800	\$800	\$1,600	\$5.00

Project Location	Acres Treated	Total Protected Acres	Insecticide	Cost to ISDA (1/2)	Cost to Private Landowner (1/2)	Total Project Cost	Cost Per Acres Protected
Gem County	322	322	Malathion ULV	\$886	\$885	\$1,771	\$5.50
Jerome County	1,133	2,266	Dimilin 2L	\$2,011	\$2,011	\$4,022	\$1.78
Lincoln County	3,440	6,880	Dimilin 2L	\$5,848	\$5,848	\$11,696	\$1.70
Lincoln County	5,075	10,150	Dimilin 2L	\$9,769	\$9,769	\$19,538	\$1.93
Lincoln County	1,237	2,475	Dimilin 2L	\$2,196	\$2,195	\$4,391	\$1.77
Lincoln County	850	1,701	Dimilin 2L	\$1,764	\$1,764	\$3,528	\$2.07
Totals	13,032	24,769		\$24,957	\$24,957	\$49,914	

2010 CARBARYL GROUND TREATMENTS ON COUNTY ROAD RIGHTS-OF-WAY AND STATELANDS

County	Total Pounds Applied	Acres Treated
Owyhee	100 lbs.	8 Acres
Washington	4,200 lbs.	420 Acres
Total	4,300 lbs.	428 Acres

MULTI-YEAR SUMMARY OF CARBARYL TREATMENTS ON COUNTY ROAD RIGHTS-OF-WAY AND STATE LANDS

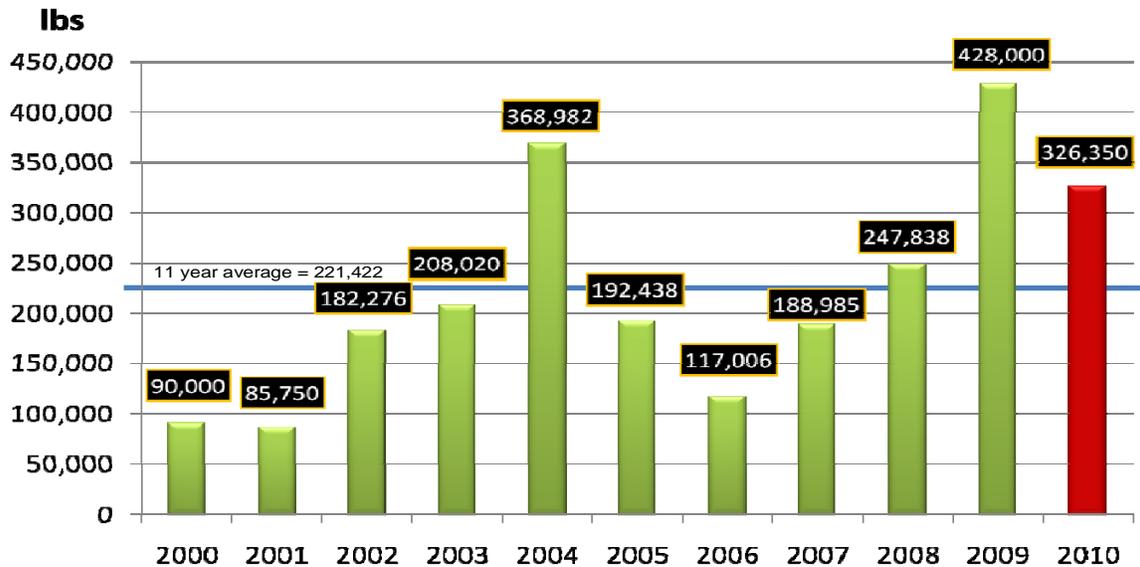
Year	Total Pounds Applied	Acres Treated
2005	12,175	1,218
2006	6,612	661
2007	3,906	340
2008	3,750	194
2009	21,200	1,446
2010	4,300	428

**2010 - BAIT DISTRIBUTIONS TO PRIVATE LANDOWNERS FOR MORMON CRICKET
AND GRASSHOPPER SUPPRESSION**

Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
1	Ada	60,900	31
2	Elmore	47,500	55
3	Owyhee	35,150	24
4	Washington	25,450	20
5	Gem	23,000	12
6	Minidoka	20,600	6
7	Idaho	15,550	32
8	Kootenai	13,650	21
9	Blaine	10,600	7
10	Boundary	8,900	6
11	Adams	7,650	5
12	Boise	6,950	30
	Twin Falls	6,950	5
14	Canyon	6,050	7
15	Lincoln	5,500	7
16	Camas	5,000	1
	Clearwater	5,000	7
	Nez Perce	5,000	8
19	Gooding	4,750	4
20	Latah	4,400	7
21	Oneida	3,800	2
22	Bingham	1,400	1

Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
23	Butte	1,250	2
24	Power	650	1
25	3 Other Counties	700	3
Totals	27 Counties	326,350	304

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



MAJOR COOPERATORS FOR THE GRASSHOPPER/MORMON CRICKET PROGRAM

During the 2010 season, the following cooperators provided significant help with bait distributions and overall program delivery:

- University of Idaho, Extension Service, Elmore County
- University of Idaho, Extension Service, Franklin County
- University of Idaho, Extension Service, Jefferson County
- University of Idaho, Extension Service, Latah County
- University of Idaho, Extension Service, Lincoln County
- University of Idaho, Extension Service, Nez Perce County
- University of Idaho, Extension Service, Oneida County
- Randy Rowe Trucking Company, Twin Falls, ID.
- Boise County Road Department, Gardena, ID.
- Midvale Phone Company, Midvale, ID.
- Primeland Cooperative – Grangeville, ID.
- Primeland Cooperative – Lewiston, ID.
- Primeland Cooperative – Moscow, ID.
- Wilbur Ellis Company – Caldwell, ID
- Wilbur Ellis Company – Potlatch, ID
- Wilbur Ellis Company – Spokane, WA
- Pineview Garden Center – Hayden, ID

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 Garry West, Program Manager, garry.west@agri.idaho.gov; 208.736.2195
 Vacant, Program Manager, Entomologist,
 Mike Cooper, Bureau Chief, mike.cooper@agri.idaho.gov, 208.332.8620

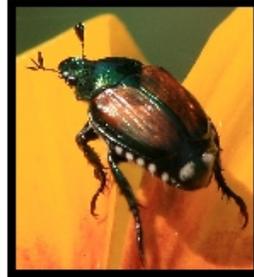
2010 PUBLIC OUTREACH AND EDUCATIONAL PRESENTATIONS ON INVASIVE SPECIES, PEST SURVEY AND DETECTION AND GRASSHOPPER MANAGEMENT PROGRAMS

Date	ISDA Staff	Event	Target Audience
January 22	Simko	Idaho Nursery and Landscape Association Conference	Nursery growers and allied industry representatives
February 3	Simko	Payette County Orchard Review Board	Orchardist board members
February 19	Simko	Treasure Valley Chemical Fruit Fair	Growers and crop consultants
February 24	Simko	ID Wine Industry Meeting	Wine and grape producers and allied industry representatives
March 17	Simko	Idaho Cherry Commission Meeting	Commodity leaders
March 24	Simko	Idaho Wine and Grape Commission Meeting	Commodity leaders
April 13	Simko	Pacific Branch Entomological Society of America, Career Development Seminar	Pacific Branch graduate students
April 16	Simko/Vavricka	Snake River Valley Table Grape Growers Association Meeting	Association leaders
April 16	Simko	College of Western Idaho, Hort. Tech Class	Undergraduate students
April 30	Simko/Cooper PPQ Staff	Japanese Cherry Pilot Study Protocol Symms and Williamson	Agency and industry representatives
May 3	Simko/Lawson	Latah County Grasshopper and Spotted Wing Drosophila Outreach	Local landowners and gardeners
May 4	Simko/Lawson	Nez Perce County Grasshopper and Spotted Wing Drosophila Outreach	Local landowners and gardeners
May 27	Simko/Lawson	Bonner County Grasshopper and Spotted Wing Drosophila Outreach	Area landowners and small fruit growers
June 22	Simko	Idaho Eastern Oregon Seed Association Summer Conference	Seed Company Leaders
July 20	Simko	Boise Metro Rotary Club	Local Rotarians
July 21	Simko	Idaho Horticulture Society Summer Tour	Producers, crop consultants and university representatives
July 26	Simko	Idaho Seed Analyst Association Summer Workshop	Government and private company seed analysts
October 26-27	Cooper	Western State and Canada Regulatory Conference	Government Regulatory Officials
November 22nd	Cooper	Idaho Horticulture Society Annual Conference	Fruit Growers, Allied Industry and Government representatives

Date	ISDA Staff	Event	Target Audience
December 14	Simko/Lawson	Grasshopper Program Update Gem County PAT	Local growers and ranchers
01/16/10	Ferriter	Idaho BASS Federation Annual Meeting – Presentation	Anglers
02/16/10	Ferriter	Idaho Water Users - Water Quality – Presentation	Industry, Stakeholders
02/19/10	Ferriter	Columbia River Basin Team – Presentation	Columbia River Basin state, federal, tribal cooperators
03/5/10	Ferriter	Idaho American Fisheries Society – Presentation	Fisheries biologists
04/29/10	Ferriter	Sheriff Marine Law Enforcement Academy - Presentation	Sheriff Office Marine Deputies
04/30/10	Ferriter	Watercraft Inspection Training – Twin Falls – Training	Watercraft inspectors, Twin Falls County Marine Deputies
05/05/10	Ferriter	Idaho Tourism Conference – Presentation	Outfitters, guides, tourism related industry
05/11/10	Ferriter	Watercraft Inspection Training – Malad – Training	Watercraft inspectors for Bear Lake, Juniper, Malad, Franklin
05/25/10	Ferriter	Watercraft Inspector Training – Henrys Lake – Training	Watercraft inspectors for Henrys Lake
05/25/10	Ferriter	South Fork Outfitters and Guides/USFS - Presentation	Outfitters and guides for the South Fork/Yellowstone Area
06/10/10	Ferriter	Columbia River Basin Team – Presentation	Columbia River basin state, federal and tribal cooperators
09/12/10	Ferriter	Council of State Governments – West – 2 Presentations	Policymakers
10/05/10	Ferriter	Western Regional Panel Annual Meeting – Presentation	17 Western States
10/20/10	Ferriter	Columbia River basin team - Presentation	Columbia River Basin state, federal, tribal cooperators
1-26-10	Dan Safford	Western Idaho Ag Show	Farmers and Ranchers
6-10-10	Dan Safford	Lower Weiser Cooperative Weed Management Weed Tour	Farmers and Ranchers
February 4, 2010	Woolf	Idaho Noxious Weed Conf, Burley	Weed managers, irrigators, and interested public
February 23, 2010	Woolf	Idaho Water Users Pesticide Recertification Training, Rupert	Weed managers, irrigators, and interested public
February 24, 2010	Woolf	Idaho Water Users Pesticide Recertification Training, Jerome	Weed managers, irrigators, and interested public
February 25, 2010	Woolf	Idaho Water Users Pesticide Recertification Training, Nampa	Weed managers, irrigators, and interested public
March 15, 2010	Woolf	Watercraft Inspection Training Duck Valley	Tribal members, Shoshone Piute Tribe.
March 31, 2010	Woolf	Western Aquatic Plant Management Society Annual Meeting, Seattle	Aquatic plant managers from throughout the western states

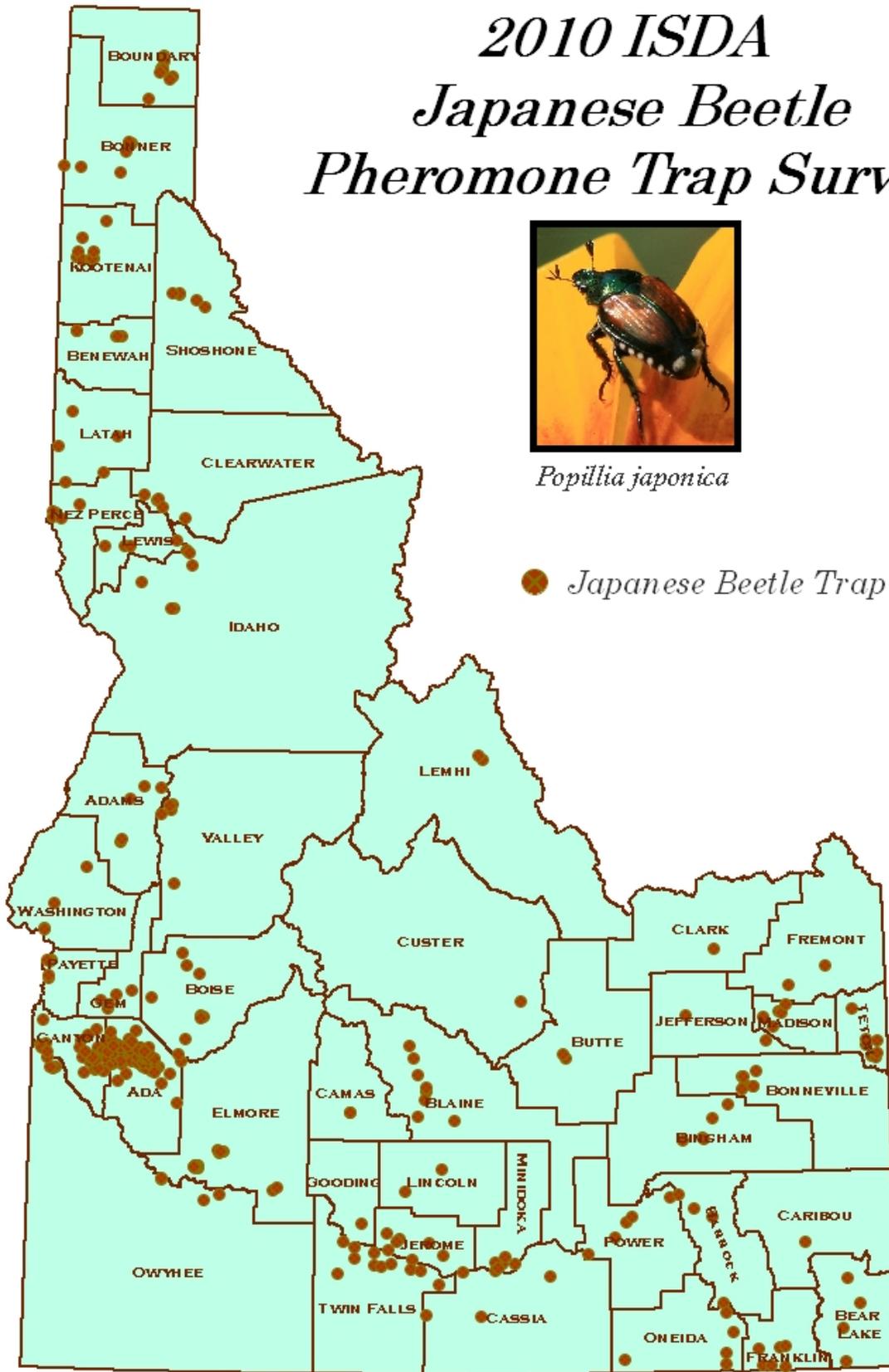
Date	ISDA Staff	Event	Target Audience
May 17, 2010	Woolf	Bonner Soil Conservation Dist Watercraft Inspector Training, Dover	Watercraft Inspectors in Bonner County
June 10, 2010	Woolf	Greater Yellowstone Area Invasive Species Training Workshop, Driggs	Weed managers, irrigators, fisheries personnel and interested public
June 24, 2010	Woolf	Invasive Aquatic Species Public Workshop, Sandpoint	Interested Public
June 28, 2010	Woolf	Watercraft Inspection / Invasive Species Survey Training, Stanley	Watercraft Inspectors, Fisheries personnel
July 26, 2010	Woolf	Invasive Aquatic Species Workshop, Trout Creek	Weed managers, irrigators, fisheries personnel and interested public
July 27, 2010	Woolf	Invasive Aquatic Species Workshop and Survey, Priest Lake	Weed managers, fisheries personnel and interested public
October 28, 2010	Woolf	Invasive Plant Council, Coeur d'Alene	Weed managers and interested public
November 17, 2010	Woolf	Western Idaho Weed Control Assn Recertification Training, Caldwell	Weed managers, irrigators, and interested public
November 18, 2010	Woolf	Eastern Idaho Weed Control Assn Recertification Training, Twin Falls	Weed managers, irrigators, and interested public

2010 ISDA Japanese Beetle Pheromone Trap Survey



Popillia japonica

● Japanese Beetle Trap Sites

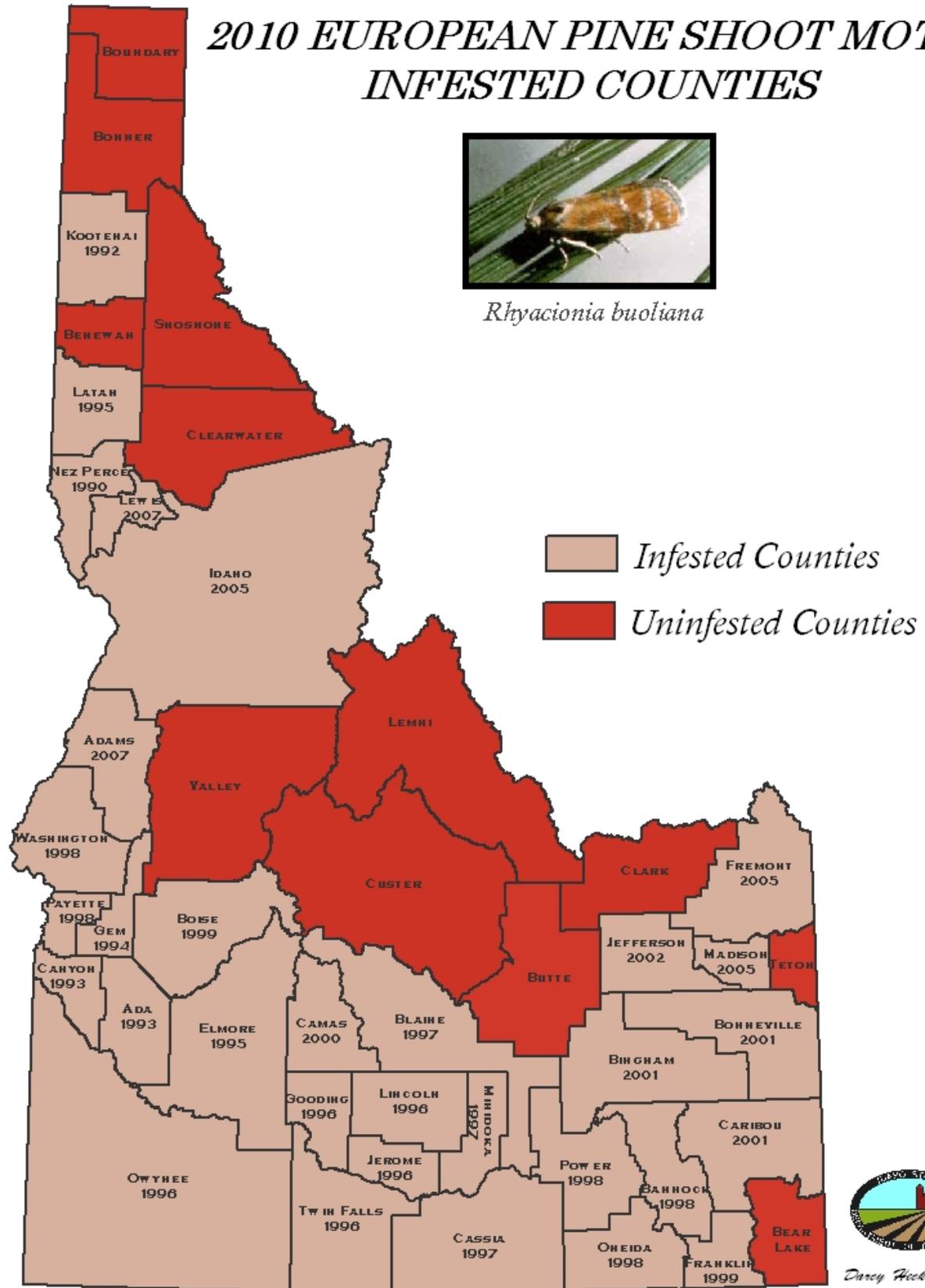


Darcy Hochathaus

2010 EUROPEAN PINE SHOOT MOTH INFESTED COUNTIES



Rhyacionia buoliana



Darcy Hochman

2010 ISDA GRAPE COMMODITY SURVEY



Planococcus ficus



Lobesia botrana



Eupoecilia ambiguella

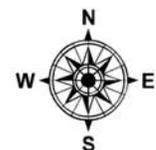
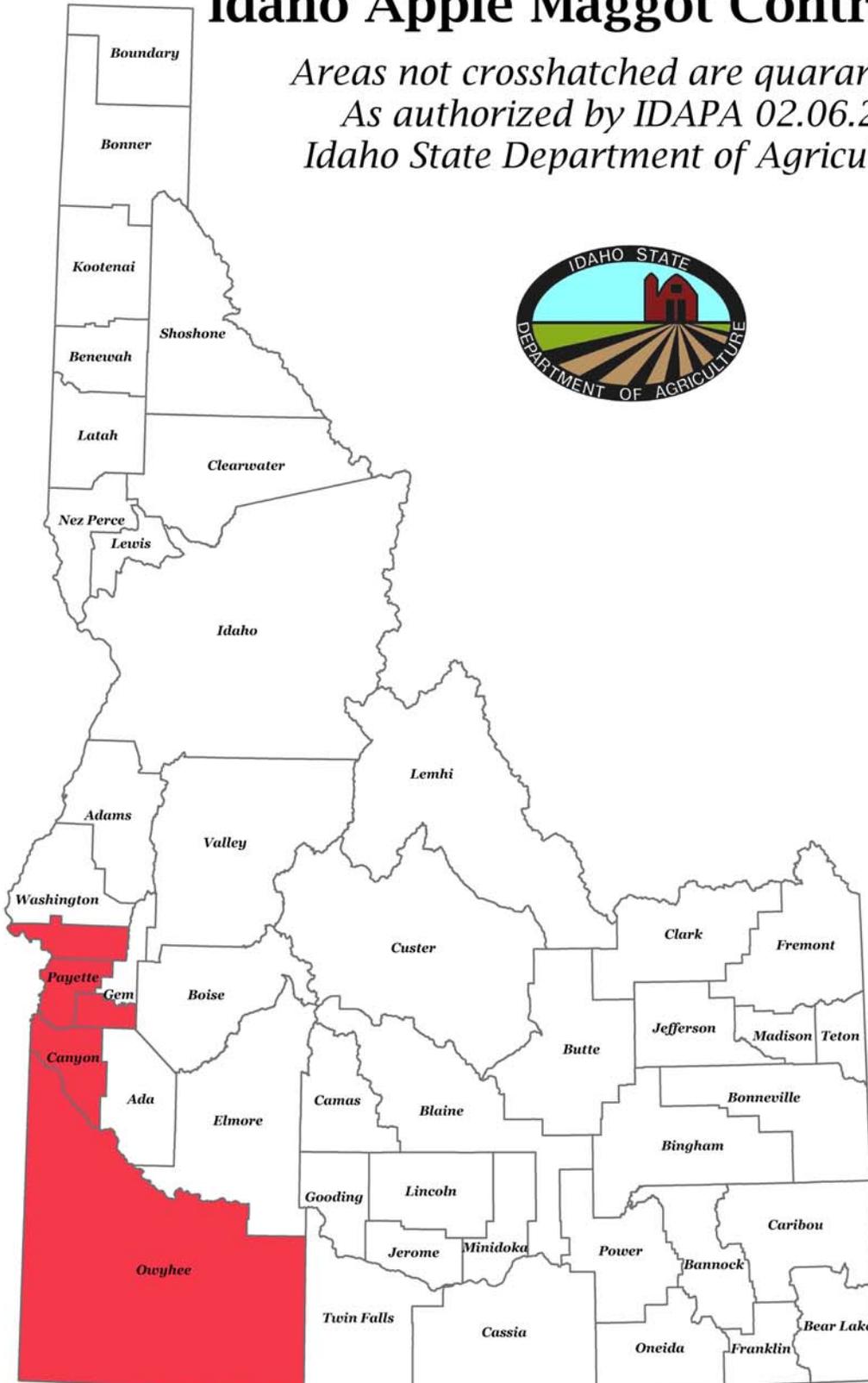
● Survey Trap Sites



Darcy Hochstetler

Idaho Apple Maggot Control Area

*Areas not crosshatched are quarantined
As authorized by IDAPA 02.06.23
Idaho State Department of Agriculture*



Shipped From	Exporting Company	Variety	Type	VIRUSES										
Washington (reexport British Columbia)	Inland Desert / Pan America	Niagara	table	LR1 +		LR3 +				GVA +	GSyV +	GVFV +		
Oregon	Meyer Nursery and Orchard	Suffolk Red	table	LR1 +						GVA +	GSyV +	GVFV +		
Oregon	Weeks Berry Nsy	Concord	table								GSyV +	GVFV +		
Oregon	Baileys	Suffolk Red	table	LR1 +						GVA +				
Washington	Pan American	White Riesling	wine	LR1 +						GVA +				
Oregon	Kraemers Nursery Inc	Pinot Gris	wine	LR1 +						GVA +				
California	Dave Wilson Nursery	Cambell's Early	table							GVA +				
Oregon	Kraemers Nursery Inc	White Riesling	wine	LR1 +						GVA +	GSyV +			
Oregon	Kraemers Nursery Inc	Pinot Gris	wine							GVA +			RsPaV +	GFkaV +
Michigan/Oregon/Washington	DeGroot Inc / Inland Desert	Niagra	table	LR1 +		LR3 +				GVA +				
Minnesota	Baileys	Bluebell	table		2RG +	LR3 +				GVA +				
Idaho	Moss Greenhouse	Candice	table							GVA +	GSyV +			
Utah	Pinae Greenhouse	Concord	table	LR1 +										
Utah	Pinae Greenhouse	Himrod	table	LR1 +						GVA +				
Oregon	Kraemers Nursery Inc	White Riesling	wine	LR1 +						GVA +				
New York	Concord Nurseries Inc.	Chambourcin	wine	LR1 +						GVA +				
Minnesota	Baileys	Reliance	table	LR1 +						GVA +	GSyV +			
Utah	Pinae Greenhouse	Red Flame	table	LR1 +						GVA +	GSyV +			
Oregon	Hine's Nursery	Flame Seedless	table	LR1 +						GVA +	GSyV +			
Oregon	Hine's Nursery	Black Monukka	table	LR1 +			LR4 +	LR 9 +		GVA +	GSyV +			
Minnesota	Baileys	Concord	table	LR1 +						GVA +	GSyV +			
Oregon	Weeks Berry Nsy	Himrod	table	LR1 +						GVA +	GSyV +			
Oregon	Weeks Berry Nsy	Interlaken	table											
Idaho	Greenhurst	Fr. Columbard	wine											
Oregon	Baileys	Concord	table											
British Columbia	Pan American	Pinot Gris	wine											
Oregon	Weeks	nimrod	table											
Oregon	Baileys	Himrod	table											
Oregon	Baileys	Valient	table											

Virus Key

LR1, 2RG, LR3, LR4, LR9 – strains of Grapevine leafroll virus
GVA – grapevine virus A
GSyV – grapevine syrah virus
RsPaV – rupestris stem pitting virus
GFkaV – grapevine fleck virus
GVFV – grapevine feathering virus

ISDA acknowledges the cooperation received from the University of Idaho, Plant Soils and Entomological Sciences Department faculty and staff for assistance in surveys and diagnostics.

* Indicates pest surveys funded jointly by state funds and federal USDA, APHIS, PPQ grants.

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

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