

**IDAHO STATE DEPARTMENT OF AGRICULTURE (ISDA)
DIVISION OF PLANT INDUSTRIES
BUREAU OF FEEDS AND PLANT SERVICES
2005 PEST SURVEY, NURSERY AND FIELD INSPECTION SUMMARY**

APPLE MAGGOT (AM) (*Rhagoletis pomonella* Walsh) - In 2005, 550 traps were placed at 295 sites in six counties (Boise, Canyon, Gem, Owyhee, Payette, and Washington) in and around the commercial apple production areas of each county. **The major tree fruit production areas of Payette, Canyon and Owyhee counties had negative trap data, building on a multi-year record of being AM-free.** An AM-free zone was established by rules (IDAPA 02.06.08) under the authority of Title 22, Chapter 20, Idaho Code. ISDA employees placed 108 traps in Washington County. AM traps were placed 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. Eight positive traps were found in Washington County near the quarantine line. Of these sites, three were **outside** of the AM-free zone and five positive sites were recorded just **within** the AM-free zone. Washington County survey results showed an increase from an average of 1 AM per trap



in 2004 to 3 insects per trap in 2005. The duration of trapping in 2005 was 135 days. Positive trap catches of adult AM were observed south of the Mann's Creek store, but still within a 1-2 mile radius of the positive AM trap catches recorded during the 2004 and 2003 seasons. The Washington County Abandoned Orchard Review Board, University of Idaho (UI), Washington County Extension Office, and the ISDA are currently working with the affected homeowners to control the pests or to remove the host material. Identifications are made through genitalia dissections

performed by UI insect taxonomist, Mr. Frank Merickle, at the W. F. Barr Entomological Museum in Moscow, under the direction of Dr. James D. Johnson. All orchards and trap sites were plotted using Geographic Information System (GIS) and Global Positioning System (GPS) technology. In 2005, ISDA deployed "Attract and Kill" red sphere traps provided by Dr. Starker Wright, United States Department of Agriculture (USDA), Agricultural Resource Services (ARS). Forty red sphere traps were placed near and in trees that had positive AM records last season. ISDA plans to conduct follow-up surveys in this area in 2006. An historical summary can be found on the ISDA website at <http://www.idahoag.us> under Plants and Insects, Regulated and Invasive Insect Pests.

Apple Maggot Four-Year Survey Data Summary, Washington County Area of Concern 2002-2005

Year	Total # sites	Total # traps	Total Positive Traps	% positive traps	Total AM Adults Caught	Average # AM per positive trap
2002	28	46	4	8.6	9	2
2003	61	121	10	8.3	42	4
2004	60	123	3	2.4	4	1
2005	59	108	8	7.4	26	3

***CEREAL LEAF BEETLE (CLB) (*Oulema melanopus* (Linnaeus))** – CLB was detected in Benewah County, which is a new county record for 2005. Shoshone and Clearwater county surveys were negative. This pest now occurs in 42 out of 44 Idaho counties. Biocontrol agent releases were made of the larval parasite, *Tetrastichus julis*, at a site in Kootenai County near Hayden Lake airport and at the Thiessen Ranch near Lewiston in Nez Perce County. Two field surveys conducted in June in Canyon County found a *T. julis* parasite level of over 50% in the CLB larval samples. A field insectary for the egg parasite, *Anaphes flavipes*, was initiated in the spring of 2004 at the University of Idaho, Southwest Idaho Research and Extension Center in Parma, in cooperation with the University of Idaho. Additionally, four releases of egg parasites, provided by the Colorado Department of Agriculture Insectary, were made during the peak CLB egg-laying period of May and June of 2005. There was successful reproduction and recovery of the egg parasites in the insectary field this season. Follow-up surveys will be conducted in the spring of 2006 to determine if the egg parasites have successfully overwintered and become established within the insectary field. Current CLB and biocontrol agent distribution maps are on pages 27 and 28.



CFF Larvae in a pitted cherry

WESTERN CHERRY FRUIT FLY (CFF) (*Rhagoletis indifferens* Curran) - ISDA conducts a trapping program to detect first emergence and tracks degree-day accumulation calculations for the western cherry fruit fly. The California Department of Food and Agriculture requires this for compliance with their Western Cherry Fruit Fly Quarantine for states wishing to export fresh sweet cherries to, or through, California. Fruit flies were first caught at a site in Canyon County on June 6, 2005. A degree-day model is 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.

Electronic notification was sent out with cooperation from the UI and the Treasure Valley 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 1998-2005 (1060 Degree Days)

Site	2005 Forecast First Adult Emergence	2005 Forecast 1 st Treatment Recommended 1060 degree- days	2004	2003	2002	2001	2000
			Historical 1060-degree day accumulation dates				
Boise	May 24	June 3	May 26	June 3	June 6	June 5	June 2
Caldwell	May 23	June 1	May 27	June 4	June 3	June 3	May 31
Emmett	May 29	June 7	May 30	Jun 5	N/A	N/A	N/A
Nampa	May 26	June 5	May 26	June 3	June 6	June 1	June 1
Payette	May 22	June 1	May 20	May 29	N/A	N/A	N/A
Parma	May 25	June 4	May 23	May 31	June 8	May 24	May 22
Weiser	May 28	June 7	May 21	June 2	N/A	N/A	N/A

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



This survey is performed to track EPSM's movement within the state for compliance with California, Montana, and Nevada quarantines. ISDA staff placed 156 EPSM moth traps in nurseries and pine tree plantations spread over 20 counties. Due to improved lure attractiveness, EPSM trap catches increased this season over the 2004 survey. **This year's survey resulted in four new county records for this species including Madison, Fremont, Lewis, and Idaho counties.** Recent mild winters and urbanization may

have also contributed to increased EPSM trap densities over recent seasons. Idaho pine tree growers are experiencing increasing EPSM pest incidence. Finding effective control regimes and complying with Montana, Nevada and California EPSM quarantines continue to challenge this segment of the Idaho nursery industry. A map showing Idaho counties positive for EPSM is located on page 29.



***GYPSY MOTH (GM) (*Lymantria dispar* (Linnaeus)) - Section Report provided by Gretchen Lech and R. Ladd Livingston, Idaho State Department of Lands, Coeur d'Alene, Idaho**

ABSTRACT:

In 2005, one GM was captured in Idaho. This moth was identified by the OTIS Methods Development Lab (OTIS) to be of the European/North American strain (EGM). The moth was caught in a detection trap in north Idaho near Kingston, along the Coeur d'Alene River in Shoshone County (Figure 1, page 8). Delimitation trapping was conducted surrounding the 2004 capture site of one Asian Gypsy Moth (AGM) near Hauser, Idaho (Figure 2, page 9). Aerial spray treatments were conducted surrounding the 2004 AGM capture site to ensure that no GMs remained in the area.



INTRODUCTION

Surveys to detect the introduction of the GM, *Lymantria dispar* L., have been conducted in Idaho each year since 1974 (Table 1, pages 4 & 5). The first GM 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 GMs have been caught in the treated areas since 1989. GMs have been caught in various areas throughout the state in the annual detection surveys every year from 1986 through 1995. No gypsy moths were caught in 1996 or 1997 (Mason and Livingston 1991, 1992, 1993, 1994, 1995, 1996, 1997). Seven GMs were caught in 1998, 5 at one site; the other two at widely separated locations of the state (Mason and Livingston 1998). An aerial spray eradication program was conducted in 1999 using *B.t.k.* No GMs were caught in 1999 or 2000 (Mason and Livingston 1999 & 2000). Two GMs were caught in 2001 (Casey and Livingston 2001), one each at widely separated locations of the state. No GMs were caught in

2002 or 2003 (Casey and Livingston 2002 & 2003). One GM, determined to be of the Asian

variety (AGM) was caught in 2004 near Hauser, Idaho (Lech and Livingston 2004).

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

- Idaho Department of Lands - Overall program coordination and trapping in northern Idaho, except in USDA Forest Service (USFS) campgrounds.
- ISDA - Trapping in southwestern Idaho and submission of data to the National Agricultural Pest Information System (NAPIS) data library.
- USDA, Animal and Plant Health Inspection Service (APHIS) - Provides cost share funding, traps, baits, and technical expertise.
- USFS, Region 4 - Trapping in southeastern Idaho.
- USFS, 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.

Table 1 - GM trapping history in Idaho.

YEAR	NUMBER OF TRAPS SET				NUMBER OF MOTHS CAUGHT				# POS. TRAPS
	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
1989	2248		7303	9551	17		51	68	54
1990	5640	358	3268	9266	4	2		6	3
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					

YEAR	NUMBER OF TRAPS SET				NUMBER OF MOTHS CAUGHT				# POS. TRAPS
	DET. ²	DEL. ³	MASS ⁴	TOTAL	DET. ²	DEL. ³	MASS ⁴	TOTAL	
2000	5398	36		5434					
2001	5346			5346	2			2	2
2002	5024	35		5059					
2003	5582	35		5617					
2004	5875			5875	1 AGM			1	1 AGM
2005	4989	1441		6430	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.

Table 2 – Total number of GM traps placed, by agency, in Idaho in 2005.

AGENCY	DETECTION TRAPS	DELIMIT TRAPS	MASS TRAPS	TOTAL TRAPS
Idaho Dept. of Lands	2984	1441	0	4425
ISDA	1460	0	0	1460
USFS - Region 4	438	0	0	438
USFS - Region 1	107	0	0	107
TOTALS	4989	1441	0	6430

2005 EGM PROGRAM

EGM SURVEY:

Detection Trapping - In 2005, the cooperating agencies of the Idaho GM detection program placed 4,989 detection traps throughout the state (Table 2). Trapping costs for the 2005 GM survey program in Idaho are shown in Table 3 on page 6. Table 4 on page 7 shows trap placements by county. Pheromone-baited traps were placed on a grid basis at a density of approximately four 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 occur are 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 GMs. 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 GM arrives on an outdoor household article brought by someone moving into the area. Between May 2004 and April 2005, there were 10,857 move-ins to the state, a 21% increase over the previous year. Campgrounds, tourist attractions, and other high-risk locations were also trapped. One male GM was caught in a detection trap in 2005. The trap was located in North Idaho, north of Kingston in Shoshone County. This moth was sent for genetic analysis, and it was determined to be of the European/North American strain. This moth could not be attributed

to a specific move-in; however, the area of the capture is used heavily for outdoor recreation and is visited by many recreational vehicles each season.

Delimitation Trapping – No delimitation trapping for EGM was conducted in 2005.

Mass Trapping – No mass trapping for EGM was conducted in Idaho in 2005.

2005 AGM PROGRAM

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

AGM ERADICATION:

Aerial Spray- In 2005, the Idaho Department of Lands in cooperation with USDA, APHIS, implemented plans to ensure that no AGM remained in North Idaho. A 600 acre area surrounding the 2004 capture site of one male AGM near Hauser, Idaho was sprayed with Foray 48B (*B.t.k.*) insecticide. The insecticide was applied at 64 oz., neat (24 BIU) per acre. The spray project consisted of three aerial applications applied 7-10 days apart. Spray dates were: May 12, May 21, and May 28, 2005.

AGM SURVEY:

Delimitation Trapping – Delimitation traps were placed at a density of 25 traps/mi² (first 2-mile radius) and 16 traps/mi² (next 3-mile radius) surrounding the 2004 capture site of one male AGM near Hauser, Idaho in Kootenai County. The 1,441 traps were placed prior to July 1, 2005, checked every 2 weeks during the summer, and removed the end of September. No gypsy moths were captured in the delimit area.

2006 PROGRAM

Delimitation Trapping – Delimitation trapping will be conducted for the second season in a 5 mile radius surrounding the 2004 capture site of one male AGM near Hauser, Idaho. The density will be 25 traps/mi² for the first 2-mile radius, then 16 traps/mi² for the next 3-mile radius. In addition, delimitation traps will be placed surrounding the Kingston, Idaho capture site of one male EGM.

Eradication - No eradications are proposed for the 2006 season.

Table 3 - Costs of the 2005 GM survey and treatment program.

AGENCY	COST	
	European GM	Asian GM
Idaho Department of Lands	\$44,000	
Idaho Department of Agriculture	\$18,374	
US Forest Service- Region 1	\$4,480	
US Forest Service- Region 4	\$12,000	
USDA- APHIS Direct Costs for traps, baits and travel	\$1,972	\$848
USDA- APHIS Cooperative grants	\$22,506	\$187,282
Total	\$103,332	\$188,130
GRAND TOTAL	\$291,462	

Table 4 - 2005 Trap placements by counties.

COUNTY		DETECTION	DELIMITATION	MASS	TOTAL
NAME	NO.	4/MILE ²	16 & 25/MILE ²	9/ACRE	TRAPS
Ada	1	411			411
Adams	2	0			0
Bannock	3	102			102
Bear Lake	4	4			4
Benewah	5	117			117
Bingham	6	32			32
Blaine	7	101			101
Boise	8	4			4
Bonner	9	1114			1114
Bonneville	10	106			106
Boundary	11	134			134
Butte	12	0			0
Camas	13	0			0
Canyon	14	204			204
Caribou	15	10			10
Cassia	16	19			19
Clark	17	2			2
Clearwater	18	95			95
Custer	19	31			31
Elmore	20	63			63
Franklin	21	8			8
Fremont	22	19			19
Gem	23	45			45
Gooding	24	79			79
Idaho	25	131			131
Jefferson	26	6			6
Jerome	27	1			1
Kootenai	28	946	1441		2387
Latah	29	242			242
Lemhi	30	24			24
Lewis	31	7			7
Lincoln	32	16			16
Madison	33	19			19
Minidoka	34	26			26
Nez Perce	35	129			129
Oneida	36	6			6
Owyhee	37	22			22
Payette	38	51			51
Power	39	10			10
Shoshone	40	176			176
Teton	41	8			8
Twin Falls	42	218			218
Valley	43	206			206
Washington	44	45			45
TOTALS		4989	1441	0	6430

Figure 1: State of Idaho 2005 Gypsy Moth Capture Site

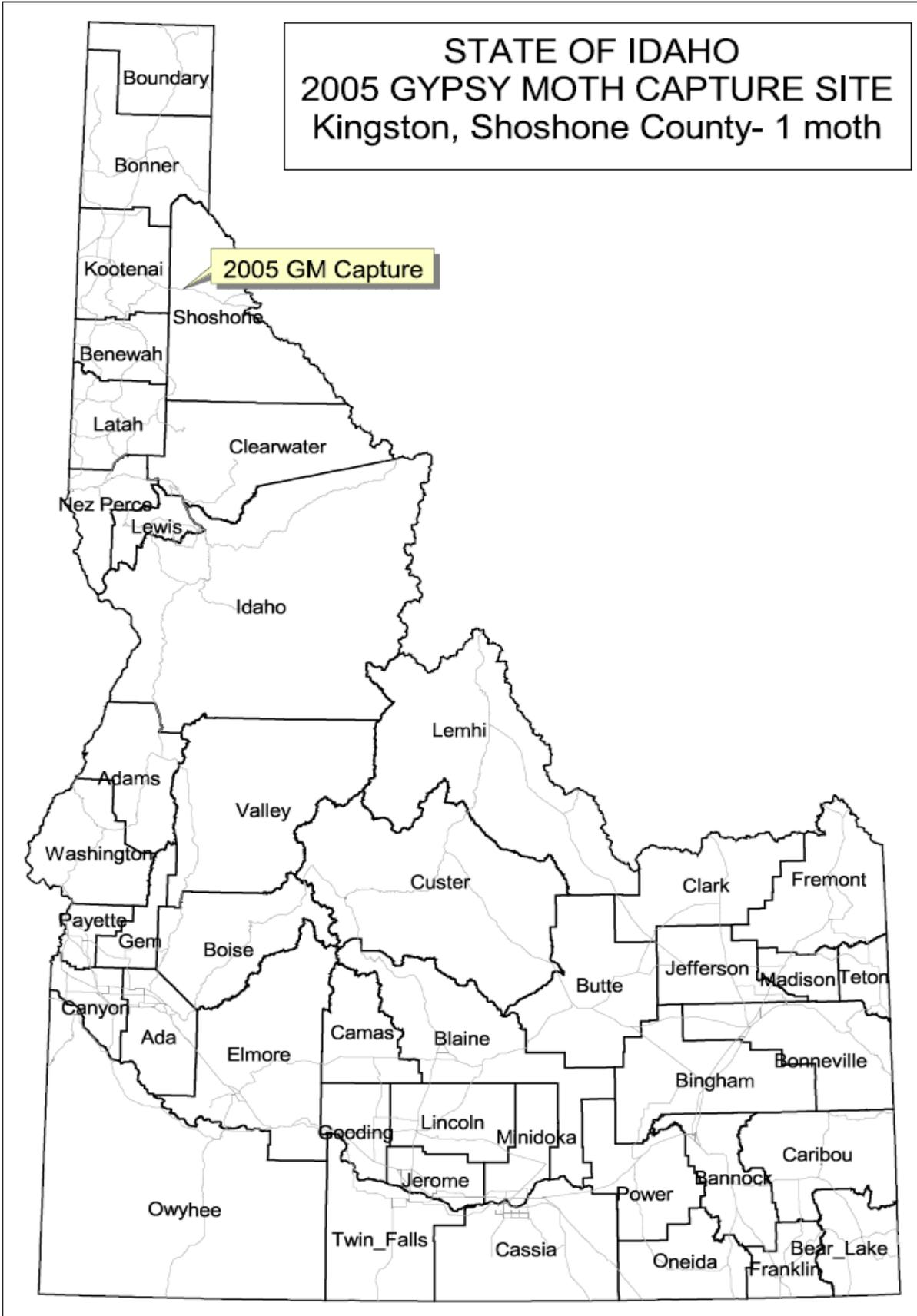
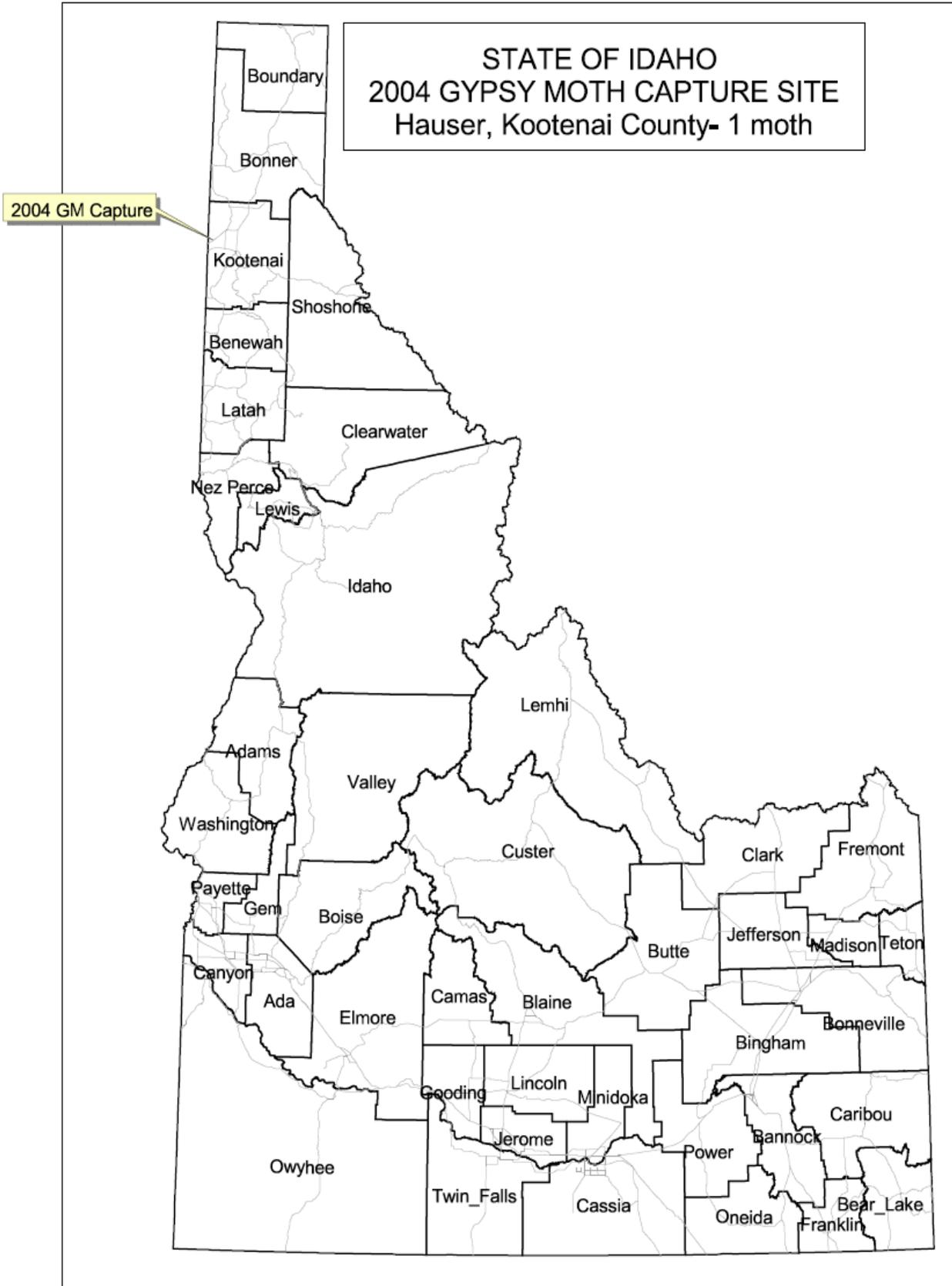


Figure 2: State of Idaho 2004 Gypsy Moth Capture Site



HAANCHEN BARLEY MEALYBUG (*Trionymus haancheni* McKenzie) - A new insect pest of barley, the Haanchen barley mealybug, was discovered for the first time in Idaho in Caribou county in June of 2003 by UI Entomologist, Juan M. Alvarez.



The host was a commercial barley field near Soda Springs. Additional surveys conducted by Dr. Alvarez have detected this pest in eight eastern Idaho counties: Bannock, Bingham, Bonneville, Fremont, Jefferson Madison, Power, and Teton. **There were no new county records of this pest for Idaho in 2005.** Overall pest



infestations and economic damage was less severe this season than in the last. This pest caused sporadic damage in barley fields near Ashton, Soda Springs, and Bancroft. The UI Current Information Series 1109 provides information on this emerging pest.

JAPANESE BEETLE (JB) (*Popillia japonica* Newman) – During the 2005 field season, 205



traps were placed in 42 counties and visual inspections of nursery premises were performed. **All traps and visual inspections were found negative.** 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 from infested eastern states being allowed into the Jackson, Wyoming area.

***KARNAL BUNT (KB) (*Tilletia indica*)** – ISDA collected 37 samples from 17 counties in Idaho for the 2005 KB Survey. All of the samples were collected and analyzed according to the 2005 National KB Monitoring Plan. **All samples processed were found free of *Tilletia indica*.** Below is a table listing sample numbers by county in the 2005 survey.

COUNTY	Number of KB Samples	COUNTY	Number of KB Samples
ADA	1	JEROME	2
BENEWAH	1	KOOTENAI	1
BONNEVILLE	3	LATAH	8
BUTTE	1	LINCOLN	1
CARIBOU	2	MINIDOKA	3
CLARK	1	ONEIDA	1
FRANKLIN	1	PAYETTE	11
GEM	1	TWIN FALLS	4
IDAHO	5		



MEXICAN BEAN BEETLE (MBB) (*Epilachna varivestis* Mulsant)

- As part of the export certification field inspection program of bean seed, ISDA staff conducted surveys for the presence of MBB. The last recorded infestation of MBB in Idaho occurred in the Boise area in 1993. Eradication efforts included the application of insecticide and the release of biological control agents. The infestation was successfully eradicated in 1994. No infestations have been recorded since then. The Idaho dry bean and garden bean seed production were targeted for a follow-up detection

survey. Seasonal inspectors were specifically trained and extra effort was made to check fields for any exotic bean insects. **No MBB infestations were detected during the 2005 field season.**

***SUDDEN OAK DEATH (SOD) (*Phytophthora ramorum*)**



- A SOD survey was conducted in cooperation with USDA, APHIS in 2005. ISDA staff visited 23 nurseries across the state. The 13 counties represented in this survey were Ada, Bannock, Blaine, Bonneville, Boundary, Canyon, Cassia, Jerome, Latah, Kootenai, Madison, Nez Perce, and Twin Falls. A total of 53 individual plants were tested for the survey. Samples were initially tested using an Enzyme Link Immunosorbent Assay (ELISA) to detect the presence of *Phytophthora* or related genera. **All 53 were negative for *Phytophthora ramorum*, using an ELISA screen and no further testing was required.** In addition, one other sample was submitted by a city forester for SOD testing; this was also negative.

***ASIAN SOYBEAN RUST (ASBR) (*Phakospora pachyrhizi*)**



- A special presentation was given at the Idaho Bean Commission spring meeting in Glenn's Ferry. The commissioners were brought up-to-date on the ASBR threat to the Idaho bean industry and the planned ISDA survey protocol. Four special training sessions were held to train ISDA and Idaho Crop Improvement Association (ACIA) field inspectors on the signs and symptoms of ASBR. As part of the phytosanitary and seed certification programs, 2,403 acres of dry beans and 16,277 acres of garden beans were surveyed for ASBR this summer. No suspicious ASBR samples were submitted to the ISDA Division of Plant Industries Plant Lab. **Idaho currently is negative for the occurrence of ASBR.**

Counties Surveyed for ASBR and MBB	Dry Bean Fields Inspected	Dry Bean Acres Inspected	Garden Bean Fields Inspected	Garden Bean Acres Inspected
Ada	5	70	46	251
Canyon	61	768	412	5,910
Cassia	4	76	31	902
Elmore	0	0	1	18
Gem	2	25	5	64
Gooding	0	0	2	93
Jerome	3	31	72	1,739
Lincoln	1	3	3	2
Minidoka	5	205	59	1723
Owyhee	1	28	19	348
Payette	2	42	13	158

Counties Surveyed for ASBR and MBB	Dry Bean Fields Inspected	Dry Bean Acres Inspected	Garden Bean Fields Inspected	Garden Bean Acres Inspected
Twin Falls	82	1,076	352	4,894
Washington	4	79	12	175
Idaho Total	170	2,403	1,027	16,277

WHEAT SEED GALL NEMATODE *Anguina tritici - There were 37 samples processed from 17 counties analyzed for the presence of this exotic nematode by UI Nematologist, Dr. Saad Hafez. All of the samples were sub sampled and 200 grams of seed were placed in a mist chamber using a Baermann funnel extraction technique. **All samples were negative for wheat seed gall nematode.** Below is a table listing sample numbers by county in the 2005 survey.

COUNTY	Wheat Seed Gall Nematode Samples	COUNTY	Wheat Seed Gall Nematode Samples
ADA	1	JEROME	2
BENEWAH	1	KOOTENAI	1
BONNEVILLE	3	LATAH	8
BUTTE	1	LINCOLN	1
CARIBOU	2	MINIDOKA	3
CLARK	1	ONEIDA	1
FRANKLIN	1	PAYETTE	1
GEM	1	TWIN FALLS	4
IDAHO	5		

***EXOTIC NEMATODE AND POTATO WART SURVEY** - This survey began in the fall of 2005 with plans for completion by July, 2006. ISDA Fresh Fruit and Vegetable Inspection (FF&V) employees were sufficiently trained and supplies were purchased. Soil samples and nematode diagnostics will be run on approximately 3,000 commercial tare dirt samples from over 60 potato packing facilities. About 600-700 ICIA seed tuber lot dirt samples will also be included in the survey. Suspect tubers from packing sheds will be analyzed for potato wart. Nematode diagnostics are being conducted by the UI, Nematology Lab at Parma. Thus far, 1,445 soil samples have been analyzed for exotic nematodes and 34 suspect tubers examined for potato wart. **All samples have been negative for both exotic nematodes and potato wart. Complete results of the survey will be published in the 2006 annual report.**

BROWN GARDEN SNAIL (BGS) (*Chrytomphalus apersa* Muller)

The first official state record of BGS was reported in Boise, Ada County, August 27, 2005.



Information on BGS as a new emerging pest went out to the media a few days later. There was immense response from the public regarding suspected BGS infestations in home gardens. Seventy-six respondents contacted ISDA and to date 24 positive BGS infestations have been confirmed. Most infestations were reported from the Boise metropolitan area; however, there are now official county records in Canyon County in Nampa, Gooding County in Hagerman, Nez Perce County in Lewiston and Kootenai County in Coeur d'Alene. A state detection map can be found on page 30. ISDA is conducting an information campaign on this emerging pest, targeting home gardeners and the nursery industry. Molluscicide bait will be distributed to the impacted public in the spring and summer of 2006.



POTATO TUBERWORM SURVEY (PTW) (*Phthorimaea operculella* Zeller) - During the 2005 growing season, the UI PTW survey was initiated, under the direction of Dr. Juan Alvarez, and funded through a grant from the Idaho Potato Commission. UI personnel placed 36 traps in potato fields across southern Idaho. On August 26, 2005, two adult moths were trapped on the edge of the variety trail plots at the UI Experiment Station in Parma. In reaction to this positive and as a result of a September 8 meeting between ISDA, UI and industry officials, it was decided that ISDA would implement a more extensive survey of the potato growing areas of the state to include commercial and seed fields, as well as packing and processing facilities. Four-hundred sixty one traps in 22 counties with significant potato acreage were deployed in mid September for a PTW survey. From the first trap catch by the UI Parma Experiment Station on August 26 until December 2, a total of 19 moths were caught. ISDA now has three potential infested counties that include Canyon, Payette, and Elmore counties. Trap counts have been low with the highest trap catches for 7-day trap period at two moths. Canyon county had positive traps at 8 fields impacting 4 growers; Payette county had one positive field involving one grower; and Elmore county had 2 positive fields involving 2 growers. Several packing and processor facilities were also surveyed. No live larvae or feeding damage has been observed in tubers based on field inspections and FF&V grade inspections. On November 21, ISDA began taking down most of the 461 deployed PTW traps. The last positive trap capture was one moth on October 26. Since that date, no new suspicious moths have been caught nor any positive PTW traps confirmed. The W.F. Barr Entomology Museum in Moscow recorded a previous catch of PTW on March 4, 1959 in Boise. The situation was stored potatoes and the collector was R. Portman. ISDA plans to do follow-up detection surveys during 2006. Results of the 2005 survey are presented on a map located on page 31.



DISEASES AND PESTS FOUND DURING 2005 FIELD INSPECTIONS FOR EXPORT CERTIFICATION - Weather conditions for the 2005 growing season were wetter in May and June than last year. However, the summer months were somewhat cooler. This may have again contributed to fewer diseases being observed during active growth field inspections. Limited supplies of irrigation water late in the growing season may also have contributed to drier-than-normal field conditions resulting in less disease expression in the field.

Forty-three seed companies submitted a total of 42,961 acres for inspection in 2005 compared to 44 firms enrolling 46,282 acres in 2004. The number of acres actually inspected, due to multiple inspections required for some crop diseases, was 74,905 acres versus 79,671 acres in 2004 versus 71,357 acres in 2003. There were 2,987 fields representing 28 different crops inspected in the Field Inspection for Export Certification program in 2005.

Year	# Participating Firms	# of Crops	# Fields	Submitted Acres	Inspected Acres
2002	46	25	2,538	36,859	60,692
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

Alfalfa seed: A total of 2,103.25 acres were submitted for inspection. Canadian Thistle (*Cirsium arvense*) was observed in 346 acres. *Phoma medicaginis* was observed in 135 acres. Alfalfa mosaic virus was observed in 79 acres. No Dodder (*Cuscuta* spp.), *Fusarium oxysporum f sp medicaginis*, Alfalfa mosaic virus, *Verticillium albo-atrum*, *Clavibacter michiganensis pv. insidiosus*, *Xanthomonas campestris pv. alfalfae*, *Ditylenchus dipsaci*, *Hieracium pilosella*, *Orobanche* spp., or *Striga* spp. were found.

Barley: A total of 13 acres of Barley were inspected in 2005. No *Tilletia controversa* or Barley stripe mosaic virus was detected.

Beans, Dry: A total of 2,402.40 acres were submitted for inspection. Bean common mosaic virus was observed in 19 acres. Bean southern mosaic virus and Bean yellow mosaic virus were not observed in any of the fields. To meet requirements for the Rules Governing The Planting Of Bean Seed (*Phaseolus*) Species In Idaho, IDAPA 02.06.06, all fields submitted were also inspected for Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, or Anthracnose, with none being observed.

Beans, Garden: A total of 16,360.65 acres were submitted for inspection in 2005. Common blight was observed in one 7-acre trial ground just west of Nampa. Halo blight was detected in one 76-acre production field near Burley. Samples of each suspect lot were verified by laboratory analysis to be regulated diseases under the Rules Governing The Planting Of Bean Seed (*Phaseolus*) Species in Idaho, IDAPA 02.06.06. Destruction orders were issued in each case. The Common blight was found mid-season and the entire trial ground destroyed during active growth. The Halo blight was detected during windrow inspection and the seed was segregated, removed from the warehouse and destroyed in accordance with the Rules.

Cantaloupe, Cucumber, Pumpkin, Squash and Watermelon: Twenty-five fields totaling 183.75 acres were submitted and inspected for Cucumber mosaic virus, Squash mosaic virus, *Xanthomonas cucurbitae*, *Pseudomonas syringae pv. lachrymans*, *Colletotrichum orbiculare*, and *Acidovorax avenae supsp. citrulli*. None of the diseases listed were detected.

Carrot: A total of 549.09 acres (78 fields) were inspected. *Alternaria radicina* was detected in 23.5 acres. No *Alternaria dauci*, *Pectobacterium carotovorum pv. carot*, or *Xanthomonas campestris pv. carotae* were detected.

Corn: None of the Downy mildew diseases, Maize chlorotic mottle virus, Southern corn leaf blight, was detected in any of the 8,497.14 acres submitted for inspection. High plains virus was found in 46.78 acres, 22 acres were found positive for Maize dwarf mosaic virus, and 74.28 acres were found positive for Wheat streak mosaic virus. Common smut, *Ustilago zaeae*, was observed in numerous fields as has been the case in prior seasons. Six fields were inspected, sampled and tested according to the requirements for export of sweet corn seed to Australia. Five of these fields were found positive for Wheat streak mosaic virus, and four of those five were found positive for High plains virus. Both of these diseases exclude fields from the Australian export program.

Garlic: Two fields totaling 1.5 acres were inspected and found free from any disease symptoms of quarantine significance, including *Sclerotium cepivorum* (Onion white rot).

Grain Sorghum: Three fields totaling 7.4 acres were inspected and found apparently free from all pests of quarantine concern.

Lettuce: Fifty-three fields totaling 409.5 acres were inspected and found apparently free from Lettuce mosaic virus. No pests of quarantine concern were found in any fields.

Mint: Nine fields totaling 114.52 acres were inspected and found apparently free from *Verticillium dahliae*, Mint root borer (*Fumibotys fumalis*), and *Pseudomonas nigrina*.

Onion and Chive: Sixty-five fields totaling 378.1 acres were inspected. All fields inspected were found apparently free from *Ditylenchus dipsaci*, *Alternaria porri*, *Urocystis colchici*, *Colletotrichum circinans*, and Onion yellow dwarf virus. Two acres were found positive for *Botrytis aclada*, and 3.5 acres were found positive for *Fusarium* spp. No Onion white rot (*Sclerotium cepivorum*) was observed in any of the fields submitted for inspection.

Peas: A total of 5,352.51 acres (417 fields) were inspected during active growth. No *Ascochyta pisi*, Pea early browning virus, Pea enation mosaic virus, Pea seedborne mosaic virus, or *Xanthomonas axonopodis* pv. *phaseoli* were observed in any of the fields. *Pseudomonas syringae* pv. *pisii*, was found infecting 443 acres.

Pepper: Three plots totaling 1.75 acres were inspected and found free from observable diseases of quarantine significance including *Colletotrichum dematium*, *Corynebacterium michiganensis* pv. *michiganensis*, Cucumber mosaic virus, *Phytophthora capsici*, *Ralstonia solanacearum*, *Pseudomonas syringae* pv. *Lachrymans*, *P. syringae* pv. *tomato*, *Xanthomonas vesicatoria*, and Tobacco etch virus.

Potato: Seven fields (585 acres) were inspected and found apparently free from *Phytophthora infestans*.

Radish: Twenty-two fields (324.5 acres) were inspected and found apparently free from *Colletotrichum higginsianum*, *Xanthomonas campestris* pv. *campestris*, and *X. campestris* pv. *raphani*.

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 2005 FIELD SEASON

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Alfalfa	107	2103.25	2053.25
Barley	2	13.00	13.00
Beans, Dry	170	2402.40	4884.80
Beans, Garden	1026	16337.85	37395.46
Cabbage	1	5.00	5.00
Cantaloupe	17	17.50	17.50
Carrot	78	549.09	549.09
Chive	1	2.00	2.00
Corn	845	8497.19	16105.47
Corn, Area	31	612.50	0.00
Cucumber	2	125.25	125.25
Garlic	2	1.45	1.20
Grain Sorghum	3	7.40	7.40
Kale	1	12.00	12.00
Kohlrabi	2	22.00	22.00
Leek	3	31.50	31.50
Lettuce	53	409.50	392.50

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Mint	9	114.52	229.04
Onion	64	376.10	376.10
Oregano	1	2.50	2.50
Peas	417	5795.60	11646.90
Peas, Area	104	4488.90	0.00
Pepper, Bell	2	1.00	1.00
Pepper, Hot	3	0.75	0.75
Potato	7	585.00	585.00
Pumpkin	1	0.75	0.75
Radish	22	324.50	324.50
Red Clover	3	55.00	55.00
Squash	1	0.75	0.75
Turnip	2	24.00	24.00
Watermelon	4	39.50	39.50
Wheat	3	3.00	2.00
TOTALS	2987	42960.75	74905.21

Eoin Davis, Program Manager, Division of Plant Industries, Boise, (208) 332-8620 and Garry West, Program Manager, Division of Plant Industries, Twin Falls, (208) 736-2195, compiled the field disease report.

2005 PLANT PATHOLOGY LAB SUMMARY

In 2005, the plant pathology lab received a total of 628 samples, and ran 2,527 tests. The average turnaround time in days per sample (TO) was 29 days. The number of samples and tests were down from last year (58%, and 29% respectively). The lab improved turnaround time by 25%. Of the samples tested, 251 were beans for serology tests. This year 9 lots were found positive for a restricted organism (see table below). The lab also tested 101 seed samples submitted for export concerns, and 3 potato lots were submitted for 'year out' certification. ISDA plant industry inspectors collected 102 field samples. Also discovered were 1 bean field with common blight (*Xanthomonas campestris pv. phaseoli*) and 1 field infected with halo blight (*Pseudomonas savastanoi pv. phaseolicola*). Six out of 10 carrot fields tested were found positive for *Alternaria radicina* root rot. Levels of High Plains Virus and Wheat Streak Mosaic virus were fairly high in corn fields this year with 9 fields out of 28 tested positive for each virus. Twenty-two out of 85 fields of peas tested were found positive for bacterial blight (*P.syringae pv. pisi*). Full results are listed in the table below.

The Plant Lab also participated in two national surveys; Karnal Bunt (KB), and Sudden Oak Death (SOD). The KB survey included 37 samples from 17 counties. All samples were negative for KB. The SOD survey included 55 samples. Of these, one sample came from a nursery that received stock from an infested facility in Oregon. One sample was privately submitted, and Plant Industry inspectors collected 53 samples from 24 different nurseries for the SOD national survey. No samples were found positive for SOD in Idaho.

CROP		# SAMPLES	# TESTS		POSITIVES (Organism)
Bean					
	seed	251	1501		3 (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)
					2 (<i>Xanthomonas axonopodis</i> pv. <i>phaseoli</i>)
					4 (<i>Pseudomonas savastanoi</i> pv. <i>phaseolicola</i>)
	field	12	35		1 (Potyvirus)
					1 (<i>Xanthomonas axonopodis</i> pv. <i>phaseoli</i>)
					1 (<i>Pseudomonas savastanoi</i> pv. <i>phaseolicola</i>)
Misc Seed					
	alfalfa	54	74		2 (<i>Clavibacter michiganense</i> pv. <i>insidiosum</i>)
	barley	8	8		
	broccoli	3	6		
	garbanzo	6	6		
	orchardgrass	1	1		
	pea	2	4		
	radish	8	15		
	red clover	3	3		
	spinach	2	2		2 (<i>Verticillium</i> sp.)
	timothy grass	3	3		
	wheat	3	3		
	wheat straw	5	10		
	tall fescue	3	3		
Misc. Field					
	alfalfa	8	8		2 (Alfalfa Mosaic Alfamovirus)
	Amur maackia	1	1		
	ash	2	2		
	aspen	2	2		2 (<i>Cytospora</i> sp.)
	barley	4	4		2 (<i>Helminthosporium sativum</i>)
					1 (<i>Helminthosporium spiciferum</i>)
					1 (<i>Xanthomonas translucens</i>)
	carrot	10	10		6 (<i>Alternaria radicina</i>)
	corn	28	575		9 (Wheat Streak Mosaic Potyvirus)
					1 (Maize Dwarf Mosaic Potyvirus)
					9 (High Plains Virus)
					1 (<i>Puccinia sorghi</i>)
	dogwood	3	4		1 (<i>Septoria</i>)
	elm	1	1		
	euonymus	1	1		1 (<i>Oidium</i> sp.) - powdery mildew
	lettuce	4	4		
	lilac	2	2		1 (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)
	lonicera	1	2		

CROP		# SAMPLES	# TESTS		POSITIVES (Organism)
	onion	2		2	1 (<i>Botrytis allii</i>)
					1 (<i>Botrytis cinerea</i>)
	pea	85		124	2 (<i>Fusarium oxysporum</i>)
					22 (<i>Pseudomonas syringae</i> pv. <i>pis</i>)
					4 (<i>Phoma medicagenis</i> var. <i>pinodella</i>) - anthracnose
					1 (Pea Seedborne Mosaic Virus)
	peach	1		1	1 (<i>Taphrina deformans</i>)
	pear	2		2	
	pepper / tomato	1		1	
	pine	1		1	
	<i>Picea pungens</i>	1		1	1 (<i>Rhizosphaeria</i> sp.)
	plum	1		1	
	potato	1		1	1 (Potato Virus Y)
	prunus	1		1	1 (<i>Stigminta carpophilla</i>) - shot hole
	radish	1		1	1 (<i>Albugo candida</i>) - white rust
	rose	1		1	1 (<i>Pseudomonas syringae</i>)
	serviceberry	1		1	1 (<i>Gymnosporangium libocedri</i>)
	sorbus	1		1	
	tomato	1		1	
	viburnum	1		1	
SOD	traceforward	1		1	
	submit	1		1	
	survey	53		48	
KB Survey		37		37	
Potato	year out	3		9	2 (Potato Virus Y)

The Plant Pathology Laboratory Report was compiled by Ms. Liz Vavricka, Principal Microbiologist, Boise, ID Phone (208) 332-8640.

EXPORT CERTIFICATION FOR THE 2005 CALENDAR YEAR

The ISDA issued 3,766 Federal and 566 State Phytosanitary Certificates for 76 different types of commodities to 90 countries. The Division of Plant Industries certified 188,233,000 pounds of seed and other commodities for export. The Idaho State Department of Agriculture operates this program under a Memorandum of Understanding with the U.S. Department of Agriculture.

NURSERY INSPECTIONS FOR COMPLIANCE WITH THE IDAHO NURSERY LAW TITLE 22, CHAPTER 23 IDAHO CODE

In 2005, there were over 1,900 licensed nurseries, and of those, 955 were inspected for compliance with the Idaho Nursery and Florists Law and for the presence of plant pests and noxious weeds. In addition, specific checks were made for compliance with various state laws, quarantines and pests of particular concern. The results are listed below:

Quarantine/Pests	NO. OF INSPECTIONS	Incidents	Corrective Action	Stop Sales
Certified Seed Potatoes	133	5	1	2
Onion White Rot	171	11		8
European Corn Borer	271			
Japanese Beetle	470			
Mint Quarantine	123			
Crop Management Zone	38			
Grape Quarantine	101	4	1	3
Peach Tree Quarantine	39			
Sudden Oak Death	418	17	8	3
Pine Shoot Beetle	310			
Gypsy Moth	492			
Red Imported Fire Ants	320			
Noxious Weeds	717	32	16	
Idaho Seed Law	265	1	1	2
Nematodes	3			
Aphids	883	34	7	
Late Blight	354			
Hops	13			
Retail Potatoes	126	8	1	
General Pests	98	154	30	
Snails	531			
Day Lily Rust	0			
Total Inspections	5,846	266	65	18

*PUBLIC OUTREACH AND EDUCATIONAL PROGRAMS FOR EXOTIC PESTS

- Invasive Species Overview - Idaho Nursery and Landscape Association winter meeting, Boise, ID.
- Pest Detection Program Updates – Food Producers of Idaho, Boise, ID
- Idaho CAPS Program Overview – State CAPS Committee, Boise, ID
- ISDA Web Pages developed and now available to public dealing with exotic pest threats to Idaho agriculture.
- New ISDA Invasive Species Information brochure and display board were completed
- Idaho Environmental Care Association presentations given in Boise and Twin Falls

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

USDA FEDERAL LANDS SUPPRESSION PROGRAM

Summary of Grasshopper Survey Results

Most areas of southern Idaho did not experience major grasshopper outbreaks in 2005. Small infestations were detected in the Treasure Valley, the Magic Valley, and in southeast Idaho. However, surveys in western and northern Idaho found extremely heavy infestations in Gem, Payette, Washington, Adams, Valley, Clearwater, Nez Perce, Idaho, and Lewis counties. The populations in western Idaho are very troubling because the history of major grasshopper

outbreaks in Idaho indicates that they begin in the west and spread eastward over the course of a few seasons. Species composition in outbreak areas consisted primarily of *Melanoplus sanguinipes*, *Melanoplus femur-rubrum*, and *Camnula pellucida*. *Melanoplus bivittatus*, *Aulocara ellioti* and *Oedaleontus enigma* were abundant in localized areas. Exceptionally heavy rainfall in May did not seem to have any detrimental effect on populations. The late summer and fall season should have allowed exceptional oviposition opportunities, and there are currently no factors that would indicate any reason to expect major decreases in overall grasshopper populations in 2006. It is reasonable to expect that significant grasshopper outbreaks might occur in 2006.

SIGNIFICANT 2005 RANGELAND GRASSHOPPER SURVEY RESULTS
Acres infested at more than 8 grasshoppers per sq. yd

County	BLM	NATIONAL FOREST	STATE LAND	PRIVATE LAND	TOTAL	VERSUS 2004
Ada	9,000		1,000	10,000	20,000	Same
Adams	10,000	2,000	1,000	10,000	23,000	Much more
Bannock		500		500	1,000	More
Benewah				1,500	1,500	More
Blaine	200			800	1,000	Less
Boise	1,000	2,000	1,000	8,000	12,000	More
Bonneville	500			500	1,000	More
Canyon	1,000			3,000	4,000	More
Cassia	3,500			2,500	6,000	Same
Clearwater			25,000	40,000	65,000	Much more
Elmore	5,000	1,000	1,000	7,500	14,500	Same
Franklin	1,600			800	2,400	Much more
Fremont				500	500	More
Gem	10,000		1,000	80,000	91,000	Less
Gooding	1,000			1,000	2,000	More
Idaho	4,000	6,000	2,000	100,000	112,000	Much more
Jerome	2,000			2,000	4,000	Much more
Kootenai				2,500	2,500	More
Latah				80,000	80,000	Much more
Lewis				30,000	30,000	Much more
Lincoln	500			500	1,000	Much less
Minidoka	1,200				1,200	Less
Nez Perce				60,000	60,000	Much more
Oneida	1,000	600		2,000	3,600	Much more
Owyhee	15,000		1,000	1,000	17,000	Same
Payette	25,000		2,000	20,000	47,000	Less
Teton	500				500	More
Valley				20,000	20,000	More
Washington	25,000	5,000	2,000	50,000	82,000	Less
TOTAL	117,000	17,100	37,000	534,600	705,700	Much more

SUMMARY OF MORMON CRICKET SURVEY RESULTS

In southwestern Idaho, the Mormon cricket outbreak that has been building in Owyhee County, continued in 2005. It is anticipated that this large infestation may have reached its peak, and treatments have reduced local elements of the outbreak. The infestation extended eastward about 40 miles from the Oregon border and southward about 70 miles from the Snake River.

There is also an infestation of Mormon crickets in Gooding, Camas, Elmore, Ada, Boise, Gem, and Washington counties. Control activities over the past few years seem to have diminished populations in some areas, but the overall outbreak stretches about 125 miles from north of Gooding to the Snake River west of Cambridge. Populations appear to be increasing in the western part of the outbreak.

In Eastern Idaho, the infestation is continuing to build in Oneida, Power and Bannock counties. This infestation extends about 25 miles from the Utah state line to areas around McCammon and Rockland. A small infestation was detected in Fremont County.

SIGNIFICANT 2005 MORMON CRICKET SURVEY RESULTS

Acres infested with Mormon crickets

County	BLM	NATIONAL FOREST	STATE LAND	PRIVATE LAND	TOTAL	VERSUS 2004
Ada	5,000	1,000	3,000	15,000	24,000	Much Less
Adams		8,000	8,000	2,000	18,000	More
Bannock	500			500	1,000	Less
Boise	1,000	20,000	10,000	15,000	46,000	Much Less
Camas	1,000			1,000	2,000	Less
Elmore	15,000	5,000	3,000	20,000	43,000	Much Less
Fremont				100	100	More
Gem	4,000		1,000	5,000	10,000	Less
Gooding	10,000		1,000	1,000	12,000	Much less
Oneida	40,000	4,000	4,000	25,000	73,000	Much more
Owyhee	250,000		15,000	25,000	290,000	Much less
Power	6,000			6,000	12,000	Much more
Valley		2,000			2,000	Same
Washington	35,000	60,000	25,000	80,000	200,000	Same
TOTAL	367,500	100,000	70,000	195,600	733,100	Much less

SUMMARY OF COMPLAINTS AND TREATMENTS

Because of large Mormon cricket outbreaks in 2004 and previous years, the Idaho State Senate and House Agriculture Committees both held hearings on the grasshopper/Mormon cricket program. Committee members expressed concerns about the need for suppression programs. Members of the public in Owyhee and Oneida counties voiced general complaints about Mormon crickets throughout the spring and summer. There were also many complaints about grasshoppers from western and northern Idaho. USDA, APHIS, Plant Protection and Quarantine (PPQ) received a total of 162 official complaints about grasshoppers and Mormon crickets. PPQ conducted six treatment projects on federal land in response to these complaints (some individual projects were in response to more than one complaint). All these treatments were on rangelands managed by the Bureau of Land Management (BLM) or US Forest Service and consisted of applications of 10 lbs/acre of 5% carbaryl bait or 0.75 oz/acre of diflubenzuron spray. The bait was distributed by ground along roads and trails through infested rangeland in

Elmore, Owyhee, Camas, Gooding, Washington, Oneida, Power and Bannock counties. Bait was applied by air on infested rangelands in Washington, Owyhee, Gooding, and Camas counties. Diflubenzuron was applied by air in Owyhee and Gem counties. PPQ treated a total of 20,640 acres with carbaryl 5% bait and 50,274 acres with diflubenzuron in Idaho in 2005.

Acres of Federally Managed Land Treated for Mormon Crickets by County in Idaho in 2005

Owyhee	62,515	(carbaryl bait and diflubenzuron spray)
Elmore	395	(carbaryl bait)
Washington	2,540	(carbaryl bait)
Oneida, Bannock and Power	470	(carbaryl bait)
Camas and Gooding	2,600	(carbaryl bait)

Acres of Federally Managed Land Treated for Grasshoppers by County in Idaho in 2005

Gem	2,394	(diflubenzuron spray)
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The other official complaints did not result in treatment by PPQ because:
Insects were on state or private land and not on federal land, or
Environmental concerns precluded treatments, or
Numbers of insects present did not justify treatment.

Grasshopper populations on federally managed lands were generally light with only a few outbreaks. In areas where treatments were applied, the spray was effective in reducing the populations after a few days. The Mormon cricket outbreak in Owyhee County necessitated a drawn-out treatment campaign utilizing aircraft and ground equipment to disperse 146,350 lbs of bait on BLM managed lands. Additionally, PPQ sprayed 47,880 acres of BLM managed lands with diflubenzuron. Also, unknown parties distributed additional bait along roads and trails in areas where Mormon cricket numbers may not have been diminished by PPQ's treatments. In areas where treatments could be applied by air or ground, the Mormon cricket populations were suppressed to levels that did not result in extensive crop loss or damage to natural resources.

SUMMARY OF ENVIRONMENTAL DECISIONMAKING

The Environmental Impact Statement that made informed decisions about the Federal Rangeland Grasshopper Suppression Program in seventeen western states is available at:

<http://www.aphis.usda.gov/ppd/es/gh.html>

PPQ conducted a scoping survey in November and December of 2004 and received eighty one (81) responses from private citizens, organizations, and governmental units. The responses expressed concerns about the damage that grasshoppers and Mormon crickets would cause if they were not controlled and concerns about potential adverse effects of insecticides. PPQ considered all the comments and prepared four environmental assessments; one for Mormon crickets and three for grasshoppers. The Environmental Assessments that made informed decisions about the 2005 program in Idaho are available at:

http://www.agri.state.id.us/Categories/PlantsInsects/GrasshopperMormonCricketControlProgram/ghprogramenvirodocs_pubs_reports.php

PPQ analyzed only carbaryl bait and diflubenzuron spray for the Mormon cricket program. In normal outbreaks, carbaryl bait can be very effective in suppressing Mormon crickets. Because Mormon crickets are flightless, travel significant distances on the ground from the places where they hatch to the places where they may damage crops or other resources, and move in large bands which can be easily detected by the general public as well as trained scouts, they can be

intercepted with bait treatments applied by air or ground. However, the logistical problems associated with the application of bait at 10 lbs/acre preclude its exclusive use in very large outbreaks. Diflubenzuron spray would be applied by air with 0.75 oz of diflubenzuron in 30 oz. water and oil carrier. Because lesser amounts of the spray are required for suppression, more acreage can be covered more quickly with spray than with bait. Carbaryl bait and diflubenzuron pose less risk to non-target insect species than some other insecticides.

Because grasshoppers can fly, may hatch in very close proximity to crops, and are not readily detected by many members of the public until they have reached maturity, PPQ analyzed malathion spray as well as carbaryl bait and diflubenzuron sprays for the grasshopper programs. Malathion is quicker acting than carbaryl bait or diflubenzuron and would have been applied at 6 oz/acre. However, malathion has a broad spectrum of insecticidal activity. In response to stakeholder expressions of concern about exposure to pesticides, PPQ initiated a program that allows concerned parties to request federally managed rangeland near their homes be excluded from treatments for grasshoppers or Mormon crickets. There were no applicants for the program.

ISDA PRIVATE AND STATE LANDS SUPPRESSION PROGRAM

Introduction

Grasshoppers and Mormon crickets continue to be one of the most serious pest problems in Idaho rangelands and adjacent croplands. Based on annual surveys conducted by USDA, PPQ, 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 very high priorities for the ISDA and our cooperators at USDA, APHIS. Congress has addressed this environmental crisis 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 and 43% of the state (21.8 million acres) is classified as rangelands. BLM 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.

Summary of ISDA Program

In 2005, ISDA continued to suppress outbreaks of grasshopper and Mormon crickets statewide. Over 500 landowners in twenty counties received various assistance in the form of bait or cost share spray projects. Over 192,438 lbs. of bait were distributed to private landowners down from 368,982 lbs distributed in 2004. Seven cost share application projects protected 5,681 acres with ISDA assistance of nearly \$20,919 to cover 2/3 of the treatment costs. In addition, ISDA protected impacted state and county lands primarily along county road rights-of-way.

**2005 – ISDA APPLICATION COST SHARE PROJECTS FOR
PRIVATE AND STATE RANGELAND GRASSHOPPER AND MORMON CRICKET SUPPRESSION**

Project / Location	Acres Treated	Total Protected Acres*	Insecticide	Cost to ISDA** (2/3)	Cost to Private Landowner (1/3)	Total Project Cost	Cost Per Acre Treated	Cost Per Acre Protected
Kooskia Area 1 Idaho County	250	500	Lorsban 4E	\$1,494.78	\$746.27	\$2,241.05	\$8.96	\$4.48
Kooskia Area 2 Idaho County	100	100	Lorsban 4E	\$748.86	\$373.87	\$1,122.73	\$11.23	\$11.23
Emmett Gem County	541	1,082	Dimilin 2L	\$1,980.00	\$917.59	\$2,897.59	\$5.36	\$2.68
Stites Idaho County	1,290	1,290	Asana XL	\$11,681.35	\$5,831.92	\$17,513.27	\$13.58	\$13.58
Nezperce & Grangeville 1 Idaho & Lewis Counties	80	160	Asana XL	\$693.43	\$346.20	\$1,039.63	\$13.00	\$6.50
Nezperce & Grangeville 2 Idaho & Lewis Counties	155	155	Asana XL	\$1,399.93	\$698.92	\$2,098.85	\$13.54	\$13.54
State (IDL) Lands Oreana area, Multiple Cooperative Projects with PPQ	1,197	2,394	Dimilin 2L	\$2,920.68	0 State lands	\$2,920.68	\$2.44	\$1.22
Totals	3,613	5,681		\$20,919.03	\$8,914.77	\$29,833.80	\$8.26	\$5.25

*A Reduced Agent and Area Treatments (RAATS) system was employed on some projects reducing total acres actually treated with insecticide but increasing protected acres. Treatments are applied by alternating treated swaths with untreated swaths (refuges) with adequate control and reduced use of insecticide.

**The ISDA cost share program for 2005 paid 2/3 of the total treatment cost. The private landowners were responsible for the remaining 1/3.

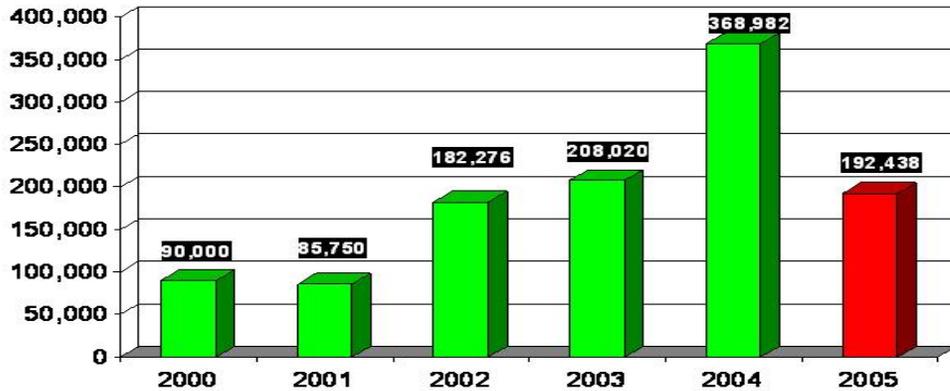
ISDA 2005 CARBARYL GROUND BAITING TREATMENTS ON COUNTY ROAD RIGHTS-OF-WAY AND STATE LANDS

County	Pounds Applied	Acres Treated
Ada	1,350	135
Elmore	675	68
Gem	500	50
Owyhee	7,850	785
Washington	1,800	180
Total	12,175	1,218

2005 - ISDA BAIT DISTRIBUTIONS FOR MORMON CRICKET AND GRASSHOPPER SUPPRESSION ON PRIVATE LAND

Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
1	Idaho	73,500	199
2	Nez Perce	30,250	93
3	Power	17,800	23
4	Oneida	16,900	26
5	Owyhee	16,612	76
6	Elmore	12,550	18
7	Boise	11,562	78
8	Washington	4,800	26
9	Gem	2,232	13
10	Ada	1,194	7
	10 Other Counties	5,038	32
	Total	192,438	538

ISDA GRASSHOPPER AND MORMON CRICKET SUPPRESSION PROGRAM
POUNDS OF CARBARYL BAIT DISTRIBUTED TO PRIVATE LANDOWNERS 2000-2005



ISDA GRASSHOPPER/MORMON CRICKET PROGRAM - MAJOR COOPERATORS

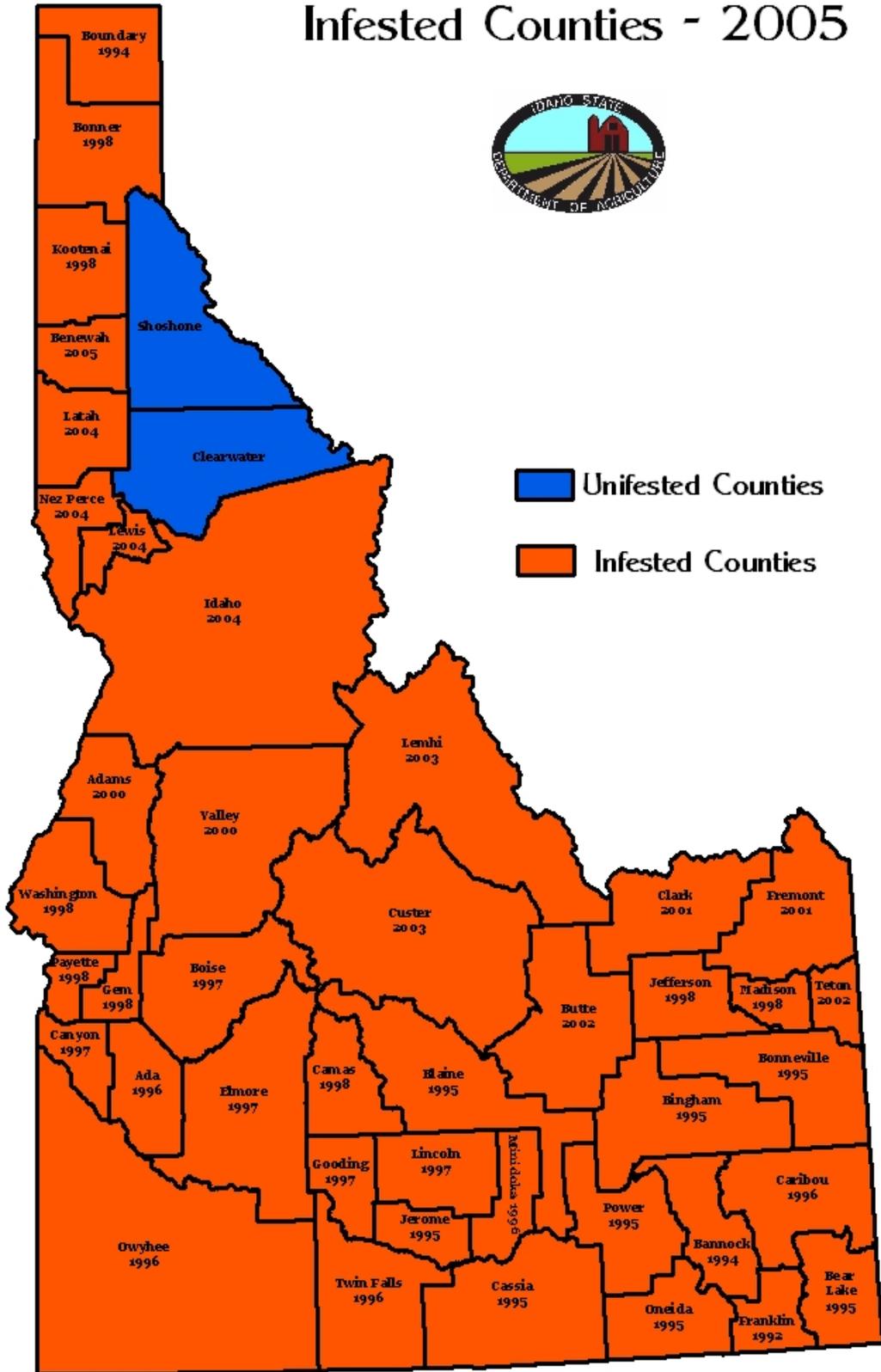
During the 2005 season the following cooperators provided significant help with bait distributions and overall program delivery:

- UI, Extension Service
- Seminis Seed Company, Nampa, ID
- Randy Rowe Trucking Company, Twin Falls, ID
- Owyhee County Sheriff's Department, Murphy, ID
- Boise County Road Department, Gardena, ID
- Jim's Lumber, Mountain Home, ID
- Cambridge Lumber Inc. Cambridge, ID
- The McGregor Company – Grangeville & Lewiston, ID
- Primeland Cooperative – Grangeville & Lewiston, ID
- Agri-Line Irrigation, Grand View, ID
- Gem County Mosquito Abatement Program, Emmett, ID
- Valley County Weed Program, Cascade, ID

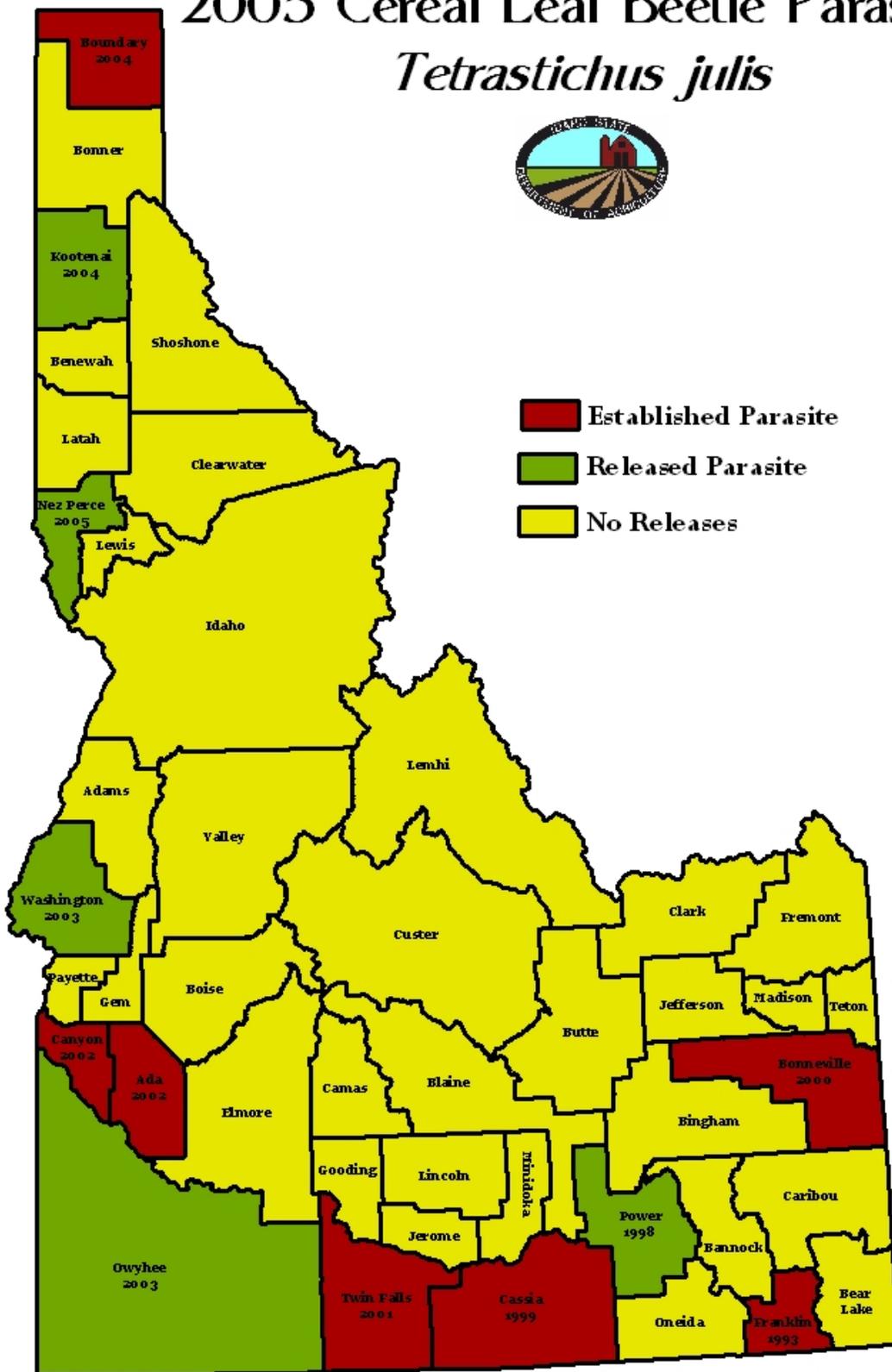
* - Indicates a program carried out under State/Federal funding. Those not marked with an asterisk were carried out under state funding only.

Prepared by: Ben Simko, Program Manager/Entomologist, Division of Plant Industries, Idaho State Department of Agriculture, P.O. Box 790, Boise Idaho, 83701, Telephone: (208) 332-8620, Fax: (208) 334-2283, e-mail: bsimko@idahoag.us ISDA Website: www.idahoag.us.

Idaho Cereal Leaf Beetle Survey Infested Counties - 2005

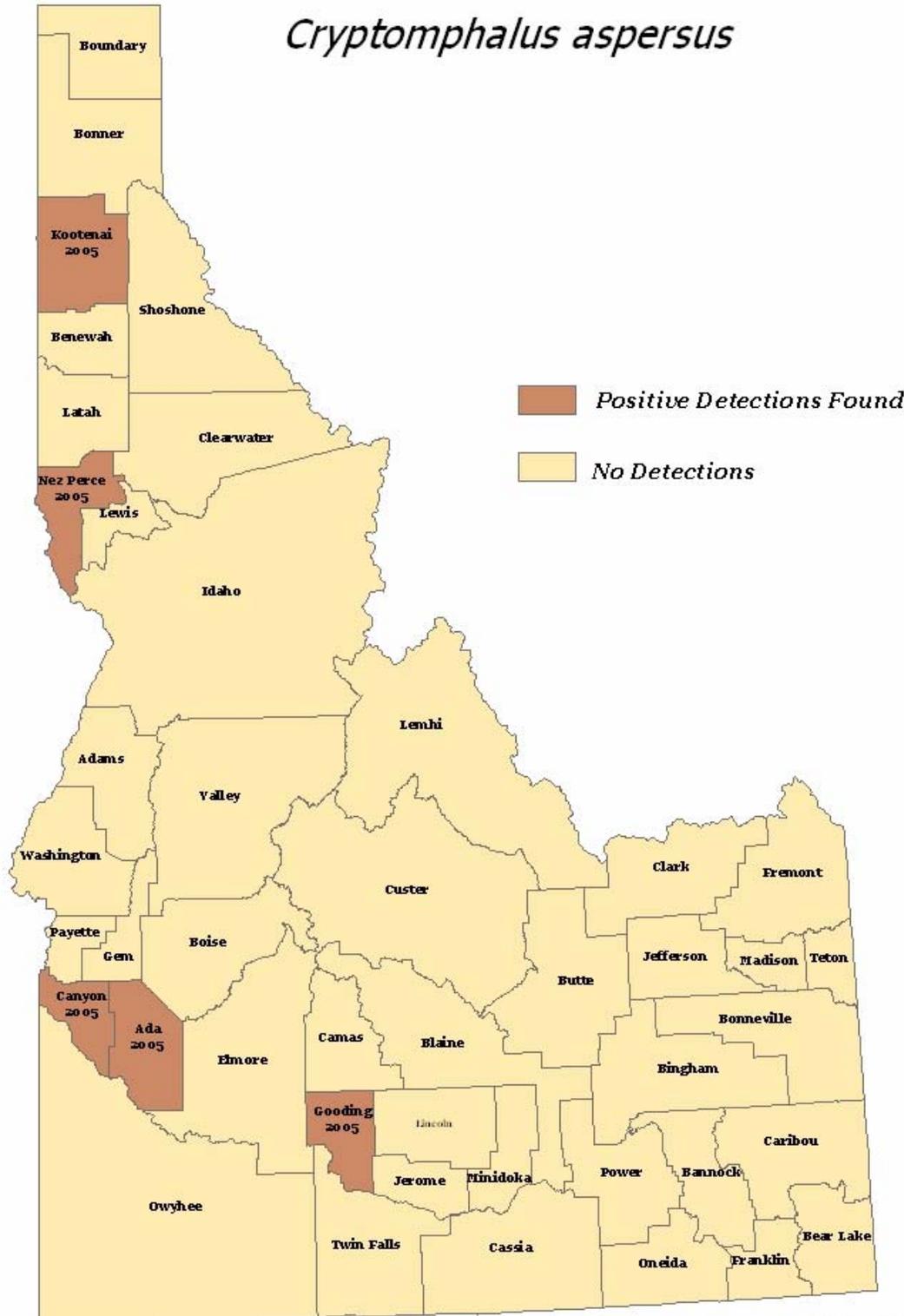


2005 Cereal Leaf Beetle Parasite *Tetrastichus julis*



Brown Garden Snail 2005

Cryptomphalus aspersus



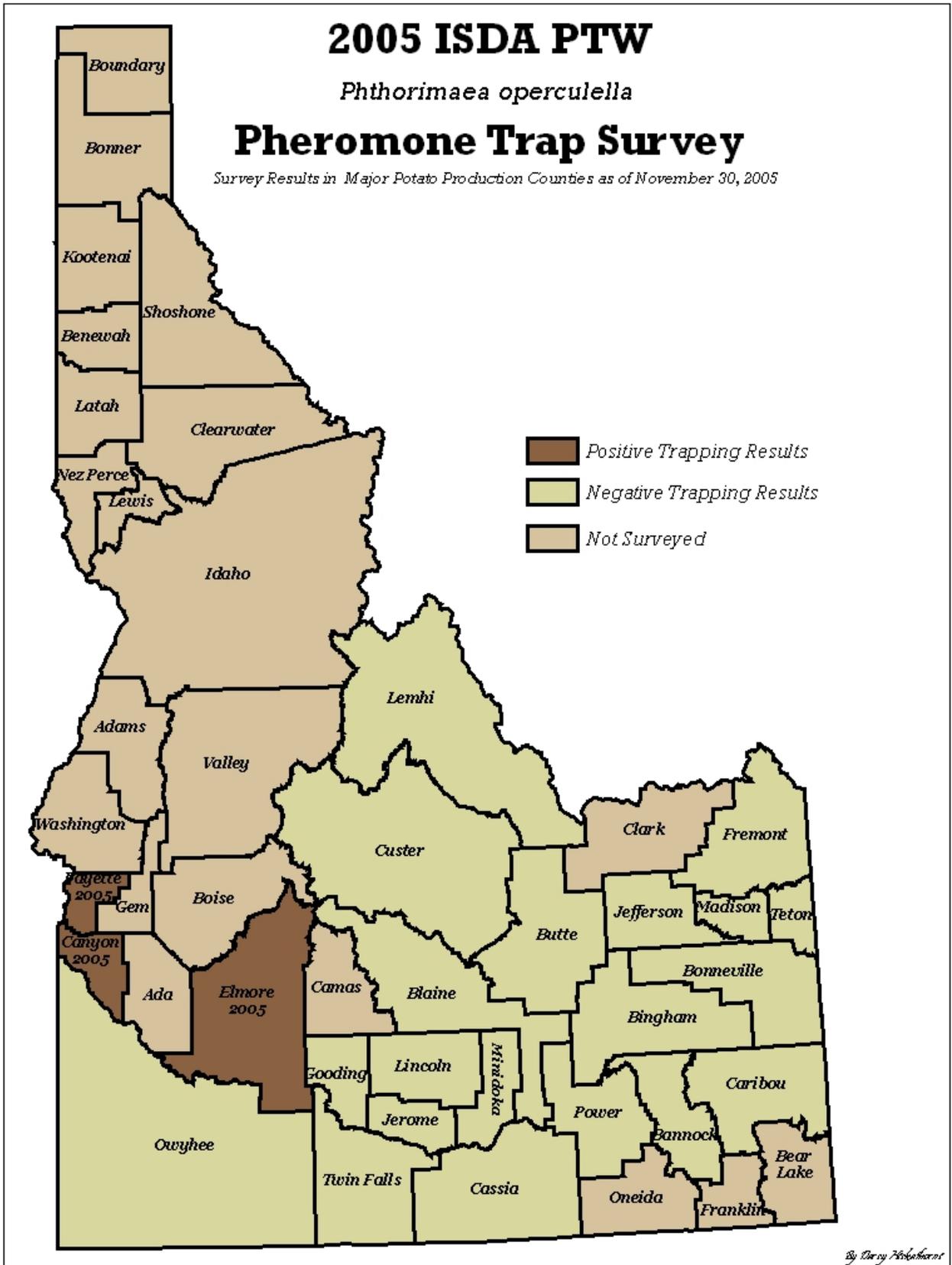
By Darcy Hoelathowes

2005 ISDA PTW

Phthorimaea operculella

Pheromone Trap Survey

Survey Results in Major Potato Production Counties as of November 30, 2005



By Cory Hochstetler