

**IDAHO STATE DEPARTMENT OF AGRICULTURE (ISDA)
DIVISION OF PLANT INDUSTRIES
BUREAU OF FEEDS AND PLANT SERVICES
2006 PEST SURVEY, NURSERY AND FIELD INSPECTION SUMMARY**

APPLE MAGGOT (AM) (*Rhagoletis pomonella* Walsh) - In 2006, 440 traps were placed at 290 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 106 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. Four positive traps were found in Washington County near the quarantine line. Of these sites, three were **outside** of the AM-free zone and one positive site was recorded **just within** the AM-free zone. The duration of trapping in 2006 was 175 days. Positive trap catches of adult AM were observed south of the Mann's Creek store, but still within a one-two mile radius of the positive AM trap catch observed in previous seasons. The Washington County Abandoned Orchard Review Board, University of Idaho (U.I.), Washington County Extension Office, and the ISDA are currently working with the affected homeowners to control the pest. Identifications are made through genitalia dissections performed by U.I. 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 2006, ISDA deployed "Attract and Kill" red sphere traps provided by Dr. Starker Wright, United States Department of Agriculture (USDA), Agricultural Resource Services (ARS). Twenty-nine red sphere traps were placed near and in trees that had positive AM records during the previous two seasons. ISDA plans to conduct follow-up surveys in this area in 2007. An historical summary can be found on the ISDA website at <http://www.agri.idaho.gov> under Plants and Insects, Regulated and Invasive Insect Pests.



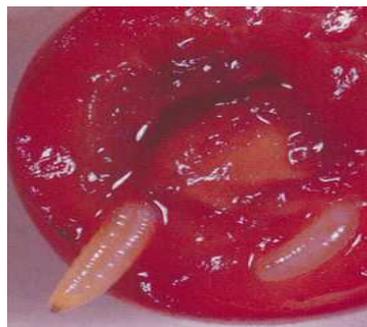
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Apple Maggot Five-Year Survey Data Summary, Washington County Area of Concern 2002-2006

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

***CEREAL LEAF BEETLE (CLB) (*Oulema melanopus* (Linnaeus))** –

Shoshone and Clearwater county sweep net surveys remain negative for CLB. CLB larval parasite (*Tetrastichus julis*) surveys were conducted in grain fields at the U.I. Parma Experiment Station on May 18 and on June 22. On each date 30 larvae were collected and dissected. *T. julis* parasite levels were 50% on May 18 and 100% on June 22 of the CLB larval dissected. If *T. julis* parasite levels remain above 50% at the Parma site, the fields will be used as a source for collection and distribution of parasitized CLB to introduce parasites at other locations in the state during 2007. A field insectary for the egg parasite, *Anaphes flavipes*, was initiated in the spring of 2004 at the U.I. Southwest Idaho Research and Extension Center in Parma, in cooperation with Dr. Brad Brown. Several parasite releases have been made during the 2004 and 2005 field seasons. *Anaphes flavipes* egg parasite recovery surveys were conducted on May 11, 18, 25, and June 1, 2006. A total of 490 CLB eggs were collected and incubated in the lab. No *A. flavipes* were recovered and no evidence of overwintering and establishment of this biological control agent have been observed thus far. ISDA received one shipment of egg parasites from the Colorado Department of Agriculture Insectary in Palisades and released them on June 8. The shipment contained 1,200 CLB eggs at an average of 83% *A. flavipes* parasite levels. Follow-up surveys are planned for 2007. County infestation and *T. julis* parasite establishment maps can be found on pages 23 and 24.



1 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 CFF. The California Department of Food and Agriculture (CDFA) 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 5, 2006. 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 U.I. 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 2001-2006 (1060 Degree Days)

Site	2006 Forecast First Adult Emergence	2006 Forecast 1 st Treatment Recommended 1060 degree-day	Historical 1060-degree day accumulation				
			2005	2004	2003	2002	2001
Boise	May 21	June 1	June 4	May 26	June 3	June 6	June 5
Caldwell	May 23	June 3	June 1	May 27	June 4	June 3	June 3
Emmett	May 27	June 6	June 11	May 30	Jun 5	N/A	N/A
Nampa	May 22	June 3	June 5	May 26	June 3	June 6	June 1
Payette	May 20	May 31	May 31	May 20	May 29	N/A	N/A
Parma	May 21	June 1	June 3	May 23	May 31	June 8	May 24

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 170 EPSM moth traps in nurseries and pine tree plantations spread over 20 counties. **No new county records for this species were reported.** 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. Nevada State Department of Agriculture (NSDA) conducted a statewide survey for EPSM and had a positive detection in Douglas County. NSDA plans to rescind its state EPSM quarantine in 2007. A map showing Idaho counties positive for EPSM is located on page 25.



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

ABSTRACT:

In 2006, no gypsy moths were captured in Idaho. Delimitation trapping was conducted at two locations in north Idaho this season; the first was surrounding the 2005 capture site of one male European Gypsy Moth (EGM) near Kingston, along the Coeur d'Alene River, in Shoshone County (Figure 1); the second delimitation trapping was surrounding the 2004 capture site of one Asian Gypsy Moth (AGM) near Hauser, Idaho (Figure 2).



INTRODUCTION:

Surveys to detect the introduction of the gypsy moth, *Lymantria dispar* L., have been conducted in Idaho each year since 1974 (Table 1). 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. Gypsy moths 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 gypsy moths were caught in 1998, five at one site. The other two were at widely separated locations of the state (Mason and Livingston 1998). A 35 acre aerial spray eradication program in Kootenai County, near Heutter, was conducted in 1999 using *B.t.k.* No gypsy moths were caught in 1999 or 2000 (Mason and Livingston 1999 & 2000). Two gypsy moths were caught in 2001 (Casey and Livingston 2001), one each at widely separated locations of the state. No gypsy moths were caught in 2002 or 2003 (Casey and Livingston 2002 & 2003). One gypsy moth, determined to be of the Asian variety (AGM), was caught in 2004 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.* One gypsy moth of the European variety (EGM) was captured in 2005 near Kingston, Idaho (Lech and Livingston 2005).

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.

Table 1 - Gypsy moth trapping history in Idaho.

YEAR	NUMBER OF TRAPS SET				NUMBER OF MOTHS CAUGHT ⁶				# 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					
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

YEAR	NUMBER OF TRAPS SET				NUMBER OF MOTHS CAUGHT ⁶				# POS. TRAPS
	DET. ²	DEL. ³	MASS ⁴	TOTAL	DET. ²	DEL. ³	MASS ⁴	TOTAL	
2005	4989	1441		6430	1			1	1
2006	5380	1473		6853					

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 nine 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 2006.

AGENCY	DETECTION TRAPS	DELIMIT TRAPS	MASS TRAPS	TOTAL TRAPS
Idaho Dept. of Lands	3147	1473	0	4620
Idaho Dept. of Agriculture	1578	0	0	1578
USFS - Region 4	552	0	0	552
USFS - Region 1	103	0	0	103
TOTALS	5380	1473	0	6853

2006 EGM PROGRAM

EGM SURVEY:

Detection Trapping - In 2006, the cooperating agencies in the Idaho gypsy moth detection program placed 5,380 detection traps throughout the state (Table 2). Trapping costs for the 2006 gypsy moth survey program in Idaho are shown in Table 3. Table 4 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 (see Appendix A). 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 2005 and April 2006, there were 10,983 move-ins to the state, a one-percent increase over the previous year. Campgrounds, tourist attractions, and other high-risk locations were also trapped. No gypsy moths were captured in detection traps in 2006.

Delimitation Trapping – Delimitation trapping for EGM was conducted surrounding the 2005 capture of one male EGM near Kingston, Idaho. Thirty-four delimitation traps were placed, checked once during the summer, and collected in the fall. No gypsy moths were captured in the Kingston Delimit traps in 2006.

Mass Trapping – No mass trapping for EGM was conducted in Idaho in 2006.

2006 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 2006 season.

AGM SURVEY:

Delimitation Trapping – Delimitation traps were placed at a density of 25 traps/mi² for a five-mile radius surrounding the 2004 capture site of one male Asian Gypsy Moth in Kootenai County, near Hauser, Idaho. The 1,439 traps were placed prior to July 1, 2006, checked every two weeks during the summer, and removed the end of September. No gypsy moths were captured in the delimit area.

2007 PROGRAM

Eradication - No eradication efforts are proposed for the 2007 season.

Delimitation Trapping – Delimitation trapping will be conducted for the final season in a five-mile radius at a density of 25 traps/mi² surrounding the 2004 capture site of one male AGM near Hauser, Idaho. In addition, delimitation traps will be placed for a second season surrounding the 2005 Kingston, Idaho capture site of one male EGM.

Table 3 – Estimated costs of the 2006 gypsy moth survey and treatment program.

AGENCY	COST	
	European GM	Asian GM
Idaho Department of Lands	\$45,000	
Idaho Department of Agriculture	\$18,000	
US Forest Service- Region 1	\$3,000	
US Forest Service- Region 4	\$15,000	
USDA- APHIS Direct Costs for traps, baits and travel	\$2,000	\$750
USDA- APHIS Cooperative grants	\$22,500	\$99,008
Total	\$105,500	\$99,758
GRAND TOTAL	\$205,258	

Table 4 - 2006 Trap placements by county

COUNTY		DETECTION	DELIMITATION	MASS	TOTAL
NAME	NO.	4/MILE ²	16 & 25/MILE ²	9/ACRE	TRAPS
Ada	1	435			435
Adams	2	0			0
Bannock	3	119			119
Bear Lake	4	24			24
Benewah	5	244			244
Bingham	6	44			44
Blaine	7	155			155
Boise	8	4			4

COUNTY		DETECTION	DELIMITATION	MASS	TOTAL
NAME	NO.	4/MILE ²	16 & 25/MILE ²	9/ACRE	TRAPS
Bonner	9	1048			1048
Bonneville	10	118			118
Boundary	11	56			56
Butte	12	0			0
Camas	13	0			0
Canyon	14	225			225
Caribou	15	18			18
Cassia	16	23			23
Clark	17	2			2
Clearwater	18	111			111
Custer	19	29			29
Elmore	20	63			63
Franklin	21	32			32
Fremont	22	31			31
Gem	23	45			45
Gooding	24	77			77
Idaho	25	158			158
Jefferson	26	18			18
Jerome	27	25			25
Kootenai	28	853	1439		2292
Latah	29	447			447
Lemhi	30	20			20
Lewis	31	33			33
Lincoln	32	16			16
Madison	33	23			23
Minidoka	34	16			16
Nez Perce	35	178			178
Oneida	36	7			7
Owyhee	37	21			21
Payette	38	55			55
Power	39	10			10
Shoshone	40	122	34		156
Teton	41	12			12
Twin Falls	42	212			212
Valley	43	206			206
Washington	44	45			45
TOTALS		5380	1473		6853

Figure 1: State of Idaho 2005 Gypsy Moth Capture Site

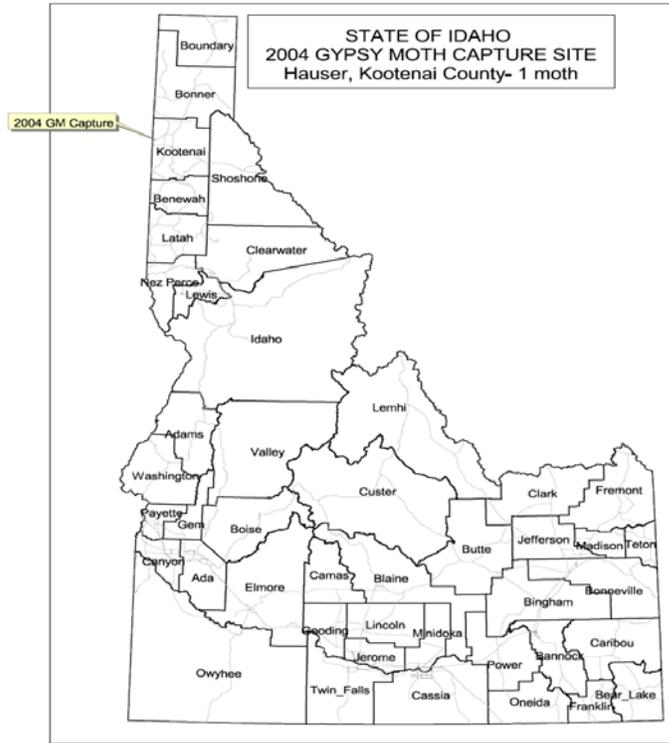
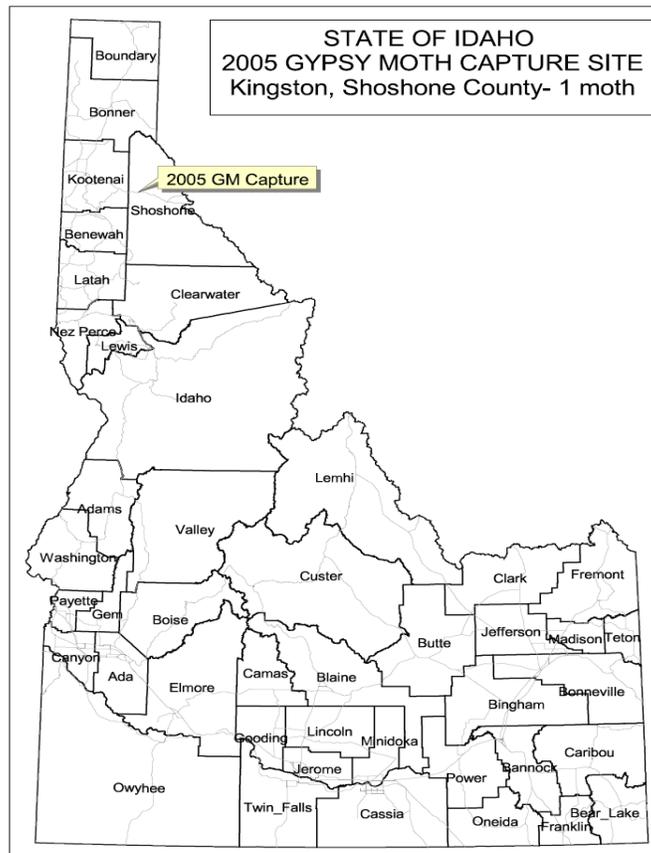


Figure 2: State of Idaho 2004 Gypsy Moth Capture Site





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 U.I. 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 2006.** Overall pest infestations and economic damage was less severe this season than in past years. Pest infestations were particularly high in Caribou County and some grain fields received insecticide treatments. The U.I. Current Information Series 1109 provides information on this emerging pest.



JAPANESE BEETLE (JB) (*Popillia japonica* Newman) – During the 2006 field season, 193 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. **A small infestation in Orem, Utah is under quarantine and is being treated by the Utah State Department of Agriculture. This represents the closest confirmed infestation to the state of Idaho.**



***KARNAL BUNT (KB) (*Tilletia indica*)** – ISDA collected 59 wheat samples from 19 counties in Idaho for the 2006 KB Survey. All of the samples were collected and analyzed according to the 2006 National KB Monitoring Plan. Spore extraction and diagnostics were conducted at the ISDA Plant Lab under the direction of plant pathologist, Liz Vavricka. **All samples processed were found free of *Tilletia indica*.** Below is a table listing sample numbers by county in the 2006 survey.

COUNTY	Number of KB Samples	COUNTY	Number of KB Samples
Bannock	2	Gooding	1
Bear Lake	1	Jefferson	3
Bingham	11	Lemhi	1
Boundary	1	Lewis	5
Camas	1	Madison	3
Canyon	3	Nez Perce	7
Cassia	8	Power	6
Clearwater	1	Teton	1
Elmore	1	Washington	1
Fremont	2		

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 areas 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 2006 field season.**



***SUDDEN OAK DEATH (SOD) (*Phytophthora ramorum*)** - This survey targeted nursery inspections and trace-forward investigations of high-risk hosts, particularly in northern Idaho. Thirty-three nurseries underwent special SOD inspections. Eighty-six samples were taken and four samples tested positive on ELISA for *Phytophthora* species. However, all four samples were confirmed negative on media and with PCR. Ten counties were represented by these samples: Ada, Benewah, Blaine, Bonner, Boundary, Clearwater, Kootenai, Latah, Lewis, and Twin Falls. **The state remains negative for the detection of SOD.**



KHAPRA BEETLE SURVEY (*Trogoderma granarium*) - One-hundred sixty-eight Trece Storgard Dome traps were placed at 33 sites located in 22 counties. Sites included grain and seed dealers and retail outlets with imported products from India and other Asian countries. Over 3,000 beetle specimens were trapped and sent to the U.I. Entomology museum where sorting and identification of dermestids was conducted under the supervision of Frank Merickel, museum curator. Non-target species trapped include *Trogoderma variabile*, *Trogoderma simplex* and *Trogoderma glabrum*. *T. variabile* was the most dominant species collected in the traps. **No Khapra beetles were detected in this survey.**



EXOTIC FRUIT MOTH SURVEYS - FALSE CODLING MOTH (FCM) (*Cryptophlebia leucotreta*) AND SUMMER FRUIT TORTRIX (SFT) (*Adoxophyes orana*) - ISDA staff placed pheromone traps for each target species in the five major tree fruit production counties in southwest Idaho. Sixty-two FCM and 64 SFT traps were placed in a five-county area. Trece Pherocon VI traps were used and pheromone lures were provided by the USDA, APHIS, Otis Laboratory. **No target moths were captured.** Dominant non-targets in the SFT traps included Pandemis moth (*P. pyrusana*) and sugarbeet crown borer (*Hulstia undulatella*). The dominant non-target species in the FCM traps was cherry fruit worm (*Grapholita packardii*). Dr.

Eric LaGasa, WSDA assisted ISDA with species determinations.

WHEAT SEED GALL NEMATODE (*Anguina tritici*) - There were 59 wheat samples drawn from grain dealers or farm storages from 19 counties. The samples were analyzed for the presence of this exotic nematode by Dr. Harry Kreeft, Nematologist, Western Laboratory, Parma, ID. 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 found negative for wheat seed gall nematode.**

***POTATO EXOTIC NEMATODE SURVEY** - ISDA, Fresh Fruit & Vegetable (FF&V) staff collected daily samples of piler or tare dirt at the packing or processing facilities. At the end of the week, the aggregated soil samples were labeled and prepared for transfer to the diagnostic lab. Weekly aggregated sampling covered a large part of the grading and packing season that started September 13, 2005 and ended May 31, 2006. The weekly samples were traceable to clusters of grower lots processed or packed during the week and to the county of origin. The seed potato lot samples used Idaho Crop Improvement Association (ICIA) lot numbers for identification and were traceable to individual growers and fields. The aggregated commercial facilities samples and the seed lot samples were sub-sampled and 500 cc of soil was prepared for nematode extraction and diagnostics. Preliminary diagnostics used standard extraction methods and light microscopy, conducted by the U.I. Nematology Lab in Parma, under the supervision of Dr. Saad Hafez. Final confirmation of suspect nematodes of regulatory significance was conducted by the ARS Nematology Lab in Beltsville, MD using both morphological characteristics and DNA markers using polymerase chain

reaction (PCR) technology. A grand total of 3,551 samples were collected and analyzed in this detection survey. The described survey method has been successfully used in several other CAPS/PPQ funded state exotic nematode surveys.

PRIMARY TARGET SPECIES (EXOTIC TO IDAHO WITH NO PRIOR RECORDS OF OCCURANCE)

Common Name	Scientific Name
Golden Nematode	<i>Globodera rostochiensis</i>
Potato Cyst Nematode	<i>Globodera pallida</i>
Soybean Cyst Nematode	<i>Heterodera glycines</i>
Pea Cyst Nematode	<i>Heterodera goettingiana</i>
Corn Cyst Nematode	<i>Heterodera zea</i>
Burrowing Nematode	<i>Radopholus similis</i>

On April 13, 2006, a sample comprised of tare dirt from a grading station at a processing plant in southeast Idaho was determined to contain *Globodera pallida*, the potato cyst nematode (PCN). USDA, PPQ, cooperating with ISDA, organized a Unified Incident Command Structure, began a trace-back investigation, and took appropriate regulatory action. As of December 2006, the detection and delimiting surveys identified seven fields (~900 acres) in Bingham County as positive for PCN cysts. A PPQ Regulatory Work Plan and a defined Quarantine Area of ~ 10,200 acres in size, was establish covering parts of Bingham and Bonneville counties. All other samples in the original CAPS detection survey, 3,035 commercial facility samples and 515 seed lot samples, were found negative for all targeted exotic nematode species.

NORTHERN IDAHO NURSERIES EXOTIC NEMATODE SURVEY - The detection of potato cyst nematode (PCN) (*Globodera pallida*) near Shelly, ID in April 2006 precipitated the prohibition by the Canadian Food Inspection Agency (CFIA) of any balled and burlaped nursery stock imports into Canada from northern Idaho nurseries. Subsequently, in the fall of 2006, bilateral negotiations between USDA APHIS and CFIA resulted in the reopening of the Canadian border to northern Idaho commodity imports. ISDA conducted this survey to add to a larger data set indicating the northern Idaho area as free from nematodes of regulatory significance, particularly PCN and Golden Nematode (GN) (*Globodera rostochiensis*). Sixteen nurseries in the two northern Idaho counties, Bonner and Boundary, participated in the nematode survey. A total of 533 samples were drawn following a survey method adapted from the PPQ National PCN survey plan. Sample density was approximately three one-pound soil samples per acre. Nursery block entry areas frequented by farm equipment were especially targeted for sampling. Samples were transported to ISDA and each sample was sub-sampled by extracting 500 cc of soil from each larger one-pound composite sample. ISDA Nematology Lab at the Idaho Food Quality Assurance Lab (IFQAL) in Twin Falls conducted the extraction and diagnostics for PCN, GN and other cysts of regulated nematodes from the larger soil samples. Any suspect cysts or mirco-cysts were sent to the USDA ARS Nematology Lab in Beltsville, MD for final confirmation using morphometric analysis and PCR technology. All 533 samples and 16 nurseries were found free from any cysts of regulatory significance including PCN and GN. The 533 small 500cc samples were analyzed for motile forms of root knot nematode species including Columbia root knot nematode, *Meloidogyne chitwoodi*. Western Labs in Parma, ID ran extractions and preliminary diagnostics on these samples under the supervision of Dr. Harry Kreeft. Five-hundred thirty samples were confirmed free of *chitwoodi*. Results for three samples contained *Meloidogyne*-like juveniles, but identifications to species were inconclusive.

BROWN GARDEN SNAIL (BGS) (*Chrytomphalus apersa Muller*) - The first official state record of BGS was reported in Boise, Ada County, August 27, 2005. Testimonials from home gardeners and the Idaho Botanical Garden indicated the occurrence of small infestations of BGS may date back five to seven years. Information on BGS as an emerging pest went out to the media during 2005. There was positive response from the public





regarding suspected BGS infestations in home gardens. Thirty-three positive BGS infestations in home gardens have been confirmed; 25 in Ada county, five in Canyon county, one in Gooding county and one in Nez Perce county. The suspected pathway for BGS is from multiple introductions

on infested nursery material from states where the species is known to be established. ISDA conducted an information campaign on this emerging pest, targeting home gardeners and the nursery industry. Molluscicide bait (1% iron phosphate) was distributed to the impacted public in the spring and summer of 2006. Twenty-four homeowners responded to and accepted bait from ISDA to treat their landscapes. A follow-up survey is planned during 2007.

POTATO TUBERWORM SURVEY (PTW) (*Phthorimaea operculella* Zeller)

(PTW) (*Phthorimaea operculella* Zeller) - During the 2005 growing season, the U.I. PTW survey was initiated under the direction of Dr. Juan Alvarez, and funded through a grant from the Idaho Potato Commission. U.I. 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 trial plots at the U.I. Experiment Station in Parma. In reaction to this positive and as a result of a September 8 meeting between ISDA, U.I. and industry officials, ISDA implemented 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 placed. The detection survey ran from mid September until early December. From the first trap catch at the U.I. Parma Experiment Station on August 26 until December 2, a total of 19 moths were caught.



This survey was repeated in 2006 using Pherocon VI pheromone traps with Trece' international PTW lures. This trapping program followed a protocol established for the entire Pacific Northwest by industry, university and regulatory agencies. In Idaho counties that had positive traps from 2005, traps were set out in mid- to late-June. In counties that had negative trap data from the previous year, the PTW traps were placed during early August. In 2006, 468 traps were placed in 25 counties.



Only six male PTW moths were captured from four sites all from Canyon County. The first PTW caught was on August 1 and the last capture occurred on October 12. The trapping program ended the first week of November. No live larvae or feeding damage was observed in tubers based on field inspections and FF&V grade inspections. Idaho Agricultural Statistical Service (IASS) conducts an annual Objective Yield Survey. A statistical sample of all fields in the Gem state (285) had tuber samples dug. ISDA staff trained IASS staff to recognize and report any insect damage including suspect PTW larval feeding damage. No suspect tubers were observed as part of the statewide yield survey. The W.F. Barr Entomology Museum in Moscow recorded a previous catch of PTW on March 4,

1959 in Boise. The infestation was found in stored potatoes and the collector was R. Portman. ISDA plans to do follow-up detection surveys during 2007. Results of the 2006 survey are presented on a map located on page 26.

DISEASES AND PESTS FOUND DURING 2006 FIELD INSPECTIONS FOR EXPORT CERTIFICATION -

In 2006, 47 seed companies submitted a total of 2,880 fields representing 30 crops. Approximately 37,859 acres were submitted for inspection. Due to multiple inspections required for some crop diseases, the number of acres actually inspected was 70,692 acres. Compared to 2005, this is an increase of four companies and a decrease in acreage from the 42,961 submitted and 74,905 inspected .

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
2006	47	30	2,880	37,859	70,692

Alfalfa seed: A total of 857.75 acres were submitted for inspection in 50 fields during the growing season. Canadian Thistle (*Cirsium arvense*) was observed in 30 acres. There were no reported observations of Alfalfa mosaic virus, *Xanthomonas campestris* pv. *alfalfae*, *Clavibacter michiganensis* subsp. *insidiosum*, *Cuscuta* spp., *Euphorbia esula*, *Ditylenchus dipsaci*, *Cercospora medicaginis*, *Verticillium albo-atrum* or *V. dahliae*.

Beans, Dry: A total of 2,427.8 acres in 170 fields were submitted for inspection. There were no fields found positive for Bean common mosaic virus, Bean southern mosaic virus and Bean yellow mosaic virus. To meet requirements of IDAPA 02.06.06. - Rules Governing The Planting Of Bean Seed (*Phaseolus*) Species In Idaho, all fields submitted were also inspected for Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, or Anthracnose, with none being observed.

Beans, Garden: A total of 17,157.77 acres in 1,048 fields were submitted for inspection. There were no fields found positive for Bean common mosaic virus, Bean southern mosaic virus and Bean yellow mosaic virus. To meet requirements of IDAPA 02.06.06. - Rules Governing The Planting Of Bean Seed (*Phaseolus*) Species In Idaho, all fields submitted were also inspected for Halo blight, Common blight, Fuscus blight, Brown spot, Bacterial wilt, or Anthracnose, with none being observed.

Brassicas: A total of four fields and 44 acres of cabbage, kale and turnip were submitted and inspected. No fields were found positive for *Leptosphaeria maculans*, *Xanthomonas campestris* pv. *campestris* or *Pseudomonas syringae* pv. *maculicola*. One field of cress consisting of five acres was submitted and no diseases were observed.

Vine Crops: Thirty fields totaling 13.14 acres of Cantalope, Cucumber, Pumpkin, Squash and Watermelon were submitted and inspected. No fields were found positive for *Pseudomonas syringae* pv. *lachrymans*, *Colletotrichum orbiculare*, *Acidovorax avenae* subsp. *citrullii*, *Xanthomonas cucurbitae* or Cucumber mosaic virus.

Carrot: A total of 903.38 acres in 114 fields were inspected. There were no observations of *Alternaria dauci*, *Xanthomonas campestris* pv. *carotae*, *Pectobacterium carotovorum* pv. *carotovorum* or *Alternaria radicina*.

Corn: There were 7,554.91 acres in 849 fields inspected, plus 343.2 acres in 15 fields submitted for area inspection. High plains virus (HPV) was observed in 12.3 acres, Maize dwarf mosaic potyvirus (MDMV) was observed in one-half of an acre, and Wheat streak mosaic potyvirus (WSM) was observed in three acres. *Ustilago zaeae* was reported in 5,407.67 acres. These statistics include two and three quarter acres in two fields inspected and tested under the Australia Sweet Corn guidelines. No exclusionary diseases were found in either of these fields.

Garlic: One field totaling one quarter of an acre was inspected and found free from any disease symptoms of quarantine significance, including *Sclerotium cepivorum* (Onion white rot).

Grain Seeds (Barley, Grain Sorghum, Oats, Triticale, Wheat): A total of 29 acres in 14 fields were inspected. No pests or diseases of quarantine concern were observed.

Lettuce: There were 197 acres submitted in 48 fields of Lettuce. No Lettuce mosaic potyvirus (LMV), Tomato spotted wilt tospovirus, *Septoria lactucae* or *Xanthomonas axonopodis* pv. *vitians* were observed.

Mint: Eighteen fields totaling 134.62 acres were inspected and found apparently free from *Verticillium dahliae*, Mint root borer (*Fumibotys fumalis*), and Mint stem borer (*Pseudomonas nigrina*).

Allium (excluding Garlic): One-hundred-sixteen fields totaling 844.54 acres of chive, leek and onion were inspected. All fields inspected were found apparently free from *Peronospora destructor*, *Botrytis aclada*, *Urocystis colchici*, *Alternaria porri*, *Puccinia asparagi*, *Sclerotinia spp.*, *Colletotrichum circinans*, *Ditylenchus dipsaci*, *Sclerotium cepivorum* and Onion yellow dwarf potyvirus.

Peas: There were 3,229 acres of peas submitted for inspection in 278 fields and 2,926.90 acres in 87 fields submitted for area inspection. *Pseudomonas syringae pv. pisi* was found in 160.5 acres, *Fusarium oxysporum f. sp. pisi* was found in 32 acres, and *Phoma pinodella* was found in 51 acres. *Ascochyta pisi* was found in 51.5 acres. No Pea early browning virus, Pea enation mosaic virus, Pea seedborne mosaic virus, or *Xanthomonas axonopodis pv. phaseoli* were observed in any of the fields.

Pepper: There were 12 acres, both hot and bell varieties, inspected in nine fields. All fields were found negative for *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 potyvirus.

Potato: Eight fields with a total of 975.0 acres were inspected and found apparently free from *Phytophthora infestans*.

Radish: There were 207.1 acres submitted for inspection in twenty-four fields. All fields were found apparently free from *Colletotrichum higginsianum*, *Xanthomonas campestris pv. campestris*, and *X. campestris pv. raphani*.

Red Clover: There was one field with 32.0 acres submitted for inspection. No pests or diseases were observed.

Sunflower: One field of two acres was found apparently free from *Circium arvense* and *Orobanche spp.*

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 2006 FIELD SEASON

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Alfalfa	50	857.75	857.75
Barley	6	10.0	10.0
Beans, Dry	170	2,427.80	5,501.60
Beans, Garden	1048	17,157.77	39,710.90
Cabbage	1	5.00	5.00
Cantaloupe	23	8.14	8.14
Carrot	114	903.38	903.38
Chive	1	2.00	2.00
Corn	849	7,554.91	14,255.62
Corn Area	15	343.20	0.00
Cress	1	5.0	5.0
Cucumber	2	0.50	0.50
Garlic	1	0.25	0.25
Grain Sorghum	1	5.0	5.0
Kale	1	15.0	15.0
Leek	2	11.0	11.0
Lettuce	48	197.0	197.0
Mint	18	134.62	269.24
Oats	2	3.0	3.0
Onion	113	831.54	819.61
Peas	278	3229.97	7248.21

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Peas, Area	87	2926.9	138.0
Pepper, Bell	3	6.0	4.5
Pepper, Hot	6	6.0	3.0
Potato	8	975.0	475.0
Pumpkin	1	2.0	2.0
Radish	24	207.1	207.1
Red Clover	1	32.0	32.0
Squash	2	2.0	2.0
Sunflower	2	2.0	2.0
Triticale	2	0.50	0.50
Turnip	2	24.0	24.0
Watermelon	2	0.50	0.50
Wheat	3	6.0	6.0
TOTALS	2,887	37,892.83	70,724.8

Suzanne Pfeffer, 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.

2006 PLANT PATHOLOGY LAB SUMMARY - In 2006, the plant pathology lab received 978 samples, and ran 4,816 tests. The average turnaround time in days per sample (TO) was 28 days. Of the above total, 207 samples were beans seeds submitted for testing prior to planting in Idaho. Only one lot was found positive for a restricted organism (see table below). Ninety seed samples were tested for export concerns, and four potato lots were submitted for 'year out' certification. The lab received 457 field samples, two of these from out-of-state. Full results are listed in the table below. The lab participated in three surveys; Potato Processing Survey, Karnal Bunt (KB), and Sudden Oak Death (SOD). For the processing survey, the lab received 38 tuber samples for examination of potato mop top and potato wart. No positives were found. The KB survey consisted of 59 samples from 18 counties. All samples were negative for KB. The SOD survey consisted of 86 samples from 33 nurseries. No samples were found positive for SOD in Idaho. Lab personnel were also involved in the PCN emergency response program. The Lab also participated in the ICS structure, leading the diagnostic branch, and also assisted in the technical review panel.

CROP		# SAMPLES	POSITIVES (Organism)
Bean	seed	207	1 (<i>Pseudomonas syringae pv. syringae</i>)
	field	35	
Misc. Seed	alfalfa	49	2 (<i>Clavibacter michiganense insidiosum</i>)
	chickpea	5	
	barley	4	1 (<i>Ustilago nuda</i>)
	wheat	2	
	wheat/ barley mix	1	
	kale	4	
	pea	2	
	tomato	5	
	lupine	4	
	cabbage	1	
broccoli	1		

<u>CROP</u>		<u># SAMPLES</u>	<u>POSITIVES (Organism)</u>
	corn	1	
	radish	11	
Misc. Field	potato	1	
	geranium	8	
	carrots	34	21 (<i>Sclerotinia sclerotiorum</i>)
			1 (<i>Alternaria radicina</i>)
	peach, nectarine	2	1 (<i>Taphrina</i> visual diagnosis)
	alfalfa	1	
	mint	2	
	onion	6	1 (<i>Botrytis cinerea</i>)
	pea	52	10 (<i>Pseudomonas syringae</i> pv. <i>pisii</i>)
			2 (<i>Mycosphaerella pinodes</i>)
			4 (<i>Phoma medicaginis</i>)
			2 (<i>Fusarium oxysporum</i>)
			2 (<i>Ascochyta pisi</i>)
	barley	2	2 (<i>Xanthomonas translucens</i>)
	lettuce	3	
	baltic rush	2	
	corn	342	2 (High Plains Virus)
			1 (Maize Dwarf Mosaic Virus)
	sedge	1	
	chrysanthemum	1	suspect white rust, not confirmed

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

SEED LAB SUMMARY FOR 2006 - Fiscal year 2004: Seed lab received 5032 service samples and completed 7221 service tests. The top crops for service were beans, peas, grains, alfalfa, onion, sagebrush, bluegrass, wheatgrass and pine. 90 regulatory enforcement samples were tested for purity, germination, licensing and labeling requirements, with 26 violations resulting in necessary action. The main crops for enforcements were grasses, 32 samples and grains, 29 samples. 98 nursery inspections involving sale of seed was inspected with only 2 resulting in necessary action. 657 seed dealer's licenses were issued. Two of our analysts completed their AOSA certification making our lab a fully certified staff in lab analysis.

EXPORT CERTIFICATION FOR THE 2006 CALENDAR YEAR - The ISDA issued 4,106 Federal and 678 State Phytosanitary Certificates for 67 different types of commodities to 93 countries. The Division of Plant Industries certified over 220 million pounds of seed and other commodities for export. The Idaho State Department of Agriculture operates this program under a Memorandum of Understanding with the USDA.

NURSERY INSPECTIONS FOR COMPLIANCE WITH THE IDAHO NURSERY LAW - TITLE 22, CHAPTER 23, IDAHO CODE - In 2006, there were over 2,260 licensed nurseries, and of those, 1,013 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	107	0	0	0
Onion White Rot	152	1	0	1
European Corn Borer	298	0	0	0
Japanese Beetle	485	0	0	0
Mint Quarantine	153	0	0	0
Crop Management Zone	27	0	0	0
Grape Quarantine	89	1	0	0
Peach Tree Quarantine	40	0	0	0
Sudden Oak Death	380	13	0	0
Pine Shoot Beetle	265	0	0	0
Gypsy Moth	478	0	0	0
Red Imported Fire Ants	312	0	0	0
Noxious Weeds	664	15	5	2
Idaho Seed Law	218	4	3	1
Nematodes	3	0	0	0
Aphids	806	22	5	0
Late Blight	333	0	0	0
Hops	11	0	0	0
Retail Potatoes	131	13	0	0
General Pests	83	38	27	5
Snails	564	1	0	0
Day Lily Rust	0	0	0	0
Total Inspections	5,599	108	40	9

***PUBLIC OUTREACH AND EDUCATIONAL PRESENTATIONS ON INVASIVE SPECIES AND PEST DETECTION**

Date	Event	Target Audience
December 2006	Elmore County PAT	Grower and crop consultants
December 2006	Southwest Idaho Weed Management Conference	Regional county and area noxious weed supervisors and applicators
November 2006	Idaho State Horticultural Society Annual Meeting	Tree fruit growers, packers and shippers
October 2006	Idaho Science Teachers Association Annual State Conference	Junior and Senior high school biology and environmental science teachers.
October 2006	University of Idaho Upper Division IPM class guest lecture and CRISSP seminar	University faculty, graduate and undergraduate students
May 2006	Garden City Library, Garden City	General public
March 2006	Bonnars Ferry Rotary Club	General public

Date	Event	Target Audience
March 2006	Boundary County Pesticide Applicators Training	Commercial and private applicators
March 2006	Bonnors County Pesticide Applicators Training	Commercial and private applicators
March 2006	Bonnors County SWCD, Weed District, & IDL staff	Multi agency staff
February 2006	Boise School District Science Teachers In Service	HS Teachers
February 2006	OSU Treasure Valley Entomology Short Course	Commercial Applicators and Crop Consultants
December 2005	U of I Canyon Co. Pesticide Applicators Workshop	Commercial and private applicators
December 2005	Idaho Environmental Care Association Twin Falls & Boise	Urban pesticide applicators

***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 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 high priorities for ISDA and 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% percent of the state (21.8 million acres) is classified as rangelands. The Bureau of Land Management (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 Grasshopper Survey Results

Most areas of southern Idaho did not experience major grasshopper outbreaks in 2006. The exception was a significant infestation centered in Washington and Adams Counties. Damage to hayfields and gardens was observed throughout the area. Smaller infestations were detected in Treasure Valley, Magic Valley, and in southeast Idaho. Last year's major outbreak in the northern counties of Lewis, Clearwater, Nez Perce and Idaho was greatly diminished this season. 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 *Melanoplus packardi*. 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 2007. It is reasonable to expect that significant grasshopper outbreaks might occur in 2007.

Summary of Mormon Cricket Survey Results

In southwestern Idaho, the Mormon cricket outbreak in Owyhee County continued in 2006. We anticipate 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. Significant migrations occurred within the infested area and most notably

along the western boundary of the infestation along Highway 95. There is also an infestation of Mormon crickets in Gooding, Camas, Elmore, 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. In eastern Idaho, the infestation is continuing to build in Oneida, Power, Bannock, and Cassia Counties. Migrations from the Yost, Utah area were noted entering Cassia County.

Summary of ISDA Program

In 2006, ISDA continued to suppress outbreaks of grasshopper and Mormon crickets statewide. Over 400 landowners in eighteen counties received assistance in the form of bait or cost-share spray projects. A total of 117,006 lbs of bait was distributed to private landowners down from 192,438 lbs distributed in 2005. Five cost-share projects protected 5,586 acres with ISDA assistance of nearly \$21,295 to cover 2/3 of the treatment costs. In addition, ISDA protected 661 acres of impacted state and county lands primarily along county road rights-of-way.

2006 – ISDA APPLICATION COST SHARE PROJECTS FOR PRIVATE LAND OWNERS FOR 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
Idaho County	768	1536	Dimilin 2L	\$4,523.22	\$2,258.22	\$6,781.44	\$8.83	\$4.42
Oneida County	3200	3200	Malathion	\$10,138.40	\$5,061.60	\$15,200.00	\$4.75	\$4.75
Washington County 1	500	500	Malathion	\$3,901.95	\$1,948.05	\$5,850.00	\$11.70	\$11.70
Washington County 2	100	100	Malathion	\$780.39	\$389.61	\$1,170.00	\$11.70	\$11.70
Washington County 3	250	250	Malathion	\$1,950.98	\$974.02	\$2,925.00	\$11.70	\$11.70
Totals	4,818	5,586		\$21,294.94	\$10,631.50	\$31,926.44	\$6.63	\$5.72

*A Reduced Agent and Area Treatments (RAATS) system was employed on some projects reducing total acres actual 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 2006 paid 2/3 of the total treatment cost. The private landowners were responsible for the remaining 1/3.

ISDA 2006 CARBARYL GROUND BAITING TREATMENTS ON COUNTY ROAD RIGHTS-OF-WAY AND STATE LANDS

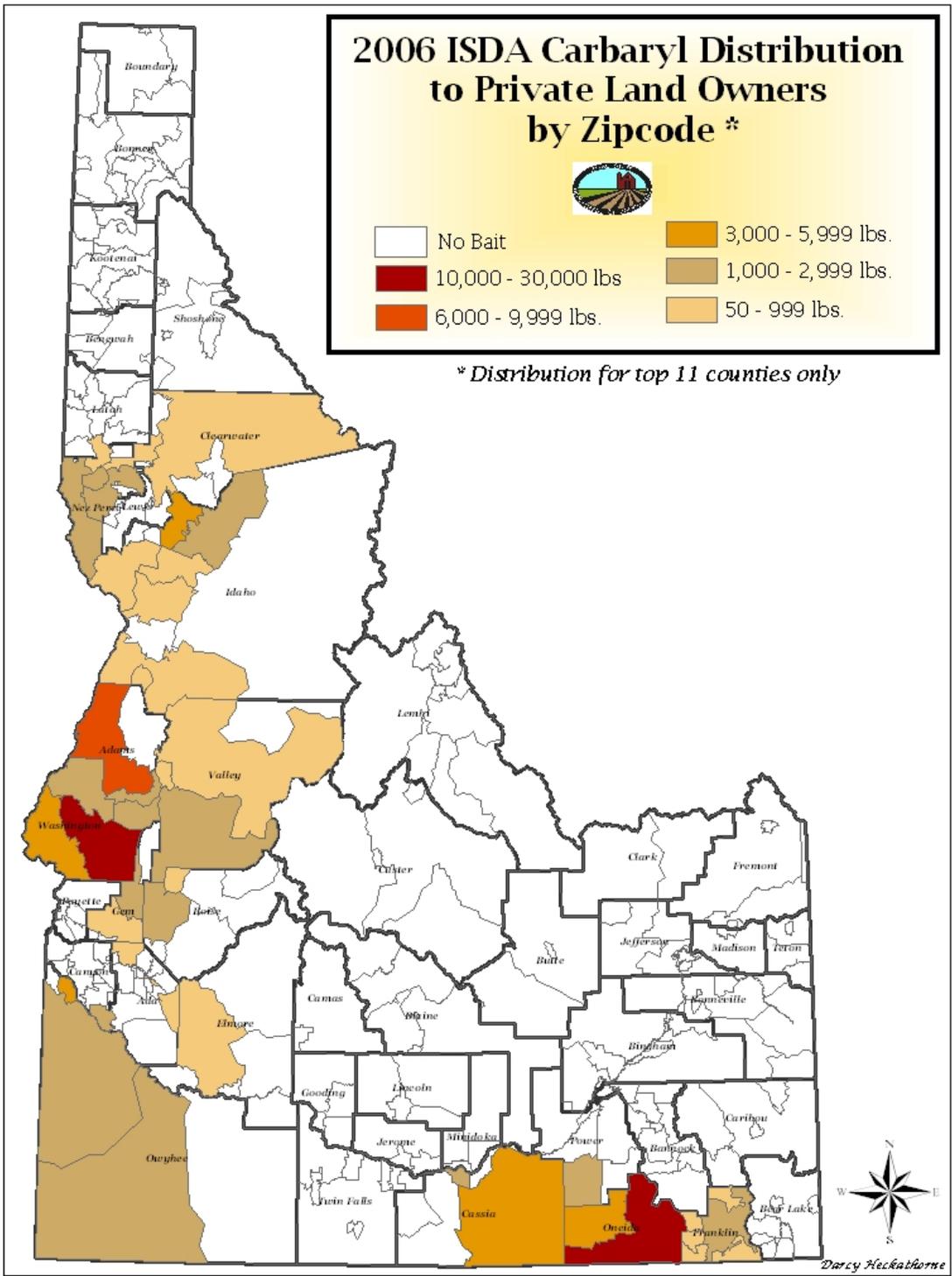
County	Pounds Applied	Acres Treated
Camas	700	70
Gem	396	40
Gooding	100	10
Owyhee	5,372	537
Washington	44	4.4
Total	6612	661.4

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

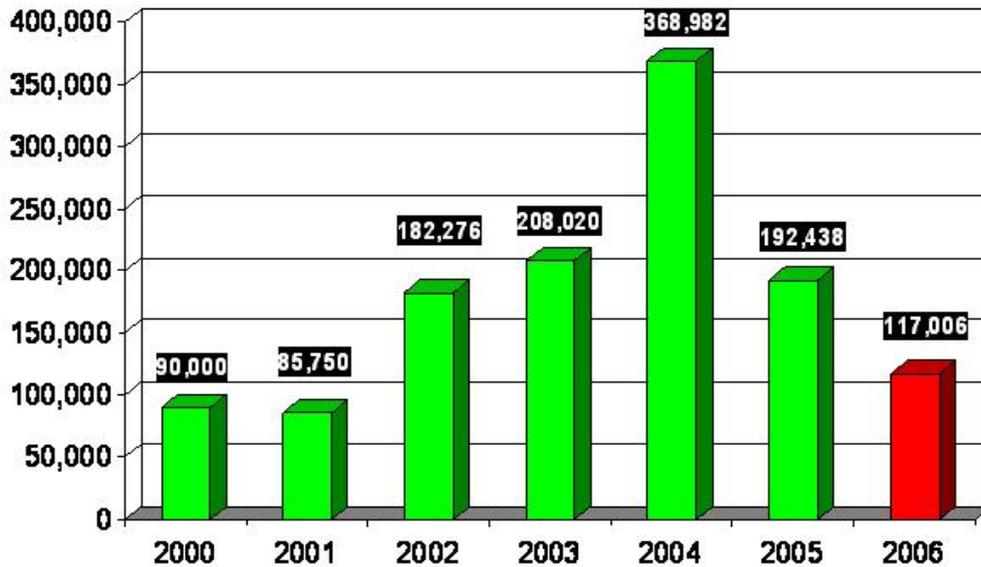
Year	Total Pounds Applied	Acres Treated
2005	12,175	1,218
2006	6,612	661

2006 - ISDA BAIT DISTRIBUTIONS TO PRIVATE LANDOWNERS FOR MORMON CRICKET AND GRASSHOPPER SUPPRESSION

Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
1	Washington	37,150	67
2	Oneida	18,450	60
3	Adams	12,400	109
4	Owyhee	11,550	46
5	Nez Perce	9,600	20
6	Cassia	8,900	25
7	Lewis	6,788	16
8	Boise	4 024	32
9	Valley	3,160	13
10	Franklin	1,650	30
11	Elmore	1,600	3
12	7 other counties	1,734	29
Totals	18 Counties	117,006	457



ISDA GRASSHOPPER AND MORMON CRICKET SUPPRESSION PROGRAM
POUNDS OF CARBARYL BAIT DISTRIBUTED TO PRIVATE LANDOWNERS 2000-2006



ISDA GRASSHOPPER/MORMON CRICKET PROGRAM - MAJOR COOPERATORS

During the 2006 season, the following cooperators provided significant help in bait distributions and overall program delivery:

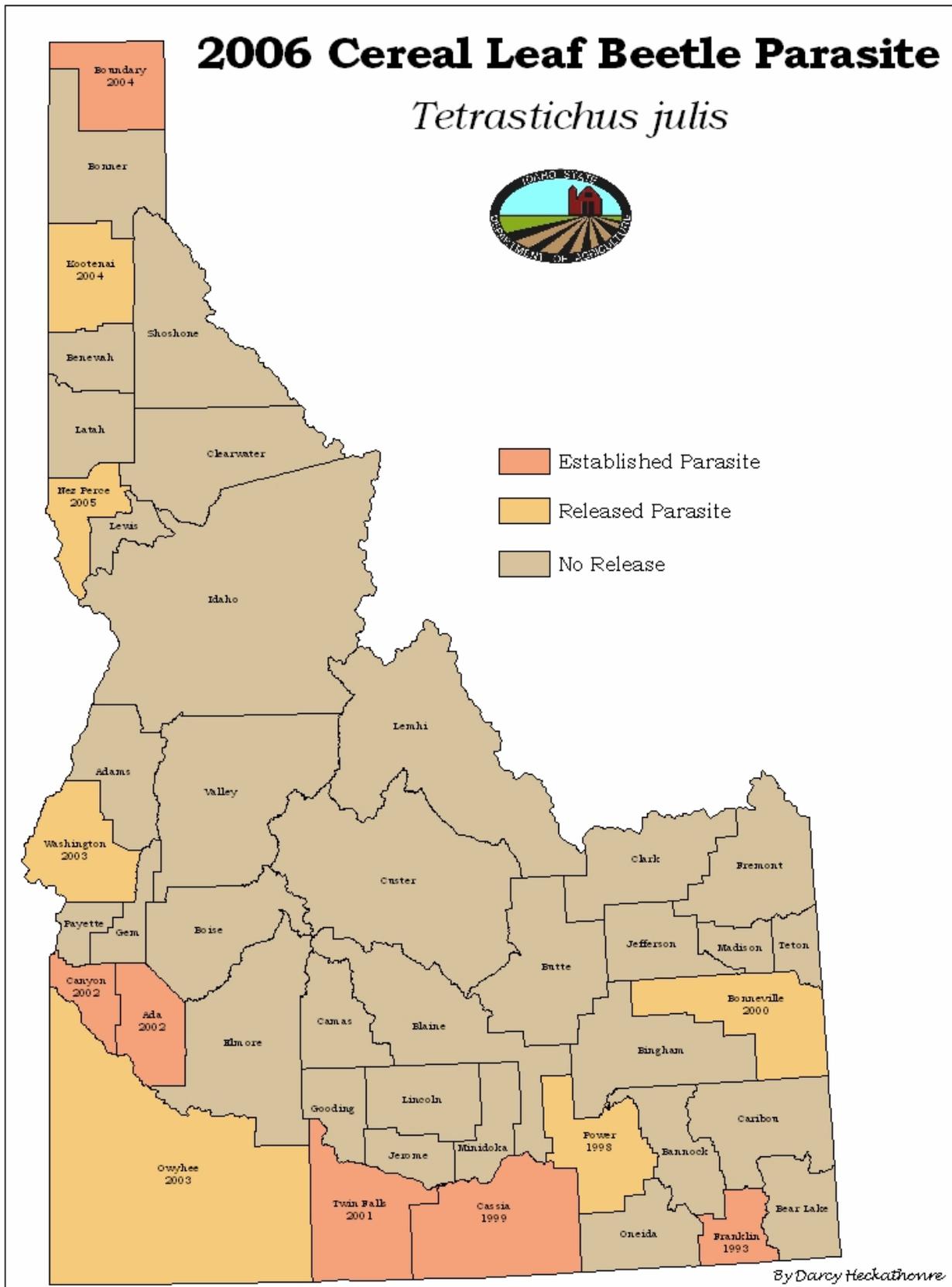
- > University of Idaho, Extension Service, Nez Perce County
- > University of Idaho, Extension Service, Lewis County
- > Randy Rowe Trucking Company, Twin Falls, ID
- > Owyhee County Sheriff's Department, Murphy, ID
- > Boise County Road Department, Gardena, ID
- > Primeland Cooperative – Lewiston, 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, ID 83701, Telephone: (208) 332-8620, Fax: (208) 334-2283, e-mail: bsimko@agri.idaho.gov, ISDA Website: www.agri.idaho.gov. Contributors to the report include: Darcy Heckathorne, Liz Vavricka, Garry West, Tina Eiman, Suzanne Pfeffer, Dick Lawson, ISDA and Gretchen Lech, Jeff Fidgen, IDL. Also Rob McChesney, USDA, PPQ.

2006 Cereal Leaf Beetle Parasite

Tetrastichus julis



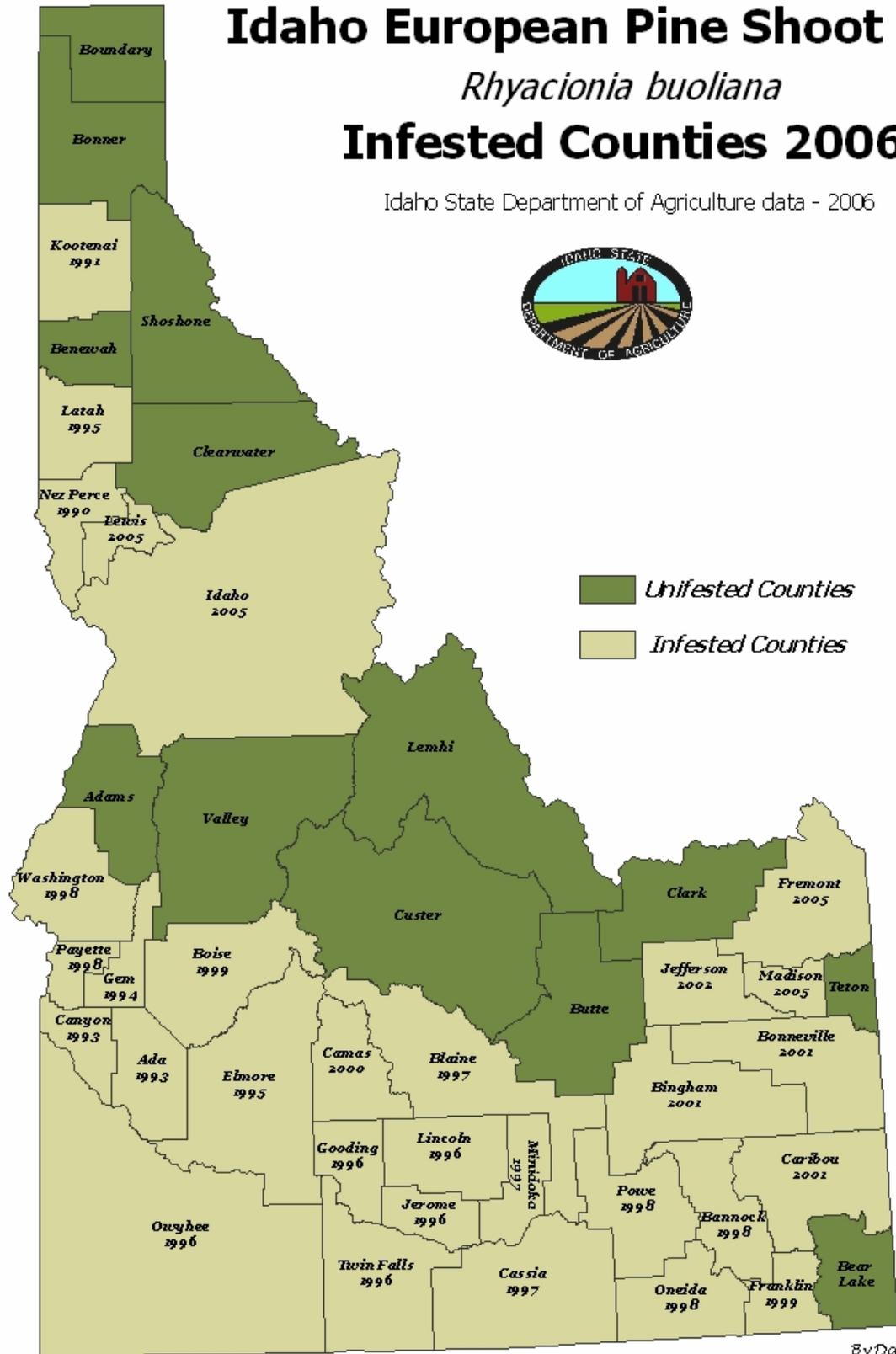
By Darcy Heckathorn

Idaho European Pine Shoot Moth

Rhyacionia buoliana

Infested Counties 2006

Idaho State Department of Agriculture data - 2006



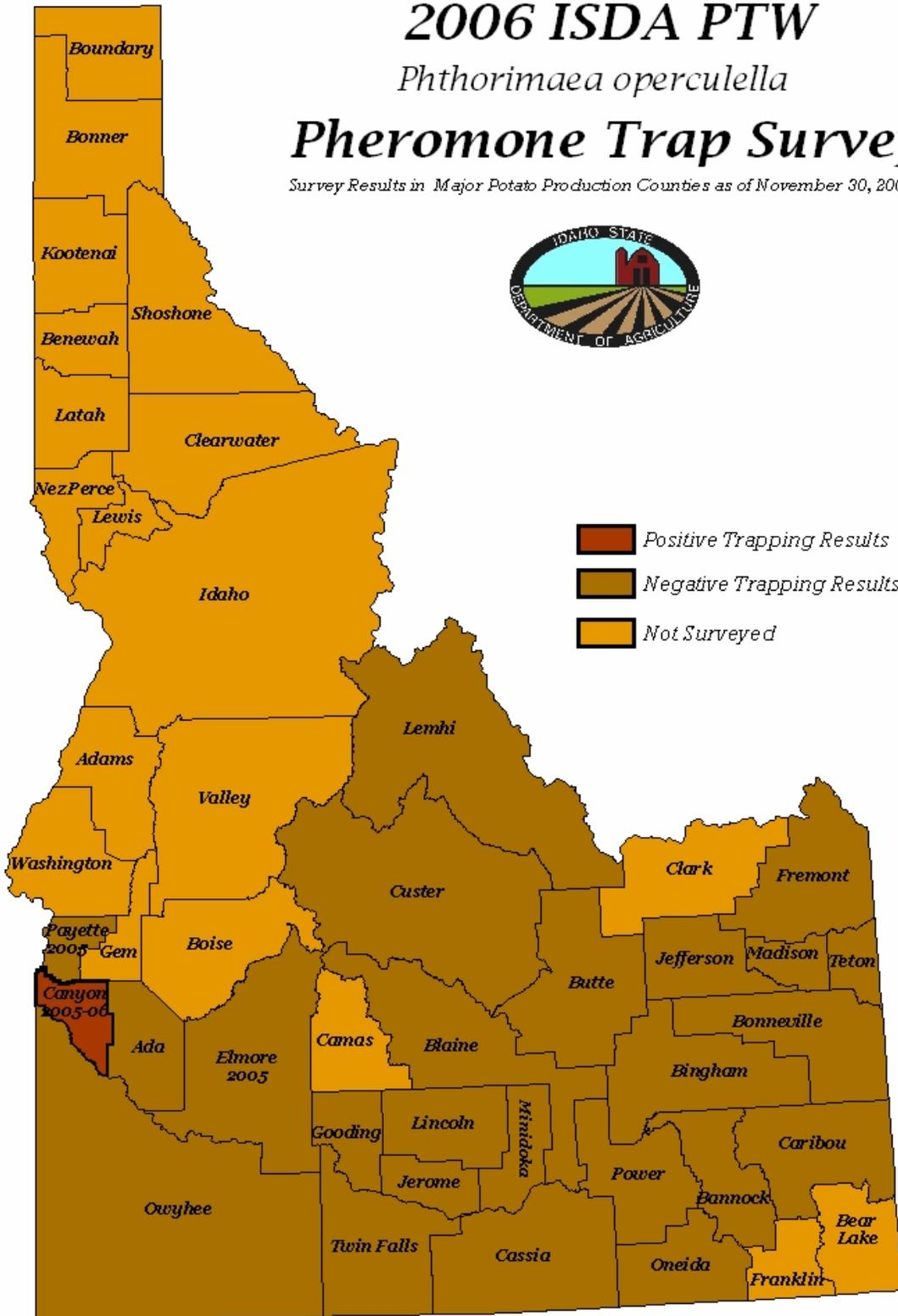
By Darcy Heckthorne

2006 ISDA PTW

Phthorimaea operculella

Pheromone Trap Survey

Survey Results in Major Potato Production Counties as of November 30, 2006.



By Darcy Heckathorne