

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

2007 PEST SURVEY, PLANT LAB, NURSERY AND FIELD INSPECTION SUMMARY

APPLE MAGGOT (AM) (*Rhagoletis pomonella* Walsh) - In 2007, 431 traps were placed in six counties (Boise, Canyon, Gem, Owyhee, Payette, and Washington) in the commercial apple production areas of each county. **The major tree fruit production areas of Payette, Canyon and Owyhee counties were all negative for AM; building on a multi-year record of being AM-free.** 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 104 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 2007 was 122 days. The positive trap catch of a single adult AM was 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 (UI), 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 UI insect taxonomist, Mr. Frank Merickel, at the W. F. Barr Entomological Museum in Moscow. In 2007, ISDA deployed "Attract and Kill" red sphere traps provided by Dr. Starker Wright, United States Department of Agriculture (USDA), Agricultural Resource Services (ARS). Thirty 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 2008.

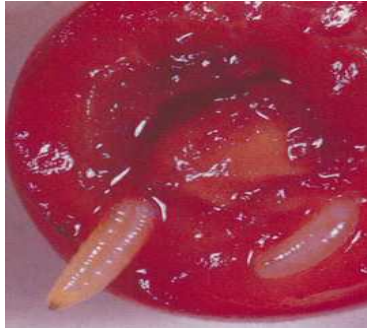


Apple Maggot Five-Year Survey Data Summary, Washington County Area of Concern 2002-2007

Year	Total # sites	Total # traps	Total Positive Traps	% positive traps
2002	28	46	4	8.6
2003	61	121	10	8.3
2004	60	123	3	2.4
2005	59	108	8	7.4
2006	59	102	4	3.9
2007	62	104	4	3.8

***CEREAL LEAF BEETLE (CLB) (*Oulema melanopus* (Linnaeus))** – Sweep net surveys detected a new county record for CLB in Clearwater County. Several grain fields were found infested with CLB in the Weippe Prairie area of the southwestern part of the county. The local University of Idaho Extension office was informed of the new pest record. CLB larval parasite (*Tetrastichus julis*) surveys were conducted in grain fields at the UI Parma Experiment Station on May 29 and on June 13. On each date, 25 larvae were collected and dissected. *T. julis* parasite levels were 0% on May 29 and 60% on June 13 of the CLB larvae dissected. If *T. julis* parasite levels remain high at the Parma site, the fields may be used as a source for collection and distribution of parasitized CLB to introduce larval parasites at other locations in the state during 2008. W.S.U. extension educator, Diana Roberts dissected a sample of CLB larvae collected from an oat field near Princeton in Latah County. The sample was found to have 72% *T. julis* parasites. This is a new county record for this biological control agent. A field insectary for the egg

parasite, *Anaphes flavipes*, was initiated in the spring of 2004 at the UI Southwest Idaho Research and Extension Center in Parma, in cooperation with Dr. Brad Brown. Several egg parasite releases have been made during the 2004 to 2006 field seasons. *Anaphes flavipes* egg parasite recovery surveys were conducted on April 26, May 3, May 17, and May 29, 2007. A total of 310 CLB eggs were collected and reared out. No *A. flavipes* were recovered and no evidence of overwintering and establishment of this biological control agent have been observed thus far. ISDA hosted the Western Region CLB Biocontrol meeting on September 18-19, 2007 in Boise, Idaho. As an outcome of this meeting, the western region states will increase work on *T. julis* as the primary biocontrol agent of CLB and support exploration and possible release of an alternative egg parasite, *A. nipponicus*.



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. In June a representative from CDFA conducted a tour and audit of the CFF protocol in southwestern Idaho and was found to be in full compliance with the California Permit. Fruit flies were first caught in yellow panel traps at a site in Gem County on May 25 and at a site in Canyon County on May 29, 2007. 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. Cherry fruit fly spray alert letters were sent out cooperating with the Idaho Cherry Commission to all Idaho cherry growers. Electronic notification was sent out with cooperation from 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 2003-2007

Site	2007 Forecast First Adult Emergence	2007 Forecast 1 st Treatment Recommended 1060 degree-day	2006	2005	2004	2003
			Historical 1060 degree day accumulations			
Boise	May 15	May 25	June 1	June 4	May 26	June 3
Caldwell	May 16	May 25	June 3	June 1	May 27	June 4
Emmett	May 17	May 26	June 6	June 11	May 30	June 5
Nampa	May 15	May 24	June 3	June 5	May 26	June 3
Payette	May 12	May 20	May 31	May 31	May 20	May 29
Parma	May 15	May 24	June 1	June 3	May 23	May 31

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 and Montana quarantines. ISDA staff placed 171 EPSM moth traps in nurseries and pine tree plantations spread over 20 counties.



Adams County was a new county record this year for EPSM. Recent mild winters and urbanization may have also contributed to increased EPSM trap densities over recent seasons. Idaho pine tree growers are experiencing increased EPSM pest incidence. Finding effective control regimes and complying with Montana and California EPSM quarantines continue to challenge this segment of the Idaho nursery industry. A map showing Idaho counties positive for EPSM is located on page 28.

***GYPSY MOTH (GM) (*Lymantria dispar* (Linnaeus)) – Report provided by Gretchen Lech and Jeff Fidget, Idaho State Department of Lands, Coeur d'Alene, Idaho, 208-666-8623**

ABSTRACT

In 2007, two gypsy moths were captured in Idaho. These moths were determined by the OTIS Methods Development Lab (OTIS) to be of the European/North American strain (EGM). One moth was caught in a detection trap in southwest Idaho, in Mountain Home, Elmore County, and the second moth was caught in a detection trap in southeast Idaho, in Heise, Jefferson County (Figure 1). Delimitation trapping was conducted at two locations in north Idaho this season; the first was surrounding the 2005 capture site of one male EGM near Kingston, along the Coeur d'Alene River, in Shoshone County; the second delimitation trapping was surrounding the 2004 capture site of one Asian Gypsy Moth (AGM) near Hauser, Idaho.



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). No gypsy moths were captured in 2006 (Lech 2006).

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
2005	4989	1441		6430	1			1	1
2006	5380	1473		6853					
2007	4882	1475		6357	2			2	2

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

²Detection.

³Delimitation.

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

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

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

Table 2 – Total number of gypsy moth traps placed, by agency, in Idaho in 2007.

AGENCY	DETECTION TRAPS	DELIMIT TRAPS	MASS TRAPS	TOTAL TRAPS
Idaho Dept. of Lands	2281	1475	0	3756
Idaho Dept. of Agriculture	1910	0	0	1910
USFS - Region 4	589	0	0	589
USFS - Region 1	102	0	0	102
TOTALS	4882	1475	0	6357

2007 EGM PROGRAM

EGM SURVEY:

Detection Trapping - In 2007, the cooperating agencies in the Idaho gypsy moth detection program placed 4882 detection traps throughout the state (Table 2). Trapping costs for the 2007 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. 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 2006 and April 2007, there were 11,316 move-ins to the state, a 3% increase over the previous year. Campgrounds, tourist attractions, and other high-risk locations were also trapped. Two gypsy moths were captured in detection traps in 2007.

At the Idaho Gypsy Moth Technical Advisory Committee meeting in February 2007, an effort was made to streamline the survey methods as much as possible while maintaining an effective detection program. The decision was made to begin to decrease detection trap densities from four per square mile to two per square mile in category 1 zones. Initially, this reduction was implemented for the north Idaho zones first, with the understanding that the results of this implementation will be reviewed at the 2008 meeting. This trap density reduction process was accomplished by utilizing a GIS scripting tool designed by Elizabeth Delmelle, GIS Analyst, Sr., and Gretchen Lech, Gypsy Moth Program Coordinator.

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, and this area has been declared eradicated.

Mass Trapping – No mass trapping for EGM was conducted in Idaho in 2007.

2007 AGM PROGRAM

The relative risk of introduction of the 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 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 2007 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 AGM in Kootenai County, near Hauser, Idaho. The 1,441 traps were placed prior to June 20, 2007, checked every two weeks during the summer, and removed in September. No gypsy moths were captured in the delimit area. This is the final year of the AGM delimit survey surrounding Hauser, Idaho, and this area has been declared eradicated.

2008 PROGRAM

Eradication - No eradications are proposed for the 2008 season.

Delimitation Trapping – Delimitation trapping will be conducted at two locations in 2008. The first is surrounding the 2007 capture of one male EGM in Mountain Home, and the second is surrounding the capture of one male EGM in Heise. The trap density will be between 16 and 36 traps/mi² at each location.

Table 3 – Estimated costs of the 2007 gypsy moth survey and treatment program.

AGENCY	COST	
	European GM	Asian GM
Idaho Department of Lands	\$22,000	
Idaho State 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	\$22,506	\$113,862
Total	\$82,506	\$114,612
GRAND TOTAL	\$197,118	

Table 4 - 2007 Trap placements by county

COUNTY NAME	NO.	DETECTION 2-4/MILE ²	DELIMITATION 16 -36/MILE ²	MASS 9/ACRE	TOTAL TRAPS
Ada	1	435			435
Adams	2	40			40
Bannock	3	112			112
Bear Lake	4	20			20
Benewah	5	121			121
Bingham	6	46			46
Blaine	7	168			168
Boise	8	52			52
Bonner	9	637			637
Bonneville	10	106			106
Boundary	11	207			207
Butte	12	12			12
Camas	13	4			4
Canyon	14	246			246
Caribou	15	18			18
Cassia	16	35			35
Clark	17	6			6
Clearwater	18	229			229
Custer	19	23			23
Elmore	20	103			103
Franklin	21	12			12
Fremont	22	31			31
Gem	23	62			62
Gooding	24	92			92
Idaho	25	274			274
Jefferson	26	24			24
Jerome	27	42			42
Kootenai	28	755	1441		2196
Latah	29	37			37
Lemhi	30	32			32
Lewis	31	7			7
Lincoln	32	20			20
Madison	33	23			23
Minidoka	34	34			34
Nez Perce	35	58			58
Oneida	36	14			14
Owyhee	37	66			66
Payette	38	55			55
Power	39	17			17
Shoshone	40	72	34		106
Teton	41	16			16
Twin Falls	42	241			241
Valley	43	225			225
Washington	44	53			53
TOTALS		4882	1475		6357

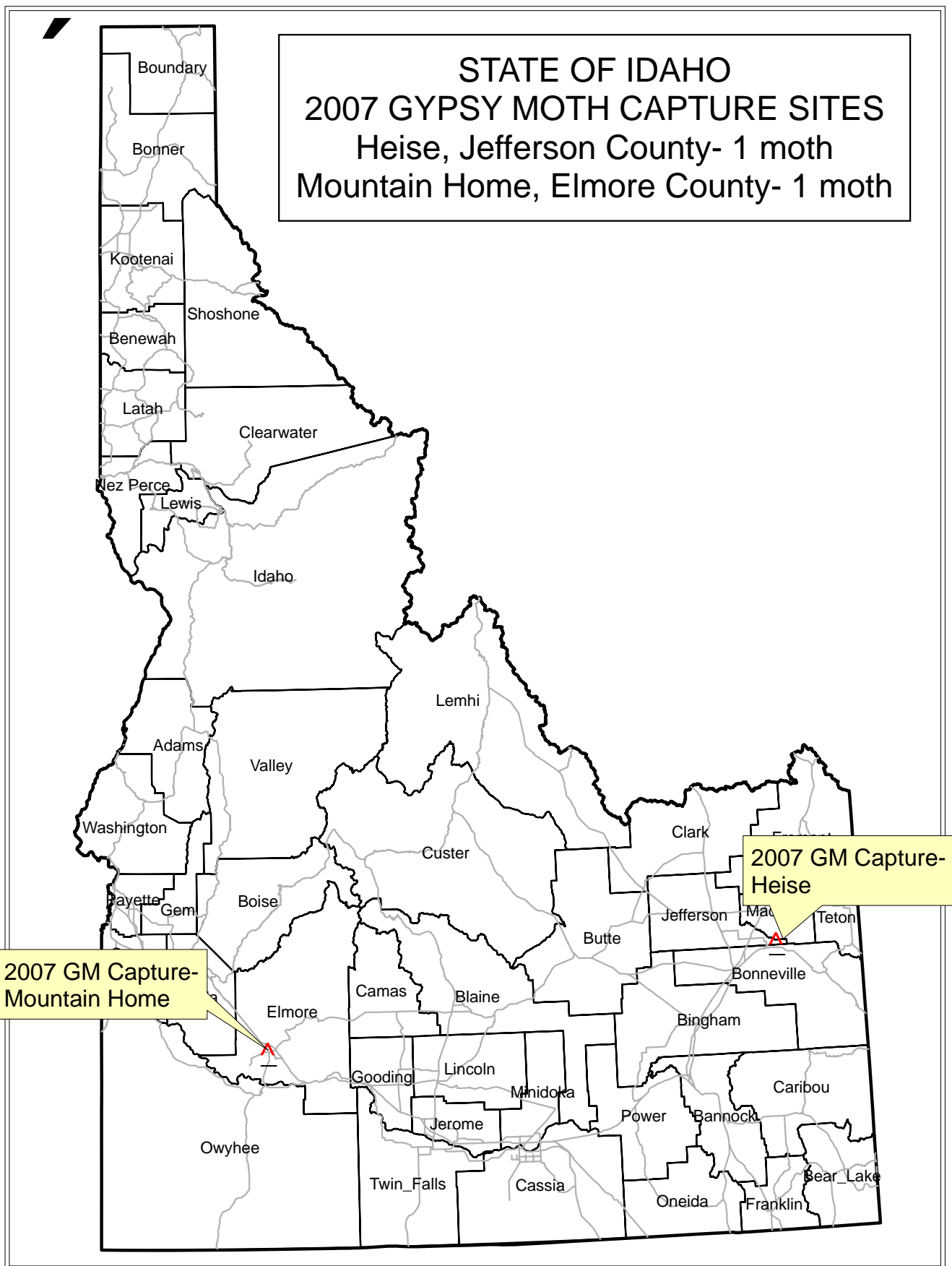


Figure 1



JAPANESE BEETLE (JB) (*Popillia japonica* Newman) – JB quarantines are maintained and vigorously enforced by California, Idaho, Oregon, Utah and Washington. This beetle and its larval form are known to infest over 400 horticultural and ornamental plants, including sod. Establishment of the beetle in Idaho could seriously affect exports to the above-listed states and British Columbia. The beetle is known to infest most states east of the Mississippi River. Eastern Idaho is at increased risk for a possible JB infestation, due to the amount of nursery stock coming in from infested eastern states. **An infestation in Orem, Utah is under quarantine and is being treated by the Utah State Department of Agriculture.** Also, the Montana Department of Agriculture reported a positive trap located on the



eastern shore of Flathead Lake. In Idaho, 215 traps were placed in 43 counties in 2007. This is a statewide survey of nurseries, turf farms and urban landscape sites in high risk areas. This annual survey started in 1992 and has been ongoing for the past 16 years averaging 200 traps per season. The highest trap year was in 2004 at 294 traps placed. **No JB were captured in 2007 or in the previous nine years.** Visual inspections of nursery premises are also performed. **All traps and visual inspections were found negative.** Both the Boise Airport and Mountain Home Air Force Base are also trapped annually because of the concern of beetles being transported in passenger, cargo and military aircraft originating from JB infested states. These traps have been negative. A JB trap distribution map for the state is located on page 26.

***KARNAL BUNT (KB) (*Tilletia indica*)** – ISDA collected 40 wheat samples from 18 counties in Idaho for the 2007 KB Survey. All of the samples were collected and analyzed according to the 2007 National KB Monitoring Plan. Diagnostics were conducted by the USDA, Olney KB Optical Scanning Center, Olney, Texas. **All samples processed were found free of *Tilletia indica*.** Below is a table listing sample numbers by county in the 2007 survey.

COUNTY	Number of KB Samples	COUNTY	Number of KB Samples
Ada	1	Jerome	1
Benewah	1	Kootenai	2
Bonneville	3	Latah	10
Butte	1	Lincoln	1
Caribou	2	Minidoka	3
Clark	1	Oneida	1
Franklin	1	Payette	1
Gem	1	Twin Falls	4
Idaho	5	Washington	1

POTATO TUBERWORM SURVEY (PTW) (*Phthorimaea operculella* Zeller) - There have been infrequent but notable invasions of this pest into Idaho over the last 60 years. The first incident recorded was in July of 1946 when infested potatoes shipped from California to a Burley processing plant threatened the industry in that area of the state. Using area-wide treatments of DDT, the infestation was successfully eradicated. The UI W.F. Barr Entomology Museum in Moscow recorded a catch of PTW on March 4, 1959 in Boise. The infestation was found in stored potatoes and the collector was R. Portman. That infestation was successfully thwarted. No PTW infestations have been reported since 1959. In 2002, this pest emerged as a serious economic pest in Umatilla County, Oregon and in the Columbia Basin of south



central Washington. In 2005, in response to this growing threat, the UI initiated a limited survey under the direction of Dr. Juan Alvarez, and funded through a grant from the Idaho Potato Commission. ISDA implemented a more extensive statewide detection survey of all potato growing areas after a single male PTW was trapped in August of 2005 near Parma. ISDA has run a detection survey for this insect for the last three seasons and the results are summarized in the table below.



Year	Detection (Potato Counties)	Traps Production	Total Male PTW Captured	Counties with Positives
2005	461		19	Canyon, Payette, Elmore
2006	468		6	Canyon
2007	491		5	Canyon, Owyhee

Also, USDA, Idaho Agricultural Statistical Service (IASS) conducts a yield survey covering all potato production areas of the state. Fifteen pound samples of tubers were dug from a statistical sample of all potato fields within the state. The sample size was 288 field samples from over 20 potato production counties. IASS staff involved with this yield survey received special training, conducted by ISDA, for recognizing PTW tuber damage signs. **No damaged or infested tubers or live larvae have been observed or reported thus far.** ISDA plans to reduce its statewide survey and do a limited follow-up detection survey during 2008 in the Parma area of Canyon County. A PTW survey map can be found on page 29.



***SILVER Y MOTH SURVEY (SYM) (*Autographa gamma*)** – This exotic moth is native to Europe. Adult moths have been reported coming into the US on cargo and passenger aircraft originating from Europe. The larval stage feeds on more than 200 host plants. USDA, APHIS has placed this species on the national pest priority list. Potential crop host plants of importance to Idaho include: alfalfa, corn, grapes, dry beans, potato, sugar beets and wheat. ISDA staff placed 212 pheromone traps in 30 southern Idaho counties. A very similar native moth, the alfalfa looper (*Autographa californica*), was captured in high numbers. Dissection of the male genitalia is required to separate the native non-target from the target species. UI Entomology Museum Curator, Frank Merickel, and an ISDA Entomologist are carrying out the diagnostics. **No target moths were detected**

in this survey. The second most common non-target species captured in the traps was the celery looper, *Anagrapha falcifera*.



APPLE CLEARWING MOTH (*Synanthedon myopaeformis*) – This lepidopterous pest is a cambium feeder of healthy apple trees. This pest has been detected in British Columbia, Canada in the lower Frazier River Valley and the Okanogan apple production area of south central BC. Pherocon VI Traps with species specific pheromone lures were placed in host trees. Twelve trap sites included organic and home garden apple orchards in Bonner and Boundary counties in northern Idaho. The dominant non-target species captured in traps was the peach tree borer (*Synanthedon extiosa*). **No target species were captured.**

***LIGHT BROWN APPLE MOTH (LBAM) (*Epiphyas postvittana*) –**

LBAM infestations in northern California counties have made survey and detection for this species a national priority. This small moth in the family *Tortricidae*, as a larva, has a plant host range in excess of 150 plant genera in over 70 families. Potential hosts in Idaho include: nursery stock, cut flowers, stone fruit (peaches, plums, nectarines, cherries, and apricots), pome fruit (apples and pears), and grapes. Information from regions where LBAM is reported (England, New Zealand, Australia) was analyzed by PPQ. LBAM has only been reported in USDA Plant Hardiness Zones 7 and above. In Idaho, areas in the Treasure Valley and around Lewiston ID are classified as Zone 7. In 2007, ISDA initiated a pheromone trap survey in SW Idaho commercial apple orchards and some selected retail nursery outlets. One hundred fourteen Pherocon VI traps were placed in SW Idaho (Ada, Canyon, Gem Payette, Owyhee, Washington Counties). Lures were provided by the USDA, PPQ, Otis Methods Lab. **No LBAM were captured in this preliminary survey.** Some prominent non-target species captured included: *Choristoneura sp.*, *Sparganothis sp.* - family *Tortricidae* and *Achyra occidentalis*, *Pyralis orphisalis* - family *Pyralidae*. Determinations of the non-target microlepidopteran species were made by WSDA Entomologist, Eric LaGasa.



BROWN GARDEN SNAIL (BGS) (*Cornu aspersum* Müller) - 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 and several in Nez Perce County, in Lewiston. 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. In September of 2007, ISDA followed up and sent out letters to homeowners with BGS infestations and again offered bait to help Treasure Valley citizens with efforts and control treatments. A BGS county record map is located on page 27.

***POTATO CYST NEMATODE (PCN) (*Globodera pallida*)–**

PCN is a pest of both state and national regulatory concern. Therefore, the responsibility of the PCN Program in Idaho is shared between ISDA and USDA, PPQ. The day-to-day, on-site PCN program operation is managed by the PPQ office in Idaho Falls. The PCN program has expanded to include surveillance, delimiting and field eradication surveys. The survey protocol used in Idaho is essential to the National PCN Survey Protocol developed by PPQ. Soil analysis, including the extraction of cysts and preliminary cyst identifications are conducted by the Idaho Food Quality Assurance Laboratory (IFQAL) Nematology Unit, in Twin Falls and the PPQ Nematology Lab, Idaho Falls. Final determinations of presumptive positives are carried out by the ARS, Nematology Lab in Beltsville, Maryland. PCN infestations are limited to eight fields near Shelley, Idaho, covering an area of 1,067 acres. A PCN Eradication Plan Environmental Assessment (EA) was published in



April of 2007. A Federal Interim PCN Rule was published in September of 2007. A parallel ISDA PCN rule has been promulgated and it and the USDA rule went into effect on November 1, 2007.

These rules set the criteria to designate a field as infested with PCN and the management of the associated fields, rather than defining a specific geographic control area. The regulated acreage includes eight fields (1,036 acres) known to be infested with PCN and 120 associated fields (17,325 acres) that are known to have some connection to an infested field through a common grower and crop. ISDA has taken the lead to negotiate and write cooperative agreements between ISDA and the impacted growers for the control of PCN and prevention of its further spread. PPQ has conducted comprehensive sampling to construct PCN cyst density maps of the seven infested fields. Multi-faceted eradication efforts are in progress with the centerpiece being soil fumigation of the fields with methyl bromide. Pre and post fumigation viability testing of eggs from PCN cysts is under way. As of December 21, 2007, 54,374 surveillance, delimiting and eradication samples have been taken during 2007. The PCN Project total for 2006 and 2007 is nearly 80,000 samples. **No additional PCN infestations have been detected to date outside the cluster of eight fields near Shelley, ID.**

BEAN BACTERIAL WILT (BBW) (*Curtobacterium flaccumfaciens pv flaccumfaciens*) - For the survey the state was divided into two main growing areas; the Treasure Valley, and the Magic Valley. Seven fields were examined in the Treasure Valley, comprising three counties, for a total of 48.6 acres. Every eight rows in each field were walked, and examined twice during the season. Samples from each field were taken and isolations were made onto nutrient broth yeast (NBY) extract media. No colonies of *Curtobacter flaccumfaciens* were found. An additional seven fields of susceptible bean varieties comprising 59.3 acres were also walked. These fields were walked at every 16 rows. No plants infested with bean bacterial wilt were found. In the Magic Valley, ten fields were examined by walking every eight rows. These fields covered four counties, for a total of 270.5 acres. Samples from at least half of the fields were taken (there were no symptomatic plants in many of the fields) and isolations were made onto NBY agar. No colonies of *Curtobacter flaccumfaciens* were found. An additional 12 fields (205.8 acres) of susceptible bean varieties were walked at every 16 rows in the Magic Valley. No plants infested with bean bacterial wilt were found.



SUDDEN OAK DEATH (SOD) (*Phytophthora ramorum*) – ISDA, cooperating with PPQ, conducted a *Phytophthora ramorum* trace-forward inspections and lab diagnostics for host species *Physocarpus*. All samples were taken according to SOD program protocols and forwarded to the ISDA Plant Pathology Lab. A couple of samples showed suspicious ELISA results and were sent to the UI Plant Pathology Lab, in Parma ID for additional testing. All samples taken in the trace-forward survey were negative for *P. ramorum*. Idaho still remains SOD free.

Inspection Date	Establishment	Location	County	Inspection and Diagnostic Results
10/16/2007	Greenhurst Nursery	Nampa	Canyon	No host plants found
10/19/2007	Far West	Boise	Ada	1 sample
10/17/2007	Northland Nursery	Post Falls	Kootenai	1 sample
10/16/2007	Ponderay Garden Center	Ponderay	Bonner	1 sample
10/16/2007	Albeni Falls Bldg Supply	Old Town	Bonner	No host plants found
12/18/2007	Westwoods Gardens	Rathrum	Kootenai	1 sample
10/18/2007	Huckleberry Nursery	Hayden	Kootenai	2 samples
10/14/2007	Aspen Landscape	Post Falls	Kootenai	No host plants found
10/17/2007	Town & Country Gardens	Idaho Falls	Bonneville	No host plants found
10/17/2007	Kesler's Market & Nursery	Blackfoot	Bingham	1 sample
10/17/2007	Al American Yards	Idaho Falls	Bonneville	1 sample
10/19/2007	Kimberly Nursery	Twin Falls	Twin Falls	2 sample
10/26/2007	Green Acres Nursery	Grangeville	Idaho	No host plants found
11/19/2007	Leathem Nursery	Meridian	Ada	No host plants found
11/19/2007	Victory Greens	Meridian	Ada	1 sample

WHEAT SEED GALL NEMATODE (*Anguina tritici*) - There were 40 wheat samples drawn from grain dealers or farm storages from 18 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.**

DISEASES AND PESTS FOUND DURING 2007 FIELD INSPECTIONS FOR EXPORT CERTIFICATION

In 2007, forty-eight seed companies submitted a total of 2,180 fields representing 32 crops. Total acres submitted for inspection were 30,937.88, with the number of acres actually inspected being 58,218.2 acres, due to multiple inspections required for some crop diseases. This is an increase in firms from the 47 participants in 2006, and an 18% decrease in acreage from the 37,859 submitted in 2006.

Year	# Participating Firms	# of Crops	# Fields	Submitted Acres	Inspected Acres
2003	41	27	3,016	43,433	71,357
2004	44	27	3,355	46,282	79,671
2005	43	28	2,987	42,961	74,905
2006	47	30	2,880	37,859	70,692
2007	48	32	2,439	30,938	58,218

Alfalfa seed: A total of 775.38 acres were submitted for inspection in 57 fields during the 2007 growing season. There were no reported observations of Alfalfa mosaic virus, *Cercospora medicaginis*, *Clavibacter michiganensis subsp. insidiosum*, *Cuscuta spp.*, *Ditylenchus dipsaci*, *Euphorbia esula*, *Verticillium albo-atrum* or *V. dahliae*, and *Xanthomonas campestris pv. alfalfae*.

Beans, Dry: A total of 146 fields with 2,169.8 acres of Dry Beans were submitted for inspection in 2007. 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. In addition, there were no reported observations of Bean common mosaic potyvirus, *Colletotrichum truncatum*, Peanut stunt cucumovirus, *Phoma exigua var. diversispora* or Tobacco streak ilavirus in fields requested to be inspected for these diseases.

Beans, Garden: A total of 11,622.17 acres in 725 fields were submitted for inspection in 2007. 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. In addition, there were no fields found positive for Bean common mosaic virus, Bean yellow mosaic virus, *Colletotrichum truncatum*, Pea seed-borne mosaic virus, Peanut stunt virus, *Phoma exigua var. diversispora*, and Tobacco streak virus in fields requested to be inspected for these diseases.

Brassicas: A total of six fields and 27.5 acres of Brassica, Collards, Kale, Mustard, Pak Choi and Choi Sum were submitted and inspected in 2007. No fields were found positive for *Leptosphaeria maculans*, *Xanthomonas campestris pv. campestris* or *Pseudomonas syringae pv. maculicola*.

Vine Crops: Thirty-seven fields totaling 10.21 acres of Cantalope, Pumpkin, Squash, Watermelon and Zucchini were submitted and inspected in 2007. 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 960.58 acres in 104 fields were inspected in 2007. There were no observations of *Alternaria dauci*, *Alternari radicina*, *Pectobacterium carotovorum pv. carotovorum*, *Xanthomonas campestris pv. carotae*.

Corn: In 2007, there were 8,139.8 acres in 786 fields individually inspected, plus 224 acres in 9 fields submitted for area inspection. High plains virus (HPV) was observed in 229.45 acres, Maize dwarf mosaic potyvirus (MDMV) was observed in 57.0 acres and Wheat streak mosaic potyvirus (WSM) was observed in 117.0 acres. *Sporisorium holci-sorghii* was observed in 121.9 acres and *Ustilago zaeae* was reported in 6,257.4 acres. These statistics include 62.0 acres in 7 fields submitted for inspection and testing for export to Australia. Of these fields, 43.0 acres in three fields met the Australian guidelines. two acres in three fields failed due to testing positive for Wheat streak mosaic virus and 17.0 acres in one field failed due to testing positive for High Plains Virus.

Grain Seeds: A total of 114.3 acres in 28 fields of Barley, Grain Sorghum, Oats and Wheat were inspected. Ten acres of Grain Sorghum was found positive for *Sporisorium holci-sorghii* and 24.0 acres of Oats were found positive for *Ustilago zaeae*.

Lettuce: There were 118.39 acres submitted in 33 fields of Lettuce in 2007. No Lettuce mosaic potyvirus (LMV) was observed.

Mint: Seventeen fields totaling 131.0 acres were inspected and found apparently free from *Verticillium dahliae*, Mint root borer (*Fumibotys fumalis*), and Mint stem borer (*Pseudomonas nigrina*). Twenty acres tested positive for *Meloidogyne hapla* (Root Knot Nematode).

Allium (excluding Garlic): One-hundred-twenty-nine fields totaling 520.25 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.

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).

Peas: In 2007, there were 3,005.46 acres of peas submitted for individual inspection in 274 fields and 2,918.4 acres in 58 fields submitted for area inspection. *Pseudomonas syringae* pv. pisi was found in 201.0 acres. In addition, *Ascochyta pisi* was found in 100.0 acres and *Fusarium oxysporum* f. sp. pisi was found in 4.75 acres. Ten acres were sampled and tested positive for *Erwinia rhapontici*. No symptoms of Pea seedborne mosaic virus were observed in any of the inspected fields.

Pepper: There were eight acres of Peppers, both Hot and Bell, inspected in five fields in 2007. All fields were found negative for *Colletotrichum dematium*, *Clavibacter michiganensis* pv. michiganensis, Cucumber mosaic virus, *Phytophthora capsici*, *Pseudomonas syringae* pv. Lachrymans, and *Xanthomonas vesicatoria*.

Potato: There were no potato fields submitted for inspection in 2007.

Radish: There were 159.0 acres submitted for inspection in 2007 in fourteen fields. All fields were found apparently free from *Colletotrichum higginsianum*, *Xanthomonas campestris* pv. campestris, and *X. campestris* pv. raphani.

Sunflower: Seven fields totalling 35.0 acres were inspected and found apparently free from *Orobancha spp.* and six fields totaling 34.0 acres were inspected and found apparently free from *Circium arvense*.

Tomato: In 2007, 0.07 acres in one field was submitted for inspection. The field was found apparently free from *Clavibacter michiganensis* pv. michiganensis, *Fusarium oxysporum* f.sp. radicylicopersici, Potato spindle tuber viroid, *Pseudomonas syringae* pv. tomato, Tomato black ring nepovirus, Tomato ring spot Nepovirus, Tomato spotted wilt tospovirus and *Xanthomonas vesicatoria*.

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 2007 FIELD SEASON

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Alfalfa	57	775.38	770.38
Barley	23	58.5	58.5
Beans, Dry	146	2,169.8	5,172.7
Beans, Garden	725	11,622.17	27,939.8
Brassica	2	2.0	2.0
Cantaloupe	22	2.64	2.64
Carrot	104	960.58	960.61
Chive	1	8.0	8.0
Collards	1	10.0	10.0
Corn	786	8,139.8	15,377.0
Corn Area	9	224.0	0.00
Garlic	2	1.5	1.5
Grain Sorghum	4	23.3	23.3
Kale	1	10.0	10.0
Leek	1	5.0	5.0
Lettuce	33	118.39	118.39

SPECIES	Number of Fields	SUBMITTED ACRES	INSPECTED ACRES
Mint	17	131.0	257.0
Mustard	1	5.0	5.0
Oats	2	28.0	52.0
Onion	126	506.82	474.3
Pak Choi	1	0.5	0.5
Peas	274	3,005.46	6,742.94
Peas, Area	58	2,918.4	15.0
Pepper, Bell	2	5.0	5.0
Pepper, Hot	3	3.0	3.0
Pumpkin	3	2.25	2.25
Radish	14	159.0	159.0
Squash	4	2.07	2.07
Sunflower	7	35.0	35.0
Tomato	1	0.07	0.07
Watermelon	5	1.75	1.75
Wheat	1	2.0	2.0
Zucchini	3	1.5	1.5
TOTALS	2,439	30,937.88	58,218.2

Suzanne Pfeffer, Program Manager, Division of Plant Industries, Nampa, (208) 475-0339 and Garry West, Program Manager, Division of Plant Industries, Twin Falls, (208) 736-2195, compiled the field disease report.

2007 PLANT PATHOLOGY LAB SUMMARY

In 2007 the lab received a total of 747 samples, and ran 3575 tests on them. It took an average of 27 days to finish each sample, although this amount varied a great deal depending on what type of sample was submitted. Four lots of bean seed submitted for planting in Idaho were found infected with Bacterial Brown Spot (*Pseudomonas syringae* pv. *syringae*). No bacterial diseases were found through bean field inspections, nor during the Bacterial Bean Wilt Survey done this year. Bean Common Mosaic Virus was found in several fields. One new disease on pea was recorded; *Erwinia rhapontici*, cause of pink seed of pea was newly reported in Idaho. The lab also participated in the Karnal Bunt Survey on wheat. This was the first year that wheat samples taken from facilities across the state were submitted to a lab in Olney, TX for processing, instead of being processed in-state. In Olney, the samples were inspected with a mechanical eye for signs of the fungal disease, and then any suspect samples were inspected under the microscope. The samples were all negative. Only 38 seed samples were received for testing this year. This is a reduction from last year's 108. *Clavibacter michiganensis* subsp. *insidiosus* was found in one sample submitted from out-of-state. In the field samples this year, a fairly high incidence of both High Plains Virus and Wheat Streak Mosaic was found on corn. *Pseudomonas syringae* pv. *lisi* on peas was also fairly common. Carrots were infected with *Alternaria radicina*, and *Sclerotinia sclerotiorum* again this year.

In the early spring of 2007, the lab participated in a mock plant health emergency, in conjunction with the Western Plant Diagnostic Network. ISDA's plant pathology lab acts as a triage diagnostic lab for the network. The lab also took part in the University of Idaho's Extension Class on Small Acreage Farms in Idaho; presenting a class on onion white rot identification, then in the fall, two seminars on diseases of regulatory interest in Idaho, at different meetings in the state. Lastly, the lab participated again this year in the state's Potato Cyst Nematode project. The lab became involved with the Idaho Food Quality Assurance Lab in looking at the viability of the nematodes both before and after treatments. Below is the summary table of the 2007 plant pathology lab samples.

Crop		# SAMPLES	# TESTS	POSITIVES (Organism)	TIME (DAYS/SAMPLE)
Bean					
	seed	241	1414	4 (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)	29.00
	field	73	195	3 (Bean Common Mosaic Virus)	30.00
				7 (<i>Fusarium</i> spp.)	
Misc Seed					19
	alfalfa	22	39	1 (<i>Clavibacter michagenesis</i> subsp. <i>insidiosus</i>)	
	barley	1	1		
	chickpea (garbanzo)	2	2		
	corn	1	1000		
	mustard	1	1		
	radish	4	8		
	wheat	5	8		
	white clover	2	2		
Potato Yr. Out		5	18	Potato Virus Y	
				Potato Leaf Roll Virus	
				Potato Virus A	
Misc. Field					19
	alfalfa	3	3		
	amur maple	1	1		
	barley	4	9	1 (<i>Xanthomonas translucens</i>)	
				1 (<i>Cochliobolus sativa</i>)	
	canna lily	1	2	unidentified bacteria	
	carrot	16	16	2 (<i>Alternaria radicina</i>)	
				6 (<i>Sclerotinia sclerotiorum</i>)	
	cherry	1	1		
	corn	253	708	20 (High Plains Virus)	
				9 (Wheat Streak Mosaic Virus)	
				1 (Maize Dwarf Mosaic Virus)	
				2 (<i>Ustilago zaeae</i>)	
				2 (<i>Sporisorium holci-sorghii</i>)	
	geranium	1	1		
	gerbera				
	daisy	1	3		
	hosta	1	1		
	kalmia	1	1		
	malus	1	1	1 (Apple Mosaic Virus - visual only)	
	maple	1	2	1 (<i>Cytospora</i> sp.)	
	melon	5	7		
	mint	1	1		
	onion	3	3	1 (<i>Nigrospora</i> sp.)	
	pea	19	28	8 (<i>Pseudomonas syringae</i> pv. <i>pisii</i>)	
				1 (<i>Phoma medicagenis</i> pv. <i>pinodella</i>)	
				1 (<i>Fusarium oxysporum</i> pv. <i>pisii</i>)	
				1 (<i>Erwinia rhapontici</i>)	

Crop	# SAMPLES	# TESTS	POSITIVES (Organism)	TIME (DAYS/SAMPLE)
pepper	2	3		
petunia	1	3		
photinia	1	2	1 (<i>Septoria</i> sp.)	
physocarpus	11	11	traceforward samples	
prunus	1	1	1 (<i>Cytospora</i> sp)	
pumpkin	1	1		
quaking aspen	1	1		
salix	1	1	1 (<i>Pseudomonas</i> spp.)	
sunflower	2	3		
sweet dahlia	1	3		
vaccinium	13	26	4 (<i>Phytophthora</i> sp)	
verbena	1	1		
weeping linden	1	1		
KB Survey	40	42		40
Total	747	3575		27

SEED LAB SUMMARY FOR 2007

The Idaho State Seed Laboratory received 4,278 service samples in fiscal year 2007 and completed 6,717 tests. Top crops for services were Wheat, Beans, Peas, Bluegrass, Barley, Wheatgrass, Saltbush, Sagebrush, Pentagon and Corn. One-hundred twenty-one regulatory enforcement samples were tested for purity, germination, licensing and labeling requirements, with 50 total violations; 20 resulting in enforcement action. Accomplishments include:

1. Remodel of walk-in germinator with three separate chambers, each maintaining their own testing climate, will allow for more samples to be planted at the same time.
2. Staff training in Roundup Ready genetics testing
3. Staff training in Canadian Grading program
4. Announcement printed in Seed Today, a large national seed publication.

EXPORT CERTIFICATION FOR THE 2007 CALENDAR YEAR - The ISDA issued 4,202 Federal and 746 State Phytosanitary Certificates for 69 different types of commodities to 97 countries. The Division of Plant Industries certified over 260 million pounds of seed and other commodities for export. The ISDA operates this program under a Memorandum of Understanding with the USDA.

REGULATORY INSPECTIONS AND ACTIONS - ISDA under the authority of Title 22; Chapters, 4, 5, 23, & 24 and IDAPA defined pest quarantines, conducted over 5,600 inspections and took action against pest threats and other violations. In 2007, there were over 2,230 licensed nurseries, and of those, 1,005 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 other state laws, quarantines and pests of particular concern. The results of these inspections and regulatory actions are listed below:

Quarantine/Pests	NO. OF INSPECTIONS	Incidents	Corrective Action	Stop Sales
Certified Seed Potatoes	132	16	2	14
Onion White Rot	179	22	0	20
European Corn Borer	263	1	0	0
Japanese Beetle	496	0	0	0

Quarantine/Pests	NO. OF INSPECTIONS	Incidents	Corrective Action	Stop Sales
Mint Quarantine	116	0	0	0
Crop Management Zone	36	0	0	0
Grape Quarantine	89	3	1	2
Peach Tree Quarantine	51	0	0	0
Sudden Oak Death	381	1	0	1
Pine Shoot Beetle	265	0	0	0
Gypsy Moth	488	0	0	0
Red Imported Fire Ants	285	0	0	0
Noxious Weeds	678	61	12	16
Idaho Seed Law	214	23	1	21
Nematodes	1	0	0	0
Aphids	798	40	13	0
Late Blight	323	0	0	0
Hops	9	0	0	0
Retail Potatoes	115	12	0	0
General Pests	116	59	24	1
Snails	570	0	0	0
Day Lily Rust	0	0	0	0
Total Inspections	5,605	238	53	75

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

Background

Sixty-four percent of Idaho lands are administered by the Federal Government and 43% percent of the state (21.8 million acres) is classified as rangeland. The Bureau of Land Management administers 11.8 million acres in Idaho, much of it prime grasshopper/Mormon cricket habitat. There is a significant area of grasshopper and Mormon cricket habitat on federal lands that borders private rangeland and irrigated cropland in the state. Mormon crickets and grasshoppers (primarily about six species) are cyclical economic pest problems, particularly in southern Idaho. In recent years, however, significant outbreaks have also occurred in north central Idaho.

Summary of Grasshopper Survey Results

Most areas of southern Idaho did not experience major grasshopper outbreaks in 2007. The two exceptions were an infestation centered in eastern Washington and southern Adams Counties and one in central Valley County. The Valley County infestation was a mixture of *Melanoplus sanguinipes*, *M. femurrubrum* and *Camnula pellucida* grasshopper species. Damage to hayfields, grass pastures and gardens were observed throughout the area. Smaller infestations were detected in Magic Valley and in southeast Idaho. The northern counties of Lewis, Clearwater, Nez Perce and Idaho infestations were greatly diminished this season. New infestations were found further north in Benewah and Latah Counties and was dominated by the *Camnula pellucida* grasshopper. 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 in southern Idaho consisted primarily of *Melanoplus sanguinipes*, *Melanoplus femurrubrum*, 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 2008. It is reasonable to expect that significant grasshopper outbreaks may occur in 2008 in many areas of the state, including northern Idaho.

Summary of Mormon Cricket Survey Results

The Mormon cricket outbreak in Owyhee County was greatly diminished in 2007 and reached its peak in 2006 as anticipated. The infestation and treatment activity in Owyhee County was limited to the western slopes of the Owyhee Mountains and near Highway 95 to the Oregon border. There were limited infestations of Mormon crickets in Gooding, Camas, Elmore 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.

Summary of ISDA Program

In 2007, ISDA continued to suppress outbreaks of grasshopper and Mormon crickets statewide. Over 460 landowners in sixteen counties received assistance in the form of bait or cost share spray projects. A total of 188,958 lbs. of bait was distributed to private landowners, up from 117,006 lbs. distributed in 2006. Four cost share projects protected 23,281 acres with ISDA assistance of nearly \$64,856.84 to cover 2/3 of the treatment costs. The remaining 1/3 of the cost is paid by the private landowner. In addition, ISDA protected 340 acres of impacted state and county lands primarily along county road rights-of-way.

ISDA 2007 CARBARYL GROUND BAITING TREATMENTS ON COUNTY ROAD RIGHTS-OF-WAY AND STATE LANDS

Owyhee	3,594	309
Washington	312	31
Total	3,906	340

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
2007	3,906	340

2007 – ISDA APPLICATION COST SHARE PROJECTS FOR PRIVATE LAND OWNERS FOR GRASSHOPPER 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
Valley County 1	8,006	16,012	Dimilin 2L	\$34,656.61	\$17,302.33	\$51,958.94	\$6.49	\$3.25
Valley County 2***	1,833	3,666	Dimilin 2L	\$15,893.94	\$7,935.06	\$23,829.00	\$13.00	\$6.50
Valley County 3	2,003	2,003	Malathion ULV	\$10,220.41	\$5,102.54	\$15,322.95	\$7.65	\$7.65
Washington County	800	1,600	Dimilin 2L	\$4,085.88	\$1,714.12	\$5,800.00	\$7.25	\$3.63
Totals	12,642	23,281		\$64,856.84	\$32,054.05	\$96,910.89	Average \$8.60	Average \$5.26

* 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.

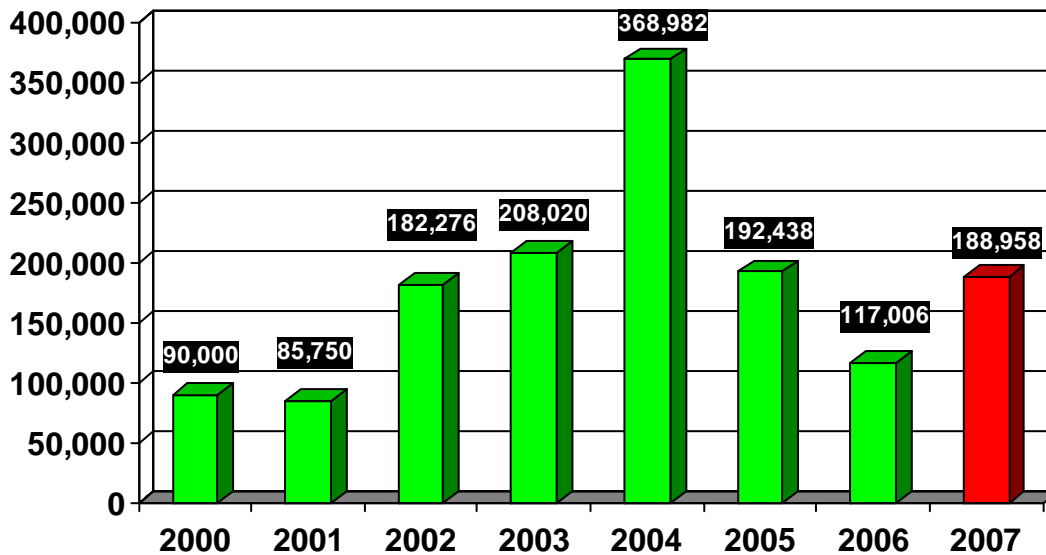
** The ISDA cost share program for 2007 paid 2/3 of the total treatment cost. The private land owners were responsible for the remaining 1/3.

*** This spray project was conducted with All Terrain Vehicles instead of an aerial spray project due to proximity of treatment to water.

2007 - ISDA BAIT DISTRIBUTIONS TO PRIVATE LANDOWNERS FOR MORMON CRICKET AND GRASSHOPPER SUPPRESSION

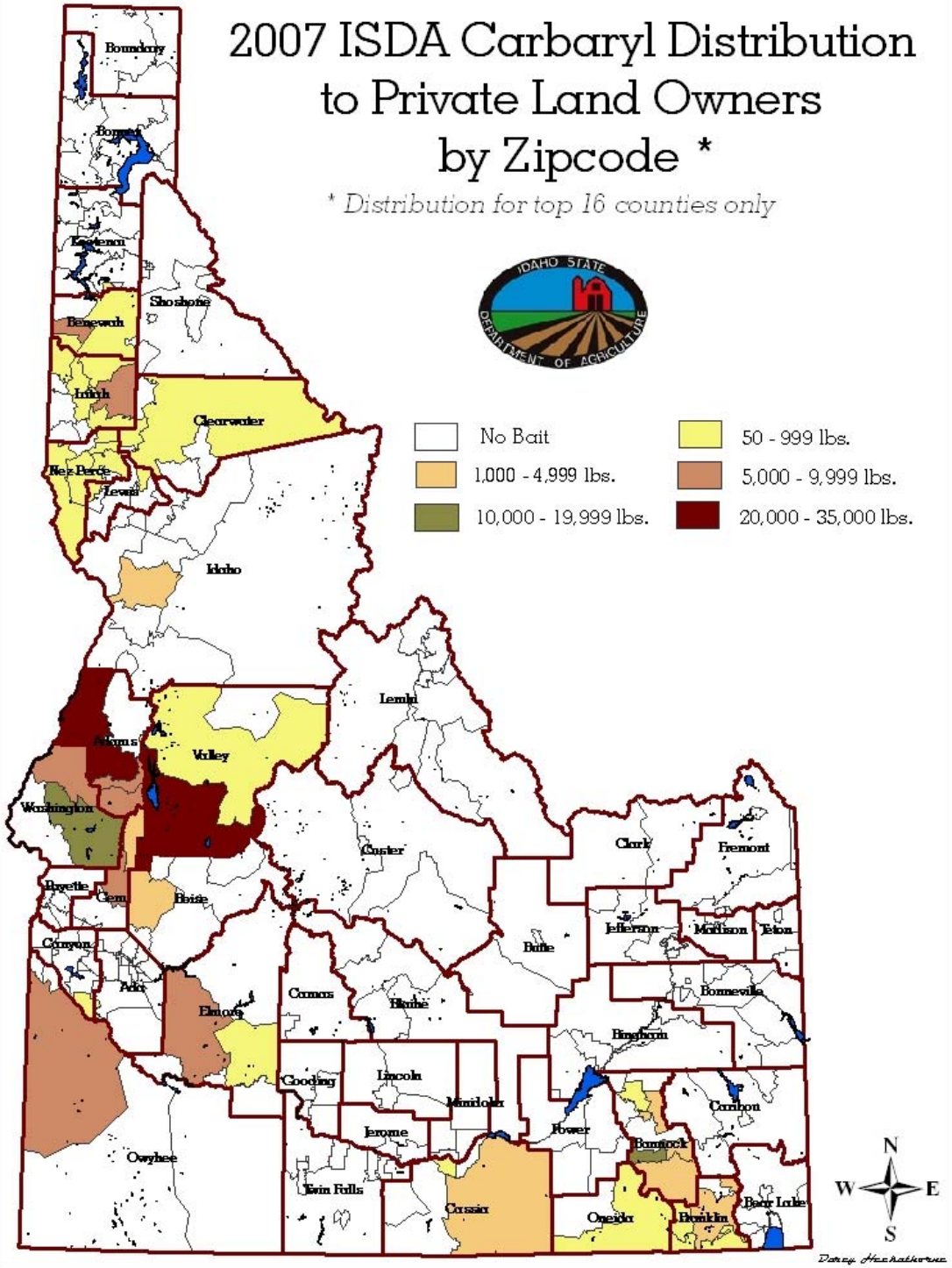
Rank	County	Carbaryl Bait Distributed (lbs)	Number of Distributions
1	Adams	54,592	157
2	Valley	53,238	100
3	Washington	25,190	60
4	Bannock	16,650	22
5	Owyhee	7,100	9
6	Cassia	6,450	18
7	Elmore	5,200	2
8	Benewah	3,950	5
8	Latah	3,950	14
9	Oneida	3,400	16
10	Gem	2,900	4
11	Boise	2,188	14
13	4 Other Counties	4,150	41
Totals	16 Counties	188,958	462

**ISDA GRASSHOPPER AND MORMON CRICKET SUPPRESSION PROGRAM
POUNDS OF CARBARYL BAIT DISTRIBUTED TO PRIVATE LANDOWNERS 2000-2007**



2007 ISDA Carbaryl Distribution to Private Land Owners by Zipcode *

* Distribution for top 16 counties only



Dorey Hochstetler

ISDA GRASSHOPPER/MORMON CRICKET PROGRAM - MAJOR COOPERATORS

During the 2007 season the following cooperators provided significant help in bait distributions and overall program delivery:

- University of Idaho, Extension Service, Adams County
- University of Idaho, Extension Service, Bannock County
- University of Idaho, Extension Service, Cassia County
- University of Idaho, Extension Service, Franklin County
- University of Idaho, Extension Service, Nez Perce County
- University of Idaho, Extension Service, Oneida County
- University of Idaho, Extension Service, Valley County
- Randy Rowe Trucking Company, Twin Falls, ID
- Boise County Road Department, Gardena, ID
- Primeland Cooperative – Grangeville, ID
- Primeland Cooperative – Lewiston, ID
- Valley County Weed Program, Cascade, ID

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***PUBLIC OUTREACH AND EDUCATIONAL PRESENTATIONS ON INVASIVE SPECIES, PEST DETECTION AND GRASSHOPPER PROGRAM**

Date	Event	Target Audience
December 2007	U of I Canyon County PAT	Commercial and private pesticide applicators
December 2007	Canyon County Soil Conservation Commission PAT	Commercial and private pesticide applicators
November 2007	Adams County Commissioner Meeting, 2007 ISDA Grasshopper Program Summary	County commissioners and other county officials
September 2007	Valley County Commissioner Meeting 2007 ISDA Grasshopper Program Summary	County commissioners and other county officials
September 2007	Lewis and Clark State College Natural Science Division Fall Seminar	Faculty, students and general public Lewiston Id.
June 2007	Idaho Vo Ag Teachers Association State Summer Conference Lewiston, ID	Statewide high school vo-ag instructors
May 2007	Idaho State CAPS Committee ISDA, Boise, ID	Multi agency state advisory committee
May 2007	Adams County ISDA Grasshopper Program Outreach	Ranchers and Farmers Council, ID
May 2007	Washington County ISDA Grasshopper Program Outreach	Ranchers and Farmers Cambridge, ID
May 2007	Idaho Transportation Department Training Burley, ID	Rest Area managers & foremen
January 2007	Albertson College of Idaho Natural History Museum	Museum staff and volunteers

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

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

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ISDA Website: www.agri.idaho.gov

2007 ISDA JAPANESE BEETLE

Popillia japonica

PHEROMONE TRAP SURVEY



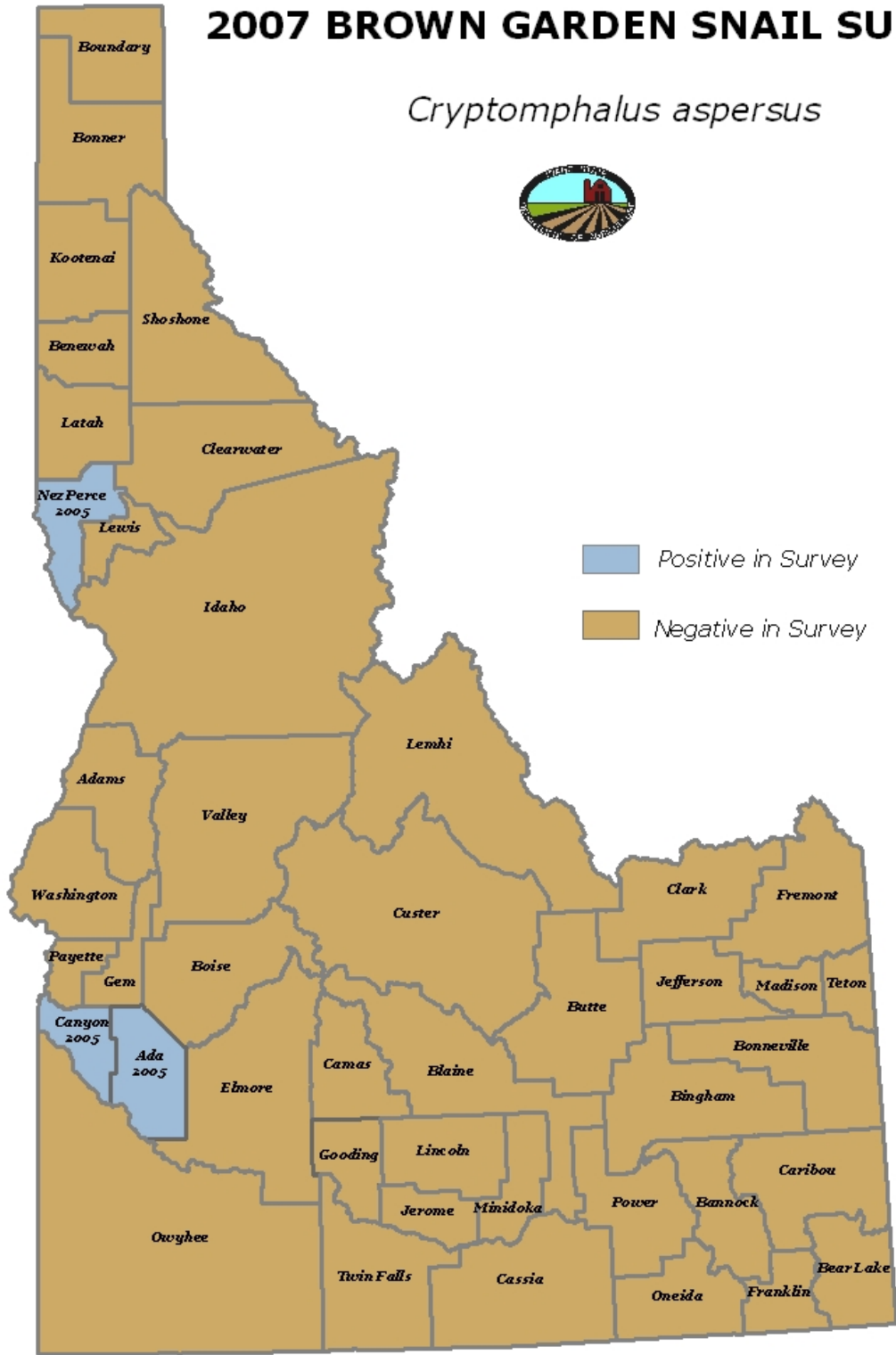
● Japanese Beetle Trap Locations



Darcy Fleckherne

2007 BROWN GARDEN SNAIL SURVEY

Cryptomphalus aspersus

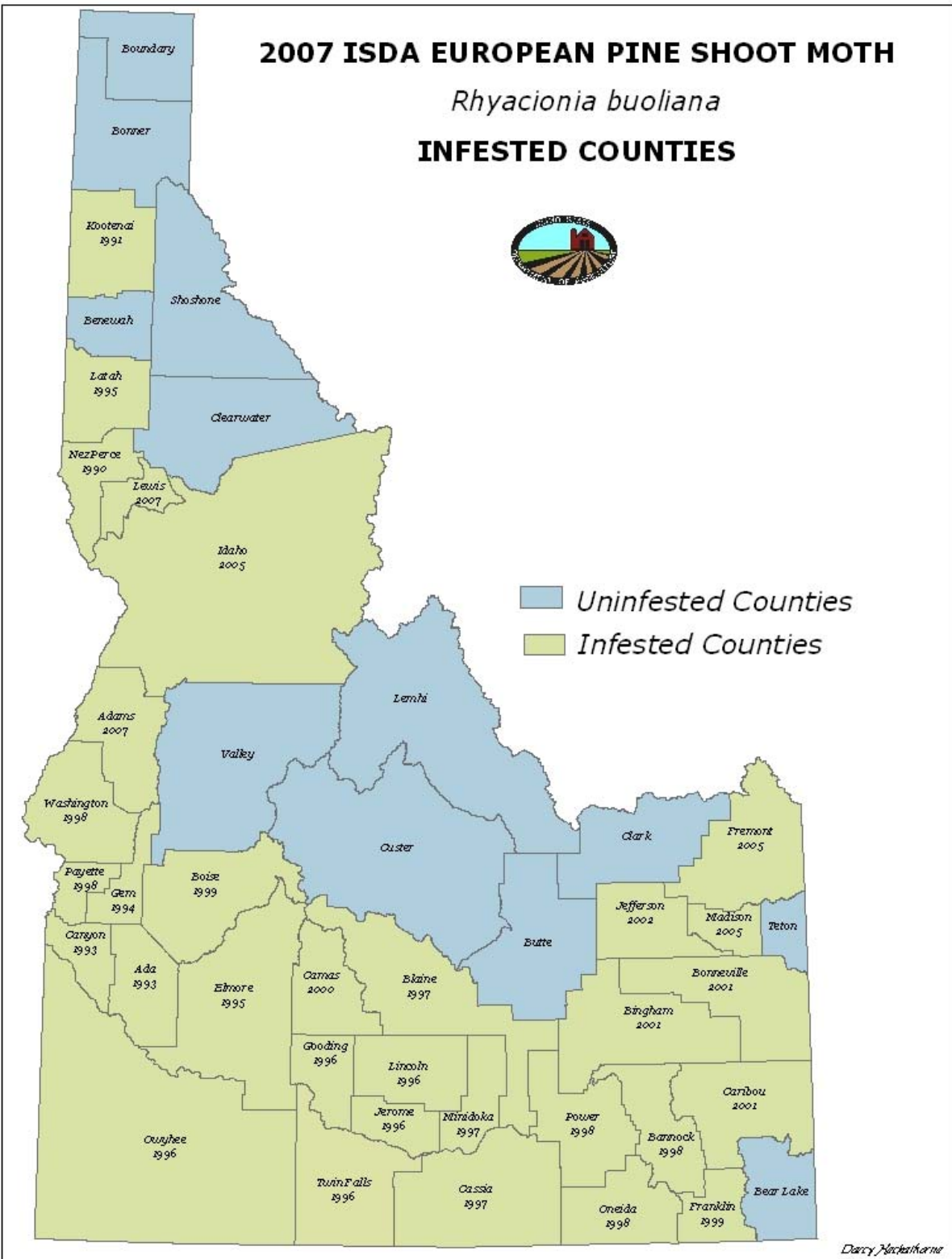


Erica Neelhorst

2007 ISDA EUROPEAN PINE SHOOT MOTH

Rhyacionia buoliana

INFESTED COUNTIES

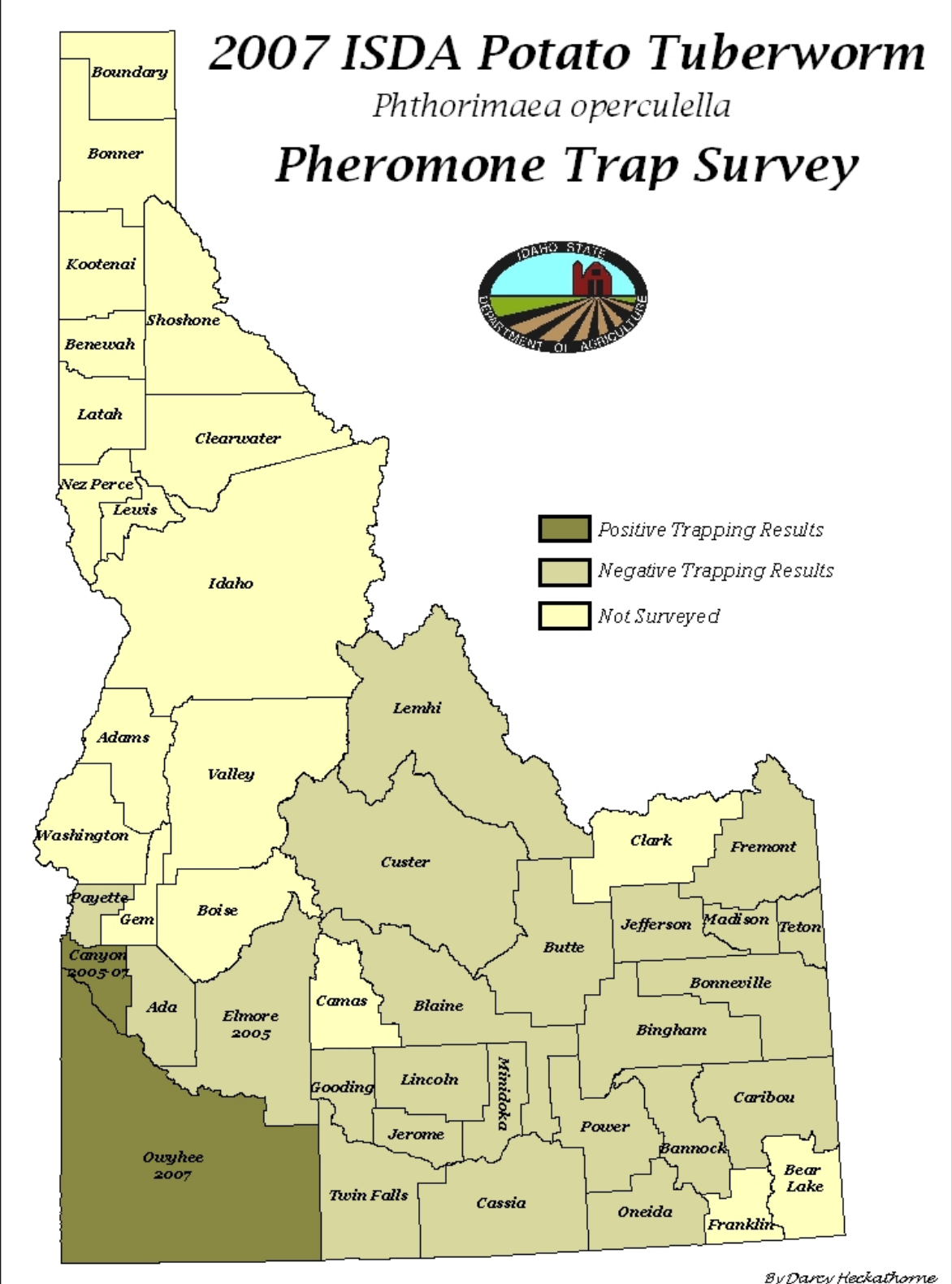


Darcy Mackathorne

2007 ISDA Potato Tuberworm

Phthorimaea operculella

Pheromone Trap Survey



By Darcy Heckathorne