

**20
21**

End of Year Survey Results

**IDAHO STATE DEPARTMENT
OF AGRICULTURE**

Division of Plant Industries



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Introduction

ISDA's Division of Plant Industries derives its statutory authority from multiple sections of Idaho Code, Title 22, which includes:

- *the Plant Pest Act*
- *the Noxious Weed Law*
- *the Nursery and Florist Law and*
- *the Invasive Species Act.*

These laws give the Division of Plant Industries clear directives to conduct pest surveys, manage invasive species, and plant pests for the purpose of protecting Idaho's agricultural industries. These industries are valued at over \$4 billion dollars; which include crops, nurseries, and ranching.

The Division of Plant Industries works in concert with other agencies including:

- *Idaho Department of Lands (IDL)*
- *University of Idaho (UI)*
- *United States Forest Service (USFS)*
- *United States Department of Agriculture (USDA), Animal and Plant Health Inspection Services (APHIS), Plant Protection and Quarantine (PPQ)*
- *County governmental agencies*
- *Cooperative Weed Management Areas (CWMA)*
- *Industry groups and other stakeholders to protect Idaho's landscapes and environments from invasive species.*

The Division of Plant Industries aid in accomplishing the ISDA's broader mission to "serve consumers and agriculture by safeguarding the public, plants, animals, and the environment through education and regulation." This report summarizes the comprehensive and cooperative programs conducted during 2021 to enforce Idaho statutes and fulfill the mission of ISDA.

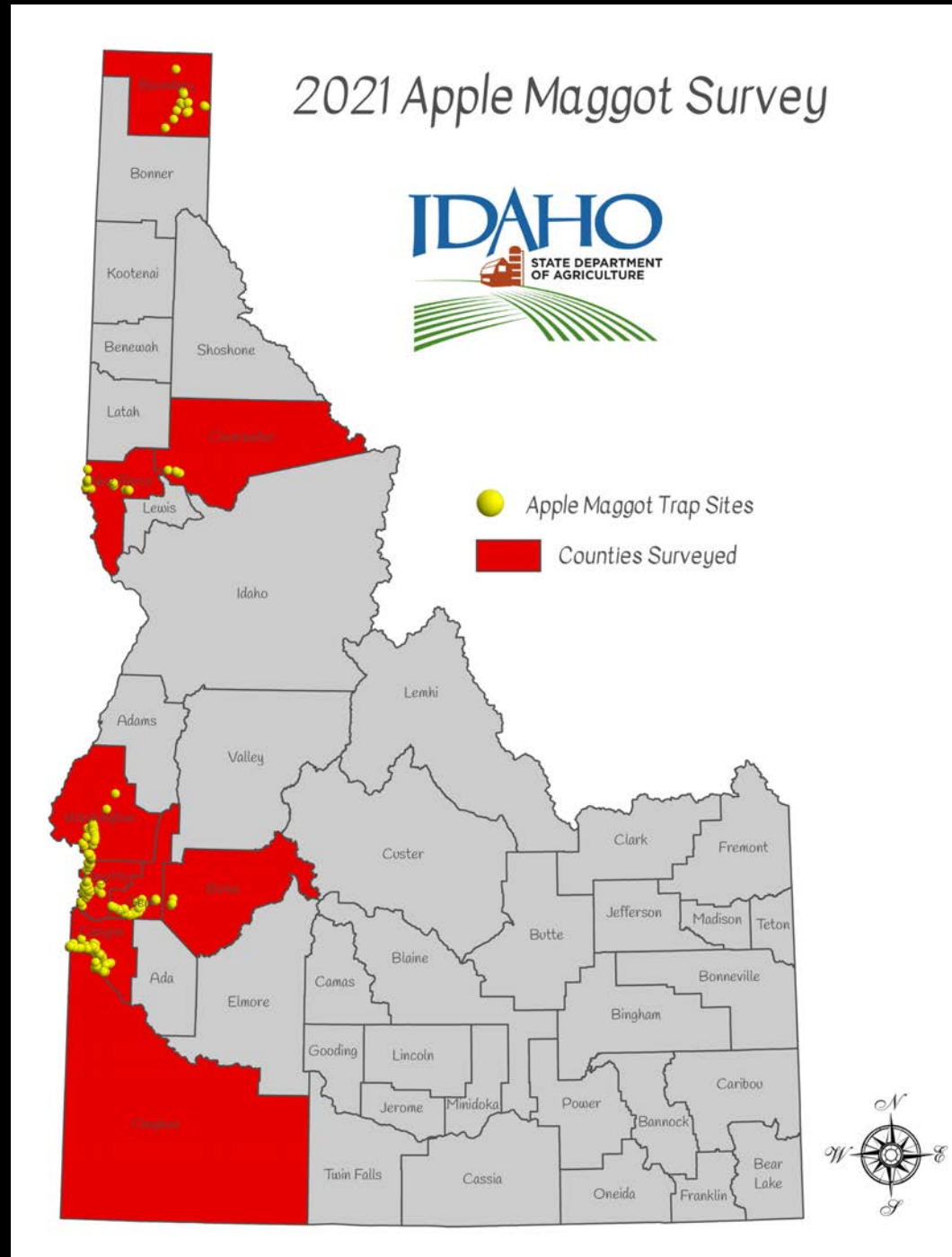
Apple Maggot Survey (AM)

During the 2021 Apple Maggot (AM) trapping season ISDA placed 344 traps at sites located in Boise, Boundary, Canyon, Clearwater, Gem, Nez Perce, Owyhee, Payette, and Washington counties. Target locations chosen to place traps were in/near commercial apple orchards, home landscape/fruit trees, plant nurseries and abandoned orchards/wild trees.

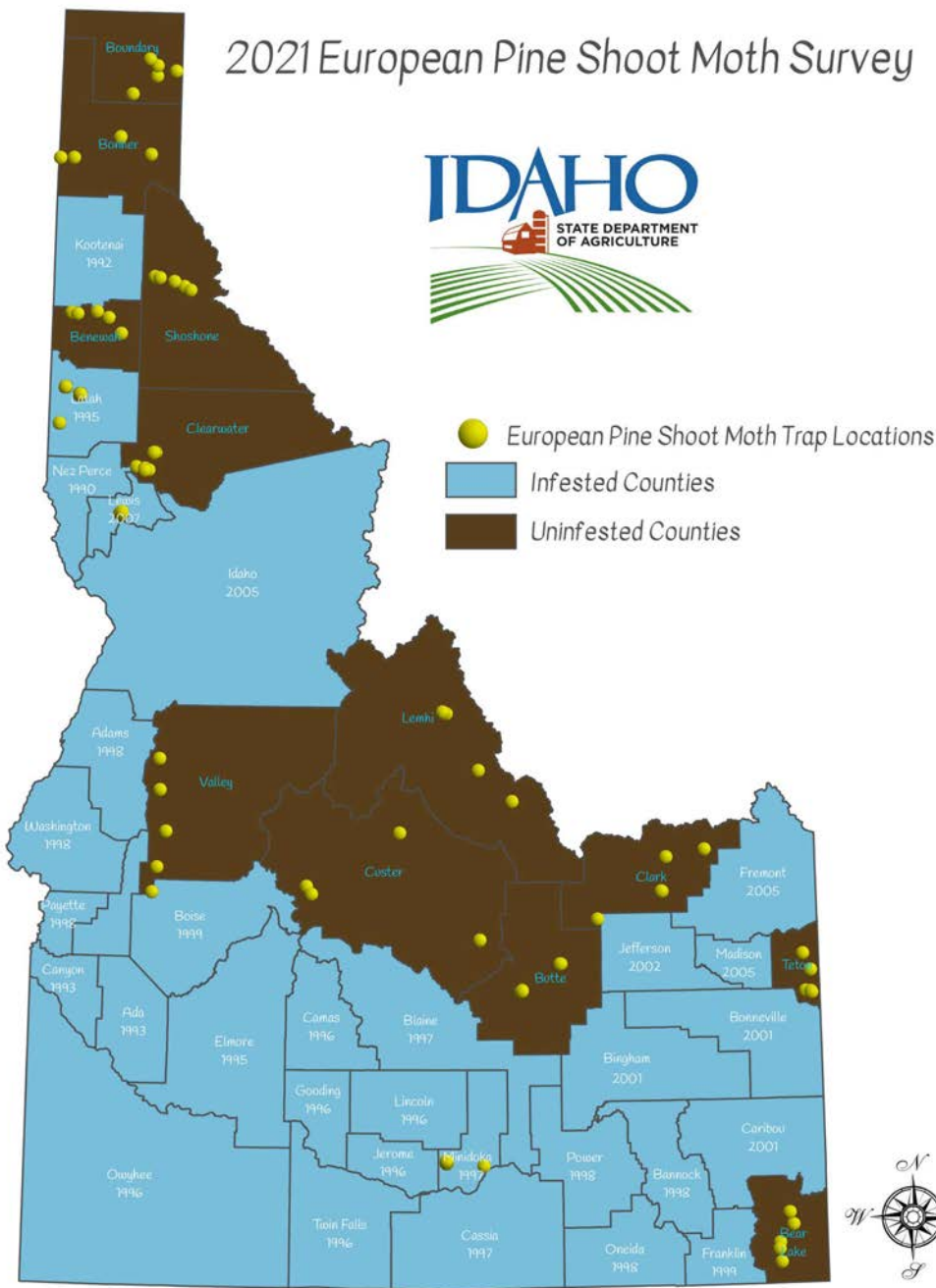
Specimens collected in traps that were suspected to be AM were sent to the ISDA entomologist for proper identification. Apple Maggot are often confused with a native fly called the Snowberry Fruit Fly and can only be positively ID'd by dissection. This year we confirmed 43 AM catches spread out over 8 positive sites. Two of the eight sites were in North Idaho, in Boundary County (3 AM) and Clearwater County (18 AM). The other six positives were in SW Idaho in Washington (4), Gem (5) and Boise (13) counties. No AM were collected within 1 mile of any commercial orchard.

During the 2020 field season a single AM was collected in a commercial orchard in Canyon County. 10 additional traps were immediately deployed around the location of the catch, and no additional AM's were caught in 2020. During the 2021 season, ISDA again placed 10 additional traps in that commercial orchard, and no AM's were collected there in 2021.

During 2022 ISDA will continue to conduct these detection surveys in Boundary, Canyon, Clearwater, Owyhee, Payette, and Nez Perce counties; and we plan to concentrate on areas containing commercial orchards and plant nurseries.



2021 European Pine Shoot Moth Survey

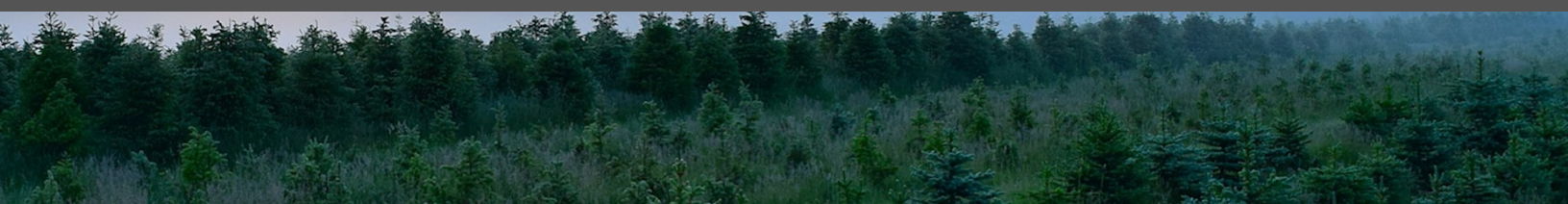


European Pine Shoot Moth Survey (EPSM)

The Idaho European Pine Shoot Moth survey is conducted annually to collect data that is used to comply with California and Montana quarantines on pine nursery stock moving into their states.

In 2021 ISDA staff placed 77 EPSM traps in pine trees that were in parks, cemeteries, golf courses, nurseries and pine tree plantations throughout 12 Idaho counties where EPSM have never been collected to date (currently considered "un-infested"). In addition, traps were placed at the request of nurseries seeking phytosanitary certifications to allow export of nursery stock from three counties where EPSM have been captured in the past.

No new infestations were reported in 2021, and the nurseries that are located in infested counties who requested surveying showed no evidence of EPSM presence this year.



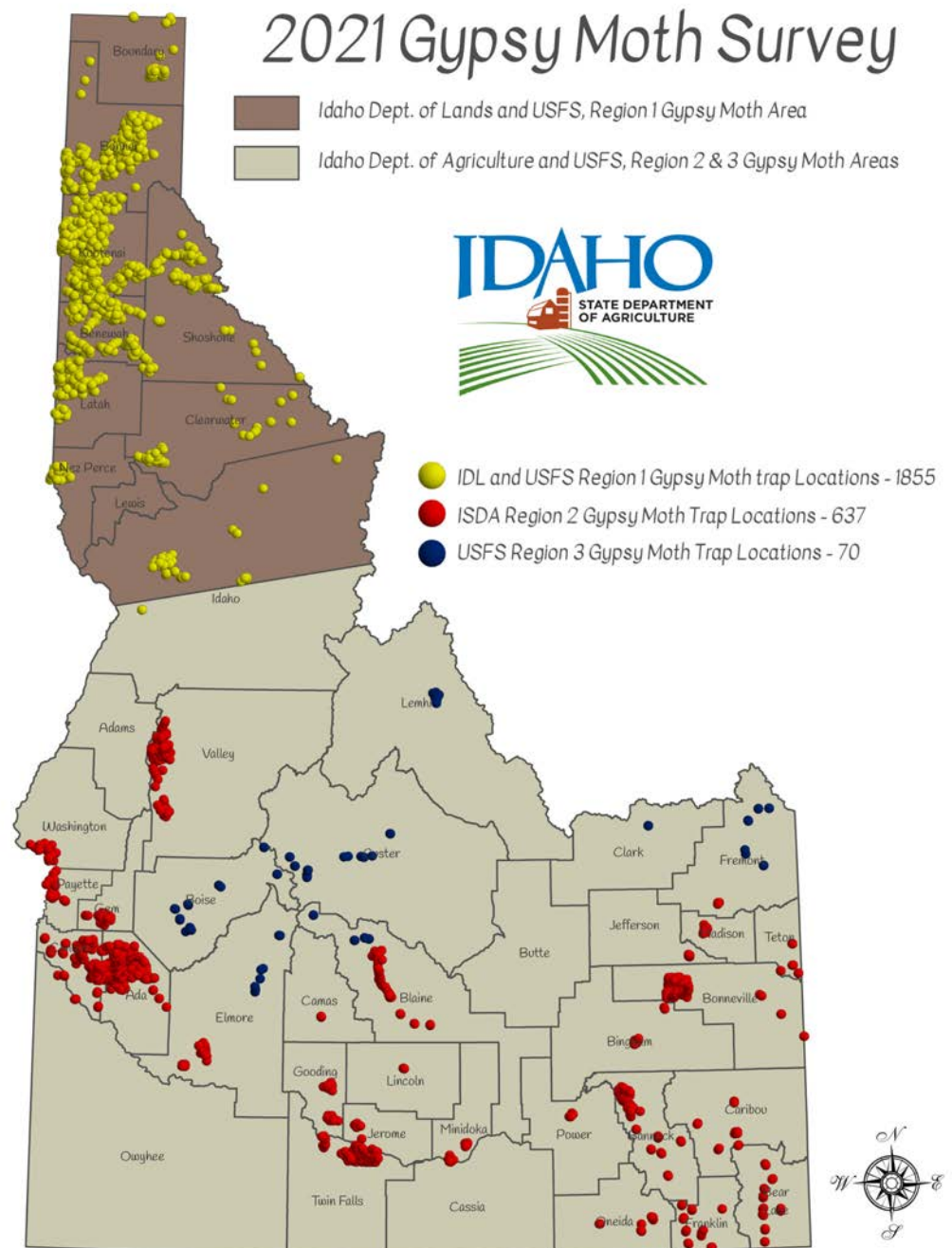
Gypsy Moth Survey (GM)

During 2021 2,557 pheromone-baited GM traps were deployed throughout Idaho by the following agencies:

- Idaho Department of Lands (IDL): 1,753 detection traps
- Idaho State Department of Agriculture (ISDA): 636 detection traps
- United States Forest Service R-1 (USFS): 98 detection traps
- United States Forest Service R-3 (USFS): 70 detection traps

Between April 19 and October 20, 2021 staff from each participating agency completed the placement and subsequent retrieval of traps. No GM were collected in 2021, thus indicating a non-presence in Idaho this year.

The complete report on the 2021 GM Survey Program in Idaho may be viewed at the following IDL website: <https://www.idl.idaho.gov/forestry/insects-and-disease/>



Statewide Japanese Beetle Monitoring using Pheromone Baited Traps and Results of the JB Eradication Program in Boise and Pocatello 2012-2021

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of Traps in Boise Only	222	713	2,646	2,156	1918	1,287	1,302	682	449	250
Number of Beetles Caught in Boise	56	3,058	1,283	365	128	19	4	0	0	0
Number of Acres Treated	N/A	250	400	550	340	60	40	0	0	45(P)
Number of Detection Traps	365	840	430	297	289	306	295	392	377	375
Number of Traps in Pocatello Delimit.	0	0	0	0	0	0	0	29	104	104
Number of Beetles Caught Outside of Boise	*4 K 1 B	0	0	0	0	0	*1 B	*4 B	*7 B	*4 B 1 C

(* B=Bannock, Canyon, K=Kootenai)



Japanese Beetle Survey (JB)

In 1990 the Idaho State Department of Agriculture (ISDA) began monitoring the state for Japanese beetle (JB), a major invasive insect pest in the eastern US, using pheromone-baited traps. Each summer 200-300 traps have been routinely set out at high risk sites like plant nurseries, box stores and airports. On rare occasions (1992, 1997 and 2011) ISDA trapped single specimens at nurseries, most likely hitchhikers on nursery stock obtained from other states.

During 2012 the first ever detected JB infestation in Idaho was uncovered when traps in downtown Boise collected 56 JB. The following summer, with trap numbers increased to delimit the true extent of beetle establishment 3,058 were captured. By that time a JB eradication program had been put into place. Traps indicated neighborhoods where JB were active and, based on that data, turf in infested locations was treated with pesticides demonstrated to be effective at killing young JB larvae living and feeding in soil.

With funding from the legislature and the help of residents affected by the presence of JB on their properties ISDA was able to successfully carry out the JB eradication program. From a high of over 3,000 beetles in 2013, each year the number of JB captured in survey traps dramatically decreased until 2018 when only 4 were collected. No JB were found in Boise during 2019, 2020 and 2021 and the pest is technically considered eradicated there.

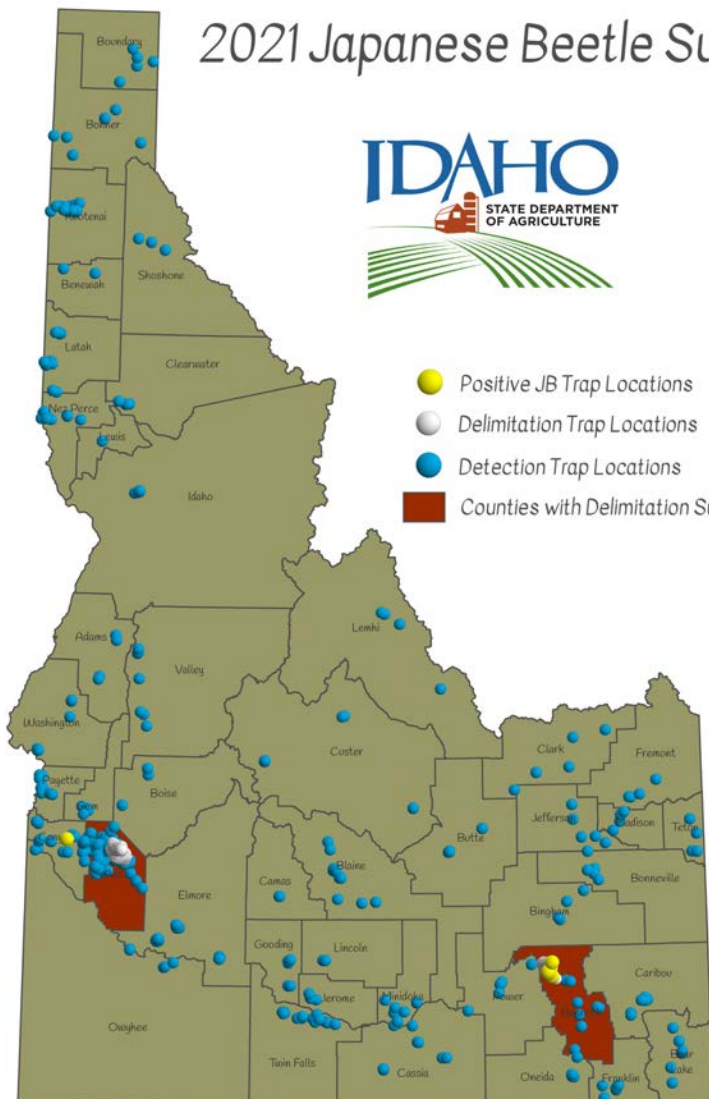
During 2012 a single JB was collected in one of the 5 traps set up in the city of Pocatello. Follow-up trapping uncovered no JB in Pocatello until 2018 when, again, a single individual was captured at a Pocatello park. Monitor traps were increased to 35 in Pocatello during 2019 and 4 beetles were collected (1 from the park where the initial beetle was found the previous year). In 2020, with trap numbers increased again, to 105, a total of 7 JB were captured in Pocatello – one in the park where JB was trapped during 2018 and 2019 and 6 more from a park to the north of that one. Turf in both parks received pesticide treatment in 2021 – the same protocol that was successfully undertaken in Boise. Plans for 2022 include follow-up trapping and another treatment in one of the parks.

One JB trap in a cemetery in Caldwell, Idaho captured a single beetle during the 2021 field season. Delimit trapping there is planned for summer 2022 to assess the situation.

2021 Japanese Beetle Survey



- Positive JB Trap Locations
- Delimitation Trap Locations
- Detection Trap Locations
- Counties with Delimitation Surveys



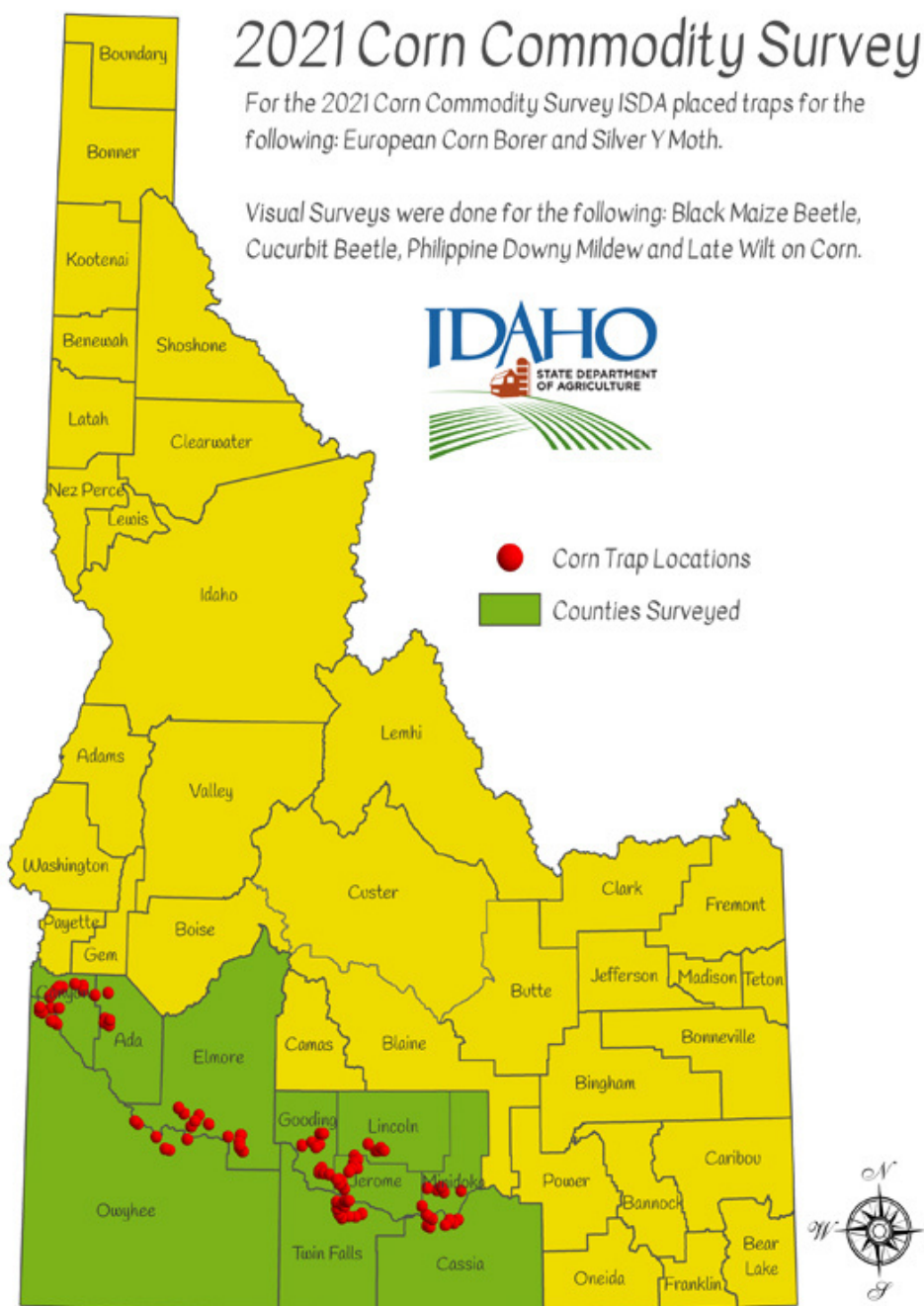
Corn Commodity Survey

Corn is a major agronomic crop in Idaho. The USDA National Agricultural Statistical Service reported 390,000 acres planted in the state in 2020. In addition to grain, Idaho corn is used for silage, processed sweet corn, and sweet corn seed (Idaho ranks as the top production state for hybrid sweet corn seed varieties). Idaho sweet corn seed companies export across the U.S. as well as to international markets as well, making phytosanitary issues and data on freedom from exotic insects and pathogens of vital concern to the state's corn industry.

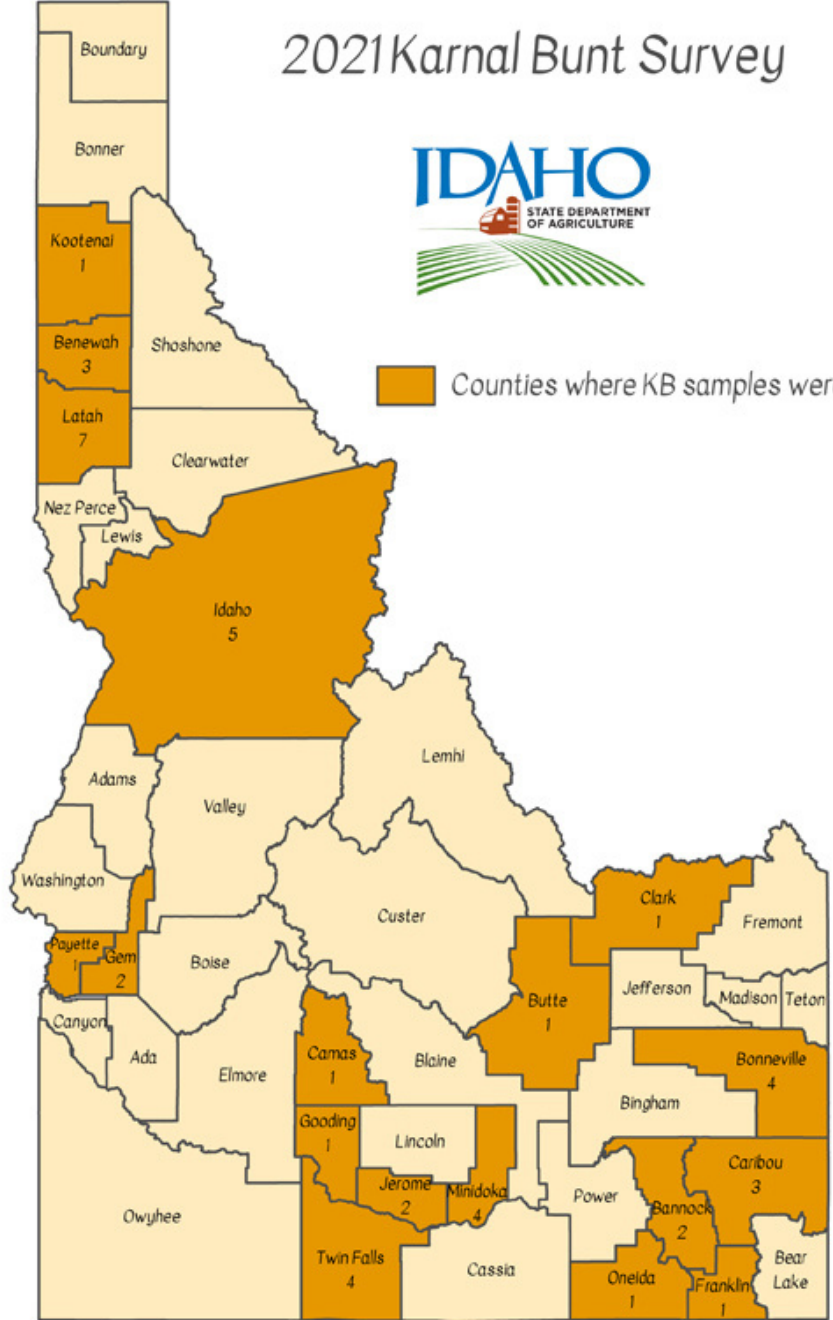
In 2021 ISDA, in cooperation with the USDA APHIS PPQ's Cooperative Agricultural Pest Survey program (CAPS), conducted pheromone-based trap surveys for two exotic organisms that could threaten Idaho corn crops: **European Corn Borer** and **Silver Y Moth**. ISDA staff located 100 corn fields throughout the following counties: **Ada, Camon, Cassia, Elmore, Gooding, Jerome, Lincoln, Minidoka, Owyhee and Twin Falls**, and two traps per pest were set out in each corn field. They were set out in June and removed by September. Traps were serviced every two weeks and lures were changes as instructed.

ISDA also conducted 2 visual surveys for **Black Maize Beetle, Cucurbit Beetle, Philippine Downy Mildew, and Late Wilt on corn** in all corn fields that were trapped throughout the assigned counties.

2021 Results from both the visuals and trap surveys were all negative.



2021 Karnal Bunt Survey



Counties where KB samples were pulled



Karnal Bunt Survey

Karnal Bunt (KB) is a disease of wheat caused by the fungus *Tilletia indica*. *T. indica* was found in the United States in 1996. It has not been found in Idaho. The US Department of Agriculture has attempted to eradicate the fungus via continuing surveys, along with quarantines. ISDA has conducted surveys in Idaho for KB since 1996.

During 2021, ISDA collected 44 wheat samples from 18 counties in Idaho and sent them to a USDA APHIS PPQ lab to be tested for the pathogen. Results from this year's survey were all negative. To date, KB has never been detected in Idaho.



Idaho Apiary Registration and National Honey Bee Health Survey

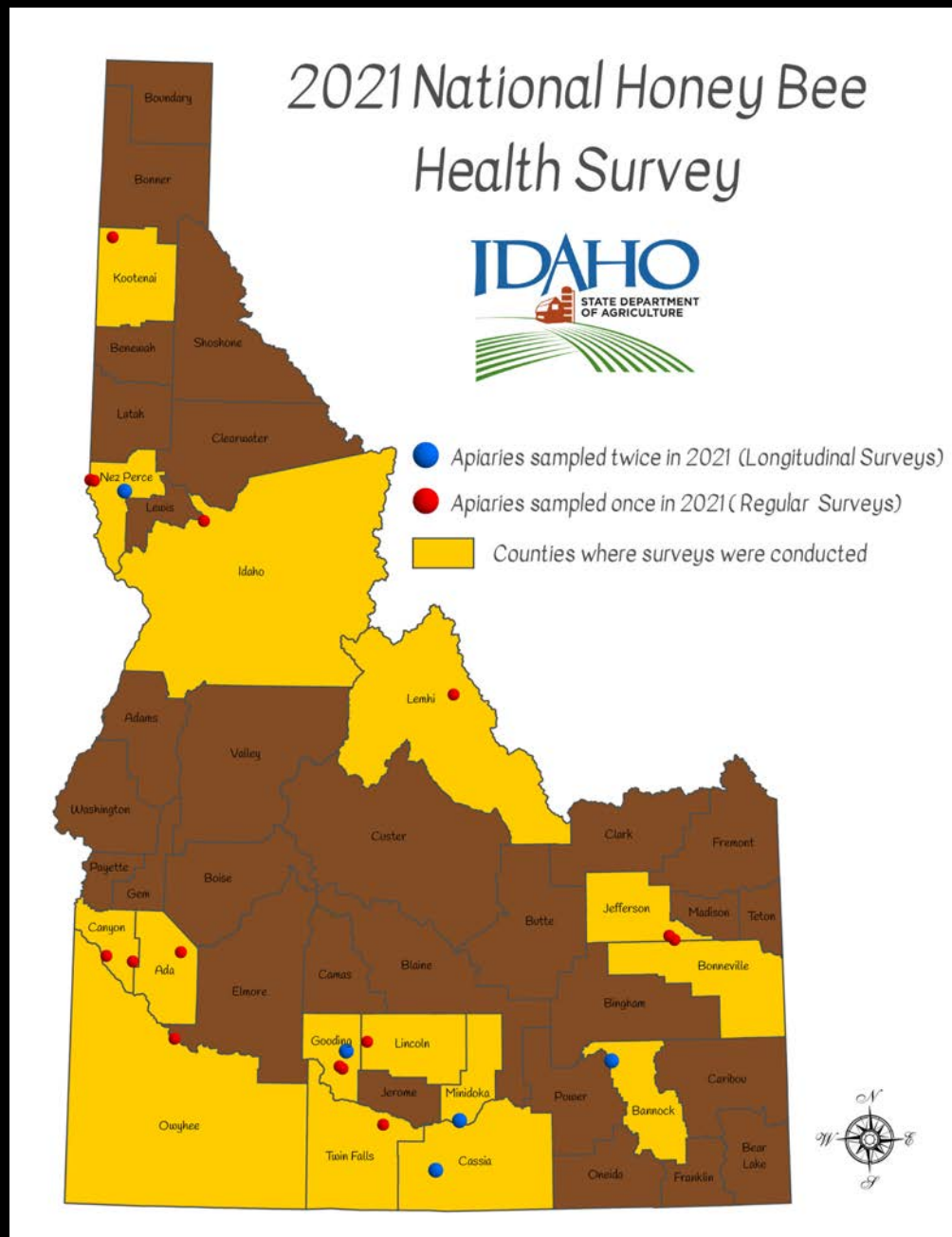
Idaho registered 166 beekeepers and 138,822 honey bee colonies during 2021. As in years past Idaho was one of 39 states and territories to participate in the USDA APHIS/University of Maryland National Honey Bee Health Survey.

This survey is an ongoing attempt to collect baseline data on the health of the US honey bee industry. The project has several parts and is primarily geared towards establishing the absence within the US of several exotic bee pests including, but not limited to, the parasitic mite *Tropilaelaps*, the Asian honey bee (*Apis cerana*), and Slow Bee Paralysis Virus. To maximize information gained from the survey effort, samples were also analyzed for other diseases and parasites known to be present in the US such as *Nosema* sp., Varroa mites and a number of virus diseases. Additionally, wax or bee bread samples were collected from select hives to test for the presence of various pesticides of concern.

In May of 2021 ISDA finished collecting 5 remaining samples to complete what was left of the 2020 Honey Bee Health Survey. Following that ISDA started collecting samples of bees from 8 hives of 19 apiaries located throughout the state. 14 of those apiaries were sampled once during 2021. The remaining 5 were sampled once in the spring before honey flow and then again in the fall after honey was pulled. This is termed the "longitudinal survey". The 19 surveys carried out in 2021 were completed by October 6th. ISDA is expecting diagnostic reports with data analysis, to be supplied by ARS/U of Maryland, from the 2021 survey.

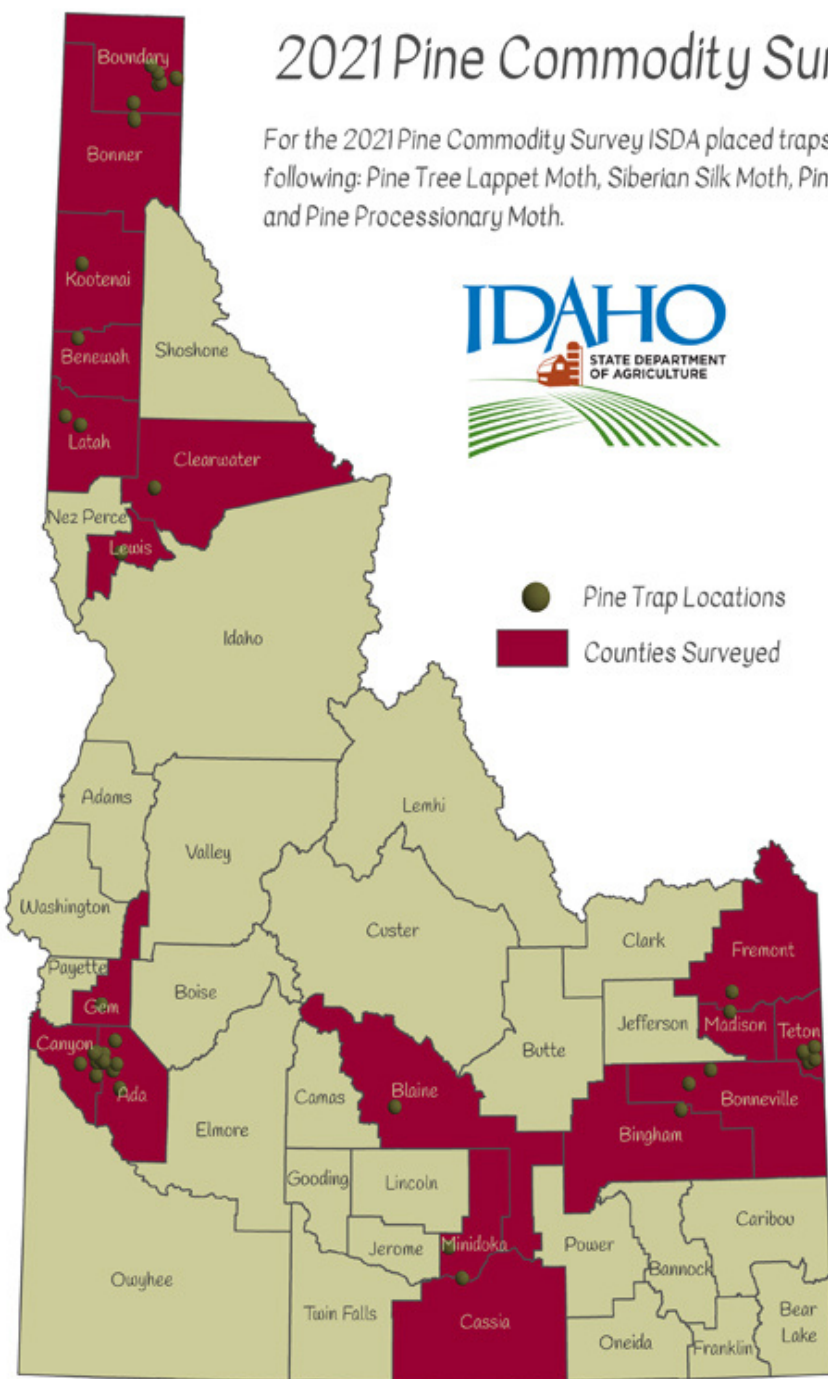
For summary reports for the past seven years of the Idaho Honey Bee Health Surveys go to:

<http://invasivespecies.idaho.gov/plants-archived-yearly-reports>.



2021 Pine Commodity Survey

For the 2021 Pine Commodity Survey ISDA placed traps for the following: Pine Tree Lappet Moth, Siberian Silk Moth, Pine Sawfly and Pine Processionary Moth.



Pine Commodity Survey

Pines are diverse and abundant and at least 97 species occur in the United States. They are one of the most valuable commercial timber sources and are used for construction, furniture, pulpwood, land management and more. Pines dominate four forest types in the western United States: ponderosa pine, western white pine, lodgepole pine, and pinyon pine juniper.

During 2021 ISDA, in cooperation with the USDA APHIS PPQ Cooperative Agricultural Pest Survey program (CAPS), carried out surveys for four exotic organisms that could potentially threaten Idaho pine tree nurseries. The targets were: **Pine Tree Lappet Moth (PTLM)**, **Siberian Silk Moth (SSM)**, **Pine Sawfly (PSF)** and **Pine Processionary Moth (PPM)**.

ISDA staff located 33 nurseries that grew or sold pine trees throughout the following counties: **Ada, Benewah, Bingham, Blaine, Bonner, Bonneville, Boundary, Canyon, Cassia, Clearwater, Fremont, Gem, Kootenai, Latah, Lewis, Madison, Minidoka, and Teton**. PTLM and SSM, being closely related, are attracted to the same pheromone so 100 traps capable of monitoring for both species simultaneously were spread out over the 33 chosen nurseries. 100 traps baited for PSF as well as 100 traps for PPM were also deployed. All were set out by May 3rd and removed in mid-August. They were checked every two weeks and lures were replaced as instructed. 2021 Results for the trap surveys were all negative.

Western Cherry Fruit Fly (WCFF)

ISDA carries out an annual trapping program to detect first emergence of Western Cherry Fruit Fly in the state. During 2021 WCFF adults were first observed in ISDA sentinel traps in Gem Co. on June 7th.

The agency also monitors and reports degree day accumulation calculations as required by the California Department of Food and Agriculture (CDFA) to comply with their WCFF quarantine, which is aimed at states wishing to export fresh sweet cherries into or through California.



Asian Giant Hornet (AGH)

The Asian Giant Hornet (*Vespa mandarinia*) is one of the largest species of hornets in the world. Native to Japan, Korea and several nearby Asian countries, it has for a long time been considered a potential invasive insect pest in North America. If established here, aside from being a nuisance with a powerful sting, its habit of feeding on honey bees in commercial beehives could have a devastating impact on that industry. Never having been found in North America the threat was always a theoretical one, however that changed when specimens were collected in both SW Canada and NW Washington, for the first time, during the latter part of 2019. A number of newspaper articles reporting on the first NA appearance of "The Murder Hornet" and Washington's plans to begin a major project to locate any populations possibly established in that state, significantly boosted the profile of *V. mandarinia* and the hunt was on nationwide.



ISDA's normal annual tally of 2 or 3 AGH inquiries quickly skyrocketed to over 300 in 2020. During that field season Canada and Washington did locate several more individuals, including one established nest that was successfully destroyed. In 2021 more living hornets were found in Washington and three new nests were located and again destroyed. Idaho, like all other states in the US, have not confirmed a single AGH sighting, luckily. Everything reported has turned out to be various native insect species misidentified by the public as the pest of concern.



In 2021 ISDA received 192 AGH reports with 167 of those accompanied by photos or specimens. The mistaken for AGH in Idaho was the Western Cicada Killer (at 110). Other local insects commonly reported were Pigeon Tremex Hornetail Wasp (at 22 photos), Elm Sawfly (2) and 33 various wasps such as Bald Faced Hornet or Golden Digger Wasp, Bumble Bees, Jerusalem cricket and Burying Beetles.

It is expected that when the weather warms up in 2022, new reports of AGH sightings will begin again. Although probably not as high profile as in 2021, AGH will undoubtedly remain on the public radar for years to come now that it has captured the imagination of many people who routinely help us watch for new invasive pests.



Western Cicada Killer



Pigeon Tremex Hornetail Wasp



Elm Sawfly



Bald Faced Hornet



Golden Digger Wasp



Jerusalem Cricket

Grasshopper / Mormon Cricket Program



Introduction

Although grasshoppers and Mormon crickets are a natural part of Idaho's ecosystem, under the right environmental conditions their population densities can reach levels that result in negative economic and environmental impacts. These impacts have labeled grasshoppers and Mormon crickets as some of the worst agricultural pests in Idaho. Due to the significant historical losses caused by grasshopper and Mormon crickets to Idaho's agriculture industry, The Idaho State Department of Agriculture (ISDA) implemented the Grasshopper and Mormon Cricket Control Program in 2004 to provide qualifying landowners with mitigation assistance on private range and croplands throughout the state. Since the introduction of the program, ISDA has distributed over 3 million pounds of Carbaryl insecticide bait in an effort to mitigate Idaho's agricultural losses.

Background

The Grasshopper and Mormon Cricket Control Program provides landowner assistance on a case-by-case basis, to those landowners who request ISDA assistance and are actively experiencing grasshopper or Mormon cricket infestations on qualified agricultural use lands. The assistance provided by the program to mitigate the damage comes in the form of 5% Carbaryl insecticide bait or a pre-approved reimbursement for insecticides purchased and applied by the landowner, for situations where Carbaryl bait is not the most effective control method. The management and timely control of grasshopper and Mormon cricket populations are key to the success of the program. Based on annual surveys conducted by The U.S. Department of Agriculture, Animal and Plant Health Service (USDA-APHIS), Idaho has experienced very serious pest outbreaks in years past, and 2021 was no exception. The program received a record number of landowner assistance requests spanning across twenty-five Idaho counties, and provided assistance, by way of 5% Carbaryl bait or insecticide reimbursements, to treat approximately 28,303 acres* of agricultural land in Idaho.

*5% Carbaryl bait treatment acreages are calculated using the recommended rate of 10lbs./acre using the Reduced Agent and Area Treatment (RAAT) method.



Program Updates

This winter, the ISDA grasshopper/Mormon cricket program wished a happy retirement to the long-time program specialist, Dan Safford. In mid-April, Kahla Montrose stepped into her new role as the program specialist. Kahla will continue to work closely with partnering agencies to keep agricultural damage caused by grasshoppers and Mormon crickets to a minimum.

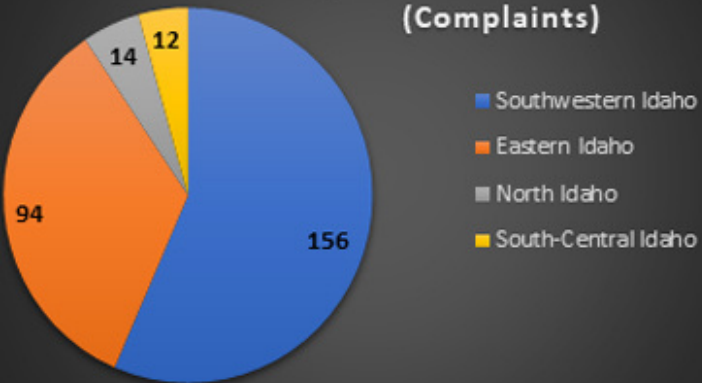
In addition, she has plans to integrate an educational component into the program to help landowners control grasshoppers and Mormon crickets on their land prior to them causing damage.



Program Accomplishments

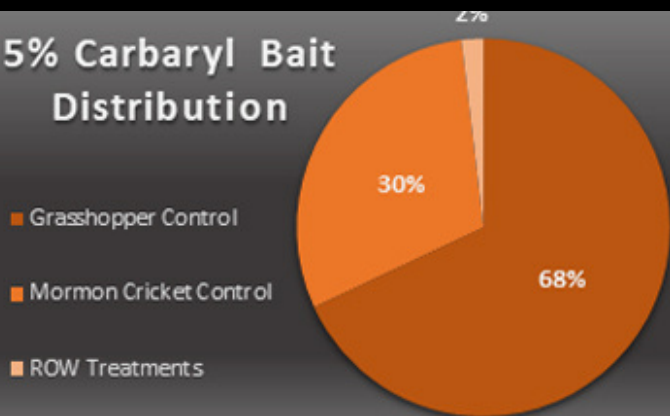
The program received 276 landowner requests for assistance that resulted in 114,200 lbs. of bait distributed to landowners in 25 counties. The bait distribution comparison between 2020 and 2021 were unique in that there was a significant increase in requests for assistance yet a decrease in the total amount of bait distributed. This can be explained by the substantial increase in landowner reimbursements, from \$63,906.82 in 2020 to \$151,980.45 in 2021. In situations where Carbaryl bait is not the most effective control method, ISDA may reimburse landowners for pre-approved insecticides and adjuvants purchased and applied on their own. In 2021, 16,633 acres were treated for grasshoppers through the reimbursement program.

Requests For Assistance (Complaints)



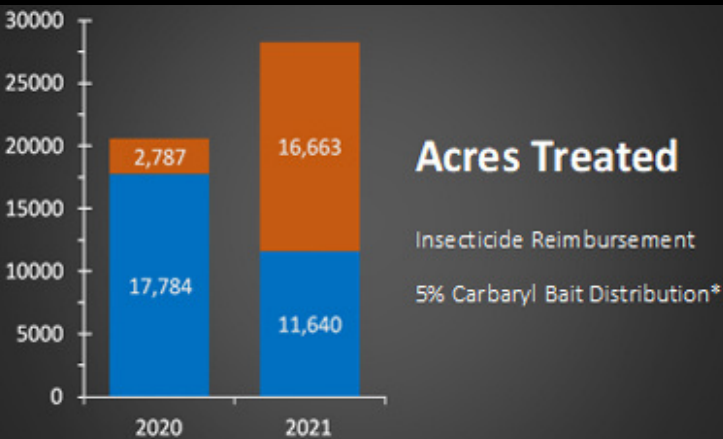
2021 was the 2nd busiest year for landowner assistance requests, following 2018, especially for the Southwestern Idaho area where over 50% of the requests were received from.

5% Carbaryl Bait Distribution



The majority of the Carbaryl bait distributed to landowners was used for grasshopper control.

Acres Treated



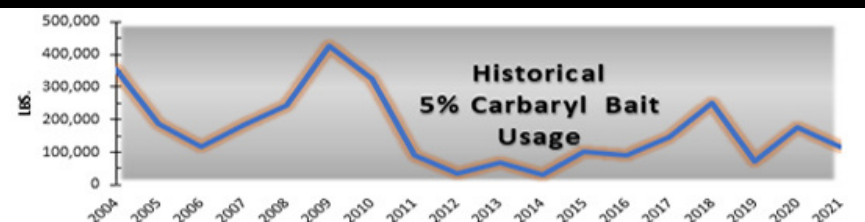
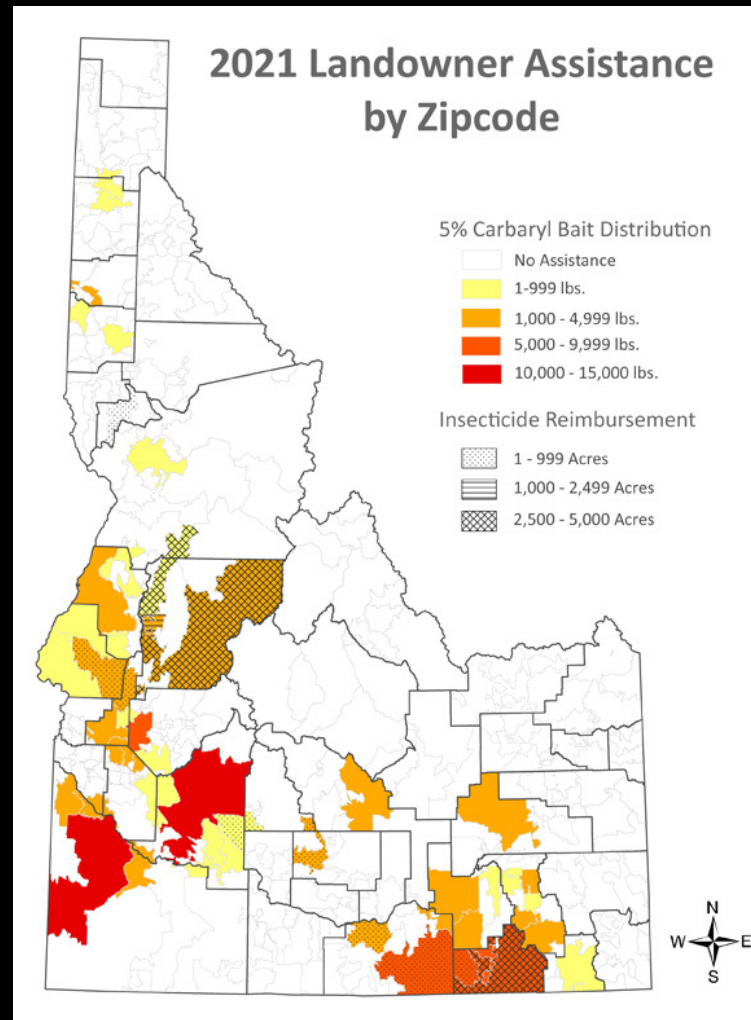
*5% Carbaryl bait treatment acreages are calculated using the recommended rate of 10lbs./acre using the Reduced Agent and Area Treatment (RAAT) method.

Additionally, program staff were able to scout 140 sites statewide and conduct surveys for both grasshoppers and Mormon crickets simultaneously. Public reports as well as survey data indicated the need to conduct a Right of Way treatment on 42 miles of Highway 51, located in Owyhee County.

In summary, the overall cost of insecticides to assist landowners and mitigate roadway hazards statewide increased from \$225,435.46 in 2020 to \$267,100.05 in 2021.

Summary of Insecticide Treatments Statewide

Method of Application	Lbs. (\$.99/lb)	Value
5% Carbaryl bait, landowner application, grasshopper control	79,240	\$78,368.36
5% Carbaryl bait, landowner application, Mormon cricket control	34,960	\$34,575.44
Total Private	114,200	\$112,943.80
5% Carbaryl bait, ISDA State/ROW application, grasshopper control	0	\$0
5% Carbaryl bait, ISDA State/ROW application, Mormon cricket control	2,200	\$2,175.80
Total 5% Carbaryl bait distributed	116,400	\$115,119.60
Landowner reimbursement, grasshopper & Mormon cricket control	16,663.2 (acres treated)	\$151,980.45
Total cost of all treatments		\$267,100.05



Cull Onion Inspections and Actions

In 2021, monitoring of cull onion sites began on March 15th in Ada, Canyon, Gem, Owyhee, Payette, and Washington counties. A total of 128 inspections were conducted between March and June, most for repeated monitoring, and no formal actions were required. Monitoring and inspection of these sites was conducted to identify and keep areas of high concern in compliance with IDAPA 02.06.05 Subchapter F – Disposal of Cull Onions and Potatoes.

The deadline for disposal each year is March 15. Once the deadline was reached, visits were conducted and cull onion piles were then disposed of, resulting in compliance being reached.



Export Certification for the 2021 Calendar Year

During 2021, the Division of Plant Industries issued 5048 Federal and 166 State Phytosanitary Certificates for 212 different commodities to 91 countries.

The Division of Plant Industries certified over 460,684,145 pounds of seeds, grain, hay, lumber, plants and other commodities for export. The ISDA operates this program under a Memorandum of Understanding with the USDA.

Other Regulatory Inspections and Actions

ISDA, under the authority of Title 22, Chapters, 4, 5, 23 and 24 of the Idaho Code, and IDAPA defined pest quarantines, conducts inspections and consequently takes action against various pest threats and other violations.

In 2021, there were 2,498 licensed nurseries in the state; of those, 454 were inspected for compliance under statutes of the Idaho Nursery and Florists Law, and they were examined for the presence of plant pests as well as noxious weeds.



Seed Lab Summary

The Idaho State Seed laboratory (ISSL) received 5,603 samples and completed 8,234 service tests in fiscal year 2021. The most common crops submitted for service testing during this timeframe were beans, grains, peas, native species, alfalfa, vegetables/herbs/flower, onions, corn, sagebrush, kochia, wheatgrass, other grasses, trees, bluegrass, small seeded legumes, and mulch/compost/soil/straw.

In all, 46 regulatory enforcements were checked for licensing and truth-in-labeling requirements: 4 of these checks resulted in inspector actions. A total of 695 seed dealer licenses were issued. Reseeding projects with native seed from the BLM contribute to a large part of our testing requests, especially with an emphasis on sagebrush and kochia. The lab continues to be very busy with agricultural crops as well. As many as 323 distinct species were tested



Diseases and Pests Found During 2021 Field Inspections for Export Certification

In 2021, 82 seed companies submitted field inspection requests representing 49 crop types. The total acres submitted for inspection were 33,237, with 69,383 acres actually inspected due to multiple inspections required for some crop diseases. This represents 10 additional firms than participated in 2020, with a 12.03% increase in acreage from the 29,667 acres submitted in 2020.

Year	Number Participating Firms	Number of Crops	Submitted Acres	Inspected Acres
2004	44	27	46,282	79,671
2005	43	28	42,961	74,905
2006	47	30	37,859	70,692
2007	48	32	30,938	58,218
2008	50	32	34,439	66,114
2009	43	33	36,541	72,184
2010	46	35	32,495	62,608
2011	41	30	25,193	51,404
2012	50	30	24,102	50,045
2013	57	32	23,785	50,157
2014	62	36	26,620	55,846
2015	62	36	28,678	64,077
2016	62	38	31,093	67,930
2017	60	34	32,485	68,040
2018	66	37	30,757	65,639
2019	68	35	33,233	68,950
2020	72	34	29,667	60,421
2021	82	49	33,237	69,383

Alfalfa Seed: A total of 1,566.77 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Bacterial leaf spot (*Xanthomonas alfalfae*), Bacterial wilt of alfalfa (*Clavibacter michiganensis* subsp. *insidiosus*), Canada thistle (*Cirsium arvense*), Dodder (*Cuscuta* spp.), Leafy spurge (*Euphorbia esula*), Stem and bulb nematode (*Ditylenchus dipsaci*), Summer blackspot (*Cercospora medicaginis*), Verticillium wilt (*Verticillium alfalfae*) and Verticillium wilt of mint (*Verticillium dahliae*).

- **Alfalfa mosaic alfamovirus** – AMV– was confirmed in 126 acres; the remaining acres inspected were found apparently free from Alfalfa mosaic alfamovirus – AMV

Allium, Chives: A total of 17 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Botrytis rot of onion (*Botrytis allii*), Botrytis stalk rot (*Botrytis aclada*), Downy mildew of onion (*Peronospora destructor*), Onion smudge (*Colletotrichum circinans*), Onion yellow dwarf potyvirus, Purple blotch (*Alternaria porri*), Sclerotinia rot (*Sclerotinia* spp.), Smut (*Urocystis* sp.), Stem and bulb nematode (*Ditylenchus dipsaci*) and White rot of onion (*Sclerotium cepivorum*).

Allium, Garlic: A total of 24.93 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Botrytis rot of onion (*Botrytis allii*), Botrytis stalk rot (*Botrytis aclada*), Downy mildew of onion (*Peronospora destructor*), Onion smudge (*Colletotrichum circinans*), Onion yellow dwarf potyvirus, Purple blotch (*Alternaria porri*), Sclerotinia rot (*Sclerotinia* spp.), Smut (*Urocystis* sp.), Stem and bulb nematode (*Ditylenchus dipsaci*) and White rot of onion (*Sclerotium cepivorum*).



Allium, Onions: A total of 637.06 acres were submitted for inspection during the 2021 growing season. In total, there were 1,102.86 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Botrytis rot of onion (*Botrytis allii*), Botrytis stalk rot (*Botrytis aclada*), Downy mildew of onion (*Peronospora destructor*), Onion smudge (*Colletotrichum circinans*), Onion yellow dwarf potyvirus, Purple blotch (*Alternaria porri*), Sclerotinia rot (*Sclerotinia* spp.), Smut (*Urocystis* sp.) and Stem and bulb nematode (*Ditylenchus dipsaci*).

- **White rot of onion** (*Sclerotium cepivorum*) was confirmed in 15.65 acres; the remaining acres inspected were found apparently free from White rot of onion.

Allium, Ornamental: A total of 9 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Botrytis rot of onion (*Botrytis allii*), Botrytis stalk rot (*Botrytis aclada*), Downy mildew of onion (*Peronospora destructor*), Onion smudge (*Colletotrichum circinans*), Onion yellow dwarf potyvirus, Purple blotch (*Alternaria porri*), Sclerotinia rot (*Sclerotinia* spp.), Smut (*Urocystis* sp.), Stem and bulb nematode (*Ditylenchus dipsaci*) and White rot of onion (*Sclerotium cepivorum*).

Allium, Shallots: A total of 0.11 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Botrytis rot of onion (*Botrytis allii*), Botrytis stalk rot (*Botrytis aclada*), Downy mildew of onion (*Peronospora destructor*), Onion smudge (*Colletotrichum circinans*), Onion yellow dwarf potyvirus, Purple blotch (*Alternaria porri*), Sclerotinia rot (*Sclerotinia* spp.), Smut (*Urocystis* sp.), Stem and bulb nematode (*Ditylenchus dipsaci*) and White rot of onion (*Sclerotium cepivorum*).

Allium, Welsh Onion: A total of 64 acres were submitted for inspection during the 2021 growing season. In total, there were 74 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Botrytis rot of onion (*Botrytis allii*), Botrytis stalk rot (*Botrytis aclada*), Downy mildew of onion (*Peronospora destructor*), Onion smudge (*Colletotrichum circinans*), Onion yellow dwarf potyvirus, Purple blotch (*Alternaria porri*), Sclerotinia rot (*Sclerotinia* spp.), Smut (*Urocystis* sp.), Stem and bulb nematode (*Ditylenchus dipsaci*) and White rot of onion (*Sclerotium cepivorum*).

Brassica: A total of 14.25 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Black leg (*Leptosphaeria maculans*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*) and Bacterial blight of crucifers (*Pseudomonas cannabina* pv. *alisalensis*).

Beans, Bush/Adzuki: A total of 113 acres were submitted for inspection during the 2021 growing season. In total, there were 226 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Cowpea: A total of 1.8 acres were submitted for inspection during the 2021 growing season. In total, there were 3.6 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Dry: A total of 1,262.66 acres were submitted for inspection during the 2021 growing season. In total, there were 2,764.81 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).



Beans, Faba/Fava: A total of 0.1 acres were submitted for inspection during the 2021 growing season. In total, there were 0.2 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Garden: A total of 10,426.63 acres were submitted for inspection during the 2021 growing season. In total, there were 27,252.66 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

- **Brown spot** (*Pseudomonas syringae* pv. *syringae*) was confirmed in 94 acres; the remaining acres inspected were found apparently free from Brown spot.
- **Bean common mosaic potyvirus** was confirmed in 66 acres

Beans, Soybeans: A total of 0.6 acres were submitted for inspection during the 2021 growing season. In total, there were 1.2 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Trial Ground – Non-Phaseolus sp. (Aaski): A total of 0.53 acres were submitted for inspection during the 2021 growing season. In total, there were 2.65 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Trial Ground – Non-Phaseolus sp. (Caupeal): A total of 0.23 acres were submitted for inspection during the 2021 growing season. In total, there were 1.15 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Trial Ground – Non-Phaseolus sp. (Faba/Fava): A total of 0.2 acres were submitted for inspection during the 2021 growing season. In total, there was 1 acre inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).



Beans, Trial Ground – Non-Phaseolis sp. (Mung): A total of 0.01 acres were submitted for inspection during the 2021 growing season. In total, there were 0.05 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Beans, Trial Ground – Phaseolis sp.: A total of 218.22 acres were submitted for inspection during the 2021 growing season. In total, there were 1,090.86 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*)

- **Bean common mosaic potyvirus** was confirmed in 14.76 acres

Beans, Trial Ground – Non-Phaseolis sp. (Soybeans): A total of 2.8 acres were submitted for inspection during the 2021 growing season. In total, there were 12 acres inspected due to multiple inspection requirements for certain diseases. To meet requirements of IDAPA 02.06.06, Rules Governing the Planting of Beans, all fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*), Asian soybean rust (*Phakopsora pachyrhizi*), Bean bacterial wilt (*Curtobacterium flaccumfaciens*), Brown spot (*Pseudomonas syringae* pv. *syringae*), Common blight (*Xanthomonas axonopodis* pv. *phaseoli*), Fuscus blight (*Xanthomonas fuscans* pv. *fuscans*) and Halo blight (*Pseudomonas savastanoi* pv. *phaseolicola*).

Brassica, Cabbage: A total of 0.1 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Black leg (*Leptosphaeria maculans*), Black leg/Stem Canker (*Leptosphaeria biglobosa*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*), Club root of Cabbage (*Plasmodiophora brassicae*) and Crucifer bacterial leaf spot (*Pseudomonas syringae* pv. *maculicola*).

Brassica, Chinese Cabbage: A total of 19 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Black leg (*Leptosphaeria maculans*), Black leg/Stem Canker (*Leptosphaeria biglobosa*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*), Club root of Cabbage (*Plasmodiophora brassicae*) and Crucifer bacterial leaf spot (*Pseudomonas syringae* pv. *maculicola*).

Brassica, Collards: A total of 60.5 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Blackleg (*Leptosphaeria maculans*), Black leg/Stem Canker (*Leptosphaeria biglobosa*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*), Club root (*Plasmodiophora brassicae*) and Crucifer bacterial leaf spot (*Pseudomonas syringae* pv. *maculicola*),

Brassica, Kale: A total of 8 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Black leg (*Leptosphaeria maculans*), Black leg/Stem Canker (*Leptosphaeria biglobosa*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*), Club root (*Plasmodiophora brassicae*) and Crucifer bacterial leaf spot (*Pseudomonas syringae* pv. *maculicola*).

Brassica, Pak Choi: A total of 3 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Black leg (*Leptosphaeria maculans*), Black leg/Stem Canker (*Leptosphaeria biglobosa*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*), Club root (*Plasmodiophora brassicae*) and Crucifer bacterial leaf spot (*Pseudomonas syringae* pv. *maculicola*),



Brassica, Turnip: A total of 77 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Black leg (*Leptosphaeria maculans*), Black leg/Stem Canker (*Leptosphaeria biglobosa*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*), Club root (*Plasmodiophora brassicae*) and Crucifer bacterial leaf spot (*Pseudomonas syringae* pv. *maculicola*),

Carrot: A total of 1,970.18 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from *Alternaria* leaf blight (*Alternaria dauci*), Bacterial blight of carrot (*Xanthomonas hortorum* pv. *carotae*) and Black rot of carrot (*Alternaria radicina*).

Corn: A total of 5,753.04 acres were submitted for inspection during the 2021 growing season. In total, there were 11,419.41 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Brown spot (*Physoderma maydis*), Brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*), Crazy top of corn (*Sclerophthora macrospora*), Eyespot (*Aureobasidium zeae*), Goss's bacterial wilt (*Clavibacter michiganensis* subsp. *nebraskensis*), Green ear downy mildew (*Sclerospora graminicola*), Head smut (*Sporisorium reilianum*), Java downy mildew (*Peronosclerospora maydis*), Late wilt (*Harpophora maydis*), Northern corn leaf spot (*Cochliobolus carbonum*), Philippine downy mildew (*Peronosclerospora philippinensis*), Sorghum downy mildew (*Peronosclerospora sorghi*), Southern corn leaf blight (*Cochliobolus heterostrophus*), Spontaneum downy mildew (*Peronosclerospora spontanea*), Stewart's wilt (*Pantoea stewartii*), Sugarcane downy mildew (*Peronosclerospora sacchari*) and Yellow leaf blight (*Mycosphaella zeae*-*maydis*).

- **Common smut** (*Ustilago maydis*) was confirmed in 1,817.73 acres
- **High plains virus** was confirmed in 500.43 acres
- **Wheat streak mosaic tritimovirus** was confirmed in 54.9 acres

Corn, to Australia: A total of 24 acres were submitted for inspection during the 2021 growing season. In total, there were 48 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Brown spot (*Physoderma maydis*), Brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*), Crazy top of corn (*Sclerophthora macrospora*), Eyespot (*Aureobasidium zeae*), Goss's bacterial wilt (*Clavibacter michiganensis* subsp. *nebraskensis*), Green ear downy mildew (*Sclerospora graminicola*), Head smut (*Sporisorium reilianum*), Java downy mildew (*Peronosclerospora maydis*), Late wilt (*Harpophora maydis*), Maize dwarf mosaic potyvirus, Northern corn leaf spot (*Cochliobolus carbonum*), Philippine downy mildew (*Peronosclerospora philippinensis*), Sorghum downy mildew (*Peronosclerospora sorghi*), Southern corn leaf blight (*Cochliobolus heterostrophus*), Spontaneum downy mildew (*Peronosclerospora spontanea*), Stewart's wilt (*Pantoea stewartii*), Sugarcane downy mildew (*Peronosclerospora sacchari*) and Yellow leaf blight (*Mycosphaella zeae*-*maydis*).

- **High plains virus** was confirmed in 7 acres

Cucumber: A total of 0.39 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Angular leaf spot (*Pseudomonas syringae* pv. *lachrymans*), Anthracnose (*Colletotrichum orbiculare*), Bacterial fruit blotch of Watermelon (*Acidovorax avenae* subsp. *citrulli*), Bacterial leaf spot of cucurbits (*Xanthomonas cucurbitae*) and Cucumber mosaic cucumovirus – CMV-

Garbanzo Beans/Chickpeas: A total of 1.68 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Anthracnose (*Colletotrichum* spp.) and Ascochyta blight of Chickpeas (*Ascochyta rabiei*).

Garbanzo Beans/Chickpeas Trial Ground: A total of 0.75 acres were submitted for inspection during the 2021 growing season. In total, there were 1.50 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Anthracnose (*Colletotrichum* spp.) and Ascochyta blight of Chickpeas (*Ascochyta rabiei*).



Grain, Barley: A total of 4.34 acres of barley were submitted for inspection during the 2021 growing season. In total, there were 7.97 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Smut (*Urocystis* sp.).

- **Bacterial leaf streak** (*Xanthomonas translucens*) was confirmed in 1.96; the remaining acres inspected were found apparently free from Bacterial leaf streak

Grain, Flax: A total of 0.73 acres was submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Flax rust (*Melampsora lini*).

Grain, Oat Trial Ground: A total of 0.34 acre was submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Bacterial leaf streak (*Xanthomonas translucens*) and Smut (*Urocystis* sp.).

Grain, Quinoa: A total of 0.89 acre was submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Downy mildew of spinach (*Peronospora farinosa*).

Grain, Uff wheat: A total of 0.54 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Bacterial leaf streak (*Xanthomonas translucens*) and Smut (*Urocystis* sp.).

Herb, Basil: A total of 0.15 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Verticillium wilt (*Verticillium* spp.)

Herb, Coriander: A total of 20.19 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Bacterial blight of carrot (*Xanthomonas hortorum* pv. *carotae*), Bacterial leaf spot (*Pseudomonas syringae*) and Stem gall of Coriander (*Protomyces macrosporus*).

Herb, Dill: A total of 10 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Alternaria leaf blight (*Alternaria dauci*).

Lentil: A total of 0.76 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Anthracnose (*Colletotrichum lindemuthianum*) and Anthracnose of lentil (*Colletotrichum truncatum*).

Lettuce: A total of 325.7 acres were submitted for inspection during the 2021 growing season.

- **Lettuce mosaic potyvirus** –LMV– was confirmed in 2.2 acres; the remaining acres inspected were found apparently free from Lettuce mosaic potyvirus –LMV–

Peas: A total of 3,913.2 acres were submitted for inspection during the 2021 growing season. In total, there were 11,175.3 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Anthracnose of lentil (*Colletotrichum truncatum*).

- **Bacterial blight of peas** (*Pseudomonas syringae* pv. *pisii*) was confirmed in 164 acres; the remaining acres inspected were found apparently free from Bacterial blight of peas
- Downy mildew of peas (*Peronospora viciae*) was confirmed in 43 acres
- Root and stem wilt (*Fusarium* spp.) was confirmed in 25 acres
- Sclerotinia rot (*Sclerotinia* spp.) was confirmed in 100.7 acres

Peppermint: A total of 125.8 acres were submitted for inspection during the 2021 growing season. In total, there were 251.6 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Mint root borer (*Fumibotys fumalis*), Mint stem borer (*Pseudobaris nigrina*), Verticillium wilt (*Verticillium non-alfalfae*) and Verticillium wilt of mint (*Verticillium dahliae*).



Potato: A total of 2,999.5 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Late blight (*Phytophthora infestans*).

Radish: A total of 210 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Bacterial blight of radish (*Xanthomonas campestris* pv. *raphani*), Black rot of crucifers (*Xanthomonas campestris* pv. *campestris*) and Turnip/radish anthracnose (*Colletotrichum higginsianum*).

Spinach: A total of 0.41 acres were submitted for inspection during the 2021 growing season. All fields inspected were found apparently free from Bacterial blight of crucifers (*Pseudomonas cannabina* pv. *alisalensis*), Black leg (*Leptosphaeria maculans*) and Downy mildew of spinach (*Peronospora farinosa*).

Sunflowers: A total of 3,347 acres were submitted for inspection during the 2021 growing season. In total, there were 6,604 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Downy mildew of Asteraceae (*Plasmopara halstedii*).

- **Sclerotinia rot** (*Sclerotinia* spp.) was confirmed in 118 acres

Watermelon: A total of 0.4 acres were submitted for inspection during the 2021 growing season. In total, there were 0.8 acres inspected due to multiple inspection requirements for certain diseases. All fields inspected were found apparently free from Angular leaf spot (*Pseudomonas syringae* pv. *lachrymans*), Anthracnose (*Colletotrichum orbiculare*), Bacterial fruit blotch of Watermelon (*Acidovorax avenae* subsp. *citrulli*), Bacterial leaf spot of cucurbits (*Xanthomonas cucurbitae*) and Cucumber mosaic cucumovirus – CMV-

Acres submitted for inspection under the Idaho Rules for Phytosanitary and Post-Entry Certification, Rules Governing the Planting of Beans, Phaseolus Species, in Idaho and Rules Governing the Planting of Beans, Other Than Phaseolus Species, in Idaho for the 2021 Field Season

2021 Inspection Acres Report (compiled 2/23/2022)

Crop	Number of Applications	Acres Submitted for Inspection	Number of Inspections Based on Diseases Requested	Actual Acres Inspected
Alfalfa Total	79	1,566.77	1	1,566.77
Arugula Total	3	14.25	1	14.25
Barley	1	0.71	1	0.71
	5	3.63	2	7.26
Barley Total	6	4.34		7.97
Beans, Azuki Non-Phaseolus Total	8	113.00	2	226.00
Basil Total	1	0.15	1	0.15
Beans, Coupea Non Phaseolus Total	1	1.80	2	3.60
Beans, Dry Phaseolus	84	1,023.17	2	2,046.34
	10	239.49	3	718.47
Beans, Dry Phaseolus Total	94	1,262.66		2,764.81
Beans, Fava/Fava Non Phaseolus Total	1	0.10	2	0.20



Crop	Number of Applications	Acres Submitted for Inspection	Number of Inspections Based on Diseases Requested	Actual Acres Inspected
Beans, Garden Phaseolus	390	3,778.53	2	7,550.36
	162	6,651.10	3	19,702.30
Beans, Garden Phaseolus Total	552	10,426.63		27,252.66
Beans, Soybeans Non-Phaseolus Total	6	0.60	2	1.20
Beans Trial Ground Azuki-Non-Phaseolus Total	4	0.53	5	2.65
Beans Trial Ground Cowpea-Non-Phaseolus Total	2	0.23	5	1.15
Bean Trial Ground Faba/Fava Non Phaseolus Total	1	0.20	5	1.00
Beans Trial Ground Mung-Non Phaseolus Total	1	0.01	5	0.05
Beans Trial Ground - Phaseolus Total	64	218.22	5	1,090.86
Beans Trial Ground Soybeans Non- Phaseolus Total	4	2.80	5	12.00
Cabbage Total	1	0.10	1	0.10
Cabbage, Chinese Total	2	19.00	1	19.00
Carrot Total	405	1,970.18	1	1,970.18
Chives Total	2	17.00		17.00
Collards Total	4	60.50	1	60.50
Coriander Total	2	20.19	1	20.19
Corn To Australia Total	2	24.00	2	48.00
Corn	5	86.67	1	86.67
	638	5,666.37	2	11,332.74
Corn Total	643	5,753.04		11,419.41
Cucumber Total	1	0.39	1	0.39
Dill Total	1		1	10.00
Flax Total	1	0.73	1	0.73
Garbanzo Bean/Chick Pea Total	3	1.68	1	1.68
Garbanzo Bean/Chick Pea Trial Total	2	0.75	2	1.50
Garlic Total	23	24.93	1	24.93
Kale Total	1	8	1	8.00
Lentil Total	1	0.76	1	0.76
Lettuce Total	42	325.70	1	325.70
Oats Trial Ground Total	2	0.34	1	0.34
Onion	63	171.26	1	171.26
	34	465.80	2	931.60
Onion Total	97	637.06		1,102.86
Ornamental Allium Total	2	9.00	1	9.00
Pak Choi Total	1	3.00	1	3.00



Crop	Number of Applications	Acres Submitted for Inspection	Number of Inspections Based on Diseases Requested	Actual Acres Inspected
Peas	56	282.15	1	282.15
	196	3,631.05	3	10,893.15
Peas Total	252	3,913.20		11,175.30
Peppermint Total	9	125.80	2	251.60
Potato Total	21	2,999.50	1	2,999.50
Quinoa Total	1	0.89	1	0.89
Radish Total	20	210.00	1	210.00
Shallot Total	1	0.11	1	0.11
Spinach Total	2	0.41	1	0.41
Sunflower	5	90.00	1	90.00
	41	3,267.00	2	6,514.00
Sunflower Total	46	3,347.00		6,604.00
Turnip Total	6	77.00	1	77.00
Watermelon Total	2	0.40	2	0.80
Welsh Onion	5	54.00	1	54.00
	1	10.00	2	20.00
Welsh Onion Total	6	64.00	1	74.00
Wheat Total	1	0.54	1	0.54
Totals	2,432	33,237.49		69,382.74



Noxious Weed Free Forage & Straw Certification Program



Background

In an effort to limit the introduction and spread of noxious weeds through forage and straw onto Idaho United States Forest Service (USFS) and Bureau of Land Management (BLM) lands, the Idaho State Department of Agriculture's (ISDA) Noxious Weed Free Forage and Straw (NWFF&S) Certification Program was implemented in 1995. ISDA is a member of a voluntary national organization called the North American Invasive Species Management Association (NAISMA) and has incorporated its forage and straw inspection procedures, called the NAISMA Weed Free Forage Program, into the NWFF&S Rules. The purpose of this organization is to set minimum requirements for uniform participation of the various states in the program. The NWFF&S Certification Program allows for the transportation and sale of certified Idaho forage and straw products into and through states and other boundaries where restrictions are placed on such commodities.

Program Updates

This winter, the ISDA grasshopper/Mormon cricket program wished a happy retirement to the long-time program specialist, Dan Safford. In mid-April, Kahla Montrose stepped into her new role as the program specialist.

During the negotiated rulemaking in spring 2021, an increase to the fees associated with NWFF&S Certification Program inspections was proposed and agreed upon. The following fee schedule went in to effect on July 1, 2021.

Certification Fees:

- a. A minimum of forty dollars (\$40) per field per inspection will be charged for up to ten (10) acres.
- b. Three dollars and fifty cents (\$3.50) per acre from 11 acres to 50 acres.
- c. Three dollars (\$3.00) per acre for fifty-one (51) acres to one hundred (100) acres.
- d. Two dollars (\$2.00) per acre from one hundred one (101) acres.
- e. The agent is authorized to assess a general fee of forty dollars (\$40) per year to recover overhead costs.

Additionally, three new species, Goatsrue, Starry Stonewort, and Turkish Thistle, were added to the Idaho State Noxious Weed List, increasing the number of noxious weeds that fields are inspected for; to 70 for the Idaho Standard and 94 for the NAISMA Standard.

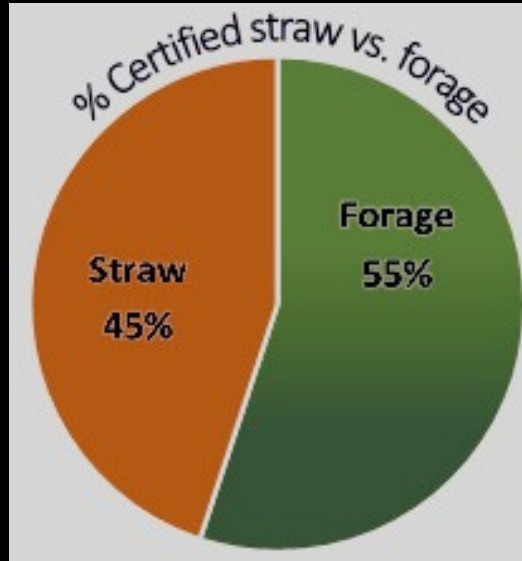
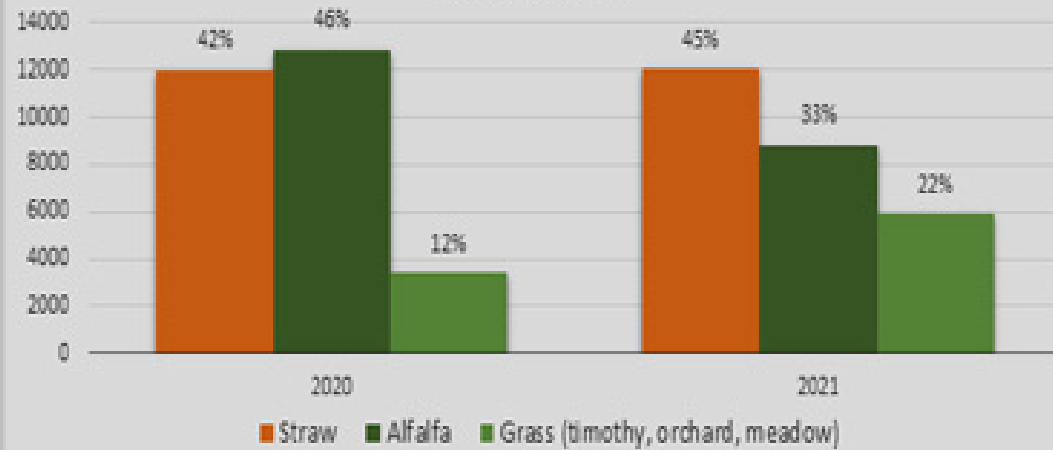
Lastly, the NAISMA Standard certification twine will be changing from purple and yellow to blue and orange beginning in 2022. The knot strengths that will be available are: 9600/170, 6500/240 and 4000/400.

Program Accomplishments

In 2021, the NUFFS Program trained 62 inspectors across the state to certify fields as noxious weed free. With the 27 counties who participated; 26,974.11 acres of forage and straw were inspected and 26,765.67 of those acres were certified as noxious weed free. 99% of those acres were certified to the NAISMA Standard. There were 1,440.13 less acres certified in 2021 than 2020. Likely due to the drought conditions seen in 2021.

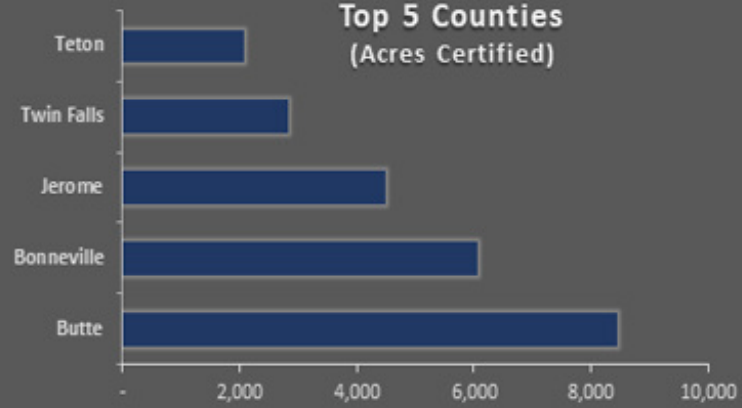
Certified Forage Type

2020 vs. 2021

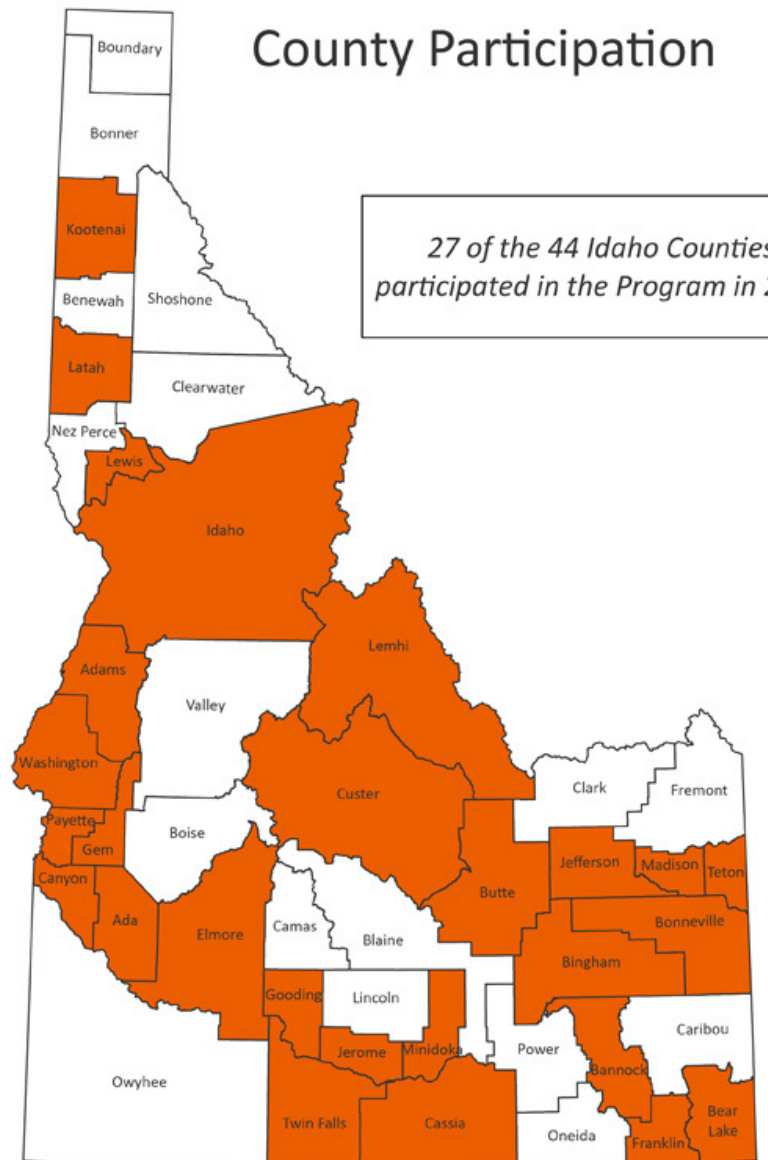


67% of all forage & straw certified was remanufactured into products such as pellets, cubes, bagged straw, & compressed forage bales.

Top 5 Counties (Acres Certified)



County Participation



ISDA Noxious Weed and Invasive Species Programs



Invasive species present a significant threat to the economy and environment of Idaho. The Idaho State Department of Agriculture (ISDA) administers the Invasive Species Program for the state, managing program activities that include watercraft inspection, invasive species surveys, invasive species education, and management of the state's Noxious Weed program.

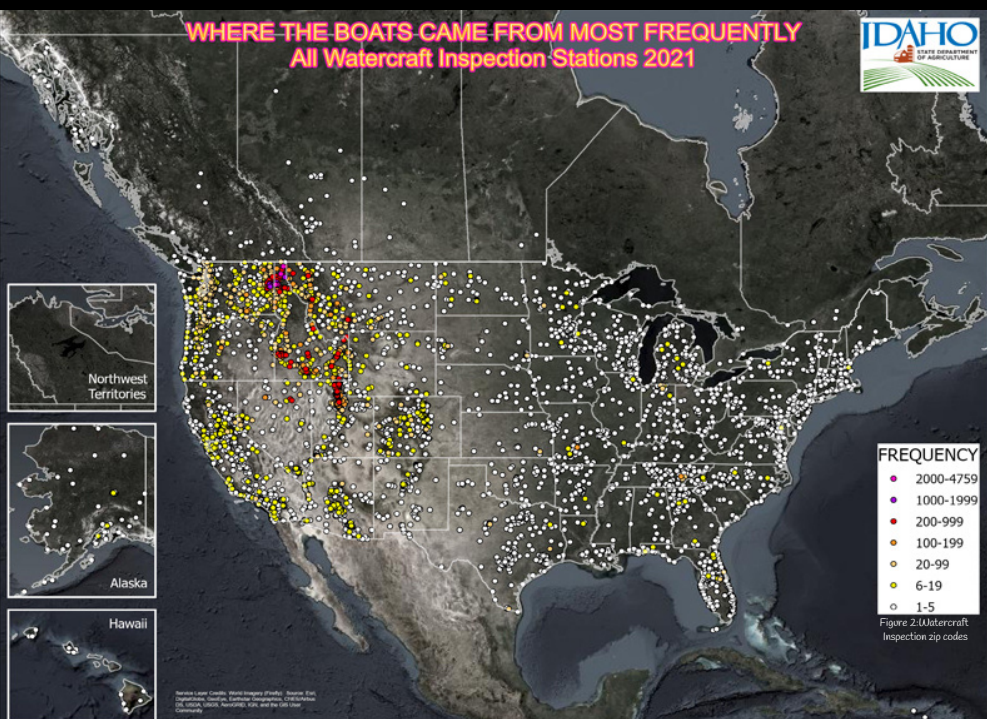
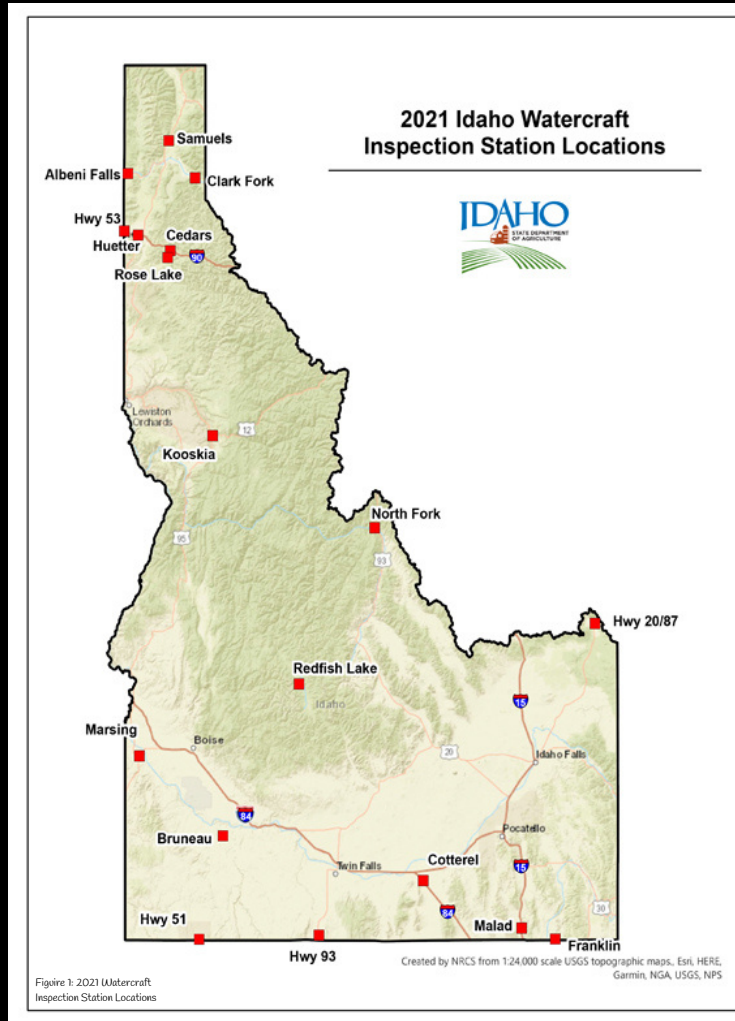
Program Highlights

- Over 113,000 watercraft inspections were conducted in 2021.
- Over 963,000 watercraft inspections have been conducted in Idaho since the program began in 2009.
- 52 zebra/quagga mussel fouled vessels were intercepted in 2021.
- 377 zebra/quagga mussel fouled vessels have been intercepted in Idaho since the program began in 2009.
- Increased level of watercraft inspection station operations on numerous levels including:
 - 24-hour operation at the I-84 West Cotterell Watercraft Inspection Station.
 - 18-hour operations at the Cedars I-90 West, Malad I-15 North, and Jackpot Hwy 93 North Watercraft Inspection Stations.
 - Cooperative agreement with the Bear Lake Regional Commission to support two Utah Watercraft Inspection Stations.
 - Law enforcement support at every Idaho inspection station.
- 1,617 veliger samples for zebra/quagga mussel early detection monitoring were collected from over 80 waterbodies throughout the state in 2021.
- To date, no evidence of zebra or quagga mussels have been found in the waters of Idaho.
- To date, zebra/quagga mussels have not been observed anywhere in the waters of the Columbia River Basin, including Oregon, Washington, Wyoming, British Columbia, and Alberta.
- Over 491 acres of Aquatic Noxious Weeds were Chemically treated in 2021.
- The hydrilla eradication project has continued to see a reduction in plants across all 3 active infestation areas.
- The Noxious Weeds Cost Share Program awarded over \$1.05 million dollars to CWMA programs statewide.
- ISDA's Noxious Weeds Cost Share Program had participation from 26 CWMA's.
- 14,744 acres of forage and 12,021 acres of straw were certified under the Noxious Weed-Free Forage and Straw program.
- Goatsrue, Starry Stonewort, and Turkish thistle were added to the Invasive Species Noxious Weed Rule in 2021.

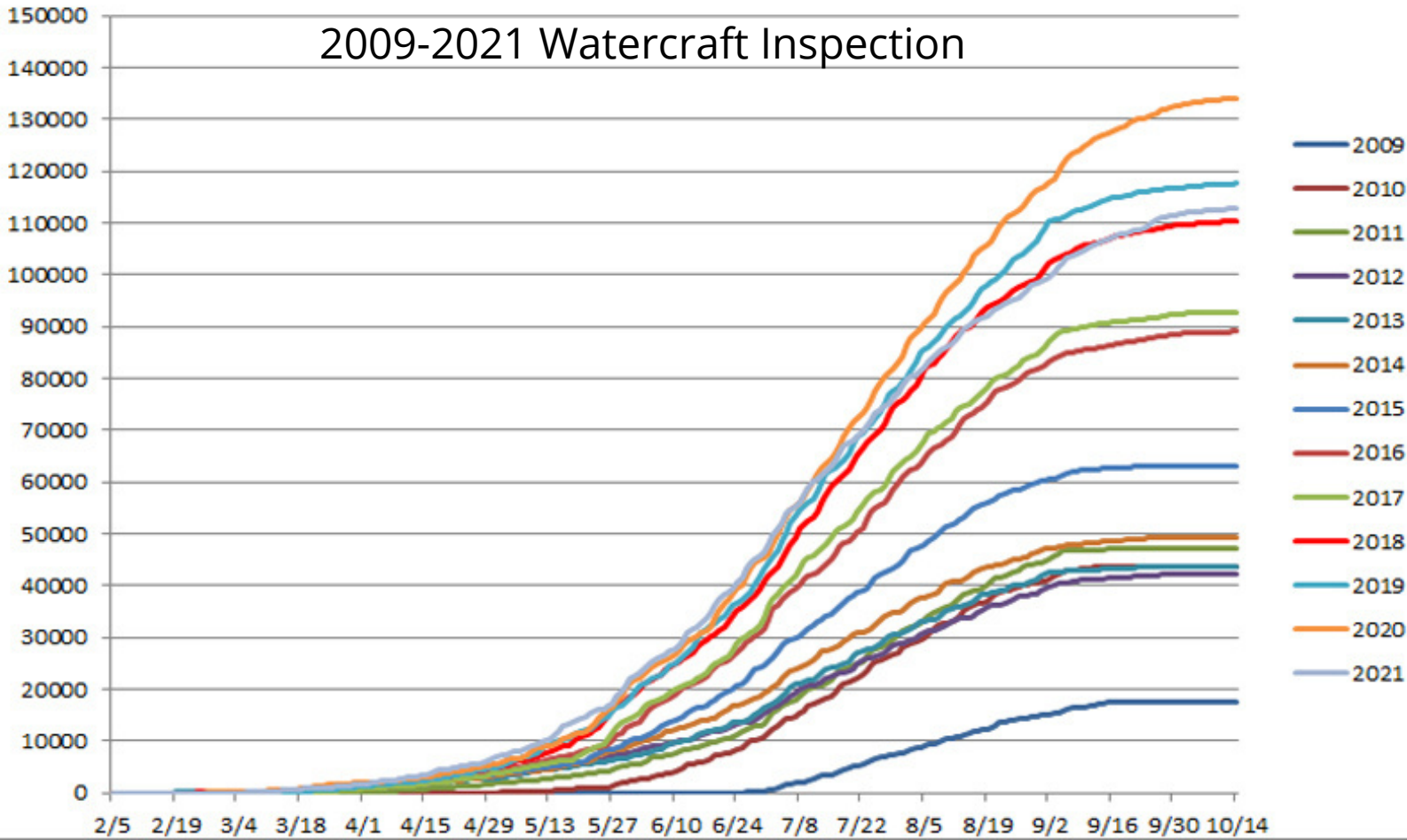


Watercraft Inspection

Prevention of aquatic invasive species (AIS) is a significant component of the Invasive Species program. The 2021 season was the 13th year of the watercraft inspection program, with 18 inspection stations operating statewide (Figure 1). In 2021, stations inspected 113,733 watercraft (Figure 2). The continued high level of watercraft inspections was due, in part, to several factors including, extending station operation to cover daylight hours, 24-hour operation at I-84 West Cotterell, 18-hour operations at the Cedars I-90 West, Malad I-15 North, and Jackpot Hwy 93 North Watercraft Inspection Stations, lighted message boards, increased signage, operating additional inspection stations and contracting with law enforcement to assist with station compliance.

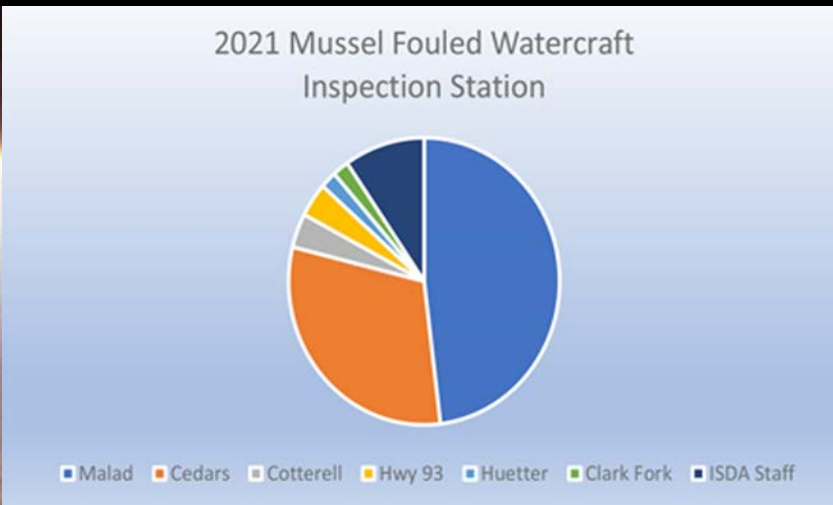


2009-2021 Watercraft Inspection



High Risk Inspections: 2,506 watercraft visited high-risk waters with zebra/quagga mussel infestations within the previous 30 days. Watercraft traveling from these areas represent the highest risk for transporting live zebra/quagga mussels into the state. Watercraft inspections at mussel-impacted waters are the most efficient and effective way to prevent the introduction of mussels into Idaho. Vessels that were found to have recently been in mussel-impacted waters received a thorough high-risk inspection and hot wash to ensure that they were free of AIS. Following inspection, over half of these boats traveled to destinations in Idaho, with the remainder destined to locations throughout the western region. Watercraft inspection information is available online at: <http://invasivespecies.idaho.gov/watercraft-inspection-stations>

Mussel-Fouled Watercraft: 52 watercraft were intercepted transporting zebra or quagga mussels in 2021. These vessels originated from mussel-impacted waters in the Southwest, as well as from the Mid-West to the Great Lakes region. Seventeen of these vessels were destined for Idaho, with the others heading to waters in the neighboring states. Vessels that were destined for Idaho were thoroughly decontaminated by ISDA staff and remained out of the water for a minimum of 30 days. A total of 377 mussel-fouled vessels have been intercepted in Idaho since the program began in 2009. Additional watercraft inspection data from the 2021 season is displayed on the ISDA Invasive Species Program website at: <http://invasivespecies.idaho.gov/watercraftinspection-stations/>.



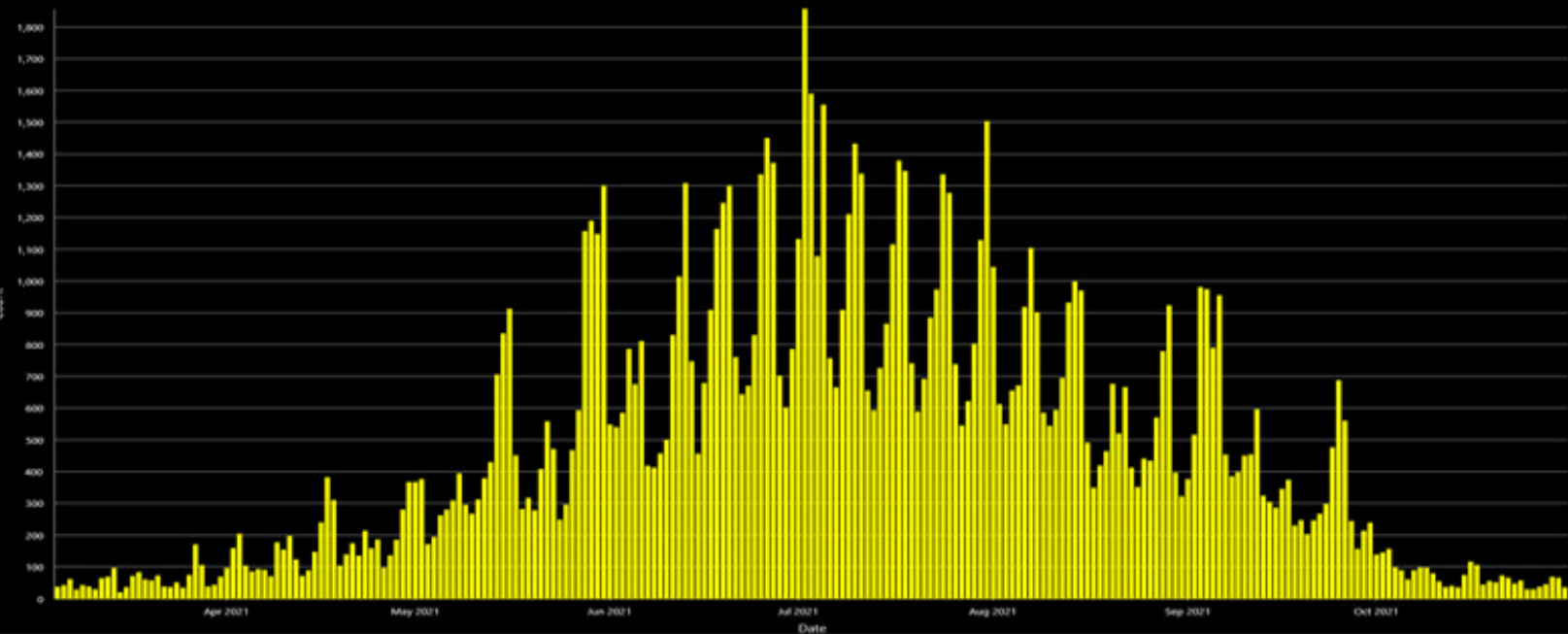
CLEAN & DRAIN & DRY

Idaho Watercraft Inspection Numbers by Station in 2021

Inspection Station	Inspections	Hotwash	Fouled	Weeds
Albeni Falls	10,418	3	0	27
Bruneau	4,909	28	0	4
Cedars	14,510	169	16	142
Clark Fork	8,401	1	1	18
Cotterel	6,064	245	2	2
Franklin	5,654	17	0	2
Huetter	16,070	4	1	80
Hwy 12 (Kooskia)	288	0	0	1
Hwy 20/87	4,340	11	0	57
Hwy 51 (Duck Valley)	453	2	0	0
Hwy 53	6,137	1	0	38
Hwy 87	8,918	2,958	0	1
Hwy 93	2,260	81	2	0
Malad	9,419	293	25	8
Marsing	2,717	13	0	15
North Fork	4,327	7	0	3
Redfish Lake	1,988	0	0	1
Rose Lake	4,832	11	0	129
Samuels	8,827	2	0	3
Boise Roving Crew	425	2	0	1
Twin Falls Roving Crew	74	1	0	0
Post Falls Roving Crew	116	0	0	0
Sandpoint Roving Crew	1,329	3	0	5
Idaho Falls Roving Crew	108	0	0	0
ISDA Staff	67	6	5	6
Total	113,733	903	52	541

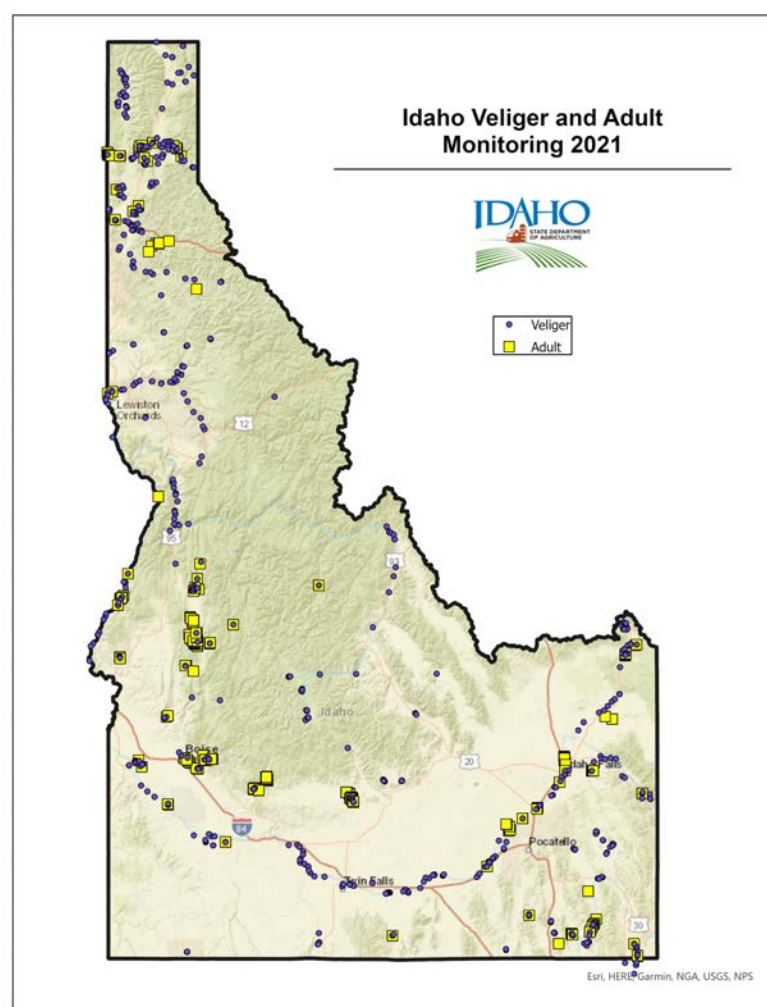


Number of Watercraft Inspections by date - All Stations



Invasive Species Early Detection Monitoring

ISDA's early detection monitoring program collected 1,614 plankton samples from 80 waterbodies in Idaho in 2021. A number of partners also assist with mussel early detection monitoring including the Shoshone Pivte Tribe, The Coeur d'Alene Tribe, Idaho Power Company, Lemhi County, US Army Corps of Engineers, US Forest Service, lake associations, and various canal companies and irrigation districts throughout the state. To date, no evidence of mussels has been found in Idaho or anywhere in the Columbia River Basin.



Education

Education is a major component of the ISDA invasive species prevention program. Watercraft inspection stations play an important role in education through one-on-one interaction with the public and reinforcing the "Clean, Drain, Dry" message. Inspectors also provided a variety of invasive species-related educational materials to the public.

ISDA staff participated in a number of events this season which helped educate user groups and the boating public on invasive species issues and the importance of "Clean, Drain, Dry." Staff provided 18 watercraft inspection trainings, educating over 100 individuals on the threats of invasive species and watercraft inspection protocols. Staff also presented on invasive species issues to noxious weed professionals, counties, tribes, master naturalists, angling groups, marine deputies, ITD Port of Entry staff, DEQ staff, IDFG staff, lake associations, and student groups.

ISDA also unveiled a new Invasive Species of Idaho website with the help of the marketing expertise of Drake Cooper. Two additional campaign messages were created, "Knock it Off" and "Know What You Grow," to add to established messages already in use, "Clean-Drain-Dry", "Don't Let It Loose", and "Buy It Where You Burn it." An Invasive Species of Idaho Facebook page was also created and is being utilized to promote important campaign messages, form collaborative relationships, share ideas and articles, and drive internet traffic to the website for more detailed information. Other platforms utilized to drive traffic to the website included: radio spots, banner ads, and Pandora radio commercials.

IDAHO

INVASIVE SPECIES COUNCIL

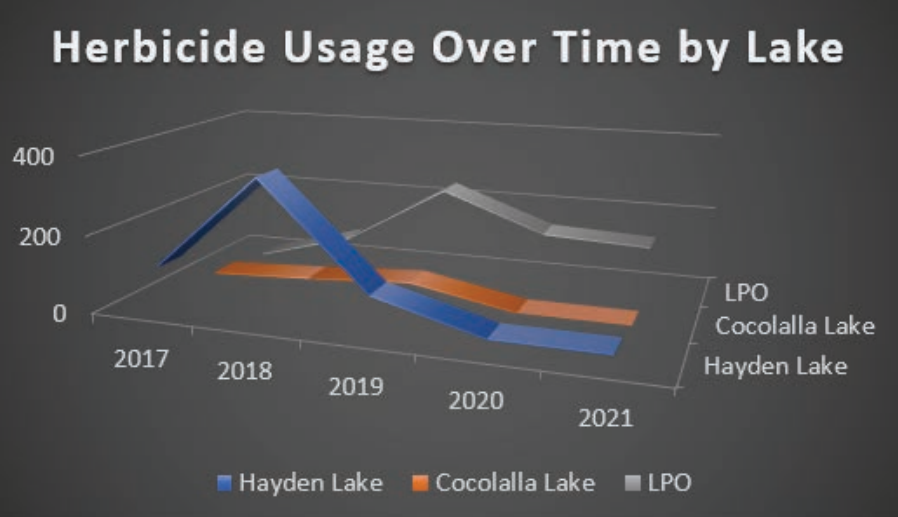
Idaho Invasive Species Council

The Idaho Invasive Species Council (IISC) was created by Executive Order in 2001 as a forum for coordinating invasive species related efforts and initiatives in the state. Executive Order 2017-05 replaces Executive Order 2010-14, to continue this coordinated effort. The IISC holds biannual meetings for discussions and project updates. An updated copy of the IISC Strategic Plan is available online at: <https://invasivespecies.idaho.gov/idahoinvasive-species-council/>

Aquatic Noxious Weed Treatments

Aquatic noxious weed treatment plans are published annually on a map that can be accessed at <http://invasivespecies.idaho.gov/treatment-plans>.

Over 491 acres of Aquatic Noxious Weeds were Chemically treated in 2021, targeting Eurasian watermilfoil and Curlyleaf pondweed. For aquatic herbicide treatments on both species, a trend is becoming more pronounced as acres of treatment are starting to decrease due to the proper use and timing of systemic type herbicides. ISDA continues to monitor all known infestations of aquatic noxious weeds while surveying for new infestations. In 2021, ISDA staff conducted 16,471 individual survey occurrences. By conducting a high level of surveys, ISDA is able to be more targeted and prescriptive with treatments. ISDA will continue this type of strategy to encourage this same trend for all aquatic noxious weed applications.

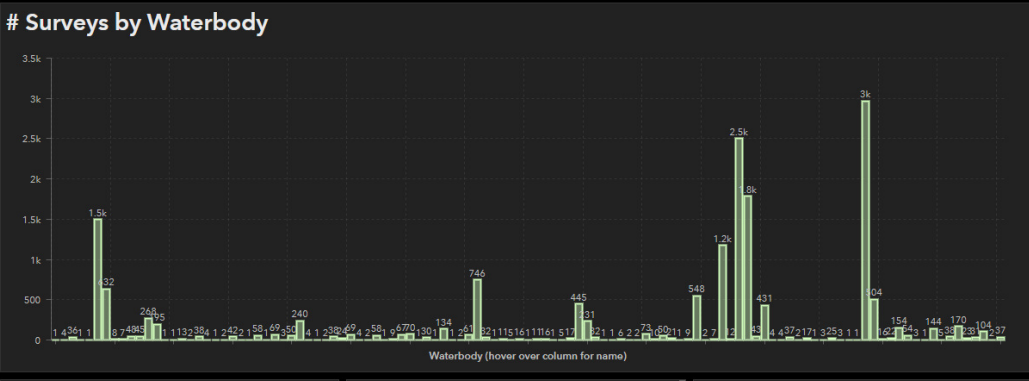


2021 Idaho Aquatic Noxious Weed Surveys Dashboard

Filter Options

All filter criteria will be applied if more than one filter is used.

- Filter by Date
All Dates
- Filter by Waterbody
All Waterbodies
- Filter by Target Species Density
All Target Species Densities
- Filter by Target Species
All Target Species
- Filter by Additional Species Found
All Additional Listed Species Found



Individual Surveys

Name of Waterbody = Blue Lake
Date and Time = Thu Dec 23 2021 09:02:00 GMT-0700 (Mountain Standard Time)
Target Species = Eurasian Watermilfoil
Density = 0 - Target Species 0%
Depth of Survey (in meters) = 1
Additional Species Found =

Name of Waterbody = Pend Oreille, Lake
Date and Time = Thu Dec 02 2021 14:38:00 GMT-0700 (Mountain Standard Time)
Target Species = Flowering Rush
Density = 1 - Target Species 1% - 25%
Depth of Survey (in meters) = 0
Additional Species Found =

Name of Waterbody = Pend Oreille, Lake
Date and Time = Thu Dec 02 2021 14:29:00 GMT-0700 (Mountain Standard Time)
Target Species = Flowering Rush
Density = 2 - Target Species 26% - 75%
Depth of Survey (in meters) = 0
Additional Species Found =

Name of Waterbody = Pend Oreille, Lake
Date and Time = Thu Dec 02 2021 14:22:00 GMT-0700 (Mountain Standard Time)
Target Species = Flowering Rush
Density = 1 - Target Species 1% - 25%
Depth of Survey (in meters) = 0
Additional Species Found =

Name of Waterbody = Pend Oreille, Lake
Date and Time = Thu Dec 02 2021 14:20:00 GMT-0700 (Mountain Standard Time)
Target Species = Flowering Rush
Density = 1 - Target Species 1% - 25%
Depth of Survey (in meters) = 0
Additional Species Found =

Name of Waterbody = Pend Oreille, Lake
Date and Time = Thu Dec 02 2021 14:16:00 GMT-0700 (Mountain Standard Time)
Target Species = Flowering Rush
Density = 1 - Target Species 1% - 25%
Depth of Survey (in meters) = 0
Additional Species Found =

Name of Waterbody = Pend Oreille, Lake
Date and Time = Thu Dec 02 2021 14:12:00 GMT-0700 (Mountain Standard Time)
Target Species = Flowering Rush
Density = 1 - Target Species 1% - 25%
Depth of Survey (in meters) = 0
Additional Species Found =

Aquatic Surveys Conducted

16,472

Surveys with Positive Detections

4,119

Idaho Aquatic Noxious Weed Target Species Only



Surveys where Additional Species Found

583

surveys where additional listed, non-target species found

Average Depth of Survey (in meters)

2.089



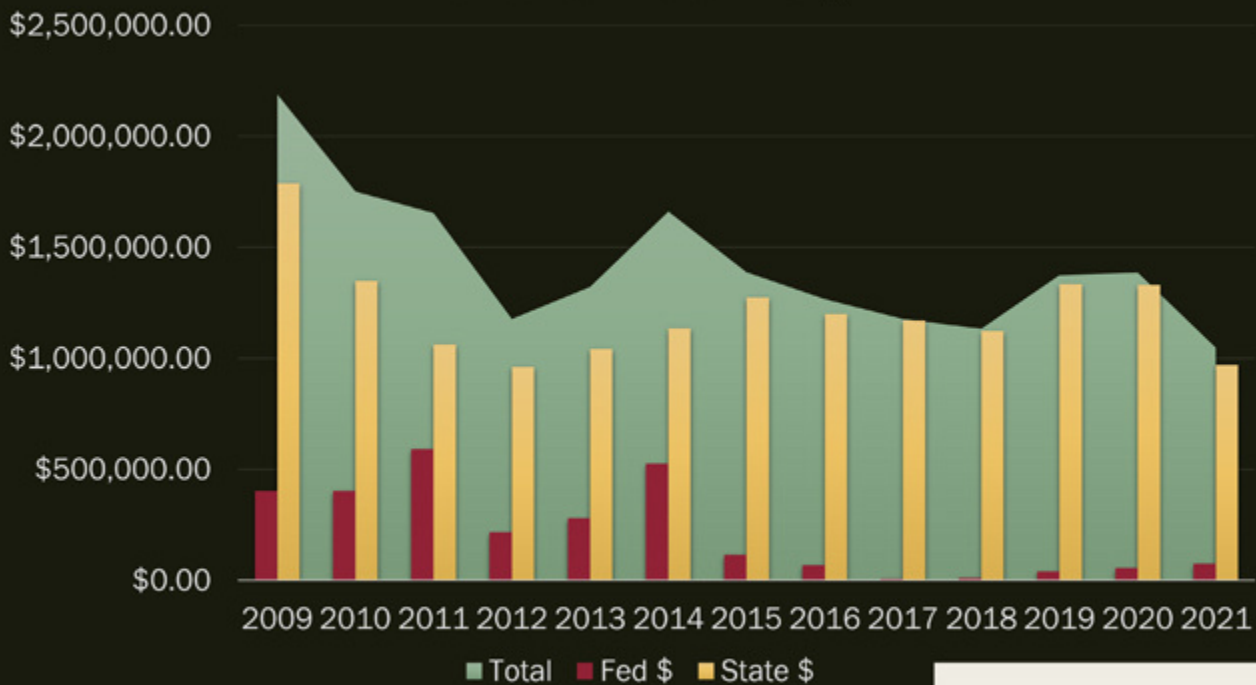


CWMA Cost Share Program

ISDA continues to provide leadership, training, and support to Cooperative Weed Management Areas (CWMAs) throughout the state. These CWMAs are comprised of county governments, federal partners, Native American Tribes, and private landowners. CWMAs work cooperatively to combat noxious weed infestations across agency and jurisdictional boundaries. Their efforts help to protect wildland habitat, ecosystem diversity, recreational opportunities, and agriculture in Idaho.

In 2021, ISDA awarded over \$1.05 million dollars in cost share grants to 26 participating CWMAs. The CWMA cost share participants provided over \$1.8 million dollars in matching contributions, and treated approximately 100,000 acres of noxious weed infestations. These treatments include chemical, mechanical, cultural, and biological control methods. Cost share revenues also contributed to the mapping and monitoring of over 400 thousand acres of previously uncharted lands. CWMA's have also incorporated revegetation work in to their work plans to try and help Idaho lands to recover from the invasion of noxious weeds. The CWMAs also help to educate citizens about the threat of noxious weeds in their area, as well as, throughout the State.

10 Year CWMA Summary



Goatsrue (*Galega officinalis*)

- Perennial
- Purple to white pea-like flowers
- Alternate pinnately compound leaves
- Toxic to cattle and horses
- Identified by Utah Department of Food and Agriculture employee visiting Idaho
- Species Confirmed by ISDA in August 2020
- 3 separate areas where species is found in Franklin County
- Added as a temporary listing in 2020 and added to the Invasive Species Noxious Weed Rule in 2021
- Local County has been treating and monitoring treatment sites

NEW
EDRR



NEW
EDRR



Turkish thistle (*Carduus Cinereus*)

- Annual
- 15-120 cm tall
- Purple flowers arranged as a single terminal head or in a tight terminal cluster
- Winged, pinnately leaves with spines
- First identified in Spring of 2019 by Oregon Department of Ag in the Hells Canyon Recreation Area on the Idaho and Oregon border
- Presence confirmed via DNA analysis at Pittsburgh Landing in Spring 2020
- Added as a temporary listing in 2020 and added to the Invasive Species Noxious Weed Rule in 2021
- Local Cooperative Weed Management area applied and received funding to carry out control and survey efforts in 2021

Purple Starthistle (*Centaurea calcitrapa*)

Iberian Starthistle (*Centaurea iberica*)

- Annual – Perennial (dependent on moisture)
- 1-6 feet tall
- Flowers, purple to pink, with sharp spined bracts over 1 inch long
- Purple starthistle seeds do not have plumes, Iberian starthistle seeds have plumes
- Leaves are deeply lobed and covered with fine hairs.
- Single known location near Castleford, ID
- Twin Falls County continues to work with property owner to eradicate plants

EDRR Species Location
Purple & Iberian starthistle



NEW
EDRR



Starry Stonewort
Nitellopsis obtusa

INVASIVE SPECIES



Chara contraria
NATIVE SPECIES



Chara globularis
NATIVE SPECIES

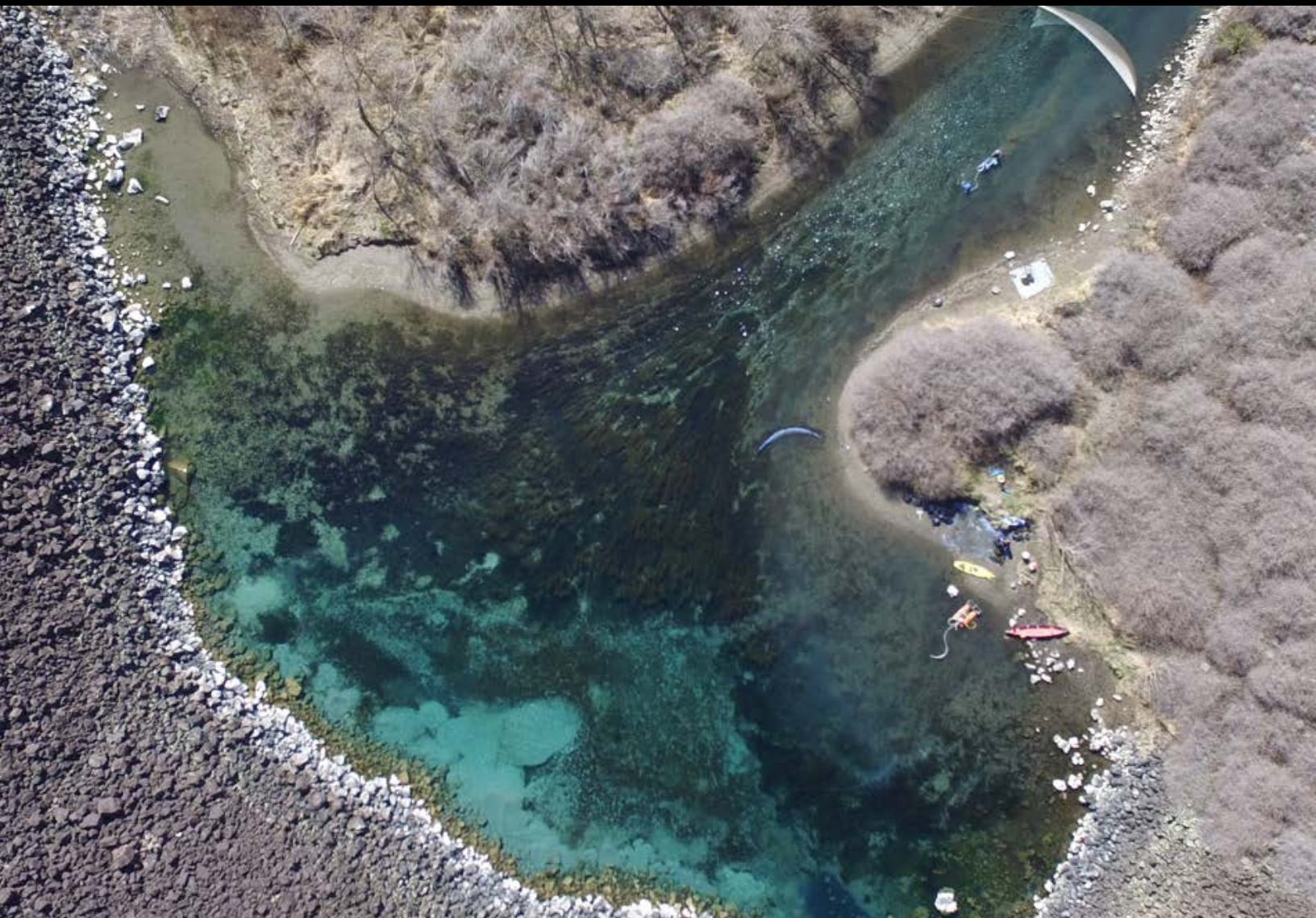
Commonly mistaken for Starry Stonewort

Starry Stonewort (*Nitellopsis obtusa*)

- Annual Macro-algae
- Whorls of 4-6 thin bright green branchlets
- White star-shaped bulbils about the size of a grain of rice
- White filaments anchor algae to sediment
- Not currently found in Idaho
- Added during rulemaking in 2021
- Concern for this species is based on its pattern of spread closely relating to that of dreissenid mussels

Flowering Rush (*Botomos umbellatus*)

- Submerged and /or emergent aquatic Perennial
- Can grow up to 5 feet tall and survive in 20 feet of water
- leaves are fleshy, lanceolate, and triangular at cross section
- 3 petalled, pink to white flowers that form umbels and sit atop long cylindrical stalks
- Roots are thick, fleshy and rhizomatous
- Seeds can float, are brown and contained in an indehiscent capsule
- Positive locations on the Snake river and Farragut State Park in 2021



Eurasian watermilfoil (*Myriophyllum spicatum*)

In 2021 ISDA continued to actively work on Eurasian watermilfoil (EWM) in Hayden Lake, Lake Pend Oreille, Pend Oreille River, Priest Lake, and Bear Lake. Additional work was also performed on the Snake River at a newly identified infestation at Blue Heart Springs. This site is a popular South-Central Idaho Tourism destination and drew a lot of attention with EWM being confirmed late in 2020. Work started at the Blue Heart Springs location in April of 2021, with ISDA Staff and volunteers from the Governors Office of Species Conservation, County weed superintendents, and Idaho Power. In addition to the initial work performed, the ISDA's Diver removal contractor performed work to help ensure that all EWM biomass was removed in 2021. This will be a site that is monitored closely to help prevent the further spread of EWM in to the Snake River System.

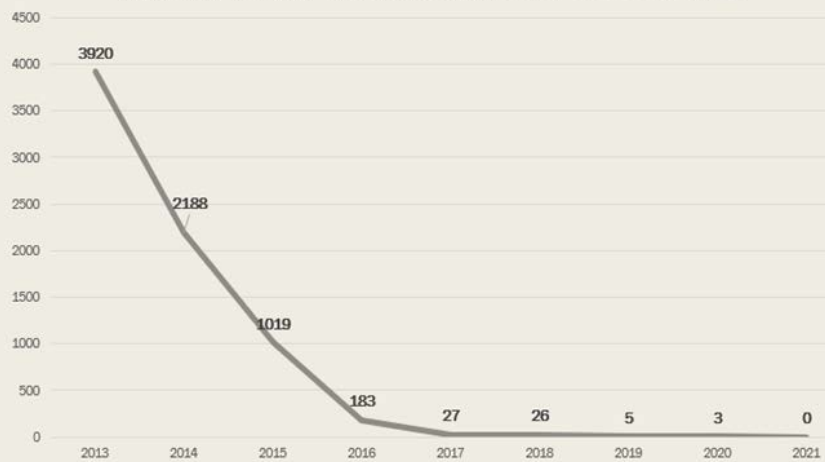


Hydrilla

Hydrilla is considered one of the worst aquatic invasive plant species in North America and was placed on the Idaho Noxious Weed list as an early detection, rapid response (EDRR) species. Hydrilla was initially discovered in the Bruneau River in 2007 with additional populations discovered in Ada and Twin Falls counties. All populations are located in and around geo-thermally influenced areas with direct outflow into the Snake River. Eradication is the ultimate goal for plants on the EDRR list and ISDA coordinated an aggressive management program aimed at doing just that.

Bruneau River – Initial population was discovered in late 2007 in a 14-mile stretch of river which discharges into CJ Strike Reservoir. Management actions began in 2008 using an integrated pest management (IPM) approach and included chemical controls, mechanical controls, cultural control, biological controls, and hand removal. Monitoring and removal activities occurred on a weekly basis with high density areas of plant occurrence visited most frequently. By 2016, plant populations had decreased to the point where hand pulling was the only control method employed, and the intensity of survey events decreased due to lack of plants found. In 2021, the Bruneau River recorded a 100% decrease in population size with 0 plants found. Monitoring efforts are still identifying a small population of hydrilla in an adjacent canal system, however, plant materials are being actively removed to prevent entry back into the river. The canal population is decreasing in size as a result of removal efforts and will continue to be managed until eradication is achieved. The entire infestation area will continue to be monitored into 2022 and plants will be removed whenever encountered.

Hydrilla Found in Bruneau River 2013 to 2021



Hydrilla Found in Boise Hot Ditch 2013 to 2021

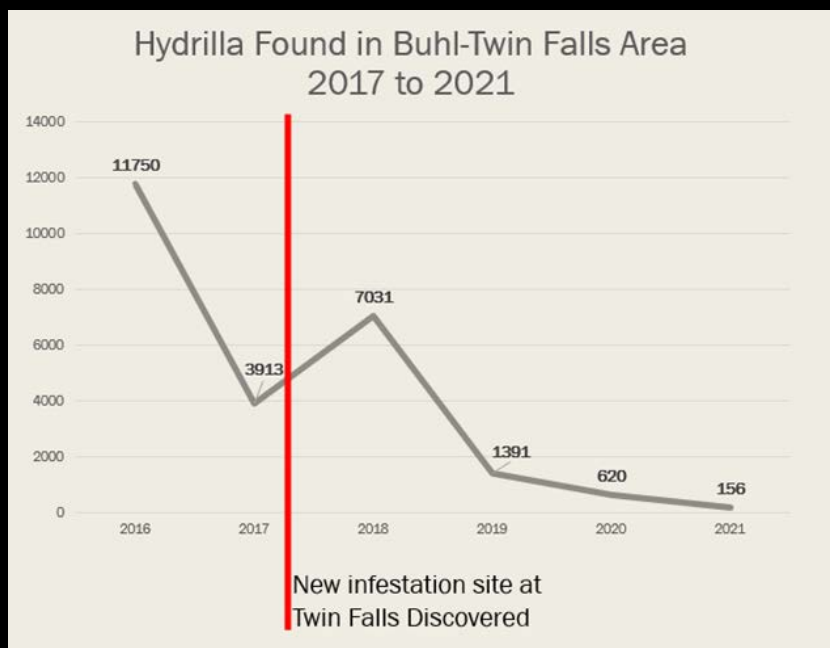


Boise Hot Ditch – Population discovered in 2008 and was reported by an individual who helped with initial hydrilla removal efforts in the Bruneau River. Due to the size and accessibility of this population, hand removal has been the only method utilized. This control strategy has proven effective for the site with no hydrilla plants detected since 2016. Reproductive materials can remain dormant for up to 10 years so monitoring activities will continue bi-annually to ensure that any re-growth is removed before having the chance to re-infest the area.

Buhl– Population discovered in 2015 by ISDA on a routine monitoring survey. Plants were found in several sites within this area including geothermal aquaculture facilities and private residences with decorative water features. Removal efforts included cultural controls, biological controls, and hand pulling; with a 98% percent decrease in population size since the initial discovery. Monitoring and removal activities have been occurring on a weekly basis during the summer and fall, and will continue during winter months at a reduced frequency.

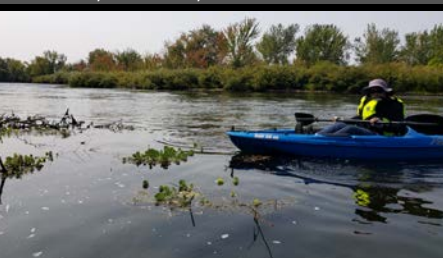


Twin Falls – Population reported by land manager approximately 1-week after discovery of the Buhl population in 2015. Hydrilla was observed in a settling pond at the outflow of a geothermal fish raceway. Removal efforts included cultural controls, biological controls, and hand pulling; with a 95% decrease in population size since initial discovery. In 2017, hydrilla was found in a new water course adjacent to the settling pond which led to an increase of plants observed on site. Mechanical control and hand pulling were used to remove plants in this area and decreases are again being recorded. Monitoring and removal activities have been occurring in this area on a weekly basis during summer and fall, and will continue over the winter months at a reduced frequency.



Parrot feather Milfoil

Parrotfeather Milfoil (*Myriophyllum aquaticum*) is an emergent aquatic weed native to South America that was likely introduced into Idaho as an aquarium or aqua-garden plant which escaped containment. Studies indicate parrotfeather milfoil as a warm water species intolerant to freezing conditions, however, this milfoil has found a niche in Idaho allowing it to persist. Parrotfeather has been observed growing in areas with naturally flowing spring water capable of keeping constant, non-freezing temperatures throughout winter months. Downstream surveys in Gem county (2021) identified populations of plants along the Payette River extending down into the confluence with the Snake River. Due to the extent of spread, ISDA is assigning management priority to upstream populations in an attempt to stop the infestation at its source.



Jerome County – Effort to remove plant populations from a known population resumed in 2019. ISDA staff coordinated team work days to removal plants from a natural spring near the Blue Lakes Country Club using mechanical control and hand removal. Monitoring and removal activities occurred and as of May 2021, no regrowth has been observed. To date, no parrotfeather milfoil has been identified in the Mid-Snake River area.

Gem County – A coordinated effort with Gem county weed control began in 2019 utilizing chemical control and hand-removal strategies. The site is located within a seepage canal that passes through four private properties. This water course acts as a catchment for several irrigation canals in the area and is also influenced by natural spring water inputs. Hand removal was targeted in the upper areas of the canal in 2019 and 2020 with marked decreases of re-growth observed in subsequent years. In 2021, a survey of the entire infestation zone was conducted to monitor plant densities and identify areas where chemical application would be most beneficial. Landowners have been notified and a coordinated application is planned in 2022. ISDA staff will monitor the infestation zone throughout the field season to remove plant materials where encountered and assess areas in need of additional treatments.



Exotic Wood Boring Bark Beetle

As part of USDA's 2021 National EWBB Survey, a total of 39 Lindgren Funnel traps at 22 locations in 16 counties throughout Idaho were installed and monitored. Sites included Forest Service campgrounds, National Forests, tree farms, wood recycler, and urban landscape plantings. In 2021, a variety of 5 different lure combinations were used in the traps. Current year's specimen samples are in the process of being identified. (Report provided by Brian Marschman, Idaho State Plant Health Director, USDA APHIS PPQ)



Pale Cyst Nematode

Idaho's Pale Cyst Nematode Eradication Program:

Production Acres Surveyed: 1,427

Seed Acres Surveyed: 1,636

Number of Counties Surveyed: 8 Counties

Positive: 32 fields (3,542 acres total; one new field was detected in 2021)

Report provided by Tina Gresham, Director, PCN Program, USDA APHIS PPQ

All thirty-two known infested fields are located within an 8.5-mile radius that spans portions of northern Bingham County and southern Bonneville County. PPQ deregulated 1,024 acres of associated fields in 2021. The current regulated area is 6,570 acres; of that total 3,542 acres are infested fields and 3,028 acres are associated fields. Viability staining analyses of cysts from 25 infested fields show no detectable viability. Of these 25 fields, 21 have successfully completed the greenhouse bioassay phase of evaluating eradication progress, making them eligible to return to potato production with certain regulatory controls in place. The remaining four fields have greenhouse bioassays in progress, with final results expected in late 2022 (three fields) and late 2023 (one field). Seven infested fields are working through the eradication process and still show some level of viable PCN in soil samples.

In 2021, potatoes were planted on two infested fields (259 acres, total) that were eligible to return PCN host crop production as part of the in-field bioassay test, the final test that must be passed to declare PCN eradication and deregulate an infested field. This was the first crop for one field and the second crop for the other field since before PCN was detected on those fields. No viable nematodes were detected in soil surveys from the two fields following the 2021 harvest.

PCN Eradication Treatments: The soil fumigant Telone II (1,3-dichloropropene) was applied to 505 acres (5 fields) in 2021. Soil samples were collected from the five fields following treatment to determine treatment efficacy. Although the overall percentage of viable cysts found in soil samples declined following fumigation, cysts collected from four fields indicate that a viable PCN population is still present. Cysts collected from a fifth field were non-viable, enabling that field to advance to the next testing phase, greenhouse bioassay.

The 2021 Annual PCN Research Review was held virtually in February 2021, and was attended by representatives from PPQ, the Idaho State Department of Agriculture, the Idaho Potato Commission, Idaho PCN-infested field owners, and University of Idaho researchers. The researchers reported on ongoing projects such as developing non-chemical PCN eradication tools (trap crops and bio-fumigants), as well as efforts to develop partially and fully PCN-resistant potato varieties.

Outreach: Stakeholder updates (Quarterly Reports) were published to the USDA APHIS PCN website in January, April, July, and October 2021.

Sampling Information: To date, the PCN Program has collected 542,770 soil samples in Idaho (from outside of the 32 known infested fields) to ensure Idaho's freedom from PCN. A total of 191,845 samples have been collected from the eradication fields since 2006 in order to monitor eradication progress and to provide cysts to several institutions for PCN research.

To date, the PCN laboratory in Idaho Falls has screened 672,828 soil samples collected in Idaho and 92,629 samples from other potato producing states. An additional 63,862 samples collected in Idaho were screened at the Idaho Food Quality Assurance Laboratory and the University of Idaho Parma laboratory between 2006 and 2009. There have been no pale cyst nematode detections in the U.S. outside of southeast Idaho. Since program inception in 2006, the PCN Program has analyzed the viability of 1,023 cyst samples collected from infested fields before and after eradication treatments.

Plant Pathology Summary Report

The Idaho State Department of Agriculture Plant Pathology Lab (ISDA-PPL) received a total of 1085 samples (field, seed, regulatory, and submitted). From these samples we ran a total of 3270 tests. This was a slight decrease from 2020.

Included in the totals above, ISDA-PPL examined 130 lots of beans or non-Phaseolus bean seeds for planting in Idaho and / or export. From these lots we ran 772 different tests. Our average turnaround time was 22 days, a decrease from last year. We found 11 lots positive for regulated bacteria. These were as follows: 10 lots were contaminated with *Pseudomonas syringae* pv *syringae*, 1 lot with *Xanthomonas axonopodis* pv *phaseoli*, 1 lot with *Xanthomonas fuscans*, and 1 lots with *Pseudomonas savastanoi* pv *phaseoli*.

ISDA-PPL received 294 seed samples and ran 298 tests on these samples. Our average turnaround time was 44 days. Unfortunately, turnaround time for seed samples increased this year from last. We tested 9 different species of seed for 20 different diseases.

We also tested five nursery samples and 2 potato "year-out" samples. We found nothing of regulatory concern.

615 samples from the field inspection program were tested in the ISDA-PPL. We ran approximately 2012 tests on these samples. The samples came from 10 different crop species. We had an average turnaround time of 16.5 days. This turnaround time was also shorter than last year.

The table below shows the number of fields that were positive for organisms of concern. During the 2021 field season.



Positive Field Sample Results

Crop	Number of Positive Fields	Disease
Alfalfa	5	Alfalfa mosaic Alfamovirus -AMV-
Barley	2	Xanthomonas translucens
Beans	7	Bean Common Mosaic Potyvirus
	4	Pseudomonas Syringae pv Syringae
Carrot	1	Sclerotinia spp.
Corn	58	High plains virus
	10	Ustilago maydis
	4	Wheat streak mosaic Tritimovirus
Flax	1	Verticillium spp.
Lettuce	1	Lettuce mosaic Potyvirus- IMV-
Pea	2	Peronospora Viciae
	8	Pseudomonas Syringae pv PISI
	2	Sclerotinia spp.
Sunflower	1	Sclerotinia spp.

2021 Plant Industries Public Outreach and Educational Presentations

DATE	ISDA STAFF	EVENT	TARGET AUDIENCE
January			
January 14	Bethany Muffley	Aquatic Plant ID/Noxious Weed Conference	Noxious Weed Professionals
January 21	Paul Castroville	Japanese Beetle Presence/Eradication in Idaho	Western Region Cooperators
January 26	Kim Holzer	Avista Weeds	Power Utility
February			
February 23	Nic Zurfluh	GYCC AIS Subcommittee	Stakeholders
February 26	Nic Zurfluh	GYCC AIS Subcommittee	Stakeholders
March			
March 1	Bethany Muffley	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
March 1	Cole Morrison	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
March 1	Paul Castroville	Sharing the World with Bugs	Students
March 9	Paul Castroville	Sharing the World with Bugs	Mater Naturalists
March 16	Nic Zurfluh	Idaho Legislature – Ag House	Legislature
March 16	Nic Zurfluh	Idaho Legislature – Ag Senate	Legislature
March 17	Bethany Muffley	Social Media Applications for natural resource managers	USFS, IDL Staff & Public
March 17	Kahla Montrose	Intro to Invasive species and Noxious weeds	Students
March 19	Bethany Muffley/ Jeremey Varley	Blue Heart Treatment	Plannin Group
March 31	Paul Castroville	Adventures with Japanese Beetle/Asian Giant Hornet in Idaho	Students
April			
April 1	Cole Morrison	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
April 1	Kim Holzer	University of Idaho/ FISH/WLF 102	UI Undergraduates
April 7	Paul Castroville	We Found Japanese Beetle in Idaho	ESA Members
April 9	Bethany Muffley	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
April 13	Kim Holzer	Hayden Lake Watershed	Hayden Lake Stakeholders
April 15	Paul Castroville	Sharing the World with Bugs	Mater Naturalists
April 20	Bethany Muffley	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
April 22	Bethay Muffley	Aquatic Plant ID	McCall Mater Naturalists
April 23	Nic Zurfluh	IS/Nox Rulemaking	Rulemaking
April 23	Paul Castroville	Sharing the World with Bugs	Mater Naturalists
May			
May	Cole Morrison	Henry's Fork Foundation	Public Stakeholders
May 1	Cole Morrison	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
May 4	Kim Holzer	Selkirk CWMA	County Weed Superintendentants
May 4	Paul Castroville	You Can Be A Citizen Scientist	BSU Staff/Students
May 6	Bethany Muffley	Watercraft Inspection Protocols	Marine Deputy Training
May 6	Nic Zurfluh	IDPR Marine Deputy	Trainig
May 11	Nic Zurfluh	Lakes Commission Meeting	Stakeholders
May 12	Paul Castroville	Sharing the World with Bugs	Mater Naturalists
May 14	Nic Zurfluh	Canadian CRB AIS Committee	Stakeholders
May 19-20	Cole Morrison	Bow Fishing Tournament/Booth	Public

2021 Plant Industries Public Outreach and Educational Presentations

May

May 20	Jennifer Roman	Pend Oreille Water Festival	Soil & Water Conservation District
May 20	Kim Holzer	Inland Empire CWMA	County Weed Superintendents
May 21	Jennifer Roman	Pend Oreille Water Festival	Soil & Water Conservation District
May 21	Nic Zurfluh	IS/Nox Rulemaking	Rulemaking

June

June 4	Behtany Muffley	Watercraft Inspection Protocols	Watercraft Inspection Station Staff
June 10	Cole Morrison	Weed Warrior Workshop	County/Federal Staff
June 10	Nic Zurfluh	Columbia river Basin Team Meeting	Stakeholders
June 18	Nic Zurfluh	IS/Nox Rulemaking	Rulemaking
June 22	Paul Castrovillo	Insects in the Ecosystem/the effects of Invasive Pests	Students
June 26	Paul Castrovillo	Bee City Pollinator Celebration	Public

July

July 7	Kim Holzer	Joint Permit Application Coordination	State Staff
July 22	Bethany Muffley	Watercraft Inspection Protocols	P of E Training
July 27	Paul Castrovillo	Watching for Murder Hornets	Treasurve Valley Beekeepers

August

August	Cole Morrison	Identification/Control of Aquatic weeds	County Weed Superintendents
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September

September 5	Cole Morrison	Eastern Idaho Fair/Booth	Public
September 8	Bethany Muffley	Intro to Invasive species and Noxious weeds	Watershed Watch Train the Trainer
September 15	Bethany Muffley	Intro to Invasive species and Noxious weeds	Watershed Watch Train the Trainer
September 16	Nic Zurfluh	NW Invasive Species Climate Change	Stakeholders
September 29	Kahla Montrose	GH/MC Control	Jordan Valley Landowners

October

October 4	Kim Holzer	Avista Wetlands	Power Utility
October 19	Bethany Muffley	Noxious Weeds and Invasive Species	Boise Metro Rotary
October 21	Kim Holzer	Trail of the Coeur d' Alenes	Trial Commission
October 22	Kim Holzer/Jennifer Roman	The Confluence Project	Students

November

November 9	Kim Holzer	Avista Weeds Outreach Project	Power Utility
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December

December 6	Bethany Muffley	Inspection Stations & Aquatic Plant ID	Elmore County Pesticide Recertification
December 6	Kim Holzer	Avista Wetlands	Power Utility
December 15	Darcy Heckathorne	Idaho Invasive Species Council Update/2021 Pest Surveys	Idaho Invasive Species Council
December 15	Nic Zurfluh	IISC	Stakeholders
December 15	Nic Zurfluh	Canadian CRB AIS Committee	Stakeholders
December 16	Nic Zurfluh	GYCC AISSubcommittee	Stakeholder



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