The Idaho Invasive Species Strategic Plan

2017-2021




EXECUTIVE SUMMARY

Invasive species introduced into Idaho are affecting plant and animal communities on farms, ranches, parks, waters, forests, natural areas, and in backyards. Human activity such as trade, travel and tourism have all increased substantially, escalating the speed and volume of species movement to unprecedented levels. That's why as Idahoans we must be cautious about the invasive species we allow to move into and around our state.

Invasive species are often unintended hitchhikers on conveyances, animals, and people. Still more non-native species are deliberately introduced as pets, ornamental plants, crops, biofuels, food, for recreation, or other purposes. Most non-native species brought into Idaho, including most of our sources of food and fiber, are not harmful; many are highly beneficial. However, a small percentage of introduced non-native species do cause great harm to the environment and the economy of the state.

Non-native species, including their seeds, eggs, spores, larvae or other biological material capable of propagation, that cause economic or environmental harm and are capable of spreading in the state are collectively known as invasive species in Idaho.

The cost of controlling and managing invasive species in Idaho is millions of dollars per year. Science and common sense tell us that it is cheaper and more effective to prevent invasive species invasions than to manage them once established. We must focus our limited resources on preventing invasions or treating to eradicate them early in the invasion.

This strategic plan outlines a framework for how Idaho can continue at the forefront of state efforts to cost-effectively prevent and manage invasive species.

THIS STRATEGY FOCUSES UPON THREE GOALS:

- **PREVENT** THE INTRODUTION OF NEW INVASIVE SPECIES TO IDAHO.
- **LIMIT** THE SPREAD OF EXISTING INVASIVE SPECIES POPULTIONS IN IDAHO.
- **ABATE** ECOLOGICAL AND ECONOMIC IMPACTS THAT RESULT FROM INVASIVE SPECIES POPULATIONS IN IDAHO.

INTRODUCTION

Idaho's first ***Strategic Plan for Managing Noxious Weeds*** (1999) was published as a result of the Governor's Weed Summit held in 1998. This forward-thinking plan set into motion a wide variety of efforts to coordinate weed management in Idaho. This plan sparked the nationally-recognized Cooperative Weed Management Area (CWMA) concept and established the Idaho Weed Coordinating Committee (IWCC). The IWCC updated the ***Strategic Plan for Managing Noxious Weeds*** in 2005, and continues to strive to promote cooperation among participating agencies and entities.

In 2005, the newly-established Idaho Invasive Species Council (IISC) prepared ***Idaho's Action Plan for Invasive Species*** for then-Governor Kempthorne. In the past five years, the Council and partners have completed many of the tasks laid out in the Action Plan. Idaho now has a comprehensive Invasive Species Law, a dedicated Invasive Species Fund and a progressive statewide prevention program.

The 2012 Invasive Species Strategic Plan has successfully guided the noxious weed and invasive species programs for the last five years. Idaho has met many of the objectives established in this plan. In addition, Idaho's programs have become a model for many western states. This 2017 strategy aims to build off those successes and develop an "all taxa" blueprint for the next five years.

Two other related plans interconnect with this effort. Idaho's Rapid Response Plan For Early Detection of Dreissenid Mussels (2015) guides the states response in the event that zebra or quagga mussels are detected in Idaho. Idaho's Strategic Plan for Biological Control of Noxious and Invasive Weeds (2008-2018) identifies five program goals developed by local, state, and federal partners.

The 2017-2021 Invasive Species Strategy (2017 Strategy) is not intended to replace other existing state invasive species and noxious weed plans. They are referenced heavily in this document, and provided

valuable technical guidance in the development of the 2017 Invasive Species Strategy. The major plan elements align well, and the plans should be considered complementary in nature.

Invasive species issues span geographic boundaries in Idaho; thus efforts to prevent and manage invasive species must be coordinated across taxa and jurisdictional boundaries. The 2017 Strategy will guide efforts (including overall cross-taxa strategies and objectives) to prevent, control, and minimize invasive species and their impacts in Idaho over the next five years.

Inspection of an oversized watercraft at the Cedars Inspection Station in North Idaho.

Image: Courtesy of ISDA

BACKGROUND

Invasive species, including weeds, are often unintended hitchhikers on conveyances and people. Still more non-native species are deliberately introduced as pets, ornamental plants, crops, biofuels, food, for recreation, or other purposes. The vast majority of non-native species brought into Idaho, including most of our sources of food and fiber, are not harmful; many are highly beneficial. However, a small percentage of introduced non-native species do cause great harm to the environment and the economy of the state.

Non-native species, including their seeds, eggs, spores, larvae or other biological material capable of propagation, that cause economic or environmental harm and are capable of spreading in the state are collectively known as ***invasive species*** *in Idaho.*

The Idaho definition includes many types of species such as animals, plants, and microorganisms. It focuses upon invasive species which are harmful, rather than focusing on non-native species, most of which are not harmful. It does not include crops, improved forage grasses, domestic livestock, or other beneficial non-native organisms.

Invasive species prey upon, crowd out, displace, or otherwise harm native species. Some invasive species also alter ecosystem processes, transport disease, interfere with crop production, or cause disease in animals; affecting both aquatic and terrestrial habitats. For these reasons, invasive species are of local, state, national, and global concern.

Leafy Spurge: Courtesy of Dale Morlan

There are a number of regional and statewide organizations involved in the management of noxious weeds and invasive species across Idaho. Organizations such as the Idaho Weed Control Association (IWCA), the Idaho Weed Coordinating Committee (IWCC), the Idaho Association of Weed Control Superintendents (IAWCS), the Idaho Invasive Species Council (IISC), the Columbia River Basin (CRB) Aquatic Invasive Species team, the Western Weed Coordinating Committee (WWCC), the Western Regional Panel (WRP) on Nuisance Species, the Pacific Northwest Economic Region (PNWER) and the Western Governors' Association (WGA) all work together to provide cohesive invasive species management.

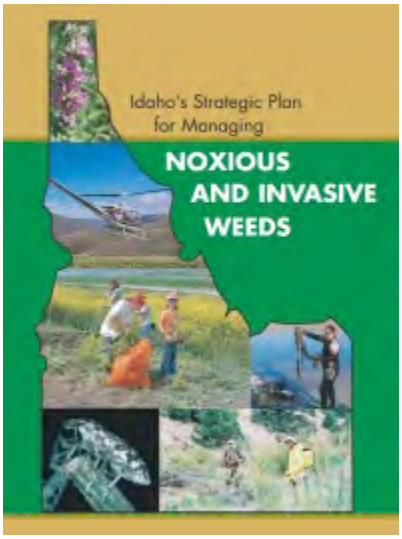
The IWCA was formed in 1929 and promotes responsible weed management stewardship through education, communication, and public policy. The IWCA maintains an active membership and networks with appropriate organizations (state and federal agencies, county superintendents, universities, and industry) to develop professional relationships.

The IAWCS coordinates information sharing, education, and professional development among county weed control superintendents. IAWCS works closely with county government officials, state and federal agencies, and private landowners to control and eliminate noxious weeds at a local level.

The IWCC was created in 1999. Membership includes county, state, and federal agencies, IWCA, IAWCS, Nez Perce Tribe, University of Idaho, Idaho Association of Counties, and The Nature Conservancy. The purpose of this group is to discuss and report to IWCA on issues, laws, and policies regarding noxious weeds in Idaho.

The Idaho Weed Awareness Campaign (IWAC) was created in 2001 by the IWCC. Its mission is public awareness and education to help people understand the economic and environmental impacts of noxious weeds and support integrated weed management. IWAC encourages the general public to develop and participate in invasive weed eradication and management programs, and to assist in preventing the spread of invasive weeds.

Idaho's first Strategic Plan for Managing Noxious Weeds (1999) was published as a result of the Governor's Weed Summit held in 1998. This forward-thinking plan set into motion a wide variety of efforts to coordinate weed management in Idaho. This plan sparked the nationally recognized CWMA concept and established the IWCC.

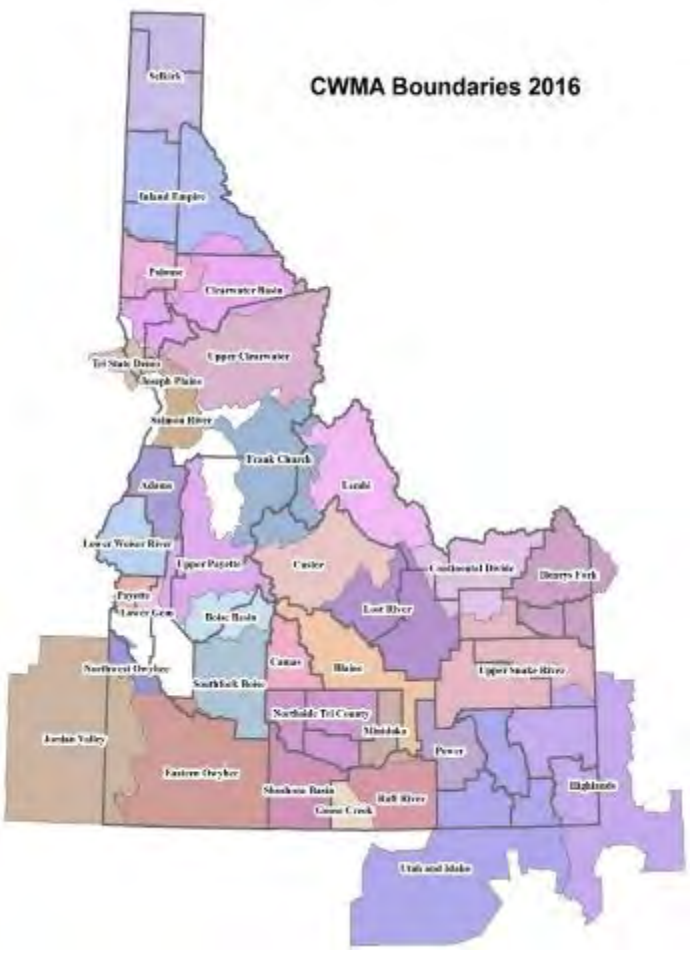


COOPERATIVE WEED MANAGEMENT AREAS

Courtesy of Jordan Valley CWMA

CWMAs form the basic local unit for cooperation in invasive weed management in the state of Idaho. CWMAs are organizations that integrate noxious weed management goals and resources across jurisdictional boundaries. CWMAs provide the mechanism that allows federal, state, and local agencies and other landowners to set common goals and priorities for the prevention and management of invasive weeds and pool resources to meet noxious weed management goals.

The primary concept behind creating a CWMA is to share resources ranging from simple hand tools to years of experience and knowledge gained by a variety of partners. Once these "resources" are combined, they create a unique synergy that allows the group to develop common goals and focus on how projects over a landscape comprised of multiple ownerships can be implemented utilizing the tools and resources available from all of the CWMA participants.



Courtesy of Jason Parker Twin Falls County Weed Control

One of the most prominent benefits of a CWMA is the success that these groups have in removing communication barriers between the federal, state, county, city, and private sectors. Nearly 90 percent of the land area of the state falls within Idaho's 35 established CWMAs.

While every CWMA is structured differently to suit local needs, there are some basic components that each group shares. CWMAs are based on the development of a common agreement that defines:

- Land area covered by the CWMA Partners or membership
- Legal authorities of agencies and landowners for management of invasive weeds
- Steering committee and leadership
- A strategic plan with goals, objectives, and priorities
- Annual operating plans describing activities, responsibilities, and reporting

This agreement is usually formalized through a Memorandum of Understanding or similar agreement signed by the CWMA participants. Management of the organization is carried out by a chairperson and steering committee of key individuals who represent the CWMA partners. The steering committee ensures that all parties have a venue for input and that annual activities focus on priorities laid out in the strategic plan.

CWMAs have been widely recognized nationally as a model for organizing effective weed management programs at the local level. They bring together all interested and concerned parties in a geographic area for the purpose of combining expertise, energy, and resources to deal with common problems.

INVASIVE SPECIES PROGRAM

Image: Courtesy of ISDA

The Idaho Invasive Species Program was initiated in 2005 to improve the coordination of activities within the State. The Idaho Invasive Species Council (IISC) was established by Executive Order (E.O. 2001 -11) in 2001 and has been renewed several times. The IISC currently operates under Executive Order No. 2010-14. Membership includes representatives from state agencies, federal land management agencies, tribal governments, Idaho universities, and private and not-for-profit organizations with an interest in invasive species.

The Invasive Species Program coordinates efforts throughout Idaho by working with state and federal agencies, local governments, tribes, and non-governmental organizations to address the state recommendation to "ensure that a comprehensive invasive species program in Idaho is not diluted by competing efforts among various agencies."

The Idaho Invasive Species Law (Title 22 Chapter 19 Idaho Code) was enacted by the Legislature in 2008. The intent of this law is to address the increasing threat of invasive species in Idaho by providing policy direction, planning, and authority to combat invasive species and to prevent the introduction of new invasive species to the state. This law establishes the duties of the ISDA and its Director, authorizes the ISDA Director to promulgate rules, and gives authority to conduct inspections as necessary. It also establishes the Idaho Invasive Species Fund (IISF).

The Invasive Species Prevention Sticker Rules (IDAPA 26.01.34) were enacted by the Legislature in 2009. They require motorized and non-motorized boats to have an Invasive Species Sticker to launch and operate on Idaho's waters. The sticker program is administered by the Idaho Department of Parks and Recreation. Revenue generated by this

program is deposited in the IISF. The IISF is administered by the ISDA. While the sticker program and the invasive species programs are linked through the IISF, the programs are independent in nature.

Through revenue generated by the Invasive Species Prevention Sticker Law, ISDA developed a comprehensive statewide prevention program designed to educate the public about invasive species, monitor Idaho water bodies for possible introduction of those species, and inspect and decontaminate watercraft that travel to and through Idaho. In 2016, ISDA launched an updated website to promote invasive species education and to share invasive species program information:

www.invasivespecies.idaho.gov

Image: Courtesy of ISDA

Image: Courtesy of ISDA

THE 2017-2021 STRATEGY

This document is an update and revision of the 2012-2016 Idaho Invasive Species Strategic Plan. The 2017 Strategy will direct efforts, including overall objectives, to prevent, control, and minimize invasive species and their impacts for the next five years. Agency staff, stakeholders, and other experts have provided input in drafting this revision.

Federal, state, local, and tribal governments, as well as organizations in the private sector, have taken significant steps to meet the challenges posed by invasive species. These steps set the stage for the 2017 Strategy and provide direction and focus.

Awareness of the problems caused by invasive species has dramatically increased in the last five years as evidenced by increased activity at federal, state, and local levels. More than 30 states now have invasive species or invasive plants councils. Local governments and citizens groups of all types are active in weed and invasive species prevention, control and education. Despite the significant increase in activity and awareness, much remains to be done to prevent and mitigate the problems caused by invasive species.

Quagga Mussels: Courtesy of ISDA

Eurasian Watermilfoil: Courtesy of ISDA

THE STRUCTURE OF THE 2017 STRATEGY

The 2017 "all taxa" Invasive Species Strategy is focused upon three strategic "**Goals.**"

Goals:

Prevent the introduction of new invasive species to Idaho.

Limit the spread of introduced invasive species in Idaho.

Abate ecological and economic impacts that result from invasive species populations in Idaho.

Each Strategy is structured around **Objectives** that are used to accomplish **Goals.**

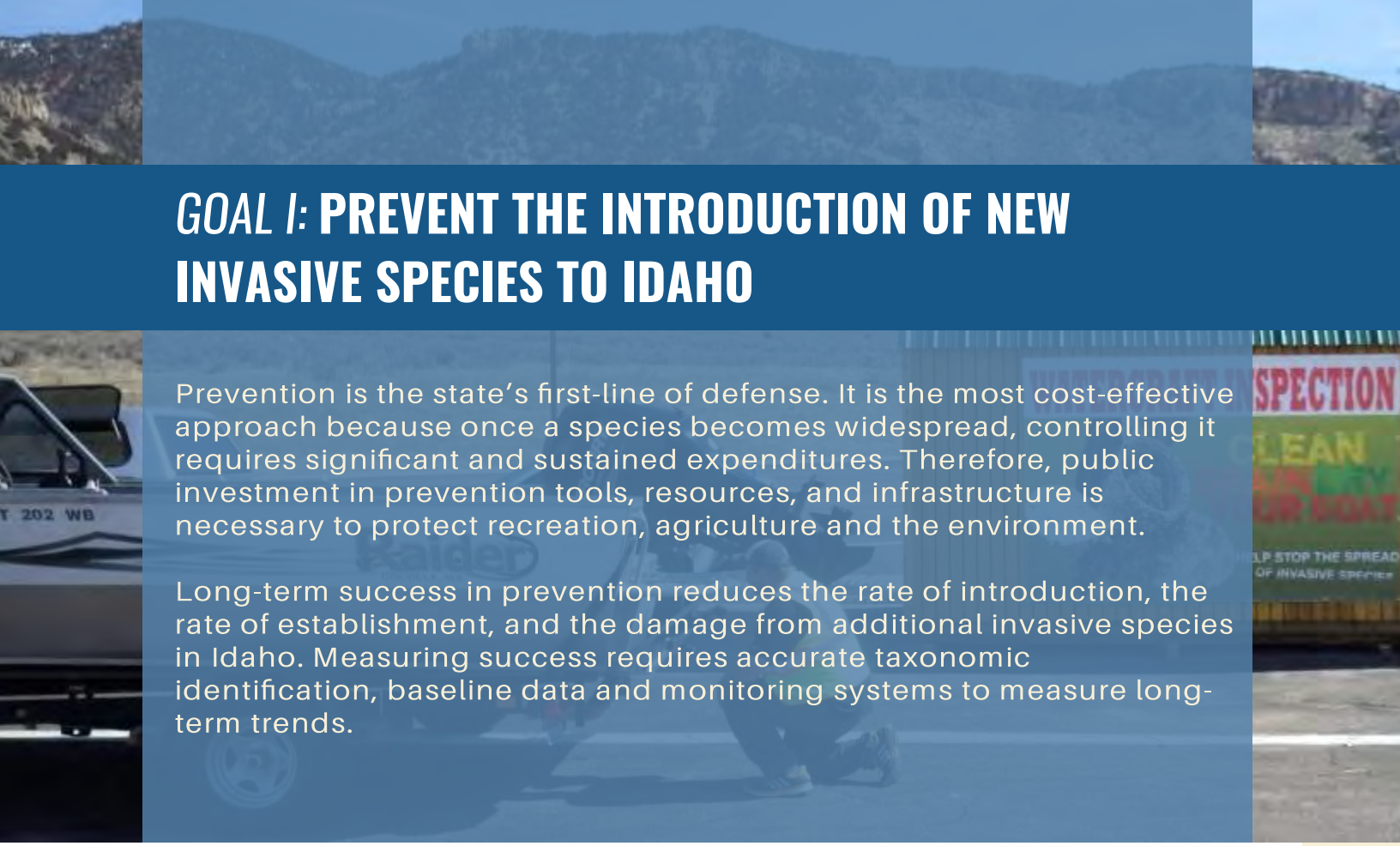
Each **Objective** has respective **Action Items** to describe what agencies and organizations expect to do in order to

GOALS

OBJECTIVES

ACTION ITEMS

Note: The 2017 Strategy is not a comprehensive list of all possible invasive species actions that need to be taken in Idaho. Rather, the 2017 Strategy outlines achievable objectives and concrete action items to complete in the next five years. The 2017 Strategy was developed in conjunction with a variety of organizations and stakeholders and aims to address information voids, coordination gaps, funding issues, and technical constraints.



GOAL I: PREVENT THE INTRODUCTION OF NEW INVASIVE SPECIES TO IDAHO

Prevention is the state's first-line of defense. It is the most cost-effective approach because once a species becomes widespread, controlling it requires significant and sustained expenditures. Therefore, public investment in prevention tools, resources, and infrastructure is necessary to protect recreation, agriculture and the environment.

Long-term success in prevention reduces the rate of introduction, the rate of establishment, and the damage from additional invasive species in Idaho. Measuring success requires accurate taxonomic identification, baseline data and monitoring systems to measure long-term trends.

OBJECTIVE IA: ENCOURAGE REGIONAL COOPERATION AND COORDINATION

There are many important groups working on regional invasive species goals including the Western Weed Coordinating Committee, the Western Regional Panel on Aquatic Nuisance Species, the Pacific Northwest Economic Region, the Columbia River Basin Team on Aquatic Nuisance Species and the Northern Rockies Invasive Plant Council. The Strategy's goal is to foster cooperation and coordination to protect Idaho's environment and minimize social and economic impacts caused by invasive species.

A number of groups coordinate efforts at the national level. For example, the National Plant Board, the Weeds Across Borders organization, The Federal Interagency Committee for the Management of Noxious and Exotic Weeds, the National Invasive Species Council, the Aquatic Plant Management Society, the Weed Science Society, and the North American Invasive Species network all work to foster effective, efficient, and harmonized programs; to act as an information clearinghouses; and to encourage coordination and collaboration with state, federal, and international agencies.

Because many harmful species hitchhike in packing materials and shipping containers, international coordination is also essential. The issue of invasive species is global in nature and efforts to manage our borders likely will depend on more effective global strategies to manage pathways. Idaho is home to two international border crossings with Canada and a seaport at the Port of Lewiston.

Federal agencies such as the Department of Homeland Security's Customs and Border Protection and the Department of Agriculture's Animal Plant and Health Inspection Service contribute greatly, conducting inspections and risk assessment at border entries.

Image: Courtesy of ISDA

ACTION ITEMS FOR OBJECTIVE IA:

- Build and sustain effective multi-jurisdictional partnerships and outreach programs for collaborative and coordinated management of invasive species in Idaho and surrounding jurisdictions.
- Support the use of coordination success models such as cooperative weed management areas and regional coordination entities to expand multi-taxa efforts.
- Work cooperatively with neighboring states and Canadian provinces to share information related to invasive species distributions and identify emerging threats in the region.
- Work cooperatively to prevent the expansion of invasive species from Idaho to neighboring states and provinces.

- Initiate reciprocity agreements for prevention programs with other western states, tribes, and Canadian provinces.
- Work cooperatively with neighboring states and provinces to standardize prevention protocols and reduce redundancy of efforts.
- Explore the possibility of establishing Regional Cooperative Invasive Species Management Areas (CISMAs) for the coordinated management of multi-taxa.
- Encourage regional committees and local governments to share issues and coordinate management across jurisdictional boundaries through meetings, trainings, and other forms of communication with bordering states, tribes, and Canadian provinces.
- Help secure stable, long-term funding, resources, and staffing for coordination of partnerships and outreach programs.
- Clearly define the roles and responsibilities of all relevant government and resource agencies, affiliated groups, and individuals.
- Increase public awareness of the impacts of invasive species and the importance of prevention, detection, and control.
- Promote the application of coordinated research to improve identification and control of key EDRR invasive species.
- Provide for well-trained agency personnel that engage in invasive species detection and control activities statewide.
- Coordinate with western states that have mussel populations and identify regional resources that can support mandatory decontamination and mussel containment with particular focus on moored watercraft.

Hydrilla: Courtesy of the ISDA

OBJECTIVE IB: DETERMINE SPECIES THAT SHOULD BE EXCLUDED FROM THE STATE

The state needs reliable information on emerging threats and newly introduced species arriving here. Without it, intervention is not likely to be timely or successful. Early detection of new infestations requires vigilance and regular monitoring of managed areas and surrounding ecosystems. A prompt and coordinated response to a new species increases the chances of a successful eradication, or can reduce environmental and economic impacts, reduce management costs, and result in less damage to the state's resources.

Government agencies charged with protecting Idaho's borders do an admirable job with available resources. However, the state remains vulnerable to new threats. New invaders continue to arrive in the region. A cohesive, statewide strategy to identify new species and prevent their establishment will enhance the efforts of all groups and agencies working to maintain the biological health and richness of Idaho. Stopping an invasive species (either before it reaches the state, or shortly after it arrives) is far less expensive than trying to remove the invader once it becomes established.

In order to effectively prevent new invasive species from becoming established in Idaho, it is important to know which species have the potential to cause economic and environmental harm. Although lists of potential "bad" species become outdated as advances in science are made and unintentional introductions occur, this objective will provide guidance to resource managers as to which species should be targeted for prevention efforts.

Scotch Broom: Courtesy of Eric Coombs, Oregon Department of Agriculture, Bugwood.org

ACTION ITEMS FOR OBJECTIVE IB:

- Evaluate and recognize current methods for preventing the introduction and spread of invasive species.
- Evaluate prohibited species lists of other western states.
- Develop lists of species that are invasive elsewhere and should be monitored and/or prevented from being introduced to Idaho. These lists should be reviewed annually by taxonomic experts to assure they represent the most up-to-date information.
- Review statutory authorities related to prohibited species in Idaho.
- Review and update biofuel and trap crop species to determine risk.

OBJECTIVE IC: UNDERSTAND PATHWAYS FOR SPECIES TO ENTER THE STATE.

Pathways are the means by which species are transported from one location to another. Natural pathways such as wind, currents, and other forms of dispersal are morphological and behavioral characteristics that a species has developed and used. Man-made pathways are those pathways which are enhanced or created by human activity. These are characteristically of two types.

The first type is intentional, which is the result of a deliberate action to translocate an organism. Examples of intentional introductions include the intended movement of living seeds, whole plants or pets. The second type of a man-made pathway allows organisms to be moved unintentionally. Examples of unintentional pathways are bilge water on watercraft, soil associated with the trade of nursery stock, movement of firewood, and the movement of people.

Image: Courtesy of ISDA

ACTION ITEMS FOR OBJECTIVE IC:

- Develop a pathways assessment for each of the following:
  - The travelling public
  - Anglers/fishing tournaments
  - Wakeboard and water skiing competitions
  - Equipment (gold dredges, used docks, construction equipment, etc.)
  - Recreationalists (ATVs, boats, campers)
  - Pet stores
  - The pet trade
  - Aquarium stores
  - Gardening centers
  - Biomass/green industry
  - Landscape architects/city planners
  - Teachers
  - Aquaculture/fish stocking
  - Commercial watercraft haulers
  - Marinas and moorage facilities
  - Internet commerce
  - Firefighting operations
  - Gear manufacturers
  - Boat manufacturers (motorized and non-motorized)
- Conduct a gap analysis of pathways to identify those in need of greater protection.
- Determine if establishing "Zones" in the state would facilitate prevention efforts.
- Work with partners to identify gaps in protection; close gaps in regulatory authority, funding, and other areas.
- Explore the potential to establish cross-taxa invasive species inspection stations.

OBJECTIVE ID: DEVELOP TARGETED EDUCATION/ OUTREACH MESSAGES AND TOOLS

Everyone living in Idaho has a stake in reducing the harmful effects of invading plants and animals. Ultimately, the success of Idaho's strategic plan to address this growing problem will hinge on the collaborative efforts of public agencies and active participation by the public. Landowners, business owners, boaters, gardeners, consumers, travelers, and others must grasp the problem and support solutions to protect the state's valuable resources.

ACTION ITEMS FOR OBJECTIVE ID:

- Prioritize pathway audiences based on risk.
- Develop an outreach strategy for each pathway audience listed above.
- Develop partnerships that facilitate effective outreach programs within each audience (i.e., specialized messages for the pet trade, internet commerce, recreational boaters, the horticultural industry, campers).
- Implement a Don't Let it Loose program to help educate pet owners and provide a resource for pet returns.
- Review statutory authorities for measures that can be taken to address how each stakeholder group can effectively participate in preventing the spread of invasive species into the state.

Image: Courtesy of ISDA

OBJECTIVE IE: CONTINGENCY PLANNING FOR "HIGH RISK" SPECIES

The chance of eradicating a new population of a highly invasive species are small and depends directly on the ability to respond quickly, effectively and as soon as possible. As an example, there is an urgent need to develop control technologies for species such as zebra and quagga mussels in Idaho's systems. Water managers in impacted western states (CA, NV, AZ, and TX) have been forced to scramble to develop control technologies within water delivery infrastructure systems. This work began shortly after the discovery of the mussels in the Lake Mead National Recreation Area in 2007. Unfortunately, control options for lakes, rivers, and naturally flowing river systems are poorly-developed. To date, there are very limited control technologies available for use outside of closed (infrastructure-type) systems, and Idaho would not have many options for a rapid response.

ACTION ITEMS FOR OBJECTIVE IE:

- Use a risk assessment to evaluate potential pest species and determine threats to Idaho.
- Develop contingency plans for "High Risk" species and/or pathways.

Salmon Falls Creek Reservoir: Courtesy of ISDA

GOAL 2: LIMIT THE SPREAD OF INTRODUCED INVASIVE SPECIES IN IDAHO

Even the best prevention efforts cannot stop all invasive species from gaining a foothold in Idaho. Early detection and rapid response (EDRR) is a critical second defense against invasive species. EDRR increases the likelihood that localized populations will be found, contained and eradicated before they become widely established. EDRR can slow expansion of invasive species infestations and avoid the need for costly long-term control efforts.

Rapid response activities may address totally new introductions into Idaho or range expansions of previously established species. Timeliness is key to EDRR. It is critical to quickly mobilize resources to control an infestation before it becomes more widely established.

Effective EDRR depends upon the timely ability to answer critical questions such as:

- What is the species of concern, and has it been authoritatively identified?
- Where is it located and where is it likely to spread?
- What harm may the species cause?
- What actions (if any) should be taken?
- Who has the needed authorities and resources?
- How will efforts be funded?

EDRR requires collaboration among state, federal, tribal, and local governments, nongovernment organizations, and the private sector. The ability to conduct EDRR has improved and a great deal is being accomplished in CWMAs.

In order to conduct EDRR, incipient invasive species populations must first be found. Specimens have to be authoritatively identified, and the boundaries of the infestations determined. These essential early detection efforts require resources, planning, and coordination. Invasive species are often detected by chance, but they can also be detected by trained individuals monitoring specific areas. Spatial data and other ecological information are critical to planning and response actions.

EDRR also includes actions necessary to determine the appropriate response. The process identifies the invasive species interdiction options, timing, and overall strategy for response. Contingency planning that anticipates invasions and coordinates efforts across jurisdictions greatly expedites response efforts.

Many rapid response efforts are led by CWMAs working with private landowners in Idaho. However, invasions can rapidly overwhelm local resources. The ability to share resources across jurisdictional boundaries, form strategic partnerships, and have "ready" access to plans, funds, and technical resources are critical components of this Strategic Goal.

OBJECTIVE 2A: EFFECTIVE MONITORING AND SURVEILLANCE

Idaho has effective programs in place to monitor and respond to many invasive species. However, there are many others for which there is little understanding of the nature and extent of the infestations and the necessary tools to address them. Without such knowledge, it is difficult to fully define the scope of the problem and the state's capacity to respond.

There is a need to compile existing information and conduct a baseline assessment of spatial information for invasive species in Idaho. The baseline will provide an analysis of the worst invasive species in the state, the pathways and areas most affected, and resources most at risk.

Systemic monitoring is an important component of the state's Early Detection and Rapid Response (EDRR) program. In the event that zebra or quagga mussels are found in the state, early detection will be important to the potential for successful eradication. Idaho's waterbodies have been prioritized base on calcium levels, number of boat launches, level of use and threats to endangered species. Prioritization is a tool that is used to focus limited resources on areas that have the highest likelihood of a mussel introduction.

ACTION ITEMS FOR OBJECTIVE 2A:

- Compile information on species locations and programs in place.
- Conduct a gap analysis of existing surveillance efforts. Use the results from the pathway gap analysis and the state risk assessments to focus surveillance efforts.
- Establish a reporting procedure for species new to the state.
- Establish rotating all-taxa monitoring protocols for Idaho's landscapes and waters.
- Work cooperatively with neighboring states to identify and contain emerging pest problems.
- Train agency staff and the public to identify key species.
- Engage volunteer groups and organizations and extension programs such as garden clubs, ATV users, anglers, hikers, hunters, horsemen, boaters, and other users of natural areas to detect and recognize invasive species.
- Build a database of taxonomic experts and make it available online.
- Engage a national network among landowners, public land managers, conservation organizations, botanists, scientists, the academic and research community, and weed organizations to report new invasive species populations.
- Encourage research opportunities to determine or forecast conditions that make systems vulnerable to introduction or establishment of invasive species; and establish risk assessment procedures to determine invasive potential of new species to the state.
- Engage the horticultural industry and the pet trade in preventing the spread of invasive species by discouraging the sale, promotion, or transportation of invasive species and monitor direct mail marketing and internet sales of invasive species.
- Train relevant county, state and federal agency personnel in decontamination technologies and techniques.

Watercraft Inspection Training: Courtesy of Jinwon Seo with Duck Valley Indian Reservation

OBJECTIVE 2B: CONTINGENCY PLAN IMPLEMENTATION

Managers need to respond quickly and efficiently to prevent the spread of a newly-introduced invasive species. Precious time can be lost during the process of determining authority or funding, obtaining permits, and coordinating responses. In addition, managers may not have access to the tools needed to respond with the utmost effectiveness and least amount of environmental disturbance and cost. There is a need to enhance communication channels to facilitate rapid responses, when needed.

ACTION ITEMS FOR OBJECTIVE 2B:

- Increase and enhance communication to ensure coordinated approaches are supported and tools are accessible to address an emerging pest issue.
- Ensure that the permitting process is understood and processes are expedited to enable quick responses for all likely control actions.
- Clarify jurisdiction and authority between federal, county, and state agencies to support coordination across boundaries.
- Bring together federal, tribal, and environmental protection entities; industry stakeholders; private land owners and state and local coordinators to develop a process for coordination.
- Enhance capacity to respond to invasive species by improving agencies' access to emergency funding and building on existing efforts to develop an interagency early detection and rapid response network.
- Conduct an EDRR rapid response exercise to prepare for a zebra / quagga mussel detection.

Image: Courtesy of ISDA

OBJECTIVE 2C: CLOSE PATHWAYS FOR ADDITIONAL POPULATIONS, OR SPREAD OF INCIPIENT POPULATIONS INTO NON-IMPACTED PARTS OF THE STATE

Once a new invasive species arrives in Idaho, it is important to understand the pathway by which it arrived. This is important to prevent additional inoculations and to prevent the species from spreading from the point of introduction to non-impacted parts of the state. This can be seen as the in-state version of prevention.

ACTION ITEMS FOR OBJECTIVE 2C:

- Identify the pathway that supported the new infestation and that will allow for expansion to additional areas.
- Identify and implement the actions needed to eliminate or manage these pathways.
- Train "non-traditional" groups and agency personnel to identify key species and prevent their spread within Idaho. Collect data from invasive species possession and transport permitting process to better understand actions that can be taken to minimize the movement of high-risk materials within the state.
- The following are examples of actions that might be implemented for an aquatic species pathway associated with sports fishing and state and federal management of aquatic resources:
  - Adopt disinfection procedures for field gear for all state and federal agency field personnel.
  - Train relevant county, state and federal agency personnel in procedures to adequately decontaminate field equipment and gear.
  - Train firefighting professionals on decontamination protocols.
  - Encourage the establishment and use of "boot washing" stations at high use wading angler public access points.
  - Collect data from invasive species possession and transport permitting process to better understand actions that can be taken to minimize the movement of high risk materials within the state.

GOAL 3: ABATE ECOLOGICAL AND ECONOMIC IMPACTS THAT RESULT FROM INVASIVE SPECIES POPULATIONS IN IDAHO

Eradication of an invasive species that is already widespread may not be feasible. Widespread invasive species are subject to control and management efforts that slow the rate of range expansion and lessen the environmental and economic impacts of invasive populations.

Invasive species can span geographic and jurisdictional boundaries. Their control and management requires communication and coordinated action across jurisdictions. Information on the distribution, abundance, rates of spread, and impacts is critical to containing invasive species.

Impacts of terrestrial invaders differ from those of aquatic species, and impacts also differ from taxon to taxon. Understanding the ecological, economic, and social impacts of invasive species is important in prioritizing control and management operations. A variety of control and management tools are needed to assess, remove and contain invasive species populations and guide management decisions. These tools should be applied within coordinated and integrated invasive species management strategies.

OBJECTIVE 3A: EFFECTIVE MANAGEMENT

Management of invasive species focuses on reducing their impacts as cost effectively as possible using an integrated pest management (IPM) approach. Management may involve eradication of the pest species, repeated reductions of pest numbers for periods of time, lasting reductions of pest numbers, or exclusion of the species from an area. Control methods for invasive plant species include chemical, biological, manual, cultural, and physical control. Conventional techniques for control of invasive animals include chemical and physical controls, fencing, and trapping.

ACTION ITEMS FOR OBJECTIVE 3A :

- Prioritize weeds and invasive species on a local basis to focus control efforts on the most urgent threats.
- Encourage cross-jurisdictional area-wide invasive species management programs.
- Secure adequate permanent funding to manage existing pest populations.
- Use IPM techniques to control established invasive species populations, when possible.
- Support research on developing effective site-specific control technologies for invasive species.
- Establish local, state, federal, and tribal partnerships to effectively manage existing populations.
- Encourage regional and local programs to share issues, ideas, control efforts and management plans across jurisdictional boundaries through meetings, trainings and other communications with bordering states, tribes and Canadian provinces.
- Support foreign and domestic research on biological control agents for established invasive species.

Suction removal of Hydrilla from the Bruneau River, Idaho.

OBJECTIVE 3B: **REHABILITATION**

One of the best defenses against invasion is the presence of healthy native or desirable plant communities that can outcompete weed species. Therefore, restoration or rehabilitation of weed-infested areas can minimize the need for future weed control efforts. Restoring lands with native plants or other desirable plants, whether through natural regeneration or replanting, will help prevent invading plants from re-establishing themselves. Restoration also reduces long-term control costs. Land managers must continue control measures, plant native or other desirable species, and tend new plantings long enough to give them a competitive advantage.

ACTION ITEMS FOR OBJECTIVE 3B:

- Build restoration funding into agency management plans and include long-term maintenance and monitoring activities, as appropriate.
- Compile information on restoration and rehabilitation efforts and build a history of successful restoration practices.
- Partner with scientific organizations and academia to support and strengthen policies that incorporate the best available science for using native species in restoration.
- Support educational and outreach materials that encourage the use of native or other desirable species in restoration.
- Support research on native species suitable for restoration including seed harvest and propagation techniques, weed seed removal, planting maintenance, plant species resistance to disease and insects, restoration and disturbance ecology, and behavior of intact and disturbed ecosystems.
- Restore or rehabilitate disturbed areas whenever possible to minimize the threat of weed invasions.
- Work to decrease the costs of restoration efforts.
- Engage the horticulture industry, conservation agencies, and academia to develop and expand the market for native species selection and availability.
- Encourage outreach programs to educate plant consumers and stimulate local awareness of the availability of native plant choices for residential and commercial landscapes, rights-of-way, erosion control, and for habitat improvement.

OBJECTIVE 3C: ADEQUATE REGULATORY TOOLS

State, federal and local agencies administer and enforce a growing body of laws to address the problem of invasive species. These laws primarily allow for management of existing populations of invasive species or seek to prevent species introduction through known pathways. The laws also establish regulatory structures and grant programs. Several regulatory agencies in Idaho have species lists that fall under the invasive species umbrella. For example, the ISDA and the Idaho Department of Fish and Game each have lists of species for the purposes of management activities or for controlling and eradicating invasive species.

ACTION ITEMS FOR OBJECTIVE 3C:

- Assess current invasive species laws and authorities. Recommend policies to address gaps and streamline existing statutes and regulations.
- Coordinate activities between state, federal and local agencies to provide appropriate enforcement of state, federal and local laws.
- Support and strengthen enforcement of state laws and quarantine lists.
- Strengthen current state regulations that safeguard against invasive species introductions and spread.
- Educate the public about the costs associated with invasive species and the effects on food prices, user fees, habitat quality, and demonstrate the cost savings associated with preventing new infestations.

OBJECTIVE 3D: **ADEQUATE FUNDING**

It takes years of diligent efforts to eliminate harmful, aggressive non-native species. Additionally, invasive species management including detection, control, eradication, monitoring, and rehabilitation strategies is expensive. Control and eradication costs are rarely a one-time expense. Management costs alone sometimes exceed the total budgets of managing agencies. Hence, affected land can and does go untreated or inadequately restored. In some cases, the high cost of managing infested public lands may be passed on to the public through higher fees and taxes.

ACTION ITEMS FOR OBJECTIVE 3D:

- Assess cost-saving measures to make existing operations more strategic and efficient.
- Work to establish more funding sources of invasive species management.
- Identify additional funding sources available for invasive species management and position the State to take advantage of them.
- Encourage regional funding that targets specific invasive species or pathways.
- Encourage federal partners to provide cooperative funding to address the interstate movement of invasive species.
- Increase funding and protect existing funding sources to state agencies for the prevention and control of invasive species.
- Encourage federal partners to provide adequate funding to prevent and manage invasive species populations on Idaho's federally-managed lands and waters.
- Establish an ongoing funding source for noxious weed control.

CASE STUDIES

There is an incredible amount of solid invasive species work initiated and implemented by a variety of organizations and interest groups. This work is occurring simultaneously throughout the state each year and includes efforts involving invasive species prevention, education, treatment and control. Unfortunately, we have not been doing a great job highlighting successes and sharing experiences. With that said, the following case studies touch on a mere few of the collaborative activities happening throughout the state, but are by no means an all encompassing account of all successes. What they do highlight; however, are some of the amazing actions that those involved with noxious weed control and invasive species management are accomplishing around the state.

Image: Courtesy of Jordan Valley CWMA

WATER HYACINTH

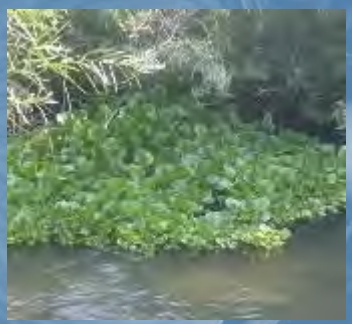
Water hyacinth (*Eichhornia crassipes*) is considered one of the most problematic aquatic plants in the world. It obstructs water flow, degrades water quality and outcompetes native species. Idaho's first free-living water hyacinth population was identified in the Snake River near Hagerman, Idaho.

In August 2012, Idaho Power employees were treating and monitoring yellow flag iris on the USF shoreline as directed by Idaho Power's Adaptive Weed Management Plan. Part of the value of the plan is a recurring weed population status update that dictates periodic visits to existing populations. One of the goals of the plan is discovering new populations and, at times, new species of invading weeds so that they can be treated and monitored. On this particular canoe survey, the team passed a floating clump of plant material they didn't recognize. The sample collected was submitted to ISDA and confirmed as water hyacinth. With that identification, a survey of the area was quickly coordinated to determine the extent of hyacinth growth.

Surveys of the area were conducted with the assistance of staff from Twin Falls, Cassia, Jefferson and Madison Counties; the Idaho Fish and Game (IDFG) and the US Fish and Wildlife Service (USFWS). The survey found scattered hyacinth plants along an area extending over 10 miles of the Snake River with the source of the plants found in a private 0.6 acre geothermally influenced settling pond.

Following three years of aggressive hand removal, water hyacinth has not been observed for four years leading to the belief that this population has been successfully eradicated. The success of this projects highlights the value of having a network of partners dedicated to effectively work together to accomplish weed management objectives. It also shows the importance of knowing the local area and having a plan in place that effectively monitors so that early detection and rapid response can eradicate infestations before populations are capable of permanently establishing themselves.

-Aaron Utz, Idaho Power Habitat Biologist



Water Hyacinth / Eradication Efforts: Courtesy of ISDA.

BIOLOGICAL CONTROL OF DALMATIAN TOADFLAX

Lowman, Idaho is situated along the South Fork Payette River and is host to an infestation of Dalmatian Toadflax of approximately 3000 acres on both public and private land. In 1999, when the Upper Payette Cooperative Weed Management Area (CWMA) was formed, the infestation was aggressively treated using herbicide as the primary means of control. In 2001, biological control methods using *Mecinus Janthiniformis* (MEJA) were employed and agents were released at the USFS heliport, Mile Post 74 Highway 21.

Adult MEJA are small, somewhat elongated bluish-black weevils which emerge from last year's Dalmatian toadflax stems in April-May. Adults feed on leaves and stems before mating and laying eggs inside new shoots from June to mid-July. Adult feeding on stems and leaves has a limited affect on the plant, but larval mining impacts the plants by causing premature wilting of shoots and suppressing flower formation. Monitoring data has shown a 92% reduction in Dalmatian toadflax in the Lowman area associated with the release of the weevils. Following a workshop conducted by Chris Kuykendall from the Nez Pierce Bio-Control

Center, Boise County Weed Control initiated a mass release of MEJA at the 10Ax Ranch in an effort to establish an insectary in July 2002. Since then, Boise County Weed Control and US Forest Service have been aggressively making MEJA releases throughout the infestation. MEJA has become widely established and in some areas, has had a considerable impact on Dalmatian Toadflax.

There has been superior cooperation between Boise County, US Forest Service, Lowman Ranger District, US Department of Energy, Idaho Department of Agriculture, Nez Pierce Bio-Control Center, University of Idaho and private land owners in establishing this biological control. Insects have been acquired from multiple sources including Animal and Plant Health Inspection Service (APHIS), Nez Perce Bio-Control Center and Biological Control of Weeds, Inc. Four permanent monitoring points have been established to monitor the long-term effect of the biological control. Due to the apparent success of biologic control the amount of herbicide used in the Lowman area to control toadflax has significantly decreased.

-Paul Rekow, Boise County Noxious Weed

-Joey Milan, Biological Control Specialist BLM/ISDA




Mecinus janthinus / Dalmatian toadflax: Courtesy of Laura Parsons, U of I, PSES, Bugwood.org

HYDRILLA ERADICATION

Hydrilla (*Hydrilla verticillata*) is one of the most aggressive and environmentally disruptive aquatic plants in the world. Hydrilla forms dense monocultures that restricts water flow, degrades water quality, impedes recreation, and out-competes native species. This plant has been referred to as the "perfect aquatic weed" for its ability to dominate aquatic systems. The identification of hydrilla in Idaho is of particular regional concern because of the potential to spread downstream into the Snake and Columbia River systems.

Hydrilla has been identified in four locations within three southwestern Idaho counties (Owyhee, Ada, and Twin Falls). The first population was identified in the Bruneau River near Bruneau, ID in December 2007 with a second population discovered shortly after in a North Boise neighborhood in 2008. Routine surveys in Twin Falls County led to the discovery of a third population in 2015, followed by additional locations in Twin Falls County later that year. All infestation areas are located in surface waters with geothermal influence. The area of mixing created at these ambient water/ geothermal water interfaces create habitats with suitable temperatures ranges for hydrilla's growth and establishment.

Owyhee County: An aggressive eradication plan utilizing diver-removal, hand-removal and

herbicide treatments were implemented in 2008 on the initial infestation resulting in a 50% reduction of biomass in the first year. Treatments in subsequent years further reduced hydrilla biomass and distribution to a point where hand removal became the most effective treatment method. Additional grant funding from USDA, APHIS, and BLM allowed for the hiring of a seasonal crew dedicated to the project area along with a suction removal system capable of targeting eradication efforts to minimize treatment effects. As of the 2017 field season, hydrilla population size for this initial infestation has decreased by over 99%.

Ada County: Hand removal efforts were employed upon discovery in 2008 and have consistency decreased the infestation size each year. As of 2017, no hydrilla has been found in this area and survey efforts of the site will continue to ensure no dormant reproductive materials (tubers) remain on site.

Twin Falls County: Several new populations of hydrilla were identified in the Twin Falls and Buhl area in 2015. These populations are associated with geothermally influenced aquaculture facilities and are currently undergoing monthly treatments. Decreases are being observed in treatment areas and collected baseline data will be used to track progress in subsequent years. No hydrilla has been found outside of the thermal water areas, including downstream in the Snake River. Survey and eradication efforts will continue in upcoming seasons.

Eradication continues as the objectives of the program and through persistent and sustained efforts, substantial progress is being made toward that goal.

-Tom Woolf and Bethany Muffley, Idaho State Department of Agriculture




Hydrilla / Eradication Operations: Courtesy of ISDA

FLOWERING RUSH

The Aberdeen-Springfield Canal Company in Power and Bingham Counties have been fighting Flowering rush (*Butomus umbellatus*) since the Teton Flood in 1976. Interestingly, it had not been found upstream nor downstream of there until 2013 when Matt Kreizenbeck with ISDA in Eastern Idaho found a small invasion in Rose Ponds just north of Blackfoot while conducting a general aquatic invasive species survey. The following year, he also found three small patches in Gem Lake (a reservoir that was created by one of the four hydroelectric dams built by the City of Idaho Falls in the late 1920's). As part of an Early Detection/Rapid response action against these newly infested areas, Bonneville County Weed Control solicited the assistance of the Bonneville County Sheriff's Office Search and Rescue Divers to quickly combat populations before widespread growth and spread could occur. Idaho Falls Power also assisted in the operation.

With eight divers on two boats, plus three shuttle boats for supplies and transport, teams were able to hand 'grub' over 4 pickup loads of the invasive plant. The reservoir is less than 20 feet deep in most of the system allowing divers to easily access infested areas. Divers removed target plants by sifting through the silt and removing the plant, roots and all, paying close attention to small root fragments and parts. Plant materials would then

be placed into an onion bag, brought to the surface, and left near the rocky shore line where one of 20 CWMA participants would empty the bag onto a tarp for later disposal.

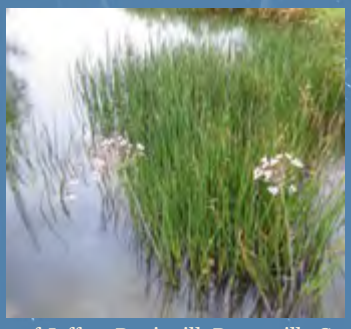
In 2015, the Upper Snake River CWMA received cost share dollars to continue the program. This year, they could only find enough to fill one pickup load, covering 10 acres of reservoir bottom. Continued surveying and monitoring is critical to keep the weed under control.

Upon further investigation, much more Flowering rush was located within the adjacent Woodville Canal Company's system. The Woodville Canal system is a short 10 ten-mile system serving agriculture fields, pastures, and residential home lawns. Herbicide trials were initiated in this area to see if effective suppression could be achieved. Treatment and evaluation in this area is ongoing.

The two sites of Flowering rush will be monitored in the future. The diving/hand pulling activities seem to be successful and it is also a great opportunity to work with the community, as well as other agencies, to accomplish the goal of limiting the spread of the weed. Surveys this year also found Flowering rush in a larger canal system in Bingham County.

Overall, the project has been showing signs of success. The future will tell, but with the reduction of the plant presence we have been observing in the Gem Lake, the hope is that we can keep the invasive from spreading downstream until a better technology is developed.

-Jeffery Pettingill, County Noxious Weed Superintendent, Bonneville County

Flowering Rush / Operations: Courtesy of Jeffery Pettingill, Bonneville County Weed Control

JAPANESE BEETLE ERADICATION

The Japanese beetle (JB), *Popillia japonica Newman*, is a highly destructive pest of ornamental plants, trees, shrubs, turfgrass, fruits and vegetables. First discovered in the eastern United States in 1916, the insect is now found in many states east of the Mississippi River. JB threatens the agriculture and horticulture industries as it spreads south and west. It is an especially harmful pest because both adults and immatures (grubs) feed on plants. Each life stage can cause significant damage when in high numbers. Together the adults and grubs feed on several hundred plant species. Some of the most susceptible plants are grown in Idaho. Adult beetles feed on the upper leaf surface, removing leaf tissue and releasing an aggregation pheromone that attracts additional beetles to the potential food source. Grubs live in the soil and consume grass roots.

Since 1990 the ISDA has conducted annual surveys for JB, using pheromone-baited traps, to prevent its introduction and establishment within the state. During the first 22 years of monitoring, only three JB were collected: one in 1992, one in 1997 and one in 2011. In the summer of 2012; however, an unprecedented 61 were trapped in

Kootenai, Bannock and Ada Counties. A few were found in retail nurseries in northern Idaho, the Treasure Valley and Pocatello, but 56 of the 61 were found in a residential area in East Boise, implying that an infestation may exist there.

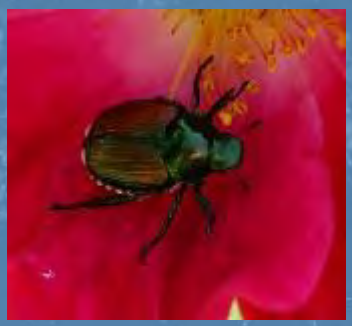
After careful investigation, the common link in all of these detections appeared to be a single Midwestern nursery. ISDA determined that this establishment shipped stock to the three nurseries mentioned above as well as 52 other nurseries throughout the state. With the exception of the residential area in East Boise, at ISDA's request most of these sites were treated with insecticide shortly after the detections were made.

Between 2013 and 2016, intense surveying efforts using delimitation and detection traps were initiated state-wide to identify infestations and focus treatments. Treatments consisted primarily of ground application to turf/lawn areas with two granular insecticides for grub control. In all four years, Japanese beetles have only been captured in Boise. Treatment efforts were modified each season based on trapping data to target areas exhibiting the presence of JB and have shown considerable success with decreases in beetle catches from 3,058 JB individuals found in 2013 to only 128 found in 2016.

Intense surveying will continue in 2017 to determine the extent of the remaining infestation in Boise, the decline of individuals in response to targeted pesticide treatments, the effectiveness of target eradication efforts during the 2016 treatment season and to make sure the Boise infestation has not moved to any new areas (or no new introductions have occurred in other parts of Idaho from outside the state). Survey and treatment will continue until total eradication is achieved.

-Paul Castrovillo, Idaho State Department of Agriculture






Japanese Beetle / Damage / Traps: Courtesy of the ISDA

IDAHO RAPID RESPONSE PLAN FOR EARLY DETECTION OF DREISSENID MUSSELS

(A SUPPLEMENT TO THE COLUMBIA RIVER BASIN RAPID RESPONSE PLAN)

INITIALLY DRAFTED: 11/06/2009

UPDATED: 10/21/2015

OBJECTIVE 1: VERIFY

Purpose: Confirm suspected identification of the Dreissenid species.

Lead entity: ISDA.

A waterbody will be identified as "Suspect" for Dreissenid mussels if:

1) Settled adult Dreissenid mussels are found and verified by two qualified experts **OR**
2) Dreissenid mussel veligers are found and confirmed utilizing **BOTH** of the following methods:
    - Microscopy identification of a sample from a qualified expert and concurrence from a second qualified expert: (EcoAnalysts, Bureau of Reclamation ("BOR"), Portland State University ("PSU") **AND**
    - PCR (genetic) identification of a sample by a qualified expert and concurrence from a second qualified expert: (Pieces Labs, BOR)

A waterbody will be considered "Positive" for Dreissenid mussels if specimens are verified through the above protocol during two separate sampling events.

OBJECTIVE 2: MAKE INITIAL NOTIFICATIONS

Purpose: Ensure that all parties that have jurisdiction in response decisions are informed of a suspect or infested identification within 48 hours.

Lead entity: ISDA

Following a "Suspect" or "Positive" identification of Dreissenid mussels in the waters of Idaho, ISDA will conduct the following notifications. All communications outside the agency will be at the direction of the Directors Office:

1) Tier 1 Contacts:
    - ISDA Director
    - Governor's Office
    - ISDA Invasive Species Program and Management Staff
    - ISDA legal counsel/Office of the Attorney General
2) Tier 2 Contacts:
    - Directly impacted entities (State agencies, Federal agencies, power companies, irrigation districts, etc.)
3) Tier 3 Contacts:
    - Legislators (House and Senate Leadership, Agriculture Committee Leadership, Resource Committee Leadership)
    - Idaho Fish and Game ("IDFG")
    - Idaho Department of Water Resources ("IDWR")
    - Idaho Water Resource Board ("IWRB")
    - Bureau of Homeland Security ("BHS")
    - Office of Species Conservation ("OSC")
    - Department of Environmental Quality ("DEQ")
    - Idaho Department of Lands ("IDL")
    - Idaho Department of Parks and Recreation ("IDPR")
    - Columbia River Basin Rapid Response Team

- Relevant water delivery agency (irrigation districts and canal companies)
- Idaho Power Co., Avista, or other relevant utilities
- Idaho Water Users Association ("IWUA")
- United States Fish and Wildlife Service ("USFWS")
- National Oceanic and Atmospheric Administration Fisheries ("NOAA Fisheries")
- Environmental Protection Agency ("EPA")
- Bureau of Reclamation ("BOR")
- United States Army Corps of Engineers ("Corps of Engineers")
- Idaho Aquaculture Association ("IAA")
- Northwest Power and Conservation Council ("NWPCC")
- Impacted counties, local county government and sheriff's office

Develop cooperative agreements, if needed, with cooperating agencies and entities.

OBJECTIVE 3: ACTIVATE APPROPRIATE ORGANIZATIONAL ELEMENTS OF THE COLUMBIA RIVER

Basin Interagency Response Plan

Purpose: Activate a response that promotes information sharing, ensures efficient resource management, and supports on-scene management.

Lead entity: ISDA, Idaho MAC Group and CRB MAC Group

OBJECTIVE 4: DEFINE EXTENT OF INFESTATION

Purpose: Establish physical range of infestation.

Lead entity: ISDA

1) Intensive plankton tow sampling for microscopy analysis for Dreissenid veliger identification.
    - Sampling in suspected mussel infested area.
    - Sampling downstream of suspected mussel infested area.
    - Sampling upstream of suspected mussel infested area.

2) Obtain necessary permission from property owners.

3) Check existing substrate samplers for mussel adults region-wide.
    - DEQ
    - Water delivery agencies and companies
    - Utility companies with hydro power infrastructure

4) Check exposed infrastructure for adults, utilizing divers and ROV, or other appropriate methods.
    - BOR / Corps of Engineers
    - USFWS
    - Idaho Power Company, Avista, and other hydropower generators
    - Relevant water delivery companies and agencies (irrigation districts, canal companies, etc.)
    - IWUA
    - Local/regional law enforcement agencies

5) Explore removing existing infrastructure from the water for enhanced adult mussel survey (moored boats, docks, buoys).

OBJECTIVE 5: ESTABLISH EXTERNAL COMMUNICATIONS SYSTEM

Purpose: Ensure consistent and effective communication to external stakeholders, including the media and public.

Lead Entity: ISDA (Chief of Staff)

1) Develop a press release.

2) Coordinate with interagency public information officers ("PIOs").

3) Establish point of contact ("POC") for media.

4) Prepare for ongoing media alerts (mandatory decontamination areas, closures, etc.).

OBJECTIVE 6: PREVENT FURTHER SPREAD

Purpose: Minimize all pathways.

Lead Entity: ISDA (Program Staff)

1) Inventory boat launches in affected area (including those upstream and downstream, regardless of state boundaries).

2) Identify government or private entities with management authority over potential pathways.

3) Contact management authorities and advise of potential mandatory inspections or closures.

4) Initiate mandatory inspections, decontaminations or closures.

OBJECTIVE 7: INITIATE AVAILABLE/RELEVANT CONTROL MEASURES

Purpose: Proceed with either Early Detection / Rapid Response (EDRR) eradication efforts or containment / mitigation activities.

Lead Entity: ISDA (Management and Program Staff)

1) Convene and expert panel for consultation on treatment / containment options.

2) Evaluate management options given the nature of the population (veligers only, adults and veligers, isolated population vs. widespread population, etc.).

3) Evaluate complicating factors involved with treatment in the infested waterbody (water movement, subsurface flow, water volume, ESA species, water use).

4) Evaluate available eradication methods for the infested location.

    - Waterbody drawdown.
    - Chemical treatment. (option examples)
        - Chem One (copper sulfate crystals)
        - EarthTec (copper sulfate pentahydrate)
        - Hydrothol 191 (endothall-amine)
        - Natrix (copper carbonate)
        - Potassium chloride (potash)
        - Other effective products

5) Engage regulatory authorities to obtain permitting and regulatory approval for eradication action. (EPA, USFWS, NOAA, DEQ, IDFG, IDWR)

6) Evaluate availability of control tools

- Capacity / timing for drawdown.
- Evaluate and assess water movement and subsurface flow in the treatment area.
- Calculate area for chemical treatment (acre feet) to determine the amount of chemical required.
- Determine availability and lead time required to obtain the amount of chemical needed for treatment.
- Determine availability and lead time for silt curtains to contain / restrict water movement in treatment areas. (Construction contractors, USACE, etc.)

7) Engage stakeholders on details and impacts of eradication action.

8) Identify and contract with a pesticide applicator to conduct treatment, following applicable purchasing and contracting laws. Determine the lead time needed to mobilize the contractor in order to conduct the application.

9) Initiate eradication action.

10) Evaluate in-water target concentration rates following treatment.

11) Evaluate treatment efficacy and continue monitoring for evidence of surviving mussels.

If needed, draft MOUs or cooperative agreements with entities participating in eradication.

Classification Change.

A "Suspect" or "Positive" classification can be removed if no mussel detections are found following seven consecutive years of extensive sampling in that waterbody.