



Idaho's Action Plan For Invasive Species

Prepared for

Governor Dirk Kempthorne and the State of Idaho

by the State of Idaho Invasives Species Council

January 2005

Idaho's Strategic Action Plan For Invasive Species

Prepared for the Idaho Invasive Species Council

By the



Northwest Natural
Resource Group, LLC

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DIRK KEMPTHORNE
GOVERNOR

January 10, 2005

Dear Interested Parties:

In Idaho, we fortunately recognize the problem invasive species pose to our state. There is a consensus that action must be taken.

Along those lines, I issued an executive order in 2001 creating the state's Invasive Species Council and charged it to "Minimize the effects of harmful non-native species on Idaho citizens and ensure the economic and environmental well being of the State of Idaho."

I am pleased to present Idaho's plan to prevent the entry and spread of unwanted species in our state, prepared through the efforts of the Council. In large part it reflects both the comprehensive assessment of the problem in Idaho completed in 2003 and the "Invasive Species Summit" held in February of 2004. During the Summit, nearly 200 people representing a wide range of those concerned with the issue met to exchange views and suggest actions.

Now we are ready to begin implementing those actions. The plan includes provisions for education and training, needed laws, program management and program coordination, all of which would augment the existing cooperative efforts of federal, state, or local governments and private entities, with specific timelines and responsibilities included with each task. Taken together, completion of these tasks will prepare our state to meet the challenge of invasive species so that we can protect our economy, our natural resources and our health from the threats invasive plant and animal species pose in Idaho.

Over the coming years, be assured that, in Idaho, this issue will begin to receive the attention it merits. I look forward to working with the Legislature and our partners within federal and local governments as well as private entities as we move forward with this plan and meet the threat posed by unwanted invasive species.

Sincerely

A handwritten signature in blue ink that reads "Dirk Kempthorne".

DIRK KEMPTHORNE
Governor

DK:jy

Executive Summary

Invasive species are harmful, non-native plants, animals, and pathogens that damage our economy and environment. They include species like white pine blister rust, zebra mussels, Asian gypsy moth, yellow starthistle, New Zealand mudsnails, cereal leaf beetle and Medusahead rye—organisms that threaten the interests of all Idahoans, from our recreational pursuits to our ability to help feed the nation. Unfortunately, as worldwide commerce and travel increase, so does the threat that unwanted species will arrive in our state or spread to areas where they are not now found. Idaho is not alone in facing these threats and there is growing national awareness of the need to prevent and control invasive species.

In our state, Governor Kempthorne issued a 2001 executive order that created the Idaho Invasive Species Council. The membership of the Council reflects the existing partnerships among federal, state and local governments plus private entities that have long been working to prevent and control unwanted invasive species. In 2003, the Council completed an assessment of the invasive species problem in Idaho. In February 2004, the Council hosted nearly 200 stakeholders at the first ever Idaho Invasive Species Summit. The recommendations generated by experts and stakeholders in these forums have culminated in the Idaho Invasive Species Action Plan.

Meeting the growing challenge posed by invasive species in Idaho will require carefully crafted, coordinated and well funded actions that will augment those programs already in place. This strategic action plan includes 22 separate actions in the following summary table, which, if implemented, will help prevent the invasions of new species in Idaho and control the spread of those that are already here.

It is not intended to either supplant current efforts or add another managerial level to them. Rather, the proposed actions will focus on the areas that all invasives species efforts have in common and benefit each, whether for the control of noxious weeds, the prevention of aquatic organisms that would harm fish or recreation, insects or fungi that attack our trees or the host of animal and plant diseases. These commonalities include managing invasion pathways, providing adequate funding, controlling existing invasions and educating the public to understand their stake in the prevention and control of unwanted species.

This plan is predicated on the belief that an ounce of prevention is worth a pound of cure. Science tells us that the longer an invasive species has to establish itself, the more difficult and expensive it is to manage. In other words, the sooner we can intercept an invasive species, the more cost effective the solution. Therefore the

strategies outlined in reflect these priorities: (1) preventing new invaders from ever arriving, (2) quickly detecting and eradicating those that make it here, and (3) managing existing problems.

Idaho is fortunate to have many effective programs to combat noxious weeds and other invasive species. Many of these efforts are led by county government and local cooperative weed management entities, which are best suited to understand local needs and take action on the ground. Others are the result of partnerships with federal agencies or private groups. This plan is intended to assist rather than duplicate or regulate these existing programs. By focusing on prevention, education, information sharing, fixing the gaps in our defenses, and setting clear priorities, this plan will improve the prospects for success for everyone working to control invasive species.

The Problem

For many people, the term “invasive species”, by itself, may not raise particularly frightening images. After all, purple loosestrife is an attractive plant growing along the edge of wet areas. West Nile virus is something that one reads about in the paper and which mostly affects horses without making anyone’s friend or neighbors deathly ill. Most insects are simple nuisances, and weeds are something to be sprayed if they appear in your yard. Here, in Idaho, even with our outdoor, often rural lifestyle, for most there is no consistently negative image arising from either the term or from the tangible effects of species that we would rather not have.

In the broadest sense, invasive species include those species purposefully or inadvertently brought here and which exhibit “invasive” characteristics. This excludes the multitude of introduced species that have great value. Rather “invasive species” escape their original or intended ecological niche to habitats where they may grow and spread uncontrollably. Once there, they cause harm, whether to Idaho’s economy, to human health, or to our state’s natural world, and include:

- Pests that threaten agricultural commodities;
- Forest pests including those that may attack commercially valuable timber species and those that threaten shade trees found mostly in urban settings;
- Diseases that threaten the health of humans or domestic animals and wildlife;
- Nuisance exotic animal species that can displace or compete with native species;
- Noxious weeds which displace ecologically or economically valuable native rangeland species or agricultural crops or threaten the integrity of streams and lakes.

Most non-native species present in Idaho were introduced here for beneficial purposes, and very few have escaped their intended niche. In fact, non-native crops, ornamental plants, and animals are critical to our food supply and quality of life. The term “invasive species” does not include the wide range of non-native species that are not causing widespread economic or environmental harm. Specifically, the term does not cover such things as crops, livestock, improved forage grasses, fish and game intentionally introduced by the Department of Fish and Game, and other beneficial non-native organisms. While introduction and use of these species may at times require careful management, they are not the focus of this plan.

Current Efforts

Over the years, Idaho, like all other states, has enacted statutes and created programs designed to prevent and manage a wide variety of invasive species. Often, these programs are administered in cooperation with various federal agency partners and range from monitoring plant pests to veterinary inspections for communicable animal diseases to tracking weed species, along with parallel efforts to control those unwanted species that do arrive in our state. The agencies involved in this important work include the Idaho Departments of Agriculture, Transportation and Fish and Game, and Lands, along with the federal Animal, Plant Health Inspection Service (APHIS).

In addition, the University of Idaho’s colleges of Agriculture and Natural Resources and the Cooperative Extension Service play important research and educational roles. Finally, local governments, industries and their associations, various interest groups and individuals work cooperatively in control and educational efforts, often coming together in successful efforts such as cooperative weed management areas and the Idaho Weed Awareness Campaign. All told, current invasive species management in Idaho costs in excess of \$10 million each year, in a mix of state funds, property tax assessments, industry fees and federal agency contributions.

One might legitimately ask why, given the state’s significant and ongoing efforts, there is a need for a comprehensive strategic action plan. Idaho’s programs have been likened to a “patchwork quilt”, where each “patch” represents an individual program or effort. So long as the patches connect, the quilt is useful, but if they do not, then there are gaps in the coverage through which undesirable species can enter. The extent to which Idaho’s efforts have gaps and how they might be filled is the substance of this strategic action plan.

Idaho's Strategic Action Plan

This strategic action plan is based upon: (1) the findings of the statewide assessment of invasive species management in Idaho, completed in 2003; (2) recommendations of the Governor's "Invasive Species Summit" held early in 2004; (3) the efforts of four separate working groups made up of invasive species professionals; and (4) consideration of successful programs in other states and actions undertaken by the federal government. Developed under the direction of the Idaho Invasive Species Council, the 22 individual proposed actions in the plan address:

- Early Intervention – Prevention, Early Detection, and Rapid Response
- Containment, Control and Restoration
- Reaching Important Audiences through Education and Training
- Broadening Knowledge through Research and Technology Transfer
- Assuring Adequate Funding
- Creating an Adequate, Effective Legal Structure
- Coordinating Our Efforts

The plan includes a specific long-term goal—a desired condition to be achieved within the next decade for each of the above areas. Every proposal has a short-term, measurable objective, a specific timeline for implementation and each seems to be achievable within the state's fiscal and political climate. As noted previously, each is designed to enhance the ability of managers of existing programs to do their jobs better, more easily and in coordination with other efforts.

For example, one proposal would train DEQ's stream survey teams to recognize and report new invasions of weeds or aquatic pests found within streams or riparian areas. If implemented, this would increase invasive species surveillance across the state by approximately 30 trained people who spend all summer in the field. Their efforts would markedly improve our ability to detect and report new weed, aquatic nuisance and possibly other species of note as they complete their work.

Invasive Species Coordinator

Although each proposal is significant, there is one upon which the success of the others rests. The plan calls for a statewide invasive species coordinator who will advance the broad spectrum of actions to prevent, detect and control all invasive species and will help coordinate the mix of local, state and federal programs targeted to this work. In meeting these objectives, the coordinator will work closely with and act as the “staff executive” for the Invasive Species Council and will have these responsibilities:

- Implement the strategic action plan;
- With the Council, set program priorities, develop a work plan, assign accountability, set a budget, and report activities;
- Represent and report to the Governor on invasive species matters;
- Compete for federal and private grants to implement the state’s action plan;
- Provide information regarding invasive species and the state’s plan to the Legislature, Congressional delegation and stakeholders;
- Identify key audiences and educational efforts needed to reach them;
- Develop proposals to assure that detection, rapid response and emergency powers are sufficient to address a broad array of invasive species and invasion pathways;
- Work with the University of Idaho, USDA and other partners to identify new and potential invaders, assess risk, and respond rapidly.
- Establish a single statewide point of contact and clearinghouse for reporting new or spreading invasive species and for disseminating information about them;
- Cooperate with program managers to take advantage of partnering opportunities.

Conclusion

This strategic action plan responds to the clear message from the Invasive Species Summit—we are not doing enough to prevent new invasions of unwanted species nor to control the spread of those that are here now. The proposed actions in the plan as outlined in the following table will help fill the gaps in existing programs and make them more effective. It will also give the Invasive Species Council responsibility for setting priorities and speaking with one voice for the entire invasive species management community. It is a plan that is essential if we are to meet the growing challenge that unwanted invasive species pose to our state.



Preface and Introduction

For many people, the term invasive species, by itself, may not raise particularly frightening images. After all, purple loosestrife is an attractive plant growing along the edge of wet areas. West Nile virus is something that one reads about in the paper and which mostly affects horses without making anyone's friend or neighbors deathly ill. Most insects are simple nuisances and weeds are something to be sprayed if they appear in your yard. Here, in Idaho, even with our outdoor, often rural lifestyle, for most there is no consistently negative image arising from either the term or from the tangible effects of most species that we would rather not have.

In the broadest sense, invasive species include those species purposefully or inadvertently brought here and which exhibit "invasive" characteristics. This excludes the multitude of introduced species that have great value. Rather "invasive species" escape their original or intended ecological niche to habitats where a species can then grow or spread uncontrollably. Once there, they cause harm, whether to Idaho's economy, to human health, or to our natural world. In our state, we already have the effects of unwanted invasive species that include:

- Pests that threaten certain agricultural commodities;
- Forest pests including those that may attack commercially valuable timber species and those that threaten shade trees found mostly in urban settings;
- Diseases that threaten the health of humans or domestic animals and wildlife;
- Nuisance exotic animal species that may displace or compete with native species;
- Noxious weeds which displace ecologically or economically valuable native species or agricultural crops, threaten the integrity of streams and lakes or those which diminish the quality of recreational experiences.

The number of invading species is alarming. In 1998, Newsweek reported an estimated 4,000 non-native plant and 2,300 non-native animal species are already established in the United States. Still thousands more species have the potential to become invasive. In the broadest sense, assuming only 10% of existing known species have invasive potential, there are 26,000 potential exotic plant species with some potential to become a problem, although it is not reasonable to assume that all will either arrive in Idaho or show invasive characteristics if they do. Once released, invasive species often displace native species. The new species may lack predators that would normally keep the population in balance, or it may be a copious seed producer or pollinator. It may grow more quickly than native species, have better tolerance for drought or other environmental conditions, or have other advantages. Approximately 400 of the 958 species listed under the Endangered Species Act as threatened or endangered are considered to be at risk

primarily because of competition with and predation by nonindigenous species. Currently aquatic invasives infest over 100 million acres (an area the size of California) and they continue to increase by 8-20% annually, taking over an area twice the size of Delaware each year (EPA unpublished report, 2002).

Fortunately, in Idaho, we recognize this problem and there is a growing consensus that actions must be taken. In 1998, a summit on noxious weeds led to the creation of Idaho's Strategic Plan for Managing Noxious Weeds. In 2001, Governor Dirk Kempthorne signed an executive order creating the state's Invasive Species Council and charged it to, "Minimize the effects of harmful non-native species on Idaho citizens and ensure the economic and environmental well being of the State of Idaho" (Executive Order No. 2001-11, Appendix I). In 2003, this Council sponsored an assessment of invasive species within the state and the existing efforts to prevent and control them. Completion of this assessment was followed by an Invasive Species Summit" in February of 2004, in which nearly 200 people representing a wide range of those concerned with the issue met to exchange views and suggest actions.

This document is Idaho's strategic plan for invasive species. It represents 22 separate tasks for education and training, needed laws, program management and program coordination, all of which would augment the existing cooperative efforts of federal, state, local and private entities. These tasks are based on the findings of the assessment, the recommendations of those attending the Invasive Species Summit and upon measures that have proven effective in other states. It is a plan that is designed to be implemented, with specific timelines and responsibilities included with each task. Taken together, completion of these tasks will prepare our state to meet the challenge of invasive species so that we can protect our economy, our natural resources and our health from the threats invasive plant and animal species pose in Idaho.

Idaho's action plan for detecting, preventing and controlling invasive species identifies and fills the voids that could allow unwanted pests to arrive here or spread to areas where they do not now exist. While much has been accomplished in our state through cooperative efforts by state, local and federal governments plus private entities to prevent the entry of invasive species and to find and control those that are already here, current efforts are not keeping pace with the growing magnitude of the problem. In 2003, the Invasive Species Council completed an assessment of the problem and control efforts, followed by an Invasive Species Summit, held early in 2004. From both, the message was simple—the problem is growing and we must do more if we are to meet the challenges that invasive species pose to our economy, our environment and to the lifestyle that is so important to Idahoans.



Saltcedar—Introduced as an ornamental from Asia, invades riparian (streamside) areas throughout the American West. It accumulates salt in its tissues, which is later released into the soil, making it unsuitable for many native species. It is now found in Idaho.

Here is what the Assessment and Summit found:

- Invasive species management in Idaho is fragmented. Responsibilities and authorities for invasive species management are not clearly defined for most agencies. There is no clear relationship among budgets, needs, and results. There is a need to set priorities and measure results.
- The levels of education and awareness among landowners, policy-makers, and the general public are not commensurate with the degree of the problem. Landowners need to better understand their obligations to control weeds and the costs associated with failure to manage them. Political leaders need to ensure adequate funding, appropriate legal authorities, and accountability from the agencies. The general public needs to understand invasive species so they become mindful of actions they can take, and help build broad public and political support for adequate programs.
- Idaho has expended significant efforts on managing noxious weeds, agricultural pests, forest insects, and invasives that threaten human or animal health. Other invasive species, such as aquatic invaders, receive little attention.
- Resources are scarce, so we must ensure that we expend them wisely. Science can help us set priorities and develop cost-effective methods for managing invasive species.
- There is a need for adequate resources to do the job, including funding. This was perceived as the greatest barrier to effective invasive species management. Counties have widely different levels of resources and capacity to fight a problem that affects everyone.
- It is better to prevent than to control, because of our limited ability to eradicate or control invasive species once they become established. Idaho managers place a high premium on prevention (i.e., actions to keep an invasive species from ever arriving here) and on early detection and rapid response once a species arrives.

It may be easy to assume that management of invasive species in Idaho is all about weeds or that it is a rural or agricultural problem which has little relevance to those who live in cities or that it is a “federal” problem since it involves interstate commerce and other states. Consider, though, these situations, all of which involve a number of frightening events that are all too real:

- A wildlife professor was able to order insect larvae over the internet as part of a project for her son’s grade school class. Although probably harmless, it illustrates how easy it might be inadvertently order species that might be harmful if they were to spread;
- For another class project, a wildlife professional purchased small frogs. The proprietor of the pet shop reportedly told him to “just let them go” once the kids were finished with the project. They

turned out to be African clawed frogs, a highly productive species that can destroy native aquatic species;

- Pine cone Christmas ornaments were found to have within them various exotic beetles, including some that might decimate ponderosa pine and other coniferous species in Idaho;
- Two people knowledgeable of the risks posed by exotic species decided bringing lightning bugs from Virginia to Idaho would not be particularly dangerous. They simply brought them along as carry-on baggage on the flight home;
- On two occasions, alert Washington state ports-of-entry or law enforcement officials have found live zebra mussels on boats from the Mississippi basin headed west. If those vehicles had turned south in Coeur d'Alene and the boats put in at Lewiston, zebra mussels could have been introduced throughout the entire Snake and Clearwater drainages, potentially clogging water intakes and irrigation structures.

Consider also the hypothetical but plausible situation posed by the story on page 16 about the bull from Mexico, which illustrates some of the myriad of pathways through which unwanted insects, weeds, plant pests and animal diseases can enter Idaho. Even in international travel, the emphasis on unregulated commerce is probably restricted to veterinary clearances and inspections for compliance with customs laws. Although there are inspections, one must ask whether the inspectors have the training and motivation to worry about weeds on the four-wheelers as much as they might have concerns that they are a potential vehicle for smuggling. Whether they know what to look for in addition to illicit shipments is a function of training and direction from their organizations.

In truth, other than an international border crossing, scant attention will be paid to the rancher's journey and cargo. Whether the rancher minimizes his impacts by hosing off four-wheelers, burning the old bedding straw and leftover hay, washing a horse trailer out away from flowing water sources, properly disposing of old vegetables and fruits and burning the packing material around the furniture depends on his and his family's recognition of the risks and the need for appropriate actions. Like the border inspector, the rancher's actions depend on his education and awareness of actions and behavior that can pose enormous risks.

Idaho's programs have been likened to a "patchwork quilt", where each "patch" represents an individual program or effort. So long as the patches connect, the quilt is useful, but if they do not, then there are gaps in the coverage through which undesirable species can enter. The extent to which Idaho's efforts have gaps and how they might be filled is the subject of the next section and the substance of this strategic action plan.



A rancher from southwest Idaho purchased a prize bull from a ranch in Mexico, south of Mexico City in a region of the country with a topography and climate similar to Idaho's. Like much of southern Idaho, this region of Mexico is a mix of mountains with Ponderosa pine forests, mountains and grasslands.

The rancher and his family decided to make a short vacation of the trip and drove to Mexico in their pickup truck, towing a six-horse trailer that also hauled two four-wheelers. While in Mexico, the family toured the ranch of their hosts for several days, exploring the mountainous and sometimes brushy, forested terrain on their four-wheelers and in their truck. In addition to bringing back the bull, the family also gladly accepted gifts of fruits and vegetables from their friends in Mexico, plus some antique rough wood furniture that was packed carefully in old newspapers and excelsior, crated, and brought both back with them.

Aside from stopping for hay and fresh bedding straw in northern Mexico and a brief period of exercise for the bull at a cousin's farm in Colorado, the Idaho family made a fast trip home, arriving in three days of their departure from Mexico. Once home, things returned to the normal late summer routine. The fruits and vegetables from Mexico were enjoyable and generously shared with neighbors, although some spoiled and were added to the compost pile. The bull seemed content and many new calves were expected in the spring. And, it was time for the early season bow hunt, with the rancher and his son taking extended trips on their four-wheelers in the mountains and forests around their home, although the son did get reprimanded by his father for sweeping out the horse trailer at the edge of the stream that flowed behind the house. All had greatly enjoyed their recent vacation to Mexico.



Overview of Idaho's Programs

Overview of Idaho's Programs

In the face of threats to economic and ecological well-being posed by invasive species, both federal, state and local governments have responded. Idaho has been a long-time leader in managing invasive species, with a number of programs, task forces, studies, organizations and partnerships designed to identify, prevent, eradicate or manage various harmful species. Often, state and local programs work in concert with the implementation of similar federal programs, sharing funding and expertise. This section describes the current state, county and federal efforts directed toward invasive species.

A variety of laws have been passed and programs established to address each of these classes of invasive species. They include:

- Idaho's Noxious Weed Law that addresses weed control on public and private lands and is administered by the Idaho Department of Agriculture (ISDA) and individual counties;
- Idaho Department of Fish and Game (IDFG) authorities to govern the importation, release, sale, possession and transportation any species of exotic wildlife, along with similar authorities governing fish species;
- ISDA authorities that require weed free seeds, straw for revegetation projects, and livestock feed, and regulate the propagation of species not classed as "wildlife";
- Idaho's Plant Pest Act, with its broad authorities to inspect nursery and horticultural operations and to quarantine areas or articles that may spread plant pests or plant diseases;
- Idaho Department of Lands (IDL) authorities to manage and control forest pests;
- The ability of the state or individual counties to take steps on private or state lands to suppress insect outbreaks or weeds or control unwanted animals;
- Broad authorities given the counties to quarantine or undertake other control mechanisms for a variety of invasive species.

Idaho's current laws and programs address both established and potential invasive species, and combine education, regulation, prevention, detection and control actions as the needed basis for managing invasive species. Table 1 summarizes the existing statutory authorities for state agencies related to invasive species management in Idaho and the implementing actions of the agencies charged with administering the law. It should be noted that several other agencies have responsibilities for either assisting in the implementation of existing laws or for cooperating with overall efforts. For example, the Department of Environmental Quality (DEQ) does not have specific statutory authority for managing invasive species even though the agency does monitor and report infestations of aquatic weeds or animals as part of its responsibilities to protect water quality within the state.

Table 1
Major State Authorities and Agency Responsibilities For Invasive Species Management

<i>State Agency</i>	<i>Invasive Species Function</i>	<i>Authorities and Guidance</i>	<i>Key Responsibilities</i>
Idaho Dept. of Fish and Game	Prevent importation or transport of animals and fish that might harm native wildlife populations.	Sec. 36-104, I.C., gives the Fish and Game Commission authority to develop rules regulating all wildlife, native and exotic	Govern the import, transport, release, possession and sale of native and exotic wildlife and fish through permits.
Idaho Dept. of Lands	Manage weed and insect infestations on state endowment lands and restore lands damaged by weeds. Prevent or detect and manage forest pests and pathogens on state and private lands	Sec. 38-600, I.C., provides authority for the detection and management of forest pests. 58-100, I.C., gives the Land Board the authority to manage pests and weeds on endowment lands and reseed areas.	Detect, prevent, eradicate and manage forest insects and diseases, on state and private lands. Much of this is done cooperatively with the Forest Service. Control insects and weeds on endowment lands.
Idaho Dept. of Agriculture	Prevent, detect, respond to or manage: (1) all insects and diseases that threaten agricultural products, (2) all noxious weeds, (3) deleterious or exotic animals that threaten agricultural crops, livestock, wildlife or the environment, and, (4) threats to nursery stock. The Department also regulates additives to animal feeds.	Sec. 22-2000, I.C., the Plant Pest Act, provides authority to regulate plant pests. 22-2400 is the Idaho Noxious Weed Act, while Ch. 4 is the Pure Seed Act, and Ch. 23 is the Nurseries and Florists Act. Section 25-3900 regulates deleterious and exotic animals, and Ch. 27 allows the regulation of adulterants to animal feeds.	Maintain regular surveys of various agricultural pests and diseases that threaten agricultural products or livestock. Implement actions to control or manage harmful species. Cooperate with the Dept. of Fish and Game in detecting and preventing threats to wildlife and the Dept. of Lands in surveys for such forest pests as gypsy moths. Control commercial fish raising facilities and ponds.
University of Idaho and the Cooperative Extension Service	Conduct research on various invasive species and help build public understanding.	Sec. 33-2800, I.C., plus federal statutes that govern land grant institutions provide broad research and extension authorities.	The College of Agriculture conducts a variety of research and extension programs for agricultural pests, including noxious weeds. The College also helps track noxious weed and other invasive pests. The College of Natural Resources fulfills a similar role for forest pests and those that effect wildlife or the environment.

Managing Invasion Pathways and Spread

Federal and state coordination probably reaches its point of highest effectiveness through various programs designed to monitor invasion pathways and track the spread of invasive species. These programs range from monitoring plant pests to veterinary inspections for communicable animal diseases to the tracking of weed species, as well as reportable human illnesses. A number of agencies help in these efforts including the Idaho Departments of Agriculture, Transportation, Fish and Game, Health and Welfare and Lands, along with the federal Animal, Plant Health Inspection Service (APHIS). In addition, the University of Idaho, in cooperation with the University of Montana's Invaders Database, tracks invasions of noxious weeds. Following is a summary of each of the major efforts:

Cooperative Agricultural Pest Survey (CAPS)

The Cooperative Agricultural Pest Survey (CAPS) is a combined effort by federal and state agricultural organizations to conduct surveillance, detection, and monitoring of agricultural crop pests and biological control agents. CAPS is a long-standing partnership formed between federal and state regulatory officials, land grant universities, affected industries, and private groups. Target species include weeds, plant pathogens, insects, nematodes, and other invertebrate organisms through (1) survey, detection, and identification activities in the field and the laboratory, (2) state-level databases, (3) national database—the National Agricultural Pest Information System (NAPIS), and, (4) electronic information exchange systems.

For Idaho, the Western Region of the USDA's Plant Pest Quarantine program is responsible for coordination and support of CAPS for 23 western states. These responsibilities include:

- Protect and secure US agricultural and environmental resources by developing and maintaining the necessary infrastructure to quickly detect, evaluate, respond, and monitor invasive and exotic plant pests and weeds;
- Provide the infrastructure and personnel to accomplish the goal of rapid detection of plant pests and exotic weeds;
- Provide the necessary framework to handle in an orderly, expeditious manner the detection of exotic pests, identification of pests and the initial control and/or eradication of a newly detected pest;
- Provide the leadership in establishing Incident Command Systems to respond to a pest introduction;
- Coordinate and cooperate with interested parties in surveys and control or eradication efforts. This will be accomplished through the State Survey Coordinator and the new Pest Survey Specialist positions;

- Create partnerships with various agencies and volunteers who are concerned about the introduction of invasive species;
- Support and assist State Departments of Agriculture in their responsibilities to protect agriculture and environs in their states;
- Coordinate information exchange among various Federal, State, and County agencies, such as Safeguarding, Intervention and Trade Compliance (SITC) and Department of Homeland Security (DHS), as well as other pest risk data informational sources.

ISDA Export Certification Surveillance

Idaho's Department of Agriculture's Plant Industries Division maintains an ongoing program of inspecting fields to survey for a number of invasive and regulated plant pests. Fees paid by seed companies and growers support this effort (page 28). These surveys are part of the protocols for phytosanitary certification. In 2003, the Division staff inspected 3,016 fields that included 27 crops and covered 71,357 acres. In a typical year, inspectors look for 301 pest species, including 269 plant diseases, 18 parasitic nematodes, 8 insects and 6 weeds as part of their responsibilities toward phytosanitary conditions (Simko, personal communication).

U of I Weed Laboratory and "Invaders Database"

The University of Idaho's College of Agriculture and Life Sciences plays an important part in tracking new invasions of noxious weeds and mapping their spread. The College maintains the Erickson Weed Diagnostic Laboratory lab to identify and catalog species and develops booklets and other educational materials to help managers identify species that appear out of place. The lab receives and documents reports of new or spreading weed outbreaks and identifies weed species that are new to the state or a locality. The U of I is working on a website and protocols for digital submissions of plant photographs as a way to make weed identification quicker and easier.

At a regional level (Montana, Idaho, NW Wyoming), the University of Montana's "Invader's Database" plays a key role in tracking and predicting weed invasions, as well as determining which new species might exhibit invasive behavior.

In 2002, 26 counties submitted 319 plants for identification in the Erickson Lab at the U of I. That data was forwarded to the Invaders Database. Researchers have examined the traits and bio-geographic factors associated with the 554 exotic plant species believed to now be outside the bounds of artificially maintained settings in Idaho and Montana (www.invader.dbs.umt.edu). Of this number, 29 of the 120 plants arriving after 1950 were determined to have invasive characteristics by the researchers. Various states have classed 89 of these 554 species as "noxious" (Invaders Database).



The hemlock woolly adelgid, a small flying insect, has been in the United States since 1924.

This introduced insect, believed to be a native of Asia, is a serious pest of eastern hemlock, where it can kill trees by sucking their sap.

Work such as this has a number of practical applications for managers. First, it serves as an "alert list" of species that are spreading, along with some idea of the rate of spread. This means that field personnel can be trained to recognize the new invaders before they become established over broad areas. Second, by plotting distribution patterns it may be possible to isolate pathways through which species spread.

For example, if the counties where a species is found border the Columbia River, one might conclude that commercial waterways are an important pathway. Third, distribution maps and likely areas of future infestation can illustrate which landowners or agencies need to anticipate cooperative management efforts. Finally, the straightforward approach to describing the species, where it is located and its rate of spread makes it easy to communicate the need for control efforts to non-technical audiences, including those who set budgets and policies.

Forest Pests

A number of state and federal agencies (USDA Forest Service, Idaho Department of Lands, APHIS, ISDA) cooperate in the detection and control of pests and pathogens that threaten both individual trees and whole forests, both native forest species and those that are desirable non-natives planted in more urban environments. Often, forest pests are insects, including those that defoliate trees and those that bore in the wood. However, some of the most devastating pests are microscopic pathogens, such as White Pine Blister Rust or the more recently discovered Sudden Oak Death Syndrome. White Pine Blister Rust decimated the forests of north Idaho beginning in the early 1900's and has cost billions in lost timber values and in control efforts. Now, control is restricted to efforts to propagate white pine trees that are naturally resistant to the fungus and then to reintroduce them into the forests. However, such a restoration attempt is truly massive in scope and not without its own perils, since the fungus may simply develop a strain that attacks the resistant trees.

100th Meridian Initiative

The 100th Meridian Initiative is a cooperative effort between state, provincial, and federal agencies to prevent the westward spread of zebra mussels and other aquatic nuisance species in North America. The goals of this Initiative are to (1) prevent the spread of zebra mussels and other aquatic nuisance species in the 100th meridian jurisdictions and west, and, (2) monitor and control zebra mussels and other aquatic nuisance species if detected in these areas. Idaho is a participant in the Initiative and has completed 138 individual surveys of boaters on 15 lakes and reservoirs throughout the state. Thirty eight of those interviews involved out-of-state boats. Each boat was inspected for zebra mussels and other aquatic nuisances and each boater given printed information about aquatic nuisance detection and prevention (Van Vooren, pers comm.).

Gypsy moths feed on the foliage of more than 500 species of trees and shrubs, and losses caused by the gypsy moth have averaged \$30 million a year for the last 20 years. Egg masses are commonly carried from infested areas on camp or boat trailers or outdoor household goods. Therefore, one of the major invasion pathways is those who move to Idaho from infested areas elsewhere in the country. Between May 2002 and April 2003, there were 10,195 such people moving to the state, a 97% increase over the previous year.

Cooperating agencies have conducted intensive surveys to detect the introduction of the gypsy moths in Idaho each year since 1974, with the first gypsy moth discovered in 1986 at Sandpoint in Bonner County. The following year numerous additional moths were caught in Sandpoint and Coeur d'Alene. Ground treatments to control them were initiated in 1988 and aggressive aerial spray eradication programs followed in 1989 and 1990. No gypsy moths have been caught in the treated areas since 1989. Gypsy moths have been caught in various areas throughout the state in the annual detection surveys every year from 1986 through 1995, then again in 1998 when seven gypsy moths were caught, five of them at one site.

Cooperating agencies and their responsibilities illustrate both the magnitude of the job and the level of cooperation needed to effectively detect and control the pest. These include:

- Idaho Department of Lands - Overall program coordination and trapping in northern Idaho,
- Idaho Department of Agriculture - Trapping in southwestern Idaho and submission of data to the National Agricultural Pest Information System (NAPIS) data library,
- USDA, APHIS - Provides cost share funding, traps, baits, and technical expertise,
- USDA Forest Service, Region 4 - Trapping in southeastern Idaho,
- USDA Forest Service, Region 1 - Trapping in Forest Service campgrounds in northern Idaho, and,
- Idaho Transportation Department – Provides monthly reports of vehicle registrations in Idaho from states that are generally infested with gypsy moths.

In 2003, the agencies in the Idaho gypsy moth detection program placed 5,582 detection traps throughout the state in cities, towns, surrounding urban areas, and rural communities at a density of four traps per square mile. Cities and communities with 20 or more "move-ins" (defined as an individual or family moving to Idaho from a state that is generally infested with gypsy moths) are trapped irrespective of their place in the schedule. Campgrounds, tourist attractions, and other high-risk locations were also trapped (Casey and Livingston, 2003).

Diseases that Threaten Human Health

Certain zoonotic diseases could cause a significant health and economic impact to Idahoans or their livestock. These are infectious agents that cause disease in both humans and animals and can, under the right circumstances, be transferred between them. The Idaho Zoonotic Diseases Working Group, which provides a report to the Idaho Invasive Species Council during its regular meetings, is a collection of zoonotic disease professionals from the Idaho Department of Health and Welfare, the Idaho State Department of Agriculture, the U.S. Department of Agriculture, the University of Idaho Caine Veterinary Teaching Center, the Idaho State Wildlife Diseases Laboratory, and Zoo Boise. The group was established to develop and maintain dialog between agencies that might encounter zoonotic diseases. Discussions focus on data-sharing, disease management, and outbreak response. Mechanisms exist in state and federal agencies to detect and respond to zoonotic diseases. The discussion of these agents is currently beyond the scope of this council document.

Containing and Controlling Invasive Species or Restoring Infested Sites

Weed Management in Idaho

Efforts to contain, control or eradicate noxious weeds have been a focal point of Idaho's invasive species programs. Idaho's recent history of weed control began with the Idaho Weed Summit, held in 1998. From this gathering of public officials, industry representatives and public and private landowners, there came a call to action, resulting in *Idaho's Strategic Plan for Monitoring Noxious Weeds*, the purpose of which is twofold:

"(1) Heighten awareness among all citizens of the degradation brought to Idaho lands and waters by the explosive spread of non-native weeds, and, (2) bring about greater statewide coordination, cooperation and action that will successfully halt the spread of such weeds and restore infested lands and waters to a healthy and productive condition" (Idaho's Strategic Plan for Noxious Weeds)."

The plan also addressed eight broad issues critical to building a successful statewide program:

- Organization and leadership;
- Coordination, cooperation and partnerships;
- Awareness and education;
- Funding and resources;
- Inventory, mapping and monitoring;
- Assessments and adaptive planning;
- Research and technology;
- Compliance and enforcement.

The statutory basis for the measures designed to meet the purposes of this ambitious plan is found in the Idaho Noxious Weeds law (Title 22, Ch. 24, I.C.). Most recently revised in 1993, this law gives the Director of the ISDA, together with the county commissions, the duty of enforcing the law. The state duties include (1) developing a state list of noxious weeds, (2) employing a statewide weed coordinator, and, (3) identifying “items” (presumably invasion pathways) capable of disseminating noxious weeds and designing treatments (Idaho’s Strategic Plan for Noxious Weeds). Powers given the counties include, (1) establishing and maintaining a coordinated noxious weed control program for each county, (2) employing a county weed superintendent, (3) providing operational and educational funds for the county program, and (4) enforcing the law on nonfederal lands in the county.

The same law also provides for the establishment of state and county weed advisory committees and authorizes the counties to raise weed management funds through property taxes. The funds raised by the county tax assessment support the county weed department and can only be used for noxious weed control purposes. The noxious weed law also clearly outlines landowner and citizen responsibilities. These include, (1) controlling noxious weeds on their property, (2) paying the cost of control, (3) reimbursing the county for work done on their properties if landowners fail to adequately control noxious weeds, and, (4) prohibiting the movement of any article infested with noxious weeds (Title 22, Ch. 24, I.C.). Appendix II shows both county tax levies for weed management and the state’s Cooperative Weed Management Areas (CWMAs).

CWMAs are the centerpiece of the on-the-ground efforts to implement Idaho’s plan and Idaho now has 32 successfully functioning CWMAs. The “CWMA Cookbook” recently published by the Idaho Weed Coordinating Committee defines a CWMA as “a local organization that integrates all noxious weed management resources across jurisdictional boundaries in order to benefit entire communities” (CWMA Cookbook). In a practical sense, this means that landowners in a specific watershed or region, including federal or state land managing agencies, come together to jointly pursue their own specific weed management objectives. CWMAs, generally under the leadership of county weed supervisors, decide on priorities, seek funds for projects, and coordinate work across land ownerships in a county or watershed. The result reflects the fact that the spread of weeds recognizes no geographical or ownership boundaries.

Aquatic Weed Efforts

An important outgrowth of the successful approach of the CWMAs has been the development of a separate effort to address aquatic weeds, particularly Eurasian watermilfoil. In 2003, the Milfoil Task Force spent approximately \$10,000 visiting and surveying 66 individual lakes and ponds in 22 counties (Milfoil Task Force). In addition, the Task Force



developed educational materials and began a database of Idaho's waters to help guide future survey and control efforts. Finally, the Task Force is sponsoring research by the University of Idaho on control methods in small impoundments. There are also cooperative agreements between the Department of Fish and Game and the counties for controlling purple loosestrife.

Reaching Important Audiences through Education

During the development of Idaho's Invasive Species Assessment and through the Invasive Species Summit, the need for effective educational programs was stressed repeatedly as a cornerstone of an effective, long term plan for invasive species. As noted in the Assessment, there are three general audiences:

- Landowners need to better understand their obligations to control weeds or other invasives, as well as the costs associated with failure to manage them.
- The broader public needs to understand invasive species problems, both so that they become mindful of actions they can take and to build broad public and political support for adequate programs.
- Political leaders, in the view of Idaho's managers, need to assure adequate funding, sufficiently stringent laws and enforcement of them.

There are important, existing programs designed to reach those audiences. At least three of these programs represent highly sophisticated efforts and funds dedicated to them, although only one addresses invasive species (noxious weeds) as its sole purpose. They are Idaho's Weed Awareness campaign, programs to educate stakeholders about various plant pests carried out through "CAPS" and the programs of the Idaho Rangeland Resources and the Forest Products Commissions. There are other efforts that are either part of individual agency communications and outreach programs, those associated with extension education or those limited to either individual species or to the mission of a private entity.

Idaho's Weed Awareness Campaign and the Center for Invasive Plant Management

In 2001, the Idaho Weed Coordinating Committee created the Idaho Weed Awareness Campaign. Its mission is for the people of Idaho to understand the economic and environmental impacts of invasive weeds and support the implementation of all aspects of integrated weed management. A 17-member Committee representing state and federal agencies, universities and scientists of the region, industry and conservation groups and private landowners oversees the Idaho Weed Awareness Campaign.

For 2003, the Campaign adopted two broad goals for community outreach. The first is to create a strong public awareness in the citizens of Idaho about the overall problem of noxious weeds and its direct effect on Idaho. The second includes enlisting the support of Idaho citizens in identifying critical noxious weeds; knowing what actions they should take when they locate noxious weed infestations; and how they can help in the prevention of further infestations of noxious weeds. This campaign seeks to make noxious weeds a front burner issue with Idahoans. To meet its goals, the Campaign has used a number of tools including television, radio and newspaper ads.

One of the Weed Awareness Campaign's important partners is the Center for Invasive Plant Management (CIPM) in Bozeman, Montana, which promotes the ecological management of invasive plants in the West. The Center fulfills its mission through education, by facilitating collaboration among researchers, educators and land managers, and by funding research projects and weed management areas. The Center is an information clearinghouse, providing examples of ecological management and delivering implementation tools and products to land managers. The Center operates in partnership with federal, state, and county agencies; private industry, foundations, universities, and landowners (Idaho Weed Awareness Campaign).

The Rangeland Resources and Forest Products Commissions

While not specifically charged to address invasive species, both the Rangeland Resources Commission and the Forest Products Commission have included either noxious weeds or forest pests as topics for some of their respective educational efforts. More importantly, each commission has identified target audiences and methods for reaching them. For example, both have targeted teachers as an audience they would like to reach. Consequently, both maintain an effort to recruit teachers from across the state to periodic teacher workshops that each has sponsored. While it can be pointed out that neither commission has placed an emphasis on invasive species, the capability of each to reach their intended audiences with credible and useful information and the potential they have to expand their efforts toward the management of invasive species make them important future components of an invasive species educational strategy.

Individual Agency and Extension Efforts

Individual agencies disseminate an array of pamphlets, papers and other various print materials that help inform various audiences about invasive species and why they need to be addressed. One example of an ongoing educational effort involves the cooperative program to help make boaters aware of harmful aquatic invasive species like Eurasian watermilfoil, parrotfeather, and New Zealand mudsnails that have already spread to many parts of Idaho. Others, like zebra mussels, are not here



yet, but could cost millions to our hydropower, agriculture, recreation and water supply industries. They could also severely impact native fish, wildlife, and plant communities.

Partners in the Marina Signage Project have joined together to prevent the spread of aquatic invaders by posting signs at boat access sites around the state. The eye-catching signs provide information on the threat of aquatic invasives species and ask boaters to clean their vessels before entering and after leaving any water body. Participants include the Idaho Departments of Fish and Game, Parks and Recreation, and Agriculture. Federal partners include the Army Corps of Engineers, Bureau of Land Management, the Forest Service and the Fish and Wildlife Service. Private and local participants include Ada County, the Idaho Weed Awareness Campaign, The Nature Conservancy, Pacific States Marine Fisheries Commission, and the Western Whitewater Association. Together, the partners have raised approximately \$27,000 to distribute and erect 1,500 aluminum signs and 2,000 laminated posters (Brunelle and Hargrove).

U of I Cooperative Extension Service

There are forty-two county extension offices around the state and in specific project offices, backed by subject matter specialists and support personnel located in ten regional Research and Extension Centers and on the UI campus. These faculty members conduct extension education programs throughout the state. Together these professionals work with the people of Idaho to address agricultural, natural resource, youth, family, community and environmental issues. Collaborative relationships with countless agencies, groups, and individuals make possible a vast array of innovative educational programs. Extension faculty are joined by several thousand volunteers and by dozens of cooperating agencies, organizations and businesses, both public and private, on the local, state and national levels. The large network of both extension specialists and the audiences they serve represent both an effective means to detect new or spreading invasive species and to educate landowners and other stakeholders about means of prevention.

Controlling Invasive Species through Regulations

Statutory authorities provide a number of agencies with the ability to control invasive species or prevent their entry. They range from requirements that private landowners control noxious weeds on their property to the ability to stop shipments or sales, or quarantine animals or plants that might harbor diseases or plant pests. Most of these laws and regulations are accompanied by the ability to impose civil or criminal penalties for violators, even if these measures are seldom used.

Generally in Idaho, regulatory authority is granted to four state agencies: Idaho Department of Agriculture (plant pests, weeds, and deleterious animals), Idaho Department of Lands and the State Board of Land Commissioners (forest pests and weeds on endowment lands), Idaho Department of Fish and Game (animal diseases in cooperation with ISDA and exotic wildlife or fish species) and the Idaho Department of Health and Welfare (communicable human diseases). Those authorities include the ability to prevent entry of unwanted species into the state, require that landowners, businesses or other entities that may have unwanted species control them and impose penalties upon those who fail to comply with the legal requirements. Table 2 (see next page) summarizes the current laws for Idaho.

Broadening Knowledge through Research and Technology Transfer

The University of Idaho recently initiated a new program that has the potential to extend research and technology transfer beyond weed species. That is the Center for Research on Invasive Species and Small Populations (CRISSP). As currently envisioned, the Center will apply the methods of biotechnology to pressing problems in agriculture and resource management, specifically targeting the biology of invasive species and the management of small or declining populations, both subject areas with broad economic and environmental implications for Idaho. One topic that the Center would concentrate upon is the biology of invasive species, which cause enormous economic losses by displacing native plants and animals. Control or eradication of invasive species requires solid understanding of the ecology of the invader and its interactions with native species, which can only be achieved by dedicating increased resources to this topic.

Under the leadership of the College of Natural Resources (CNR), the Center will collaborate with scientists from other colleges within the University of Idaho, and from other institutions throughout the world. Faculty from other colleges and institutions would augment CNR faculty, including members of: the Department of Biology in the College of Sciences; Department of Plant, Soil and Entomological Sciences in the College of Agricultural and Life Sciences; the Fish Culture Experiment Station in Hagerman; and the Division of Natural Sciences at Lewis and Clark State College. In addition to updating existing laboratory facilities and equipment, funds available to the Center will be used for an outreach program and seminar series that would disseminate information to the public via website and public lectures; bring in prominent scientists from other institutions; and provide a venue for in-house speakers to present their findings (U of I College of Natural Resources).



Overview of Idaho's Programs

Table 2 Summary of Idaho's Invasive Species Regulatory Authorities

<i>Import/Introduction/Release</i>	<i>Statute</i>	<i>Where Authority Rests</i>
What are the general requirements for the import, introduction or release of non-native or imported species?	36-104 Fish and Game Authorities	IDF&G
	22-2016, Plant Pest Act	ISDA
	25-3900, Deleterious Animals	ISDA
Quarantines Is there authority for quarantines of potentially invasive species, either for an area or for transportation through the state?	22-2012, Plant Pest Act	ISDA
	25-218, Animal management	ISDA, except for domestic sheep
	36-106, Forest pests	IDL, in cooperation with ISDA
	22-2404, Noxious Weed Law	ISDA, Counties
Interstate Transportation and Shipping Are there requirements for shipping or transportation of invasive species through the state?	25-214	ISDA
	36-106	IDF&G, in cooperation with ISDA
Management of Biological Control Agents Are there requirements for approval, permit or a license to use biological control agents and standards for using them?	36-104 Fish and Game Authorities	IDF&G
	22-2016, Plant Pest Act	ISDA
	25-3900, Deleterious Animals	ISDA
	22-2016, Plant Pest Act	ISDA
Emergency Powers Is there authorization of emergency powers to address invasive species outbreaks?	22-2404, Noxious Weed Law	ISDA
	22-2009, Plant Pest Act	ISDA
Enforcement Mechanisms What authorities help assure the enforcement of various laws that regulate invasive species?	22-2009, Plant Pest Act	ISDA
	22-2409, Noxious Weed Law	ISDA
	25-3905, Animals	ISDA
	25-219, Animals	ISDA

<i>Import</i>		<i>Introduction</i>		<i>Release</i>
Permits for allowable species	Prohibitions against species not on acceptable list	Permits for allowable species	Permits for allowable species	All releases or abandonment of domestic or exotic animals are prohibited
Permits for allowable species		Permits for allowable species		Prohibited except by permit
Prohibitions and permits		Prohibitions and permits		Prohibited

Species, Areas, Transportation

Broad authority, but specific to “plant pests”. Authorizes cooperation with federally imposed quarantines

Broad authority for control of livestock diseases

IDL, through the Forest Pest Act and ISDA, through the Plant Pest Act, can survey for forest pests and have broad authorities for control and prevention.

Broad authority in the case of actual or potential noxious weed emergencies

It is unlawful to transport animals infected with communicable diseases into or through the state. The law gives the Ports of Entry and the Dept. of Transportation authority to inspect for compliance with rules. Most aspects of interstate commerce are governed by federal laws.

Wildlife that is transported are generally subject to the same rules that govern livestock for transport or importation

<i>Import</i>		<i>Introduction</i>		<i>Release</i>
Permits for allowable species	Prohibitions against species not on acceptable list	Permits for allowable species	Prohibitions against species not on acceptable list	All releases or abandonment of domestic or exotic animals are prohibited
Permits for allowable species		Permits for allowable species		Prohibited except by permit
Prohibitions and permits		Prohibitions and permits		Prohibited
Permits for allowable species		Permits for allowable species		Prohibited except by permit

The Noxious Weed Law and the Plant Pest Act contain specific references to the ability of any state agency to take emergency actions. This authority may be implied in other statutes regulating public health, animal health, or agricultural pests.

The Plant Pest Act allows the Dept. of Agriculture to stop sales of infectious materials and take other emergency actions. If landowners refuse to control pests on their lands, the Dept. may take control actions and impose liens on the property in the amount of the control costs. Violations of the Plant Pest Act or misdemeanors and punishable by fines, civil penalties or imprisonment.

Violations of the Noxious Weed Law are misdemeanors punishable by fines or imprisonment. Counties may impose liens and collect control costs, if they must take actions to control weeds on private lands.

Violations of the Deleterious Animal Act can result in the assessment and collection of civil penalties

Failure to control animal diseases as specified in 25-200 are misdemeanor violations, punishable by fines or imprisonment.

Funding for Invasive Species Efforts

None of the current or future invasive species efforts will work without adequate funding to pay those who administer and carry out the programs, for active control efforts and for the educational programs that extend the effectiveness of all endeavors. Funds for Idaho's state agency or county programs generally come from three sources—funds from either the state's general fund or from specific tax levies; federal funds that are either passed through or shared with various state agencies or funds available from private corporations or organizations.

Funds for Weed Control

The intricacies of the federal and state budgeting processes plus a lack of data regarding how much private landowners pay for weed control apart from their property tax assessments make a single dollar figure for weed control in Idaho elusive. However, the known expenditures indicate a minimum weed management cost in Idaho of approximately \$7-\$10 million annually (based on FY 2002 estimates), including:

1. Funds appropriated by the Idaho Legislature to the Department of Agriculture, most of which are given in cost-share grants to individual CWMAs (\$541,000);
2. Federal grants from the BLM and Forest Service which are added to the ISDA weed cost share fund (\$1,340,000);
3. Property tax assessments levied by individual counties to support their own weed departments (\$3,594,000);
4. Direct payments for weed control work by the Forest Service, BLM, and such state agencies as the Idaho Department of Lands, Idaho Department of Parks and Recreation or the Idaho Department of Fish and Game (approximately \$4,400,000) (Idaho Invasive Species Assessment, 2003).

As shown in Table 3, weed management includes much more than control measures. While nearly half of the ISDA funds granted to the CWMAs went toward on-the-ground control efforts, a significant amount was also spent on education, mapping and inventory, prevention and restoration. In terms of acres, the ISDA estimates that in 2002 cost share grants resulted in 154,287 acres treated, 675,628 acres mapped and 26,986 acres restored, for a total of 859,901.

Possibly the largest amount of money available to the CWMAs through the participation of the county weed departments is the property tax assessments authorized in the Noxious Weed law. According to the Idaho Tax Commission, in 2002 all counties made weed control assessments that ranged from less than \$0.05 per private acre to over \$1.00, with an average of \$0.21 per acre. In total, county weed assessments provide the counties with \$3.5 million to pay for the county weed superintendent and for control efforts. Coupled with the grants from the ISDA, CWMAs share

approximately \$5 million. However, there is a great range in the funds available to the individual CWMAs. Those with an urban tax base and a large acreage of private land generally enjoy more funds than those counties with a lot of federal lands. At the low end, some CWMAs have as little as \$18,000 per year to conduct their activities (Idaho State Tax Commission, 2003).

Funds for Agricultural Pest Management

The Idaho Department of Agriculture's Plant Industries Division's work to detect and manage a variety of plant pests has an organization and budget that is less complex and smaller than that for the noxious weed program. This is understandable for a number of reasons. Primarily, there is no parallel organization at the county level for detection and control. Within the Plant Industries Division, there are currently 3.2 FTE's in staff time allocated to the invasive pest survey and detection programs. This includes both full-time staff and part-time allocations from the division's eight agricultural investigators (inspectors). In addition, 1-2 seasonal employees are hired for the 4-5 month trapping or survey season. The budget for the division includes funds from three sources:

(1) Field Inspection Fees for Phytosanitary Certification and Nursery Surveillance Inspections Fees – These funds cover part of the surveillance surveys conducted by the division as part of the requirements for phytosanitary certification and the nursery inspection programs. In 2002, these fees brought in \$384,435. Fees are paid by seed companies, processors, growers and nursery operators to support the regulatory activities of ISDA. The phytosanitary certificates are commonly required for interstate and international shipment of many agricultural products, especially seeds. Nursery inspections are mandated by the Idaho Nurseries and Florists Act and also facilitate pest control and interstate commerce.

Table 3
FY 2002 Noxious Weed Grants thru ISDA

<i>Region</i>	<i>Education</i>	<i>Erad/Man</i>	<i>Invent/Map</i>	<i>Prevent</i>	<i>Restore</i>	<i>Other</i>	<i>Total</i>
N (1)	\$9,776	\$99,302	\$21,239	\$742	\$618	\$5,126	\$136,803
N.Cent (2)	8,550	39,472	38,532	2,000	0	7,812	96,366
SW (3)	9,612	86,711	0	14,490	50,180	14,411	175,404
S.Cent (4)	6,200	112,701	0	1,260	56,830	2,051	179,042
SE (5)	19,500	125,110	29,920	1,450	4,335	3,008	183,323
NE (6)	21,964	144,135	47,408	210	16,825	11,700	242,242
Ed. Grp	18,000	0	0	0	0	0	18,000
Res. Grp	0	0	34,593	0	29,044	84,000	147,637
Task Forces	12,600	0	30,000	17,828	0	20,640	81,068
Totals	\$106,202	\$607,431	\$201,692	\$37,980	\$157,832	\$148,748	\$1,259,885
% of Total	8	48	16	3	13	12	100

(2) USDA Cooperative Agreements and Grants – These are fixed term grants primarily from the USDA Animal Health Inspection Service (APHIS) through the Cooperative Agricultural Pest Survey Program (CAPS). The USDA grants cover primarily activities associated with the detection surveys of invasive species. In 2003, the Plant Industries Division of the Idaho Department of Agriculture garnered \$345,000 in grants to help fund its annual program of survey, detection, and education for 5-7 key invasive pest species. However, it is to be noted that in 2004, funding for this purpose was reduced by half to \$173,000, and, unless Congress restores some of these cuts in FY 2005, program effectiveness in Idaho will decline.

(3) Idaho State General Funds - The state of Idaho has provided some general funding to ISDA's Plant Industries Division invasive pest survey program. For each of the last three fiscal years, the division has received a deficiency warrant authorization from the Board of Examiners totaling \$70,000 (Cooper and Simko, pers. comm.).

Conclusions

Two aspects of even a cursory examination of existing invasive species control efforts in Idaho stand out. First, there are a lot of them. Second, they seem to work well, but are not particularly well coordinated. Each program is a 'stand alone' effort, each with its own priorities and sources of funds and with little attention given to achieving a set of statewide goals that encompass all species and all invasion pathways.

As noted in the Introduction, Idaho's programs have been likened to a patchwork quilt, where each patch represents an individual program or effort. What follows in this plan are the specific actions needed to assure that the pieces of the quilt connect in a way that assures total coverage. Much of the success of the plan will be through efforts to educate those who interact with species and invasion pathways to take responsibility for their share of the problem. There are also recommendations for changes to existing laws and for coordination of the patchwork quilt represented by numerous state, federal and local laws and programs that address invasive species. Each is important and each has a place in an effective, comprehensive plan that can meet the challenge of invasive species in Idaho.



Early Intervention- Prevention, Early Detection and Rapid Response

One point of consensus from the Invasive Species Summit is that it is better to prevent new invasions of unwanted species than to attempt to eradicate or control them once they are here. Prevention is a multi-faceted task that includes actions ranging from education of those who might inadvertently bring unwanted species here to enforcement of laws for inspections and quarantines.

Task 1

Develop lists of unwanted, high risk species that should trigger rapid responses

Goal:

Create, within a ten-year period, a public climate that allows “self-policing” of high risk actions for high risk species coupled with regulations that limit or prevent high risk species from entering the state.

Objective: By 2007 create lists of high-risk invasives—species that are not wanted in Idaho but with a high probability of introduction, establishment, and accompanying serious damage, as well as those that occur in some areas of the state but not others.

Discussion: One of the top priorities to improve invasive species management in Idaho is to increase our knowledge of the species that threaten our environment and economy. Only by carefully targeting our limited resources can we maximize the progress against managing invasive species threats. We must improve our understanding of the relative risks individual species pose so that we can prioritize resources and management activities. Although we have compiled various lists of species over the years, no one has attempted to assess their relative risks or to prioritize species for management (note also “Task 4” in the section, “Creating an Adequate and Effective Legal Structure”).

In order to address this need, the Invasive Species Council recommends the creation of an alert list of invasive species. The purpose of the alert list is to provide an adaptive and flexible tool for prioritizing management of invasive species statewide. The alert list will drive the creation of effective prevention, early detection, and rapid response systems. While the ISDA Division of Plant Industries has a “watch” list for plant pests that primarily affect agricultural crops, this needs to be broadened to include all taxa (i.e., plants, animals, and pathogens).

Listing Criteria

For the species list to be successful, it must have support from interested stakeholders. Before creating an initial list, the Council will consult with stakeholders to determine a technically sound set of listing criteria and a risk assessment process for prioritizing management. After determining selection criteria, the Council will compile a preliminary set of species that meet the criteria. Existing resources such as the Idaho noxious weed list, the Invaders

database, the University of Idaho Weed Resources webpage, U.S. and Idaho Departments of Agriculture pest lists, and U.S. Geologic Survey aquatic species listings may provide a starting point. Similar lists from adjoining states are at least equally useful, since those states generally have similar habitats and may have species there now that can be expected to spread to Idaho. Washington, for example, has completed an extensive administrative process to develop various species lists.

As outlined in the following actions, the Council will then facilitate risk assessments on the species to determine the relative risks they pose to Idaho's economy and environment. Based on these assessments, the Council will prioritize invasive species for management. The most invasive and damaging species will be red alert species.

"Red Alert" Species

The species on the alert list that pose the greatest threat to Idaho would comprise a short 'red list'. Red alert species will be the focus of statewide prevention, early detection and control efforts. In order to maintain focus, the red list must remain small, comprising the few species that most urgently demand attention. While the species on the red list may change over time with changing priorities, the list should remain small so as not to dilute management efforts. Keeping the list small will allow for more effective cross-training of agency field staff such as stream survey crews, foresters, range conservationists, conservation officers and rangers. "Red list" plant species must also be on the state's noxious weed list to ensure that weed control organizations are able to spend their funds for the control of "red list" plant species.

Task 2

Develop a statewide system for early detection of suspect species, rapid assessment of their potential risks and responses commensurate with those risks.

Objective: By the end of 2009 there should be a network of trained people in Idaho who can help detect new species or those which might be in new places. This detection capability will be augmented by scientifically based protocols for determining whether new species pose serious risks. For those that do, there must be an appropriately rapid response from the regulatory body with responsibility for the species in question.



White Pine Blister Rust—Thought to be introduced from imported nursery stock about 1900, this forest pathogen has decimated northern Idaho's famed white pine stands. It can also attack high elevation whitebark pine, the seeds of which are an important for wildlife.

Discussion: There is agreement that the most cost effective means of controlling weed infestations is to treat them when they are small and few in number. The more a weed species spreads, for example, the less likely is eradication, and the greater the cost of control efforts (Figure 1). This same principle applies to the broader spectrum of invasive species.

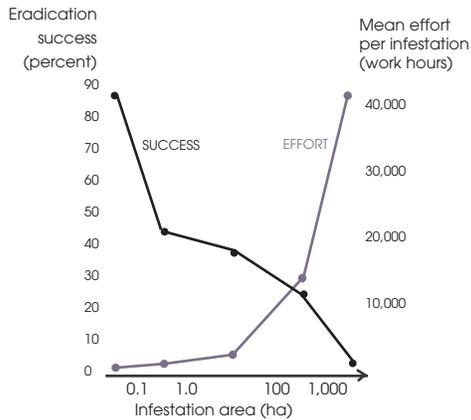
Currently Idaho does not have a systematic approach for finding and treating species early in the invasion process, apart from that for some plant pests including gypsy moths, Japanese beetles, Mexican bean beetle, and *Ralstonia*. The Council recommends implementing an early detection and rapid response system statewide to address this gap in management. Key elements of this system will include creating an identification corps, establishing a reporting center, creating a rapid response network, developing a warning system for partners, and monitoring results (Fig. 2).

To increase our ability to detect species early, we must increase the number of eyes on the ground looking for new invaders. These new eyes include agency field staff and other partners who spend time on our lands including staff from the Idaho Departments of Agriculture, Environmental Quality, Fish and Game, Lands, and Parks and Recreation; the U.S. Bureau of Land Management, Forest Service, Geologic Survey, and Natural Resource Conservation Service. Information from their observations must be reported to the invasive species coordinator (see pages 60-65).

The invasive species coordinator will be the point of reporting. The coordinator will develop a streamlined and effective reporting process that includes a hotline number for reporting invasive species sightings. With this information, the coordinator can help arrange for the response that may be needed, working with the appropriate agency to ensure that action is taken to eradicate or control the new invader. These efforts will need to be spelled out in individual agreements between the various agencies that make clear the responsibilities that each has for rapid response or other control actions.

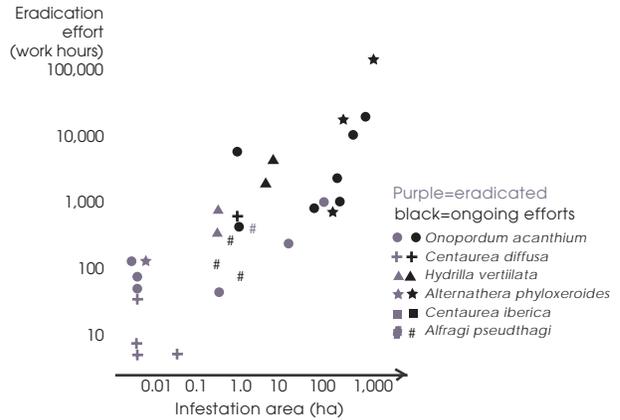
Figure 1 Economics of Eradication and Control

Early detection makes all the difference.
In this dataset, infestations larger than 1000 ha were unlikely to be eradicated using a realistic investment of resources.



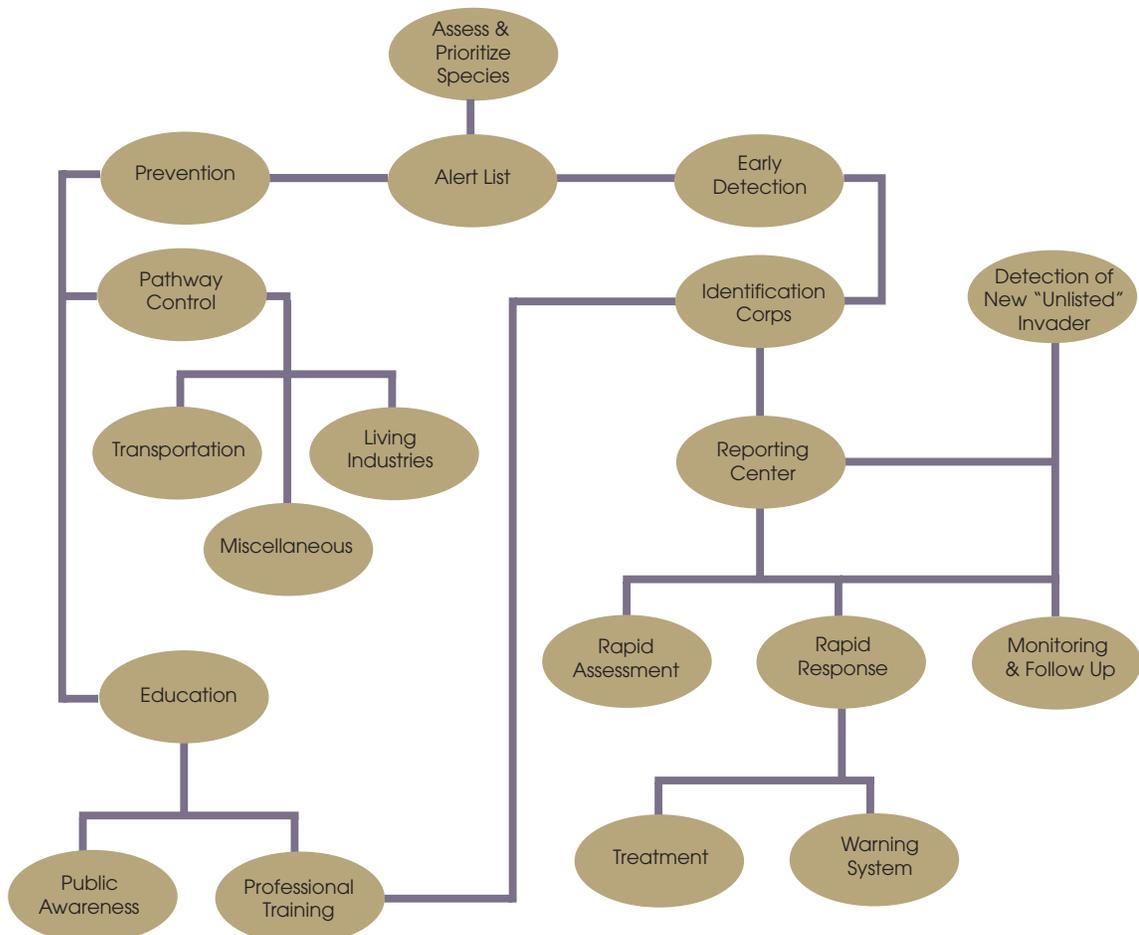
Evaluating the battlefield: Attack or defend?

Early offensive strategies pay off regardless of species; six different noxious weeds in California were successfully eradicated when efforts started early.



Based on a 28-year data set of eradication attempts by the California Department of Food and Agriculture on 18 species and 53 separate infestations targeted for eradication between 1972-2000. Adapted from Rejmanek, M. and M.J. Pitcairn. 2002 (2).
McNeely, J, LE Neville, and M Rejmanek. 2003. When is eradication a sound investment? Conservation In Practice, 4:30-31.

Figure 2 Invasive Species Alert System



Task 3

Create a hotline or other mechanism for reporting new or spreading species or obtaining information about various species.

Objective: By the end of 2005 establish within state government a single hotline and interactive website where individuals can report suspect species or potentially high risk activities and where they can identify and obtain information about various species. This hotline might be created simply by expanding the existing hotline managed by the Idaho Weed Awareness Campaign.

Discussion: Currently, there is little to guide the landowner, private citizen or even agency employee who finds a species that appears out of place or threatening. Those with some experience in invasive species—a member of a county weed committee, for example—would likely report a new weed to the weed supervisor or at least bring it to the attention of his or her peers. However, the same plant would likely draw little reaction from a utility worker, sportsman or employee of a state or federal agency with limited responsibility for weed management.

The problem magnifies when the species is not a weed. Weed management, at least, enjoys the benefit of previous and ongoing educational efforts. There are various print materials which illustrate noxious weeds and there is the work of the Weed Awareness Campaign. But what if the species in question is a snail that an angler notices in his or her favorite trout stream or an aquatic plant that wasn't in the same area in previous years? How many people would recognize young salt cedar seedlings, even to know that they are new to a particular stream basin?

The problem is also twofold. One part is education. Those who may come into contact with new species must know what to look for. But the second part is creating a reporting structure. Those who find a new or spreading species need a place to report their findings and gain some basic information about what they may have found, the risks it might pose and reasonable next steps.

Without such a site that is readily known and easily accessed, trained observers or the merely curious cannot be expected to provide meaningful follow up. Idaho and other states have sophisticated processes for reporting hazardous situations, such as a leaking tanker truck, for example. A simple radio call from a field law enforcement officer or a cell phone call to 911 from a passerby will trigger a response from law enforcement officials, DEQ, or other appropriate authorities. But the same law enforcement officer or private citizen would likely have no idea of what an appropriate action might be if they were to see suspicious mollusks clinging to an out-of-state boat about to launch in the Snake River.

While scarcely any invasive species merit the same response as a strange or obviously hazardous liquid leaking from a truck on the interstate, the same principles apply. Both situations should trigger a rapid assessment and response. Again, training people to report suspicious species and circumstances is a complex undertaking. However, a keystone of the effort must be a known, easily accessed and reliable website, phone number or offices that can quickly and effectively address invasive species concerns and questions.

Task 4

Increase surveillance of invasion pathways.

Objective: By the end of 2006, provide the training necessary to give Ports of Entry and law enforcement personnel the skills, knowledge and authority to look for and recognize both unwanted species and situations that might allow them to enter our state. Also, extend training efforts to include businesses that import exotic fish, pets or nursery stock into Idaho.

Discussion: Those who travel to Idaho or pass through the state on their way to another destination represent an important vector for the introduction of unwanted species. In almost all cases, the introduction is inadvertent, with weed seed heads adhering to wheel wells and campers, insect cocoons hidden in lawn furniture that may be moved here from areas infested with gypsy moths or other pests, or zebra mussels living on the undersides of pleasure boats.

Fortunately, we know where and how unwanted species that accompany travelers are likely to arrive. By far, the greatest number will travel our highways and enter the state through approximately 30 points where public roads cross the state border. Perhaps half of these are only lightly traveled and are not considered major travel corridors (DeLorme). This limited number of access points equates to a level of surveillance for suspect vehicles and inspections that should be manageable, if there is legal authority, training and direction to do so. There are also historic invasion pathways such as importations of exotic pets, fish or nursery plants that require surveillance.

Clearly there is neither the political will, sufficient manpower or the necessity of setting up staffed border "check points" (although some states do have these) strictly for inspections of incoming vehicles for possible unwanted species. There is, however, the potential to train law enforcement personnel and others to identify high risk vehicles and situations. In fact, there is a precedent for doing so in the cooperation exhibited by the Departments of Transportation and Lands in identifying newcomers to the state from areas of gypsy moth infestations. This is an outstanding example of identifying a high risk situation and responding to it with preventative measures. It is also one that can be replicated for boats coming from waters that have zebra mussels or recreational vehicles that come from areas with major infestations of particularly noxious weeds.



The key is in training those who interact with tourists and others who travel to our state. It will also be important to use border crossings as opportunities for education, with signs and easily available print materials that explain why and how travelers and newcomers can identify and remove unwanted passengers.

Most of those who interact with travelers are law enforcement personnel. In Washington, the Department of Fish and Wildlife worked with law enforcement officials to teach them to look for various nuisance and unwanted species with good results. As of May 2004, the Washington State Patrol has found live zebra mussels on two west-bound, trailered boats at the Spokane port of entry. According to a Department of Fish and Wildlife news release,

“On May 11, WDFW was alerted when a Washington State Patrol (WSP) officer at the Interstate 90 Port of Entry east of Spokane found live zebra mussels on the trim tabs of a 38-foot boat on its way from Tennessee to Washington’s coast.

“Our nuisance species detection training paid off,” said WDFW Regional Enforcement Captain Mike Whorton, who took the call from WSP’s commercial vehicle inspector James J. Spencer.

With the help of Spokane Police Officer Brian L. Baldwin, Spencer detained the boat hauler until Whorton and WDFW officer Mike Sprecher arrived to collect information and make arrangements to send the boat to a decontamination site at a Bellingham marina.”

Surveillance of border crossings and inspections of private vehicles may seem extreme in a state and country that values personal freedoms, even when circumstances warrant. However, the influx of visitors and newcomers to our state and the ease of travel from all parts of the world point to the need to become more vigilant, particularly in high risk situations. While there are costs and inconveniences involved with preventative measures, they pale in comparison to those associated with control or acquiescence to an unwanted species that is truly damaging.

Finally, interstate commerce is not always limited to shipments by trucks that are clearly identifiable as hauling cargos that might harbor invasive species. Increasingly, it is becoming possible to order plants or some aquarium stock over the Internet and have them delivered by delivery services or mail. Monitoring these potential invasion pathways is particularly difficult and may rely more on education than physical inspections.



Containment, Control and Restoration

Some unwanted species are already here and have proven to be truly invasive. Others will arrive despite our efforts to prevent them. It is important to control them by eradicating small, incipient populations and by preventing the spread of larger populations where eradication is no longer possible. This might be viewed as the in-state version of prevention, early detection and rapid response, where the object is not to keep the unwanted species from our state but rather to keep those that are already here from spreading.

Task 1

Set priorities for control work by risk assessments and by defining clean areas of the state

Goal:

Prevent various invasive species from spreading and to reduce populations in already occupied areas.

Objective: By 2006 identify areas of the state that are either free of various invasive species or are infested. Direct control efforts toward those cases in which the risk of spread to free areas is highest.

Discussion: A drive from the southern part of the state to the Canadian border by a knowledgeable observer will reveal significant differences in the occurrence of invasive species. The differences are particularly striking for noxious weeds, among the most visible of invasive species. In the southern arid rangelands, Rush skeletonweed is commonly found, but it generally hasn't spread to the wetter north. Spotted knapweed is generally restricted to northern Idaho. Yellow starthistle is most common in the Clearwater Valley, but has spread to Hell's Canyon and the lower Salmon River Basin. Rangelands in south Idaho would seem to be well-suited for this particularly obnoxious plant. Other pests are less visible but nevertheless are found in some areas of the state but not others. So far, New Zealand mudsnails have been confined mainly to portions of the Snake River drainage, for example.

As is the case for unwanted species that are not here now, those species that occur in some areas of the state but not others have predictable vectors for spread. They include inadvertent "hitchhiking" on people, pets, recreational vehicles, livestock, and agricultural commodities. There are also risks associated with human activities or commercial ventures for transporting pests from one area of the state to another. However, since the species already occurs somewhere in the state, there is little need to assess the risk that it might inflict damage if introduced to other areas. That risk is clear from the damage it has already inflicted in areas where it occurs. We do not, for example, need to consider whether spotted knapweed will damage southern Idaho's rangelands—we already know what it can do from experience in north Idaho where it does occur.

Travel and commerce in Idaho are, for the most part, unrestricted, with the exception of sales and transport of agricultural commodities that might transport various plant pests. Apart from that regulated activity, citizens are largely free to roam the state in recreational pursuits, to buy, sell and transport agricultural crops, to move household goods and to ship livestock or move them between grazing areas. Therefore, keeping areas free of unwanted pests is often a function of educating those who might inadvertently transport them plus developing the ability to rapidly eradicate incipient outbreaks.

There are examples of effective control and preventative measures that might serve as models. Requirements for weed free hay for fall hunting trips and the efforts of local weed committees to exchange non-certified hay for weed-free hay are excellent examples. Localized control and quarantine areas of pests such as apple maggots are another. Those who have apple trees on their property within the quarantine area are regularly reminded of the need to spray them and not to transport the fruit.

These examples address high risk activities (transporting hay and apples), and, in the case of apple maggots, high risk areas. Similar efforts are needed for equally hazardous situations. The recent discoveries of yellow starthistle near Cambridge, approximately 150 miles south of any other known population and even farther away in the Twin Falls area are causes of concern. They must trigger not only careful study of how the plant may have arrived there so that such instances can be prevented in the future and immediate control actions to eradicate new colonies before they become uncontrollable.

Unwanted species with a known history of invasiveness and damage coupled with areas of the state where they do not now occur define a high risk situation that demands attention. Species must be confined in areas where eradication is no longer possible. The vectors for transport to “clean” areas must be identified and managed, either through regulatory actions or education, to keep them from spreading to areas where they do not now exist. For these areas, there must be a “zero tolerance” policy regarding invasives that were not there previously.

Task 2

Where needed, develop programmatic NEPA analyses and decisions to speed control and eradication for federal projects and for federal lands.

Objective: Review whether it would be useful for federal agencies to complete NEPA analyses in advance for the species and locations most likely to be infested to minimize the time between detection



Cereal Leaf Beetle—Cereal leaf beetle, a native to Europe and Asia, was first detected in Michigan in 1962. Since that time it has spread throughout most of the mid-western and eastern United States and reduces grain yield by eating the green leaf tissue.

and action for federal partners. By the end of 2008, complete any programmatic NEPA analyses for federal lands, operations and high-risk species where there is agreement that “advance” NEPA clearances would speed control or eradication efforts.

Discussion: The National Environmental Policy Act requires an analysis of any federal action that may harm the environment. This requirement takes the form of an environmental assessment or environmental impact statement (EIS) that is the basis for such agency decisions as herbicide use to control noxious weeds on federal lands. Unfortunately, these analyses take time, often months, particularly when impacts on a number of environmental values must be analyzed or where there might be controversy over the decision that must be made. Many invasive species can be expected to spread to federal lands. Similarly, there may be aquatic species where control actions are best carried out at some federal facility—a fish hatchery, dam or irrigation impoundment, for example. For federal agencies, control or eradication will almost certainly involve an NEPA analysis.

Future invasive species outbreaks on federal lands are almost a surety. For example, predicting that yellow starthistle will ultimately show up on BLM lands in south Idaho is not unreasonable. The larger question is where and when. Given that, there is much to be gained by preparing as much of the NEPA analysis as possible in anticipation of that occurrence, should any of BLM’s prospective control actions require additional NEPA documentation. While details related to the location of the specific outbreak must obviously await the actual event, it does seem likely that the effects of fire or herbicide treatments and the environmental values to be protected will likely be consistent over much of the area where the unwanted plant is most likely to occur.

The objective of this proposal is to reduce the time between discovery and control actions as much as possible. For some species, this is critical. If, for example, a noxious weed were to be discovered in the Birds of Prey Area where the native vegetation has already been severely compromised by cheat grass and fire and then a full growing season were allowed before controls could be initiated, eradication may no longer be possible. Early detection and rapid response go hand in hand. Without the ability to respond in a timely manner, efforts to detect the unwanted species are wasted.



**Reaching
Important Audiences
Through
Education and Training**

There is a consensus that education lies at the heart of most successful efforts to prevent and control unwanted invasive species. The resources and the political will necessary to inspect, regulate and mandate control actions for all potential invasive species and all invasion pathways do not exist now and likely will not exist in the future. People will only change their behavior because they understand the risks and they want to do their part. Creating that climate is a function of education.

Goal:

Create a climate in which people understand the risks of invasive species and change their behavior toward them because they want to do their part to prevent invasions and control species already here.

Task 1

Identify specific key audiences, the messages appropriate for each, and create the communications tools to reach them.

Objective: Identify those audiences that can be most influential in addressing invasive species management and by the end of 2007 develop a full array of specific communications tools to reach each of them.

Discussion: It is a mistake to assume that educational efforts must be directed at “the public” or the proverbial “man in the street” and that mass media techniques are needed to communicate with them. The public is made up of any number of discreet audiences and some of them will have a greater stake in the management of invasive species than others, or a greater ability to be influential in efforts to prevent or control them. It is important to identify those audiences and then, with the help of professional communicators, develop effective ways to reach them.

Many people and industries have a stake in invasive species management. They include not just those who interact with either Those who interact with species or pathways:

Stakeholders:

- Rural landowners;
- Sportsmen and recreationists;
- Urban homeowners;
- Gardeners;
- Farmers and ranchers;
- Bankers and those who finance land purchases;
- Members of environmental groups;
- Landscaping companies;
- Pet stores and importers of live fish;
- The aquaculture industry.

Those who interact with species or pathways:

- Law enforcement personnel;
- Conservation officers;
- Utility workers;
- Farmers and ranchers;
- Sportsmen and recreationists;
- Nursery and landscape workers;
- Various agency field survey teams;
- Home and garden retailers;
- Park rangers;
- Foresters and range conservationists.

Those who might influence public opinion:

- News reporters and editorial writers;
- Local elected officials;
- Weed committee members;
- Legislators and state elected officials;
- Teachers;
- Members and staffs of various interest groups;
- County commissioners and other local elected officials;
- (You already have teachers three lines up.).

Each of these individuals and groups will require different communications approaches. For example, it is common to communicate with news reporters through news releases, one-on-one conversations or short field trips. It is also necessary to build communications with reporters around “news hooks”, something worthy of newspaper or TV coverage. On the other hand, communicating with those who work in the nursery or landscaping business might require durable booklets of species to watch for, perhaps written in Spanish. The twenty or so groups included in the foregoing list will likely require many separate communications approaches.

The range of communications tools is almost as large as the various audiences to be considered in an effective communications strategy. Again, this list is but an indication of tools that will likely be effective in various situations or with various audiences.

- Print brochures and booklets;
- Recreational access point signs;
- Public service TV and radio ads;
- Paid commercial advertising, electronic and print;
- Tours and workshops;
- Flyers to be included with tax notices or recreational vehicle registrations;
- One-on-one conversations;
- Public meetings;
- News releases;
- Classroom instructional materials;
- Tips to media about upcoming events.



Fire Ant—The red imported fire ant was imported around the 1930's and has spread to infest more than 260 million acres of land in nine southeastern states. It has the potential of spreading west and surviving in southern Arizona and along the Pacific coast north to Washington.

In short, there are any number of groups and audiences and an equally large number of communications tools to reach them. Many of these tools exist now, the product of similar efforts in other states or by federal agencies, and it will be important to use those that are available and appropriate. More challenging is finding educable moments and knowing how to take advantage of them. This is a job for professional communicators, but it is an absolute necessity if we are to increase awareness of invasive species issues and how to meet the challenges they pose.

Finally, it is important to recognize that effective communication paves the way for a constructive public climate. Invasive species managers would do well to emulate the successful Smokey Bear or anti-littering campaigns that made wildfire and littering unacceptable. Just as we now fasten our seat belts as a result of the enactment of new laws and a massive public relations effort, we now need to build an understanding that personal action to prevent the introduction or spread of unwanted species is the right thing to do.

Task 2

Cross-train agency and industry personnel to recognize and report possible invasions.

Objective: Identify the people who may interact with invasion pathways and invasive species through their jobs and then train them to recognize unwanted species or hazardous situations and how to respond when they do. Complete a curriculum for such training by mid-2006.

Discussion: The list of those whose activities bring them in contact with either unwanted species or invasion pathways is long. It includes law enforcement personnel, conservation officers, utility workers, those who monitor streams, forests and rangelands, park rangers, truckers, landscape and nursery workers, pet shop owners, baggage handlers, delivery persons, farmers, ranchers, outdoor recreationists and others. While each is a part of a discreet audience, there are commonalities among the approaches needed to reach them.

Each worker among these groups had to be trained to do his or her job. For most, training is likely an ongoing function of their employment. Some of these continuing education and training efforts are opportunities to help these employees and their employers understand that they might encounter either unwanted species or situations that lend themselves to introduction or spread of these species.

Consider the deputy sheriff that Idaho Power retains to inspect boaters on Brownlee reservoir for needed safety equipment. That person obviously needed to be trained on the law's requirements for horns, life jackets and other safety equipment, as well as how to deal with a variety of people. During that process, it would be relatively simple to train them to look for aquatic weeds or mollusks on boats or trailers. The challenge is probably not convincing either Adams County or Idaho Power that it would be useful to have this person look for unwanted species—both are well aware of the problem. And, it is probably safe to conclude that the deputies with this duty would be willing to assume a new task. The challenge is to recognize that the opportunity exists and then being equipped to take advantage of it.

This is not a difficult task. Fact sheets, pictures of unwanted species, short seminars on how to recognize them and what actions to take, videos and even web-based short courses are all standard fare for continuing education efforts, and, again, many may already exist. In fact, a first step should be to survey those that already exist and may have some usefulness in Idaho. Some may need to be developed and others adapted for Idaho's situation. Then, they must be used by carefully identifying who would benefit from such training efforts and making the necessary arrangements.

There is also a strong role that volunteers can play, including those whose work might not regularly bring them in contact with invasive species, but whose outside interests may. Several state agencies, including the Department of Fish and Game as well as various cooperative weed management areas, have a tradition of working with volunteer groups. With the necessary training and motivation, volunteers could be extremely effective in detecting new or spreading invasions and helping control them.

Teaching the Teachers Pays Off

During the summer of 2004, the Idaho Rangeland Resources Commission hosted more than 90 teachers in continuing education classes on rangeland ecology. One teacher, Sue Dransfield, of Lowell Scott Middle School in Meridian, was so impressed with the impacts of noxious weeds that she had turned her experience into a major project with her students. Now, they are working with Ada County weed managers Brian Wilbur, Brian Dallolio and Loren Brackett to identify, map and monitor the spread of weeds in a local wetland area important to wildlife. As Brian Dallolio noted, "It is very refreshing to see the enthusiasm these kids exhibit for the project...we will make use of the data they collected to further our weed control efforts."

"My classes have enjoyed our weed eradication project. The Rangeland Ecology workshop gave me the tools and the background to make this a fun, successful, and worthwhile project," says Mrs. Dransfield. In addition to learning about weeds and wildlife management, her class of gifted students also learns to use GPS equipment and sophisticated mapping technology. IRRC's workshops are unique to Idaho and there is not a national rangeland curriculum for teachers. The Commission held three week-long sessions, with teachers from every part of the state, every grade level and representing a variety of educational disciplines.

Task 3

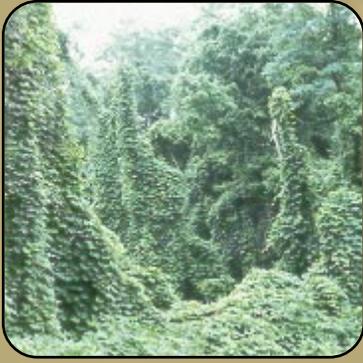
Measure progress in reaching intended audiences and in building public support for preventing the introduction or spread of invasive species through regular public opinion polling.

Objective: Establish a baseline of public understanding and support for properly managing invasive species and monitor how that climate is changing over time. Begin with a series of polling questions that should be asked by the end of 2005.

Discussion: It is impossible to know where a public education program is headed until there is a measurement of public knowledge and attitudes at the outset of the effort. Establishing this baseline knowledge and then tracking how it changes over time is a function of polling, questionnaires and focus groups. To do it properly, careful attention must be given to the questions that are asked and the audiences to whom they are directed.

While polling and other ways to measure the public climate are expensive, it is possible to reduce the costs by partnerships with others who might be conducting similar efforts. Boise State University, the Forest Products Commission and the Idaho Rangeland Resource Commission all conduct regular polls and similar efforts and might be open to partnership opportunities.

Measuring public opinion has benefits beyond simply taking the pulse on how the public perceives invasive species and efforts to prevent their introduction and spread. They can pinpoint voids in the public's knowledge and erroneous perceptions. If these can be identified then specific changes in various programs can be developed to correct them. Second, if there is particularly strong public support for effective management of invasive species, that finding can be used to build political support for funding or needed changes in applicable laws. Both are important measurements of whether ongoing programs are moving the needle of public understanding and cooperation. In addition, polling can also help identify target audiences and the messages that will be effective in reaching and motivating them.



Broadening Knowledge Through Research and Technology Transfer

There is much to be learned about invasive species, including their biological parameters, how they can best be controlled and the risks posed by their arrival, spread and potential damage. We must also increase our ability to map and monitor their presence. The whole subject of effective and safe biological controls is an important area of inquiry. It is equally important that the results of research and the practical experience of others be synthesized and made available to Idahoans. There are excellent models for research and technology transfer in the agricultural research and extension programs carried out by land grant universities across the country. Many of these programs are directly applicable or can be easily expanded to include invasive species.

Goal:

Put in place a full complement of research and continuing education programs that expand our ability to address invasive species.

Task 1

Identify and set priorities for research needs.

Objective: Encourage university research toward those species and issues that either pose the highest risks or have already exacted a high economic or environmental price. Do this through a regular collaborative review of ongoing or proposed research.

Discussion: There is a huge role for university level research into an almost unlimited reservoir of invasive species topics. Some of the more obvious include:

- The development and safe use of biological and chemical control agents;
- Using remote sensing to detect new invasions and the spread of existing species;
- Assessing the risks of species that might arrive and the damages they might cause;
- Effective ways to restore areas now infested with damaging invasive plants;
- Genetic engineering to increase resistance to plant and animal pests;
- Using fire or grazing to control various invasive plants.

Accompanying the research needs and the resulting new knowledge is an equally large task of communicating the findings to those who can apply that knowledge to prevent new invasions or spreads. Research and continuing education are familiar territories for such land grant institutions as the University of Idaho and other collaborating institutions. The spread of invasive species is another challenge that can be met through the highly successful

research and extension model. However, there must be interaction between the researchers and extension specialists and those on the front lines of invasive species management that will assure that research and continuing education programs are timely, relevant and directed toward the biggest problems.

One possible way to help direct research is for the Invasive Species Council to develop a competitive grant program that will identify specific research needs. The Council would then issue requests for proposals to those institutions and individuals that might help fill those needs. There is a model for such a grant program in ISDA “Specialty Crop Grant Program” or the program administered through the Idaho State Pesticide Management Commission. Such a program would need both startup funds and a source of funds for ongoing operations.

With the recently announced “Center for Invasive Species and Small Populations” (CRISSP) at the University of Idaho, there is an opportunity to assure that research and extension efforts complement the prevention and control measures that Idaho will adopt through this plan. With the \$1 million grant from the State Board of Education to establish the Center, the leadership of the Center will:

- Provide postdoctoral fellowships, stipends for students, and research budgets for their project;
- Provide summer internships for undergraduates receiving training in the Center’s research facilities;
- Provide partial salary for a full-time research scientist who will manage the facility, and provide training and technical advice for researchers;
- Fund an outreach program and seminar series that would disseminate information to the public via website and public lectures; bring in prominent scientists from other institutions; and provide a venue for in-house speakers to present their findings.

CRISSP’s efforts provide an unprecedented opportunity to join efforts in a coordinated fashion and to assure that the implementation of the plan and the work of CRISSP are complementary. It will also be important for CRISSP to cooperate with those institutions in other states which have ongoing invasive species efforts. For example, the University of California at Davis, Portland State University and Oregon State University have especially active programs in aquatic invasives.



Kudzu—Originally introduced into the United States as an ornamental vine at the Philadelphia Centennial Exposition of 1876, kudzu rapidly escaped its intended ecological niche. Found mostly in southern states, it covers trees and human structures. It has been discovered in the Pacific Northwest.

It is important to bear in mind that CRISSP is a new initiative and plans for its future work are in the formative stages. One faculty member who will be a part of the initiative noted that he would like to see CRISSP consulted with and involved in designing curricula and providing training for biologists and others who will be on the forefront of prevention and control efforts. CRISSP faculty also envision filling what they perceive as a gap in detection and monitoring of invasive plant pathogens that are more common in forest and rangeland plants than in agricultural crops. One way to help do this might be for CRISSP to provide training and lab space for a state-supported diagnostician who would coordinate surveys and complete diagnostic work. Present plans also call for various advisory groups to help guide the Center's work. This will be important, particularly since the Center is beginning its efforts at roughly the same time that the statewide plan is being finalized and implemented.

Task 2

Begin applying what we know and continuing education efforts on three immediate invasive species needs: including detecting and mapping new or spreading invasions, risk assessments and restoring sites infested with invasive plant species.

Objective: Use our existing knowledge and ongoing research and extension efforts to make short term gains in prevention and restoration and in assessing the risks of new species. Develop pilot projects to demonstrate this knowledge by the end of 2007.

Discussion: Regardless of the role that the CRISSP might play in the future, there are both immediate needs and ongoing efforts that can be matched to make gains in the prevention and control of invasive species. Work in these efforts predates the development of CRISSP and has been underway on a variety of fronts. For example, the Forest Service is nearing completion of a risk assessment strategy for forest and range invasive species. Pioneering work is also underway at the University of Idaho for the use of high technology remote sensing to measure forest and rangeland health and the BLM has been heavily involved in finding ways to restore rangelands now populated with non-native and undesirable invasive plants.

There is a need to gather what we currently know and begin to find ways to use that information. The immediate needs that come to mind and where work has been done include methods of monitoring new or spreading species, risk assessments and

restoration of infested sites. It may be timely for those involved in this work to spend some time with those whose day-to-day efforts to prevent or control invasive species would be augmented by an exchange and application of new knowledge.

Winter and the cessation of most field work is a good time for a 'mini summit' of researchers and scientists and those who would benefit from their knowledge. Here in Idaho, this might be accomplished through a two or three day exchange of information and experiences that would include representatives of the Forest Service, BLM, the U of I and other institutions and private organizations, along with weed supervisors, state agency representatives who manage invasive species programs and other stakeholders. The focus of the discussion should be a review of current knowledge and how it might be immediately applied to invasive species efforts.

Task 3

Use the expertise of the Cooperative Extension Service to support the actions outlined in the "education and training" provisions of this plan.

Objective: Have available the necessary communication and training tools that can reach a variety of audiences and that will help each in their efforts to prevent or control invasive species. These should be available by the end of 2005, although there will be a continuing need for new or updated material.

Discussion: As noted in the section on reaching important audiences through education and training, there is a continuing need for professional communications and training tools designed to reach a wide variety of audiences. Again, this is familiar territory for extension and continuing education specialists who have the expertise needed to develop the needed tools. In addition, the Idaho Weed Awareness Campaign, the Forest Products Commission and the Idaho Rangeland Resources Commission all have expertise and missions which would allow them to help in the communications tasks.

What are needed now are the resources to complete education and training materials and discussions with professionals in invasive species management to identify specifically what is needed and who might best develop it. As is the case with the exchange of information regarding the use of emergent technologies, one way to bring focus to educational needs might be through discussions among educators, communicators and invasive species professionals to identify needs and find ways to meet them.





Assuring Adequate Funding

Assuring Adequate Funding

There are three certainties. First, most invasive species efforts are public sector programs and these must have sufficient tax dollars to support them, although public funds can certainly be augmented by volunteer efforts and private funds. Second, the costs of preventing and controlling invasive species will increase as commerce and travel increase. Mounting an adequate defense against invasive species will require more funds and most of those will come from either federal or state sources. Third, it is far less expensive to prevent rather than to control and dollars can be saved in the long run through adequately funded prevention measures.

Goal:

Identify funding needs, identify potential sources of funds to meet those needs and assure that funding levels will be adequate to meet the challenges invasives pose to Idaho.

Task 1

Identify all funding sources that might be available for invasive species management and position the state to take advantage of them.

Objective: By the end of 2006, have in place an array of funding sources and a strategy for securing them so that invasive species programs in Idaho are adequately funded.

Discussion: Managing invasive species produces benefits that accrue to the public at large, rather than to any specific industry or interest. Whether measured in reasonable costs for food or in wildlife habitat, the benefits are largely public and, therefore, funding efforts to secure these benefits are worthwhile expenditures of taxpayer dollars. While it is true that the majority of funds for preventing or controlling invasive species will come from public sources, it is possible to find money without a significant local tax increase.

Potential sources include grants from federal agencies and private organizations, the normal expenditures of federal agencies for invasive species management and appropriate user fees or civil penalties for violations of invasive species laws, as well as from current sources of funds. In a recent Washington state survey, 80% of the boaters there supported an addition to their boat registration to fund inspections for invasive species, for example (Van Vooren).

Currently, Idaho agencies spend in excess of \$10 million for invasive species management. Funds come from all the above sources. Control of noxious weeds is probably the largest single expenditure of money in the state for invasive species management, totaling approximately \$9.5 million. In 2003, money for weed control included funds appropriated by the Idaho Legislature (\$541,000); federal grants from the BLM and Forest Service (\$1,340,000); property tax assessments levied by individual counties to support their own weed departments (\$3,594,000); and direct payments for weed control work by the Forest Service, BLM, and state agencies (approximately \$4,400,000) (Idaho Invasive Species Assessment, 2003).

Funding for weed management is a cooperative venture including state agencies, federal agencies and private landowners. No single entity bears the total cost. Also, much of the work is completed locally through the efforts of Cooperative Weed Management Areas. The managers of the local efforts enjoy a well deserved reputation for being both innovative and parsimonious in their use of these funds. The sources and funding amounts listed above do not include private grants and other revenues that fund such activities as the “Weed Awareness Campaign” or the work of the noxious weed laboratory within the College of Agriculture at the University of Idaho.

The ability of those involved in weed management to “forage” for funding and to extend that which they find to the maximum extent possible is a worthwhile model for other invasive species programs. However, sources of funds are not without their limitations and competition for those funds is keen. Fortunately, Congress is beginning to see the need for increases in funding for both federal and state programs. Lawmakers are considering a number of bills to provide a more stable mechanism to fund invasive species efforts by the states and the federal government, particularly for noxious weeds. As of October 2004, there were 50 bills pending in Congress that addressed some aspect of invasive species management by the federal government (The Library of Congress).

Three legislative measures (each of which has companion pieces in both the House and Senate) would, if passed, significantly increase invasive species control efforts by both federal agencies and individual states. They are:

- The National Invasive Species Council Act (H.R. 266, S. 536)
- The National Aquatic Invasive Species Act (H.R. 1080, S. 525)
- The Noxious Weed Control Act of 2003 (S. 144, now referred to the House as H.R. 119)

The first of these measures, the Invasive Species Council Act, would put into law the existing Invasive Species Council and the provisions of the Executive Order that created it. It would also authorize \$2 million annually for the Council’s operation. While this might be viewed as a superfluous action since the Council exists and is operating, it would also provide a Congressional endorsement of the effort and a niche in the annual budgeting process, a shortcoming that GAO observed in its review of the Council’s work.



Asian Longhorned Beetle—The

Asian Longhorned beetle is an exotic pest that has become established in the Northeast, where it attacks shade trees.

Controls include removing all trees in the area surrounding the discovery. Infested cargo in warehouses has been discovered in at least 17 states, including California, Oregon, and Washington.

Bills addressing aquatic invasive species would further underwrite the work of the Council by giving it a major statutory role in the management of aquatic invasive species. The National Aquatic Invasive Species Act mirrors the framework of the National Invasive Species Plan. It does this through its focus on prevention, public outreach and education, early detection and rapid response, research and risk analysis, and control and management.

Idaho U.S. Senator Larry Craig has played a lead role in the passage of S. 144, the Noxious Weed Control Act of 2003. Senator Craig's concept is that while the Plant Protection Act strengthens the regulatory capabilities of APHIS, particularly for plants entering the country, this legislation will complement that function by creating incentives to manage weeds already here. The bill has now been enacted and agencies will soon begin to develop implementing regulations. Passage of the act will also allow congressional appropriation committees to consider funding to implement its provisions.

This measure would greatly increase funding to states and local governments for control of terrestrial noxious weeds. It would authorize expenditures of up to \$100 million each year, the vast majority of which would be granted to the states for support of their own programs. Like the aquatic invasive species measures, the Noxious Weed Act would require the Secretary of the Interior to coordinate implementation of the Act with the Invasive Species Council. In a state like Idaho, passage of this Act coupled with full funding of it could easily double the amount of funds from the Department of the Interior available for weed control in the state.

Funding for invasive species management in Idaho will likely continue to come from a combination of federal, state and private sources. New Congressional spending authorizations accompanied by actual appropriations should greatly augment state funding. However, successfully securing all these funds will continue largely to be a function of ambition and innovation on the part of Idaho's invasive species managers and will remain a key part of their responsibilities.

Task 2

Create a "cross cut" budget in order to account for invasive species expenditures in Idaho that includes funds from all sources and identifies the contributions of all state agencies.

Objective: By the end of 2006, be able to accurately account for all sources and expenditures of funds for invasive species management in Idaho.

Discussion: We do not now know just how much we receive and spend for invasive species management in Idaho, including the sum of funds available from all sources and the purposes for which they are spent. Rather than a transparent accounting of revenues and expenses, the fiscal aspect of invasive species management in Idaho is buried within the bureau level budgets of at least five separate departments, ranging from funds to survey for plant pests to roadside weed spraying to monitoring fish stocking of private ponds. Funds for all these purposes come from an equally wide variety of sources, including pass-through payments for weed control from the BLM and Forest Service, hunting and fishing license sales, property taxes, general fund dollars and federal contributions for forest and agricultural pest surveys.

While this system has worked over the years as a means to distribute funding, there are problems inherent in it if there is to be a functional statewide strategic effort to combat invasive species. First, there is no ability to track overall expenditures from year to year. Second, there is an “every person for him or her self.” (“every person” is singular; “themselves” is plural. Political correctness leads us frequently into such grammar disasters.) mentality toward seeking additional funding. This forces legislators to make decisions based on single species (milfoil or Tussock moth control for example) and individual programs, as opposed to addressing a comprehensive program and a set of priorities within it. Finally, the ability to set priorities and coordinate activities by the Invasive Species Council is severely limited.

This issue is the same for federal agencies and for the federal Invasive Species Council. This is one situation wherein Idaho might be wise to emulate the federal government’s approach. The National Invasive Species Council was encouraged by OMB to develop a shared goal statement, strategy, and common performance measures as part of the Fiscal Year 2004 budget process. This first of its kind interagency performance budget provides for more efficient allocation of resources and focuses on selected significant interagency initiatives.

For Fiscal Year 2004 (FY04), the Council prepared a limited crosscutting budget proposal for selected aspects of invasive species prevention, early detection and rapid response, and control and management. The Council identified areas of cooperation, defined common strategic goals, and determined measurable performance standards. While the crosscut includes only a subset of total invasive species activities, it is a starting point for more comprehensive cooperative efforts that the Office of Management and Budget has encouraged for the FY 2005 budget cycle.



The federal Council identified needs for the FY 2004 budget and compared them with current expenditures by each department. Then the Council allocated the spending request by the program areas of prevention, early detection and rapid response and control and management. The results are illustrated in the following table, wherein budget requests are outlined for each department but the sum of the available funds are then allocated by the purpose for which they will be spent.

This is a useful step in both showing the need for additional funds and allocating them toward the highest priority needs. While each department and agency presumably retains its autonomy in managing its own programs, there is at least an identification of the total amount needed and an explanation of how it will be spent that transcends the budget requests of the individual departments. The Idaho Invasive Species Council recommends developing such a budget for the state.

Table 4
FY 2004 Federal Cross Cut Budget for Invasive Species

<i>By Agency</i>	<i>FY '03 Funds</i>	<i>FY 04 Increase</i>	<i>Total</i>
Interior	\$34,333,000	\$8,990,000	\$43,323,000
Agriculture	\$201,572,000	\$2,750,000	\$204,322,000
Commerce	\$317,000	\$1,000,000	\$1,317,000
Corp of Engineers	\$0	\$500,000	\$500,000
EPA	\$0	\$500,000	\$500,000
<i>By Program Function</i>			
Prevention	\$3,820,000	\$1,634,000	\$5,454,000
Early Detection, Rapid Response	\$65,431,000	\$4,533,000	\$69,964,000
Control and Management	\$166,971,000	\$7,073,000	\$174,044,000
Total	\$236,222,000	\$13,740,000	\$249,962,000

National Invasive Species Council



Creating an Adequate, Effective Legal Structure

There must be laws to address management efforts to prevent the introduction and spread of invasive species. Those laws fall into two categories—those that seek to shape behavior and those that spell out the role and functions of government for invasive species. In Idaho, there is a strong existing legal framework but there are some adjustments that would markedly increase our effectiveness, as summarized on pages 72-73.

Goal:

Have in place the laws that provide the authority and allow the reasonable enforcement of regulatory actions to prevent and control the spread of invasive species.

Task 1

Assure that the agencies that interact with invasive species and invasion pathways have the authority to effectively deal with them.

Objective: Coordinate authorities so that all agencies that regulate transportation, commerce or natural resource management have parallel and equal abilities to control high risk situations and shipments. This will require some changes in state law that should be completed by the end of the 2006 legislative session.

Discussion: At least seven separate statutes provide some authority for three state departments to take actions to prevent the introduction or spread of invasive species. They are:

- 36-100, Fish and Game authorities;
- 38-600, Forest Pest Act;
- 25-3900, Deleterious Animals;
- 25-218, Animal management;
- 25-2600, Extermination of Wild Animals and Pests;
- 22-2400, Noxious Weed Act;
- 22-2001, Plant Pest Act.

As summarized on page 52, these authorities provide most regulatory powers that might be necessary to detect, prevent or control most invasive species. There are some gaps in needed authorities and questions to be answered. For example, it is unclear whether any agency has the authority to impound or order the cleanup of a boat entering the state with zebra mussels attached to it. There are also some apparent overlapping authorities. Fish and Game's general authorities to control imports of various wildlife species would seem to overlap the authorities given the Dept. of Agriculture under the "Deleterious Animals" statute. Similarly, there are overlaps between the Plant Pest Act and the Forest Pest Act.

A more significant issue is the apparent lack of authorities for agencies that have important interactions with various invasion pathways. For example, it does not appear that the Ports of Entry, which have general authority to inspect interstate trucks for safety or compliance with weight or length regulations, have the power to inspect or quarantine trucks with suspect shipments that might

harbor undesirable species. Suspected shipments would have to await inspections by ISDA officials who do have authority to quarantine suspect shipments, although both agencies are working together to streamline this process. Nor does the DEQ have specific authority to manage undesirable aquatic species as part of its water quality protection programs.

Granted, much of what can be accomplished is a function of education and coordination among the various agencies. A first step in detecting an undesirable species or pathway that might harbor them is to make sure those who encounter them know how to recognize them. This requires that those in ISDA or other agencies help train ports of entry personnel, conservation officers or law enforcement officials on what to look for and what actions to take. But the regulatory authorities are important, as well, for if someone is trained to recognize a dangerous situation from an invasive species standpoint but cannot take the necessary control actions, the detection holds little value.

Task 2

Assure that all appropriate agencies have emergency powers so that they can immediately address hazardous situations that might allow the introduction and spread of unwanted species.

Objective: Although there may be few actual situations, it is conceivable that an outbreak of a serious invasive species can occur which would require immediate attention by governmental authorities. In those cases, it is important to have adequate emergency authorities. As part of efforts to coordinate general invasive species authorities, emergency provisions should be reviewed and updated by the end of the 2006 legislative session.

Discussion: Presumably, if a truck with a hazardous cargo enters the state and that shipment is not being handled in a safe and lawful manner, law enforcement personnel can act immediately to halt the truck, cordon off the area and otherwise assure that the public safety is maintained. While it may be difficult to imagine an analogous situation for an invasive species, it could happen. If it does, there must be authorities in place to control the situation.

In this era of potential bioterrorism, there is a clear need for a review of emergency powers for invasive species that is based upon worst case scenarios. This should be made easier by the recent attention paid to federal programs that focus on bioterrorism and by using state level emergency powers for hazardous substances as a guide. It is also important to convey these emergency authorities to those agencies most likely to first encounter an emergency situation, particularly law enforcement agencies.



Yellow starthistle—Now common in central Idaho, Yellow starthistle is a rapid colonizer that can form dense stands. Production of allelochemicals prevents growth of other plant species. It is poisonous to horses, causing the nervous disorder “chewing disease”.

Task 3

Allow funds to be spent on a wide variety of unwanted species, not solely on those that are on a formally adopted list.

Objective: By the end of the 2006 legislative session, measures to allow funds to be spent on a species that might not be on the list should be enacted, not only for weeds, but for a full array of other invasives.

Discussion: Several who attended the Invasive Species Summit noted that there are potential and established invaders that deserve immediate attention. In the case of weeds, if these have not been formally added to the state's noxious weed list through a rulemaking, state funds may not be available to control them. There may be similar situations for potentially invasive insects, forest pests, various plant pests or other organisms. If so, these authorities need to be reviewed and broadened.

Consider the appearance of "sudden oak death syndrome" in Oregon and California. Before it appeared, the pathogenic cause for the disease was not on any list of potentially invasive species. In Washington, piranhas and a potentially invasive member of the "tunicate" family of marine organisms from the East Coast were recently found, neither of which would appear on a watch list for that state (Cabreza, pers. comm.). While existing authorities were apparently either sufficient to allow funds to be spent on control measures (or they were quickly amended to allow this), valuable time can be lost if there is a need to modify lists of species for which funds can be legally directed.

In Idaho "lists" are generally rules, adopted by a formal rulemaking and subject to legislative review. For most species and situations, this is a sound process. However, it is important to consider just how broad these lists might need to be in order to effectively address species which are not on any formal list but which logically might arrive here as well as those situations (like sudden oak death syndrome) which are currently not conceivable.

Task 4

Create a regulatory structure based on species risks

Objective: Be able to expend resources on those species where the risks of invasion, spread and damages are the highest. By the end of 2006, have a scientifically based process for rapid assessment of risks for a wide variety of invasive species as a platform for a regulatory system based on those risks.

Discussion: Some species are more dangerous than others. Consider zebra mussels, for example, where there is a high likelihood that they will arrive in Idaho and an equally high likelihood that, if they do, serious damage will result. Others may be undesirable, but are either here and eradication is impossible (Medusahead rye, for example) or may not pose serious economic or environmental risks. It makes sense to focus attention on those associated with high risks of introduction, spread and damage.

There is a growing body of science that focuses on determining which species pose risks, even if those species are not now present in the immediate area or even in this country. Scientists study the climate in which species evolved, the combination of physical and environmental factors that might allow them to thrive and genetic characteristics that might predispose them toward “invasiveness” if they were introduced to other areas.

This work extends to species that are not as exotic as those which grow in foreign lands, but which may be found in other areas of this country. From that work, it is possible, within limits, to identify those species that deserve our most serious prevention efforts. Scientists are quick to point out that many invasive species defy efforts to suggest that they will either arrive or be particularly troublesome if they do. Some years ago, plant pathologists reported occurrences of a European powdery mildew that attacks maples, with dire predictions that it would be similar to Asian chestnut blight that eliminated American Chesnut from eastern forested landscapes. In fact, such predictions were wrong. Similarly, as noted previously, no one was able to predict arrival of effects of the Sudden Oak Death Syndrome pathogen.

It nevertheless seems possible to “ramp up” prevention and control efforts based upon a proper assessment of risks, realizing that, for some species, our knowledge will never be perfect in this respect. This would not only include the direct efforts of agencies to interdict arrivals of particularly dangerous species, but also the regulatory and educational framework that helps guide human behavior. For example, the recent attention given to finding and eradicating Asian snakeheads in the Potomac River drainage, including direct control efforts, education of anglers and inspections of restaurants and other premises suspected of possessing the fish is a direct result of the threat that they pose to native fisheries.

Such a risk-based approach should be considered in Idaho. Resources for addressing invasive species will always be scarce and it only makes sense to focus attention where the possibility of invasion and resulting damage is the greatest.



Task 5

Consider enactment of a comprehensive “omnibus” invasive species law.

Objective: The foregoing measures will all require some type of legislative action. In addition, creation of a statewide invasive species coordinator might best be accomplished through legislation. In order to establish the needed changes in the legal structure as efficiently as possible, it may be desirable to consider an “omnibus” package of legislation. Such a package should be developed for the 2006 legislative session.

Discussion: Idaho’s invasive species authorities are split among several agencies and are generally directed toward individual groups of species (noxious weeds, plant pests, deleterious animals). There is no comprehensive statement of policy or statute that addresses all invasive species and the state’s efforts to manage them. Idaho’s Plant Pest Act, enacted in 2002, is a useful tool for preventing and controlling plant pests and in establishing the Department of Agriculture’s authority for doing so, but it is not a comprehensive invasive species statute. However, it does include much of what would be needed for a more comprehensive statute including the ability to:

- Set rules for quarantine requirements, exporting and importing plant materials, planting, inspections and certification that plant materials are pest free, recordkeeping procedures and fee schedules;
- Inspect public and private lands, personal belongings, premises, or means of conveyance for the purpose of detecting or controlling plants or plant pests;
- Issue “hold” or “stop sale” orders for infected plant materials during “plant pest emergencies” or when there is an “imminent potential threat of any pests”;
- Levy control costs against landowners or pay for control actions through deficiency warrants;
- Impose quarantines of areas, species or activities;
- Refuse entry into the state of any “regulated article” (an article for which movement is regulated under quarantine rules) or impose rules on non-quarantined pests;
- Issue permits for the release of biocontrol agents, genetically engineered plant, or other organisms. Without the permit, releases of a broad array of plant pests and other plants or insects is prohibited;
- Control insect infestations through deficiency warrants (up to \$500,000); and
- Levy civil penalties or seek criminal penalties for violations of the Act.

In addition, the definitions imply that the Department may develop procedures to assess the risks of various plant pests and to develop lists of “undesirable plants” (Sec. 22-2200, I.C.). Section 22-2018 authorizes the expenditure of funds for research to prevent the introduction or spread of plant pests.

These authorities are generally consistent with what is regarded as a sound statutory basis for the prevention and control of a broad array of invasive species (Environmental Law Institute). There are, however, limitations to the law and issues that may limit its application in a practical sense. First, there is a clear emphasis on “plant pests” and equally clear exclusions for other invasive species (vertebrate animals and perhaps aquatic species).

Second, the law is specific to the Department of Agriculture. It conveys no authorities to any other agency, despite the fact that often other agencies may be more likely to detect potentially hazardous situations. For example, the Idaho Transportation Department’s port of entry personnel would be as likely to encounter an improper shipment of infected nursery stock as Department of Agriculture personnel, because it is ITD’s job to monitor interstate trucking. Sufficient comprehensive authorities that are at least parallel to the provisions of the Plant Pest Act must exist in the statutes governing other agencies for the state’s program to be adequate.¹

There is some difficulty in crafting an omnibus invasive species statute in Idaho that would fill any gaps in legal authorities and provide those authorities to all the appropriate agencies. Under Idaho legislative procedures, laws are generally drafted to apply only to single agencies. For example, the Plant Pest Act, which gives ISDA authority to inspect and impound suspect shipments that might contain plant pests, could not also be drafted to extend these same authorities to the Department of Transportation. That would require amending additional sections of the Code and the involvement of other legislative committees. Patching the holes in the regulatory fabric for invasive species would likely require four to six amendments of existing law and the involvement of at least that many legislative committees. This procedural difficulty may not be insurmountable, however, and the Invasive Species Council should explore whether it is possible to address shortcomings in the current legal framework through a single, comprehensive statute.

Legislation, whether in the form of a number of individual bills or a single “omnibus” bill is also an opportunity to provide a statutory basis for the Invasive Species Council itself or for the invasive species coordinator described in the following section. If the Council chooses this route, development of the needed legislation is a good time to review the makeup of the Council and the language of the Executive Order that established it. There may be a need for modifications. For example, the Executive Order does not include a representative of the animal health sciences as a member of the Council nor does it recognize animal pathogens as invasive species. This would seem to be a significant omission that could easily be corrected.

¹ ISDA has an MOU with the Idaho Transportation Department and is working on a document that will allow ITD to help inspect interstate shipments for plant pests.



Creating an Adequate, Effective Legal Structure

Management Function	Legal Basis
Identifying	
Is there specific authority to identify future invasive species threats and mitigate for them?	None
Detection	
What types of detection tools are authorized?	22-2000, Plant Pest Act 36-104 Fish and Game Authorities 38-600 Forest Pest Authorities
Import/Introduction/Release	
What are the general requirements for the import, introduction or release of non-native or imported species?	36-104 Fish and Game Authorities 22-2016, Plant Pest Act 25-3900, Deleterious Animals
Quarantines	
Is there authority for quarantines of potentially invasive species, either for an area or for transportation through the state?	22-2012, Plant Pest Act 25-218, Animal management 36-106, Forest pests 22-2404, Noxious Weed Law
Education	
Is there authority for education programs to inform the public and decision-makers about invasive species?	24-2404, Noxious Weed Law
Bonds and Insurance	
Are there requirement for posting bonds or obtaining liability insurance in order to possess potentially invasive species	None
Post-Release Monitoring	
Are those who introduce permitted species required to monitor undesirable spreads of that species?	None
Interstate Transportation and Shipping	
Are there requirements for shipping or transportation of invasive species through the state?	35-214 Animals 36-106 Fish and Game Authorities
Management of Biological Control Agents	
Are there requirements for approval, permit or a license to use biological control agents and standards for using them?	36-104 Fish and Game Authorities 25-3900, Deleterious Animals 22-2016, Plant Pest Act
Emergency Powers	
Is there authorization of emergency powers to address invasive species outbreaks?	22-2404, Noxious Weed Law 22-2009, Plant Pest Act
Restoration Policies	
What are the authorities or existing policies for restoration of areas invaded by invasive species?	None
Enforcement Mechanisms	
What authorities help assure the enforcement of various laws that regulate invasive species?	22-2009, Plant Pest Act 22-2409, Noxious Weed Law 25-3905, Animals 25-219, Animals
Specific Funds	
Is there authority for specific funds to implement regulation of various invasive species?	22-2000, Plant Pest Act 22-2400, Noxious Weed Law 38-604, Forest pests
General Management Authorities	
Are there councils or organizations to coordinate regulation of various invasive species?	Executive Order
Are there existing plans to address the management of various invasive species?	Executive Order, plus 22-2400, the Noxious Weed Law
Are there "red" lists of undesirable species that must be kept out or controlled?	25-3900, Deleterious Animals; 36-104, Fish and Game Authorities; 22-400, Pure Seed Law
Must landowners report occurrences of invasive species and are they held liable for occurrences on their property?	22-2400, Noxious Weed Law

Comments or Possible Needs

Little emphasis on prevention or in identifying those species which pose a threat to Idaho

Inspection authority limited to IDF&G, ISDA, IDL. No authorization for Dept. of Transportation or law enforcement agencies. No authorization for mapping and inventory by the U of I.

No permits required for various “common” animals nor for many fish, except those on “prohibited” list. Rules for “deleterious animals” appear to be incomplete

Quarantine requirements often overlap with federal laws and rules. There is no quarantine authority for shipments of lumber or logs that may contain forest pests, although these shipments may be covered through federal laws or through the Idaho Plant Pest Act

While authorities are broadly written, there is no specific direction for invasive species educational efforts. There is also no provision for cooperative efforts among agencies and other interests.

Proving that an individual action resulted in a widespread infestation and establishing damages would seem to be difficult. Some general business liability insurance might cover inadvertent introductions.

Requiring monitoring for permitted species by those who introduced them would seem burdensome and best left to the permitting agency.

Interstate commerce is largely regulated through federal laws. Ports of Entry play a large role for animal shipments through the state.

There are no authorities for biological control agents, per se, nor standards for their use. In the absence of specific authorities and direction, the same regulations for any introduced, non-native species would apply, including the ability of the agencies to permit certain species that were deemed desirable for control of invasives.

There is a need to define what constitutes an invasive species “emergency” and what actions such a declaration might trigger. Some are already permissible—quarantines, for example. Others are less clear. For example, there may be no authority to detain or order cleanup of a boat infested with zebra mussels.

Restoration of acceptable vegetation or land uses following a change from fire, logging or invasive species is generally the responsibility of the landowner, without direction from state government (with the exception of reforestation requirements

Generally, the formula for enforcement of invasive species laws is notification and request for control action, agency action in the absence of owner actions, recovery of agency control costs followed by fines or penalties and imprisonment for the most egregious cases.

Current funding is a patchwork of general fund appropriations, federal funds, landowner assessments and fees, augmented by deficiency warrants across at least three agencies. There is no single fund for invasive species.

There is a need for a basic authority for invasive species that would coordinate the roles of various state agencies, clarify the role and operation of the state Invasive Species Council, provide for a source of funds and specify requirements for landowners and those who interact with species or invasion pathways.



Coordinating Our Efforts

The actions in this strategic plan envision additional efforts that must be efficient and coordinated. This poses a significant challenge. While more work is clearly needed, it is difficult for those who have invasive species responsibilities to find time to assume new duties. In addition, each of those managers works within an existing program such as weed management, plant or forest pests or fisheries management. Therefore, it is impossible for any one of them to assume a statewide role for the management of all invasive species. Finally, a myriad of federal actions also impact state efforts. The invasive species coordinator would help unify Idaho's efforts and add to them.

Goal:

Expand the state's ability to coordinate existing programs and to enhance the capabilities of all programs through strengthening those aspects that each have in common.

Task 1

Establish within state government an invasive species coordinator, setting forth roles and responsibilities for this position.

Objective: Have in place by the end of 2005 a full time "invasive species coordinator" responsible to oversee and coordinate state agency programs and act as a liaison with federal agencies.

Discussion: At least five state agencies have authority for preventing, detecting and managing invasive species or otherwise help in this effort—the Departments of Agriculture, Lands, Environmental Quality, Fish and Game, and Transportation. Two colleges of the University of Idaho (Natural Resources plus Agriculture and Life Sciences) maintain research and extension capabilities and other institutions in the state and their faculties conduct important research as well. While some programs are well established and effective, others struggle for recognition or funding. However, all would benefit from additional funds and staff. More importantly, aspects of each program could be more effective if they were combined with the common elements of others. Efforts to conduct educational programs, for example, would be enhanced if they could be expanded to all invasive species, rather than restricted to single species or management programs.

The Invasive Species Coordinator will be an advocate for the broad spectrum of actions to prevent, detect and control all invasive species and as a coordinator for the mix of state and federal programs that seek to accomplish this work. In meeting these objectives, the coordinator will work closely with and act as the “staff executive” for the Invasive Species Council. The coordinator would work as a staff member within one of several state agencies or as a member of the Governor’s staff, so long as there is a level of autonomy and sufficient stature to be effective in working with the Council members and other agencies. The position would be at the level of “bureau chief” within state government.

Consider one example based upon the simple proposal in this plan that utility workers, DEQ stream survey teams and nursery or landscaping workers be trained to recognize and report new or suspected invasions of insects, plant pests or weeds. While this concept is simple, implementing it will require coordinated efforts ranging across several agencies. These include:

- Locating funding for the training project, either through grants or through contributed funds from agencies and stakeholders;
- Working with the noxious weed managers, botanists or native plant societies, aquatics specialists, arborists and forest pest specialists to identify target species;
- Working with such communications and educational specialists as those from the Cooperative Extension Service, the Idaho Rangeland Resource Commission or Forest Products Commission, the Weed Awareness Campaign or Idaho Nursery Association to design training materials;
- Finding graphic artists or other specialists to complete the agreed upon training/education materials;
- Arranging for time on the training schedules or meetings of training recipients and assure that the proper specialists and presenters can conduct the training sessions;
- Providing follow-up to determine the effectiveness of the training, suggest improvements and assure that there are adequate replacement materials and for providing training to new personnel, and;
- Reporting on the success of the effort to the Invasive Species Council.



Zebra Mussels—A small mussel originally found in Russia, zebra mussels were transported to North America in the ballast water of a transatlantic freighter in 1988. Adult zebra mussels colonize all types of living and non-living surfaces including boats, water-intake pipes, buoys, docks, piers, plants, and slow moving animals such as native clams, crayfish, and turtles. In 1989, the town of Monroe, Michigan lost its water supply for three days due to massive numbers of zebra mussels clogging the city's water-intake pipeline.

This is an example of one proposal that will likely become part of Idaho's strategic plan. Multiplied by the number of actions that will likely constitute the plan and by the magnitude of the job, there is clearly a full time job for one person, supported by one full time person for administrative and program support. A range of responsibilities and attributes for Idaho's Invasive Species Coordinator would include:

- Seeking out and competing for federal and private grants to further implementation of the state's strategic plan;
- Working with various committees of the Invasive Species Council to create programs which implement such recommendations of the strategic plan as:
- Identifying key audiences and educational efforts that are directed to each;
- Developing specific legislative proposals to assure that detection, rapid response and emergency powers are sufficient to address a broad array of invasive species and to monitor all invasion pathways;
- Working with the University of Idaho, USDA and other agencies or private interests to identify potential invaders and appropriately assess their risk of invasion and spread. Using this information as a basis to structure regulatory actions or to help set program priorities;
- Establishing a single statewide point of contact for reporting new or spreading invasive species and for disseminating information about them;
- Cooperating with the managers of various programs to identify educational or other opportunities which can best be implemented as joint efforts;
- Working with the Invasive Species Council to set program priorities, decide upon a plan of work and who is to be accountable for completing tasks within it, plus the annual budget and sources of funds for implementation of the plan; and,
- Seeking opportunities to provide accurate information regarding invasive species and the state's plan for managing them to the Legislature, Congressional delegation and various stakeholder groups.

The Coordinator will need an administrative "home", a supervisor, an office, computer and vehicle. This would indicate that need for the Coordinator to officially be on the staff of a single agency or within the Governor's office.

Task 2

Enhance the effectiveness of the Invasive Species Council by clarifying its ability to set priorities and maintain accountability among the individual agencies.

Objective: By the end of 2005, establish the Invasive Species Council as the single entity for setting program priorities and budgeting as well as for coordinating individual agency actions and holding them accountable for meeting their invasive species responsibilities.

Discussion: Currently, the Invasive Species Council is a forum for cooperation and coordination of invasive species efforts across the state and within the various agencies. It includes not only the state and federal agencies with invasive species responsibilities but also such important interest groups and industries as the Idaho Nursery and Landscape Association, Farm Bureau, Nature Conservancy, Idaho Water Users and Idaho Conservation League, among others. While the Council exists through an executive order and the state agency members of it serve at the pleasure of the Governor, their work is largely voluntary, an additional duty stacked upon an already full workload. Moreover, the Council typically meets only quarterly. Various projects undertaken by the Council (Eurasian watermilfoil, marina signage, Invasive Species Summit, preparation of a statewide assessment and strategic plan) have been successful, but the success has been a function of either hiring consultants, assigning various agency staff to the projects or the voluntary efforts of association staffs. There is no one whose sole assigned task is to act on the Council's behalf.

The issue facing the Council is whether a continuation of the past voluntary, ad hoc activities will be sufficient to meet the challenges we face in preventing, detecting and managing invasive species. As indicated in the Assessment and underscored by the conclusions of the Invasive Species Summit, the answer is "no". Rather, what will be required is a mix of educational efforts, streamlined laws and regulatory actions, adequate funding, applied technology and the capability for detection and rapid response to new invaders. While most of these efforts are now underway at some level, we must find a way to increase the totality of the effort and to do so in a much more coordinated fashion.



While the Council is well suited to assume a greater role, there are shortcomings. Among these are:

- No legislative endorsement of the Council, its roles and responsibilities;
- Limited ability to influence the budget process or spending by individual agencies;
- Limited ability to complete “hands on” projects for education, revisions of laws, or directing research and continuing education;
- No direct ability to seek funds from federal or private sources;
- An unwieldy and large membership that makes scheduling meetings difficult.

It is likely within the powers of the Council to assume a more substantive role and to address these problem areas. This would be made easier with the passage of an act that clearly defines the Council’s place within state government, its membership, its responsibilities and which provides guidance for its operations. In addition, the Council may wish to establish standing committees to manage hands-on projects and provide guidance to the invasive species coordinator. These committees might include:

- Technical—to provide advice on the operation of individual programs, help identify research and education needs and keep abreast of new technologies or new threats;
- Education—would include education and communications professionals and be responsible for managing information and for creating communications tools;
- Program coordination—responsible for setting priorities and coordinating budgets as well as acting as a liaison with federal efforts, including those of the National Invasive Species Council, and;
- Legal/political—would include lawyers and lobbyists and would monitor political developments at the state and national levels and suggest needed changes in the laws.

In essence, the completion of this strategic plan will precipitate the need for efforts to implement its provisions that will go far beyond maintaining the status quo. This will be a big job that can only be completed by the combined efforts of the invasive species coordinator and the Invasive Species Council. These two must work together in harnessing the expertise and the resources of the state and federal agencies and bringing them to bear on the challenges that invasive species pose to our state.

Task 3

Integrate future initiatives, including the work of the invasive species coordinator, with existing programs in a manner that does not disrupt current programs that are working successfully.

Objective: Implement the statewide invasive species plan in a manner that complements current programs and enhances their effectiveness, rather than modifying responsibilities, lines of authority or program administration. This will be completed by the end of the first year of the tenure of the invasive species coordinator.

Discussion: One clear message from the Invasive Species Summit is that we are not doing enough to prevent new invasions of unwanted species nor to control the spread of those that are here now. This message is amplified by the growing concerns over invasive species within our neighboring states as well as at the national level. This concern is not an indictment of work that is already underway, but rather a recognition that current efforts cannot possibly keep pace with the growth of the problem. We simply must do more if we are to be successful.

It is tempting to assume that the challenge can be met simply through more money being spent on individual current activities. In following this path, each program, be it noxious weeds, aquatic or plant pests, and the constituencies for them, would work to find additional dollars with which to further develop individual programs. Some will be successful, others less so. And, at any rate, the total of the dollars available will not likely be sufficient to meet all the needs.

Idaho's strategic plan does not promise an unlimited supply of funds for a continuation of current efforts. Nor does it presume to add an unnecessary layer of oversight or guidance to those programs. Rather, the plan is based upon the premise that Idaho's existing programs are effective and they need to continue, unimpeded by additional management or by changes in direction. This strategic plan is designed to help the existing efforts be more effective, not to supersede them.

In meeting this objective, what does the strategic plan offer? First, it serves as an expression of intent, a commitment that the citizens of Idaho recognize the problem and are serious about preventing the entry or spread of unwanted species. This, in itself, is important since it is the basis for securing funds from many federal sources.



Second, the plan will focus on the common aspects of all invasive species management programs and help the managers of those programs meet their responsibilities more easily and more effectively. Educational programs and training are prime examples of how this can work. If those who recreate on our lands or waters can be trained to clean their boats or ATV's of stray vegetation or if those who maintain power lines across remote areas can help spot and report new invasions then the success of Idaho's weed control or aquatic nuisance programs can only increase.

A simple analogy may help. Public education is a complex business, with an increasing need for students to learn more about the complexities of science and math, in addition to the social studies and the arts. This requires specialization, with teachers limiting their teaching efforts to those subjects in which they, themselves, have chosen as areas of concentration. Yet, there are commonalities among all the diverse subjects that are vital to the success of the total educational effort. There must be adequate classroom space, a budget for books, and each student needs pencils, paper, computers and a sound background in English or basic sciences that lets them progress.

It is the function of the strategic plan to provide the basics necessary to the overall program, not to dictate how the teachers go about their business. To complete the analogy, how the chemistry department teaches chemistry is the business of those who know that subject. No one tells them what equipment or chemicals they may need in the lab, but their ability to teach chemistry is in large part a function of students who have the background to learn this complex subject coupled with the physical environment and tools that enable them to progress. Neither will the invasive species plan presume to tell weed managers or those who survey for forest or plant pests how to do their jobs.

A major focus of this strategic plan is to help provide the basics and to work within the commonalities of all invasive species programs. All will benefit from more funds, from educational programs and from having a statewide advocate for all efforts to manage unwanted species. However, noxious weeds will still be controlled through the provisions of Idaho's Noxious Weed Plan which is currently being revised and aquatic nuisances will be managed according to the forthcoming statewide plan for aquatic nuisances.

The strategic plan will also be a mechanism to help set priorities and coordinate the various actions associated with individual programs. Some species simply pose greater risks than others. Zebra mussels, for example, are likely to arrive in Idaho and, if they do, serious damage is almost certain to result. Training those who might encounter boats coming from infested areas to Idaho to recognize this species and act accordingly when they do must be a high priority task. Seeing that it is accomplished is the responsibility of the Invasive Species Council, as spelled out in the plan. There will undoubtedly be other, occasionally competing needs and sorting these out is also an appropriate job to be done collectively by invasive species professionals through the Council.

Finally, the plan, as implemented through the Invasive Species Council, will serve as a forum for coordinated actions. Creation of the Center for Invasive Species and Small Populations at the University of Idaho opens many new doors for research and continuing education throughout the entire invasive species arena. Each specialty within that arena—weeds, aquatic species, plant and forest pests—will undoubtedly envision research and outreach needs which they believe CRISSP can help meet. CRISSP will be able to do that work, but will not likely be able to respond to the disparate requests of four or five separate entities, each with their own priorities. Sorting those out, setting priorities and speaking with one voice for the entire invasive species community is not only a legitimate management responsibility, it is essential to allowing CRISSP to serve its function efficiently as possible. The Invasive Species Council must play that role.



Summary of Tasks, Responsibilities and Timelines

Summary of Proposals and Implementation Actions

Individual Tasks

Technical Modifications to Existing Programs

Task 1—Set priorities for control work by risk assessments and by defining “clean” areas of the state

Task 2—Develop programmatic NEPA analyses and decisions to speed control and eradication for federal projects and for federal lands.

Task 3—Develop lists of unwanted and high risk species that should trigger rapid responses

Task 4—Develop a statewide system for early detection of suspect species, rapid assessment of their potential risks and responses commensurate with those risks.

Task 5—Create a single point of contact for reporting new or spreading species or obtaining information about various species.

Task 6—Increase surveillance of invasion pathways

Education, Training and Technology Transfer

Task 1—Identify specific key audiences and create the communications tools to reach them.

Task 2—Cross-train agency and industry personnel to recognize and report possible invasions.

Task 3—Measure progress in reaching intended audiences and in building public support for preventing the introduction or spread of invasive species through regular public opinion polling.

Task 4—Identify and set priorities for research needs.

Task 5—Begin applying what we know and continuing education effort to three immediate invasive species needs, including detecting and mapping new or spreading invasions, risk assessments and restoring sites infested with invasive plant species.

Task 6—Develop needed education and training materials that will support the proposals outlined in the “education and training” provisions of this plan.

Changes in Legal Structure and Funding

Task 1—Assure that the agencies that interact with invasive species and invasion pathways have the authority to effectively deal with them.

Task 2—Assure that all appropriate agencies have emergency powers so that they can immediately address hazardous situations that might allow the introduction and spread of unwanted species.

Task 3—Allow funds to be spent on a wide variety of unwanted species, not solely on those that are on a formally adopted list.

Task 4—Create a regulatory structure that is based on the risks that various species will either arrive in Idaho and spread and that serious damages will result if they do.

Task 5—Consider enactment of a comprehensive “omnibus” invasive species law.

Task 6—Identify all funding sources that might be available for invasive species management and position the state to take advantage of them.

Task 7—Account for invasive species expenditures in Idaho by creating a “cross cut” budget that includes funds from all sources and identifies the contributions of all state agencies.

Actions to Assure Coordinated Programs

Task 1—Establish within state government an “invasive species coordinator”, setting forth roles and responsibilities for this position.

Task 2—Enhance the effectiveness of the Invasive Species Council by clarifying its ability to set priorities and maintain accountability among the individual agencies.

Task 3—Integrate future initiatives, including the work of the invasive species coordinator, with existing programs in a manner that does not disrupt current programs that are working successfully.

<i>Actions Needed to Implement</i>	2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Collaborative effort between researchers and program administrators				●																
Federal agency actions																				●
Collaborative effort between researchers and program administrators													●							
The sum of actions for tasks 1 and 3.																	●			
Collaborative effort between program managers plus funding			●																	
Training of those who interact with invasion pathways; Direction from managers									●											
Collaborative effort between communicators and program managers												●								
Collaborative effort between program managers						●														
Communicators should explore opportunities for benchmark polling			●																	
Collaborative effort between program managers and researchers			●																	
Collaborative effort between research, extension specialists and program managers									●											
Collaborative effort between communicators, extension specialists and program managers			●																	
Legal review and legislation						●														
Legal review and legislation						●														
Legal review and legislation						●														
Collaborative effort between program managers, followed by legislation												●								
Legal research and collaborative effort between program managers, possible legislation						●														
Research by Invasive Species Coordinator								●												
Collaborative effort between program managers and Division of Financial Management								●												
Legislation or possible executive order			●																	
Legislation or possible executive order			●																	
Collaborative effort between Invasive Species Coordinator and program managers			●																	

Endnote

During the final stages of the preparation of this document, the arrival and spread of two dangerous invasive species became known, one of them in Idaho. Just outside Washington, D.C., biologists discovered northern snakehead fish, a land-walking Asian predator that can quickly decimate native populations in the United States. It was first discovered in 2002 in a Maryland pond. Apparently, it spread to the nearby Potomac and, despite concentrated efforts to eradicate it; the fish is apparently reproducing and spreading.

Biologists fear that the introduction of the invasive snakeheads could change the local ecosystem. Some experts have said within 20 years the snakehead may crowd out local species, including the largemouth bass. "There's only so much room out there for so many fish," said Steve Early of the Maryland Department of Natural Resources. "You're probably going to displace something." The discovery of the fish in a tributary of the Potomac likely proves that the nonnative species has been breeding, a scenario biologists suspected in July when they caught a mature female with eggs.

"The snakeheads are in charge," said Walter Courtenay Jr. of the U.S. Geological Survey (Greenwire, 2004). With hundreds — possibly thousands — of juvenile snakeheads in the Potomac tributaries, "Eradication, then, is not going to happen," said Julia Dixon, a spokeswoman for Virginia fish and game agency. "We're going to have to manage them." Washington Post, Oct. 5.

Here in Idaho, foresters for the Department of Lands report the discovery of the first Asian Gypsy moth in the state. First discovered in North America late in 1991, ships infested with egg masses from ports in eastern Russia probably introduced the pest to North America. The earliest infestations were believed to be eradicated, but they apparently continue to arrive.

If established in the United States, each female could lay egg masses that in turn could yield hundreds of voracious caterpillars with appetites for more than 500 species of trees and shrubs. Defoliation from the caterpillars would severely weaken trees and shrubs, killing them or making them susceptible to diseases and other pests. APHIS and the Forest Service have concluded that because of similarities between Asian and North American ecosystems, the moth has great potential for colonization in North American forests.

The Asian variety has a much broader host range, including larch, oak, poplar, alder, willow, and some evergreens. The females are active fliers, unlike the flightless female European gypsy moths. The ability of females to fly long distances (up to 20 miles) makes it probable that the AGM could quickly infest and spread throughout the United States.

And now we have found them in Idaho.



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Snakeheads, an introduced fish are sold live in some fish markets and have been confiscated by authorities in Alabama, California, Florida, Texas and Washington, all states where possession of these fish is illegal. Also, snakeheads are readily available for purchase over the Internet. If snakeheads become established in North American ecosystems, their predatory behavior could drastically modify the array of native species.

The Office of the Governor

Executive Department

State of Idaho

Boise

Executive Order No. 2001-11

Establishing the Idaho Invasive Species Council

Whereas, the land, water, and other resources of Idaho are being severely impacted by the invasion of an increasing number of harmful, nonnative plant and animal species; and

WHEREAS, these impacts are resulting in damage to Idaho's environment and causing economic hardships to public, private, and tribal owners; and

WHEREAS, the multitude of public and private organizations with an interest in controlling and preventing the spread of harmful invasive species in Idaho need a mechanism for cooperation, collaboration, and for planning a statewide plan of action to meet this threat;

Now, therefore, I, Dirk Kempthorne, Governor of the State of Idaho, by the authority vested in me by law, do hereby order:

1. There is created the Idaho Invasive Species Council.
2. The purpose of the Idaho Invasive Species Council is to provide policy level direction and planning for combating harmful invasive species infestations throughout the state and for preventing the introduction of others that may be potentially harmful.

The Invasive Species Council's responsibilities will be:

1. To minimize the effects of harmful non-native species on Idaho citizens and to ensure the economic and environmental well being of the State of Idaho;
2. To serve as a nonpartisan forum for identifying and understanding invasive species issues from all perspectives;
3. To take measures that will encourage control and prevention of harmful non-native species;
4. To organize and streamline the process for identifying and controlling invasive species;
5. To consider ways to halt the spread of invasive species as well as finding possible ways to bring current problems under control.

The Idaho Invasive Species Council is a joint effort between local, tribal, state, and federal governments, as well as the profit and not-for-profit private sectors. Its purpose is to foster coordinated approaches that support local initiatives for the prevention and control of invasive species, not to usurp the individual missions of any of its member organizations or duplicate effort.

Membership shall include a representative from the executive office of the Governor and the directors of the following state entities:

1. State Department of Agriculture
2. Department of Environmental Equality
3. Department of Parks and Recreation
4. Department of Fish and Game
5. Department of Lands
6. Department of Water Resources
7. Department of Commerce
8. Department of Health and Welfare
9. Idaho Transportation Department
10. University of Idaho

Representatives and members of the following federal entities shall be invited to join the council and participate:

1. USDA Forest Service
2. USDA Animal and Plant Health Inspection Service
3. USDA Natural Resource Conservation Service
4. Bureau of Land Management
5. Bureau of Reclamation
6. Idaho's United States Senators (2)
7. Idaho's United States Congressmen (2)

A representative from each of the following local government organizations shall be invited to participate:

1. Association of Idaho Cities
2. Idaho Association of Counties
3. Regional planning or economic development districts
4. Resource Conservation and Development Districts (RC&Ds)
5. Health Districts

A representative of each of the five tribal governments of Idaho shall be invited to participate:

1. Kootenai Tribe
2. Coeur d'Alene Tribe
3. Nez Perce Tribe
4. Shoshone-Paiute Tribes
5. Shoshone-Bannock Tribes

Representatives from private and not-for-profit organizations with an interest in the well being of Idaho pertaining to invasive species shall be invited to participate. Additional Members may be added by consensus of the Council. The Idaho Invasive Species Council will meet no less than twice annually. The chairman of the council shall be the director of the Idaho Department of Agriculture or his/her representative. The council shall submit a report of its activities to the Governor and the Legislature annually.



Appendix II. Weed Assessments

**Table 5
County Weed Assessments, 2002**

<i>Counties</i>	<i>Total Acres</i>	<i>Private Acres</i>	<i>Federal Acres</i>	<i>State Acres</i>	<i>Total Public Acres</i>	<i>County Weed Assessment</i>	<i>Assessment per Private Acre</i>
Ada	675,200	423,537	196,633	47,267	243,900	\$488,648	\$1.15
Adams	873,408	268,573	565,066	37,529	602,595	\$7,500	\$0.03
Bannock	712,448	431,560	221,402	47,586	268,988	\$248,085	\$0.57
Bear Lake	621,696	314,515	287,994	19,064	307,058	\$101,433	\$0.32
Benewah	496,640	385,250	48,887	60,614	109,501	\$12,000	\$0.03
Bingham	1,340,672	786,156	392,484	156,198	548,682	\$148,943	\$0.19
Blaine	1,692,736	312,501	1,314,806	60,429	1,375,235	\$111,652	\$0.36
Boise	1,217,600	227,322	900,540	88,771	989,311	\$21,277	\$0.09
Bonner	1,112,064	440,780	492,593	170,053	662,646	\$107,233	\$0.24
Bonneville	1,195,904	513,118	623,145	53,694	676,839	\$264,984	\$0.52
Boundary	812,032	208,056	495,219	107,267	602,486	\$64,503	\$0.31
Butte	1,429,056	183,511	1,229,906	13,252	1,243,158	\$8,005	\$0.04
Camas	688,000	214,981	445,876	24,816	470,692	\$30,357	\$0.14
Canyon	377,472	353,236	20,486	2,900	23,386	\$232,743	\$0.66
Caribou	1,130,304	567,127	447,779	112,578	560,357	\$142,711	\$0.25
Cassia	1,642,624	663,408	925,150	51,670	976,820	\$82,000	\$0.12
Clark	1,129,408	300,813	747,690	79,301	826,991	\$57,869	\$0.19
Clearwater	1,575,424	496,662	841,755	234,768	1,076,523	\$59,189	\$0.12
Custer	3,152,384	158,503	2,937,675	53,901	2,991,576	\$38,000	\$0.24
Elmore	1,969,792	522,354	1,327,041	120,355	1,447,396	\$23,887	\$0.05
Franklin	425,920	273,366	139,255	13,259	152,514	\$71,216	\$0.26
Fremont	1,194,752	370,316	708,023	115,287	823,310	\$93,773	\$0.25
Gem	360,064	202,825	135,009	20,325	155,334	\$121,097	\$0.60
Gooding	467,712	209,238	237,503	20,124	257,627	\$10,750	\$0.05
Idaho	5,430,528	826,261	4,523,385	75,648	4,599,033	\$50,000	\$0.06
Jefferson	700,865	343,168	328,226	29,029	357,255	\$55,067	\$0.16
Jerome	383,936	276,955	96,510	7,951	104,461	\$20,372	\$0.07
Kootenai	796,928	494,957	254,276	43,768	298,044	\$199,738	\$0.40
Latah	689,088	532,695	112,791	39,883	152,674	\$39,070	\$0.07
Lemhi	2,921,152	233,189	2,648,258	37,829	2,686,087	\$27,944	\$0.12
Lewis	306,624	291,922	8,104	6,588	14,692	\$20,063	\$0.07
Lincoln	771,584	164,100	584,486	22,851	607,337	\$26,606	\$0.16
Madison	301,824	214,093	63,519	22,240	85,759	\$34,460	\$0.16
Minidoka	486,208	300,441	174,649	7,720	182,369	\$16,000	\$0.05
Nez Perce	543,424	420,752	33,771	84,065	117,836	\$49,137	\$0.12
Oneida	768,256	345,903	409,305	13,007	422,312	\$37,503	\$0.11
Owyhee	4,914,176	857,838	3,727,155	327,472	4,054,627	\$9,290	\$0.01
Payette	260,800	183,860	66,136	8,624	74,760	\$135,486	\$0.74
Power	899,648	569,484	300,239	26,690	326,929	\$90,477	\$0.16
Shoshone	1,685,760	370,066	1,255,653	56,886	1,312,539	\$16,500	\$0.04
Teton	288,256	191,275	95,131	1,644	96,775	\$29,650	\$0.16
Twin Falls	1,232,064	558,124	640,399	30,309	670,708	\$73,636	\$0.13
Valley	2,354,048	221,151	2,063,164	67,545	2,130,709	\$64,000	\$0.29
Washington	932,096	511,815	345,204	71,962	417,166	\$51,727	\$0.10
Total	52,960,577	16,735,757	33,412,278	2,692,719	36,104,997	\$3,594,581	\$0.21

Appendix III. Idaho's Noxious Week Plan

(Reserved)

Appendix IV. Idaho's Aquatic Nuisance Plan

(Reserved)

Appendix V. Working Group Recommendations

Program Coordination Working Group Recommendations

<i>Goals (From Assessment and Summit)</i>	<i>Why Actions are Needed?</i>	<i>Strategies (What is Needed)</i>	<i>Implementation Actions (What's Necessary to Accomplish the Changes)</i>
Allow agency work, including setting priorities, to be guided by risk analyses.	Without an ability to set priorities, efforts can be disjointed and inefficient	Direct prevention and control actions of agencies and other organizations to focus on high risk pathways and species	Develop a means to identify high risk pathways and species and to assess the relative risks of each for Idaho.
Create "hotlist" of species	There is a need to identify species that are not on such formal lists as "noxious weeds" but which may require rapid actions	Identify those species that are clearly not wanted in Idaho, but have a possibility of arriving here	Use risk assessment to guide the list of species. Coordinate list to include forest, ag, weed, microbial and aquatic pests. Associate relative risk of both invasion and damage with each species
Create an executive branch coordinator for all invasive species	There are many federal and state agencies with invasive species responsibilities but no way to set priorities, coordinate actions and create accountability at the state level	Create an "Office of Invasive Species" as part of the Governor's office, with a staff and budget directed toward coordination of IS efforts	Legislation may be needed, or, if not, the Governor would re-constitute the Inv. Spec. Council to include standing committees and an executive committee to direct the efforts of the 2-3 staff who would constitute the Office of Invasive Species
Provide for adequate, consistent funding	With the exception of weed control, there is no funding dedicated to invasive species prevention or control	Direct the OIS to seek grant opportunities and pass-through funding from federal programs	Legislation may be needed to assure an adequate base level of funding at the state level.

Appendix V. Continued

Technical Working Group Recommendations

<i>Goals (From Assessment and Summit)</i>	<i>Why Actions are Needed</i>	<i>Strategies (What Specific Changes are Needed)</i>	<i>Implementation Actions (What's Necessary to Accomplish the Changes)</i>
Enact needed changes in state law	There may be inadequacies in regulations to facilitate prevention, detection, control	Allow funds to be spent on "undesirable", not just listed species Identify "OK" species for import; all others subject to regulation Clarify landowner liabilities and how they can be limited Consider civil rather than criminal penalties	In draft revisions to Weed Law??
Conduct educational programs	Without Identifying key audiences and means to reach them, communications and education efforts will be inefficient	Cross train those who interact with species or invasion pathways. These include: Ports of entry personnel, law enforcement, conservation officers, linemen and utility workers, extension agents, landscape and nursery workers, "master gardeners", biology/science teachers, landowners, DEQ stream survey teams; Ditch riders and watermasters; Mosquito abatement districts Consider "non-traditional" audiences like nursery, landscape workers Assure that all audiences know "who to call"	Hold workshops; laminated "bad guy" cards; use existing APHIS, Washington state training materials Consider training materials in Spanish PSA's; mail contacts with tax assessments, ATV and boat registrations; "species of the month" program
Concentrate on prevention, early detection and rapid response	There is no individual state level mechanism to recognize and promptly address undesirable species	Develop a "species alert" program that is based on state's emergency communications network; Create a "We Don't Want" list from which "rapid response" is always triggered Routinely inspect known invasion pathways	Need a central clearinghouse, call-in number with an entity responsible for gathering reports and notifying proper agencies; Create a workable "trace back/trace forward" process for plants and animals (like ag commodities); Identify those species most likely to arrive here or spread to uninfested areas; Build recognition of those species Assign responsibilities for periodic inspections of major highways, imports of plants and animals, points of recreational concentration, interstate commerce
Develop a risk assessment process	There is little understanding of those species most likely to arrive here and with the greatest likely impact if they do arrive	Coordinate with activities of other agencies, other states	Assess applicability of federal actions and those of other states for risk assessment; Coordinate with federal "bioterrorism" efforts
Coordinate all programs	Federal and state programs and personnel do not always work in concert and efficiently	Conside programmatic NEPA documents that can be prepared in advance of likely infestations	Assess likely infestations, likely control actions and the NEPA obligations of those actions. Complete needed documents before the event occurs

Education/Training Working Group Recommendations

<i>Goals (From Assessment and Summit)</i>	<i>Objectives (Why Actions are Needed)</i>	<i>Strategies (What is Needed)</i>	<i>Implementation Actions (What's Necessary to Accomplish the Changes)</i>
Create effective educational programs that build understanding of invasive species, their impacts and management actions	Identify specific audiences that can help achieve a sound Inv. Species program, including: (1) Policy and opinion leaders, (2) landowners, (3) those who interact with invasion pathways and (4) various stakeholders	Policy and opinion leaders —tours, briefing papers and one-on-one discussions, “canned” presentations or websites	Prepare presentations and briefing papers, arrange for editorial board briefings, Find “educable moment” opportunities for legislator and opinion leaders
	Identify subparts of each general audience. For example, “stakeholders” include hunters and fishing enthusiasts, rural landowners, hikers and bikers, homeowners, pet owners, urban dwellers	Landowners —tours and field days, E-Z ID cards and call-in or electronic ID’s and help, flyers with tax notices, direct mail	Develop landowner information (ID cards, flyers, direct mail); arrange for tours and workshops
		Those who interact with invasion pathways —E-Z ID cards, specialized training and workshops for agency employees and others, posters at boat ramps, trailheads, campgrounds, flyers with ATV and boat registration, “closing” info for purchasers of rural land, information in Spanish for nursery and landscape workers, point of purchase info at gardening centers,	Develop cross-training sessions for agency employees, utility workers and others likely to encounter new species; Develop special training for foreman of nursery and landscape crews or salespeople; Create posters for concentrations of recreationists
		Stakeholders —info with hunting and fishing regs, E-Z ID cards, point of purchase info at farm and ranch supply firms, pet shops, sporting good stores, ATV and boat dealers, “Home Depot” types of stores, create an “icon”, ie “Smokey Bear” model, TV and radio spots	Write and distribute radio and TV PSAs; Develop appropriate point of purchase information; Employ a creative team to assure consistency in messages and a campaign identity
Be able to measure success	Determine existing levels of knowledge regarding invasive species, the perceptions of various audiences and establish a baseline from which progress in molding public opinion can be measured	Conduct “before and after” polling of specific audiences	Look for partnerships to include invasive species questions with ongoing polling efforts; Ask for feedback on websites

Appendix V. Recommendations Continued

Ideas and Proposals with Legal and Political Implications

Goals (From Assessment and Summit)

Be able to identify and respond to new species or a species in a new place

Why Actions are Needed?

It is difficult for the public and agency employees to know whom to contact if they see a suspected new species or a spread to a new area which might require a rapid response

Allow landowners to report species without penalty

Some landowners might be reluctant to report suspect species because they fear penalties or restrictions on land uses

Be able to effectively respond to new or potential invasions

There are apparently some instances in which an invasive species cannot be quarantined or controlled legally

Identify potential invaders

Inevitably, some new invaders will surface in Idaho. It is important to know what they may be so that they can be identified and appropriate response actions taken

Adequately fund invasive species programs

Funding is often inadequate and uneven across all programs

Assure coordination among various state and federal programs

There are numerous state and federal agencies with invasive species responsibilities in Idaho, but no way to assign priorities, develop a coordinated work plan and assure accountability for achieving the actions in the plan

Provide authorities for inspections and control actions for all invasive species

Some species like weeds have clear prevention and control authorities. For others, like aquatic species, there may be inadequate authorities for control actions

Educate important audiences about invasive species

Most effective prevention and control actions are the result of individual efforts by knowledgeable people

Be able to track new invaders

It is necessary to track new invasions or the spread of existing invaders to new areas as a basis for strategic control/prevention actions

<i>Strategies (What is Needed)</i>	<i>Implementation Actions (What's Necessary to Accomplish the Changes)</i>
Create a central point of contact, "hotline" as a place to report suspect species and to get information on invasive species	Find an administrative "home" for the site, build a website and call-in capability, find funding and decide how to staff it.
Research the legal basis for landowner concerns	It does not appear that landowners incur any liabilities for failing to report or for having invasive species on their property unless otherwise mandated by law, primarily the Noxious Weed Law.
Assure that all agencies with invasive species responsibilities have the authority to take actions under "emergency" situations	Develop lists of species that will trigger regulatory actions. Define "emergency" for all invasive species agencies and assure that they have appropriate quarantine or control authority
Develop "red" lists of undesirable species. Associate control and prevention actions with the risks that these species will arrive here and, if they do, serious damages will result.	"Lists" may need to be codified through rulemaking and this needs to be explored. It may be necessary to modify weed laws so that counties can expend funds for species not on the noxious weed list. Develop a process for risk assessment.
Ideally, there is a need for a dedicated, adequate fund that can be used for all invasive species programs and for all agencies	Explore the creation of an "invasive species fund", including the source of funds and its administration. Explore present or future funds from federal or private sources.
Establish, either administratively or statutorily, a statewide "invasive species coordinator".	Decide on either administrative or statutory establishment. Decide powers, structure, responsibilities and funding for the coordinator.
Review existing authorities and identify gaps in authorities for inspections, quarantines and control actions	Review the authorities and interpretations of the Plant Pest Act as a basis for a comprehensive invasive species authority. Examine parallel authorities for other species. Draft any legislation that might be needed to fill the gaps.
Assure that there are adequate educational efforts that are sufficiently funded.	Consider general fund or federal funds for such successful educational efforts as those of the Idaho Rangeland or Forest Products Commission or the Weed Awareness Campaign that are earmarked for invasive species efforts.
Create a high tech capability that allows new invaders to be tracked and mapped.	Consider the new "CRISSP" at the U of I as the technological basis for invasive species detection, tracking and mapping.

National Pest Alert



Soybean Rust

Phakopsora pachyrhizi and *P. meibomia*

Distribution and Transmission

Two fungal species *Phakopsora pachyrhizi* and *P. meibomia* cause soybean rust and are spread primarily by windborne spores that can be transported over long distances. Asian soybean rust, *P. pachyrhizi*, the more aggressive of the two species, was first reported in Japan in 1903 and was confined to the Eastern Hemisphere until its presence was documented in Hawaii in 1994. Currently, distribution of *P. pachyrhizi* includes Africa, Asia, Australia, Hawaii, and South America. *P. pachyrhizi*'s rapid spread and severe damage with yield losses from 10 to 80% have been reported in Asia, Brazil, Paraguay, South Africa, and Zimbabwe. The less aggressive soybean rust species *P. meibomia* is present in the Western Hemisphere, including Puerto Rico. *P. pachyrhizi* and *P. meibomia* have not been detected in the continental United States as of May 2003.

Seedborne transmission has not been documented, although seed lots may contain contaminated plant debris capable of spreading the pathogen. Clouds of spores are released if infected plants are disturbed by wind or by individuals walking through rust-infected areas. Individuals who are sampling for soybean rust may transport spores from one area to another on clothing. If clothing is exposed to spores, care should be taken to prevent the spread of soybean rust to uninfected locations.



Soybean rust lesion types and characteristics of early symptoms of soybean rust and bacterial pustule.

Host Range

P. pachyrhizi infects more than 90 species of legumes. Principal hosts include soybean (*Glycine max*), wild soybean (*G. soja*), kudzu (*Pueraria lobata*), jicama or yam bean (*Pachyrhizus erosus*), snap and dry bean (*Phaseolus vulgaris*), yellow lupine (*Lupinus luteus*), and cowpea (*Vigna unguiculata*). Kudzu is widespread in the United States and could serve as a reservoir for the soybean rust pathogen. The broad host range of this fungal pathogen increases the likelihood of rapid spread once introduced into the United States.



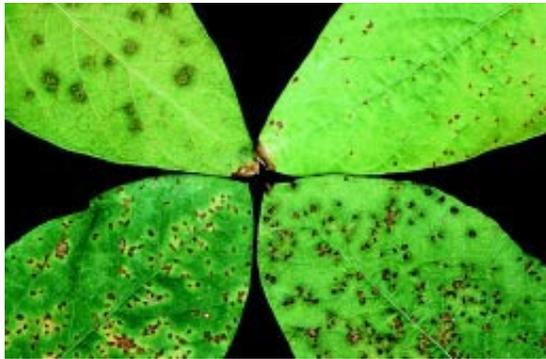
Symptoms of high infection (left) and low infection (right) levels of soybean rust within a soybean field.



Symptoms and Disease Development

Soybean rust symptoms are similar for *P. pachyrhizi* and *P. meibomia* species. Symptoms begin on the lower leaves of the plant as small lesions that increase in size and change from gray to tan or reddish brown on the undersides of the leaves. Lesions are most common on leaves but may occur on petioles, stems, and pods. Soybean rust produces two types of lesions, tan and reddish brown. Tan lesions, when mature, consist of small pustules (uredinia) surrounded by slightly discolored necrotic area with masses of tan spores (urediniospores) on the lower leaf surface. Reddish brown lesions have a larger reddish brown necrotic area, with a limited number of pustules (uredinia) and few visible spores (urediniospores) on the lower leaf surface. Once pod set begins on soybean, infection can spread rapidly to the middle and upper leaves of the plant.

Environmental conditions impact the incidence and severity of soybean rust. Prolonged leaf wetness combined with temperatures between 59 and 86°F and humidity of 75–80% is required for spore germination and infection. Under these conditions, pustules form within 5–10 days and spores are produced within 10–21 days. High levels of infection in soybean fields result in a distinct yellowing and browning of fields and commonly, premature senescence in plants.



Various stages of soybean rust on soybean leaves.

Identification of Soybean Rust

Molecular analysis provides rapid and accurate identification to differentiate between *P. pachyrhizi* and *P. meibomia*. Early symptoms of soybean rust resemble bacterial pustule (*Xanthomonas axonopodii* pv. *glycines*) and brown spot (*Septoria glycines*). Soybean rust can be distinguished from bacterial pustule and brown spot by examining the lesions under a hand lens (20×) or dissecting microscope. The mature soybean rust lesion contains cone-shaped pustules with a pore on the top with spores inside or on top of the cone.

Sample Collection Procedures

Collect samples immediately if you suspect soybean rust is present on soybean or other hosts. Place each plant sample in a self-locking plastic bag and maintain under cool conditions (refrigeration). Place samples in sealed paper bags if cool conditions are not available. Once refrigeration is available, each sealed paper bag should be placed inside a self-locking plastic bag before cooling. Leaves should be kept flat by placing them between paper towels or pieces of paper. Record the following information for each sample collected: date; host plant; collector's name; phone number; collection location within field; and location of field, including state, county, township, and nearest road intersection. Global positioning system location information is requested if available. Mark sample containers with a permanent marker and print all information.

Sample Submission

Submit samples to your state's university diagnostic laboratory or Department of Agriculture diagnostic laboratory for identification (contact university extension personnel for the address of the diagnostic laboratory). Each state is developing an invasive species response program as part of the USDA National Plant Diagnostic Network. If samples are identified as soybean rust by state diagnosticians, species verification by molecular analysis will be required.

Management Recommendations

All commercial varieties currently available are highly susceptible. Current research includes screening germplasm for resistance and evaluating fungicide efficacy. Early detection is required for the most effective management of soybean rust. Monitoring soybean fields and adjacent areas is recommended throughout the growing season. Fungicide applications may reduce yield loss, depending on the plant developmental stage time when soybean rust is detected, and fungicide application method. For efficacy information on fungicides labeled for use on soybean, consult university extension personnel in your state.

For more information on soybean rust, visit our Web site at <http://www.ncpmc.org/soybeanrust>

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PEST ALERT

United States Department of Agriculture • Animal and Plant Health Inspection Service

Safeguarding, Intervention, and Trade Compliance Officers Confiscate Giant African Snails in Wisconsin

Safeguarding, Intervention, and Trade Compliance (SITC) officers with the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) confiscated more than 80 illegal giant African snails from commercial pet stores and a private breeder in Wisconsin in November. Acting on a tip from the Wisconsin State Plant Health Director's office, Federal regulatory officials moved in and seized the large land snails from two pet stores in Nekoosa and from a residential garage in Appleton, WI.

As part of an immediate national call to find, assess, and delimit the population of the snail in the United States, SITC officers will seize all live snails of the Achatinidae family. Several species of this snail family are capable of becoming agricultural pests here and can pose a serious health risk to humans. The Plant Protection Act prohibits the unauthorized importation, entry, exportation, or movement in interstate commerce of the giant African snail without an APHIS permit. APHIS Plant Protection and Quarantine (PPQ) officials protect American agriculture and natural resources from the risks associated with entry, establishment, or spread of an invasive species such as the giant African snail.

The Giant African Snail

Scientists consider the giant African snail, *Achatina fulica*, to be one of the most damaging land snails in the world. It is known to eat at least 500 different types of plants, including breadfruit, cassava, cocoa, papaya, peanut, rubber, and most varieties of beans, peas, cucumbers, and melons.

Believed to be originally from East Africa, *A. fulica* has established itself throughout the Indo-Pacific Basin, including the Hawaiian islands. This

mollusk has also been introduced to the Caribbean islands of Martinique and Guadeloupe. Recently, *A. fulica* infestations were detected on Saint Lucia and Barbados.

In 1966, a Miami, FL, boy smuggled three giant African snails into south Florida upon returning from a trip to Hawaii. His grandmother eventually released the snails into her garden. Seven years later, more than 18,000 snails had been found along with scores of eggs. The Florida State eradication program took 10 years at a cost of \$1 million.

Description and Life Cycle

Reaching up to 20 cm in length and 10 cm in maximum diameter, *A. fulica* is one of the largest land snails in the world. When full grown, the shell of *A. fulica* consists of seven to nine whorls, with a long and greatly swollen body whorl. The brownish shell covers at least half the length of the snail.

Each snail contains both female and male reproductive organs. After a single mating session, each snail can produce 100 to 400 eggs. This amazing creature can duplicate reproduction through several cycles without engaging in another mating. In a typical year, every mated adult lays about 1,200 eggs.



Figure 1—A penny is used to show the size of giant African snail eggs.



Figure 2—Pale color morph of *Achatina fulica* maneuvers in its environment.



Figure 3—Giant African snail infestation on the Caribbean island of Saint Lucia.

Figure 4—Shell of a full-grown giant African snail.

Although this species thrives in tropical and subtropical areas, it can survive cold conditions and snow. In northern areas, the snail would become slow and sluggish, almost in a hibernating state, until warm weather returns.

Spread

Like other exotic land snails, giant African snails may enter the United States as hitchhikers on imported cargo. However, PPQ has intercepted these pests more frequently at airports from arriving international travelers who may consume the snails as meat or folk medicine, or wish to keep them as pets.

Damage

Giant African snails—*Achatina achatina* L., *Achatina fulica* Bowdich, *Archachatina marginata* S., and other species in the family Achatinidae (Gastropoda)—are large, terrestrial snails of African origin that cause extensive damage to plants in tropical and subtropical agricultural systems and the environment. These snails are also known to carry organisms that can cause serious diseases in humans, including *Angiostrongylus cantonensis* and potentially *A. costaricensis*. These organisms can be transferred by ingesting improperly cooked snail meat or by handling live snails and allowing their mucus to contact human mucous membranes such as those in the eyes, nose, and mouth.

Additional Information

For more information, visit the APHIS Web site at <<http://www.aphis.usda.gov/oa/invasive>>.

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