

WASHINGTON INVASIVE SPECIES COUNCIL

2011

Annual Report to the Legislature



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THE WASHINGTON INVASIVE SPECIES COUNCIL

In 2006, the state Legislature created the Washington Invasive Species Council with a call to action – to better protect Washington from the devastating impacts of invasive species and to do so among multiple levels of government. In the 2011, the Washington State Legislature voted unanimously to continue the council for six more years (Revised Code of Washington [79A.25.310](#)).

This report summarizes the work of the council during the past year and discusses the threat invasives species pose to Washington’s landscape, industry, and wildlife, and people.

IN HARM’S WAY: WASHINGTON’S ENVIRONMENT AND ECONOMY

Expansions of global trade and increases in human mobility have resulted in unprecedented invasion by nonnative, invasive species. Whether on land, in oceans, or on farms, invasive species can produce severe, often irreversible, impacts on agriculture, recreation, salmon habitat, native people’s cultural resources, and other natural resources. These species threaten Washington’s own plants and animals, such as the yellow starthistle replacing entire fields of native grasses and flowering plants and the bullfrog taking over wetlands and decimating local frog and amphibian populations. Introduced species also present an ever-increasing threat to food and timber harvest. In the United States, the economic costs of non-native species invasions reach billions of dollars each year.

Invasive species don’t have native predators so they can out-compete local plants and animals for food. They can reduce the resiliency of natural areas and change the local habitat. For example, the highly flammable and invasive cheat grass matures in late spring and summer, resulting in earlier and more frequent wild fires that destroy native plants and animals and endanger people’s lives and their homes. They also can undo the millions of dollars invested in restoring critical salmon habitat, such as seen by knotweeds invading and spreading so rampantly along rivers.

Invasive species threaten Washington’s economy because they can damage many of the state’s key industries as well as public utilities. For example:

- The Northwest Power and Conservation Council has calculated that a zebra or quagga mussel invasion in the Snake or Columbia Rivers would cost upwards of \$300 million in annual maintenance and lost opportunities to the hydropower industry, hatcheries, public utility districts, and farmers.
- Washington is a top seafood supplier, producing about 12 million pounds of fresh finfish and 8 million pounds of oysters, and an estimated \$77 million in sales of farmed bivalve shellfish

each year. Invasive spartina threatened those industries because it turned thousands of acres of shoreline from productive mudflat into spartina meadows.

- Washington's timber industry is vulnerable to invaders. For example, the emerald ash borer, introduced in Michigan in 2002, is currently killing tens of millions of hardwood trees in eastern states and Canadian provinces. It is costing municipalities, property owners, and forest product industries tens of millions of dollars and causing federal quarantines on forest products in infested areas. It is also spreading fast, having infested 16 eastern and mid-western states in just 9 years.
- Recreational boating, fishing, and seaplane opportunities are cut off as invasive species, such as the New Zealand mud snail and viral hemorrhagic septicemia (a fish disease), become established in lakes and streams. To halt the spread of these species, the infested water bodies often are closed to the public.
- Invasive plants and animals obstruct pipes, screens, and other structural components of water systems. The Seattle Public Utilities District spent nearly \$500,000 and three years to eradicate Eurasian watermilfoil in Lake Youngs and has sought assistance from the Washington Invasive Species Council to increase awareness of the invasive species issue among utility staff and the public.

SPOTLIGHT ON THREE CASES

Invasive species were in the news a lot in 2011. There were stories about Asian carp in rivers around the Great Lakes, new invasions of zebra and quagga mussels in the Dakotas and some southern states, African snails in Florida literally eating the stucco on houses and threatening agriculture, and so many more. In the Pacific Northwest, the headlines have been plentiful too. The Washington Invasive Species Council keeps close track of reports and posts them weekly on its Web site. Below are just a few examples of invasive species issues:

Washington is One of Five Western States With No Zebra or Quagga Mussels



Washington is one of only five western states left with no invasion of zebra or quagga mussels – the others are Oregon, Idaho, Montana, and Wyoming. If introduced, the mussels can quickly spread through rivers and lakes, impacting native species, recreation, and infrastructure for power generation, irrigation, municipalities, and industrial use. As mentioned above, an invasion of these mussels in the Columbia River will cost the region hundreds of millions of dollars a year. This year, the Pacific Northwest made it through another boating season without getting invasive quagga or zebra mussels established, but there were plenty of close calls.

Idaho intercepted 24 mussel-contaminated boats entering both Idaho and Washington, and Washington (Department of Fish and Wildlife and State Patrol) decontaminated 20. Most boaters were coming from the heavily infested Great Lakes region, and the rest came from Arizona and Nevada.

These inspection and decontamination efforts remain Washington's most important tool in preventing an invasion in the Pacific Northwest. In 2011, the Legislature renewed the invasive species removal fee to ensure that these efforts will continue.

Asian Clams Found in Lake Whatcom



In September 2011, Asian clams were found in Lake Whatcom, which provides drinking water to 95,000 residents in Whatcom County. A local resident discovered them on his beach – which illustrates the value in invasive species outreach and education to the public. City and county officials are surveying the lake to determine the extent of the infestation and decide what future actions to take.

These clams are native to southern Asia, Australia, and the eastern Mediterranean. Thousands of them can crowd into one square meter as they compete with native mussels for food and space. A big concern for Lake Whatcom, in particular, is that it is the municipal water source for Bellingham. Any fouling of intakes and other infrastructure would be costly to the city. Asian clams also have the potential to raise calcium levels in the lake, making Lake Whatcom much more hospitable to the establishment of zebra or quagga mussels.

Wild Pigs in Oregon

The council is keeping a close eye on Oregon's efforts to control its growing feral pig problem. According to the Oregon Department of Fish and Wildlife, between 2,000 and 5,000 wild pigs roam central and southwest Oregon, and the population is growing (Figure 1). Wild pigs are voracious omnivores, rooting through the earth with their snouts in search of insects, bulbs, tubers, roots, and worms. In the process, they damage crops and grazing land, spread diseases, ruin fish spawning grounds, accelerate erosion, destroy native habitat, and spread noxious weeds. In California, wild pigs were blamed for the deadly 2006 bacteria outbreak of *Escherichia coli* (also called E. coli) in spinach.

Oregon will soon begin an aerial hunting effort to eradicate as many of the pigs as possible, with the hopes of eliminating about 70 percent of the population. As part of this effort, Oregon legislators recently outlawed paid hunts for wild pigs to discourage their cultivation and required private landowners to report feral swine and develop eradication plans.

The council is gathering information on the presence of wild pigs in Washington and may begin outreach efforts with Oregon and Idaho about this dangerous species.

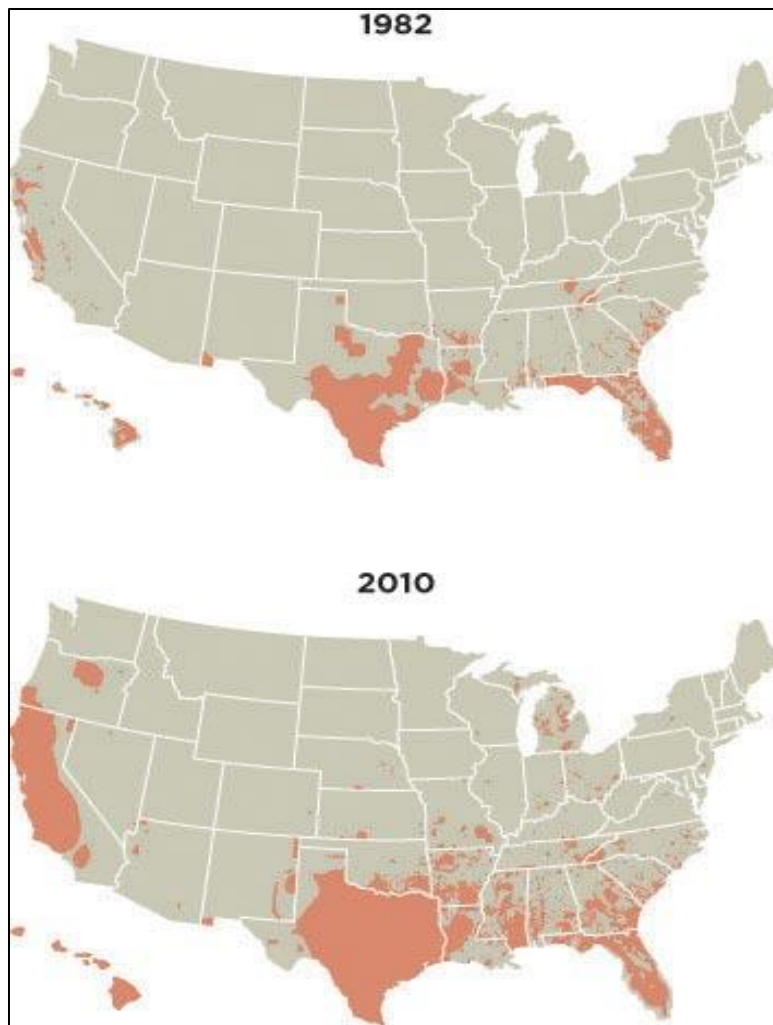


FIGURE 1: THE SPREAD OF WILD PIGS IN THE UNITED STATES (SHOWN IN RED) FROM 1982 TO 2010.

THE WORK OF THE COUNCIL

The council is a joint effort among local, tribal, state, and federal governments, as well as the private sector and nongovernmental interests. It provides policy direction, planning, and coordination on invasive species. The council has established a strategic and unified approach to stopping invaders at the gate, identified 50 priority species, and began providing the leadership and coordination on invasive species that the agencies do not have the resources to do. The council also tracks the progress made in implementing the strategic plan, as well as whether or not those efforts are reducing the presence and harm caused by invasive species.

To protect Washington's natural resources and economic interests from invasive species, the council determined that five critical elements need to be accomplished:

- Determine the breadth and depth of the invasive species threat and use that information **strategically to target resources** where they are most needed and effective.
- Improve the capability to **prevent** new infestations and **act quickly and decisively** upon discovering new threats.
- Establish clear, statewide **priorities** for action (accomplished in 2009).
- Strengthen **control** efforts for established infestations (ongoing).
- **Communicate** the gravity of invasive species and, in doing so, change opinions and behaviors (ongoing).

This past year, the council's work has focused primarily on the first two bullets – creating an assessment to target resources strategically where they are most needed and preventing the introduction and spread of new invasions and the state's ability to take quick action.

2011 COUNCIL ACCOMPLISHMENTS

Strategically Targeting Resources

Baseline Assessment of Priority Invasive Species in the Puget Sound Basin

When the council was formed and began its strategic planning, many big picture questions were asked, such as “What invasive species are in Washington? Where are they? What impacts are they having? How are they moving around? Who is managing them and how effective is that

management?” Unfortunately, at that time, the answer to almost all of these questions was “We don’t know.”

Now, for the first time ever, the council has compiled all known data on priority invasive species in one place for a thorough analysis of invasive species status, trends, impacts, and pathways in the Puget Sound basin. This project has created new information, derived from existing, but disjointed sources, in supporting the understanding of ecosystem conditions in the Puget Sound and identified gaps in protection and control of the species. Given funding constraints, 15 of the council’s 50 priority species (as prioritized in 2009 – see 2009 Annual Report), see were selected for the assessment; as additional resources become available, the council will expand this work to include all 50 species.

Notable findings from the assessment include the following:

- Eleven of the 15 species have been detected in the Puget Sound basin to varying degrees. Some are well established, such as knapweed (see Figure 2), while others are very effectively controlled, such as spartina and gypsy moths.
- Species not established yet: kudzu, feral swine, wood-boring insects, and zebra and quagga mussels.
- There is a lack of funding and associated programs to manage invasive mammals and the marine alga, *Caulerpa*, and funding levels for county noxious weed boards typically are insufficient to cover those organizations’ basic plant control mandates.
- Current management efforts focus on control, eradication, and general outreach; they do not sufficiently target pathways of introduction and spread.
- Most invasive species programs are not evaluated for effectiveness and, as a result, there is a lack of understanding about which programs are or are not working and why.

The council will use the findings of the baseline assessments to work directly with organizations to fill the most critical gaps and use limited resources where they are most effective. For example, in discovering that no agency had authority for or was addressing invasive marine algae, the council worked with the Washington Department of Ecology and other agencies to pass Substitute Senate Bill 5036. That law provides funding to the Department of Ecology to create an invasive marine algae control program. More of this work will be done in 2012.

The report, “A Baseline Assessment of Priority Invasive Species in the Puget Sound Basin,” includes maps, a database, and species-specific information that can be used by government agencies, non-profits, and tribes in their work combating invasive species and conducting recovery efforts in Puget Sound. The report and database are available on the council’s web site at www.invasivespecies.wa.gov/council_projects/epa_grant.shtml.

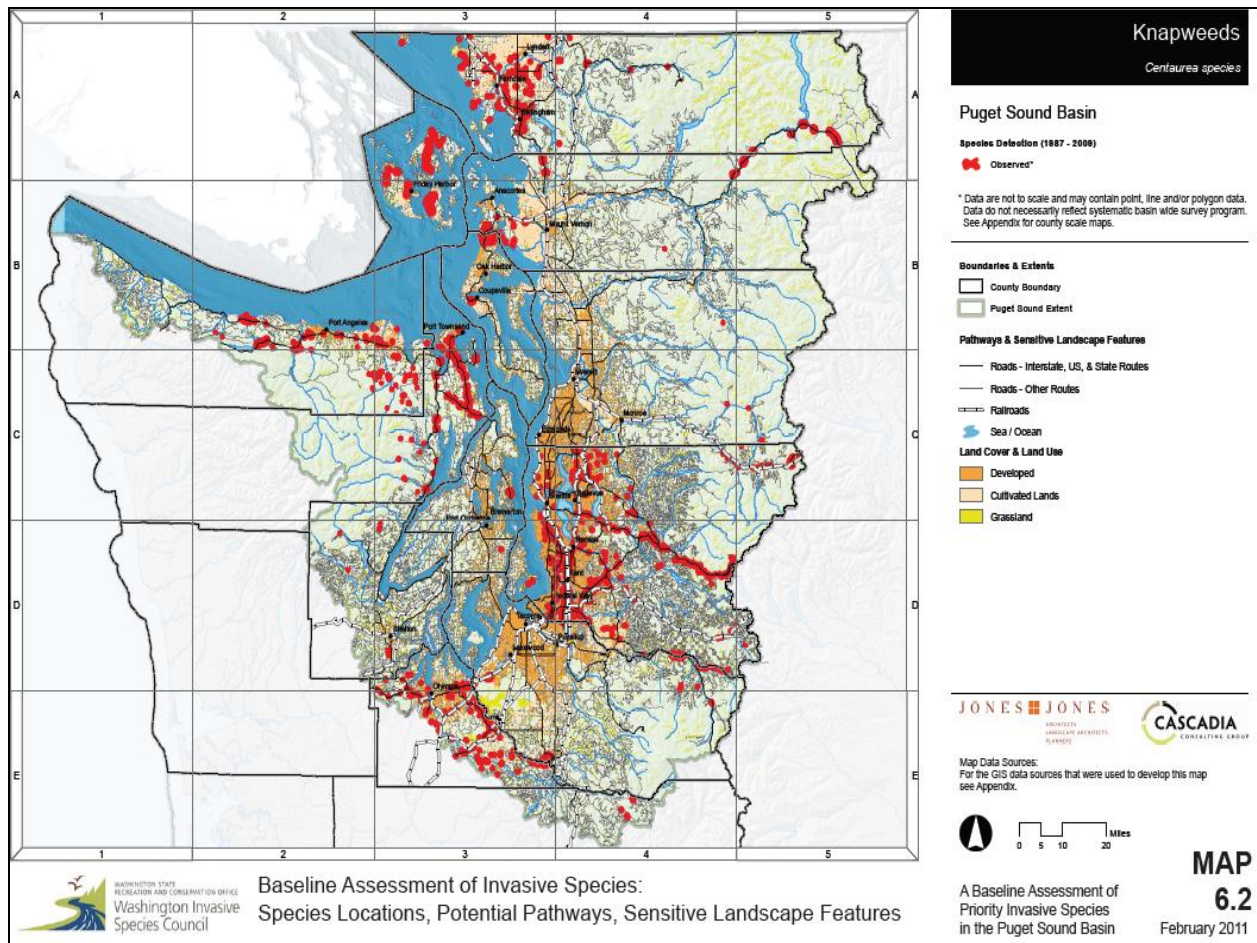


FIGURE 2: THE KNAPWEED INVASION IN THE PUGET SOUND BASIN. THE MAPPING OF KNAPWEED LOCATIONS IN THE BASIN SHOWS THE SPREAD OF INVASIVE KNAPWEED TO OCCUR ALONG ROADWAYS.

Prevention

The best way to reduce the impacts of invasive species is to prevent them from being introduced or spreading in the first place. It is the most environmentally safe approach, because no chemical or mechanical control is needed, and it is certainly the least costly. The work happens not on the individual species level but on the way it arrives here, with the intent to close down that particular pathway.

With invasive species, unfortunately, the pathways are numerous – wind, birds, ships, car tires, etc. Some of the more important pathways include:

- Ballast water in ships
- Boat hulls and trailers
- Fish and other bait releases and the aquaria trade
- Live food industry

- Illegal stocking of fish in ponds and lakes
- Roads, vehicles, tires
- Escaped ornamental plants from the nursery industry
- Released domesticated animals that have gone feral
- Firewood and wood-packing materials
- Boots and other apparel
- Released science kit specimens (live plants and animals) used in classrooms

While member agencies have made progress addressing pathways under their authority (e.g, ballast water, boat inspections, illegal stocking of fish), the council has made significant strides towards reducing or eliminating three previously unaddressed pathways – science kits in the classroom, firewood, and the inadvertent spread from agency field work (on their boots, nets, trucks, boats, etc.). The council also completed and launched a new Web site focused on informing the public about invasive species, how they are spread (pathways), and what they can do to prevent the spread.

The council’s goal is to take out one pathway at a time – either through regulation or, more often, education – until none remain.

Stopping the Spread of Invasive Species – Science Kits in the Classroom

The council awarded a grant to the **Pacific Education Institute**, a consortium of leaders of government agencies, business and industry, and universities and education associations, to incorporate invasive species information into elementary, middle, and high school curricula. The goal was to teach students about invasive species through project-based learning and to reform the use of invasive species in science kits. To first bring this subject to the attention of teachers, institute staff presented at the Agriculture Educators conference in July on opportunities to include projects on invasive species in their high school courses. The council’s “Buy It Where You Burn It” education campaign was provided at the conference. The institute also teamed with the Washington Sea Grant Aquatic Invasive Species program to provide a teacher workshop in November and highlight the soon-to-be published Watershed Invasive Species Education curriculum.

The second major issue that the institute addressed was the use of invasive species in science kits in the classroom. Local schools order science kits from national suppliers and receive live specimens collected from other parts of the county. In some instances, those live specimens are species invasive to Washington, such as Brazilian elodea and rusty crayfish. When teachers finish using the plants or animals, they often ‘humanely’ dispose of them in the local creek or pond, which then results in new introductions of invasives. It is remarkable how many invasive species-infested water bodies are on school grounds or in close proximity to schools.

The council asked the institute to develop and implement policies for science programs in kindergarten through 12th grade to discourage the use of live specimens in the classroom. Institute staff worked directly with teachers to educate them about this issue.

Specific actions taken in 2011 were:

- Presenting to all the Washington State regional science coordinators and the state science director on the crayfish issue. All agreed to support efforts to address the problem, now and in the future.
- Developing a pamphlet that will be made available to teachers and kit centers. It describes how to observe and collect crayfish in the wild, including what actions to take if invasives are found.
- Sending a survey to all the kit centers, gathering information about how they handled crayfish, the communication channels they have established with their teachers, and other species they order and distribute. The survey data and report will be completed at the end of the December.

Stopping the Spread of Invasive Species – Firewood

Washington forests are in jeopardy from invasive insects and diseases in firewood. Invasive pests live in wood, and when people transport firewood to their camping destination from somewhere else, invasive bugs may crawl out and infest nearby trees. Once certain invasive insects take hold it can be devastating to forests and outdoor recreation sites.

The council received \$130,000 in federal funding to create and implement an outreach campaign with the invasive species councils of Oregon and Idaho (each of which received their own federal grants). The outreach campaign was designed to raise the public's awareness about firewood as a means of invasive species introduction and spread.

The outreach campaign involved several informational elements used simultaneously in Washington, Oregon, and Idaho, including billboards, signs at federal and state campgrounds, back-lit display boards at highway rest stops, educational materials handed out at campgrounds, and messages about this issue on the national and Washington State Parks and Recreation Commission campground reservation Web sites. Awareness of this issue among the public in Oregon and Washington was measured before and after implementation of the campaign. Results showed an increase from 27 percent to 50 percent of people surveyed who had heard about this issue. Of the people who learned about the risks of spreading invasive species in firewood, more than half of them changed their camping practices to prevent the spread of invasive insects (Figure 3). For example, 75 percent of the people surveyed said that they now buy their wood in the area where they are camping and 32 percent said that they no longer purchase wood without knowing where it has come from.



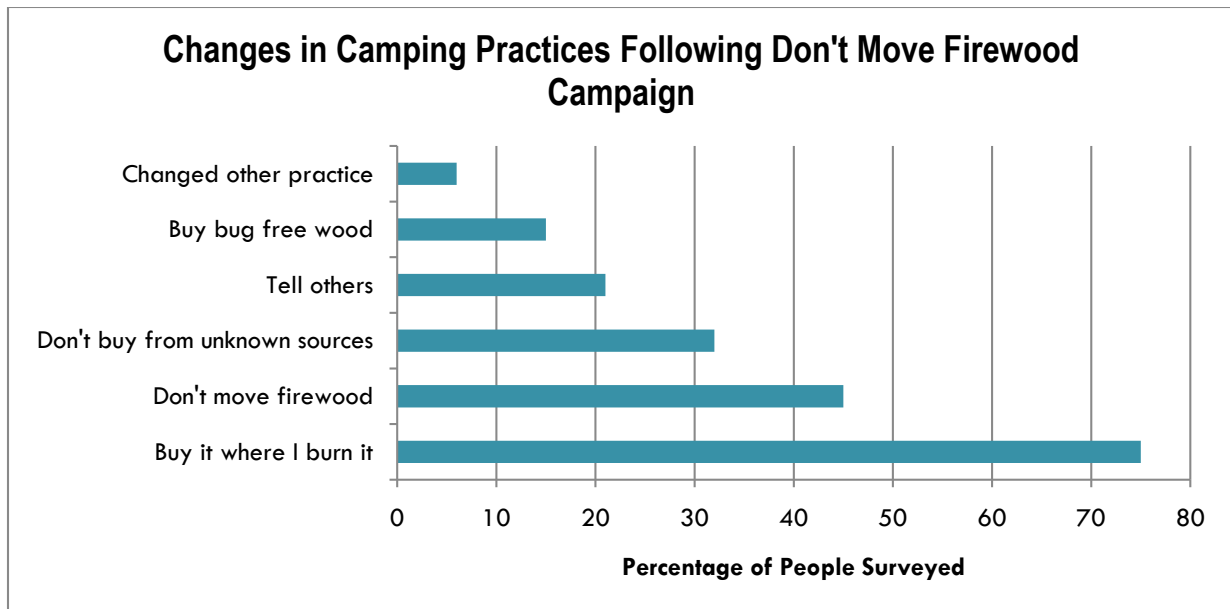


FIGURE 3: THE CHANGES IN CAMPING PRACTICES FOLLOWING THE DON'T MOVE FIREWOOD OUTREACH CAMPAIGN, AS MEASURED BY PRE AND POST CAMPAIGN SURVEYS.

Future work on the firewood project will involve outreach to corporations and organizations like the Boy Scouts that sell firewood, developing a certification process for non-infested wood, and developing and promoting a smart phone application that provides information on where people can purchase local wood.

Stopping the Spread of Invasive Species – Field Work

Invasive species often are spread unknowingly by people. For agency field staff, this can happen in many ways, such as:

- Driving a car or truck to a field site and moving soil embedded with seeds or fragments of invasive plants in the vehicle’s tires to another site. New infestations can begin miles away as the seeds and fragments drop off the tires and the undercarriage of the vehicle.
- Sampling streams and moving water or sediment infested with invasive plants, animals, or pathogens via their boots, nets, sampling equipment, or boats from one stream to another.
- Moving weed-infested gravel or dirt to a new site, carrying the weed seeds along with it, during restoration and construction activities. Before long, the seeds germinate, and the new site is infested.

This year, the council developed protocols for agency staff and others to prevent the inadvertent spread of invasive species during field work. These protocols require little to no added costs and represent the most basic steps to take both before and after working outside. Two sets of protocols were developed. The first set of protocols pertains to field operations occurring on land; the other set

is for work in the water. The major difference between them is the decontamination step in the water protocol. This step becomes necessary to remove completely immature stages of invasive animals as well as pathogens such as the Viral Hemorrhagic Septicemia fish virus that are spread much more readily in water. Considerations for construction projects also are provided.

These protocols were distributed to agency directors through the Governor's Natural Resources Cabinet. The council is working with agency contacts to disseminate the protocols and to provide training to staff on their use. The protocols can be found on the council's Web site at www.invasivespecies.wa.gov/documents/invasive%20species%20prevention%20protocol.pdf.

Stopping the Spread of Invasive Species – Invasive Species Education Web Site

The council launched the new Washington Invasive Species Education (WISE) Web site with the goal of educating people about invasive species and the damage they can do to the environment and economy, how invasive species spread and how everyone is impacted in some way by invasive species. The Web site can be found at: www.wise.wa.gov.

The Web site is designed such that people can find themselves in the invasive species issue. The site is customized so that people can find activities they do and learn about invasive species they likely will encounter, and what to do if they find them. For example, one section describes what trail hikers might see and another section gives advice to fish tank owners on how to dispose properly of their aquarium contents. In addition to educating about invasive species and preventing the introduction and spread of new and existing invasions, an underlying message in the Web site is that everyone is part of the solution. The new Web site was paid for with a grant from the federal Environmental Protection Agency and is maintained by council staff.

Acting Quickly and Decisively When Discovering New Threats

Reporting Hotline and Online Reporting Form

In 2009, the council created a reporting hotline, **1-877-9-INFEST**, and online reporting form to enlist the public in taking action. This is a well-used resource, with 49 reports coming in this year (Figure 4). While about 70 percent of the reports turn out to be mis-identifications, the rest are not, and appropriate state or federal action has followed. For the reports not requiring further action, these direct links between the public and the council provide excellent opportunities for one-on-one education about invasive species. With council staff or agency experts personally responding to each report within two weeks – usually by providing information on native look-alikes or existing state programs – public response has been extremely positive with numerous expressions of appreciation. Here are some examples of state agency action:

- An Asian long-horned beetle report to the council and U.S. Customs and Border Protection resulted in a quick federal and state response. The wood-boring beetle had been transported to the site on wood pallets and captured in a warehouse. Washington Department of Agriculture also has set up beetle traps around the property.

- Eurasian watermilfoil was reported in Sportsmen's and Egg Lakes in San Juan County. The report was forward to the Department of Ecology, which will add the lakes to their survey list for 2012.
- A report of Asian clams in Lake Sammamish led to a new finding and addition to the U.S. Geological Survey's Aquatic Invasive Species database.

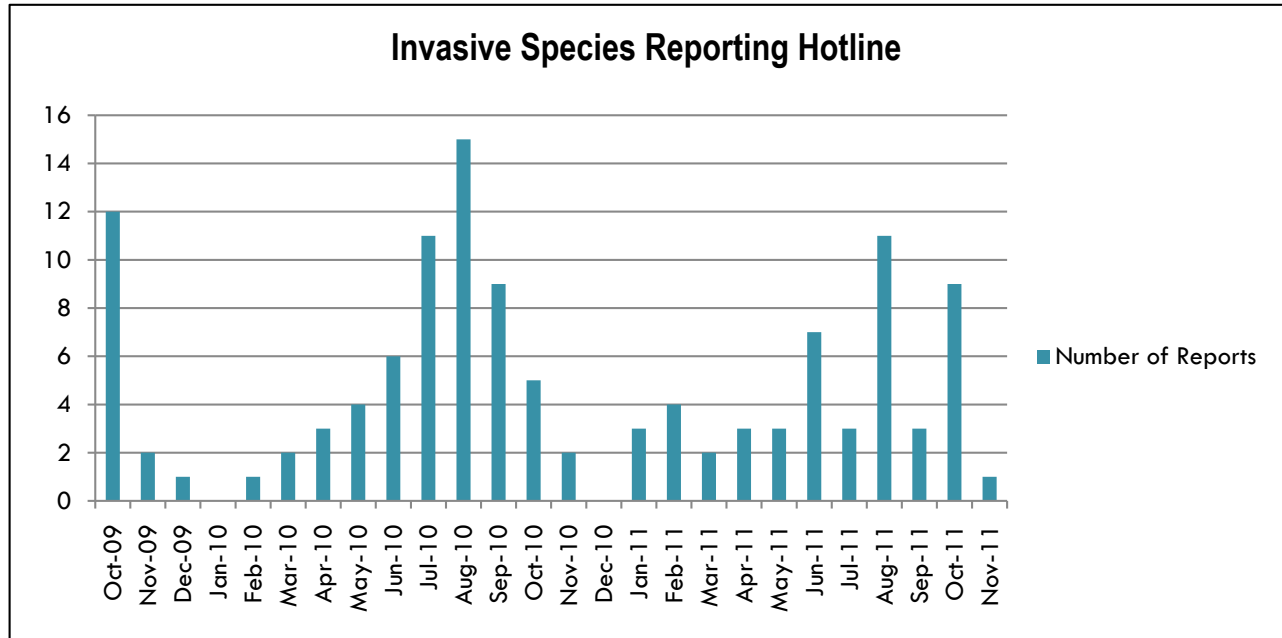


FIGURE 4: NUMBER OF REPORTS PER MONTH TO THE COUNCIL'S REPORTING HOTLINE FROM OCTOBER 2009 TO OCTOBER 2011.

State Environmental Policy Act (SEPA) Coordination

The council worked with agency SEPA coordinators – from the Departments of Ecology, Natural Resources, and Fish and Wildlife, and the State Parks and Recreation Commission – to bring considerations of invasive species into the SEPA environmental impact review process and allow for early notification and pre-emptive action. Language on invasive species was added to the guidance document that accompanies the SEPA environmental checklist and includes resources, such as a link to lists of noxious weeds arranged by common name and the council's baseline assessment maps, and questions for the project proponent to consider regarding invasive species. Here's an example (new language in italics):

1. **Earth, Source of Fill:** Be sure to include where the fill will come from. *Tip: It is important to indicate if fill material has been checked for invasive species to minimize potential transport to new areas.*

Bringing this issue into the SEPA process is another tool to educate and prevent the use and spread of invasives. Before this work, builders and landscapers might unknowingly plant an invasive species. Now, if a project involves an invasive species in some way, such as using a noxious weed for replanting a disturbed area, council staff will be notified and will coordinate with the appropriate state agency to provide other options and resources.

Our federal partners on the council are interested in using the new invasive species language in SEPA to incorporate similar considerations into their National Environmental Policy Act (NEPA) review process. The council will undertake that project in 2012.

New Zealand Mud Snail Response in Capitol Lake

Council staff continued to work with the multi-agency team to respond to the invasion of New Zealand mud snails in Capitol Lake. Notable actions taken this year include a basin-wide survey of snails in the lake, survey of snails in Budd Inlet, and laboratory biological assays that measured efficacy of several treatment options (e.g., salt, Baylicide). The Department of Enterprise Services (DES) is evaluating the survey and laboratory studies to determine next steps. Meanwhile, DES continues to take advantage of freezing weather conditions to conduct lake draw downs to kill snails. The first draw down-freeze in 2009 yielded an estimated 97 percent mortality in snails. Subsequent control efforts have been less successful, with mortality rates of only 12 to 15 percent, as conditions (e.g., temperatures, river flows, tide levels) were not ideal.

General Education Efforts – Council Web Site

The council's Web site at www.InvasiveSpecies.wa.gov was completely redesigned in 2009. The new design and information provided on the site allow for easier access to invasive species information that is important to the public. Some of this information includes current news about invasive species, how to identify the council's priority species, how to prevent moving invasive species around, who to contact when a species is found, how to request free education materials, and how to report a species sighting. Downloadable fact sheets for all 50 priority species have been created and posted on the site. The numbers of unique visitors to the Web site and total number of visits per month have been tracked since September 2009 and show a marked increase in use in the past two years (Figure 5).

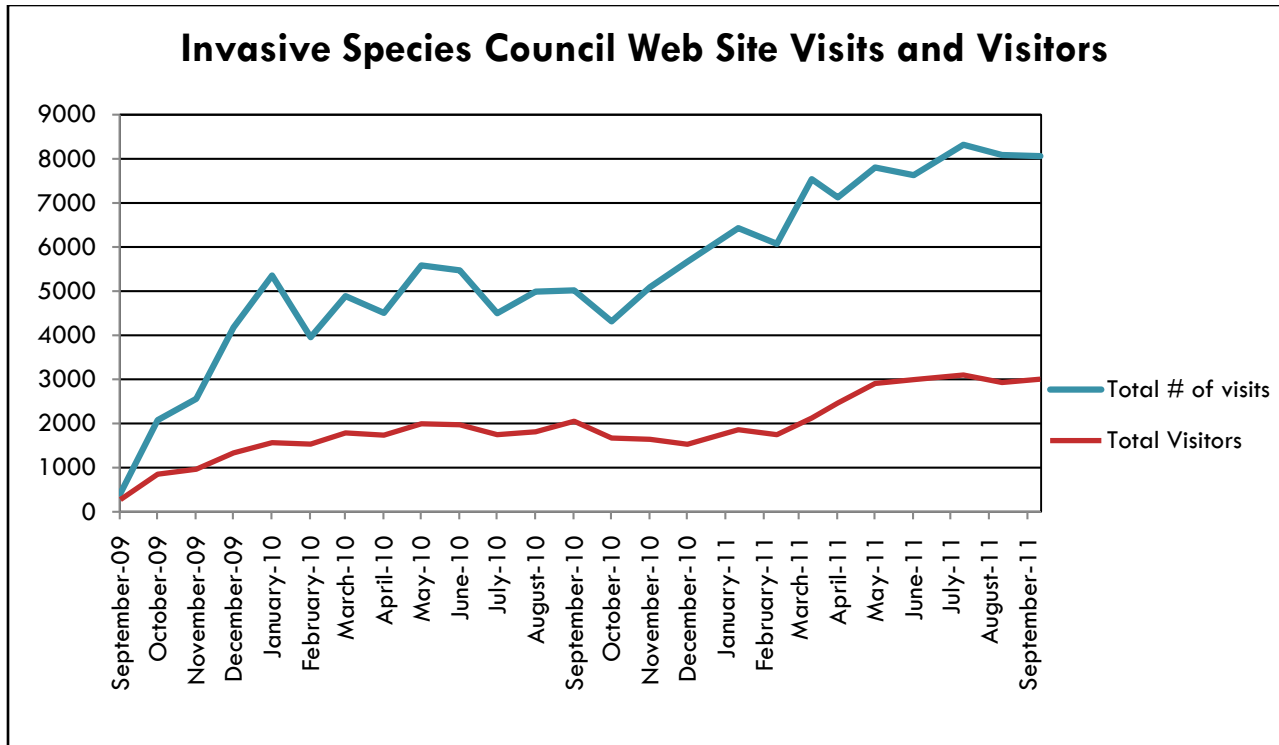


FIGURE 5: TOTAL NUMBER OF VISITS (BLUE) AND UNIQUE VISITORS (RED) PER MONTH TO THE WASHINGTON INVASIVE SPECIES COUNCIL'S WEB SITE, FROM SEPTEMBER 2009 TO SEPTEMBER 2011.

PAY NOW OR PAY LATER

Invasive species are a classic case of pay now or pay later. Modest investments in maintaining the structured coordination and leadership on invasive species, as provided by the council, will enable the state to more efficiently combat invading species before they wreak economic and environmental damage. The council is working hard to ensure that the investments it makes today will prevent Washington from paying a steep price in the future.