

WASHINGTON INVASIVE SPECIES COUNCIL

2012

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 2011, the Washington State Legislature voted unanimously to continue the council for six more years (Revised Code of Washington [79A.25.310](#)).

This report discusses the threat invasive species pose to Washington’s landscape, industry, wildlife, and people and summarizes the work of the council in 2012.

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

Expansions of global trade and increases in human mobility have resulted in unprecedented invasions by nonnative, invasive species. Whether on land, in oceans, or on farms, invasive species can produce severe, often irreversible, impacts on industries, agriculture, recreation, salmon habitat, native people’s cultural resources, and other natural resources. These species don’t have native predators and are often more aggressive and more prolific reproducers, so they can out-compete local plants and animals for food.

Introduced species also present an ever-increasing threat to food and timber harvest. In the United States, the economic cost of invasions by non-native species reaches billions of dollars each year (Table 1). Invasive species also can undo the millions of dollars invested in restoring critical salmon habitat. 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. In the Great Lakes, zebra mussels have cost the power industry \$3.1 billion from 1993-1999.
- The cost of keeping western forests free of gypsy moth is \$20 million annually. In 1981 alone, the cost of controlling



Invaders to Watch

Two examples are garlic mustard and the European green crab. Behaving much like invasive ivy, garlic mustard populations are spreading throughout urban parks and forests in western Washington, blanketing the understory of forests and eliminating entire communities of native species. The European green crab eat smaller crustaceans and are believed to have caused the collapse of the soft-shell clam industry in New England. There is concerning evidence that green crab populations are rapidly growing around Vancouver Island and moving into the Straits of Juan de Fuca – too close for the comfort of Washington’s shellfish growers and natural resource managers.

gypsy moth infestations in eastern U.S. forests was \$764 million.

- Invasive species, such as feral pigs, can harbor and spread disease, such as swine brucellosis, pseudorabies, and foot-and-mouth disease, directly to domesticated livestock and humans.
- Recreational boating, fishing, and seaplane opportunities are cut off when 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.

Table 1: Example Economic Impacts of Invasive Species

Industry or Geographic Area Affected	Invasive Species	Cost
U.S. agriculture	Weeds	\$30.6 billion in control costs and production losses
U.S. waterways	Hydrilla and water hyacinth	\$100 million annually
Western U.S. rangelands	Leafy spurge	\$110 million in 1990
Aquaculture in Washington	Spartina	\$26 million since 1996
Livestock production in Montana	Knapweed	\$42 million annually

IN THE NEWS

Invasive species continued to be in the news in 2012, both in Washington and nationally. Nationally, there were stories of Asian carp and the growing evidence that they are moving towards the Great Lakes, feral pigs in the eastern U.S. causing damage and carrying bacteria that can be transmitted to people, and, in the Florida Everglades, pythons and anacondas dominating the food chain and causing mass extinctions of small mammals there. In the Pacific Northwest, the headlines have been plentiful too. Below were the big news items from this region:

Washington Works Hard to Remain Free of Zebra or Quagga Mussels

Washington has worked very hard to retain its status as one of only five western states left with no zebra or quagga mussels, joining Oregon, Idaho, Montana, and Wyoming. The success of this accomplishment comes not only from agencies inspecting boats in multiple states, but from continued outreach to the federal government on the need for stricter controls in infested states. Working closely with the other states, the council played a very active role in this outreach and helped bring a new fiscal appropriation for boat inspections at Lake Mead in Nevada.

In a short time, zebra and quagga mussels have spread like a virus across the United States as boats move from infested to clean waters, bringing the hitch-hiking mussels along with them. Native to eastern Europe, they were first discovered in the Great Lakes in the late 1980s. Today, there are



trillions of invasive mussels in the Great Lakes and throughout eastern and mid-west waters, and now they infest Lake Mead and other waters of the lower Colorado River. When introduced, the mussels quickly reproduce and attach to any and all hard surfaces – causing large maintenance costs to hydropower producers, irrigators, and municipalities that deliver drinking water. A recent study of the hydropower facilities on the Columbia River indicated that if the mussels establish in Washington, the hydropower utilities will spend about \$25 million a year in added maintenance. These costs will be passed to consumers of the power generated by the facilities, a potentially crippling blow to an already struggling western economy. In addition, invasive mussels will have incalculable impacts on native fish and wildlife in the Pacific Northwest with potentially devastating impacts on threatened and endangered salmonids.

Roadside inspection and decontamination efforts remain the region's most important tool in preventing an invasion of zebra and quagga mussels. The Pacific Northwest states worked closely together on these efforts. Idaho has been a leader in blocking the mussels by creating 15 permanent roadside inspection stations that are open from March through September. This year, Idaho inspected more than 42,000 boats and found 57 contaminated with mussels. Most of the contaminated boats were headed to Washington and were coming from Lakes Mead and Havasu in the lower Colorado River, as well as from the heavily infested Great Lakes region. The Washington Department of Fish and Wildlife conducted roadside inspections of approximately 1,000 boats. In addition, Nevada alerted the department to more than 40 mussel-infested barges heading into Washington. The department directed the barges to the Port of Olympia and decontaminated them there.

Invasive Species on Tsunami Debris

This year the council, unfortunately, learned about a new invasive species pathway – tsunami debris. Structures and vessels that had been encrusted with species native to Japan's estuaries now were floating across the ocean, and the species were remarkably surviving the journey. The council has participated in several policy, planning, and outreach efforts to minimize impact from these invasive species and will continue to work on this issue for years to come.

Washington first learned of this pathway on June 5, 2012, when a 165-ton dock washed onto Agate Beach in Oregon. With obvious Japanese markings, it was quickly determined to be from the March 2011 Japanese tsunami event, but what was even more remarkable and surprising were the 90 different species of seaweed, mollusks, and other marine organisms attached to it. Among the most concerning species were the northern Pacific seastar, the Japanese shore crab, and wakame kelp, all known to be highly invasive on the western U.S. coast. In fact, wakame is listed among the 100 worst invasive species in the world. Within days, the dock was decontaminated by Oregon state officials.



A few days later, a 21-foot fiberglass boat washed up on Benson Beach at Cape Disappointment State Park just north of the Columbia River. The boat was confirmed to be debris from the Japanese tsunami. The boat hull was encrusted with gooseneck barnacles, which is a common open ocean species, and seven species of non-native marine algae. Of the algae species found on the boat, two would be highly invasive in Washington's marine waters. The Washington Department of Fish and Wildlife removed the boat and conducted a thorough decontamination.

A statewide response plan, *Washington State Marine Debris Response Plan September 2012*, has been developed. For the invasive species component of tsunami debris response, the Department of Fish and Wildlife is taking the lead, and the Washington Invasive Species Council is responsible for coordinating among tribes and federal, state, and local agencies to ensure resources are available and used effectively. With more than 400 vessels still unaccounted for, continued landings of debris are expected for several years. Concern for invasive species on the debris remains high.

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 prevention and response. The council has established a strategic and unified approach to stopping invaders at the gate, identified 50 priority species, and is 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.
- **Communicate** the gravity of invasive species and, in doing so, change opinions and behaviors.

This past year, the council's work has focused 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 improving the state's ability to take quick action. Education and outreach also continues to be an important part of the council's work, with staff participating in numerous outreach events and speaking engagements in 2012. The council continues to take steps forward towards better protections against invasive species.

2012 COUNCIL ACCOMPLISHMENTS

Strategically Targeting Resources

Assessing Invasive Species in the Puget Sound, Phase 2

When the council 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?" At that time, the answers to all of the questions were unknown.

In 2009-2010, the council created the first ever invasive species baseline assessment. Compiling existing information from disjointed sources, the assessment identified the extent and impacts of 15 of the council's 50 priority invasive species and identified gaps in protection and control. It has been provided to local governments and other organizations that conduct invasive species work to enhance their efforts and also was used to create an invasive marine algae control program within the Washington Department of Ecology.

In early 2012, the council received a \$225,000 grant from the Environmental Protection Agency to continue work on an additional 15 priority invasive species. This Phase 2 project is building on the first phase, incorporating similar methodology and deliverables for 15 additional priority species (see Table 2). A database of information and species maps will be created and provided as a resource through the council's Web site. This phase of the project also will involve the creation of a survey tool to be used for an annual update of the information. In successive years, following completion of the project, the council will send out the survey tool to its extensive contacts list and then incorporate new invasive species information into the online database and the Department of Ecology's Puget Sound Watershed Characterization Project, a tool designed to help local governments with restoration strategies and land use planning. The project is scheduled for completion by December 2013.

As identified in the *2012/2013 Action Agenda for Puget Sound*, one of the top strategies for protecting Puget Sound ecosystems and habitat is to conduct the Phase 2 baseline assessment and gain an understanding of invasive species locations, pathways of spread, and management actions so that future management, monitoring, and policy efforts are most effective. This project will contribute significantly to the larger Puget Sound Partnership effort of evaluating ecosystem status and trends in Puget Sound and identifying key indicator invasive species to monitor long-term. Lacking this information, the state's ability to identify gaps in prevention and control and take steps to plug those gaps is limited severely. The council anticipates using the gaps identified in these baseline assessments to work directly with agencies and organizations to facilitate filling the most critical ones and to propose policy changes to the Legislature.

Table 2: Priority Invasive Species in Phase 2 Baseline Assessment for Puget Sound

Plants	Animals	Insects and Diseases
Butterfly bush	Chinese mitten crab	Bark-boring moths
Eurasian watermilfoil	Crayfish – Red swamp and rusty	Infectious salmon anemia
Giant hogweed	European green crab	
Garlic mustard	Marine clams	
Knotweeds – Bohemian, giant, Japanese	Mediterranean snail	
Loosestrifes – Purple and garden	New Zealand mud snail	
Parrot feather		

Preventing the Spread of Invasive Species

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 least costly and most environmentally safe approach, because no chemical or mechanical control is needed. The work focuses not on the individual species 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, shoes, etc. Some of the more common 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
- Ornamental plants spread from nurseries
- Domesticated animals that were released and have gone feral
- Firewood and wood-packing materials
- Boots and other apparel
- School science kit specimens (live plants and animals) that are released

While council member agencies have made progress addressing pathways under their authorities (e.g, ballast water, boat inspections, illegal stocking of fish), the council has made significant strides in three previously unaddressed or not-yet-closed pathways – science kits in the classroom, the spread of wild pigs in the Pacific Northwest, and the continued movement of zebra and quagga mussels from infested waters.

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

Educating Schools about the Dangers Lurking in Science Kits

Using federal funds, the council provided a second grant to the Pacific Education Institute (PEI), a consortium of leaders of government agencies, business and industry, universities, and education associations. The grant enabled PEI to continue its work with the council to eliminate the threat of invasive species released from school science kits.

PEI is working directly with the Office of Superintendent of Public Instruction and the Pacific Science Center's LASER (Leadership and Assistance for Science Education Reform) Teacher Education Program to minimize the inadvertent introduction of invasive species through school science activities that include the purchase of live specimens and integrate the topic of invasive species in student learning. In 2012, PEI examined the invasive potential of live species used in science kits and began developing a plan with state agencies and science education leaders to reduce the threat.

Science curriculum directors at education service districts are following Invasive Species Council recommendations, developed in 2011, to handle live species in science kits. As a result of the recommendations, which are posted on the Office of Superintendent of Public Instruction's Web site, elementary school students statewide are now using the native signal crayfish, as it is available, rather than the invasive red swamp crayfish, in the LASER science kits. In 2012, the Office of Superintendent of Public Instruction and the Pacific Science Center expanded science kits to include an invasive species activity and learning concept, available on the LASER Web site.

During the past 18 months, students from 30 school districts in Puget Sound conducted on-the-ground, invasive species projects as a result of their teachers receiving professional development from PEI. Examples of these projects include removal of invasive species from Newberry Hill Heritage Park in Kitsap County and survey and removal of invasive plants in urban forests. Students in the Columbia River basin now inventory crayfish in their streams to determine the proportion of natives to invasive crayfish species for the National Park Service. An evaluation of student science, technology, engineering, and math learning determined that students are more engaged in this type of applied, real world science learning by taking part in invasive species projects.

PEI surveyed science kit centers statewide to determine the species used in science activities and to work with the council to prepare guidance for them. In the 2012-2013 school year, the council will prepare a plan with science curriculum directors at education service districts to tackle invasive species challenges in science kits. While the council partners with state leaders in science education to reach students across the state, it also will continue to work with formal and non-formal educators to keep invasive species an important topic in Washington classrooms.

Stopping Wild Pigs from Establishing in Washington

The invasive species councils of Washington, Oregon, and Idaho have joined forces on another regional outreach project – Squeal on Pigs. The purpose of this campaign is to prevent the establishment of feral pig populations in Washington by educating people about the wild pigs and encouraging them to report feral pig sightings on a toll-free, public hotline. This species currently is not being monitored in Washington.

Once pigs are established, they are nearly impossible to eliminate. If and when pigs are found in Washington, having the information come to the state and then having wildlife officials



rapidly respond are the keys to success. Eradicating small populations and minimizing the impacts of these invasive species are important to protect the economy and natural resources of the region.

Feral pigs are highly destructive and potentially dangerous animals. There are three types of feral pigs – the Eurasian wild boar, escaped domesticated pigs, and a hybrid between the two. It is the third variety that is spreading rampantly throughout the United States. Their spread is blamed for an estimated \$1.5 billion worth of damage to crops, wildlife, and the environment, and there is concern that major damage could be inflicted in rivers where salmon habitat restoration is underway. These pigs also carry diseases that pose a threat to livestock and humans, including swine brucellosis and pseudorabies.

Oregon officials estimate that as many as 5,000 wild pigs are roaming their state, most having migrated from California where there are estimated to be 70,000 pigs. There are no known established populations in Washington, though individual feral pigs have been reported over the years. In Idaho, biologists are working to eradicate a small population in the Bruneau Valley in the southwest corner of the state.

Preventing the Spread of Invasive Species in Salmon Recovery Efforts

The council is working with the Recreation and Conservation Office to include considerations of invasive species in salmon habitat restoration projects. The Recreation and Conservation Office awards \$43 million a year for salmon restoration and protection projects in Washington. An evaluation question addressing invasive species has been proposed for inclusion in the latest grant application. The question is designed to stop the spread of invasive species by ensuring the use of materials (e.g., soil, gravel, wood) not infested with weed seeds or insects – and the cleaning of equipment as it is moved to and from a site. The proposal will go to the Salmon Recovery Funding Board for approval in December.

Stopping the Spread of Invasive Species at the Source

While states in the Pacific Northwest are doing their best to intercept contaminated boats coming into the region, the council and others are speaking up for inspection and decontamination at the source of infestations so that there are fewer infested boats in the first place. As tracked by Idaho, the majority of infested boats entering the Northwest region come from the lower Colorado River and Lake Mead in particular. The council has joined the other western states, as well as the Northwest Power and Conservation Council, The Nature Conservancy, and Pacific Northwest Economic Region, to advocate for source control at federally managed waters. In particular, the council has asked the National Park Service and U.S. Department of Interior to implement a mandatory inspection and decontamination program for moored watercraft at Lake Mead. As a result of the advocacy from the west, a \$1 million appropriation was provided for inspecting and decontaminating moored boats on Lake Mead and other infested waters on the lower Colorado River. As this was a one-time appropriation, the council and partners will continue to seek ongoing federal funding for these efforts.

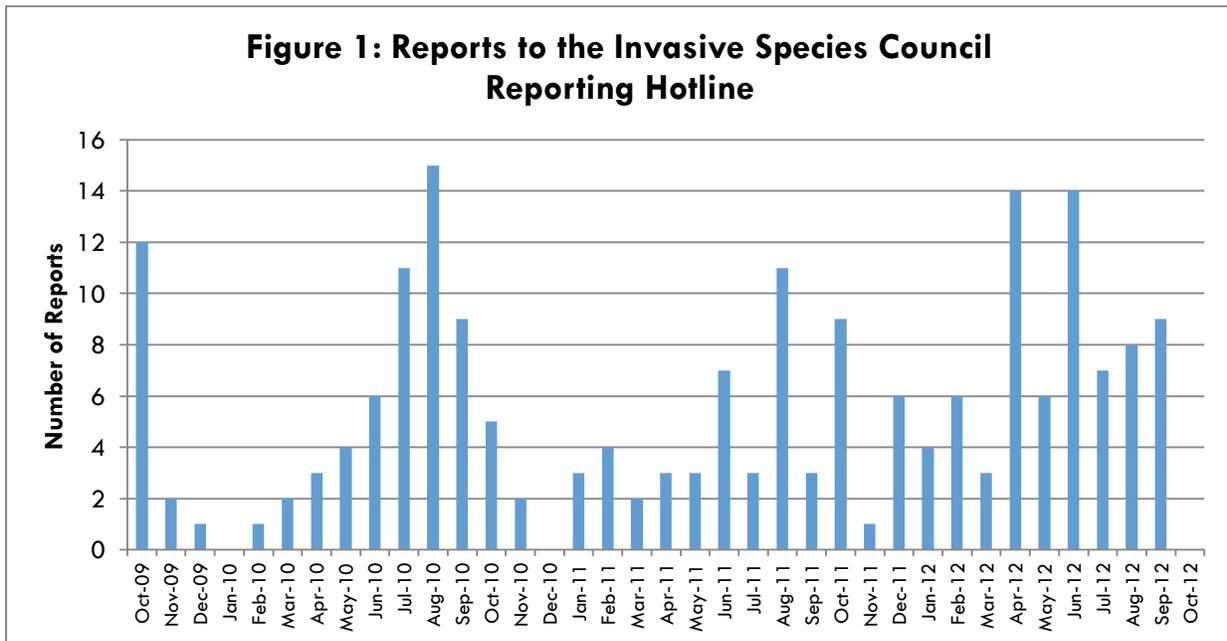
Acting Quickly and Decisively when Discovering New Threats

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 more than 70 reports coming in so far this

year (Figure 1). While the majority of reports turn out to be incorrect 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 examples of reports and accompanying state agency action:

- A report of a bug emerging from a wooden lamp. Staff sent the report and photograph to the Washington State Department of Agriculture, which identified the insect as a species of concern, Chinese long-horned borer, and collected the specimen before it escaped. With this and other insect reports, the department adjusted its pest inspection efforts to target suspect areas.
- The council was alerted to the practice of shellfish gardening on Puget Sound tide flats, where homeowners are ordering shellfish from the Internet and planting them on their tidelands. Staff passed the report onto the Washington Department of Fish and Wildlife and the Puget Sound Partnership, which worked with the Puget Sound Restoration Fund to put information about invasive species on its Web site (www.restorationfund.org/projects/shellfishgardening).
- Throughout the year, the council received many reports of nutria in the Puget Sound basin. These reports were passed onto the U.S. Department of Agriculture’s Wildlife Services and King County Department of Natural Resources and Parks. King County disseminated the reports to the other Puget Sound counties to control at the local level.



Thinking and Working as a Region

In addition to a close working relationship with both the Oregon and Idaho invasive species councils, the Washington council has been involved in several regional, invasive species initiatives.

Pacific Northwest Economic Region (PNWER)

The council is a member of the PNWER Invasive Species Working Group, whose mission is to address the regional economic and environmental impact of invasive species and promote regional collaboration and sharing of best practices. In 2012, the working group accomplished several things, including producing a white paper on the economic importance of invasive species in the region and developing information for regional legislators to learn about the economic and societal impacts of invasive species. The working group also developed an action plan, with the council tasked to work on several of the action items, such as:

- Identifying and implementing a set of strategies to reduce the spread of aquatic invasive species from Lake Mead.
- Developing a strategic, regional approach to boat inspections.
- Sending a PNWER letter to Canadian premieres encouraging shared responsibility and approaches to preventing introductions of invasive species to PNWER provinces.
- Investigating the possibility of replicating the Idaho passport idea to the PNWER region by writing a statement that supports a regional passport (to help the aquatic invasive species coordinators).
- Creating opportunities to work with Ducks Unlimited, Trout Unlimited, and other nongovernment organizations to raise awareness of invasive species.

Regional Tsunami Debris Response Planning

The tsunami debris events in 2012 raised awareness of the potential introduction of non-native, and possible invasive species, to the United States and Canada. Accordingly, a regional meeting was held in July to address the need for entities along the West Coast, Hawaii, and Canada to create a coherent framework of risk assessments, management options, outreach and engagement strategies, policy, and research related to the introduction of invasive species by Japanese tsunami debris.

The overarching goal of the workshop was to reduce the risk the introduction of invasive species from the bio-fouling community found on the tsunami debris through a regional coordinated response. Objectives toward achieving this goal included: (1) clarification of agency jurisdiction roles and responsibilities; (2) enhanced communication and coordination; (3) recruitment of technical support for taxonomic identifications; and (4) identification of critically important research questions. Group discussions and interaction during the workshop were used to develop response protocols.

Aquatic Invasive Species Policy and Law Regional Workshop

In August, a workshop was hosted by the Arizona Game and Fish Department to engage assistant attorneys general, natural resource agency attorneys, law enforcement supervisors, policymakers, and the aquatic invasive species coordinators from the 19 western states, interstate organizations, and

federal partners to establish clear legal and regulatory approaches and opportunities for aquatic invasive species abatement and reform. One clear deliverable from this workshop was the creation of an action plan that articulates needed actions at the national, regional, state, and local levels to minimize the spread of invasive mussels in the western United States. Council staff presented at the meeting and is tasked with several items, in partnership with other state invasive species councils, in the action plan.

SMALL INVESTMENTS NOW, BIG RETURNS LATER

The council continues to make progress towards its primary purpose – to foster strategic, unified, and coordinated approaches to minimize the harmful effects of invasive species. The best way to do that is to continue making investments in prevention, however small and incremental they seem, so that Washington is not faced with expensive, and possibly ineffective, control efforts. Small investments made today have the power to give huge returns in the future that result in healthy citizens, economy, and environment. The council is working hard to ensure that the investments it makes today will prevent Washington from paying a steep price in the future.