

Invasive Species Proceedings
PNWER Annual Summit – Big Sky, Montana
July 13, 2015

Co-chair: Dr. Mark Sytsma, Professor at Portland State University

Co-chair: Sen. Arnie Roblan, Oregon State Legislature

Speakers:

Update on Regional Legislation and Current Gaps in Legislation

United States- Mark Sytsma, Portland State University

Canada- Kate Wilson, Aquatic Invasive Species Coordinator, Alberta Environment and Sustainable Resource Development

A Regional Framework to Prevent the Spread of Zebra and Quagga Mussels into the Pacific Northwest: An update on the PNWER Regional Plan for coordination against the spread of invasive mussels

Lisa DeBruyckere, Creative Resource Strategies

Easing Action: A Perspective from Jurisdictions that have Addressed Mussel Infestations- Long Term Infestations

Protecting Minnesota's Lakes and Rivers... Acting Locally

- Jeff Forester, Executive Director of Minnesota Lakes and Rivers Advocates

Treatments to Eradicate Zebra Mussels in Christmas Lake

- Kylie Bloodsworth, Natural Resource Specialist, Minnesota Department of Natural Resources

Legislative Response

Sen. Arnie Roblan

Rep. Bill Kennemer

Rep. Jim Honeyford

Sen. Lee Heider

Mussels and Mutts: The Alberta Conservation K-9 Program

Cindy Sawchuk, AIS Operations Lead/Dog Handler, Alberta Environment and Parks

Aimee Hurt, Director of Operations for Working Dog for Conservation

Emerging Issues and Examples of Coordinated Response

Emerald Ash Borer

- Laurie Kerzicnik, Insect Diagnostician and Assistant IPM Specialist at Montana State University

New Zealand Mud Snails

- Robyn Draheim, Aquatic Invasive Species Coordinator, U.S. Fish and Wildlife Services

Emerging Issues in the Region and their Biological Impacts

- Ray Callaway, University of Montana

Fisheries Impact on Flowering Rush

- Virgil Dupuis, Extension Director, Salish Kootenai College

Bio control Efforts on Flowering Rush

- Jennifer Andreas, Integrated Weed Control Project Director

Changing Mentality towards Prevention and EDRR

- Travis Ziehl, Assistant Supervisor, Teton County Weed and Pest
-

Discussion Topics

Kate Wilson

Federal AIS Regulations have now passed in Canada. Importation is now addressed in controlled, and authority is given to provincial and national officers. Four Asian carps and mussels are now illegal to transport and plant in Canada. Prohibition had held up federal regulations for years, because the government did not want to add species to the list that are already in Canada. These illegal species are illegal to import possess and transport. A problem with the regulations is that though pesticide treatment can be approved to kill invasive species, the pesticide has to be registered, and there are no pesticides currently registered in Canada.

Updates: Previously there were two listed invasive species, now there are 52. There are now mandatory inspections in Alberta, as of March. The government now has the ability to regulate what species are imported with the pet industry now.

Manitoba is proposing new regulations that would create control zone around any water body and can make their own special rules for it.

Moving Forward- there needs to be more dialogue with Canadian Border Services to see how they can help regulate the movement of aquatic species, increase boat inspections, better trace the number of boats coming in.

A Regional Framework to Prevent the Spread of Zebra and Quagga Mussels into the Pacific Northwest: An update on the PNWER Regional Plan for coordination against the spread of invasive mussels
Lisa DeBruyckere, Director, Creative Resource Strategies

Four goals:

1. Build framework
2. Work with stakeholders involved for funds
3. High level estimate of cost
4. Make sure to share framework to develop priorities

Key outcomes of report was getting consensus on what is regional defense:

→ cost effective, coordinated, collaborative and focused on prevention

Those involved with Invasive species are really good at putting out fires, but worse at figuring out where and how fires will develop. If we can have containment at the source, we can prevent the spread of invasives. But we have to have good research, good management and response capabilities, good public knowledge and good communication between organizations. We have not fully succeeded in all areas.

Another key outcome: now we have an online, real time surveillance tool. This allows every AIS coordinator to input coordinates of inspection station. It also allows them to work together to compliment each other instead of compete.

This helps us map where boats were inspected, allowing us to ask why we are putting focus in one area when all the boats are in another area.

- Number of boats inspected in 2014: 800,000, 187 fouled boats cleaned

- Lower Colorado, Great Lakes, Lake Mead, Lake Pleasant, Lake Havasu are the biggest source of invasive species.
- Total estimated cost to PNW is more than .5 billion annually, this number is actually low.
- 20\$ million funding is needed for the states to help support an expansion of watercraft inspection and decontamination station expansion.
- The focus on dreissenids is good, but it can also help us when addressing other invasive species.

Highest Priority Legislation: WRDA, containment at the source, support of reauthorization of national aquatic species act, adding quagga mussels as injurious species

The bottom line is that we need some consensus on our highest priorities

1. Containment at the source
2. Develop long term sustainable funding solutions
3. Build and fund institutional capacity for collaboration to assess and renew AIS strategies
4. Establish a real time rapid response notification database
5. Coordinate annual watercraft inspection and decontamination station
6. Fund adequate infrastructure including permanent deinfestation stations
7. Fully fund state AIS plans
8. Facilitate cross border training
9. Develop boater moving models→ developed by Matthias
10. Request and document vulnerability assessments for hydropower facilities in the PNW
11. Ensure all chemical options for dreissenids are registered in each state and province
12. Support mechanisms to share resources across jurisdictions
13. Develop AIS coordinator position in US ACE in DC
14. Strengthen alliances with orgs in Lake Tahoe

Questions/Comments:

Rep. Jim Honeyford: If a plan is developed according to Dept. of Ecology standards they can use chemicals already improved, they will give you comments immediately, allowing for a more immediate response

Kate Wilson: Regarding the recommendations, since we are finding that most fouled boats are coming from great lakes area, it is important not to lose focus of this when looking at S. Colorado area. In regards to the funding piece, Canada should be included, even if it is a concept phase, it would be a helpful place to have it.

Question: Recommendation 10 – quarterly documentation of facility risk assessments? Is this too often? Answer (Lisa Debruyckere): It will be a simple quarterly email reminder, asking for updates if applicable Suggestion: include annual updates from inspections done by power facilities

Sen. Arnie Roblan: With the Columbia basin, if they ever get introduced in Canada they will be here. We need to talk to both federal delegations, it is a cross border issue, and Canada needs to be included.

Question on Proposal 13: What was the thinking on having that in dc and not in Portland office? Answer (Lisa DeBruyckere): When they started to process water requests in DC they found a huge

disconnect between regional and national coordinators, but when they keep it in the core, communication became better and more mainlined.

Question (Mark Gibbs): Do we need to specify a timeframe for boat inspections? Need to expand on definition of long-term moorage, (because of the risk associated with moorage).

Gail Wallin: Can this be integrated with Columbia River Compact? Is there an ability to work through NWPCC? There is room for other collaborations. Focus on Columbia Basin doesn't capture all at risk areas in Canada e.g. Fraser River. Where is the call for a Canadian representative like the one in DC? There needs to be a Canadian parallel to ACOE DC AIS coordinator.

Lisa DeBruyckere: With the Columbia river basin, with WRRDA we could potentially get 4 million up front by 2018. These funds will be dedicated to Columbia River basin.

Kate Wilson: how can Canada be integrated? Canada has similar levels of risk from the Great Lakes as the CRB has with its focus on the Colorado River Basin. Recognized the importance of prevention focus because of all the infested water bodies that are not the targets of active containment, non-GL, non-LCR boats add up to similar risk numbers.

Ryan Beierbach: It would make sense to have station at West Hoch Lake, would make sense for Alberta to put a wash station there. Also look at other risk/screening models (e.g. cattle disease) to primary points of commerce/travel, also potential partners in larger biosecurity inspections.

Pilots association is a good lobby group interested in this topic. NW Waterways – supporter of WRDA, player in AIS issues, is also a potential partner in conversation re support and promotion. Also need to contact NMMA/Boat US/ABYC and reach out to their counterparts in Canada.

Sen. Arnie Roblan: Forest fires have been a main source of spread of invasives, because of the practice of picking up water from one lake and distributing elsewhere. This is an important vector and a piece of the website. Local forest service has regional maps showing infested waterways and they take that into account.

Hauler Certification as a way to address commercial transport of boats? Outreach and regulation is possible at the state and provincial level, need to pursue this at the national/federal level. Need to determine how "quarantine" works for commercially hauled vessels.

Consistency of results is often hampered by differences in legislation with regard to inspection stations.

Consideration of something like the Interstate compact on pest control as an "insurance policy" for rapid response.

Question (Rep. Bill Kennemer): On recommendation 12, sharing resources, can Canadian provinces form compacts similarly to states? Funding challenges are equal on both sides. What mechanisms exist to share resources across international boundaries is there is a US/CA compact? How can funding be lined up with decision-making structures?

Answer (Mark Sytsma): PNWER could create a compact between US/CA to set up funding and sharing resources. Create a new body between US and Canada.

Kate Wilson: Integration of inspection of commercially hauled boats at DOT inspection programs.

Education, public outreach and awareness programs are currently going on but consistency, tracking success and monitoring needs to be improved. Education puts responsibility on the users (moves beyond government regulation/solutions), tie to resource use and protection.

Protecting Minnesota's Lakes and Rivers... Acting Locally

- Jeff Forester, Executive Director of Minnesota Lakes and Rivers Advocates

The mission statement of Minnesota Lakes and Rivers Advocates is to protect Min. heritage through links between lakes, advocates, and policy makers. These advocates are all Minnesotans.

- About 1/5 of Minnesotans has a lake cabin or home.
- In 2009 there were only 30 lakes infested, last summer the total came to over 200, so far another 3 in Minnesota
- Minnesota faces unique challenges, they have more shoreline than CA, FL, HI combined
- Recreation in Minnesota generates 12 billion, they must protect this resource.

The most severe impacts are local, and best ways to prevent spread are local. There is a robust cohort of lakes association in Min. some are small, some large. Until recently these had not been politically organized, they realized it will take grassroots to protect their waters.

- Because of these cohorts AIS net loss has decreased.
- 4.5 million out of pocket has been spent to prevent spread, there has been a mass public outreach program to help inspections and spread knowledge. Local lakes associations are outspending the state.

Forester brought this to legislators to try to get increased funding. They created a standing annual 10 million.

- Last July, the first half of a year payment was made.
- This money comes from the Dept. of Revenue straight to the counties. This is an aid program, and the only requirement is they must submit resolution outlining their plan to fight AIS.

What is the current status of volunteer dollars now? Will the government take over? This funding is moving the needle.

- Min. DNR trained about 200 inspectors around the state, now it is about 500 and they are being paid with this fund.
- Counties creating AIS task forces, with business, angling groups, resort owners, legislators, lake associations
- Had first is meeting last year to talk about what local programs look like nationally, how to build capacity of local people to work

USACE had a decontamination site at Gall Lake after they become infested, but no one was qualified to operate station. New AIS prevention aid is not popular with some people because it is flexible, and some prefer a top down approach.

The system is not set up to deal with this problem effectively. Requires a new system of public engagement. This new aid program recognizes this need and funds it, and it knows there must be responsibility of boat owners. Resource professional and leaders need to take a more personal responsibility as citizens. This fund is creating real partnerships between public, private sector and government

The takeaway from Christmas Lake is that the association had already created strong partnerships before the infestation, which gave them a real shot at eradicating the mussels.

Questions:

Kate Wilson: Is it guaranteed that there will be funds yearly? Answer: the fund is a standing appropriation, the money will go out no matter what.

Mark Sytsma: Is there any oversight, regulation of projects? Answer: The money has to be spent on preventing the spread of AIS. The county has to work together to agree on what projects to fund.

Sen. Roblan: are some of these reservoirs for drinking water and are pipes being affected? Answer: Absolutely. Lake Vermillion provides 10% of the water for Duluth County. There have been many issues with agriculture and irrigation

Treatments to Eradicate Zebra Mussels in Christmas Lake

- Kylie Bloodsworth, Natural Resource Specialist, Minnesota Department of Natural Resources

Minnehaha Creek Watershed District did a lot of early monitoring and they discovered the infestation. The zebra mussels were found on the settlement sampler. They found approximately 5500 zebra mussels within the public access area. These were a new infestation, and were juvenile so not reproducing.

Control methods, pesticides proposed:

- Zequanox
- Earthtec QZ
- Muriate of Potash

Takeaways:

- Early detection monitoring, population assessment at beginning, pre/post treatment monitoring → this would not have happened so rapidly without partnerships and good communications
- DNR allowing to permit selected pilot projects. This is still very experimental. They have a review panel set up and University of Minnesota has a data repository for future projects

Questions:

Gail Wallin: Are there other lakes where they have tried to eradicate mussels? Answer: No, Christmas Lake has been the only lake where they thought it could work.

Do mussels move back after treatment? Answer: the mussels seem to be eradicated after the large treatment, but the lake will remain 'infested' for five years.

Legislative Response

Sen. Roblan: Public advocacy can do a lot, and can change the minds of government organizations. But legislation is not good at looking at a systematic problem, can only fill in the gaps. Government can be helpful, but it is not always the answer. Sometimes a grassroots program is the only thing that can fix it. Oregon has a monitoring system in place, but can we do anything about it if there is an infestation. He wants to move the conversation towards what can be done regionally to tackle these issues. What legislative body wants to take hold of this and make it something they care about. Legislators change a lot and it needs to be handed off to people, they need the back up to be able to maintain it.

Rep. Kennemer: They started out with fledgling attempt in 2009 to create a list of related legislation, and saw they targeted the wrong spots and often took the wrong approach. Strategically, how can these mistakes be shared with neighboring states?

Sen. Heider: The getting and giving of information is very important. Idaho is working on legislation that opens departments up to do more because one can see the risk that is coming by listening to other regions. Just being aware of these species helps us prevent their spread.

Mussels and Mutts: The Alberta Conservation K-9 Program

Cindy Sawchuk, AIS Operations Lead/Dog Handler, Alberta Environment and Parks

Lake Winnipeg is the closest infected lake to Alberta.
 Alberta has over 8000 canals and buried pipelines, 13 irrigation districts.
 The estimated annual cost of infestation is 75 million a year.

They kick started their way into prevention → response, policy and legislation, education and outreach, monitoring, inspections

- Focusing on eastern border, all fouled boats coming from Lake Ontario, 17 fouled interceptions already

The states doing a great job of providing a line of defense so that fouled boats from Colorado do not come into Alberta

The Mussel Sniffing Dogs Program

- Less than 1/100 dogs has what it takes to make a good detection dog. Must have high energy, have strong ball drive
- Through their collaboration they have 3 projects, an Alberta/Montana pilot, snowbird inspections
- Train their dogs (primarily rescue dogs) focused on a human dog bond
- These dogs do jobs all around the world. The dog Wickett has been to 7 countries and has 20 scents she can identify
- 90% of people who were inspected were overwhelmingly in favor of these dogs. There is wide public appeal
- 17 independent news organizations covered this pilot project, nothing better for outreach
- Dogs outperformed AIS specialists in all categories, and caught 100% of fouled boats, humans found 75%

The biggest gap in inspection is when boats pass closed stations.

- The Snowbird Program taught them that dogs could find them at night so stations do not need to close

An Alberta permanent program is in place, scoured California for dogs that could be candidates, and they went through canine academy to see how to be good caretakers for dogs. Right now they have three dogs and caretakers.

Emerging Issues and Examples of Coordinated Response

Emerald Ash Borer,

- Laurie Kerzicnik, Insect Diagnostician and Assistant IPM Specialist at Montana State University

Emerald Ash Borer is a green jewel beetle native to eastern Asia that feeds on ash species. Outside of its native range it is highly destructive to ash trees native to North America. Once the ash borer enters, the trees will be destroyed, there is no way to eradicate them

- They only spread about 10 miles per year
- Will try to exhaust all the ash in its environment before it moves on
- Moves mostly by people: hence the focus on don't spread your firewood
- Went from eastern Kansas to Boulder, CO in four months
- Trying to have all the communities come up with a plan. Before they had a plan but now the federal government is not giving any funding for prevention
- It is up to the cities and communities now because the federal resources are exhausted

Today, EAB is not known to be established in Montana

First steps for the state:

1. Conduct EAB outreach to educate the public
2. Conduct detection survey

Management options:

1. Education
2. Inventory/assessment is key: what percentage of ash do you have, what percentage is healthy and what is worth saving
3. Removal/replacement- very expensive, and it has exhausted all their funds. Almost impossible to replace all the trees and keep up with that financial plan. Tree-age is a treatment, far superior treatment to any previous treatments. If the tree is healthy the treatment can work.
4. Can protect up to two years

New Zealand Mud Snails

- Robyn Draheim, Aquatic Invasive Species Coordinator, U.S. Fish and Wildlife Services

They are the worst nightmare of invasive species, they are basically indestructible, but they have not shown ecosystem destruction.

They are focusing on awareness campaigns, trying to let people know what the species is, what the problem is and how to prevent the spread.

They are spread by a different vector than zebra quagga, possibly being spread around by anglers, hunters, people who move around in the water. Also natural resources managers.

They are at an impasse because it's hard to show the dire need to stop the spread, because they don't know what the impacts are yet.

20 years after it was recognized as an invader there have not been cascading effects, so its hard to get people mobilized on the issues.

Western Mudsnaill meeting in June 2015:

- Held in Seattle. There are a lot of outreach and control efforts to prevent the spread and these have been relatively successful
- Are there other management needs for the Pacific Northwest? Decided they needed some regional guidance, and reframe the management objectives to acknowledge value-added nature of NZMS prevention and awareness efforts without being disingenuous about impacts
- Value added efforts

They are using the initial message for mud snails, but really it is about preventing all invasives, through encouraging cleaning your gear.

Goal: to build on the momentum of regional NZMS efforts and expand existing tools for a broader approach to all invasives. Need to prevent spread, and though its not the most important is it is a great one to start with to raise awareness of other invasives.

Summary of actions:

1. Developing consistent messaging
2. Regional data sharing
3. Early detection of priority ANS
4. Model contract and standards language
5. Best practice for prevention
6. Share information
7. Communicate with decision makers
8. Template for decision-response

Emerging Issues in the Region and their Biological Impacts

- Ray Callaway, University of Montana

No noxious weeds in Montana are from Montana, and this is generally true nationally.

There is ecological history that matters when looking at invasive species. Why can the landscape in other nations control knapweed, but Montana's landscape is taken over?

Tests have checked soil biota from native and non-native ranges

- Soil biota in native ranges has very strong suppressive effects on species that are native. European soil is the only thing that suppresses knapweed

New paradigm when looking at bio-geographical differences:

- Plant-plant interactions are important, chemical interactions are important, soil interactions are important and there are likely many other relationships not discovered that are important

These species are leaving from very complex systems, not easy ones where they have already taken over

- Argued that we should move to prevention, early interaction and rapid response, instead of trying to eradicate these infestations that are too far gone

Fisheries Impact on Flowering Rush

- Virgil Dupuis, Extension Director, Salish Kootenai College

The literature on flowering rush is very thin; there is not enough research on it. It impacts the littoral zone of lakes/ivers.

- Cattail is very important to the culture of the Salish Kootenai tribe, and it starts to behave very unnaturally when flowering rush enters

Irrigation ditches get plugged when flowering rush comes in.

- There is a new machine used for digging it out, and it was very successful in Aberdeen area, and they will have it come up soon for a demonstration.

The biggest problem in his opinion is the change from open water to closed water systems.

Flowering rush gets up to very high densities. The native salmonoids are open water species, but now pike, perch and basses are taking over because they do well in these densities.

Lake trout has been introduced and becomes very successful where flowering rush is in mass.

Does flowering rush create habitat that makes it easier for invasive fish to spawn?

Brought up a need for a system-wide/multi-partner comprehensive scientific assessment.

Bio control Efforts on Flowering Rush

- Jennifer Andreas, Integrated Weed Control Project Director

There are two forms of flowering rush: diploid and triploid, and they are found in North American temperate zone.

Still considering it an EDRR species, because they are not that widespread.

It may have been sighted in the Columbia River in Washington near Wenatchee.

In Washington they have tried to push public outreach.

- Have created simple, cheap postcards, and flowering rush may have been sighted because of it.

Because of the spread, they decided to view the possibility of a bio control agent. They are trying to take a proactive approach.

- Flowering rush is an excellent candidate for bio control because it is the only species in its family

They are creating flowering rush bio control consortium, partnered with CABI Switzerland.

- They have come up with \$262 k between 2013-15. It is not much money but it is all they need to keep the program functioning. It is relatively not that expensive

Work plan:

1. Develop a test plant list for host-specificity testing
2. Assess and compare loidy cytotypes between North America and Europe
3. Overseas research and development with CABI Switzerland

These plants are not common in their range.

They just found bagous validus in south Slovakia, which does attack flowering rush, which is a very promising find.

Changing Mentality towards Prevention and EDRR

- Travis Ziehl, Assistant Supervisor, Teton County Weed and Pest

EDRR for both new invaders and incipient populations

- Cheapest weeds to control are the ones we never have to. We can hopefully do this through education and regulation

The created the Feed Weed Free campaign, which takes weed free forage into backcountry, or landowners that have large properties

He is pushing for an acres protected mind-frame, which involves:

1. Multiple disciplines
2. Modeling invasions and susceptibility
3. Rate of spread
4. Economic and ecological impact
5. Protection

Wants to move from acres treated to acres protected, which will focus on prevention instead of treatment. In a large park like Teton, it is a waste of resources and almost impossible to treat the invasive species already there, it makes more sense and is more beneficial to take a preventative approach.

Questions: Do you see people supporting this? What do you need to move forward and get people involved? Suggestion (Robyn Draheim): thinks it needs a bigger group, needs resources committed to a big picture idea with multiple disciplines. She could see PNWER being supportive of this program.

Action Items

Number	Action Items	Project Team	Initial Project Lead
1	Host an annual meeting between the invasive species councils from each state and province to coordinate projects and responses	PNWER, Invasive Species Working Group	Mark Sytsma
2	Create a regional list of high risk invasive species	Coordinators from each state/province	Kate Wilson
3	Adopt Regional Framework to Prevent the Spread of Zebra Quagga Mussels into the PNW	PNWER Working Group	Lisa DeBruyckere
4	Ask coordinators to identify gaps between state and provincial legislation to develop model	Coordinators from each state/province	Lisa DeBruyckere
5	Garner legislative support from each jurisdiction for the executive summary of the Regional Framework	PNWER, leads from each state	Sen. Arnie Roblan
6	Create an invasive species directory with contact information and priorities for all organizations involved with Invasive Species	PNWER	Mark Sytsma

7	Increase awareness and support by legislators not involved with invasive species, including those in other PNWER working groups	PNWER, co-chairs	Sen. Arnie Roblan
8	Create a list of organizations who can testify on resolutions	PNWER, state leads	Lisa DeBruyckere
9	Host Invasive species information booth at the 2016 Summit	PNWER	Megan Levy