



# 2019 Pacific Northwest Invasive Plant Council's Early Detection Rapid Response (EDRR) Citizen Science Invasive Plant Program Annual Report



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*Questions or Comments pertaining to the PNW IPC EDRR Citizen Science annual report can be sent via e-mail to [info@pnw-ipc.org](mailto:info@pnw-ipc.org) and further information about our program, the EDRR list, and general information about our organization can be found on our website: [www.pnw-ipc.org](http://www.pnw-ipc.org)*



### ***Mission Statement***

*To protect the Pacific Northwest's land and waters from ecologically-damaging invasive plants through scientific research, education, policy and an on-the-ground citizen science monitoring and eradication program.*

### ***Objectives***

**Facilitate** *communication and to promote collection and exchange of information regarding all aspects of invasive plant status, control and management;*

**Educate** *and outreach to the general public, land managers and legislators regarding the environmental and economic impacts of invasive plants;*

**Organize** *and/or support invasive plant management research and eradication efforts;*

**Serve** *in an advisory capacity for the continued needs for funding, research, management and control of invasive plants;*

**Provide** *forums where managers, researchers and the general public can share information regarding the impact, control and management of invasive plant species.*

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### **Executive Summary**

Invasive species negatively affect our regional economy and environment by degrading native wildlife habitat, reducing forest health and productivity, altering ecosystem processes, displacing native species, and degrading recreational opportunities for visitors. In addition, many invasive plants are toxic to humans and livestock. Invasions of natural ecosystems by nonnative species now rank second to habitat loss as the major threat to biodiversity and have been identified by the Chief of the USFS as one of the four significant threats to our nation's forest and rangeland ecosystems.

To help bridge the gap between funding availability and effective invasive species management, volunteer EDRR programs (Early Detection Rapid Response), can be considered a significant tool in this increasingly urgent battle by mobilizing citizens to monitor the introduction and spread of invasive plants allowing land managers to eradicate new infestations before they become established and spread.

The PNW IPC's EDRR Program trains local citizens to survey, detect and report new infestations of invasive plants at high priority sites, and to rapidly eradicate small populations. Our EDRR Program is a win-win endeavor for recipients and participants. Recipients of the data (land managers and agencies) benefit from critical environmental data, reducing the cost spent in surveying and transferring those funds to control work. Our trained Citizen Scientist also assist with control, for those species where it is safe to do so, especially when invasive species are found in far out within the forests. Volunteers are trained to report invasive sightings to the nationwide EDDMapS database via smartphone apps and online portals. The sightings are verified by PNW-IPC staff and forwarded on to program partners. The sighting reports include information such as species, population size, plant physiology, GPS coordinates, and any notes from volunteers to allow land management agencies to make real-time management decisions. Volunteers are encouraged to treat small populations when possible and to report both positive and negative plant sightings.

## **Programmatic Goals:**

- 1) Increase public awareness and train citizens to identify and report priority invasive plants in Washington and Oregon to inform real-time management.
- 2) Collect information on changing distributions, abundance, and phenology of invasive plants.
- 3) Support county, state and federal management agencies in their survey and EDRR efforts to reduce the number of newly emerging infestations in WA and OR.
- 4) Support the maintenance of biodiversity at local and regional scales.

## **2019 Accomplishments**

In 2019, the PNW IPC offered seven trainings for citizen scientist, where we trained 198 volunteers on plant identification, PNW native ecosystems, invasive plant biology, and survey and reporting techniques. Our volunteers contributed 726 hours of service surveying and documenting and treating invasive plants throughout Washington and Oregon. We conducted 84 surveys where our volunteer citizen scientist hiked 316 miles, surveyed 764 acres of public land for invasive plants and treated 112 acres of land for the invasive species found. The PNW led two Group Hikes in 2019 where four volunteers participated and accompanied our new EDRR Lead, Jim Evans on targeted hikes surveying and documenting invasive plants.

## **Acknowledgements**

The PNW IPC would like to thank our many volunteer citizen scientists for all of their hard work and hours of surveying our public lands for invasive species, making a significant impact on keeping newly emerging invasive species out of the Pacific Northwest natural areas.

We are very grateful to our funders who supported the PNW IPC for the past several years. The USFS Challenge Cost Share Grant Program and the King County Noxious Weed Control Program.

## **Accomplishments and Outcomes for 2019**

Each year, the PNW IPC has trained 200-300 members of the public on invasive species identification and invasive plant biology and recruited almost 500 Citizen Scientists. These volunteers have donated over eight thousand hours of their time and have surveyed just over ten thousand acres, most of which was on National Forest Service land. The data collected since the first year of our EDRR Program, 2012, can be accessed and downloaded by land managers, researchers, and the general public from EDDMapS.org, where they are able to use the interactive online map to see individual invasive species locations and population size. Hundreds of EDRR species have been found and eradicated by our volunteers before the infestation was able to establish and spread, saving the land manager money and personnel resources, reducing herbicide use, and saving our biodiversity and the natural ecosystems of our public lands.

We find that volunteers are motivated by assignments. Originally, we assumed volunteers would be self-motivated, but we quickly discovered that without direction, volunteers wouldn't go out to survey. PNW-IPC worked with partner land-owners to develop lists of priority trails and roads to encourage surveying. This did result in increase in volunteer participation, but not to the degree we would like. Beginning 2020 fully staffed, we will be providing "assigned trails" and group hike events at the trainings, starting in the fall, so that each attendee can plan for these events in advance.

IPC Citizen Scientists engaged in significant conservation work by contributing 726 hours of service by surveying for, documenting, reporting and many times, controlling invasive plants throughout the PNW.

Volunteers conducted a total of 85 surveys, hiked 316 miles in search of invasive plants while surveying 764 acres of public land.

Data from both positive survey reports (at least one EDRR invasive plant species documented) and negative survey reports (no EDRR invasive plants found) are submitted to EDDMaPs. Negative survey reports are considered just as valuable as positive survey reports because managers need to know where invasive species do not occur as well as where invasive species occur in order to guide volunteer survey efforts and management priorities. In many cases, documented infestations were small enough that volunteers were able to manually remove them *in situ* before infestations had a chance to establish and spread. Plant material was carefully bagged and deposited off-site in the city landfill so as not to promote spread. If infestations were too large or not appropriate candidates for immediate removal (e.g., plants that are toxic or grow by extensive rhizomes) volunteers performed the survey step and left removal efforts to land managers.

## **EDRR Trainings for 2019**

Volunteers were taught to identify priority invasive species from the regional Invasive Plant Program priority list and how to eradicate them if encountered during surveys. If infestations are too large or are not appropriate (unsafe) candidates for removal, volunteers were instructed to perform the survey and documentation step, and leave the removal effort to forest service managers. The attendees were instructed to use EDDMaPs and record location via GIS apps, identification and extent of infestation.

Classroom trainings included: 1) 3-hour PowerPoint presentation with images and key characteristics of EDRR species, 2) herbarium sheets and live specimens of target species for volunteers to examine and 3) detailed training on methods related to filling out survey forms. For those trainings where a field site was walkable, field trainings were provided where volunteers practiced using survey forms and test their plant identification skills.

The PNW IPC coordinated survey efforts on forest land, managed the resulting data, and delivered survey information to our partner land managers. The data was uploaded with web-based tool EDDMapS (Early Detection & Distribution Mapping System), a national mapping system. Our results contributed information on local and national scales. Each survey submitted was verified by our new EDRR Lead, Jim Evans, a botanist in the PNW for over 30 years.

## **Group Hikes for 2019**

In addition to our trainings for volunteers, we offer group hikes so that our new citizen scientists can gain more practice and confidence in their plant ID skills while hiking with our EDRR Leads. Several years ago, we found that lack of confidence in plant ID by our training attendees was one of the reasons why the attendees were not taking that next step and surveying. This lack of confidence with plant ID and field surveying and/or on-line reporting was holding them back. Many of our citizen scientist have a passion for being outdoors and working to conserve the environment. "Hike with a purpose" is their mantra.

Therefore, we began to offer Group Hikes. This also provides the opportunity to hike with like-minded citizen scientist and gain personal plant ecology training from our EDRR Lead. For 2019, the PNW-IPC provided two group hikes for mid-summer. Due to staff changes, we were not able to offer more as we had planned originally. Andrew Fraser let us know that he was not able to teach the number of EDRR trainings we had planned, so we began the search for a new EDRR Lead. We scored with our new head EDRR Lead, Jim Evans. See more about Jim's biography below under PNW IPC's board and staff.

Jim lead a hike to the Mt. Baker-Snoqualmie National Forest on the Denny Creek trail on August 3<sup>rd</sup> and to the Clearwater Wilderness Area to and from Summit Lake on August 24<sup>th</sup>. Five enthusiastic hikers joined Jim on these hikes and those lucky individuals were able to learn one on one about plant ecology and invasive plant biology from an expert in the field.

The goal is to have the group hikes the same week or as soon as possible after the workshop to help convert workshop participants into active volunteers and build their confidence in plant ID and using the EDDMapS survey system. We will be able to accomplish this in 2020 as we now have a new head ED RR Lead and several other ED RR Leads on staff.

## **Volunteer Citizen Scientist are the key to success**

The PNW IPC would like to congratulate and thank every volunteer who has hiked a trail and turned in a survey report for us over the years. Your efforts have made a difference in the protection and preservation of native ecosystems!

## **The “Sarah Reichard Hike the Extra Mile Award”**

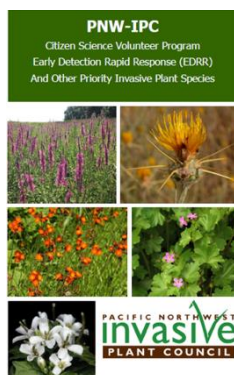
The PNW IPC and the invasive species community lost a great advocate and leader on August 29th of 2016. The PNW IPC’s Vice President, Dr. Sarah Reichard, passed away while leading a UW Botanic Gardens floristic tour in South Africa, she was 58 years old. Sarah was instrumental in forming the PNW IPC. She was a tenured professor at the University of Washington, the Director of the UW Botanic Gardens, and a mentor to hundreds of eager students over the years and has served on countless boards, working groups and advisory committees. Her research focused on understanding the biology of invasive plants and using that understanding to develop risk assessment methods to prevent their introduction and spread. She was a passionate scientist who paved the way and created opportunities for women in science.

For 2019, the PNW IPC would like to give a very special thanks (in no particular order) to: [Ann Stevens](#), [Sandra Vahsholtz](#), [Crow Vecchio](#), [Monty Vanderbilt](#), [Mark Boyar](#), and [Carol Miltimore](#). Our program is a huge success because of your efforts. You have all hiked the extra mile and we thank you!

## **Information Sharing, Outreach and Programmatic Findings**

**Annual Report** – The PNW IPC shares an annual report with partners, funders, volunteers and the general public sent out via the PNW IPC’s listserve (over 900 participants) and the PNW IPC’s website.

**Plant Identification Booklet** – The PNW IPC developed and distributed a specialized plant identification booklet with 2019 target species to all volunteers who sign up to volunteer.



**Data of invasive plants from surveys documented on EDDMapSWest** – all data can be downloaded from the EDDMapSWest website at <https://www.eddmaps.org/tools/query/> by selecting PNW-IPC survey under project information at the bottom of the page. The database shows all information related to the survey records and can be downloaded in several formats.

**Conferences** – Lizbeth Seebacher presented about the PNW IPC's EDRR Program at the Innovations in Invasive Species Management conference in Coeur d'Alene, Idaho, December 2019.

## **What's in store for 2020?**

In our trainings we ask that individuals who sign up, to conduct at least 1-2 surveys a season. However, moving the trained citizen scientist to this next step is the most difficult. We will be providing more group hikes in 2020 with our new EDRR Lead, Jim Evans. These group hikes will be planned and organized prior to the trainings so that folks can meet Jim then, and sign up for the group hikes while at the training. This will allow attendees to plan for the event in advance and put it on their calendar before the summer begins.

Additionally, beginning in 2020, we will be providing more opportunities for university students by reaching out to professors and students in the environmental field. This will allow them to be educated on invasive species problems, become involved in the invasive species community, get extra credit in courses, and/or receive independent credit with professors, and have invasive species become potential capstone projects. We will also be approaching the numerous outdoors oriented clubs starting at the University of Washington and then moving to more universities in WA and OR.

## **PNW IPC's Board Members and Staff**

### **2019 Board Members**

President – Steven Manning – Invasive Plant Control, Inc.

Treasurer – Lizbeth Seebacher – WA Dept. of Ecology

Shawna Bautista – USDA Forest Service

Tim Harrington – USDA Forest Servicew

Greg Haubrich – WA Dept. of Agriculture

Dana Pearce – The Uprooter – Oregon

Justin Bush – WA Invasive Species Council

### **2019 Staff**

Executive Director – Lizbeth Seebacher

Outreach Coordinator – Marisa DeLucia (Jan – Aug) Chelsea Dole (Oct – Dec)

EDRR Lead – Jim Evans

EDRR Lead – Anne Gigi Chan

EDRR Lead – Andrew Fraser

EDRR Lead – Lizbeth Seebacher

EDRR Lead, Jim Evans has a MS in Botany and Plant Ecology from the University of Washington (UW), and has 30 years of experience in environmental education, preserve management, biological surveys, ecological research, volunteer recruitment and leadership and invasive species management. Jim will be in charge of teaching the trainings and leading the group hikes.

EDRR Lead, Andrew Fraser has a MS from the UW in Restoration Ecology. Andrew works for the Bainbridge Island Land Trust and previously for the National Park Service and North Coast Land Conservancy. Andrew has over 12 years of experience working with the public, teaching environmental stewardship and invasive species management.

Our Outreach Coordinator, Chelsea Dole is a student in environmental sciences at the UW and has several years of experience working on invasive species and volunteer outreach with Clark County. Chelsea will be in charge of outreach to our partners and volunteers and organizing the trainings and group hikes.

## Funding Sources for 2019 and 2020

The USFS Challenge Cost Share Grant Program continues to be our main funder for the past three years as well as for our 2020 season. The King County Noxious Weed Control Board also contributed funds through our partnership with their Weed Warrior Program in 2019.

The Washington State Dept. of Agriculture has provided funds for the beginning of 2020 helping us provide trainings and volunteer support to our citizen scientists.

## PNW IPC Partners

PNW IPC Partners	
<b>Federal Partners</b>	
Gifford Pinchot National Forest	Mt. Rainier National Park
Mt. Baker-Snoqualmie National Forest	North Cascades National Park
Mt. Hood National Forest	Olympic National Park
Okanogan-Wenatchee National Forest	National Fish and Wildlife Foundation
Olympic National Forest	National Forest Foundation
Willamette National Forest	
<b>State Partners</b>	
Central Washington University	Washington State Department of Agriculture
Oregon State Department of Agriculture	Washington State Department of Natural Resources
Oregon Invasive Species Council	Washington State Noxious Weed Control Board
University of Washington, Botanic Gardens/ Otis Hyde Herbarium, Burke Museum and WTU Herbarium	Washington State Parks and Recreation
Washington Invasive Species Council	

<b>County/Municipal Partners</b>	
Clackamas County Soil and Water Conservation District	Klickitat County Noxious Weed Board
Columbia River Gorge Cooperative Weed Management Area	Lewis County Noxious Weed Board
Clallam County Noxious Weed Board	Pierce County Noxious Weed Board
Cowlitz County Noxious Weed Board	Skamania County Noxious Weed Board
Four County Cooperative Weed Management Area	Thurston County Noxious Weed Board
Grays Harbor Noxious Weed Board	Whatcom County Noxious Weed Board
Jefferson County Noxious Weed Board	Yakima County Noxious Weed Board
King County Noxious Weed Control Program	Northwest Trek Wildlife Park Metro Parks Tacoma
Kittitas County Noxious Weed Board	
<b>NGO's and other organizations</b>	
EDDMapSWest	Patagonia
Great Old Broads for Wilderness	PlayCleanGO
Invasive Plant Control	The Mountaineers
Mountain To Sound Greenway	Washington Native Plant Society
Mt. St. Helens Institute	Washington Rare Plant Care and Conservation
Oregon Native Plant Society	Washington Trails Association



## Program Accomplishments Over the Years

Unit & Description	2012	2013	2014	2015	2016	2017	2018	2019	Total
No. of free trainings offered to public*	5	7	5	10	10	8	8	7	<b>60</b>
No. of people who attended trainings	93	140	72	297	322	162	201	198	<b>1,485</b>
No. of volunteer hours	497	1,279	678	1,953	1,787	685	526	726	<b>7,954</b>
No. of surveys conducted	59	115	52	140	204	113	111	84	<b>882</b>
No. of positive surveys (Invasive plants found)	*	*	34	81	137	84	77	58	<b>471</b>
No. of negative surveys (Invasives not found)	*	*	18	59	67	29	34	26	<b>233</b>
No. of new invasive plant records	*	*	55	252	421	509	486	271	<b>1994</b>
No. of organized group hikes	*	*	3	18	7	3	1	2	<b>34</b>
No. people involved in organized group hikes	*	*	10	74	44	18	12	5	<b>163</b>
Miles of trail surveyed for invasive plants	*	*	188	445	642	373	308	316	<b>1872</b>
Acres of land surveyed for invasive plants	247	1,416	544	1,356	3,119	1,357	1,121	764	<b>9,924</b>
Acres treated for invasive plants	*	*	167	501	733	620	514	112	<b>2,647</b>

\* Figures not collected during those years

## 2019 Comprehensive EDRR Species List

A subset of these species were covered at each training session depending on regional and local priorities identified by training program partners.

Plant Family	Scientific Name	Common Name	WA Noxious Weed Class	OR Noxious Weed Class
<b>Wetland Emergent Plants</b>				
Iridaceae	<i>Iris pseudacorus</i>	yellowflag iris	C	B
Lythraceae	<i>Lythrum salicaria</i>	purple loosestrife	B	B
Poaceae	<i>Phragmites australis</i>	phragmites	B	B
Poaceae	<i>Spartina</i> sp.	cordgrass	A	A
<b>Terrestrial Plants</b>				
Anthriscus	<i>Anthriscus sylvestris</i>	wild chervil/cow parsley	B	Not listed
Apiaceae	<i>Conium maculatum</i>	poison hemlock	B	B
Apiaceae	<i>Heracleum mantegazzianum</i>	giant hogweed	A	A
Aquifoliaceae	<i>Ilex aquifolium</i>	English holly	Monitor	Not listed
Araceae	<i>Arum italicum</i>	Italian lords and ladies	C	Not listed
Araliaceae	<i>Hedera helix</i>	English ivy	C	B
Asteraceae	<i>Cardus nutans</i>	Musk thistle	B	B
Asteraceae	<i>Carthamus lanatus</i>	wooly distaff thistle	A	A
Asteraceae	<i>Centaurea diffusa</i>	diffuse knapweed	B	B
Asteraceae	<i>Centaurea jacea</i>	brownray knapweed	B	Not listed
Asteraceae	<i>Centaurea x moncktonii</i>	meadow knapweed	B	B
Asteraceae	<i>Centaurea stoebe</i>	spotted knapweed	B	B
Asteraceae	<i>Centaurea solstitialis</i>	yellow starthistle	B	B
Asteraceae	<i>Chondrilla juncea</i>	Rush skeletonweed	B	B
Asteraceae	<i>Hieracium aurantiacum</i>	orange hawkweed	B	A
Asteraceae	<i>Hieracium caespitosum</i>	yellow/meadow hawkweed	B	B
Asteraceae	<i>Hieracium pilosella</i>	mouse-ear hawkweed	B	A
Asteraceae	<i>Hieracium lachenalii</i>	common hawkweed	B	Not listed
Asteraceae	<i>Hieracium murorum</i>	wall hawkweed	B	Not listed
Asteraceae	<i>Hieracium sabaudum</i>	European hawkweed	B	Not listed
Asteraceae	<i>Senecio jacobaea</i>	tansy ragwort	B	B

Balsaminaceae	<i>Impatiens capensis</i>	spotted jewelweed	Monitor	Not listed
Balsaminaceae	<i>Impatiens glandulifera</i>	policemen's helmet	B	B
Boraginaceae	<i>Anchusa arvensis</i>	annual bugloss	B	Not listed
Boraginaceae	<i>Cynoglossum officinale</i>	houndstongue	B	B
Brassicaceae	<i>Alliaria petiolata</i>	garlic mustard	A	B
Ericaceae	<i>Erica lusitanica</i>	Spanish heath	A	Not listed
Euphorbiaceae	<i>Euphorbia esula</i>	leafy spurge	B	B
Euphorbiaceae	<i>Euphorbia oblongata</i>	oblong spurge	A	Not listed
Fabaceae	<i>Cytisus scoparius</i>	scotch broom	B	B
Fabaceae	<i>Cytisus striatus</i>	Portuguese broom	A	B
Fabaceae	<i>Ulex europaeus</i>	gorse	B	B
Geraniaceae	<i>Geranium lucidum</i>	shiny geranium	B	B
Geraniaceae	<i>Geranium robertianum</i>	herb Robert, stinky Bob	B	B
Lamiaceae	<i>Lamium galeobdolon</i>	yellow archangel	B	B
Malvaceae	<i>Abutilon theophrasti</i>	velvetleaf	A	B
Nyctaginaceae	<i>Mirabilis nyctaginea</i>	wild four o'clock	A	Not listed
Plantaginaceae	<i>Linaria dalmatica</i>	toadflax, dalmation	A	B
Plantaginaceae	<i>Linaria vulgaris</i>	toadflax, yellow	A	B
Poaceae	<i>Brachypodium sylvaticum</i>	false brome	A	B
Polygonaceae	<i>Fallopia x bohemica</i>	Bohemian knotweed	B	Not listed
Polygonaceae	<i>Fallopia japonica</i>	Japanese knotweed	B	B
Polygonaceae	<i>Fallopia sachalinensis</i>	giant knotweed	B	B
Ranunculaceae	<i>Clematis vitalba</i>	traveler's Joy	B	B
Rosaceae	<i>Potentilla recta</i>	sulfer cinquefoil	B	B
Rosaceae	<i>Prunus laurocerasus</i>	English laurel	Monitor	Not listed
Rosaceae	<i>Prunus armeniacus</i>	Himalayan blackberry	C	Quarantine
Rosaceae	<i>Rubus laciniatus</i>	cutleaf blackberry	C	Not listed
Scrophulariaceae	<i>Buddleja davidii</i>	butterfly bush	C	B
Scrophulariaceae	<i>Linaria dalmatica</i>	dalmation toadflax	B	B
Simaroubaceae	<i>Ailanthus altissima</i>	tree of heaven	C	Not listed
Solanaceae	<i>Solanum rostratum</i>	buffalobur	A	B
Thymelaeaceae	<i>Daphne laureola</i>	spurge laurel	B	B