

# Invasive Species Monitoring Volunteer Training Presentation Guide

Note: this presentation should last no more than 30 minutes—be sure to practice your timing beforehand! Keep your comments brief for each slide by picking and choosing talking points from this script.

In this document you will find a screenshot of each slide in the PowerPoint, followed by two sections (where appropriate):

- Example language outlines the concepts you want to communicate to your audience.
- Presenter notes helps provide a deeper look at the content.

In addition, you will find the "Presenter Background Info" section at the end of this document, with facts and links to additional sources to help further understand the subject material and enhance your presentation.

Not all of this information may be needed in your presentation, however it will help guide the discussion for each slide and serve as a resource for you to further elaborate on a concept or cite sources. Please make the presentation your own and share with us whatever content you find most effective.





#### 1. Welcome!

Presenters Note: Thank your audience for joining you for this opportunity to care for public lands in the Northwest. Share a bit about yourself.



# 2. Great Old Broads Intro

For those who are new to Broads, we are one of the few public land conservation organizations led by women.

- We are national, but we emphasize local grassroots action.
- We value and promote women's leadership and experience.
- And we show up tirelessly in defense of wild places.



Earth.

#### 3. What We're All About...

Presenter Note: If the group is familiar with Broads, feel free to abridge this section.

Founded in 1989 by a few feisty women hikers who were also activists, our founders saw an important voice was missing from the conservation movement—the older woman—impassioned, experienced, and not afraid to speak out in defense of Mother

Today we have members of all ages and genders—and 40 chapters across the US led by trained and passionate volunteer women.



We take a three-pronged approach to what we do:

- Education...on threats to public lands and solutions to protect them, and in recent years, we've focused on educating communities about the impacts of climate change on public lands, and how public land development increases greenhouse gas emissions. (That's why we're here today.)
- Stewardship...From ecological restoration to trail clearance, tree planting to removing obsolete fencing, wilderness solitude monitoring to documenting illegal off highway vehicle impacts, we do it all. (We'll talk more about that later). And the role of public lands in regulating climate through carbon storage.
- Advocacy...such as public testimony and comments on public land proposals, speaking out against activities that harm public lands and waters; and support for wilderness bills.

Presenter Note: Substitute examples above for specific activities conducted by your Broadband.



## 4. What is an invasive species?

Let's dive into the topic that brings us together today! First, we will start with clarifying four important terms: invasive, native, non-native, and weed.

An **invasive species** is one **not naturally found in the region** and capable of causing **environmental**, **economic**, **or harm to human health**. These species tend to spread rapidly and out-

compete native species.

Unfortunately, many invasive species are excellent hitchhikers on pets, boats, and unsuspecting hiking boots. They often are aggressive reproducers, and in some instances take advantage of weaknesses in an ecosystem's armor after disturbances like fire or intense drought.





#### 5. What are Native Species?

Native species are plants that are indigenous to an ecosystem that have evolved in relationship with native insects, diseases, and predators.

Presenters Note: Offer a few favorite examples and invite your audience to chat or share their favorite local species.

They have learned how to thrive in harmony with other parts of the ecosystem by finding a niche.

Any species that is introduced is considered "non-native," but not all foreign species are "invasive" or pose a threat to the ecosystem. Most non-native plant species are not aggressive enough to be considered invasive species.



6. Invasive Species vs. Weeds:

A **weed** can be any plant that shows up where it is unwanted.

For example, **a native plant in your garden can be a weed if you don't want it there.** Native grasses in a wheat field would be weeds!





## 7. Why address invasive species?

Invasive species pose an enormous threat to the health of ecosystems.

Have you ever encountered a prairie dominated by dry cheatgrass? Or a massive thicket of Himalayan blackberry? Invasive species do a great deal of harm in a wide variety of ways.

- They outcompete native species.
- They eliminate habitat and food sources for wildlife.
- They compromise our abilities to enjoy recreational areas.
- They tend to harm ecosystems in multiple ways at once that can impact the core functioning of the ecosystem.



#### 8. Layered Threats

As many of you may know, public lands face a variety of threats from humans.

Presenters Note: Take a moment to invite your audience to type a human impact on public lands into the chat box that concerns them the most.



# 9. Greatest Threat to Public Lands: Climate Change

In the Northwest, we are witnessing unprecedented wildfire events, worsening and more frequent flooding, dangerous heat waves, and intense summer droughts.

These worsening impacts threaten the health of the ecosystems and our own communities, often disproportionately harming vulnerable low-income communities.

As we talk about invasive species impacts, we are bearing in mind that **all of these challenges are linked.** 



When problems, like invasive species, harm an ecosystem, that web of life becomes less resilient to other challenges, like climate change. However, by preventing or helping to alleviate the impact of invasive species, we are making these landscapes healthier and more capable of adapting to a changing climate.



10. Impacts of Invasive Species on Climate Change Researchers have revealed the remarkable value of ecosystem health to climate change resilience. More diverse, intact ecosystems are far more capable of weathering climate stress while sheltering neighboring human populations from worsening climate impacts.

For instance, healthy riverways on public lands are shaded by native species, keeping the water temperature cool, while filtering out pollutants so that endangered salmon populations can thrive.

Now, we are going to spotlight a few invasive species and offer a few examples of how invasive species are compromising ecosystem resilience to climate change.



#### 11. Invasive Spotlight: Spotted Knapweed

Grasslands that are dominated by spotted knapweed (a common invasive species) have more bare ground than natural grasslands.

In a simulated rainfall test, researchers found that **soil erosion more than doubled and groundwater recharge declined** in knapweed-dominated areas.

Greater soil erosion harms water quality and impacts endangered fish populations. (Source: <u>https://www.fs.usda.gov/Internet/FSE\_DOCUMENTS/stelprd3812803.</u>pdf)





## 12. Invasive Spotlight: Tamarisk

Tamarisk choke out native plants and wildlife along rivers by taking over entire areas that would normally be home to diverse riparian plants.

Because tamarisks, like many other invasive species, don't have the relationships with insects and insect larva that native plant species do, there simply aren't as many insects in a habitat

dominated by invasive species. This is significant for wildlife because insects are the base of many food webs. Therefore, when songbirds hunt for insects to feed their young, there are fewer insects available, meaning fewer young birds survive.

Tamarisks also have very deep tap roots to access groundwater, which can be particularly harmful in the context of worsening droughts.



#### 13. Invasive Spotlight: Purple Loosestrife

Purple loosestrife can rapidly fill in wetlands, reducing water flow and compromising the wetland's natural flood retention ability during extreme weather events that are becoming more frequent due to climate change.





# 14. Invasive Spotlight: English Ivy

Their shallow root systems, compared to native species, can cause erosion on slopes and stream banks that can prove detrimental during intense flooding.

Here in the Pacific Northwest, English holly and English ivy have the capacity, over time, to overwhelm a conifer, thus dramatically reducing the carbon storage capacity of the ecosystem.

Remember, old trees capture the most carbon dioxide but are also vulnerable to invasive species attacks.

Scientists are continuing to study the impacts of invasive species on carbon sequestration, which varies largely depending on characteristics of the invasive plant and the local ecosystem.



#### 15. Invasive Spotlight: Cheatgrass

Cheatgrass increases fire frequency and severity, which is a growing concern in an increasingly dry summer climate. Prairie ecosystems that once burned every 30 to 60 years now see fire once every 3 to 5 years—which drives out native grassland species.

Restoration and fire management in cheatgrass-dominated lands cost taxpayers millions of dollars per year.

A danger to diversity in many areas of the Pacific Northwest, invasive weeds now grow in **monoculture** (just one species dominating a large area) on ground that was previously diverse and abundant in plant species and wildlife. (*Source:* <u>https://catalog.extension.oregonstate.edu/sites/catalog/files/project/ pdf/ec1563.pdf</u>)

The most **effective** and **cost-efficient** way to manage invasive species is to prevent them from expanding their ranges in the first place.





## 16. The High Cost of Invasive Species

As you can see, there are many connections between invasive species, ecosystem health, and climate resilience.

These ecological impacts also translate to substantial financial losses throughout the country.

Invasive species cost the United States more than \$120 billion in damages every year.



## 17. The Pricey Problem of Spartina

In Washington, Oregon, and California, millions of dollars are spent annually on Spartina (an invasive cordgrass) management programs.

Since 1996, Washington has spent \$26 million to eradicate Spartina from critically important habitats including Willapa Bay National Wildlife Refuge.

Oregon is also implementing a Spartina eradication plan.

This species has invaded ecologically critical intertidal areas and estuaries and disrupts the complex food webs that include invertebrates, fish, shorebirds, and waterfowl. These monocultures alter the movement of water through the ecosystem, causing coastal flooding.





# 18. Getting Ahead of the Problem

Rapid response monitoring by volunteers allows land managers to act quickly to curb the spread in areas where invasive species are being sighted for the first time.

Curbing invasions early in their spread is far more cost-effective and proactive than the large-scale, reactive restoration projects required once an invasive species has dominated the landscape.

The Northwest is a vast region with expansive public lands. It isn't feasible to constantly monitor every acre. Land managers need our help to know which areas are at risk of invasion so that attention can be focused on limiting the spread in priority areas.

Early Detection Rapid Response (EDRR) means that we alert land managers when we find new invaders so that they can act quickly to control them before they spread. With some species, we can even take the first step in controlling the species ourselves.



#### 19. Using the App

We've got a simple tool to help tackle this threat to public lands and it's a cinch to get involved...it's already in your pocket!

Materials: you will need a smartphone, a printed EDDMapS Invasive Species App, How-To Guide, an optional invasive species ID packet, and your personal protective equipment in case you encounter others out on the trail.

EDDMapS is a user-friendly mobile application that allows us to tag invasive species while we are out enjoying public lands.



We have created a simple step-by-step How-to Guide that you can print and bring along on your next hike.

- This resource walks you through the process, from downloading the app to submitting data.
- You will need to download "EDDMapSWest" from the App store and create an account.
- From there, you can create a custom list of invasive species that you can identify and you're ready to start gathering data!
- This How-to Guide also includes a few simple, important steps to upload your data when you are back at home.
- Being sure that you follow the last few steps in the guide as they are critical to getting this data into the hands of land managers who can take the needed steps to limit the spread of invasive species.

We invite you all to print the How-to Guide before your next hike and try adding a few common species to your list in the App. In a month, we will reconvene to share our experiences with the App and celebrate the data that we've collected!



# 20. Wrap Up

Presenters Notes: Share an invitation to a follow up meeting to share data and celebrate accomplishments, and encourage participants to post photos on social media.

Include #broadsclimateaction and @GreatOldBroads in order to tag the Great Old Broads for Wilderness Facebook, Twitter, or Instagram page. They just might be featured in a

Broads social media post!

Share local hikes, priority areas for monitoring, or several key species that land managers have alerted you to.



#### **Presenter Background Info**

Source: Middle Fork Watershed Stewards Curriculum

Invasive species are species that are non-native and introduction is likely to cause harm—often both environmental and economic. **Non-native species** are defined as those not naturally occurring in an ecosystem. A species can be non-native, but not considered invasive if it does not spread aggressively or cause harm. Invasives have been transported to an ecosystem either intentionally or accidentally by human causes.

When an invasive species is not contained, it has the ability to outcompete natives, due to lack of predators and other advantages outside of its native ecosystem. Invasives often outcompete native species for resources. When invasives crowd out native plants, it can limit the food supply and habitat for the native animals that depend on those native plants.

When a species becomes endangered, it is often because their native habitat has been so severely compromised that they can no longer survive. When species are crowded out by invasives, this can alter the balance of the ecosystem that endangered species depend upon.

#### Habitat restoration connections

Removal of invasive plants is a restoration priority. Removing invasives and replacing them with native plants is the first step in restoring balance, and a major component of restoration work. Restoration sites can require years of maintenance and monitoring in order to meet project objectives.

If the goal of a restoration project is to increase the population of a native fish by decreasing stream temperature, one strategy is to remove invasives and plant native plants to increase shade in a riparian area.

More informational resources: <u>https://www.fs.usda.gov/pnw/page/invasive-species</u>



Additional talking points from "Invasive Species, Climate Change and Ecosystem-Based Adaptation: Addressing Multiple Drivers of Global Change Global Invasive Species Programme" by Stanley W. Burgiel and Adrianna A. Muir, September 2010

- "Invasive species are responsible for half to two-thirds of all species extinctions."
- "Invasive species can threaten those basic needs and compromise ecosystem functions by taking advantage of habitat disturbance, species under **stress** and other **chinks in the armor of otherwise healthy systems**."
- "While the science on the complex interactions of such global change processes continues to evolve, action is clearly needed to mitigate against the combined effects of climate change and invasive species."
- "Invasive species can increase the vulnerability of ecosystems to other climate-related stressors and also reduce their potential to sequester greenhouse gasses.