



Project RED

Riverine Early Detectors

Aquatic Invasive Species Monitoring on Our Moving Waters



Volunteer Monitoring Manual

wateractionvolunteers.org/projectred



Extension
UNIVERSITY OF WISCONSIN-MADISON



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Introduction

The health of our favorite rivers depends on all of us! Wisconsin's waters are vulnerable to invasion by a number of aquatic invasive species (AIS), from plants like Eurasian watermilfoil to animals like New Zealand mudsnails. If left unchecked, AIS have the potential to reduce the diversity of native organisms, disrupt the food web, and impact recreational activities. The key to successfully protecting our waters is detecting invasives early when it may still be possible to isolate or eradicate them. AIS populations that are detected early require less money and effort to manage. Volunteers like you are invaluable for early detection and rapid response.

Your AIS data is used by local, regional, and statewide staff to—

1. Establish baseline data on the statewide AIS distribution in rivers.
2. Guide response efforts of pioneer populations that are detected early.
3. Identify priority locations for AIS monitoring.

You can monitor anywhere! You are welcome to “adopt” a section of river to keep an eye on, or monitor any river in Wisconsin you happen to be on.

- » **Visit** a section of river or stream, keeping your eyes peeled for invasive species.
- » **Collect specimens or photograph** suspicious plants and animals.
- » **Verify** the specimens.
- » **Share** your findings.



The University of Wisconsin-Madison Division of Extension, the Wisconsin Department of Natural Resources (WDNR), and local AIS coordinators can help you throughout the process. Grab your paddle or waders and get out on the water. We need your help!

Protocol

STEP 1

Paddle, wade, or walk along a river and search for invasives

You can monitor for AIS anywhere! Whether you are paddling/fishing your favorite section of river, or on a new waterbody during a vacation, you can be on the lookout for AIS.

There are three types of riverine AIS monitoring:

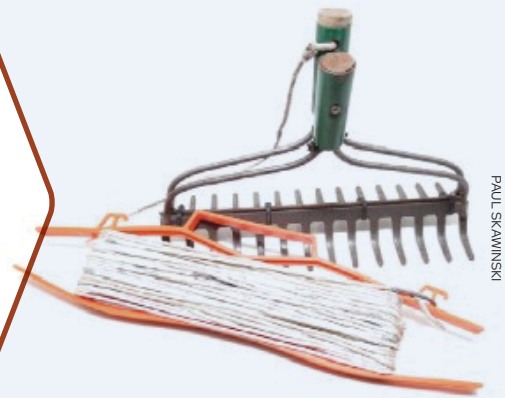
1. Monitoring from the shoreline
2. Monitoring while wading or fishing
3. Monitoring while paddling or floating downstream

A steel rake head (usually with at least 30 feet of rope attached to it) is a very effective aquatic plant sampling tool.

You can buy a rake head by itself, or simply cut the handle off of a rake and tie the rope to the head. If desired, a double-sided rake can be made by attaching two rake heads together with cable ties, stainless steel hose clamps, or welding. Double-sided is better, since there will always be rake tines pointed down into the sediment to snag plants.

Suggested Monitoring Equipment

- Aquatic plant sampling rake
- Sealable bags
- Permanent marker for labeling bags
- Hand lens
- Pencil
- Project RED data sheets
- Polarized sunglasses
- Binoculars
- ID guides to help you identify AIS



PAUL SKAMINSKI

Tips for all monitoring

- » Binoculars can be helpful when a river or the adjacent wetland or floodplain is wide
- » Wearing polarized sunglasses helps you to better see into the water

METHODS:**Monitoring while in the water
(wading, fishing, or paddling)**

Pay close attention to your put-in and take-out points. These are key areas to search for AIS. Use your hands or a scoop to sift through sediment for invertebrates (such as Asian/freshwater golden clams or New Zealand mudsnails).

Paddle or wade across shallow areas of the river. If your river is narrow, you may wish to paddle or wade in a zigzag pattern back and forth across the width of the river. Stay within your paddling limits.

Look for fragments of plants floating along the surface of the water, especially in backwater areas. Observe rooted plants. You may wish to use a rope rake to gather samples of rooted plants. If you see a suspicious submerged or emergent plant, gather a bit using your hand or a rake to inspect it closer.

Keep an eye out for invasive invertebrates (New Zealand mudsnails, for example), which may be attached to submerged wood, plants, rocks, bridges, or buoys.

As you are moving along a section of river, stop frequently to observe the banks to determine if AIS are present.

As you go, pay particularly close attention when you are near bridges, backyards, boat landings, and urban areas. More often than not, we tend to find riverine invasive species in areas where humans come into contact with rivers the most, or where rivers have been disturbed.



ELLEN VOSS



SEAN BERTALOT

Stay within your limits!

Streams and rivers can have strong and dangerous currents, and river bottoms can change and hide submerged objects like downed trees. Wear a life jacket and only paddle or wade where you are confident in your ability to stay safe.

METHODS:**Monitoring from the shoreline**

Upon arrival at your site, identify the boundaries you wish to sample, typically 50-100 feet around a single point along the river. You may need to alter your length depending on site conditions. You will begin your search at one end and walk to the other along the shore or within the river.

Stop at least five times along your way at approximately equal intervals. Work downstream to upstream to avoid sediment disturbance, which can limit your ability to see into the water. You can consider all public docks/piers and bridges as sampling locations within your station, even if they are not equally spaced. If the access point is narrow, or less than 20 feet, choose three sites—one on each side and one in the middle. Follow steps 3-4 at each of your stopping locations.

Scan the area for at least 30 seconds. If there is heavy vegetation, spend more time as needed. While scanning, examine plant fragments and shells on the shore, as well as plants and animals in the water. If possible, use a handmade scoop or your hands to collect substrate from the shallow water along the shore. Sift through your sample for invertebrates. If available, use binoculars to scan the distant shorelines.

If you have one, toss a rope rake from the shore into the water, aiming for concentrations of plants. Be sure to hang onto the end of the rope. If you are at a narrow river site, you may wish to use a long-handled metal garden rake. Pull off and examine all the attached aquatic vegetation. Use the provided resources to help you identify suspicious plants or animals.



GARRETT HOPKINS



TOM BOISVERT

Stay within your limits!

Streams and rivers can have strong and dangerous currents, and river bottoms can change and hide submerged objects like downed trees. Wear a life jacket and only paddle or wade where you are confident in your ability to stay safe.

Target Species

Regardless of method, become familiar with the habitat and identifying features of the following invasive species that have been identified as a threat to our rivers and streams here in Wisconsin. You are welcome to search for just a few or all of these species. There are many identification resources available to assist you! Please contact your local AIS Coordinator or the Project RED Coordinator for resource information. (Contact information is listed in **STEP 4.**)



PAUL SKAMINSKI

Shoreline/Wetland Plants

- » Flowering rush
- » Japanese hops
- » Japanese knotweed
- » Phragmites
- » Purple loosestrife
- » Yellow iris



FOREST AND KIM STARR

Emergent/Submerged Plants

- » Brazilian waterweed
- » Curly-leaf pondweed
- » Didymo
- » Eurasian watermilfoil
- » Hydrilla
- » Parrot feather
- » Starry stonewort
- » Water hyacinth
- » Water lettuce
- » Yellow floating heart



BRADLEY STECKART

Invertebrates

- » Asian/freshwater golden clam
- » Faucet snail
- » New Zealand mudsnail
- » Quagga mussels
- » Rusty crayfish
- » Red swamp crayfish
- » Zebra mussels

If you don't find any AIS: Wonderful! Please let us know the good news.

Reports of no AIS are just as important as reports that you did find something. Please fill out your data sheet and enter your data into the SWIMS database no matter what you find (or don't find!).



STEP 2

Identify and collect/photograph invasive species

Invasive species are often easily confused with native look-alikes. To ensure quality data, volunteers are encouraged to verify their findings with a professional. The easiest way to do so is to take digital photographs of the suspect plant or animal and send them to contacts on the next page. If taking a photo isn't possible, you are encouraged to collect specimens if you may do so safely and legally. Do not trespass onto private property in order to do so.

How to Take Photographs

Take multiple photographs of the same subject. Take many close-up photos of all identifying characteristics (i.e., leaves, stems, flowers, and roots if possible). Also capture landscape photos to show the extent of the infestation and the habitat in which the species was found. Be sure to include something for scale (e.g., a pencil or coin) in all photographs.

How to Collect Plants

Try to collect up to three specimens. Try to get the root system, all leaves, and seed heads and flowers when present. Place in a sealable bag with a damp paper towel or a tiny bit of water. Keep the sample cool, and transport it to a refrigerator.

How to Collect Invertebrates

Try to collect up to three specimens. Place in a plastic jar or bag with water; keep cool and transport to a refrigerator. Transfer specimen to the freezer or a jar filled with rubbing alcohol. If this is not feasible, you are encouraged to take photographs.

Project RED Field Data Collection Sheet

Name	Project RED Training	Phone		Email	
Street Address		City	Balsam Lake		
Organization	LWRP	Waterbody	St. Croix R.		
Start Time	1:30 PM	End Time		Start Latitude	45.391790
Description of Start Location (ex. CTH K Bridge)		Minnesota Interstate Park			
End Latitude				End Longitude	
Description of End Location					
Check all of the species you looked for: <input checked="" type="checkbox"/> Japanese hops <input checked="" type="checkbox"/> Non-native phragmites <input checked="" type="checkbox"/> Japanese knotweed <input checked="" type="checkbox"/> Purple loosestrife <input checked="" type="checkbox"/> Curly-leaf pondweed <input checked="" type="checkbox"/> Hydrilla <input checked="" type="checkbox"/> Water hyacinth <input checked="" type="checkbox"/> Brazilian waterweed <input checked="" type="checkbox"/> Water lettuce <input checked="" type="checkbox"/> Starry stonewort <input checked="" type="checkbox"/> Parrot feather <input checked="" type="checkbox"/> Nutsells <input checked="" type="checkbox"/> Rusty crayfish <input checked="" type="checkbox"/> Red swamp crayfish <input type="checkbox"/> Other					
EP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample.					
Species	Curly leaf pondweed	Latitude	45.3895312	N	Longitude
Species		Latitude		N	Longitude
Species		Latitude		N	Longitude
Species		Latitude		N	Longitude
Species		Latitude		N	Longitude
EP 2: Send your photograph or sample to an expert for verification.					
Name	Verifier	Date Received	ID# of Samples/Photos		
EP 3: Data was entered into WIMS on _____ by _____ Date _____					
Turn a copy of the completed form to UW Madison Division of Extension: 445 Henry Mall, Room 202, Madison, WI 53706. We will be able to use even if you did not find any invasive species!					

KATELIN ANDERSON



AMANDA SCHMITZ

STEP 3**Fill out your data sheet**

Data sheets are available to download from the Project RED webpage: wateractionvolunteers.org/projectred/

On your data sheet, please be sure to fill out as much information as possible. Include your name and contact information, as well as a description of your survey area (start and end GPS coordinates preferred, along with a basic description). Please also indicate the species you looked for while monitoring. Remember, you do not have to look for all the listed species, just the ones you are comfortable searching for.

If you find something you believe to be an invasive species, record your best guess of the identification on the "Species" line under STEP 1 on the data sheet. Be sure to provide

the GPS coordinates where you located the species. If you are able, provide an estimated area of coverage for the species. This may not be feasible in all instances, such as if safety is a concern, or if visibility is limited. Indicate a "Sample ID #" to keep track of your photos and samples.

Please follow STEP 4 in this manual to verify your findings (fill out the data sheet accordingly with the sample IDs), and STEP 5 in this manual to submit your data into our database.

If you do not find any invasive species, please fill out all sections of the data sheet except the list of species found and follow STEP 5 in this manual to submit your data.



Project RED Field Data Collection Sheet

Name		Phone	Email	
Street Address		City	State	Zip
Organization		Waterbody		Date
Start Time	End Time	Start Latitude	Start Longitude	
Description of Start Location (ex. CTH K Bridge)				
End Latitude		End Longitude		
Description of End Location				

Check all of the species you looked for: ☐ Japanese hops ☐ Non-native phragmites ☐ Japanese knotweed ☐ purple loosestrife ☐ flowering rush ☐ yellow iris ☐ yellow floating heart ☐ Eurasian watermilfoil ☐ curlyleaf pondweed ☐ hydrilla ☐ water hyacinth ☐ Brazilian waterweed ☐ water lettuce ☐ stony stonewort ☐ parrot feather ☐ New Zealand mudsnail ☐ faucet snail ☐ Asian clam ☐ zebra mussels ☐ quagga mussels ☐ rusty crayfish ☐ red swamp crayfish ☐ other

STEP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample if one was taken.

Species _____	Latitude _____	N Longitude _____	W Area _____ M ²	Photo <input type="checkbox"/> Sample ID# _____
Species _____	Latitude _____	N Longitude _____	W Area _____ M ²	Photo <input type="checkbox"/> Sample ID# _____
Species _____	Latitude _____	N Longitude _____	W Area _____ M ²	Photo <input type="checkbox"/> Sample ID# _____
Species _____	Latitude _____	N Longitude _____	W Area _____ M ²	Photo <input type="checkbox"/> Sample ID# _____
Species _____	Latitude _____	N Longitude _____	W Area _____ M ²	Photo <input type="checkbox"/> Sample ID# _____

STEP 2: Send your photograph or sample to an expert for verification.

RESULTS				
Name of Verifier	Date Received	ID# of Samples/Photos	ID# of Positives	ID# of Negatives

STEP 3: Data was entered into SWIMS on _____ by _____

Date _____ Name _____

Return a copy of the completed form to UW Madison Division of Extension: 445 Henry Mall, Room 202, Madison WI 53706 or wav@extension.wisc.edu. **Remember, all trip data is valuable to us even if you did not find any invasive species!**

Example of a blank Project RED Field Data Collection Sheet

Project RED Field Data Collection Sheet

Name	Emily Heald		Phone	608-000-0000		Email	wav@extension.wisc.edu	
Street Address	445 Henry Mall			City	Madison		State	WI
							Zip	53706
Organization	UW-Madison Extension			Waterbody	Wisconsin River		Date	7/21/23
Start Time	8:10 am	End Time	2:30 pm	Start Latitude	43.187		Start Longitude	-89.901
Description of Start Location (ex. CTH K Bridge) Arena landing, Arena, WI								
End Latitude	43.168			End Longitude	-89.901			
Description of End Location Spring Green boat launch of HWY 14								

Check all of the species you looked for: ☐ Japanese hops ☒ Non-native phragmites ☒ Japanese knotweed ☒ purple loosestrife ☐ Flowering rush ☐ yellow iris ☐ yellow floating heart ☐ Eurasian watermilfoil ☐ curly-leaf pondweed ☐ hydrilla ☐ water hyacinth ☐ Brazilian waterweed ☐ water lettuce ☐ starry stonewort ☐ parrot feather ☐ New Zealand mudsnail ☐ faucet snail ☐ Asian clam ☐ zebra mussels ☐ quagga mussels ☐ rusty crayfish ☐ red swamp crayfish ☐ other _____

STEP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample if one was taken.

Species	purple loosestrife	Latitude	43.189	N Longitude	-89.931	W Area	8	M ²	<input type="checkbox"/> Photo	<input checked="" type="checkbox"/> Sample ID#	1
Species	purple loosestrife	Latitude	43.193	N Longitude	-89.958	W Area	?	M ²	<input type="checkbox"/> Photo	<input checked="" type="checkbox"/> Sample ID#	2
Species	Japanese knotweed	Latitude	43.183	N Longitude	-90.017	W Area	5	M ²	<input type="checkbox"/> Photo	<input type="checkbox"/> Sample ID#	3
Species	_____	Latitude	_____	N Longitude	_____	W Area	_____	M ²	<input type="checkbox"/> Photo	<input type="checkbox"/> Sample ID#	
Species	_____	Latitude	_____	N Longitude	_____	W Area	_____	M ²	<input type="checkbox"/> Photo	<input type="checkbox"/> Sample ID#	
Species	_____	Latitude	_____	N Longitude	_____	W Area	_____	M ²	<input type="checkbox"/> Photo	<input type="checkbox"/> Sample ID#	

STEP 2: Send your photograph or sample to an expert for verification.

RESULTS

Name of Verifier	Date Received	ID# of Samples/Photos	ID# of Positives	ID# of Negatives
Paul Skawinski	7/22/23	1, 2	1, 2 (purple loosestrife)	
Paul Skawinski	7/22/23	3		3 (dogwood)

STEP 3: Data was entered into SWIMS on **8/1/23** by **Emily Heald**
Date Name

Return a copy of the completed form to UW Madison Division of Extension: 445 Henry Mall, Room 202, Madison WI 53706 or wav@extension.wisc.edu. **Remember, all trip data is valuable to us even if you did not find any invasive species!**

STEP 4**Verify your findings**

After returning home from the river, refer to additional references to confirm the identity of the plant or animal that you found. The Wisconsin DNR online factsheets are a good place to start. Simply type the name of the species and the word "factsheet" (e.g., "Japanese hops factsheet") into the search bar on the WDNR's homepage (dnr.wisconsin.gov). Here you will find photographs and a detailed description of the invasive species.

Additional online identification resource:



<https://go.wisc.edu/up798y>

(downloadable AIS identification handbook - includes all Project RED species of concern)

If you still believe that you have found an invasive species, please contact the local or UW-Madison Extension Project RED coordinators listed below as soon as possible. If you took photographs of the invasive, please email the photographs along with the latitude and longitude coordinates to your coordinators. If you collected specimens and the species cannot be identified from the photographs alone, your coordinator may request that you deliver the specimen for a closer examination. A delay may result in specimen decay and prevent experts from being able to identify the specimen. The local or statewide coordinators will confirm where you should deliver the specimens once you have contacted them.



GLACIERLAND RC&D



STEPHANIE BOISMENUE



KEIFER SROKA

Project RED Resources

- » To find your local AIS coordinator, visit this website or scan the QR code: <https://apps.dnr.wi.gov/lakes/invasives/topics.aspx>
- » Project RED Coordinator: wav@extension.wisc.edu

SCAN TO FIND LOCAL
AIS COORDINATORS



STEP 5

Share your findings

Your observations are valuable whether or not you found any invasive species while monitoring. When submitted, your Project RED data will be added to the WDNR database (called “SWIMS”), where it will be used by researchers and managers to better understand how invasive species are spreading throughout Wisconsin’s waters.

To access the SWIMS database, volunteers need a MyWisconsin ID, and to email Water Action Volunteers staff to set up their profile:

1. Go to apps.wisconsin.gov and click “Sign up” (the small blue link below the login).
2. Enter and verify your email address, create a password, and set up two-factor authentication (e.g., a text to your phone). Before you can log in to SWIMS, Water Action Volunteers staff need to create your profile in the database. Send an email to wav@extension.wisc.edu and provide:
 - » Your full name, the email address tied to your MyWisconsin ID, phone number, and the county or counties in which you are monitoring aquatic invasive species.

Please see the document “How to Enter Project RED Data into SWIMS” for step-by-step instructions on data entry.



MARISA ULMAN



STACY HARBAUGH



STACY HARBAUGH