

STREAMSIDE SURVEYING FOR
SPECIES IN THE BAD RIVER
WATERSHED

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PRINTING INSTRUCTIONS

To print these materials at home and form them into a booklet, save this document as a PDF to your personal device. In your print settings, select "Two-Sided" and "Short-Edge Binding". You can choose to print in color or black-and-white. Once printed, stack all pages together and staple, hole-punch, or bind the center to create your own booklet! You may want to keep your booklet in a plastic bag if you're taking it with you to survey in wet areas.

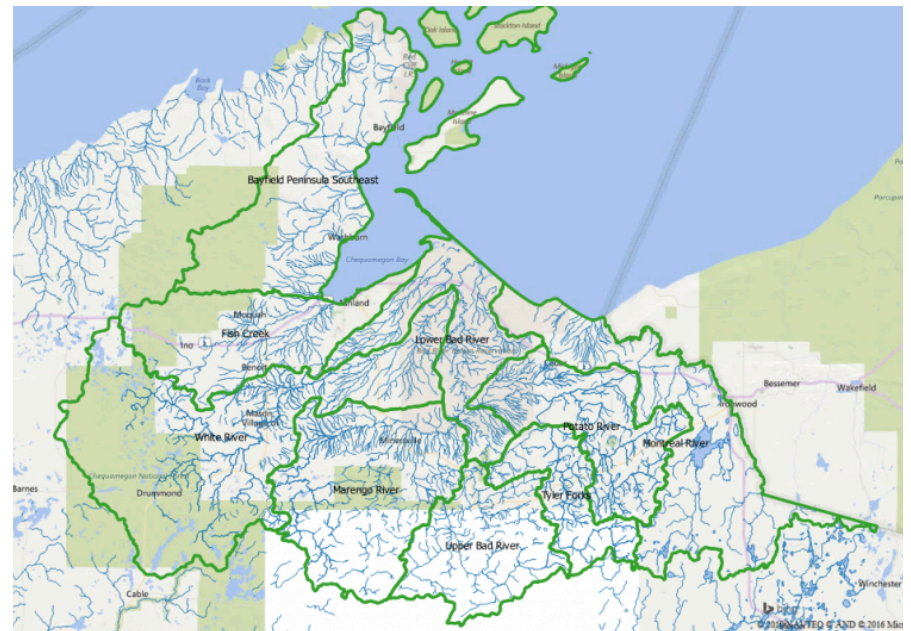
OTHER MATERIALS IN THIS PROJECT

This booklet is part of a larger list of endangered and threatened species in the Bad River Watershed. To check out our other booklets or to view the full species list, with links to other resources for species identification, follow the QR code here:



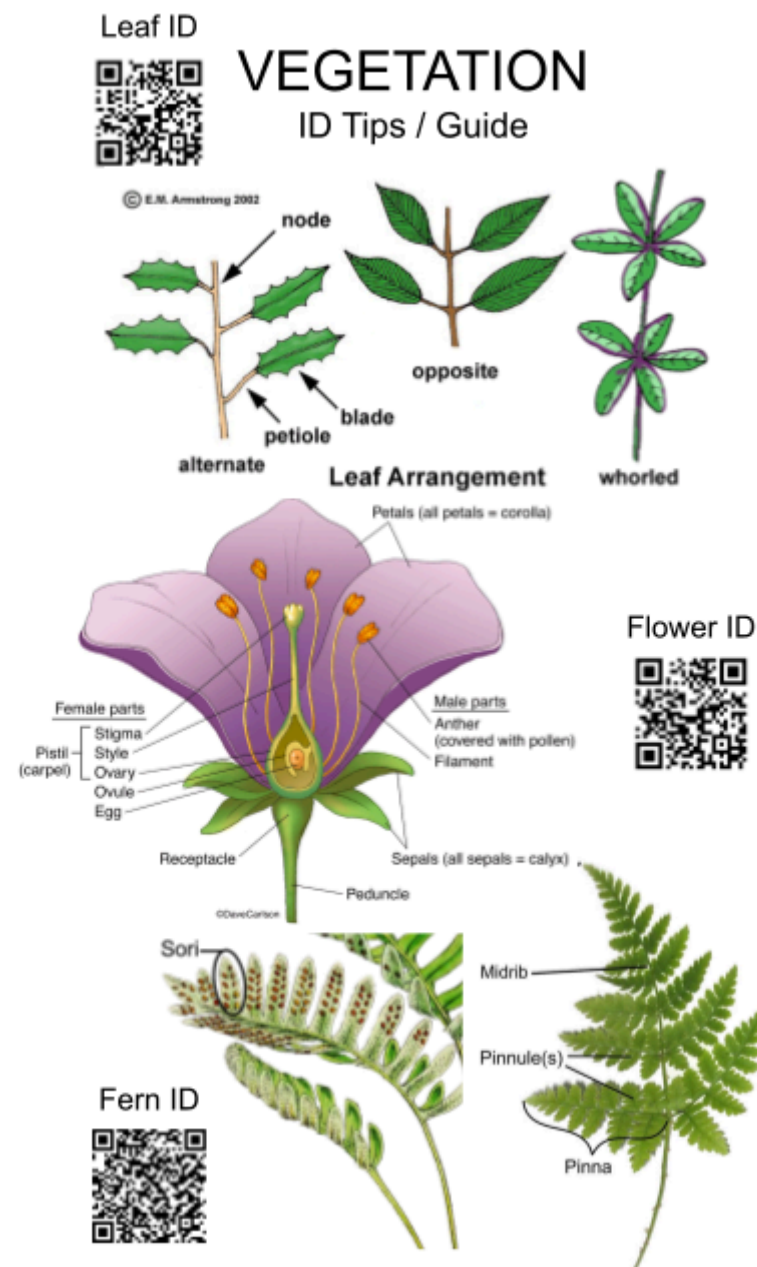
ENDANGERED RELATIVES IN THE WATERSHED

The watersheds of northern Wisconsin hold an incredible diversity of species thanks to their variety of wetland habitats. These wetlands are home to a number of rare, threatened, and endangered species, legally protected at both the state and federal levels. These species and the ecosystems where they live face numerous threats to their livelihoods. Private construction projects, the introduction of non-local beings or invasive species, and changing climate patterns can all contribute to the potential loss of these relatives.



HOW YOU CAN HELP

Local conservation agencies do tremendous work monitoring for threats to these species, but often need to service large regions with limited staff. **By volunteering to survey for threatened and endangered species and potential threats to them**, you can help increase the capacity of local conservation agencies to protect these species and the overall health of the watersheds of Northern Wisconsin.



Braun's Holly-fern

(*Polystichum braunii*)

T



Identifiable
year-round

-Grey-black sori
on backsides of
leaves



-Rachis covered
in tan scales

-Grows in circular
clumps or on
rocky ledges

State: END
Federal: N/A



More Info



GOALS OF THIS PROJECT

Building from earlier work by CLEAN WI and in collaboration with the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and the Superior Rivers Watershed Association (SRWA), we have compiled information on **59 threatened and endangered species** that have been documented to live within the Bad River Watershed. We are also interested in monitoring for **non-local beings (introduced/invasive species)** in the watershed; information on these species can be found on the Wisconsin DNR website.

We encourage community members to **survey downstream of major construction projects** and **report sightings of these species** via the two platforms provided. This information will then be relayed to local conservation agencies to aid in the ongoing protection of these species.

REPORTING: iNATURALIST

iNaturalist is a free platform for documenting and identifying species all over the world. You can upload photos via a desktop computer or via a mobile app.

To add observations to the Biota of the Bad River Watershed project, make sure you are logged in to iNaturalist and click "Join" on the project page.

To report observations of species via iNaturalist:

1. Take a photo/record evidence of the species (tracks, scat, audio of song/call)
2. Upload the photo/evidence to iNaturalist (make sure you're logged in!)
3. Use the interface to add information about the **species name**, **date observed**, **location**, and any other notes
4. Submit your observation

If you are logged in, a member of the project, and your photo was taken within the watershed, your observation should automatically update on the project page!

Link to the Biota of the Bad River Watershed Project:



Auricled Twayblade ^W (*Listera auriculata*)

Blooms: July

ID: June-Sept

-Small populations
-Prefer mouths of streams, above high water line, often under speckled alders



-Pale green, almost translucent flowers (same color as leaves)

State: END
Federal: N/A



More Info



Lake Cress

(*Armoracia lacustris*)

A

State: END



More Info

ID: June-Sept

Flowers: June

-Found in slow-moving rivers and river mouths

-4-parted white flower

-Leaves underwater:
thread-like

-Leaves above:
lance-shaped



By R. Harrison Wiegand

REPORTING: EMAIL

For reporting directly to the project team, email tne.search2@proton.me. Reports to this address will be regularly forwarded to GLIFWC and SRWA. You can report both **endangered/threatened species** and **introduced/invasive species (non-local beings)**.

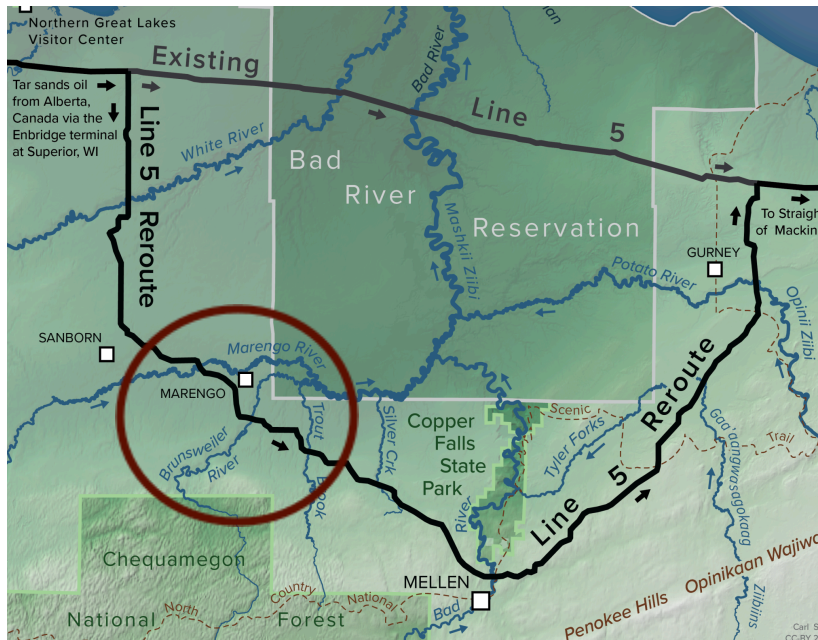
Information you should provide (**bold required**):

- **Scientific or common name**
- **Date observed**
- **Latitude/Longitude**
- **Number of individuals**
- Estimated area of population (for plants)
- Location/habitat description
- Link to iNaturalist observation

Try to capture close-up, high-quality photos of your species. Some species have very specific characteristics that differentiate them from more common species. If you believe you've seen a species on the list but did not capture a photo, you can still submit the coordinates of where you observed the species.

TARGET SURVEY AREAS

- **Next to and downstream** of construction areas
- Western area of reroute
- Public access lands
- Float surveys for aquatic/riparian species, especially along **Marengo** and **Brunsweller** rivers
- County roads acting as access roads for construction
- Areas **off-reservation** only



Satiny Willow (*Salix pellita*)

W

ID: June-Sept



- Waxy-white hairless twigs
- Underside of leaves covered in long silky hairs
- Found on sandy and gravelly shores

State: END
Federal: N/A



More Info



Tea-Leaved Willow

(*Salix planifolia* ssp. *planifolia*)

W



Salix planifolia

State: END

Federal: N/A

ID: June-Sept



More Info

- Fruit on very small twigs
- Leaves smooth and diamond-shaped
- On bedrock shores

PUBLIC AND PRIVATE PROPERTIES

Check who owns the property where you're surveying. While anyone can survey on public lands, along public roads, and along public waterways, much of the Watershed exists on private property. **Do not trespass on private property or on the Bad River Reservation for species surveying.**

Certain applications and websites provide information on public and private lands near you, including showing your location in relation to these parcels. The free trial of onX Hunt is one useful example.

When surveying by river, make sure you **enter and exit the river via public lands** (for example, off of roads). According to the Wisconsin Public Trust Doctrine, the public has a right to transportation along all navigable waterways.

The following QR code links to watchline5.com, which contains a useful Google Map for knowing where you are in relation to construction, roads, and public access sites.



SURVEYING TIPS

Choose one species or kind of species to survey at a time. It's easier to keep a "search image" if you are specific on who you're searching for.

Check the season for which each species is most active/most easily identifiable.

Survey quietly, especially for mobile species – don't scare them away!

Survey in small groups to minimize disturbances and keep each other safe.

Wear adequate protection to avoid sunburn, wild parsnip burns, poison ivy, and/or tick bites. Read up on common outdoor hazards and prepare accordingly.

On public lands, check **open edges** and **difficult-to-traverse** areas (within reason). Edges and difficult-to-traverse areas tend to be under-surveyed.

Do not collect or damage species, especially endangered or threatened species.

A

Large Water-starwort (*Callitriche heterophylla*)



ID: Aug-Sept

-Muddy shores,
pools, wet sand

-Thread-like
submerged
leaves

-Spatula-shaped
floating leaves

State: THR
Federal: N/A



More Info



Small Yellow Water Crowfoot (*Ranunculus gmelinii*)

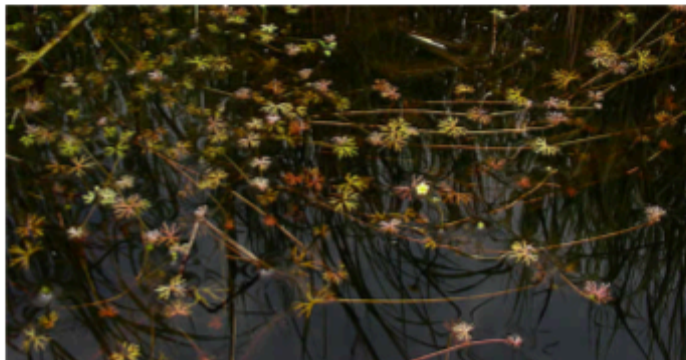
W



State:
END
Federal:
N/A

ID: June-Sept
-Cold brooks and
springs
-Deeply lobed leaves
-Most of plant
submerged

More Info



USEFUL EQUIPMENT

Polarized sunglasses (fish, aquatic organisms)

Binoculars (birds, basking turtles)

Hand lens/magnifying glass (seeing small characters on plants, insects)

Charged smartphone (photos, recordings, identification apps like iNaturalist or Merlin)

Drybag and/or waterproof case for electronic devices

Camera with zoom lens for photographing far-away species like birds

Water shoes, hiking sandals, or waders for walking in shallow water

Sunscreen, bug spray (do not handle amphibians/reptiles if using DEET), permethrin-treated clothing for tick prevention

Aquatic and wetland species guides – or our printable booklet series (p. 30)

NEXT UP: OUR SPECIES

Wood Turtle (*Glyptemys insculpta*)



ID: Mar-Oct

-Ridged schutes (scales) unlike box or painted turtles

-Forage in open wet meadows and shrubby lands dominated by **speckled alder**

-Remain within 300m of water
-Surveying tips on next page

State: THR
Federal: SOC



More Info



Algae-leaved Pondweed (*Potamogeton confervoides*)

A

More Info



ID: Aug

-Shallow acidic inland lakes
-Stems of fruit long, leaves slender and delicate

State: THR
Federal: N/A



Extra-striped Snaketail (*Ophiogomphus anomalus*)



ID: May-June

-Bright green
and black

State: END

Federal: N/A



More Info

-Cobra-like clubtail,
-4.3 cm (1.6 in) long
-Yellow dorsal spots



Wood Turtle Surveying

From Andrew Badje, Wisconsin DNR (adapted from CLEAN WI species survey materials):

By canoe: Float down the river with binoculars, scanning for wood turtles basking in the sun. Generally, they are seen basking in the **late morning into the early afternoon**, and then again as the sun begins to set. For this type of survey, air temps should be 60-80F.

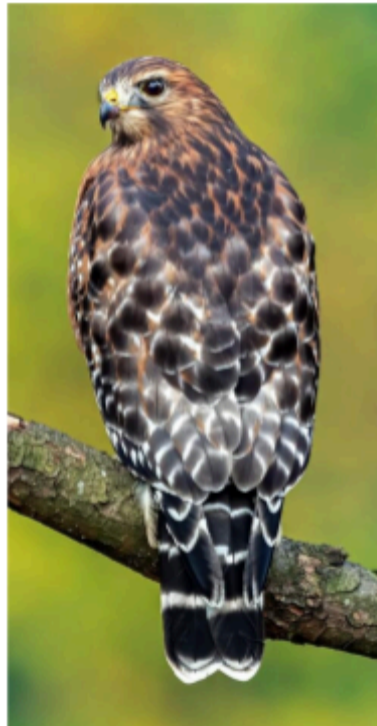
Combination land and canoe survey: While conducting a basking survey by canoe, occasionally pull off (legally) in quality habitat, such as **alder thickets, forest openings, and willow thickets**, to search for land-bound wood turtles. This tends to be more effective because wood turtles sometimes choose open areas near alder or willow thickets to warm up. When getting out of the canoe, focus on areas with southern and western exposure. Ideal temps for land surveys are water temps above 50F, and air temps between 55-75F.

Speckled alder (*Alnus incana*) is an abundant riverside species, growing 15-25 feet tall. It is easily identified by its corrugated leaves and small "cones" that grow on the branches year-round.

Leaves and "cones" of speckled alder



Red-Shouldered Hawk (*Buteo lineatus*)



Nesting: Apr-July

- Warm-reddish barring on chest
- ID in flight from narrow, pale crescents near wingtips;
- fan-shaped tail
- In-flight, wingtips seem to “reach” forward

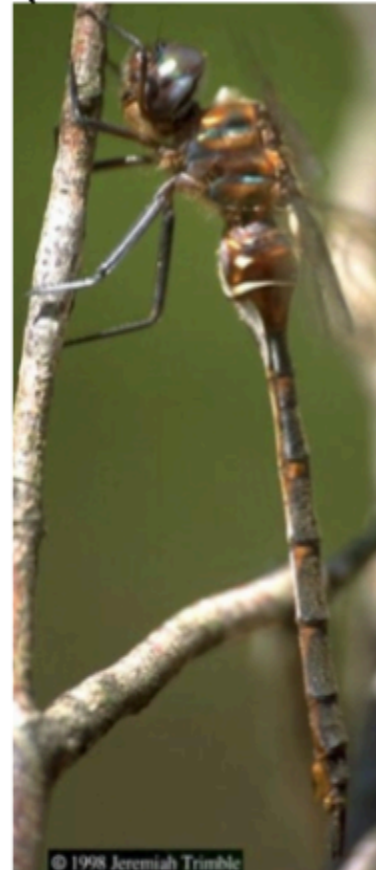
State: THR



More Info
(including calls
& sightings)



Incurvate Emerald (*Somatochlora incurvata*)



ID: July-Aug

State: END
Federal: N/A



More Info

- 6.3 cm (2 in) long
- Yellow-brown face
- Metallic greenish markings; green eyes
- Brown upper body



Loggerhead Shrike (*Lanius ludovicianus*)

Nesting: Apr-Aug

State: END
Federal: SOC

- Rough grassland with scattered shrubs and trees
- Thick bill with a small hook
- Gray with black mask and white flashes in black wings



More Info
(including calls & sightings)

- Tend to hover, rapid wingbeats



Acadian Flycatcher (*Empidonax virescens*)

State: THR

Nesting:

- Sits in a distinct upright posture, hunts insects
- Olive-green above with whitish eyering and underparts; dark wings with two distinct white bars

May-Aug



- Nests often have "streamers" hanging below them



More Info
(including calls & sightings)



Caspian Tern

(*Hydroprogne caspia*)



Migration:
Apr-June &
July-Oct

State: END
Federal: N/A



More Info
(including calls &
sightings)

- Gather in nesting colonies
- Black crown, bright red bill
- Outer primaries are dark gray



Black Tern

(*Chlidonias niger*)

State: END
Federal: SOC

Nesting:
May-July

- Often form colonies in same place yearly
- Black head/underside and gray upper



More Info
(including calls &
sightings)

