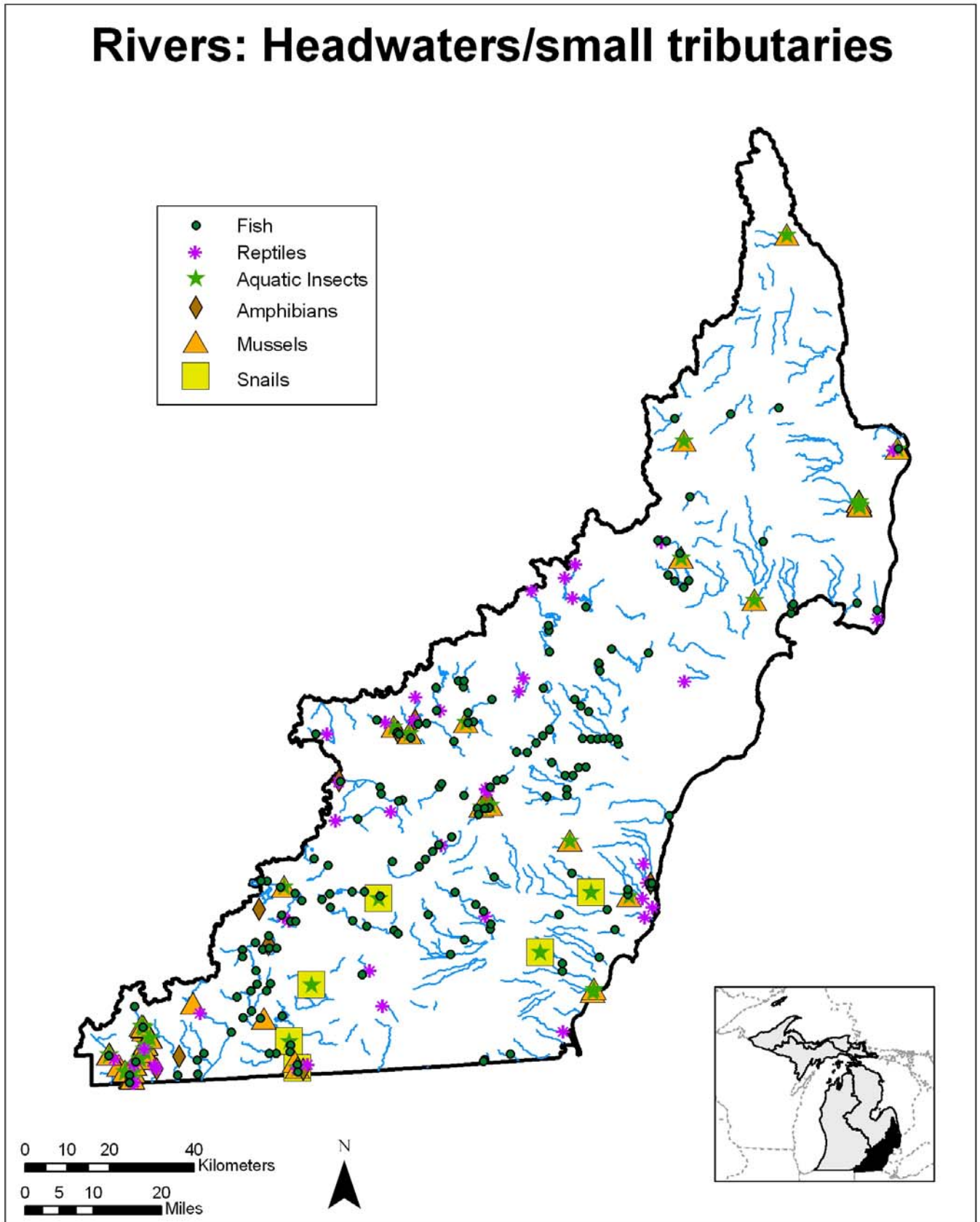


Rivers: Headwaters/small tributaries



Rivers: Headwaters and Small Tributaries

Description

Headwater streams and small tributaries are wadeable systems that have a midpoint catchment area (the land area above the midpoint of the stream from which water drains towards the stream) less than 40 square miles. These low stream order systems join together to form larger streams and rivers, or run directly into other streams, rivers, and lakes. They have great influence on the collective health and functioning of the primary stream network to which they belong. Headwater streams and small tributaries tend to be strongly affected by riparian vegetation. This landscape feature is a catch-all for species with no recorded water temperature preferences as reported in primary literature.

General Condition of Feature

This habitat is considered 30% in good to excellent condition, 40% in fair condition, and 30% in degraded to very degraded condition.

Associated Species of Greatest Conservation Need

MUSSELS

slippershell mussel (*Alasmidonta viridis*)
ellipse (*Venustaconcha ellipsiformis*)
clubshell (*Pleurobema clava*)
cylindrical papershell (*Anodontooides ferussacianus*)
creek heelsplitter (*Lasmigona compressa*)
eastern pondmussel (*Ligumia nasuta*)
purple lilliput (*Toxolasma lividus*)
lilliput (*Toxolasma parvus*)
rayed bean (*Villosa fabalis*)

SNAILS

brown walker (*Pomatiopsis cincinnatiensis*)

CRAYFISH

devil crawfish (*Cambarus diogenes*)
digger crayfish (*Fallicambarus fodiens*)

INSECTS

splendid clubtail (*Gomphus lineatifrons*)
rapids clubtail (*Gomphus quadricolor*)

INSECTS cont.

Laura's snaketail (*Stylurus laurae*)
a dobsonfly (*Nigronia fasciatus*)

FISH

brindled madtom (*Noturus miurus*)
orangethroat darter (*Etheostoma spectabile*)

AMPHIBIANS

smallmouth salamander (*Ambystoma texanum*)
four-toed salamander (*Hemidactylium scutatum*)
mudpuppy (*Necturus maculosus maculosus*)
Fowler's toad (*Bufo fowleri*)
Blanchard's cricket frog (*Acris crepitans blanchardi*)

REPTILES

copperbelly water snake (*Nerodia erythrogaster neglecta*)
queen snake (*Regina septemvittata*)
Blanding's turtle (*Emydoidea blandingii*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Increased runoff due to urbanization; Storm water management; Enclosed streams
- Climate change
- Fragmentation

POLLUTION

- Altered nutrient inflows: Surface runoff - nutrients
- Altered sediment loads: Erosion; Siltation; Sedimentation; Construction runoff
- Pesticides and herbicides
- Urban, municipal, and industrial pollution

HABITAT CONVERSION

- Dams
- Dredging and channelization: Channelization
- Riparian modification: Development of riparian zone; Loss of flood plain

EDUCATION

- Social attitudes: Lack of education for public; Lack of understanding by riparian owners

Conservation Actions Needed (Threats addressed)

LAND & WATER PROTECTION

- Create and expand conservation easements (variety of threats)
- Support land conservancy purchase of undeveloped land (variety of threats)

LAND, WATER & SPECIES MANAGEMENT

- Allow seasonal flooding (altered hydrologic regimes)
- Encourage use of natural materials or soft engineering techniques for modification (riparian modification)
- Maintain or rehabilitate natural corridors between wetlands and uplands (fragmentation, riparian modification)

- Maintain or establish riparian buffers to at least 50 ft., however 500 ft provides for better conservation value (altered hydrologic regimes, altered sediment loads, riparian modification)
- Preserve woody riparian vegetation (riparian modification)
- Rehabilitate damaged wetland and stream hydrology (altered hydrologic regimes, wetland modification)
- Rehabilitate original hydrologic functions (altered hydrologic regimes)
- Rehabilitate streams to original flow paths (altered hydrologic regimes)
- Soften or remove hard stream riparian structures (riparian modification)
- Work with road commissions on placement and maintenance of stream crossings (altered hydrologic regimes, altered sediment loads, fragmentation)

LAW & POLICY

- Avoid stream relocations (dredging and channelization)
- Continue working with and educating Drain Commissioners (social attitudes)
- Enforce the use sediment barriers and Best management practices during road and stream crossing constructions (altered sediment loads)
- Protect the public trust by requiring dam owners to make appropriate financial provision for future dam removal (dams)
- Remove dams to rehabilitate habitat (dams, fragmentation)
- Remove unnecessary or abandoned stream crossings and enclosures (altered hydrologic regimes)
- Require remaining dams to operate at run-of-the-river (altered hydrologic regimes)
- Restrict dredging during spawning or migration seasons (dredging and channelization)
- Strengthen existing environmental laws (variety of threats)
- Use single large capacity culverts that match bankfull width if culverts are necessary (altered hydrologic regimes, altered sediment loads)
- Work with local planning and zoning to develop and refine regulations and ordinances that include natural processes (altered hydrologic regimes, altered sediment loads, riparian modification, wetland modification)

EDUCATION & AWARENESS

- Educate legislators, local planning boards, and other policy makers on the importance of natural processes (social attitudes)
- Educate private landowners on the value of riparian areas (riparian modification, social attitudes)
- Expand education programs for the general public regarding natural processes, hydrologic cycles, and stewardship issues (social attitudes)

Research and Survey Needs

- Determine extent and condition of riparian buffers
- Determine the best way of communicating natural resource concerns with the public
- Determine the best way of getting local planning groups to work together
- Investigate complete life history strategies for SCGN that use headwaters and small tributaries
- Determine reptile and amphibian corridors
- Determine temperature preferences for SGCN species

Monitoring

- Amphibian and reptile corridors
- Industrial effluent
- Mussels populations
- Riparian modification
- Road crossings
- Septic systems and wastewater treatment plants
- Stream modification