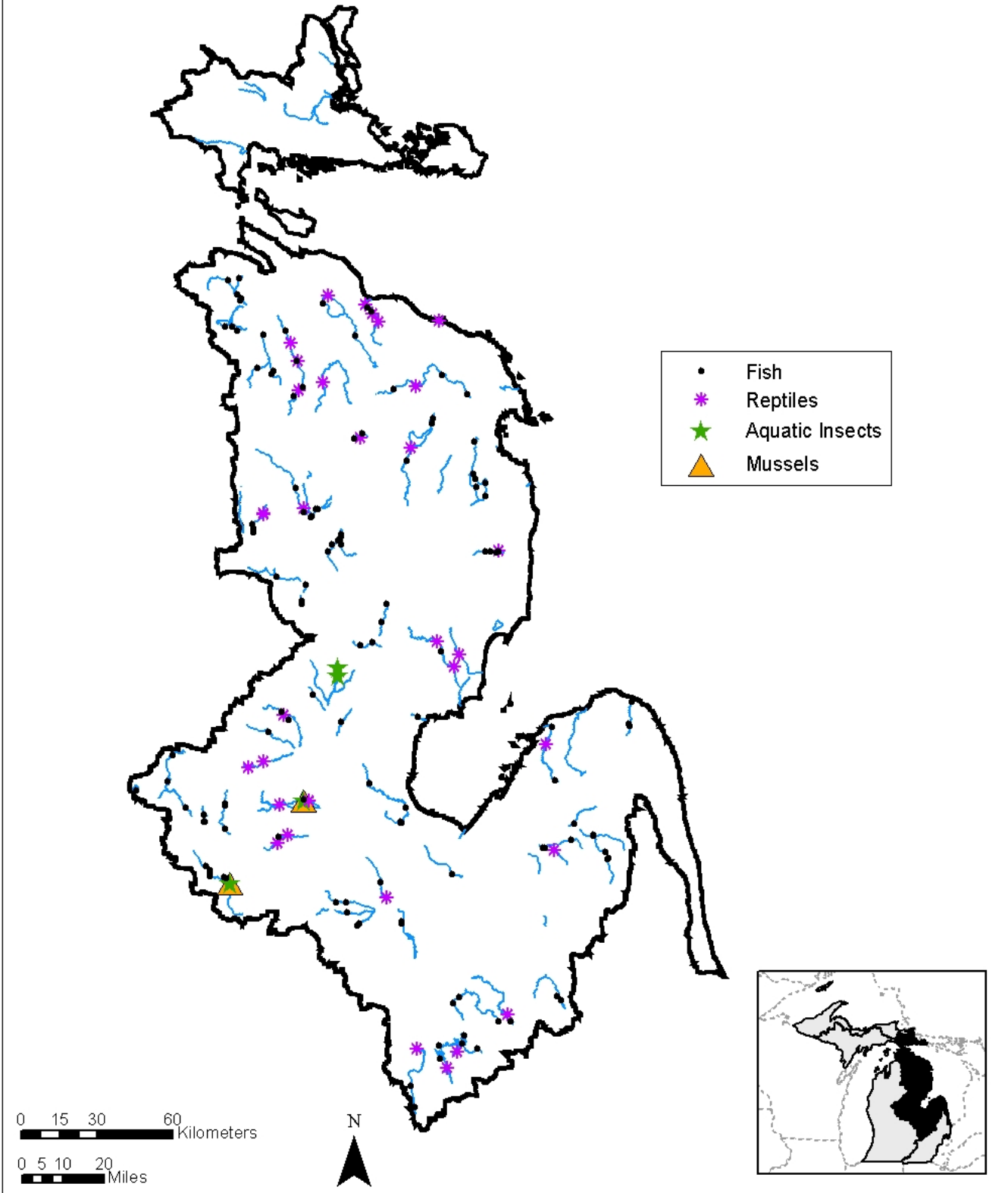


## Rivers: Medium rivers



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### Description

Medium rivers are wadeable systems that have a midpoint catchment area from 40 to 179 square miles. They are intermediate stream order and vary in temperature from cold to warm. Substrate and habitat are variable and more diverse than headwater systems. 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 50% in good to excellent condition, 25% in fair condition, and 25% in degraded to very degraded condition.

### Associated Species of Greatest Conservation Need

#### MUSSELS

elktoe (*Alasmidonta marginata*)  
slippershell mussel (*Alasmidonta viridis*)  
round pigtoe (*Pleurobema coccineum*)  
ellipse (*Venustaconcha ellipsiformis*)  
purple wartyback (*Cyclonaias tuberculata*)  
pimpleback (*Quadrula pustulosa*)  
creek heelsplitter (*Lasmigona compressa*)  
snuffbox (*Epioblasma triquetra*)  
wavy-rayed lampmussel (*Lampsilis fasciola*)  
black sandshell (*Ligumia recta*)  
threehorn wartyback (*Obliquaria reflexa*)  
kidneyshell (*Ptychobranthus fasciolaris*)  
purple lilliput (*Toxolasma lividus*)

#### CRAYFISH

devil crawfish (*Cambarus diogenes*)

#### INSECTS

a sand minnow mayfly (*Siphloplecton basale*)  
splendid clubtail (*Gomphus lineatifrons*)  
rapids clubtail (*Gomphus quadricolor*)  
riverine snaketail (*Stylurus amnicola*)  
Laura's snaketail (*Stylurus laurae*)  
stygian shadowdragon (*Neurocordulia yamaskanensis*)  
a stonefly (*Arcynopteryx compacta*)  
a stonefly (*Helopicus nalatus*)

#### AMPHIBIANS

mudpuppy (*Necturus maculosus maculosus*)  
Blanchard's cricket frog (*Acris crepitans blanchardi*)  
northern leopard frog (*Rana pipiens*)

#### REPTILES

Blanding's turtle (*Emydoidea blandingii*)  
wood turtle (*Glyptemys insculpta*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Surface runoff; Increase in impervious surface due to paving and buildings; Landscape alterations will alter the flow regime; Road crossings
- Fragmentation: Road crossings

#### POLLUTION

- Altered nutrient inflows: Nutrient loading
- Altered sediment loads: Erosion; Sedimentation
- Thermal changes: Increase in impervious surface due to paving and buildings

#### HABITAT CONVERSION

- Dams: Fish passage & dams
- Dredging and channelization: Channelization; Dredging; Filling
- Riparian modification: Land use practices such as logging, development, and agriculture; Riparian alterations decrease woody debris contribution
- Wetland modification: Wetland loss & degradation; Groundwater recharge

#### CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices
- Mining practices: Gas and oil well development.

#### EDUCATION

- Social attitudes: Social issues regarding riparian management

### Conservation Actions Needed (Threats addressed)

#### LAND, WATER & SPECIES MANAGEMENT

- Avoid stream relocations (altered hydrologic regimes, dredging and channelization)
- Encourage the use of best management practices (altered hydrologic regimes, altered nutrient inputs, altered sediment loads)
- Engineered drainage channels should mimic natural stream channel stability (channel dimension, pattern, and profile) (dredging and channelization)

**MICHIGAN'S WILDLIFE ACTION PLAN**  
**AQUATIC SYSTEMS: LAKE HURON BASIN**

- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits (altered flows, altered nutrient inputs, altered sediment loads, forestry practices, riparian modification, thermal changes)
- Manage lake-level controls and water releases of dams to mimic natural river conditions (altered hydrologic regimes, dams)
- Remove dams to rehabilitate natural hydrology (altered hydrologic regimes, altered sediment loads, dams, fragmentation)
- Rehabilitate and maintain original flow paths and hydrologic functions (i.e., seasonal flooding, connect meanders, throughflow, wetlands, etc.) (altered hydrologic regimes, altered sediment loads, dams, thermal changes, wetland modification) (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, wetland modification)
- Rehabilitate channel diversity (dredging and channelization)
- Work with forest management agencies on species that are replanted (a change in riparian species can change river dynamics such as flow and clarity) (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, forestry practices)
- Work with road commissions and forest management agencies to fix perched culverts and rehabilitate eroding stream crossings (altered hydrologic regimes, altered sediment loads, forestry practices, fragmentation)
- Work with road commissions and forest management agencies to site and build effective new stream crossings (altered hydrologic regimes, altered sediment loads, forestry practices, fragmentation)

**LAW & POLICY**

- Continue regulating facilities that remove and discharge water into streams (altered hydrologic regimes, mining practices, thermal changes)
- Continue working on forest certification endeavors (forestry practices)
- Continue working towards developing and refining planning and zoning regulations and ordinances (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, thermal changes, riparian modification, wetland modification)
- Discourage and limit water withdrawals in flow limited and groundwater fed systems (altered hydrologic regimes)
- Discourage log salvage operations, especially where woody structure is limited (forestry practices)
- Encourage enforcement of permits controlling effluent discharges (altered hydrologic regimes, mining practices, thermal changes)
- Enforce the use of sediment barriers and best management practice's during road siting, construction, and maintenance (altered sediment loads)
- Impose mitigation practices to minimize logging and mining effects (forestry practices, mining practices)
- Protect and rehabilitate groundwater recharge by requiring that all development-related runoff be captured by infiltration basins (altered hydrologic regimes, altered nutrient inflows, altered sediment loads, thermal changes)
- Protect functioning wetlands and rehabilitate destroyed or degraded wetlands (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, thermal changes, wetland modification)
- Protect the natural hydrologic regime of rivers by protecting existing wetlands, floodplains, and natural upland areas (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, riparian modification, thermal changes, wetland modification)
- Redraft the Michigan Drain code (altered hydrologic regimes, altered nutrient inputs, altered sediment loads)
- Work with regulatory agencies to restrict dredging and channelization activities, especially during spawning and migration seasons (dredging and channelization)

**EDUCATION & AWARENESS**

- Continue working with and educating Drain Commissioners (altered hydrologic regimes, altered sediment loads, dredging and channelization, riparian modification)
- Educate the public on the importance of vegetated riparian buffers (altered flows, altered sediment loads, forestry practices, riparian modification, social attitudes, thermal changes)
- Educate legislators, local planning boards, and other policy makers on the importance of natural processes (all threats)

**Research and Survey Needs**

- Determine life history strategies of those SGCN that are lacking this information including temperature preferences
- Determine mussel distributions
- Determine stream temperatures in areas lacking data
- Determine the number and condition of road and stream crossings
- Determine the number of groundwater withdrawals in the basin
- Determine ways to decrease temperature swings from retention and detention basins in urbanized watersheds
- Develop alternatives to current drainage practices
- Document the number of water withdrawal locations and amounts
- Inventory dams and determine those that no longer serve a useful purpose
- Inventory erosion sites and conduct remediation activities
- Inventory stream crossings and address those which are eroding or interfering with stream flow

- Inventory stream enclosures and determine those that no longer serve a useful purpose
- Inventory wetlands and floodplains and determine their condition
- Model hydrologic flow of entire watersheds
- Test and compare benefits of Best Management Practice's as conservation tools

Monitoring

- Channelization
- Dam operations
- Dredging and channelization
- Land use changes
- Logging activities
- Riparian modification
- Sediment loading
- Storm water flows
- Stream modification
- Water temperatures
- Water withdrawals
- Wetland modification