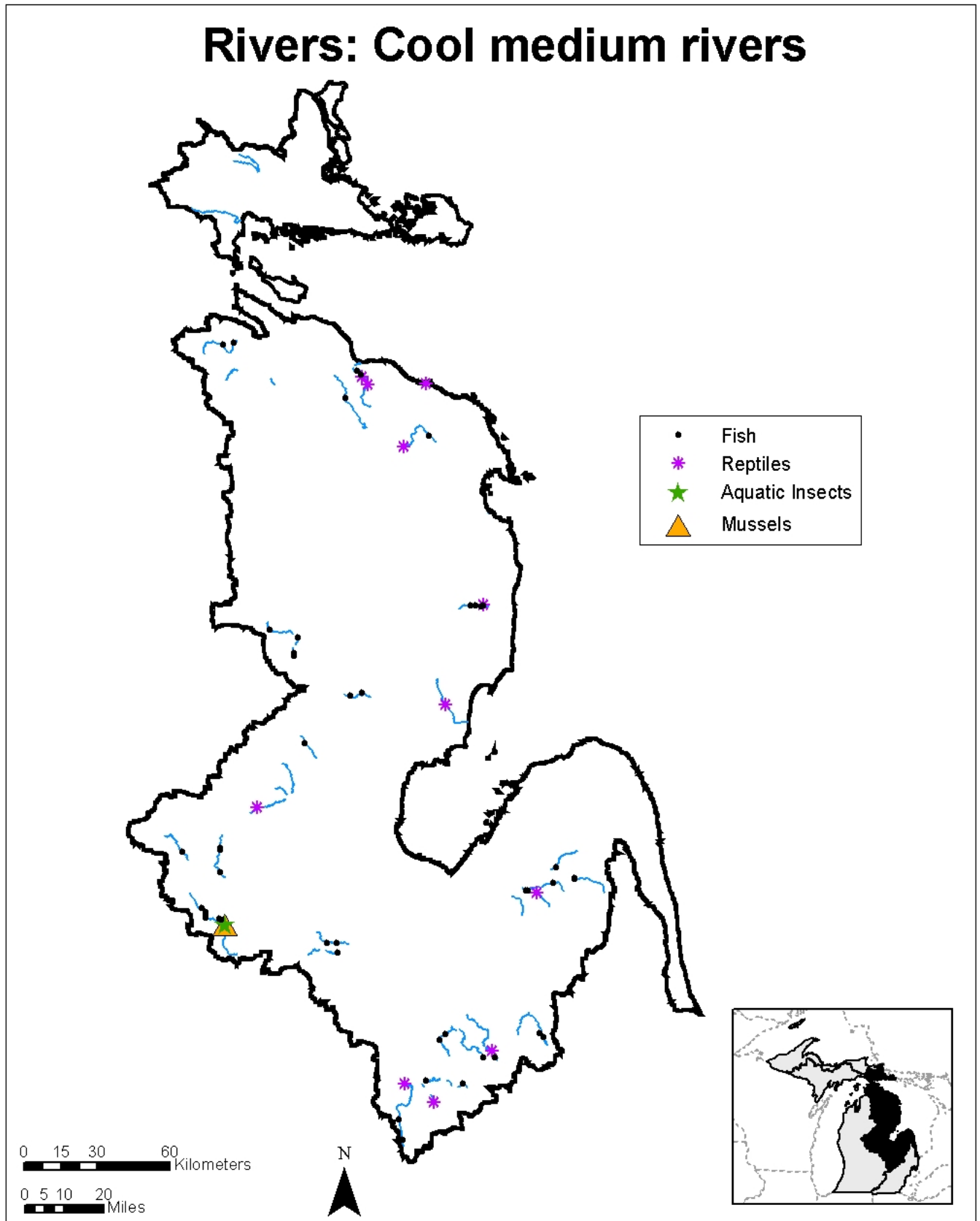


Rivers: Cool medium rivers



Rivers: Cool Medium Rivers

Description

Medium rivers are wadeable systems that have a midpoint catchment area from 40 to 179 square miles. They are intermediate stream order. Substrate and habitat are variable and more diverse than headwater systems. Cool medium rivers in Michigan are usually runoff-driven with low to moderate baseflow and fair to moderate peak flow, with the exception of a few systems that are groundwater-driven. The majority of these rivers are low gradient and flow through unconfined glacial or alluvial valleys. July weekly mean temperature in cool medium rivers ranges from 19-22°C (66-72°F). These systems are found throughout the Lake Huron basin.

General Condition of Feature

This habitat is considered 60% in good to excellent condition, 25% in fair condition, and 15% in degraded to very degraded condition.

Associated Species of Greatest Conservation Need

MUSSELS

rainbow (*Villosa iris*)

INSECTS

Hungerford's crawling water be (*Brychius hungerfordi*)

FISH

lake sturgeon (*Acipenser fulvescens*)

mooneye (*Hiodon tergisus*)

brassy minnow (*Hybognathus hankinsoni*)

striped shiner (*Luxilus chrysocephalus*)

black redhorse (*Moxostoma duquesnei*)

FISH cont.

golden redhorse (*Moxostoma erythrurum*)

brown bullhead (*Ameiurus nebulosus*)

fantail darter (*Etheostoma flabellare*)

least darter (*Etheostoma microperca*)

channel darter (*Percina copelandi*)

river darter (*Percina shumardi*)

REPTILES

Specific associations with this landscape feature were not found in the literature

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
- Thermal changes: Increase in impervious surface due to paving and buildings

HABITAT CONVERSION

- 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)
- 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)
- Remove dams to rehabilitate natural hydrology (altered hydrologic regimes, altered sediment loads, 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, 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, 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, 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 effects (forestry 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)
- Strengthen water quality laws that relate to temperature (thermal changes)
- 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, thermal changes)
- Educate legislators, local planning boards, and other policy makers on the importance of natural processes (all threats)

Research and Survey Needs

- Determine mussel distributions
- Determine use of cool medium rivers by reptile SGCN
- Develop alternatives to current drainage practices
- Inventory dams and determine those which no longer serve a useful purpose
- Inventory erosion sites and conduct remediation activities
- Determine the number of groundwater withdrawals in the basin
- Determine stream temperatures in areas lacking data

Monitoring

- Dam operations
- Dredging and channelization
- Indicator species
- Riparian modification
- Sediment loading
- Stream modification
- Water temperature