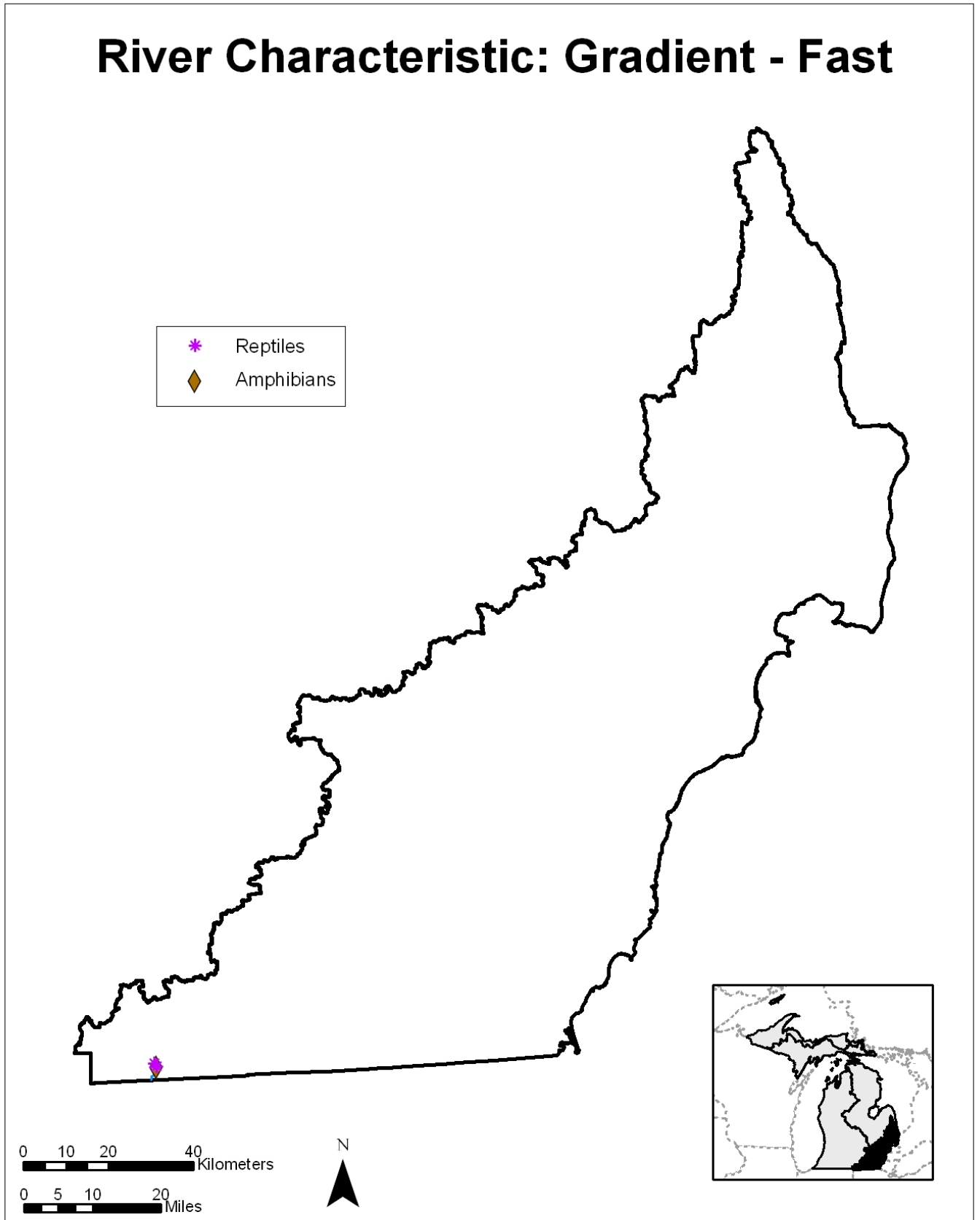


River Characteristic: Gradient - Fast



River Characteristic: Gradient – Fast

Description

Gradient is the general slope, or the change in vertical elevation per unit of horizontal distance, of the water surface in a flowing stream. The fast gradient category is defined as having a change in the vertical elevation of the water surface of a flowing stream ranging from 10.0-69.9 feet per mile.

General Condition of Feature

This habitat is considered 20% in good to excellent condition, 30% in fair condition, and 40% in degraded to very degraded condition.

Associated Species of Greatest Conservation Need

MUSSELS

snuffbox (*Epioblasma triquetra*)

INSECTS

a sand minnow mayfly (*Siphloplecton basale*)

rapids clubtail (*Gomphus quadricolor*)

FISH

lake sturgeon (*Acipenser fulvescens*)

silver chub (*Macrhybopsis storeriana*)

river chub (*Nocomis micropogon*)

silver shiner (*Notropis photogenis*)

river redhorse (*Moxostoma carinatum*)

black redhorse (*Moxostoma duquesnei*)

FISH cont.

golden redhorse (*Moxostoma erythrurum*)

stonecat (*Noturus flavus*)

northern madtom (*Noturus stigmosus*)

eastern sand darter (*Ammocrypta pellucida*)

fantail darter (*Etheostoma flabellare*)

AMPHIBIANS

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

REPTILES

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

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Development causing runoff changes (usually faster) and loss of recharge areas; Altered flow regime due to urbanization
- Fragmentation

POLLUTION

- Altered sediment loads: Bank erosion and riparian sediment erosion into stream; Sedimentation
- Thermal changes: Altered temp regime

HABITAT CONVERSION

- Dams
- Dredging and channelization: Channelization
- Riparian modification: Loss of natural floodplain; Altered banks; Riparian corridor vegetation removal and changes; Loss of woody debris

Conservation Actions Needed (Threats addressed)

LAND, WATER & SPECIES MANAGEMENT

- Allow seasonal flooding (altered hydrologic regimes)
- Protect and rehabilitate groundwater recharge (altered hydrologic regimes)
- Rehabilitate original hydrologic functions (i.e., connect meanders, throughflow, wetlands) (altered hydrologic regimes)
- Rehabilitate, maintain, and protect wetlands and riparian buffers (altered hydrologic regimes, altered sediment loads, thermal changes, riparian modification)
- Use sediment barriers and Best management practices during road and stream crossing construction (altered sediment loads)
- Work with road commissions to site and maintain stream crossings (altered hydrologic regimes, altered sediment loads)

LAW & POLICY

- Avoid stream relocations (dredging and channelization)
- Protect the public trust by requiring dam owners to make appropriate financial provisions for future dam removal or perpetual maintenance (dams)
- Remove unnecessary dams and stream enclosures to rehabilitate natural hydrologic flow and functions (altered hydrologic regimes, dams)
- Restrict dredging and channelization during fish spawning and migration periods and around mussel beds (dredging and channelization)

- Work with Drain Commissioners to use natural channel processes to allow a river to manage sediment and flow and decrease the amount of channelization needed (altered hydrologic regimes, altered sediment loads, dredging and channelization, riparian modification)
- Work with local officials on setback and buffer ordinances (riparian modification)
- Work with planning and zoning boards to establish zoning and setback regulations (variety of threats)

Research and Survey Needs

- Determine life history requirements for SGCN associated with fast gradient
- Determine the number and condition of road crossings
- Determine the number of unnecessary dams and stream enclosures
- Explore other options to dams
- Model hydrologic flow

Monitoring

- Dam operations
- Riparian buffers
- Stream crossings (types of bridges and culverts being used, erosion sites, etc.)