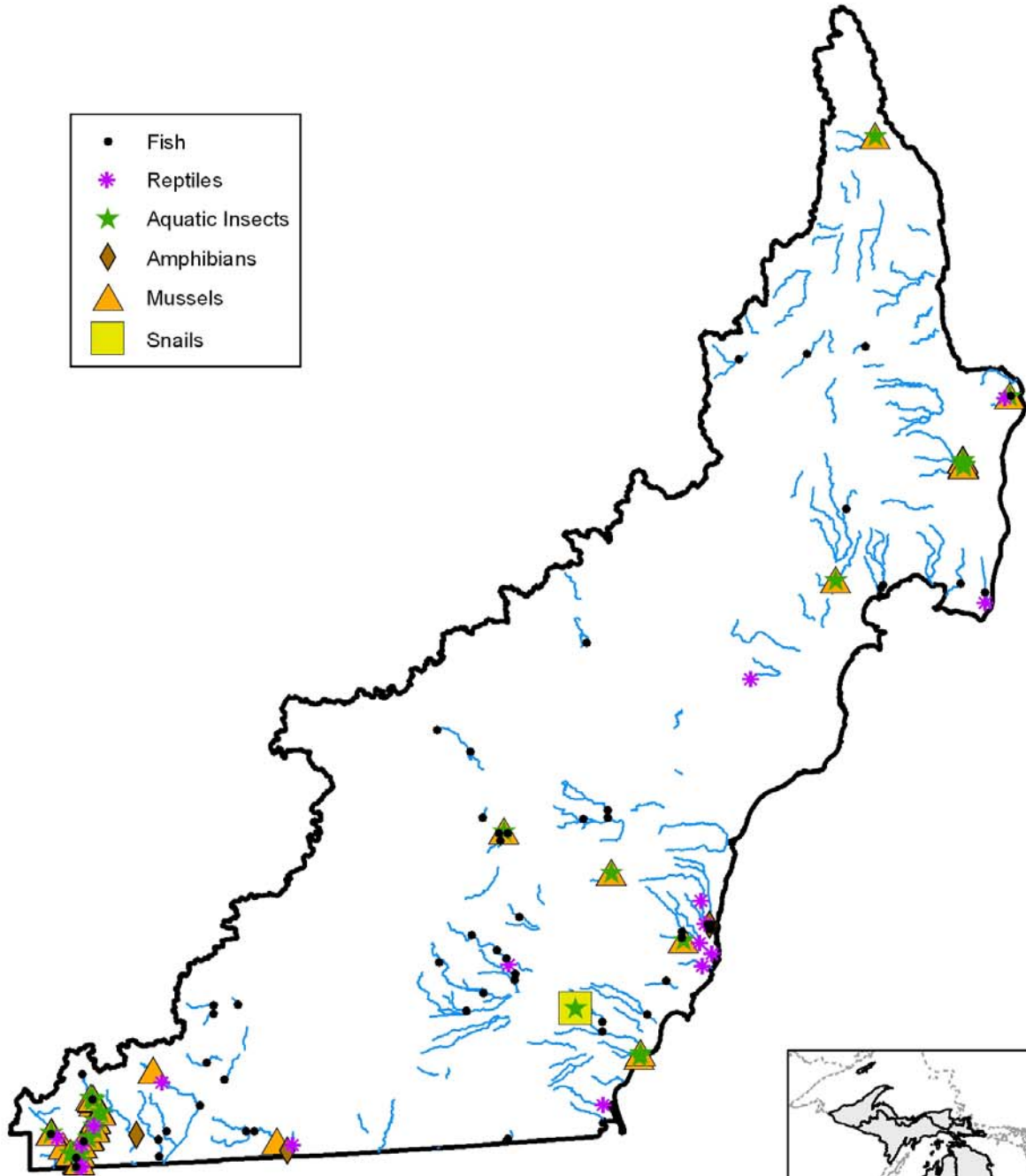


# Rivers: Warm headwaters/small tributaries

- Fish
- \* Reptiles
- ★ Aquatic Insects
- ◆ Amphibians
- ▲ Mussels
- Snails



## Rivers: Warm 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.

Warm headwater streams and small tributaries are generally low-gradient, runoff-driven systems that pass through unconfined alluvial valleys, but tend to have lower baseflows and higher peak flows than cool headwater systems. July weekly mean temperatures in these systems are greater than 22°C (72°F). These systems are very common in the flat lacustrine clay and silt plains of the Lake Erie basin.

### General Condition of Feature

This habitat is considered 25% in good to excellent condition, 40% in fair condition, and 35% in degraded to very degraded condition.

### Associated Species of Greatest Conservation Need

#### MUSSELS

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

#### SNAILS

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

#### INSECTS

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

#### FISH

striped shiner (*Luxilus chrysocephalus*)  
pugnose shiner (*Notropis anogenus*)  
southern redbelly dace (*Phoxinus erythrogaster*)

#### FISH cont.

western creek chubsucker (*Erimyzon claviformis*)  
grass pickerel (*Esox americanus*)  
eastern sand darter (*Ammocrypta pellucida*)  
fantail darter (*Etheostoma flabellare*)  
least darter (*Etheostoma microperca*)

#### 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: Dewatering; Draining wetlands; Increased runoff due to urbanization; Storm water management; Instream retention; Enclosed streams
- Fragmentation

#### POLLUTION

- Altered nutrient inflows: Surface runoff - nutrients
- Altered sediment loads: Bank erosion; Siltation
- Pesticides and herbicides: (low threat)
- Thermal changes: Altered temperature regime
- Urban, municipal, and industrial pollution: (low threat)

#### HABITAT CONVERSION

- Dams
- Dredging and channelization: Headwater tributary channel filling by urban development
- Riparian modification: Urban development alters riparian zones
- Wetland modification: Loss of wetlands (low threat)

#### EDUCATION

- Social attitudes: 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)
- Decrease amount of impervious surfaces (altered hydrologic regimes)

## **MICHIGAN'S WILDLIFE ACTION PLAN**

### **AQUATIC SYSTEMS: LAKE ERIE BASIN**

- Maintain or establish riparian buffers to at least 50 ft., however 500 ft provides for better conservation value (riparian modification)
- Maintain wetlands and small feeder creeks (altered hydrologic regimes, wetland modification)
- Protect or rehabilitate hydrologic stream and wetland functions (altered hydrologic regimes, wetland modification)
- Rehabilitate streams to original flow paths (altered hydrologic regimes)
- Use sediment barriers and Best management practices during road and stream crossing constructions (altered sediment loads)
- Work with road commission to site new stream crossings and rehabilitate eroding ones (altered hydrologic regimes, altered sediment loads)

#### **LAW & POLICY**

- Discourage water withdrawals in flow limited situations (altered hydrologic regimes)
- Continue working with and educating Drain Commissioners (social attitudes)
- Require maintained septic systems (altered nutrient inflows)
- Remove unnecessary dams (dams, fragmentation)
- Operate remaining dams to provide for run-of-the river flows (altered hydrologic regimes, dams)
- Protect the public trust by requiring dam owners to make appropriate financial provision for future dam removal (dams)
- Work with local governments to develop planning and zoning regulations that consider natural streams (altered hydrologic regimes, altered sediment loads, riparian modification)
- Work with local officials on setback and buffer ordinances (riparian modification)

#### **EDUCATION & AWARENESS**

- Educate legislators, local planning boards, and other policy makers on the importance of natural processes (social attitudes)
- Educate private land owners 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**

- Create hydrologic models of warm headwaters and small tributaries and their watersheds
- Determine SGCN use of warm headwaters, especially mussels, snails, aquatic insects, amphibians, and reptiles
- Determine extent of riparian corridors
- Determine ways of decreasing imperviousness in a watershed
- Explore other options to dams

#### **Monitoring**

- Effluent discharges: waste water treatment plants, septic systems, industrial
- Filling of streams and wetlands
- Indicator species
- Riparian buffers
- Stream enclosures