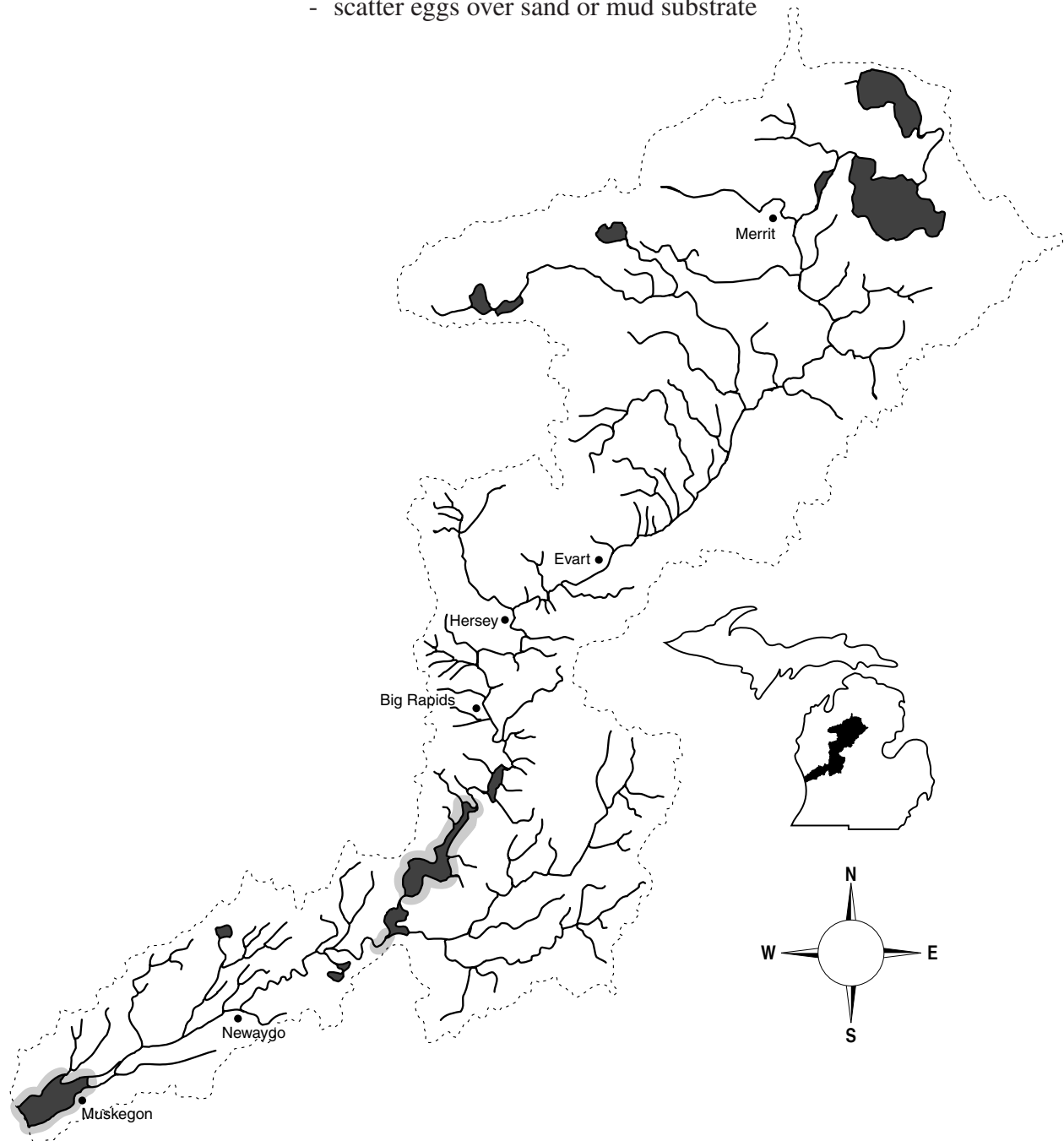


Quillback (*Carpoides cyprinus*)

Habitat:

- feeding - clear to turbid water
- sand, sandy gravel, sandy silt, or clay-silt substrate
- medium- to low-gradient rivers and streams; also lakes and sloughs

- spawning - streams or overflow areas of bends of rivers or bays of lakes
- scatter eggs over sand or mud substrate



Longnose sucker (*Catostomus catostomus*)

Habitat:

- feeding - clear, cold rivers and lakes

- spawning - in streams or lake shallows
 - current
 - gravel substrate

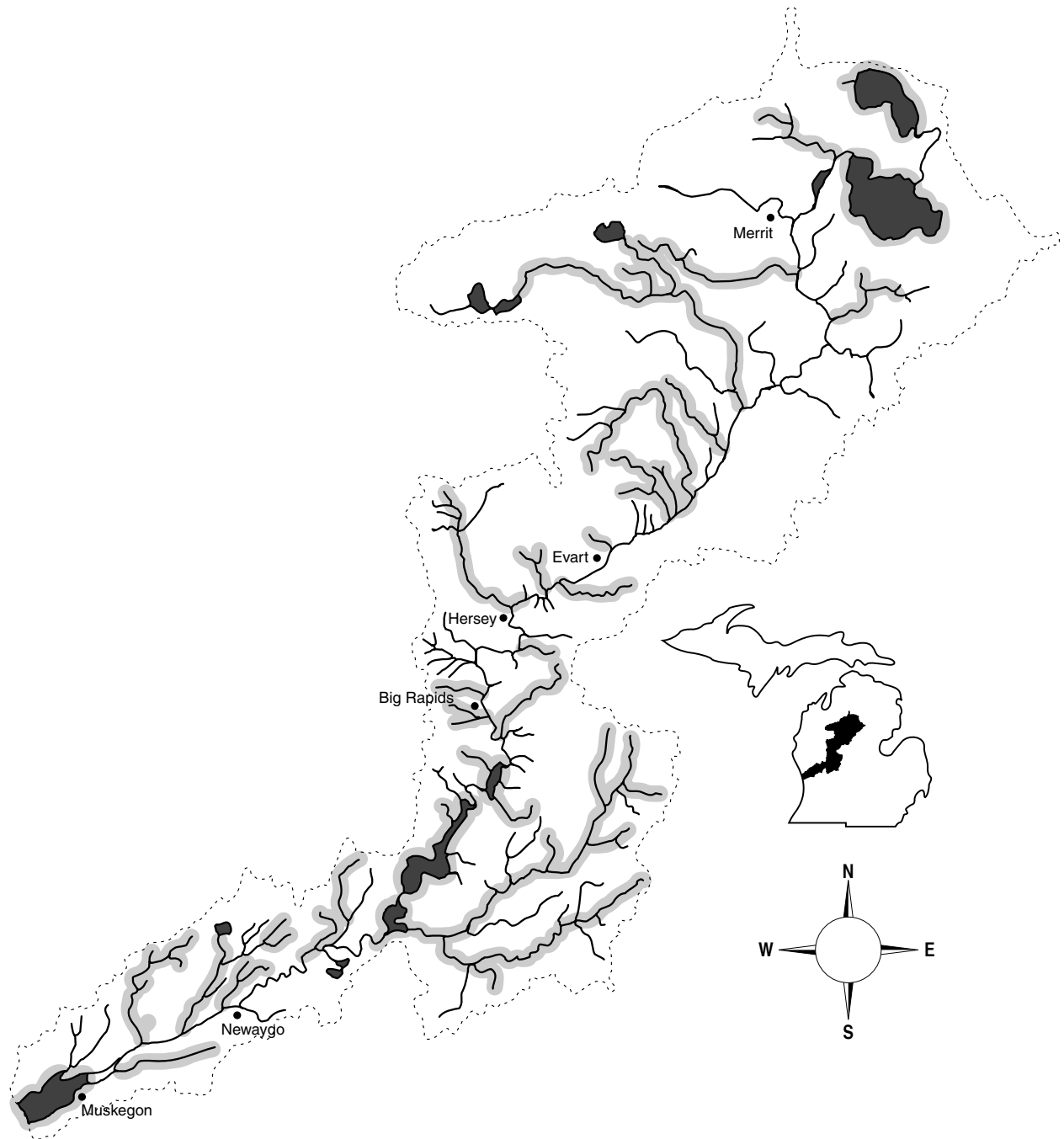


White sucker (*Catostomus commersoni*)

Habitat:

- feeding - streams, rivers, lakes, and impoundments
- can inhabit highly turbid and polluted waters

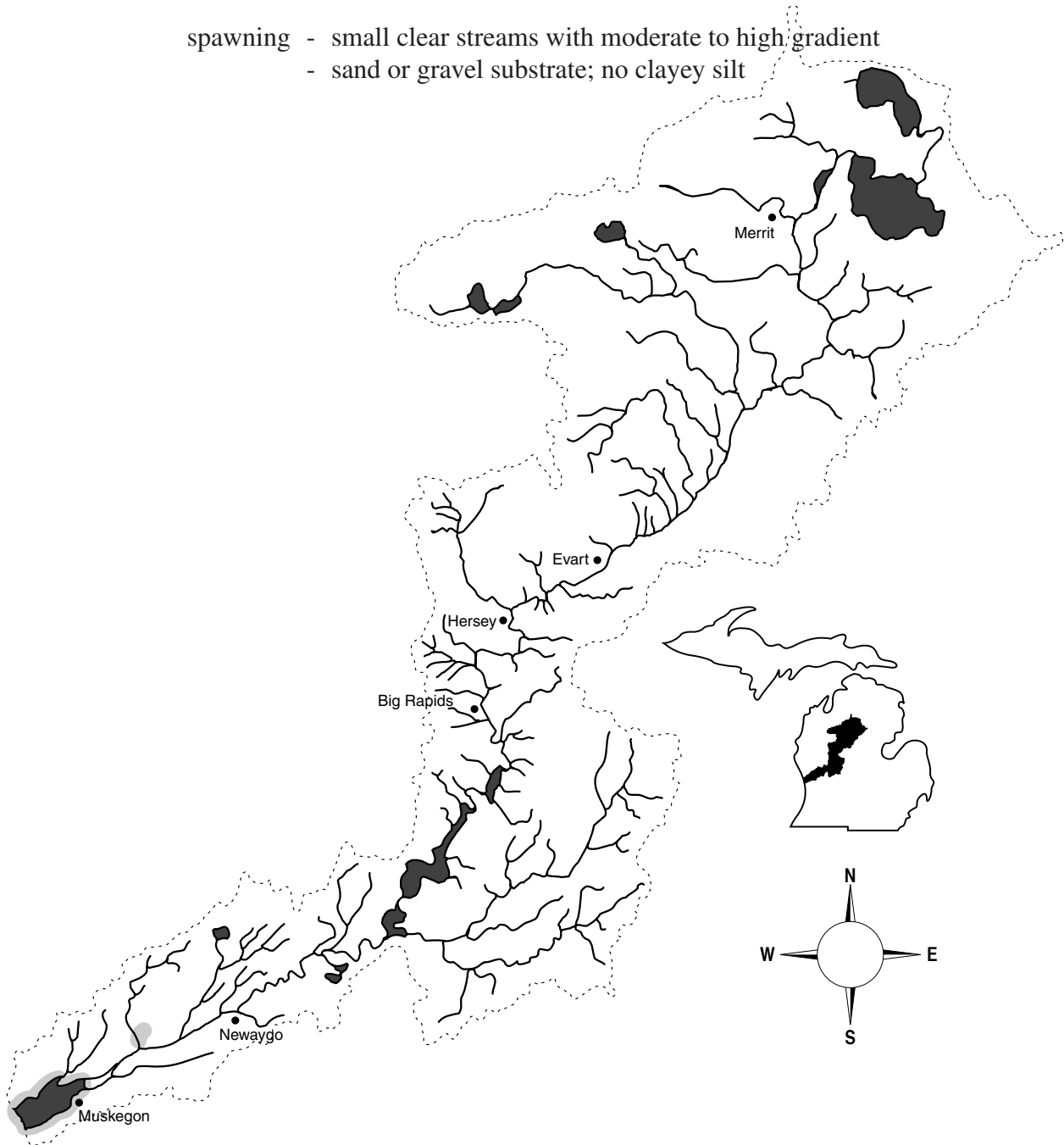
- spawning - quiet gravelly shallow areas of streams



Lake chubsucker (*Erimyzon sucetta*)

Habitat:

- feeding
 - larger clear streams, rivers, lakes, and impoundments
 - cannot tolerate turbid water
 - low gradient
 - prefers dense vegetation over substrate of sand or silt mixed with organic debris
- spawning
 - small clear streams with moderate to high gradient
 - sand or gravel substrate; no clayey silt



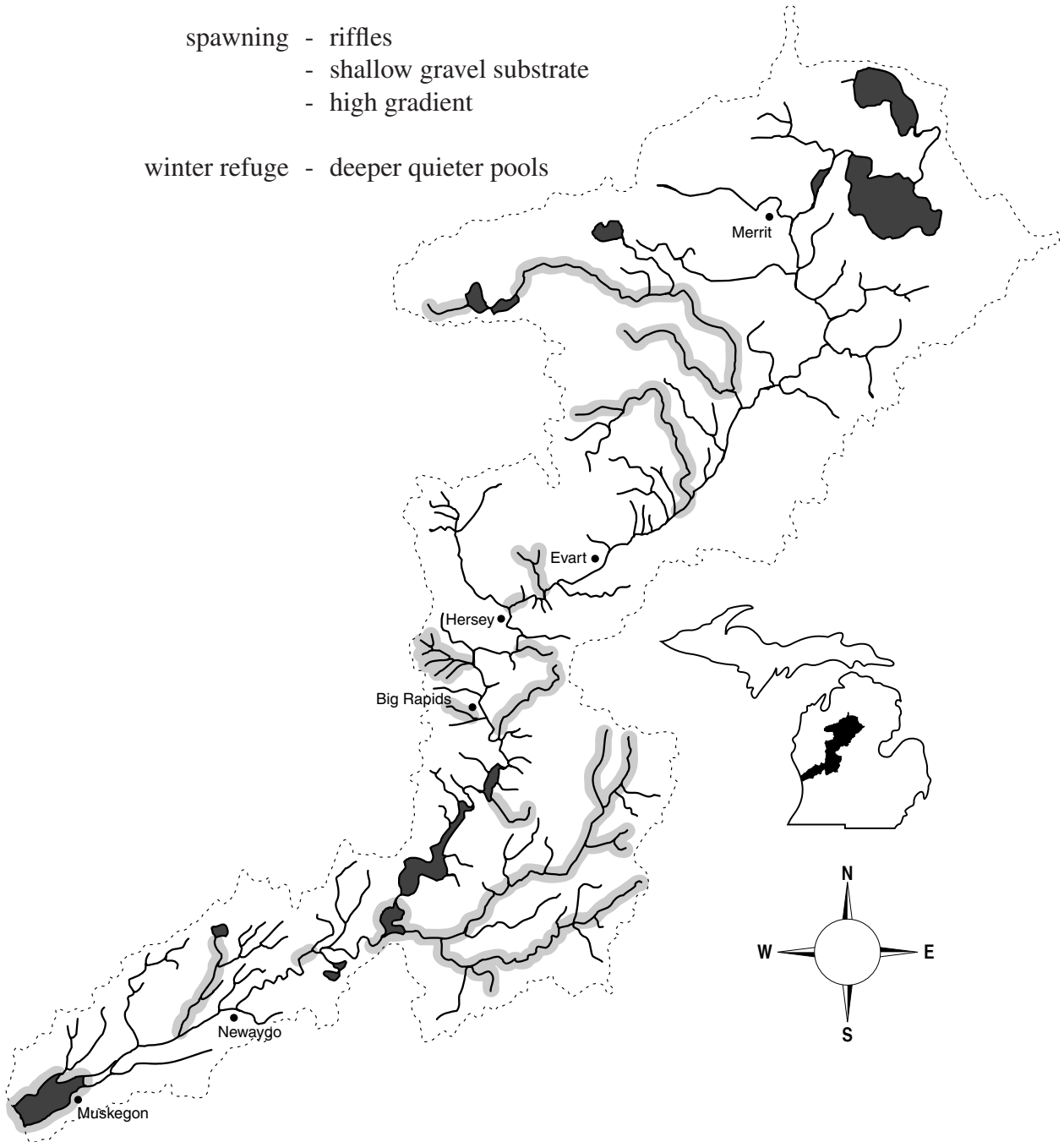
Northern hog sucker (*Hypentelium nigricans*)

Habitat:

- feeding
 - gravel or rubble substrate
 - riffles and adjacent pools of warm shallow streams
 - clear water
 - doesn't like turbidity or siltation
 - avoids profuse amounts of aquatic vegetation

- spawning
 - riffles
 - shallow gravel substrate
 - high gradient

- winter refuge
 - deeper quieter pools

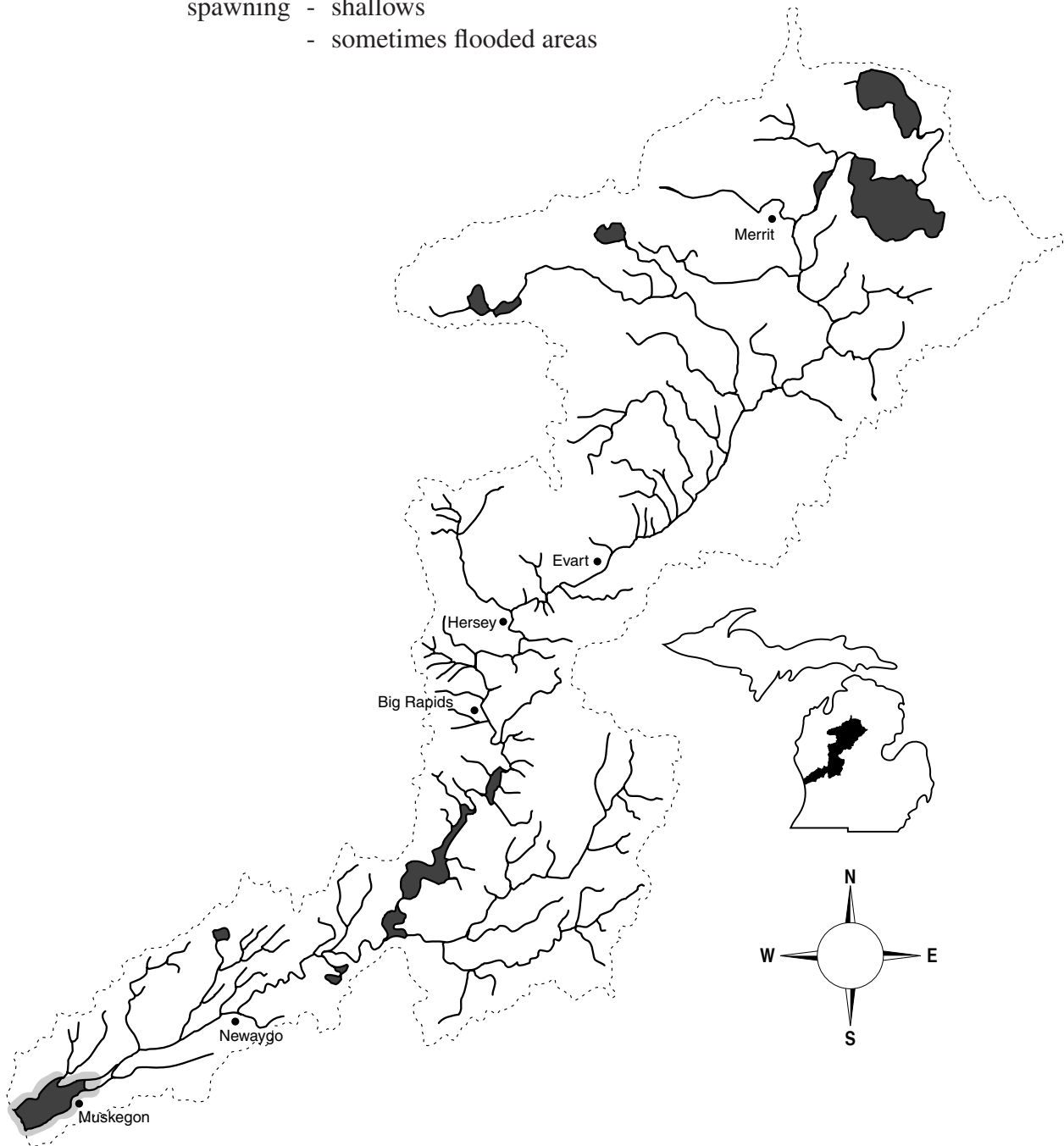


Black buffalo (*Ictiobus niger*)

Habitat:

- feeding - large rivers
- deep fast riffles
- occasionally shallow overflow ponds and sloughs
- varying turbidity over various substrates

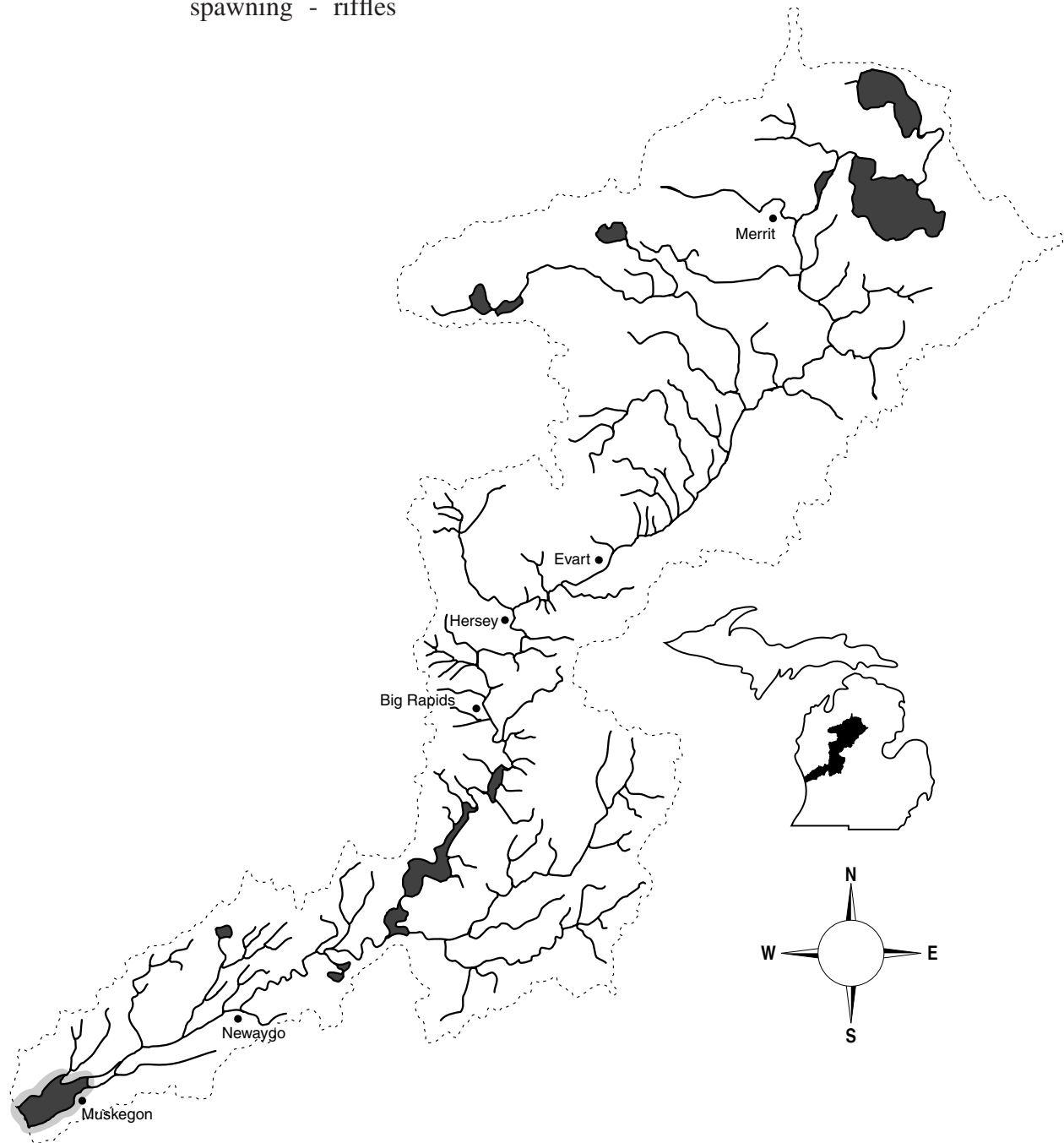
- spawning - shallows
- sometimes flooded areas



Spotted sucker (*Minytrema melanops*)

Habitat:

- feeding - clear warm rivers (pools, backwaters) with little current
 - abundant vegetation
 - soft substrate with organic debris
 - intolerant of turbidity
- spawning - riffles

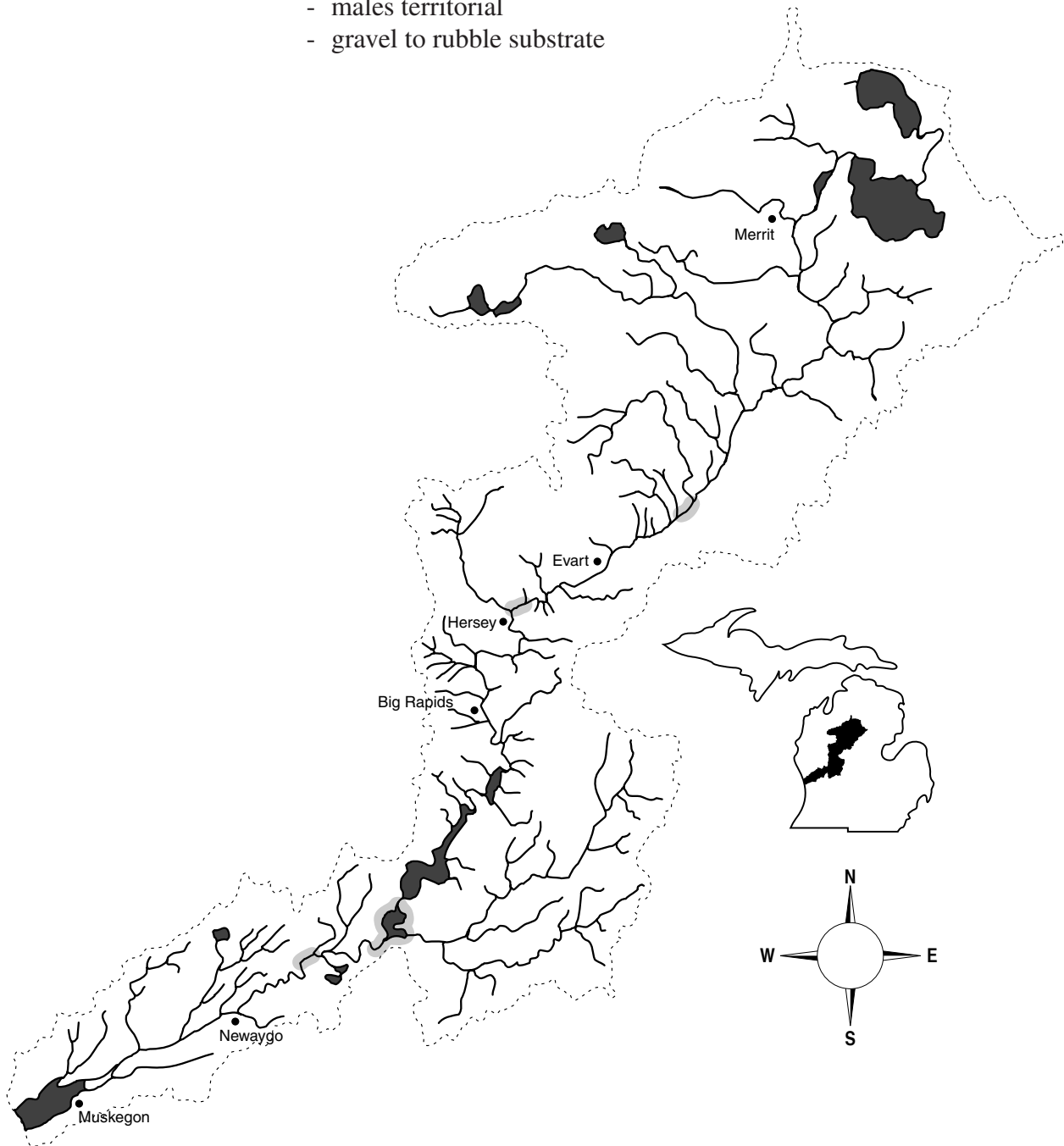


Silver redhorse (*Moxostoma anisurum*)

Habitat:

- feeding - streams, rivers, lakes, and impoundments
- low current
- pollution and turbidity intolerant

- spawning - swift current in rivers, do not spawn in tributaries
- males territorial
- gravel to rubble substrate

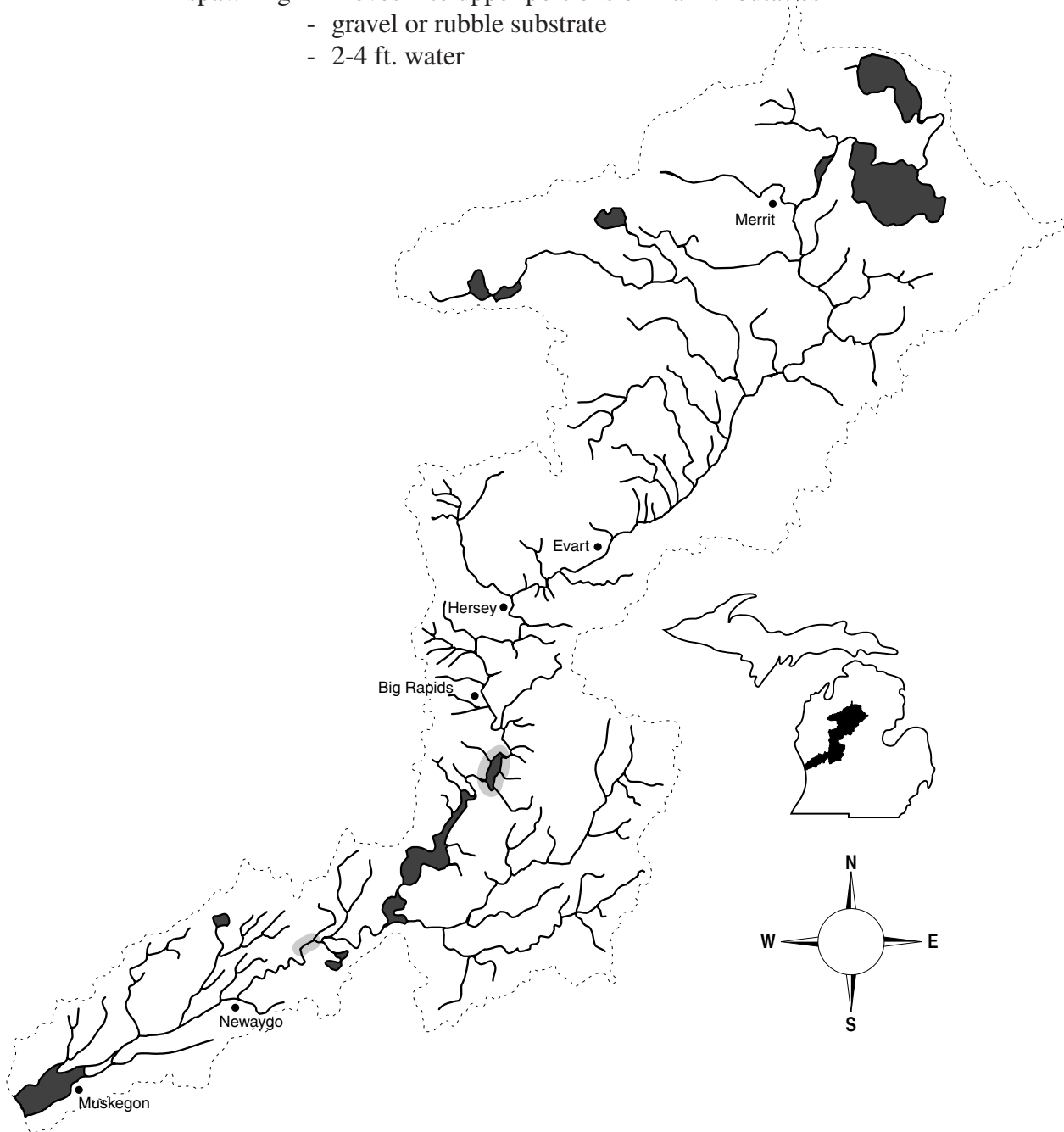


River redhorse (*Moxostoma carinatum*) - threatened

Habitat:

- feeding
 - hard silt-free substrate such as gravel and rubble
 - moderate to fast current
 - large rivers, lower portions of main tributaries, reservoirs, and pools

- spawning
 - moves into upper portions of main tributaries
 - gravel or rubble substrate
 - 2-4 ft. water



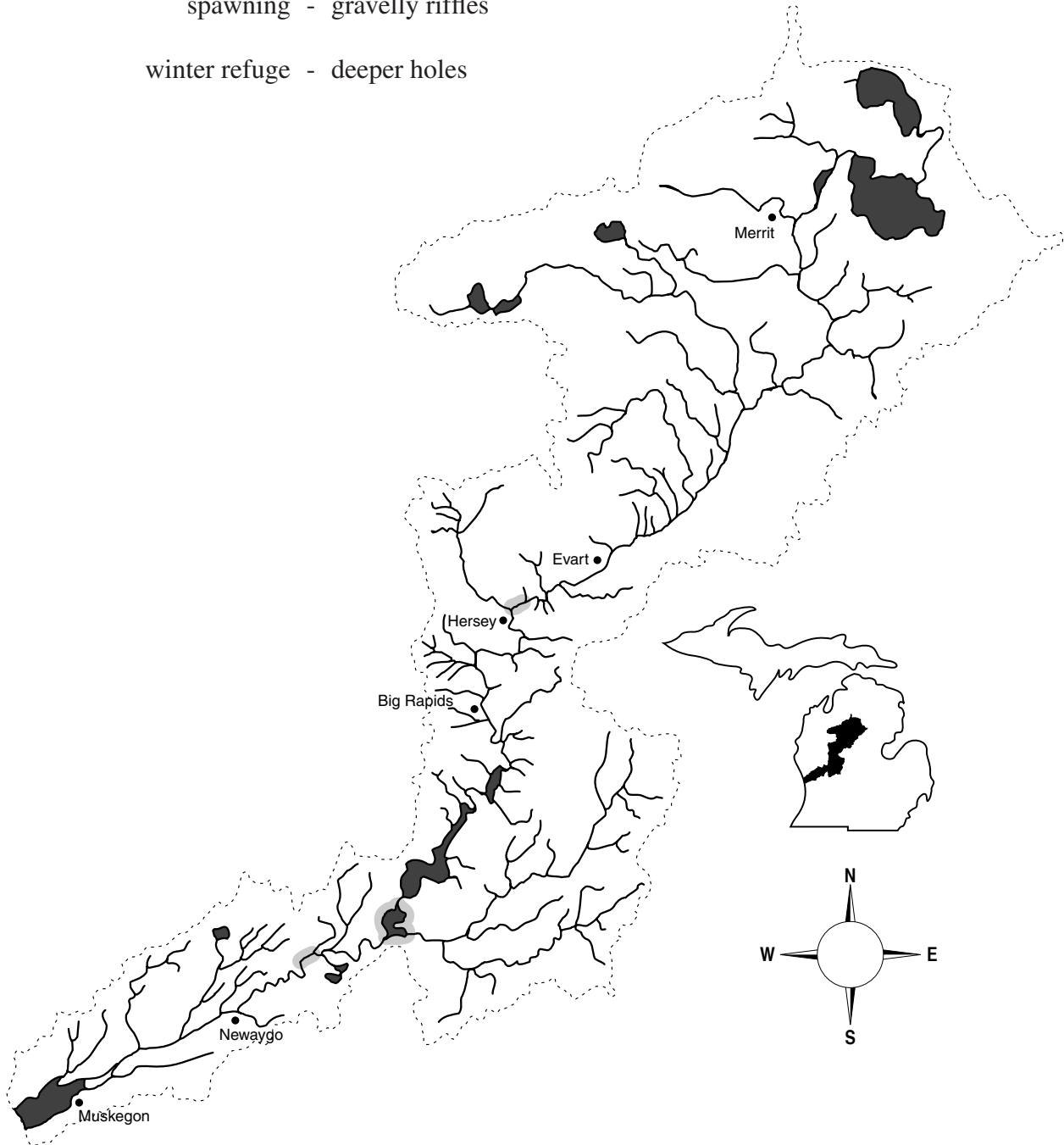
Black redhorse (*Moxostoma duquesnei*)

Habitat:

- feeding - gravel substrate
- clear water, intolerant of siltation, turbidity, and low gradients
- medium size streams
- cooler swifter streams and short rocky pools with current

- spawning - gravelly riffles

- winter refuge - deeper holes



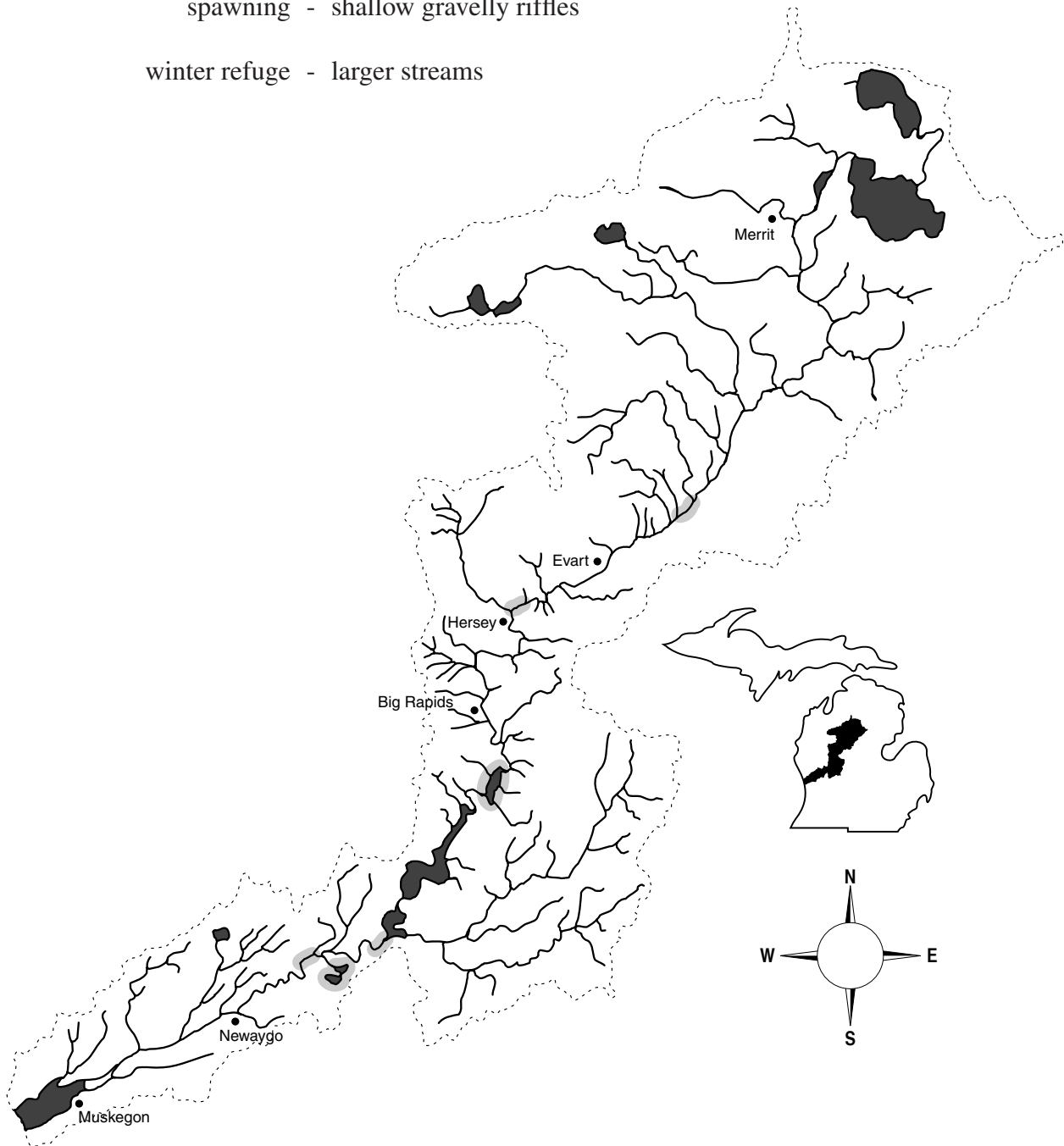
Golden redhorse (*Moxostoma erythrurum*)

Habitat:

- feeding - warm medium gradient streams and rivers
- clear riffly streams
- medium size streams and rivers
- tolerates some turbidity and silt

- spawning - shallow gravelly riffles

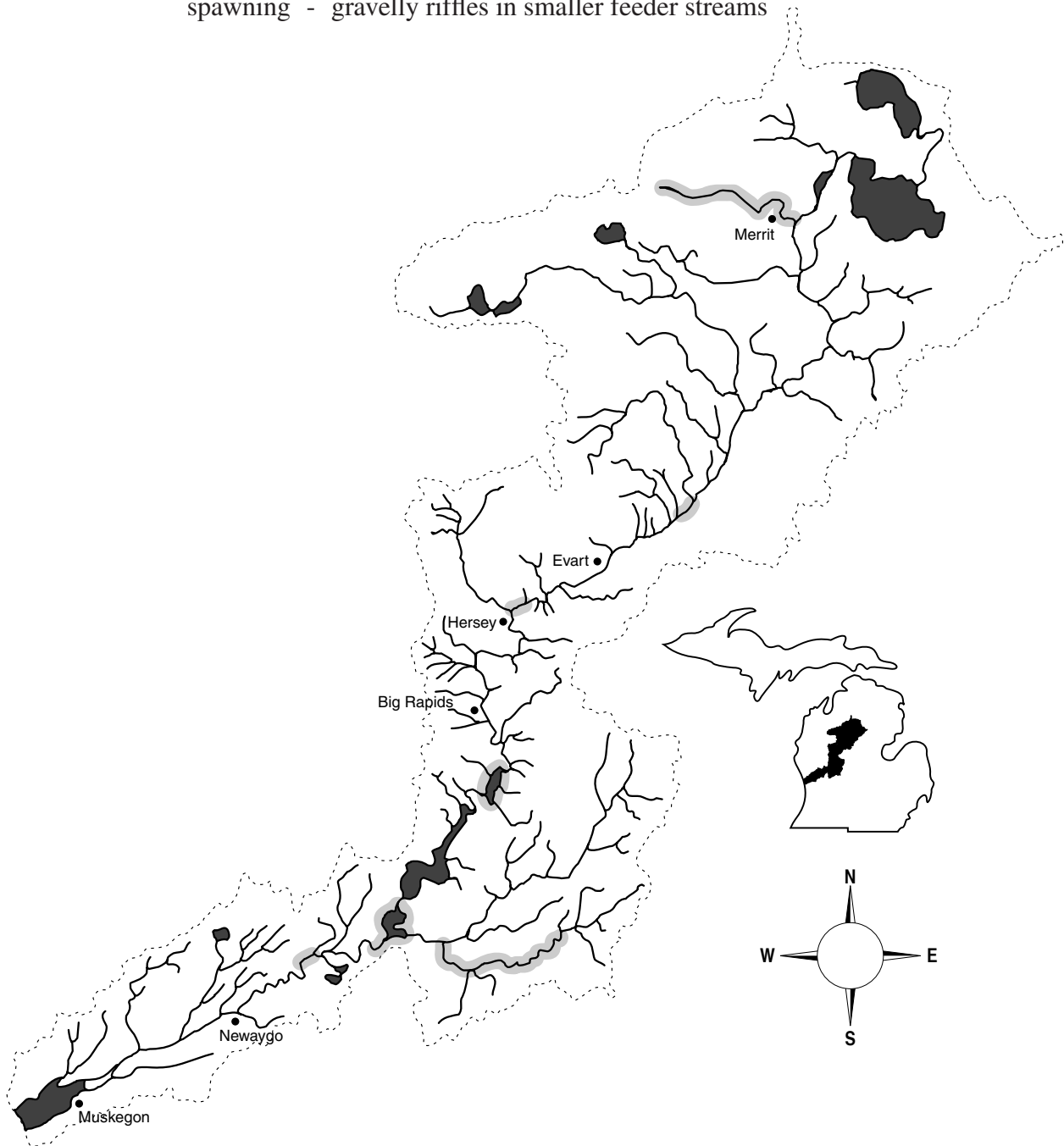
- winter refuge - larger streams



Shorthead redhorse (*Moxostoma macrolepidotum*)

Habitat:

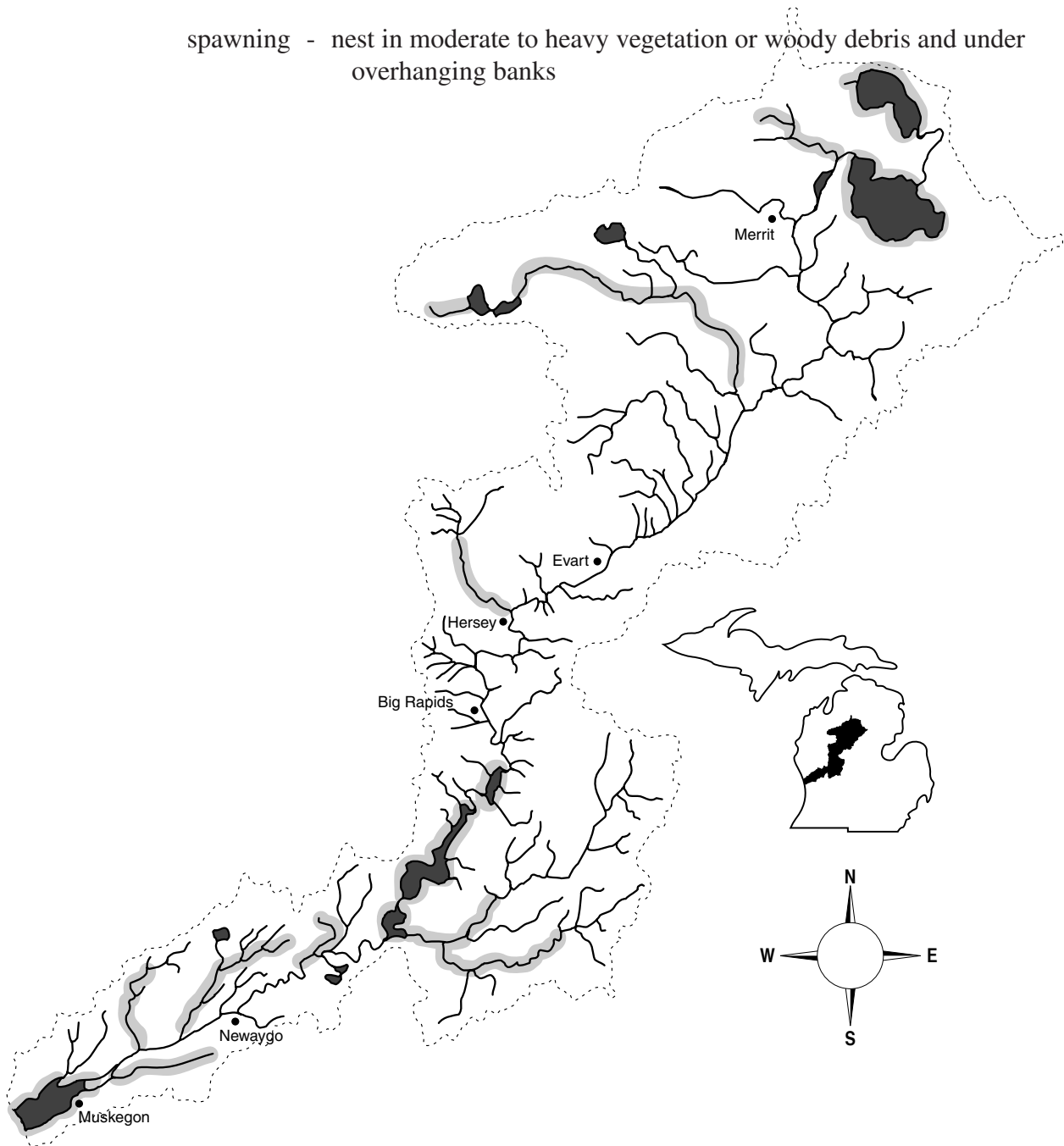
- feeding - downstream sections of large rivers, lakes, and impoundments
 - rocky substrates
 - swift water near riffles
 - clear to slightly turbid water
- spawning - gravelly riffles in smaller feeder streams



Black bullhead (*Ameiurus melas*)

Habitat:

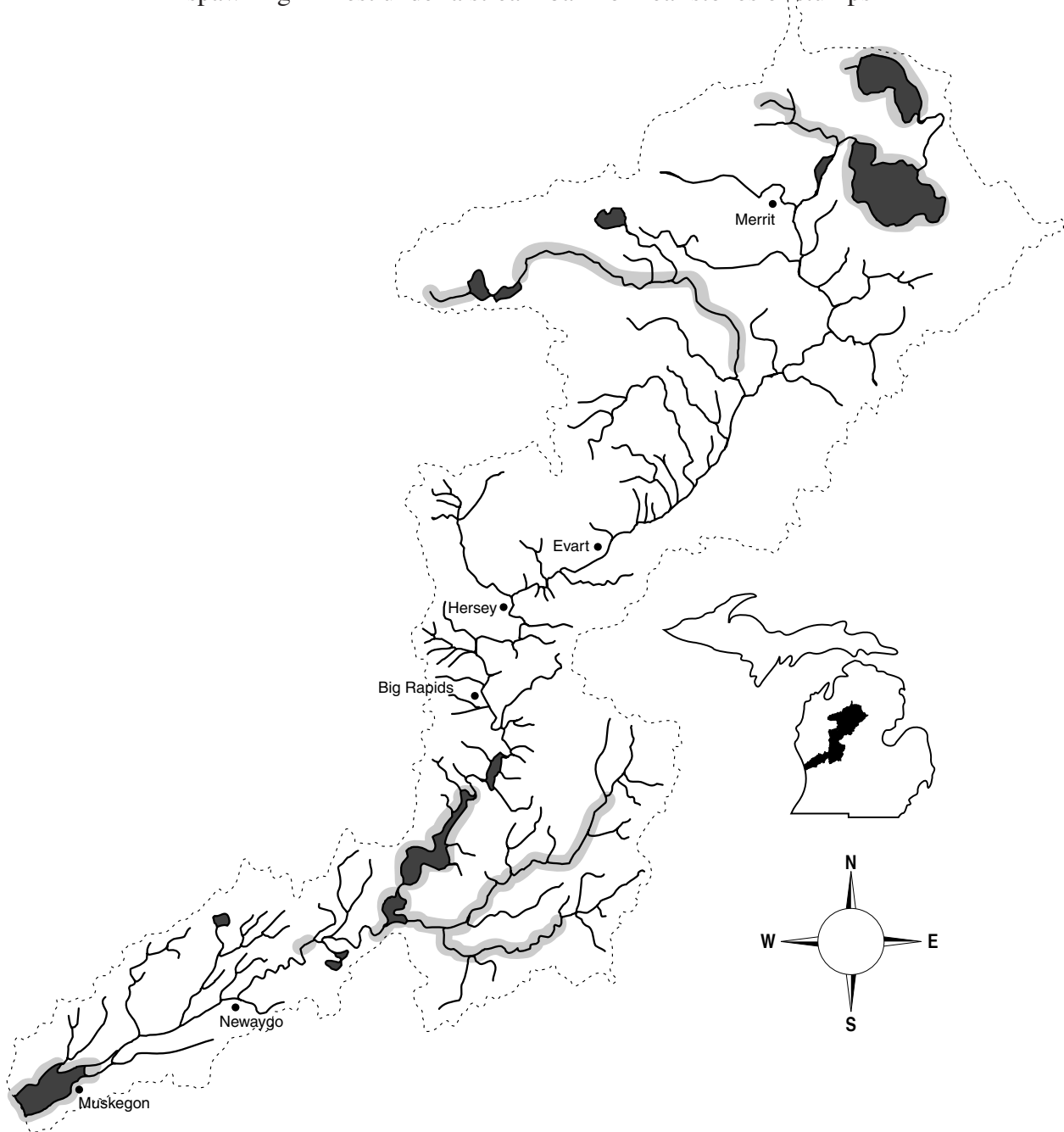
- feeding - turbid water
 - silt bottom
 - low gradient small to medium streams, pools, and headwaters of large rivers; also in lakes and impoundments
 - can tolerate very warm water and very low dissolved oxygen
- spawning - nest in moderate to heavy vegetation or woody debris and under overhanging banks



Yellow bullhead (*Ameiurus natalis*)

Habitat:

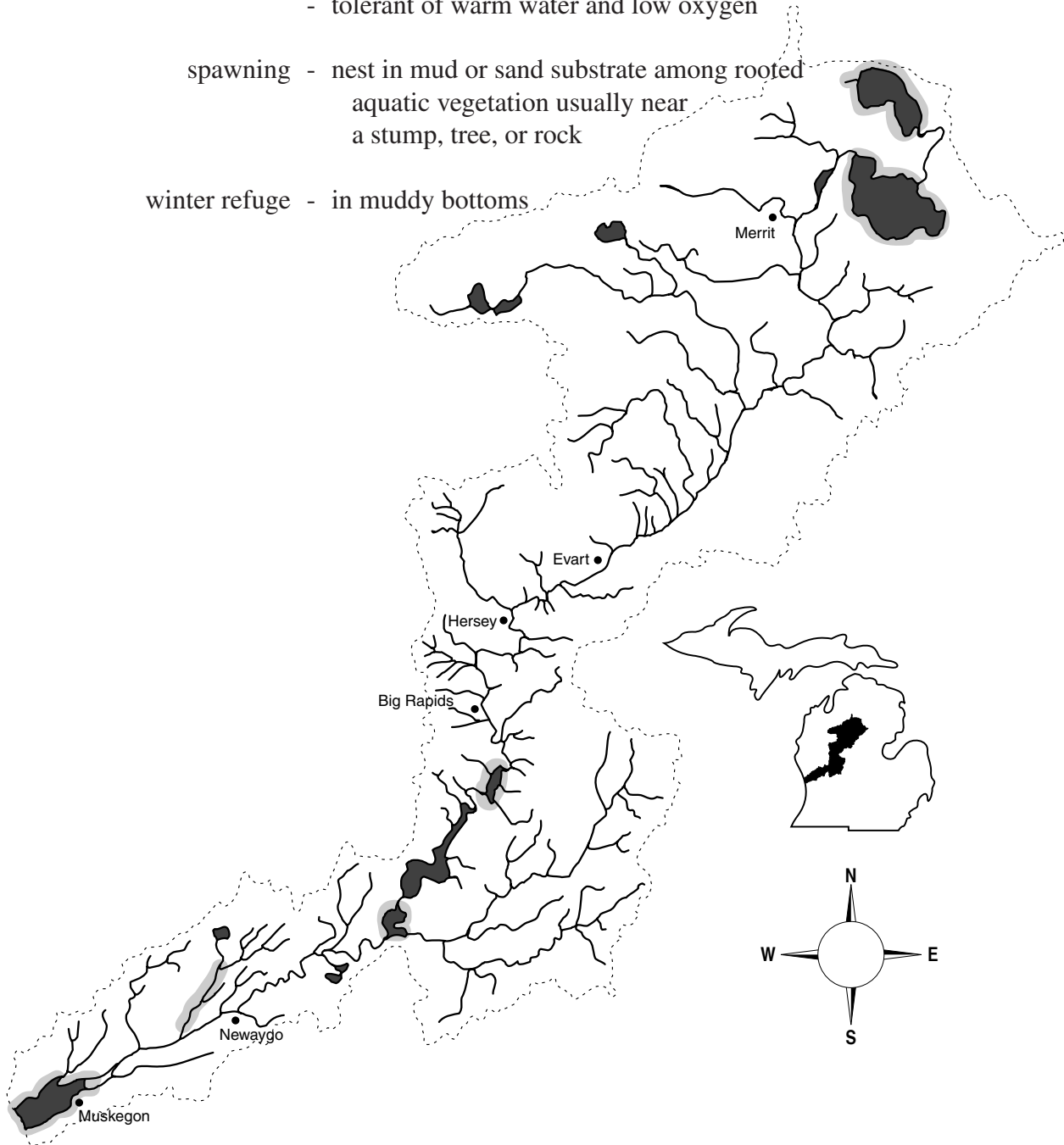
- feeding - clear flowing water
 - heavy vegetation
 - low gradient streams, lakes, and impoundments
 - tolerant of low oxygen
- spawning - nest under a stream bank or near stones or stumps



Brown bullhead (*Ameiurus nebulosus*)

Habitat:

- feeding
 - larger streams and rivers, lakes and impoundments
 - clear cool water with little clayey silt
 - moderate amounts of aquatic vegetation
 - sand, gravel, or muck substrate
 - not tolerant of turbid water
 - tolerant of warm water and low oxygen
- spawning
 - nest in mud or sand substrate among rooted aquatic vegetation usually near a stump, tree, or rock
- winter refuge
 - in muddy bottoms

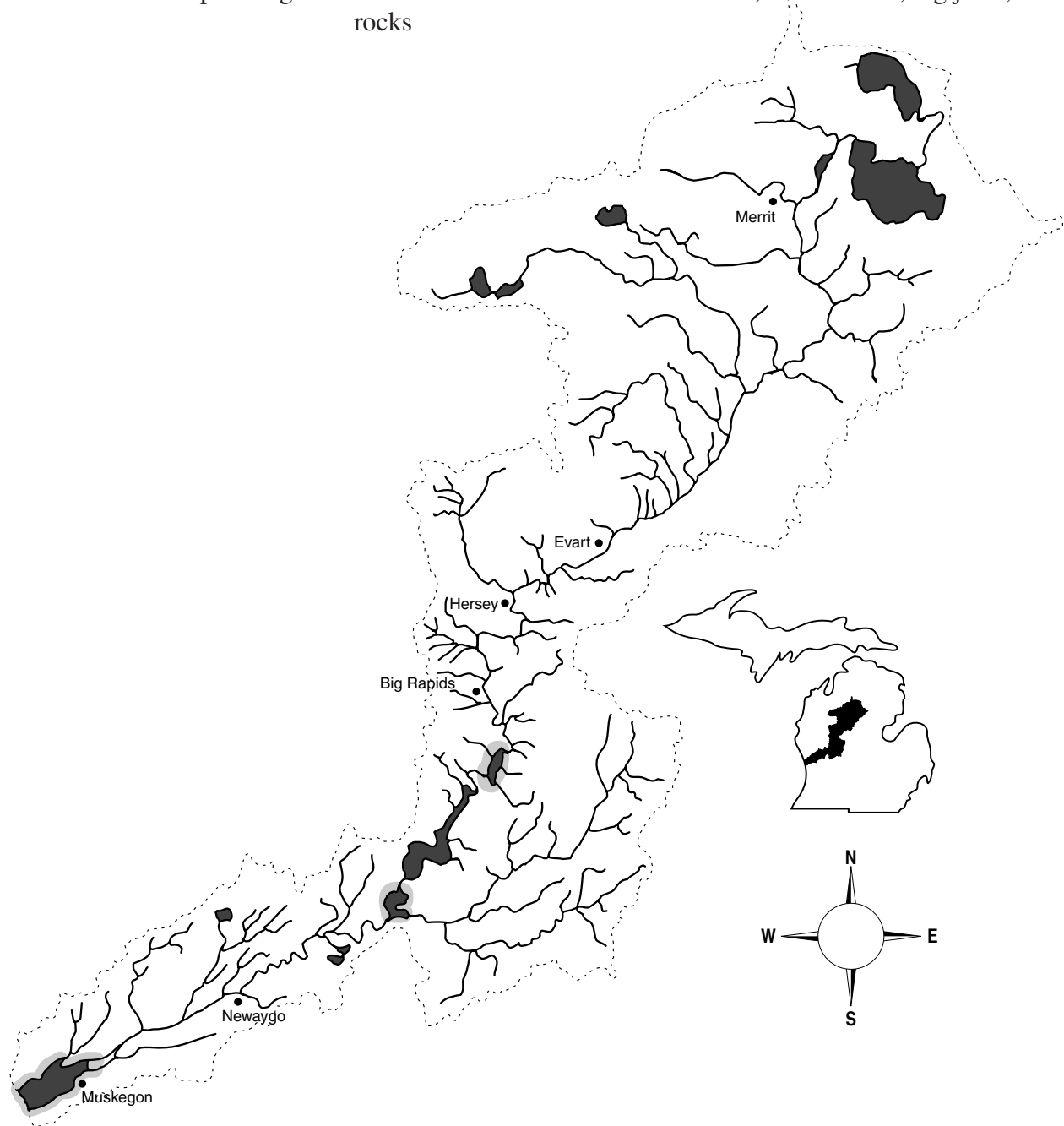


Channel catfish (*Ictalurus punctatus*)

Habitat:

- feeding - moderately-clear, deeper waters of rivers, lakes, and impoundments
 - sand, gravel, or rubble substrate
 - low to moderate gradient

- spawning - secluded semi-dark areas such as holes, under banks, log jams, or rocks

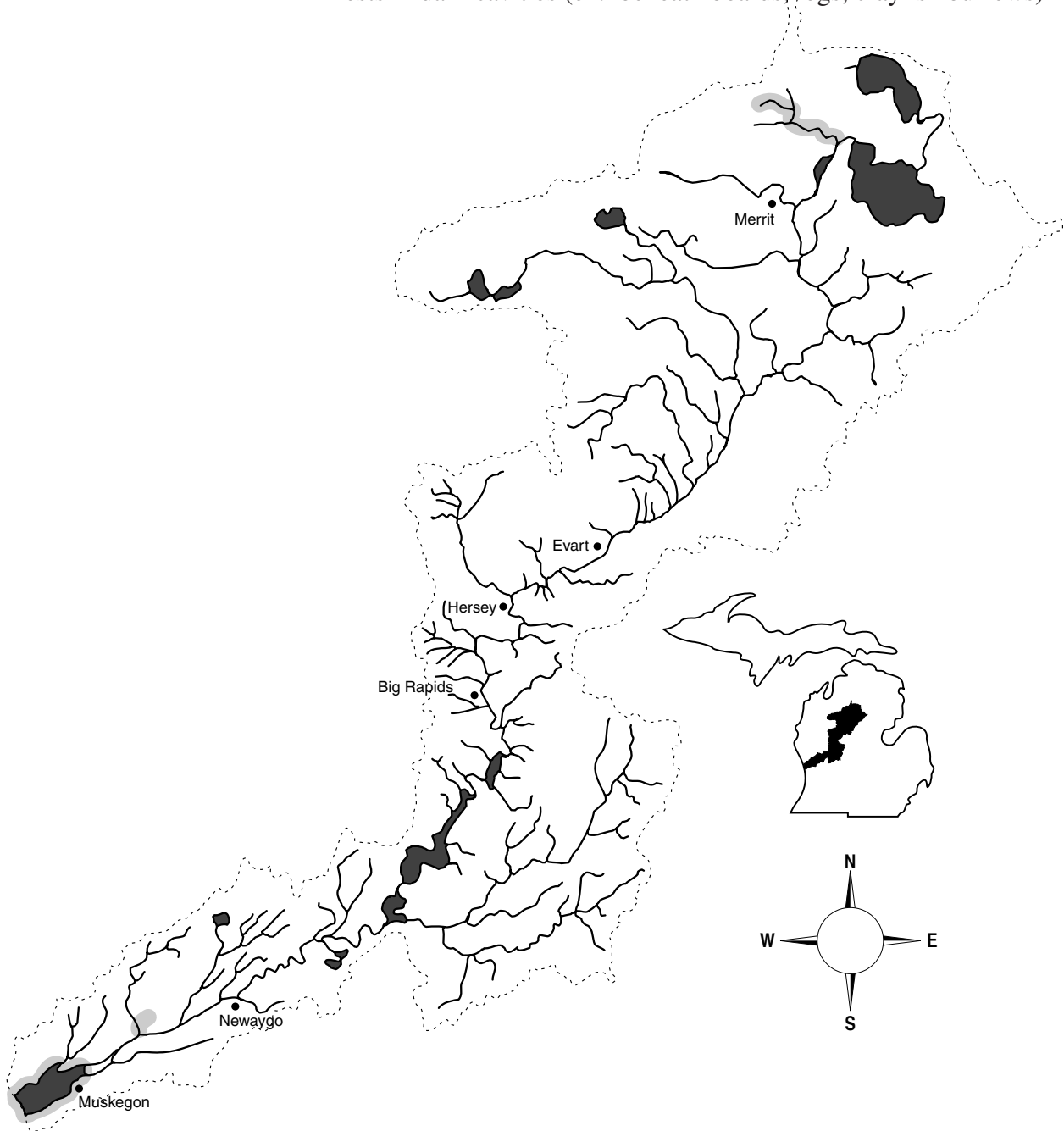


Tadpole madtom (*Noturus gyrinus*)

Habitat:

- feeding
 - vegetative cover in low-moderate current waters
 - muddy substrate with extensive vegetation
 - clear waters of streams, rivers, and lakes

- spawning
 - mostly in rivers, sometimes shallows of lakes
 - nests in dark cavities (ex: beneath boards, logs, crayfish burrows)



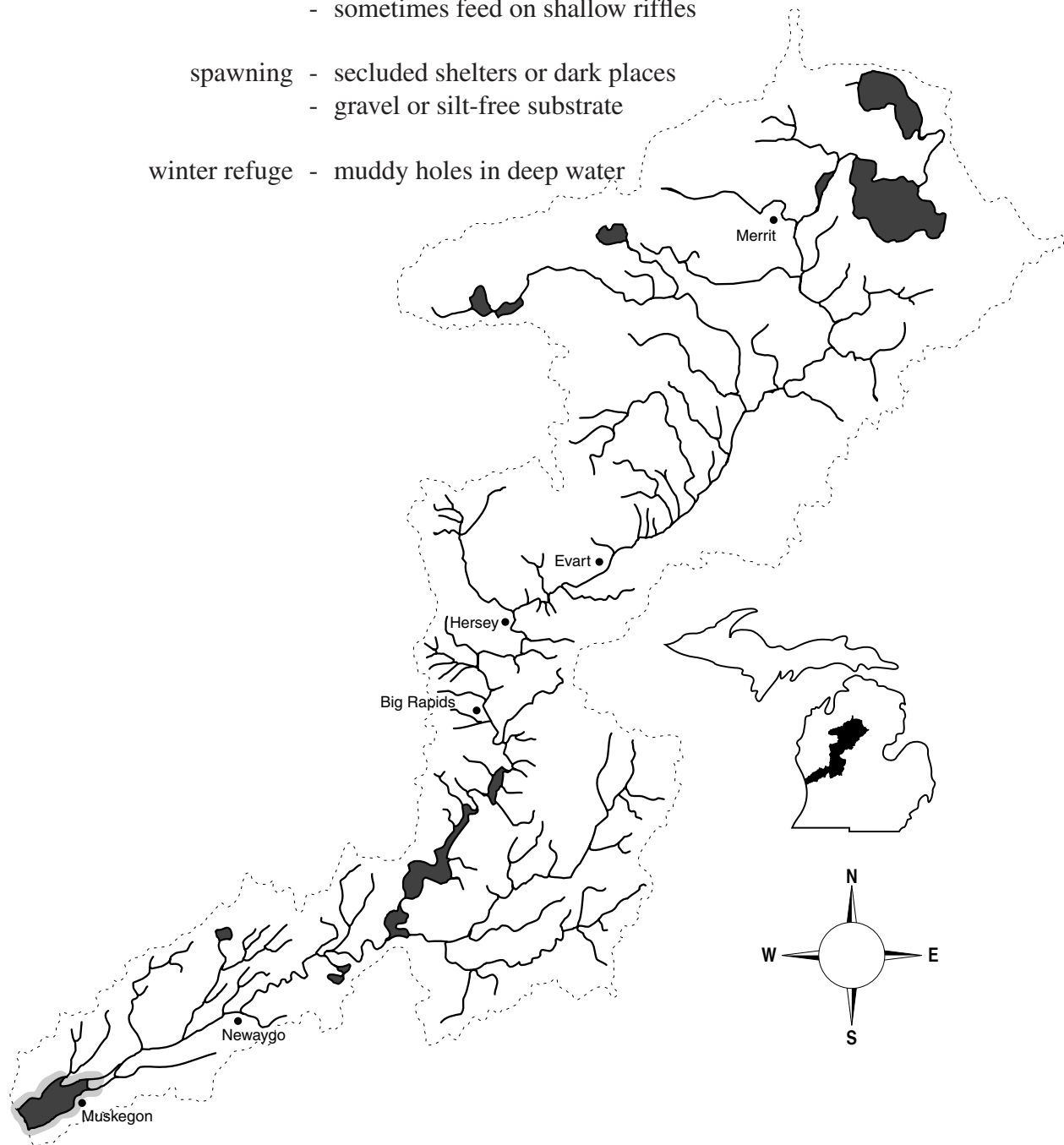
Flathead catfish (*Pylodictis olivaris*)

Habitat:

- feeding
 - (young) shallow riffles in fast current
 - deep pools with a lot of woody cover
 - deep riffles
 - low gradient and current
 - prefer silt-free substrate
 - sometimes feed on shallow riffles

- spawning
 - secluded shelters or dark places
 - gravel or silt-free substrate

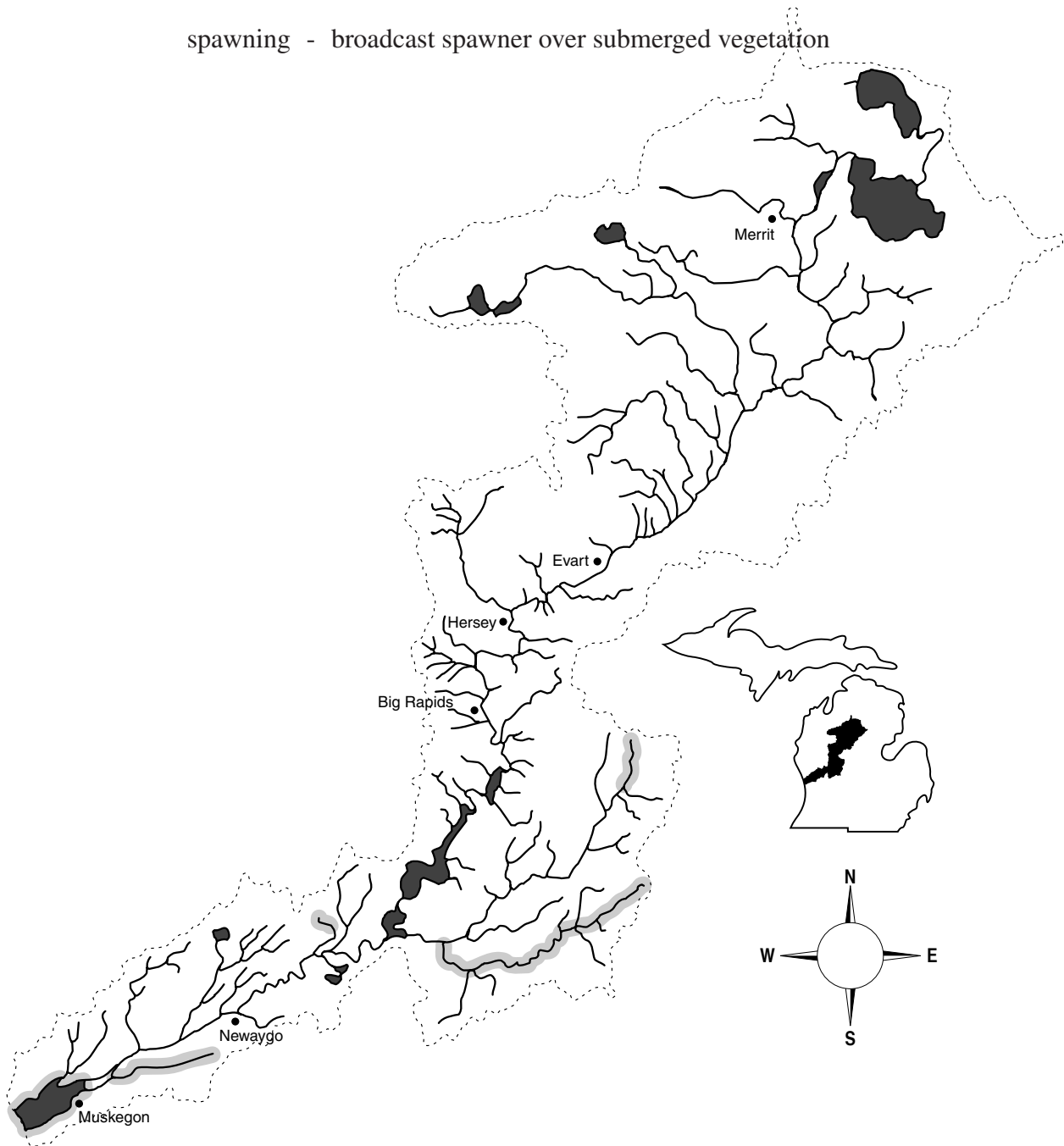
- winter refuge
 - muddy holes in deep water



Grass pickerel (*Esox americanus vermiculatus*)

Habitat:

- feeding - juveniles: along shore
 - adults: in deeper portions of streams, rivers, lakes, and impoundments
 - clear water, little current, dense vegetation
 - tolerates low oxygen concentrations
- spawning - broadcast spawner over submerged vegetation

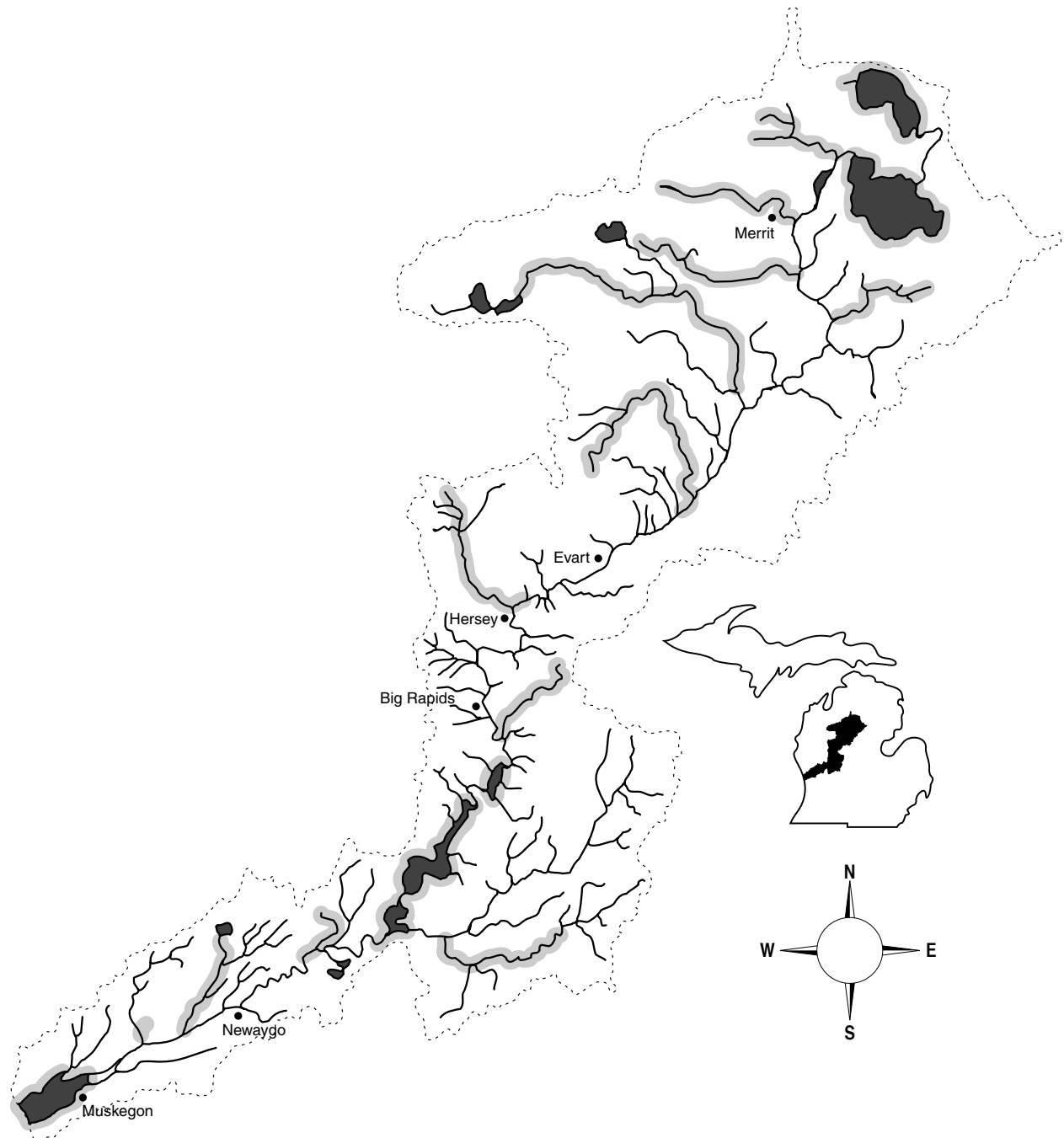


Northern pike (*Esox lucius*)

Habitat:

- feeding - cool to moderately warm streams, rivers, lakes, and impoundments
- vegetation in slow to moderate current

- spawning - submerged vegetation with slow current in shallow water

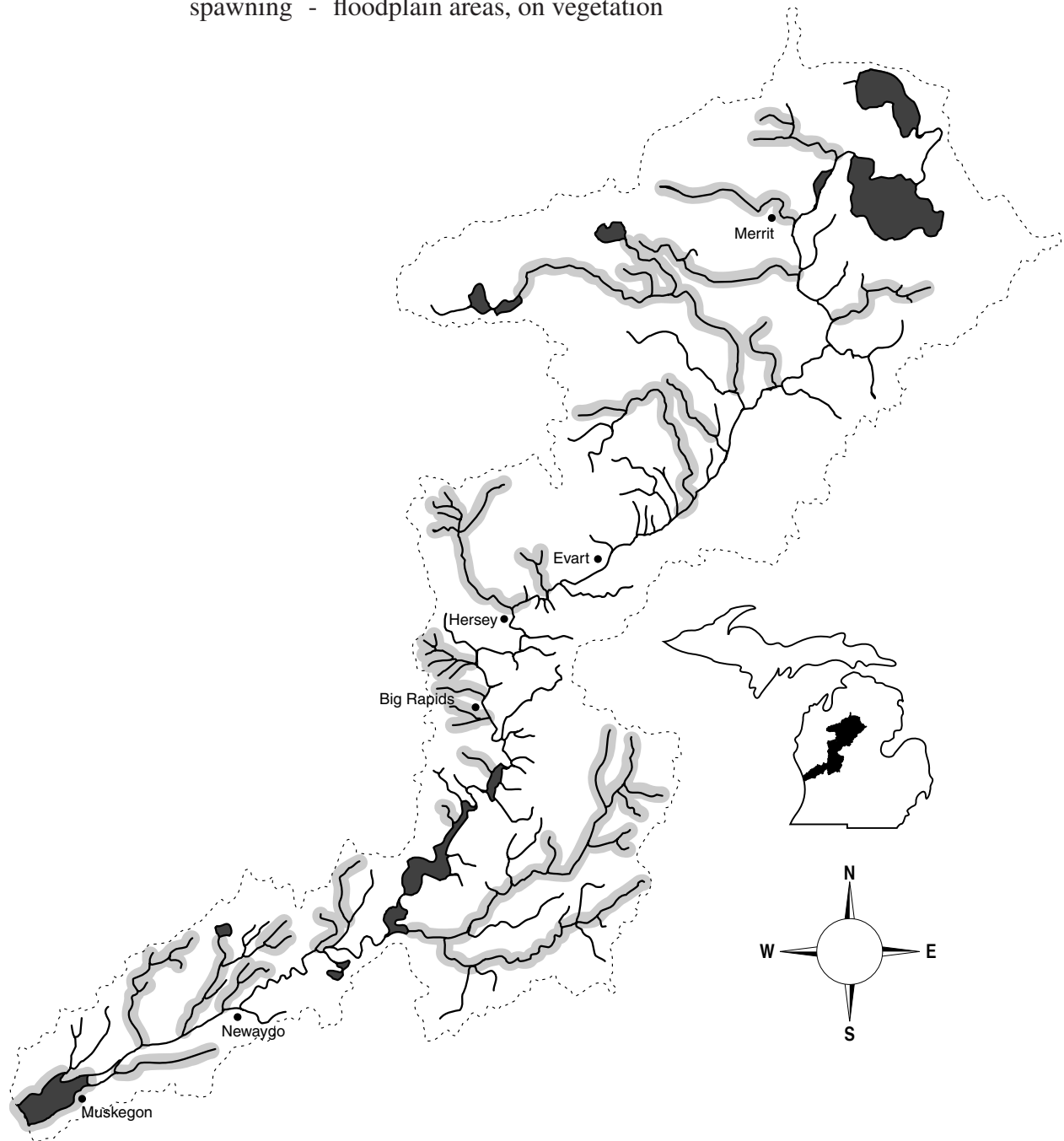


Central mudminnow (*Umbra limi*)

Habitat:

- feeding - undisturbed clear, low-gradient streams or rivers and lakes and impoundments
 - organic debris, muck, or peat substrates
 - aquatic vegetation

- spawning - floodplain areas, on vegetation



Rainbow Smelt (*Osmerus mordax*)

Habitat:

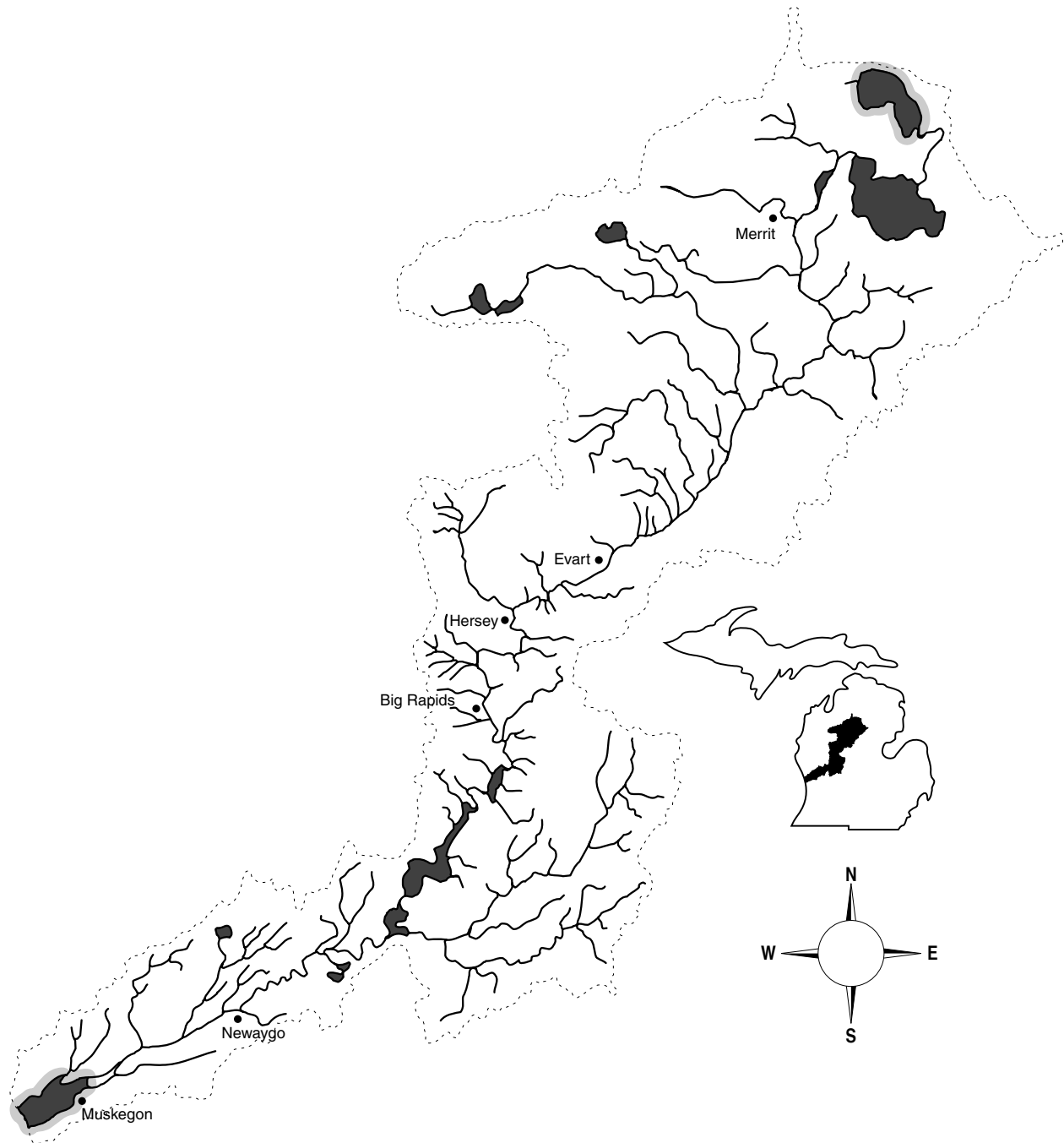
- feeding - midwater of lakes; 42-192 ft. in Lake Michigan
- spawning - in streams or off-shore shoals in Lake Michigan
 - gravel substrate
 - swift current



Cisco {Lake herring} (*Coregonus artedii*)

Habitat:

- feeding - deep cool lakes, preferably oligotrophic
- spawning - usually in lakes
 - 3 to 6 feet of water with no vegetation
 - often over gravel or stony substrate



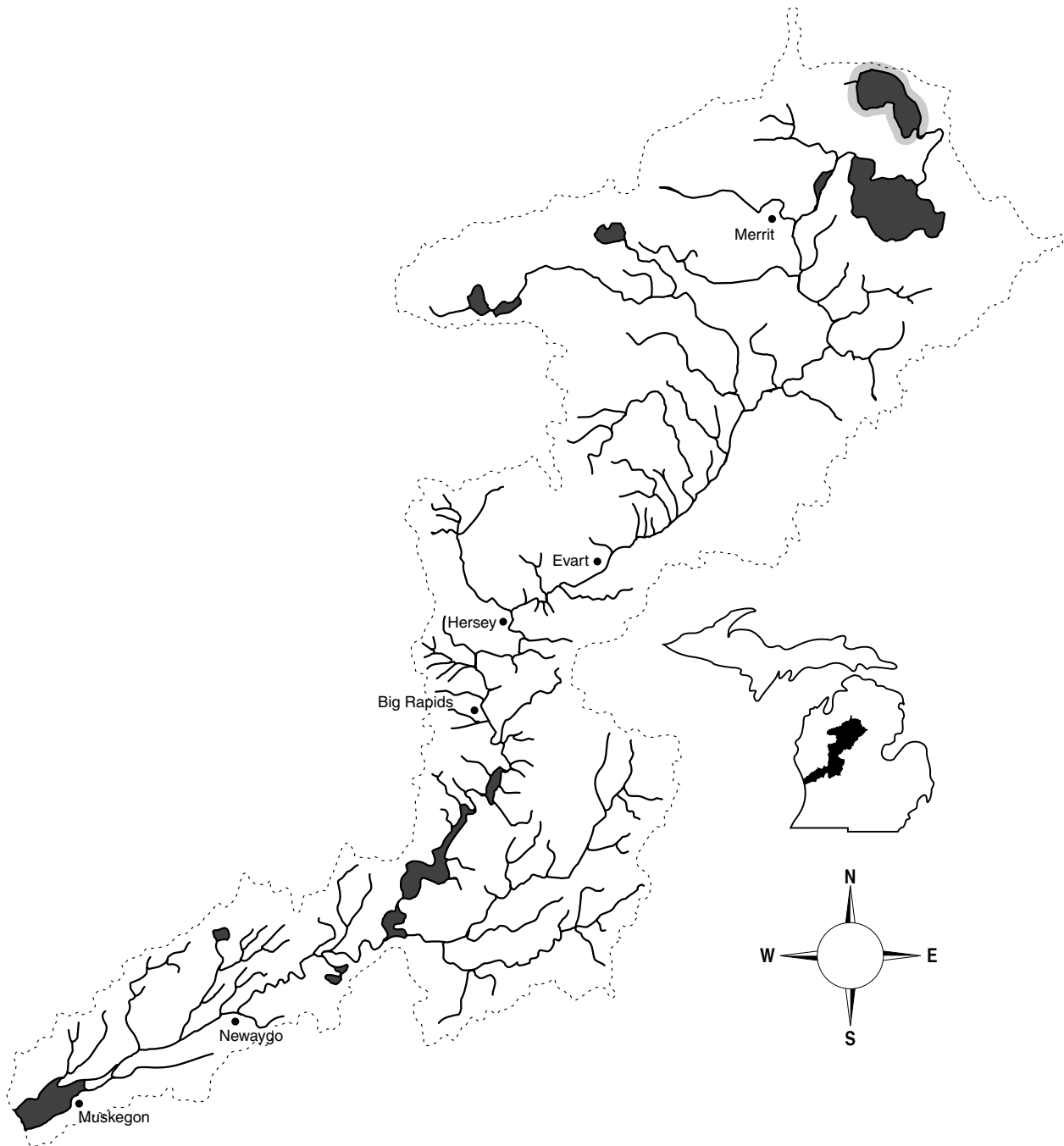
Lake whitefish (*Coregonus dupeaformis*)

Habitat:

feeding - cold deep lakes; Lake Michigan

spawning - shallow water (<25 feet)

- hard or stony substrate



Coho salmon (*Oncorhynchus kisutch*)

Habitat:

- feeding - adults: Lake Michigan
- young: shallow gravel substrate in cold streams, later into pools

- spawning - cold streams and rivers
- swifter water of shallow gravelly substrate

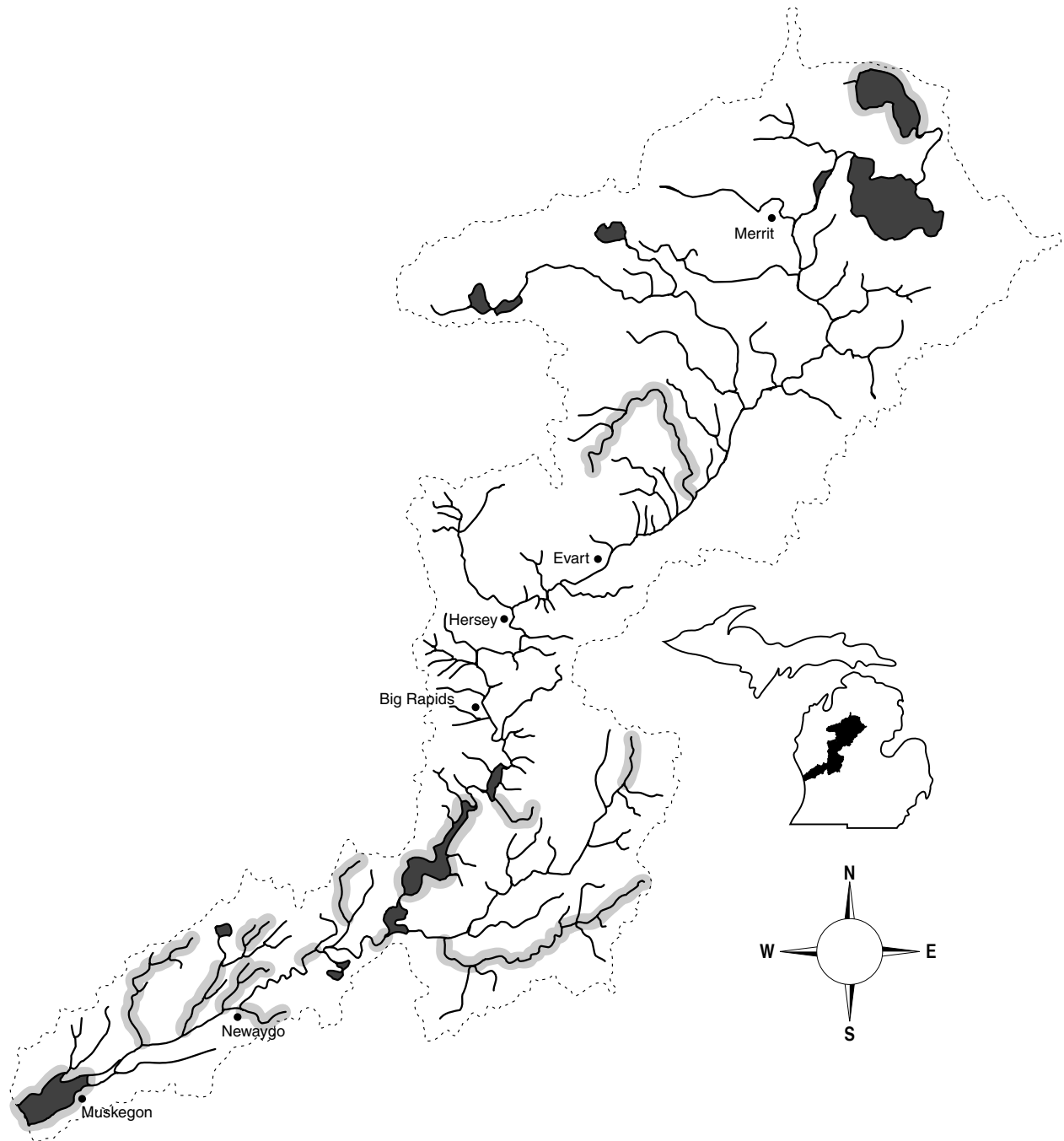


Rainbow trout (*Oncorhynchus mykiss*)

Habitat:

- feeding - cold clear water of rivers and Lake Michigan
- moderate current

- spawning - gravelly riffles above a pool
- smaller tributaries

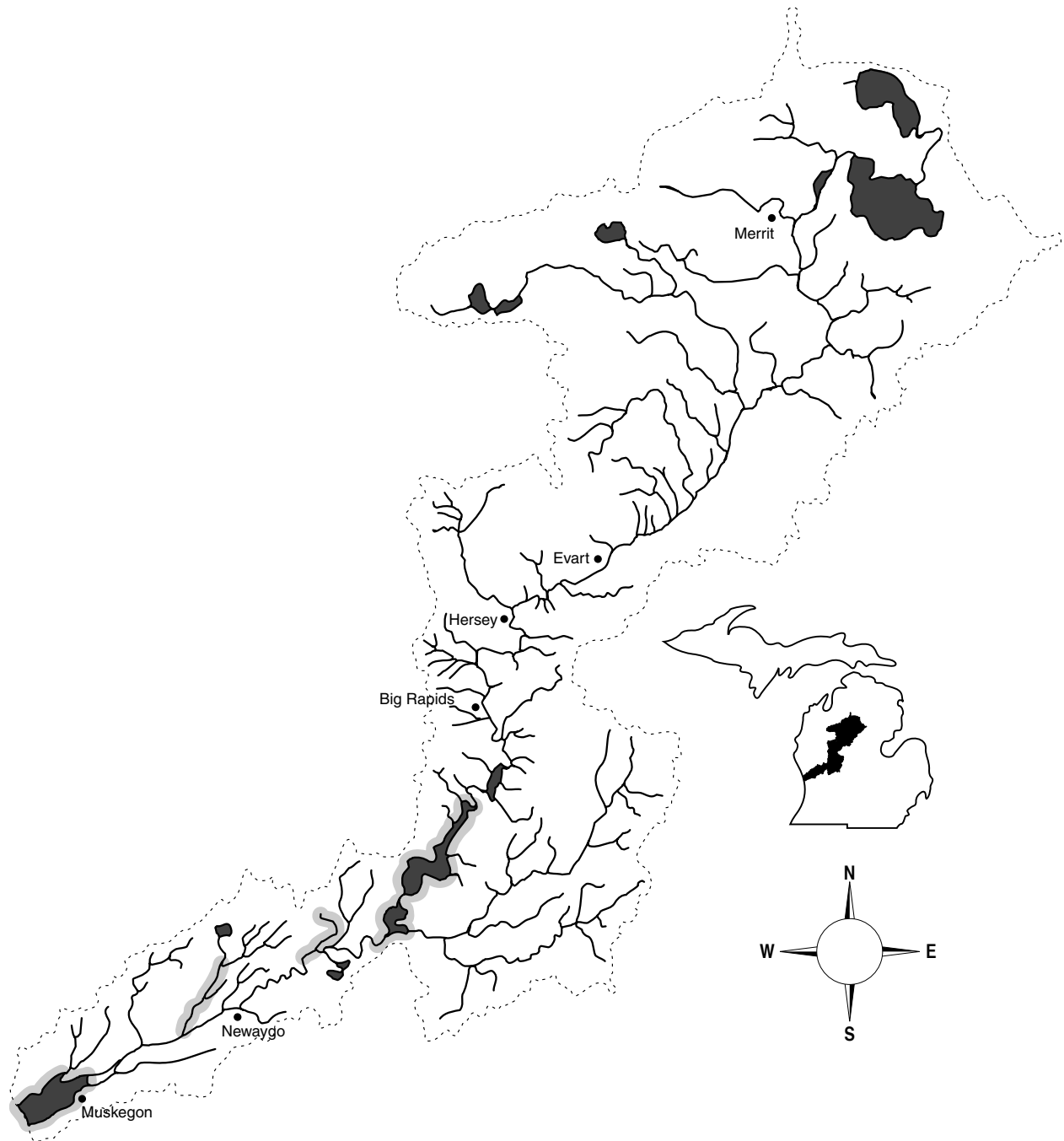


Chinook salmon (*Oncorhynchus tshawytscha*)

Habitat:

- feeding - adults: Lake Michigan
- young: shallow gravel substrate in cool streams, later into pools

- spawning - gravelly substrate in cool streams

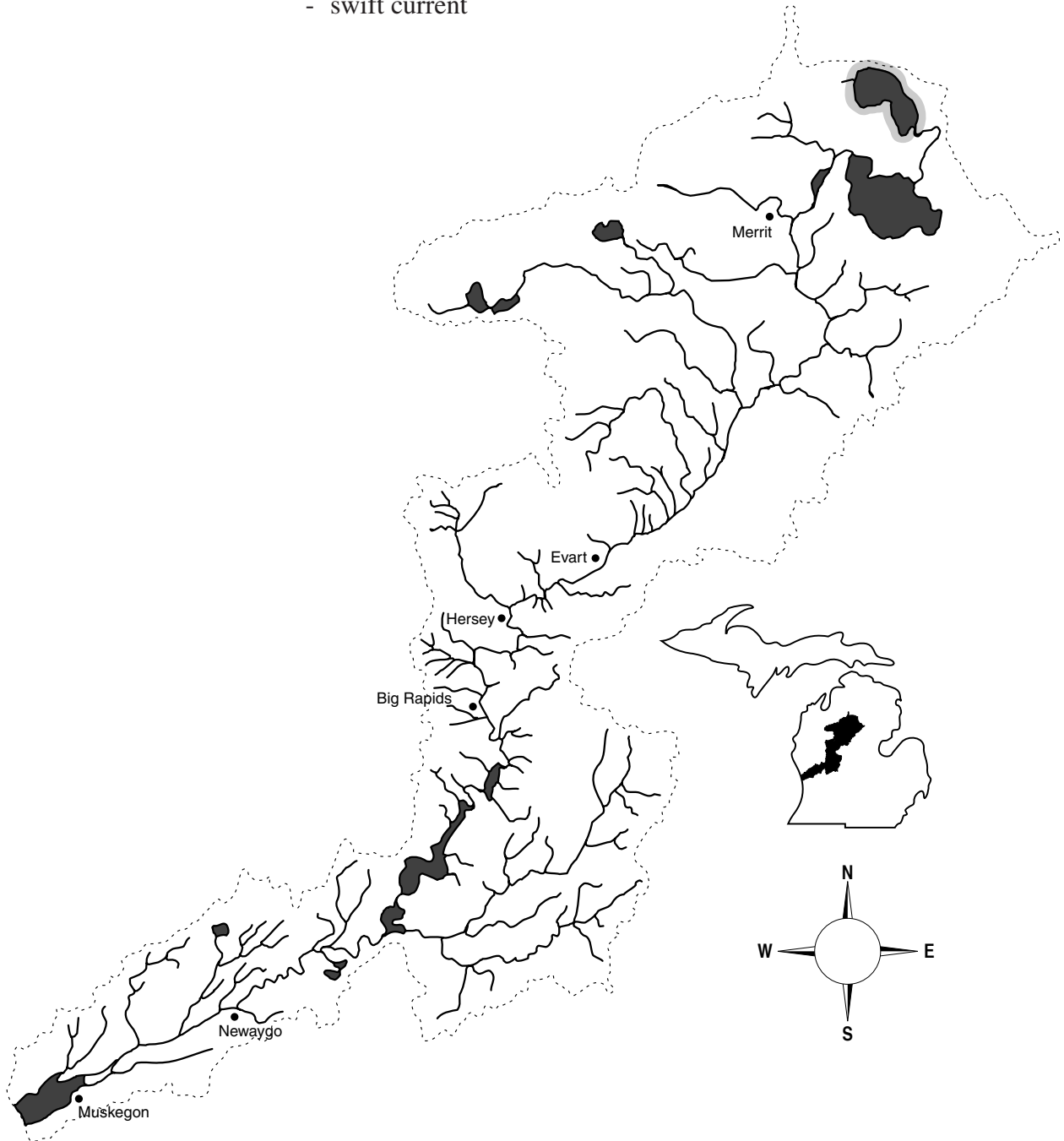


Atlantic salmon (*Salmo salar*)

Habitat:

- feeding - young: gravel substrate streams
- adults: Lake Michigan

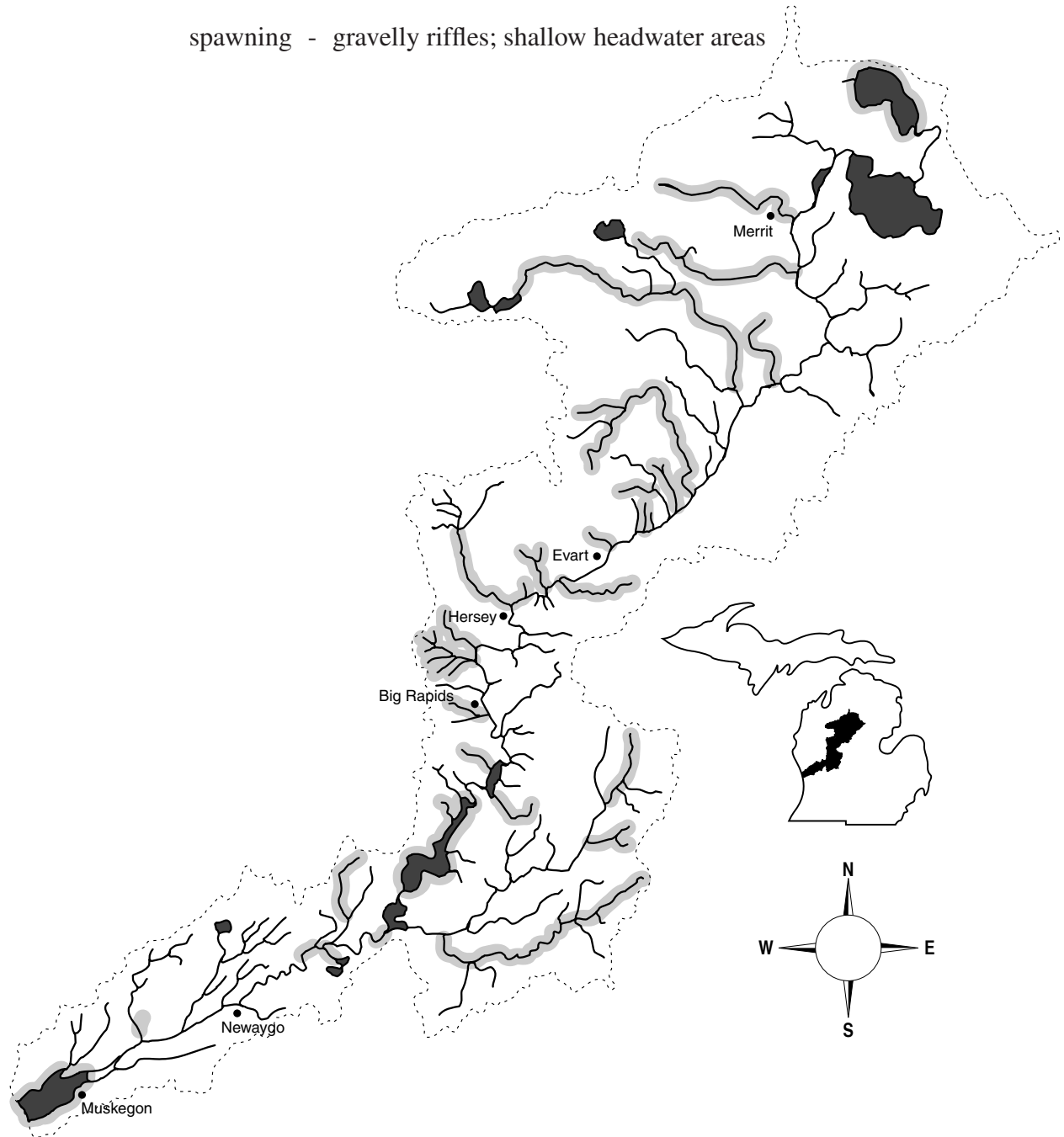
- spawning - streams and rivers
- nests in gravel substrate
- swift current



Brown trout (*Salmo trutta*)

Habitat:

- feeding - cold, clear streams, rivers, and lakes (not >70°F)
 - medium to swift current in streams
 - does not tolerate silt well
 - prefers few individuals and species around
 - abundance of aquatic and land insects
- spawning - gravelly riffles; shallow headwater areas

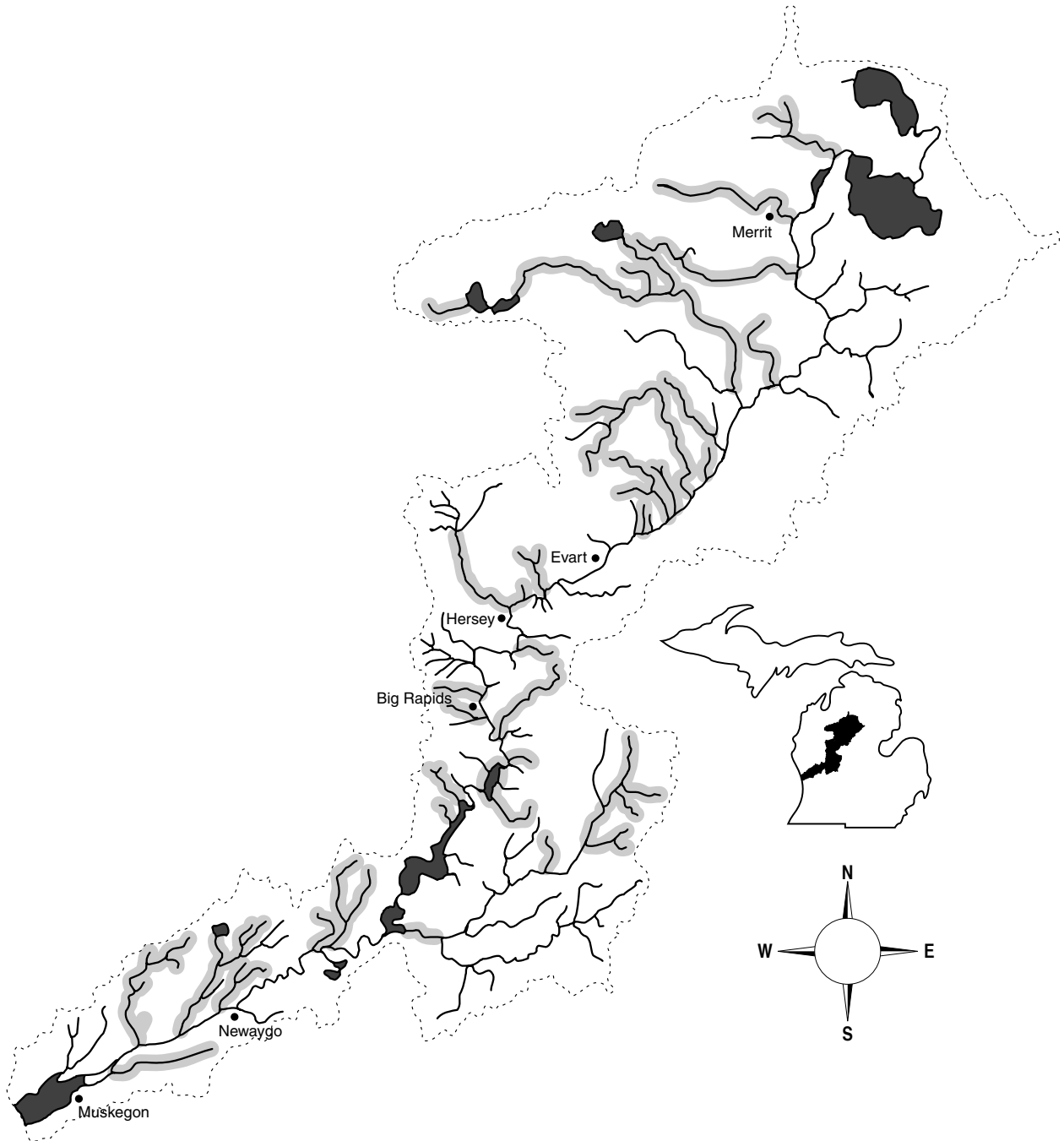


Brook trout (*Salvelinus fontinalis*)

Habitat:

- feeding - cold, clear streams, rivers, and lakes (not >65°F)
- low current
- well oxygenated water

- spawning - gravelly riffles; shallow or headwater streams

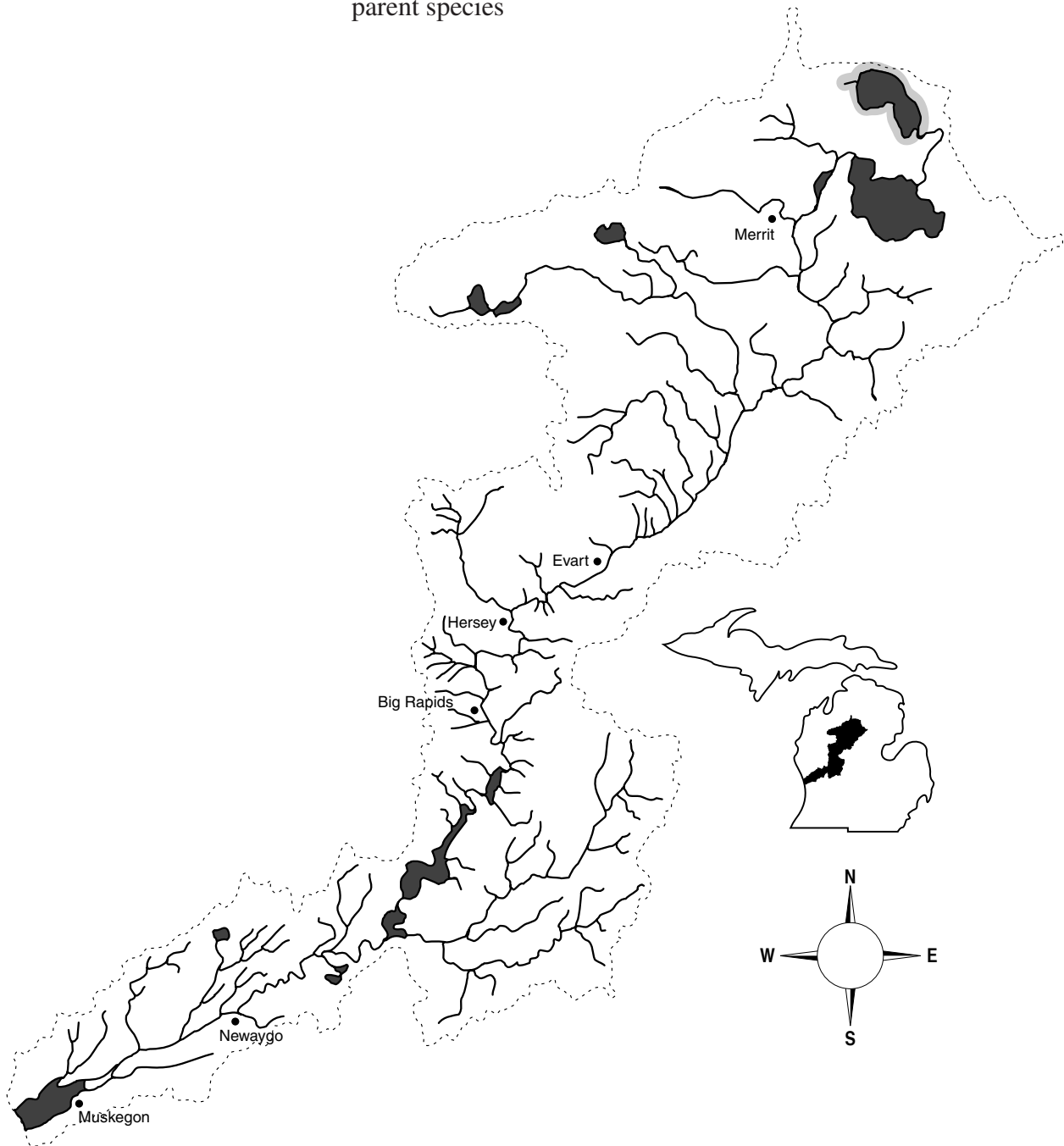


Splake (*Salvelinus fontinalis* x *Salvelinus namaycush*)

Habitat:

- feeding - littoral habitat
- cool water lakes; also Lake Michigan

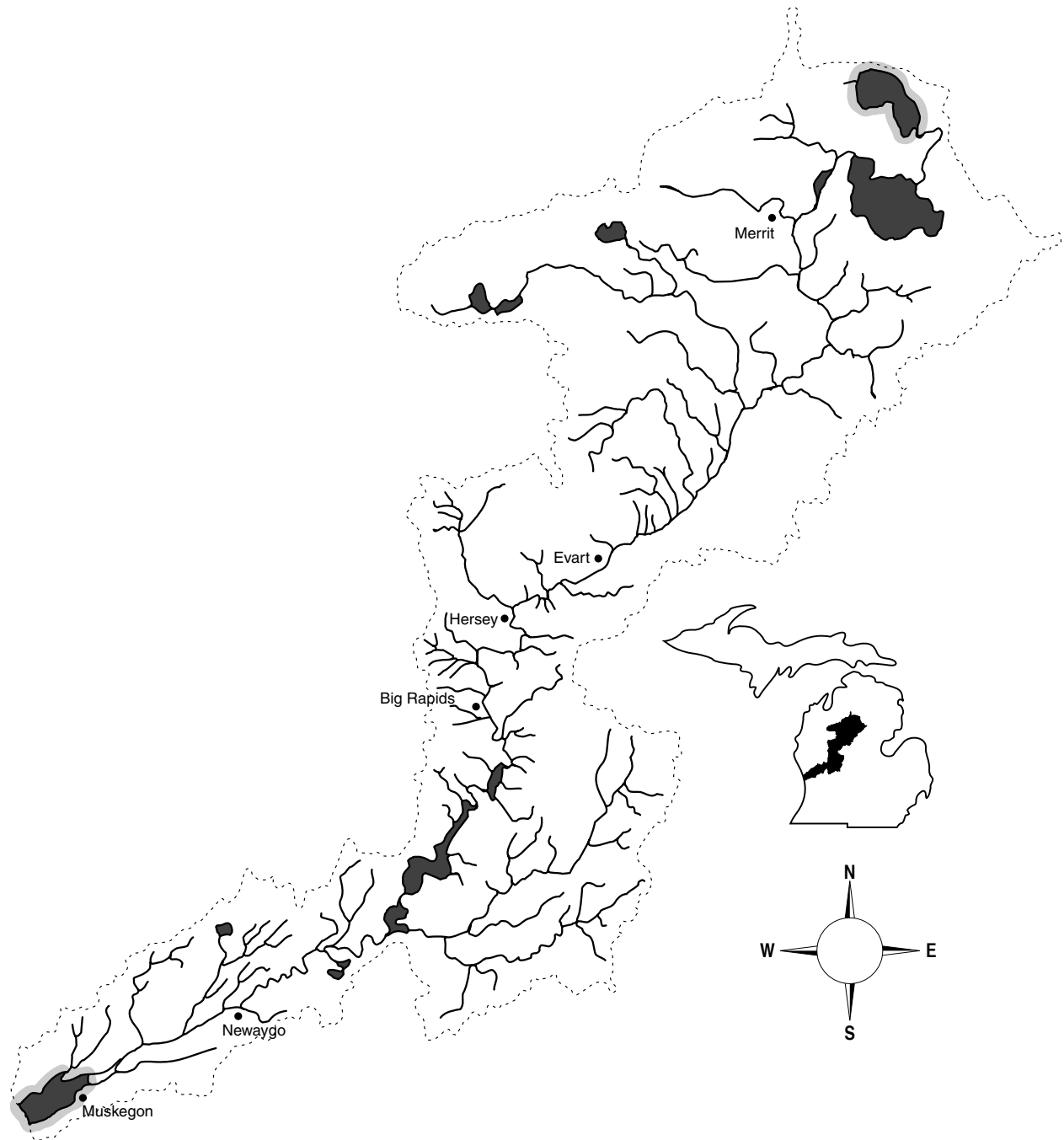
- spawning - hatchery produced cross of brook and lake trout
- offspring usually fertile, but with lower fecundity than either parent species



Lake trout (*Salvelinus namaycush*)

Habitat:

- feeding - cold lakes and rivers
- spawning - large boulder or rubble substrate
- shallow water of lakes and rivers

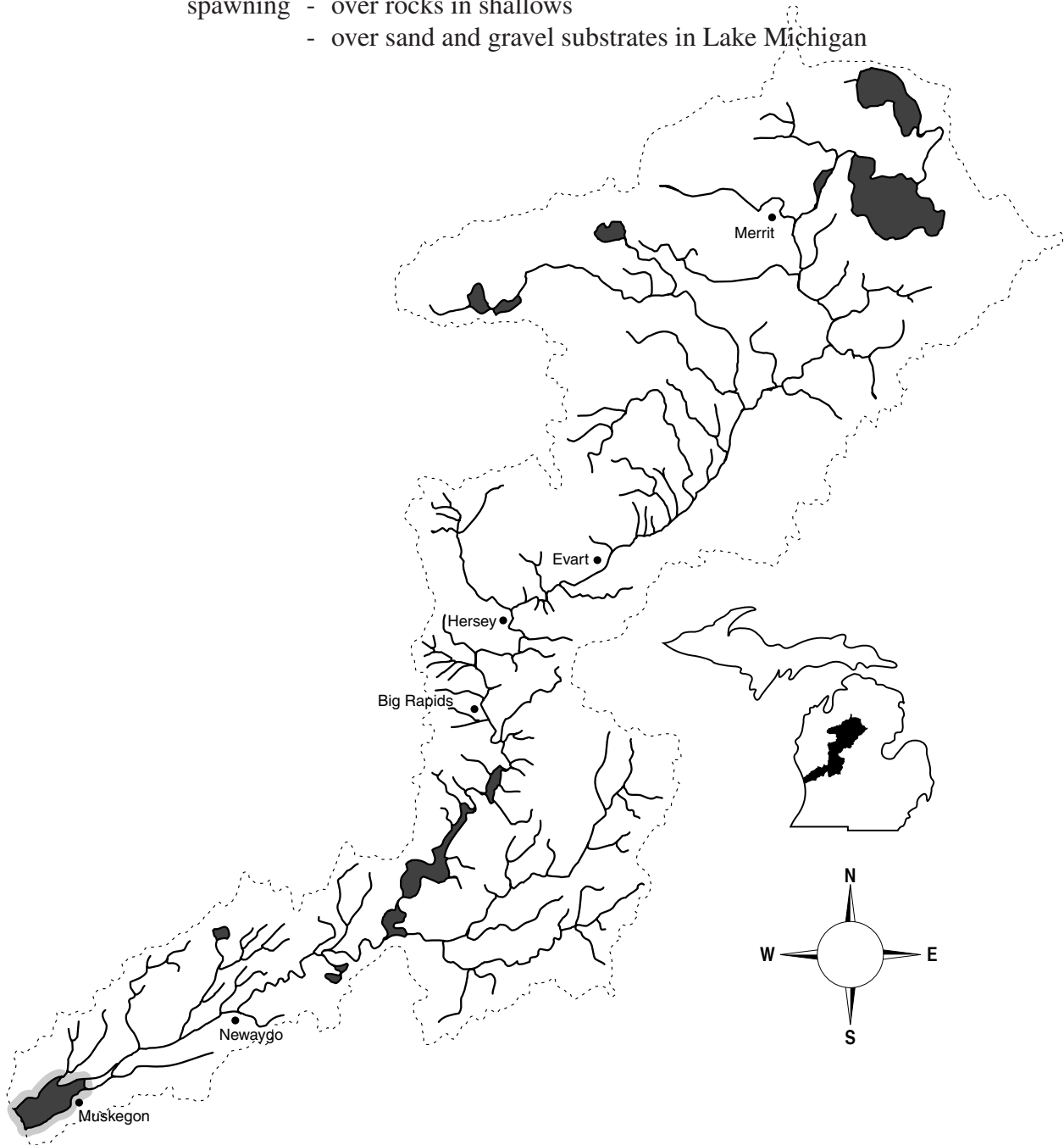


Trout-perch (*Percopsis omiscomaycus*)

Habitat:

- feeding
 - clean sand or fine gravel substrate
 - long deep pools in low gradient streams and Lake Michigan
 - highly intolerant of clayey silts
 - avoids rooted aquatic vegetation

- spawning
 - over rocks in shallows
 - over sand and gravel substrates in Lake Michigan



Pirate perch (*Aphredoderus sayanus*)

Habitat:

- feeding - oxbows, overflow ponds, marshes, estuaries, pools
- medium to large rivers
- low gradient
- sand or muck substrates covered with organic debris
- pools bordered by emergent aquatic vegetation
- quiet water

