

Fishes of the Credit River Watershed 2002



ABOUT THESE LISTS

Credit Valley Conservation staff and a range of partners worked to compile information about the plants and animals found throughout the watershed as part of the Natural Heritage Project. One phase of this work was the creation of *Habitat Utilization Tables* for birds, fish, mammals and herpetofauna (reptiles and amphibians) within the Credit River watershed. The purpose of these tables was to provide information on the habitat preferences, habitat requirements, trophic feeding level and tolerance of different species.

The community types described within these documents are based on the *Ecological Land Classification (ELC) for southern Ontario (Lee et al., 1998)*. Mapping of these community types is currently being completed for the watershed. Land use types are based on the *Credit Watershed Natural Heritage Project Detailed Methodology (April, 1998)*.

The list of fish species (Version 3, June 1999) was compiled from the CVC's Fish Collection Records dating from 1982 - 1985. A number of additional species were added based upon expert knowledge of members of the working group. Scientific and Common Names follow *Natural Heritage Resources of Ontario: Freshwater Fishes (Sutherland, 1994)*. List arrangement follows the Numeric Code established by *Ontario Ministry of Natural Resources: Master List of Code Numbers of Fish Species of Ontario (undated)*.

Research

Research on the habitat preferences, habitat requirements, trophic feeding level and tolerance, was conducted using resources at CVC, and information received from the Ministry of Natural Resources and the United States Department of Agriculture (*see reference lists for tables*). Input from the working group during monthly meetings in the winter of 1997/98 was also incorporated into the tables. Assignment of species to community type(s) in the table reflects those that were cited by the referenced sources, or by working group members, either specifically or generally.

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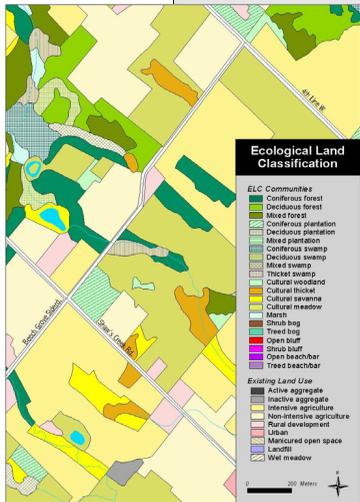
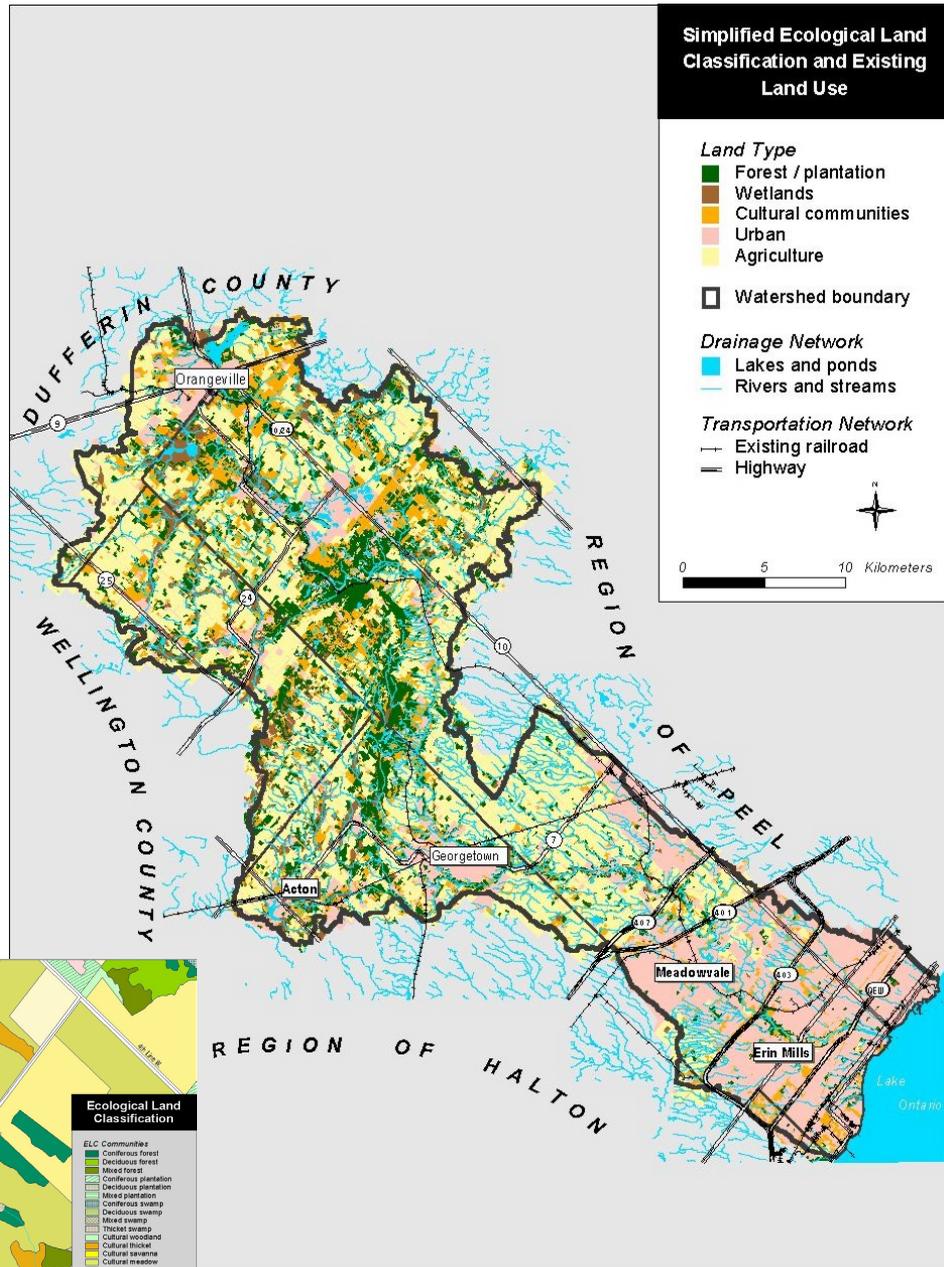
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FISHES

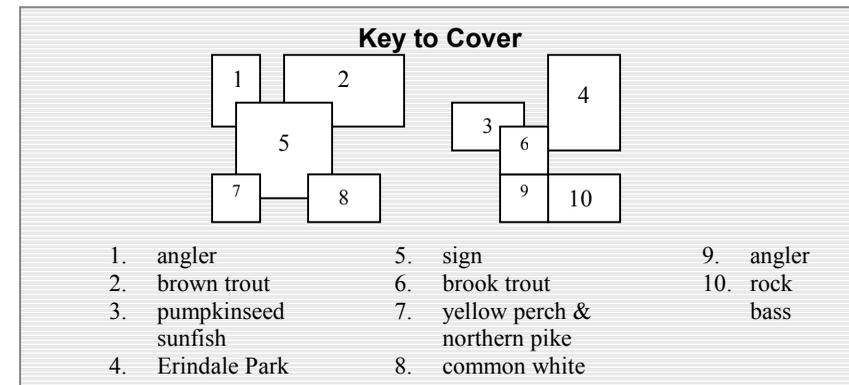


Ecological Land Classification (ELC)

The Ecological Land Classification provides tools and techniques for consistent description, identification, classification and mapping of community types. The ELC is now becoming a standard method across Ontario to meet the needs of ecosystem management and land-use planning. It helps identify changes in land use. Credit Valley Conservation's ELC work indicates that urbanization in our watershed increased from 15% in 1988 to 21% by 1996. A huge change, beyond our original forecast!

In the 1950s work began across Canada to develop a classification system for recurring ecological communities. The goal was to reduce complex natural variation to meaningful ecosystem units. In Ontario, the terminology and descriptions developed in the nation-wide effort are being built upon at regional and site-level scales. The eventual goal in Ontario is to set a standard approach for ecosystem description, inventory and interpretation to improve our ability to manage natural resources.

The ELC was first tested in the Credit River watershed by Credit Valley Conservation Authority staff. The information gathered will strengthen protection, restoration and management efforts in land-use planning and private land stewardship. The map on the left is a simplified version of the ELC for the Credit River watershed. The inset is a complex "Communities Series" level map of ELC southwest of the Village of Alton within the Credit River watershed.



KEY TO TABLES

The following definitions have been provided to help better understand the status which has been assigned to a particular species, and other information contained in the tables of the mammals, herptofauna (reptiles & amphibians) and fish of the watershed. Not all information appears on all tables.

Rarity Codes

G-Rank

A network of natural heritage programs, scientific experts and The Nature Conservancy develops G-Rank or global ranks. The ranking is based on the range-wide status of a species, subspecies or variety.

Codes

- G1 Extremely Rare; usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
- G2 Very Rare; usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
- G3 Rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- G4 Common; usually more than 100 occurrences; usually not susceptible to immediate threats.
- G5 Very common; demonstrable secure under present conditions.
- GU Status uncertain; often because of low search efforts or cryptic nature of the species; more data needed.
- G? Unranked; or, if following a ranking, rank tentatively assigned (e.g. G3?)
- G A "G" (or "T") followed by a blank space means that the NHIC has not yet obtained the Global Rank from the Nature Conservancy.
- Q Denotes that the taxonomic status of the species, subspecies, or variety is questionable.
- T Denotes that the rank applies to a subspecies or variety.

S-Rank

S-Rank - are provincial ranks (or Sub national ranks) that are used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. The ranks are assigned based upon recent records.

Codes

- S1 Extremely Rare; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.
- S2 Very Rare; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.
- S3 Rare to Uncommon; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- S4 Common; usually more than 100 occurrences; usually not susceptible to immediate threats.
- S5 Very Common; demonstrably secure under present conditions.
- S#B Breeding season status
- S#N Non-breeding season status
- SZ Not of practical conservation concern in as much as there are no clearly definable occurrences; applies to long distance migrants which are too transitory and dispersed in their occurrence to be reliably mapped; most such species are non-breeders
- SZN Non-breeding migrant
- S#? Rank inexact or uncertain
- SE Exotic. Not believed to be a part of Ontario's natural fauna.
- SH Historical; of only historical occurrence in the province (no occurrences verified in the past 20 years), but with expectation that it may still be extant.
- C Captive/Cultivated; existing in the province only in a cultivated state; introduced population may not yet be fully established.

COSEWIC

Status assigned by the Committee on the Status of Endangered Wildlife in Canada, following the 1996 COSEWIC List.

Codes

- END Endangered - any indigenous species of fauna or flora threatened with imminent extinction or extirpation throughout all or a significant portion of its Canadian range.
- THR Threatened - any indigenous species of fauna or flora that is likely to become endangered if the factors affecting its vulnerability do not become reversed.
- VUL Vulnerable - any indigenous species of fauna or flora that is particularly at risk because of low or declining numbers, occurrence at the fringe of its range or in restricted areas or for some other reason, but is not a threatened species.
- NAR Not At Risk - the status has been reviewed and the species is not threatened.

MNR

Status assigned to native Ontario species by the Ontario Ministry of Natural Resources based upon recommendations of a Ministry technical committee called the Committee on the Status of Species at Risk in Ontario (COSSARO). This list is integrated with the work of COSEWIC, although designations do vary in a small number of cases. List dated December 1996.

Codes

- END Endangered - any native species that, on the basis of the best available scientific evidence, is at risk of extinction or extirpation throughout all or a significant portion of its Ontario range if the limiting factors are not reversed.
- THR Threatened - any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a significant portion of its Ontario range if the limiting factors are not reversed.

- VUL Vulnerable - any native species that, on the basis of the best available scientific evidence, is a species of special concern in Ontario, but is not a threatened or endangered species.
- IND Indeterminate - any native species for which there is insufficient information on which to base a status recommendation.
- NIA Not In Any COSSARO category - any native species evaluated by COSSARO, which does not currently meet the criteria for assignment to a provincial risk category.

Utilization Codes

- Preferred (P): Indicates the preferred habitat(s) of that species. In the case of aquatic habitats, "preferred" refers to bodies of water used as more than a food source, e.g. breeding, denning, and transportation. Terrestrial habitats classified as "preferred" are most often selected by the species for breeding, denning, and wintering.
- Utilized (U): Indicates the habitats utilized by a species that are not preferred habitats. In the case of aquatic habitats, "Utilized" bodies of water are used as a food source, but not for breeding, denning or transportation. Terrestrial habitats classified as "utilized" include those habitats that are infrequently selected by that species for breeding, denning and wintering, and those habitats that are solely used to provide food.
- Not utilized (X): Indicates habitats that are not utilized by a species.
- Blank (): Indicates unknown use by a species.

Habitats

The following community types and codes are described in the order and form in which they appear in the following tables.

Aquatic Habitats



Lacustrine Shoreline:

Lacustrine : aquatic environment associated with the waters of a lake or pond. Shoreline: the area marking the points of contact between land and the body of water, such as a lake.



Lake/Pond:

Lake (L): an extensive body of water lying in a depression that is 2 ha. in size or greater. A lake can be completely enclosed by land or can have either or both an in-flowing and out-flowing stream. Interrupting the flow of a watercourse with a dam can also create a lake. Pond (P): an area of still water between 0.5 and 2 ha. in size lying in a natural or man-made depression. Can be completely enclosed by land or can have either or both an in-flowing or out-flowing stream. Interrupting the normal flow of a watercourse with a dam can also create a pond. Includes beaver ponds.



Riparian:

Riparian: areas immediately adjacent to permanent watercourses and the surrounding ecotonal vegetation on the banks of rivers and streams. Characterized by periodic flooding and/or high groundwater.



River /Stream:

River (R): a large, permanent watercourse with at least some permanent tributary streams.



Vernal Pool:

Seasonally flooded areas created by surface runoff/meltwater, occurring in the spring. They play an important part in amphibian reproduction.

Photos courtesy of D. Bradley, J.L Riley and H. Lee in Lee et al. 1998.

Water Temperature

Cold	Water that is less than 14 degrees Celsius on average.
Cool	Water that is less than or equal to 18 degrees Celsius on average.
Warm	Water that is less than or equal to 23 degrees Celsius on average.

Urban/Rural (U/R)

Rural Lands between 0.5 ha and 2 ha that contain residential, commercial, or other buildings and manicured open space (e.g. single rural residences or service station). These areas are heavily impacted and are still under intensive use.

Urban Urban related uses including continuous ribbon development (these areas must be over 2 ha in size, therefore, single rural residential lots are not included unless part of a group of 5 or more units).

Trophic Feeding Level

The predominant food (>60%) is always listed ahead of any significant secondary food (30%-40%) sources.

H	Herbivore	diet consists of plant material
I	Insectivore-Invertivore	diet consists of terrestrial and/or aquatic insects and other small animal matter
P	Piscivore	a carnivore with a diet consisting of fish
C	Carnivore	diet consists of fleshy animals either birds, rodents and/or small or large mammals
O	Omnivore	diet consists of plant material and fleshy animals either birds, rodents, mammals and/or fish

Habitat Requirements

G	Generalist	utilize several habitat types and exhibit no special habitat requirements
S	Specialist	utilize only one habitat type or have very specific habitat requirements
O	Opportunist	very adaptable, often invading previously unused habitats and locations whenever access to these areas is not restricted by either natural or man-made barriers, or community structure. often observed breeding in highly disturbed environments such as urban and/or agricultural areas.

Tolerance to Human Disturbance

T	Tolerant	a species which is not sensitive to human activities or disturbances
S	Sensitive	a species which is sensitive to human activities or disturbances
M	Moderately Sensitive	a species which is intermediate in its response to human activities or disturbances

Comments

The comments section contains information that clarifies data within the table, as well as other relevant information. Introduced species, specific food requirements, and specific habitat requirements, including specific habitat types that may have been assigned to one of the community types on the table, are noted in this section. For instance, a preference for pine forest by a species would be reported in this section, and included in the Coniferous Forest community type column. Where known, information regarding species distribution within Ontario was also included.

Fish of the Credit River Watershed

Common Name	Scientific Name	G-Rank	S-Rank	COSEWIC	MNR	Water Temperature			Riverine Habitats	Lacustrine Habitats	Trophic Level	Habitat Requirements	Tolerance	Comments
						Cold Water	Cool Water	Warm Water						
Lamprey Family (Family Petromyzontidae)														
American brook lamprey	<i>Lampetra appendix</i>	G4	S3			P			P	X ²	I/H ⁴	S	M	Non-parasitic; prefers colder brooks and small rivers, never migrating to lake ¹ . Trophic Feeding level-Immature/mature ² . Adults do not eat ⁵ .
sea lamprey	<i>Petromyzon marinus</i>	G5	SE			P			P ²	P ²	O	O	M	Parasitic; prefers larger rivers and lakes, not found in smaller streams as are brook lamprey ¹ . Immature/mature feeding levels ² . Anadromous; some landlocked in Lake Ontario; controlled by spawning barriers and larval positioning ³ .
Freshwater Eel Family (Family Anguillidae)														
American eel	<i>Anguilla rostrata</i>	G5	S5			U	U ⁴	P	P	U ⁴	P/I ⁵	O	M	Found in tributary lakes and streams of Lake Ontario-St. Lawrence River system ¹ . Mud bottomed rivers, streams and lakes ³ . Returns to Atlantic Ocean to spawn ⁴ .
Sturgeon Family (Family Acipenseridae)														
lake sturgeon	<i>Acipenser fulvescens</i>	G3	S3	NAR		P			P ²	P ²	I	S	M-S	Prefers productive shoal areas of large lakes and rivers with high flow, over mud, or mud and gravel; bottom feeder ² . (Large) ²
Bowfin Family (Family Amiidae)														
bowfin	<i>Amia calva</i>	G5	S4					P	U	P	I/P	G	U	Not found in lake Superior; prefers swampy, vegetated bays of warm lakes and rivers ¹ . Tolerates up to 35°C in stagnant water ³ .
Herring Family (Family Clupeidae)														
alewife (gaspereau)	<i>Alosa pseudoharengus</i>	G5	SE			P ²			X	P ²	I	S	M	Prefers open water of Great Lakes moving inshore to feed at night; prefers shallow beaches for spawning ¹ . Marine species; move inshore to spawn; landlocked ³ . Mass die-off in spring (Lake Ontario) ⁵ .
gizzard shad	<i>Dorosoma cepedianum</i>	G5	S4			P			P ²	P ²	O	S	M	At northern range limit in Great Lakes; prefers deep open waters of large lakes and slow-moving rivers ¹ . May enter brackish water/swamps; can take over and dominate a reservoir ³ . No published reports of spawning in Canadian water; fully developed gizzard shad are herbivorous ⁵ .
Salmon Family (Family Salmonidae)														
pink salmon	<i>Oncorhynchus gorbuscha</i>	G5	SE			P ²			P ²	P ²	I/P ⁴	S	S-M	Prefers open water at surface ¹ . Enters rivers to spawn; spread to great lakes from Lake Superior ³ . Spawning streams usually small, not very coarse gravel; young prefer temperature 12-14°C, cannot survive above 29.3°C ⁵ .
coho salmon	<i>Oncorhynchus kisutch</i>	G4	SE			P	U ⁴		P ²	P ²	I/P ⁴	S	M	Prefers upper strata of Great lakes; spawns in small to medium-sized, gravelly streams over shallows to deep pools ¹ . Not reproducing ² .
chinook salmon	<i>Oncorhynchus tshawytscha</i>	G5	SE				U ⁴		P ²	P ²	I/P ⁴	S	S	Prefers mid-water of deep-water areas in Great Lakes spawns in large tributary rivers in clean gravel near riffles ¹ . Enters larger rivers to spawn; stocked in the Great Lakes as a sportfish (largest Salmonoid in Great Lakes) ³ .

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						Cold Water	Cool Water	Warm Water						
rainbow trout	<i>Oncorhynchus mykiss</i>	G5	SE			P	U ⁴		P ²	P ²	I/P ⁴	S	M	Prefers shallow rivers with moderate flow, gravel bottom, alternating pools and riffles, moderately deep lakes with shallows, vegetation and tributary streams for spawning ¹ . Will tolerate temperatures to 24°C, but prefers below 20°C; lake populations run up streams and river populations run to headwaters to spawn; one of top few sportfishes in North America ³ .
Atlantic salmon	<i>Salmo Salar</i>	G5	SX			P			P ²	U ²	I/P ⁴	S	S	Found in Great Lakes and tributary streams to spawn ¹ . Landlocked population; do not die after first spawning ³ . Not found in all Great Lakes, only Lake Ontario, due to stocking ⁴ .
brown trout	<i>Salmo trutta</i>	G5	SE			P	U ⁴		P ²	U ²	I/P ⁴	S	M-S	Spawns in shallow, gravelly headwaters, but can tolerate warmer water than brook trout ¹ . Introduced to Canada in 1884; will survive in water that is no longer suitable for brook trout ³ .
brook trout	<i>Salvelinus fontinalis</i>	G5	S5			P	U ⁴		P ²	U ²	I/P ⁴	S	S	Prefers cold, clear well oxygenated streams and lakes; spawns in shallow headwaters over gravel beds with groundwater upwelling and moderate current ¹ . Hide under overhanging banks and vegetation and behind rocks ³ .
Smelt Family (Family Osmeridae)														
rainbow smelt	<i>Osmerus mordax</i>	G5	S5			P ²	U		U	P	I/P ⁵	S	M	Endemic to three Ottawa River tributary lakes, elsewhere introduced; pelagic lake species inhabiting rivers and streams only to spawn ¹ . Landlocked population will enter streams to spawn, even under the ice ³ . Sensitive to temperature and light; may spawn off-shore on gravel shoals ⁵ .
Pike Family (Family Esocidae)														
northern pike	<i>Esox lucius</i>	G5	S5			U	U ⁴	P	P	P	I/P ⁴	G	M	Prefers clear, warm, slow, meandering, vegetated rivers or, warm, weedy shores of lakes and large ponds ¹ . Tolerates brackish water ³ . Spawn on heavily vegetated floodplains of rivers, marshes and bays of large lakes ⁵ .
Mudminnow Family (Family Umbridae)														
central mudminnow	<i>Umbra limi</i>	G5	S5				P	P		P	I	G	T	Prefers heavily vegetated, sometimes stagnant pools, ponds and upland swamps of creeks over bottoms of muck, peat or organic debris ¹ . Found further upstream than any other fish; spawn on flooded stream banks ⁵ .
Sucker Family (Family Catostimidae)														
white sucker	<i>Catostomus commersoni</i>	G5	S5			P	U ⁴	P	P ²	P	O	O	T	Prefers warmer, shallow lakes or warm, shallow bays and warm tributary rivers of larger lakes, and rivers and streams with bottom vegetation ¹ . Tolerant of polluted waters ³ . Spawn in gravelly stream, lake margins, and quiet areas in blocked stream mouths; bottom feeder ⁵ .

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						Cold Water	Cool Water	Warm Water						
northern hog sucker	<i>Hypentelium nigricans</i>	G5	S4			P ²	P	P	P	U	I	O	S	Prefers riffles and pools of warm, clear, swift-moving, shallow streams with gravel to rubble bottoms, and sometimes shallow lakes near mouths of streams ¹ . Rare in lakes and intolerant of turbidity ³ .
Minnow Family (Family Cyprinidae)														
silver redhorse	<i>Moxostoma anisurum</i>	G5	S4			P ⁵					I	S	S	Needs swiftly flowing streams for spawning. Adults more common in slower moving, long, deep pools, without heavy silt, sedimentation or pollution ⁵ .
goldfish	<i>Carassius auratus</i>	G5	SE				U ⁴	U ⁴	X	P	O	O	T	Prefers warm, small, shallow lakes or ponds containing abundant vegetation; found in Southern Ontario ¹ . Tolerant of turbidity, polluted water and high temperatures ³ .
northern redbelly dace	<i>Phoxinus eos</i>	G5	S5			P	P	P	P ²	P	O ²	G	T	Prefers pools over silt in brown, slightly acidic waters; often occurs with brook trout ¹ . Found in quiet waters of beaver ponds, bog ponds, small lakes or pool-like expansions of streams ⁵ .
finescale dace	<i>Phoxinus neogaeus</i>	G5	S5			P	P	U	U	P	I ²	G	T	Prefers cool, stained, boggy waters ¹ . Schooling, prefers bogs, ponds, lakes and slow streams ³ .
redside dace	<i>Clinostomus elongatus</i>	G4	S3	VUL		P	U		P		I	S	S	Found in cool, clear, hardwater streams with pool and riffle habitat and sand, gravel or stone bottom; limited to Lake Simcoe and Western Lake Ontario tributaries ¹ . Overhanging vegetation which supports insects ³ .
common carp	<i>Cyprinus carpio</i>	G5	SE				U ⁴	P	P ²	P ²	O	O	T	Thrive in highly eutrophied waters; prefer slow-moving portions of rivers, or weedy shallows of lake ¹ . (Large) ² Introduced in the late 19th Century; can tolerate moderate salinity, high temperature, turbidity and low oxygen; bottomfeeder ³ .
brassy minnow	<i>Hybognathus hankinsoni</i>	G5	S5				P ²		P	P	O	G	M	Prefers darkly stained cool, clear streams with sand/gravel bottom, lakes and shallow bays ¹ . Believed to spawn in quiet water over silt bottom ⁵ .
hornyhead chub	<i>Nocomis biguttatus</i>	G5	S4	NAR				P	P	P	O ⁵	S	S	Found in lakes in Algoma district and tributaries of lakes Ontario, Erie, Huron, and St. Clair; inhabit boulder and rocky pools in slower sections of streams ¹ . Found in pools and riffles, may hide under rocks ³ . Young seek vegetated areas ⁵ .
river chub	<i>Nocomis micropogon</i>	G5	S4	NAR				P ²	P		I	S	S	Found from Georgian Bay to Lake Erie and Western Lake Ontario; prefers pools and runs of warm, clear, clean water streams with gravel to boulder bottoms ¹ .
golden shiner	<i>Notemigonus crysoleucas</i>	G5	S5			P	P	P		P	O	G	M-T	Prefers clear, weedy, shallow, quite waters, with extensive shallow areas ¹ . Aquatic vegetation essential for spawning; midwater and surface feeder ⁵ .
emerald shiner	<i>Notropis atherinoides</i>	G5	S5			P	P ²	P	X	P	I	G	M	Pelagic or open water species; prefers clear water over sand and gravel bottoms for spawning ¹ . Schooling species ⁵ .

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						Cold Water	Cool Water	Warm Water						
common shiner	<i>Luxilus cornutus</i>	G5	S5					P	P ²	U	I/H ⁵	G	M	Prefers cool, clear, rocky pools near riffles in streams and gravelly shoals in lakes ¹ . Food taken from surface ³ . May exclusively spawn in streams ⁵ .
blacknose shiner	<i>Notropis heteroiepis</i>	G5	S5					P	P ²		I	S	S	Prefers shallow, quiet, clear, vegetated streams over sand or gravel bottom, and weedy bays ¹ . Intolerant of turbidity ³ .
spottail shiner	<i>Notropis hudsonius</i>	G5	S5			P	P ²	P	P	U	I	G	M	Prefers shallow, low-flow water over sandy or rocky bottom with little vegetation ¹ . May enter brackish water ³ . Spawn over sandy shoals ⁵ .
rosyface shiner	<i>Notropis rubellus</i>	G5	S4	NAR		P	P	P	P	U	I	S	S	Prefers lower reaches of clear, moderate-flow rivers and streams over fine gravel or sand bottom ¹ . Intolerant of silt and turbidity ³ .
spotfin shiner	<i>Cyprinella spiloptera</i>	G5	S4			P		P	P	P	I	G	M	Found in Great Lakes, except Superior, and tributaries; prefers clean sand and gravel substrates ¹ . Tolerant of turbidity, siltation, high temperatures and pollution ³ . Adhesive eggs laid on underside of submerged logs and roots ⁵ .
mimic shiner	<i>Notropis volucellus</i>	G5	S5			P	P ²	P	P	U	I	G	S	Found south of 52 degrees latitude; prefers sandy pool of headwaters; somewhat silt tolerant ¹ . May also be found in fast current streams ³ .
sand shiner	<i>Notropis stramineus</i>	G5	S4			P	P ²	P	U	U	I	S	M	Not found west of eastern Lake Superior; prefers sandy or gravelly bottomed lakes and streams ¹ . Prefers sandy shallows of lakes and large rivers with sparse rooted aquatic vegetation ⁵ .
redfin shiner	<i>Notropis umbratilis</i>	G4	S4	NAR		P ¹		P ¹	P		I	G	M	At northern range limit in tributaries of southeastern Lake Huron, eastern Lake St. Clair, northeastern Lake Erie, and also Bowmanville Creek ¹ . Tolerates some turbidity and silt; may be increasing range in Ontario as a result of increased siltation ³ . Spawn over sand and gravel bottoms in slow-moving sections of streams; when not spawning found in clear, quiet waters of weedy pools with abundant submerged or emergent vegetation ⁵ .
bluntnose minnow	<i>Pimephales notatus</i>	G5	S5			P	P	P	P	U	O	G	T	Prefers sand/gravel shallows of clear lakes and ponds, rocky or gravelly streams and creeks ¹ . Avoids heavily weeded areas; bottom feeder ⁵ .
fathead minnow	<i>Pimephales promelas</i>	G5	S5			P	P	P	P ²	P ²	O	G	T	Prefers warm and muddy, still waters of ponds to flowing waters of creeks, streams and rivers ¹ . Tolerates turbidity, high temperatures, pH variations, salinity and low oxygen ³ .
blacknose dace	<i>Rhinichthys atratulus</i>	G5	S5			P ²	P ²	P ²	P	X	O	G	T	Prefers cool, small, clear, swift-moving waters with gravelly substrates; not in lakes ¹ .
longnose dace	<i>Rhinichthys cataractae</i>	G5	S5			P	P	P	P	U	I	S	M	Prefers clean, swift-moving, gravel/boulder streams, rarely inshore waters of lakes over gravel/boulders ¹ . Young pelagic, adults bottom dwelling ⁵ .

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Common Name	Scientific Name	G-Rank	S-Rank	COSEWIC	MNR	Water Temperature			Riverine Habitats	Lacustrine Habitats	Trophic Level	Habitat Requirements	Tolerance	Comments
						Cold Water	Cool Water	Warm Water						
creek chub	<i>Semotilus atromaculatus</i>	G5	S5				U ⁴	P	P	P	O	G	T	Prefers sand/course gravel pools of small, clear streams, and shore waters of small lakes ¹ . Spawn just above or below a riffle ⁵ .
pearl dace	<i>Margariscus margarita</i>	G5	S5				P ⁴	P ⁴	P	P	I	G	T	Prefers cool, clear headwater streams, slow-moving bog streams, ponds, beaver ponds, and small lakes ¹ . Spawn on sand or gravel, in clear water, 18-24 inches deep, weak-moderate current ⁵ .
Catfish Family (Family Ictaluridae)														
brown bullhead	<i>Ameiurus nebulosus</i>	G5	S5					P ²	P	P	O ⁵	O	T	Prefers small lakes, shallow bays, and slow-moving streams with vegetation, and sand to mud bottom. ¹ Will burrow during adverse conditions; tolerant of pollution, low oxygen and high temperature ³ . Bottom feeder ⁵ .
channel catfish	<i>Ictalurus punctatus</i>	G5	S4				P ²	P ²	P	U	O	O	M	Not found in Lake Superior; prefers cool, clear, deeper, less vegetated water than bullheads ¹ . Spawn in secluded, semi-dark nests, in holes, undercut banks, log jams or rocks; prefer sand, gravel or rubble bottom ⁵ .
stonecat	<i>Noturus flavus</i>	G5	S4			P			P	U	I	G	S	Found in Ottawa River, tributaries of lakes Ontario, Erie, Huron; prefers riffles/rapids over rocks ¹ . Lake margins with water movement by wave action ³ .
Stickleback Family (Family Gasterosteidae)														
brook stickleback	<i>Culaea inconstans</i>	G5	S5				P ²	P	P ²	P ²	I	O	M-T	Prefers clear, cool, well vegetated, streams, spring-fed ponds, swampy-margins and large lakes ¹ . Spawning may be inhibited if temperature is above 19°C; very tolerant of salt water ⁵ .
threespine stickleback	<i>Gasterosteus aculeatus</i>	G5	S4			P	U	U	P	P	I	O	M	Found in Ottawa River, Lake Ontario basin and lower reaches of Hudson and James Bay tributaries ¹ . Pelagic; inshore coastal waters of lakes, ponds, rivers and streams ³ . Nests in sandy areas of shallow water ⁵ .
Trout-Perch Family (Family Percopsidae)														
trout-perch	<i>Percopsis omiscomaycus</i>	G5	S5				P ⁴		U	P	I	G	M	Prefer large, clear lakes except when spawning in shallow turbid streams ¹ .
Temperate Bass Family (Family Percichthyidae)														
white perch	<i>Morone americana</i>	G5	SE					P ²	X	P	I/P ⁴	O	M	Found only in Lakes Ontario and Erie; prefer warm, shallow waters ¹ . No preference for bottom type when spawning ⁵ .
white bass	<i>Morone chrysops</i>	G5	S4					P ²	U	P	I/P ⁴	G	M	Found only in Lakes Ontario, Erie, St. Clair, Huron and Nipissing, and Detroit River ¹ . Schooling surface water fish of large lakes and rivers ³ . Prefers clear water ⁵ .
Perch Family (Family Percidae)														
yellow perch	<i>Perca flavescens</i>	G5	S5					P ⁴		P	I/P ²	O	M	Found south of 50 degrees latitude; prefers clear, moderately vegetated, open water areas ¹ . Schools in lakes, ponds and rivers; low turbidity; tolerant of low pH and salinity ³ . Prefers lakes with bottoms of muck to sand and gravel ⁵ .

Fish of the Credit River Watershed

Common Name	Scientific Name	G-Rank	S-Rank	COSEWIC	MNR	Water Temperature			Riverine Habitats	Lacustrine Habitats	Trophic Level	Habitat Requirements	Tolerance	Comments
						Cold Water	Cool Water	Warm Water						
rainbow darter	<i>Etheostoma caeruleum</i>	G5	S4				P	U ²	P		I	S	S-M	Prefers clear, shallow, rock/gravel riffles of Lake Ontario, Erie, St. Clair, and Huron tributaries ¹ . Extremely sensitive to chemical pollution and silting ⁵ .
Iowa darter	<i>Etheostoma exile</i>	G5	S5			U ⁴	P	U ²	P	P	I	S	M	Prefers clear, vegetated, standing or slow-moving waters with bottom of organic debris, sand or peat ¹ . Intolerant of turbid, muddy waters ⁵ .
fantail darter	<i>Etheostoma flabellare</i>	G5	S4			P	P	U ²	P		I	S	M	Prefers shallow, slow to medium current streams and rivers with gravel/boulder substrates ¹ . Riffles and raceways are often used by this species ³ . Less sensitive to moderate turbidity and silting than rainbow darter; overwinters in deeper downstream water ⁵ .
johnny darter	<i>Etheostoma nigrum</i>	G5	S5			P	P	P	P		I	G-S	M-T	Not found in Abitibi River drainage; prefers moderate to no current over sand/gravel/silt bottom ¹ . Lakes, large rivers and streams (with relatively fast current) ³ . Do not inhabit weedy areas or gravel riffles of streams ⁵ .
Sunfish Family (Family Centrachidae)														
rock bass	<i>Ambloplites rupestris</i>	G5	S5				U	P ²	P	P	I/P ⁴	O	M	Prefers rocky, shallow areas in lakes, and the lower, warm reaches of streams ¹ . Found around rocks and docks, in groups ³ .
pumpkinseed	<i>Lepomis gibbosus</i>	G5	S5					P ²	P	P	I/P ⁴	O	M	Prefers warm, shallow, weedy bays of large lakes, small lakes, slow moving streams ¹ . Common and numerous, esp. around docks ³ . Prefers clear water and cover of submergent vegetation or brush; ranges over various bottom types ⁵ .
smallmouth bass	<i>Micropterus dolomieu</i>	G5	S5					P ²	U ⁴	P ²	I ² /P	G	M	Found south of 40 degrees latitude; prefer rocky and sandy shallows of lakes and rivers ¹ . Near rocks and logs; prefer temperature in 20°C's, cooler than largemouths ³ . Eggs susceptible to sudden temperature and water level changes ⁵ .
largemouth bass	<i>Micropterus salmoides</i>	G5	S5					U ⁴	P ²	U	I/P ⁴	G	M	Prefers shallow, small lakes, bays of larger lakes, and, rarely, larger, slow-moving rivers ¹ . Favours heavy aquatic vegetation and submerged logs; can survive in higher temperatures, up to 38°C ³ . Low tolerance of low oxygen conditions ⁵ .
black crappie	<i>Pomoxis nigromaculatus</i>	G5	S4					U ⁴	P		I/P ⁴	G	M	Prefer areas with abundant weeds, and sandy or mucky bottoms ¹ . Schooling, found in still waters of lakes and ponds, or slow flowing large rivers with abundant cover; prefers lower temperatures than white crappie, and is less tolerant of turbidity ³ . Schooling species ⁵ .
Drum or Croaker Family (Family Sciaenidae)														
freshwater drum	<i>Aplodinotus grunniens</i>	G5	S5					P ²		P	I/P ²	G	M	Found in Ottawa River and Great Lakes, except Lake Superior; prefers large, shallow bodies of water ¹ . Both clear and turbid waters are tolerated ³ . Bottom feeder ⁵ .
Sculpin Family (Family Cottidae)														

Fish of the Credit River Watershed

Common Name	Scientific Name	G-Rank	S-Rank	COSEWIC	MNR	Water Temperature			Riverine Habitats	Lacustrine Habitats	Trophic Level	Habitat Requirements	Tolerance	Comments
						Cold Water	Cool Water	Warm Water						
mottled sculpin	<i>Cottus bairdi</i>	G5	S5			P			P	P	I	S	S	Prefers cool, low volume streams and rivers, and also, lakes ¹ . Sand or gravel substrats ³ .
slimy sculpin	<i>Cottus cognatus</i>	G5	S5			P			P	P	I	S	S	Prefers cold rocky and gravelly streams ¹ . Prefers deeper water of lakes and cooler streams ⁵ .

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