# COSEWIC
# Assessment and Status Report

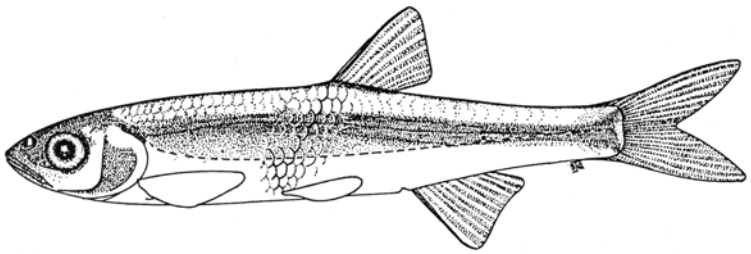
on the

# Carmine Shiner
*Notropis percobromus*

and

# Rosyface Shiner
*Notropis rubellus*

**in Canada**



**CARMINE SHINER - THREATEND**
**2001**
**ROSYFACE SHINER - NOT AT RISK**
**1994**


**COSEWIC**
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE IN
CANADA

**COSEPAC**
COMITÉ SUR LA SITUATION DES
ESPÈCES EN PÉRIL
AU CANADA

COSEWIC status reports are working documents used in assigning the status of wildlife species suspected of being at risk. This report may be cited as follows:

Please note: Persons wishing to cite data in the report should refer to the report (and cite the author(s)); persons wishing to cite the COSEWIC status will refer to the assessment (and cite COSEWIC). A production note will be provided if additional information on the status report history is required.

COSEWIC 2001. COSEWIC assessment and status report on the carmine shiner *Notropis percobromus* and rosyface shiner *Notropis rubellus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. v + 17 pp.

Houston, J. 1994. COSEWIC status report on the rosyface shiner *Notropis rubellus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 1-17 pp.

Production note:
The Manitoba population of rosyface shiner referred to throughout this status report has since been recognized as a different species, the carmine shiner *(Notropis percobromus)*. The eastern population in Canada retains the name rosyface shiner *(Notropis rubellus)*.

For additional copies contact:

COSEWIC Secretariat
c/o Canadian Wildlife Service
Environment Canada
Ottawa, ON
K1A 0H3

Tel.: (819) 997-4991 / (819) 953-3215
Fax: (819) 994-3684
E-mail: COSEWIC/COSEPAC@ec.gc.ca
http://www.cosewic.gc.ca

Également disponible en français sous le titre Évaluation et Rapport du COSEPAC sur la situation de la tête carmin (*Notropis percobromus*) et de la tête rose (*Notropis rubellus*) au Canada.

Cover illustration:
Rosyface shiner — Drawing by Sally J. Gadd, courtesy D.E. McAllister, Canadian Museum of Nature.


Catalogue No. CW69-14/66-2004E-PDF
ISBN 0-662-36070-2
HTML: CW69-14/66-2004E-HTML
0-662-36071-0


Recycled paper

# COSEWIC
# Assessment Summary

**Assessment Summary – November 2001**

**Common name**
Carmine shiner

**Scientific name**
*Notropis percobromus*

**Status**
Threatened

**Reason for designation**
This species has a disjunct Canadian distribution. The Manitoba population is discrete from those in Ontario and Quebec as well as from those in neighbouring U.S. states. This small population has a restricted range and is impacted by water temperature and quality.

**Occurrence**
Manitoba

**Status history**
Designated Special Concern in April 1994. Status re-examined and uplisted to Threatened in November 2001. Last assessment based on an existing status report.

**Assessment Summary – April 1994**

**Common name**
Rosyface shiner

**Scientific name**
*Notropis rubellus*

**Status**
Not at Risk

**Reason for designation**
There is no evidence of decline in Ontario and Quebec where the populations are secure.

**Occurrence**
Ontario and Quebec

**Status history**
Designated Not at Risk in April 1994.

# COSEWIC
# Executive Summary

## Rosyface Shiner
*Notropis rubellus*

The Rosyface Shiner has a relatively wide distribution in Canada from southwestern Quebec to southcentral Manitoba. There is no indication that the species is in decline in Quebec and it is probably secure in that province at present, at least in streams tributary to the Ottawa River which have undergone little or no disturbance since the last surveys undertaken in early 1970s.

There is no evidence that Ontario populations are in decline, although those of southwestern Ontario should be surveyed on a regular basis. Scott and Crossman (1973) felt that it may be less common in some parts of the range than it was two or three decades ago, but had no evidence to support the supposition. Streams in southwestern Ontario are subject to a variety of human disturbances which could affect critical habitat resulting in demise of the resident stocks.

The species was brought to the attention of COSEWIC for consideration because of its apparent rarity in Manitoba, where it was supposedly known from only one location in the province, i.e. from the Whitemouth River. Its presence in Manitoba is undoubtedly of long standing, and it has likely previously escaped detection for a variety of reasons. However, the species may be of concern there (Manitoba) since it has a restricted distribution and is dependent on clear, fast moving waters which are being threatened by agricultural activity.

## COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determines the national status of wild species, subspecies, varieties, and nationally significant populations that are considered to be at risk in Canada. Designations are made on all native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fish, lepidopterans, molluscs, vascular plants, lichens, and mosses.

## COSEWIC MEMBERSHIP

COSEWIC comprises representatives from each provincial and territorial government wildlife agency, four federal agencies (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biosystematic Partnership), three nonjurisdictional members and the co-chairs of the species specialist groups. The committee meets to consider status reports on candidate species.

## DEFINITIONS

| | |
|---|---|
| Species | Any indigenous species, subspecies, variety, or geographically defined population of wild fauna and flora. |
| Extinct (X) | A species that no longer exists. |
| Extirpated (XT) | A species no longer existing in the wild in Canada, but occurring elsewhere. |
| Endangered (E) | A species facing imminent extirpation or extinction. |
| Threatened (T) | A species likely to become endangered if limiting factors are not reversed. |
| Special Concern (SC)* | A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events. |
| Not at Risk (NAR)** | A species that has been evaluated and found to be not at risk. |
| Data Deficient (DD)*** | A species for which there is insufficient scientific information to support status designation. |

* Formerly described as “Vulnerable” from 1990 to 1999, or “Rare” prior to 1990.
** Formerly described as “Not In Any Category”, or “No Designation Required.”
*** Formerly described as “Indeterminate” from 1994 to 1999 or “ISIBD” (insufficient scientific information on which to base a designation) prior to 1994.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list.

Environment Canada | Environnement Canada
Canadian Wildlife Service | Service canadien de la faune

Canada

The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

# COSEWIC Status Report

on the

# Rosyface Shiner[1]
## *Notropis rubellus*

**in Canada**

J. Houston[2]

1994

[1]The Manitoba population of rosyface shiner referred to throughout this status report has since been recognized as a different species, the carmine shiner (*Notropis percobromus*) The eastern population in Canada retains the name rosyface shiner (*Notropis rubellus*)

[2]374 Fireside Drive
Box 569F, R.R. No. 1
Woodlawn, ON
K0A 3M0

# TABLE OF CONTENTS



**List of figures**

## INTRODUCTION

The Rosyface Shiner, *Notropis rubellus* (Agassiz 1850), is a small cyprinid found in Canada from the upper St. Lawrence river in the east, to extreme southeastern Lake Superior with a northwest extension of distribution reaching southern Manitoba in the west (Scott and Crossman 1973). Information is lacking on relative abundance of the species in Canada, but it is widely distributed in the central part of the range. Since it has a limited distribution in Manitoba (Hinks 1943; Fedoruk 1969), which is separated from the nearest location in Ontario by some 900 to 1000 km, Derksen (A.J. Derksen, Fisheries Specialist, Manitoba Ministry of Natural Resources, Winnipeg, Manitoba; personal communication to Chairman, COSEWIC Fish and Marine Mammal Subcommittee) suggested that it should be considered for COSEWIC review. This report was prepared to summarize the existing knowledge of the species in Canada for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for consideration of the status of the species on a provincial and national basis.

### Description

This fish has a typically slender, elongate body (Figure 1); adults do not usually grow larger than 75 mm in standard length (Gilbert and Burgess 1980) or 89 mm in total length (Trautman 1981), averaging 51 to 76 mm in total length (Scott and Crossman 1973). The species is closely related to, and resembles the Emerald Shiner, *Notropis atherinoides*, and the Silver Shiner, *Notropis photogenis*. Clay (1975) indicated that the similarity of the Rosyface Shiner to the Emerald Shiner has led to erroneous identifications and old records may be misidentified. Adults of the species can be separated from the Emerald Shiner as the body of the latter is deeper and more compressed and the snout is blunt and shorter (Clay 1975; Smith 1985), and from the Silver Shiner by its (Silver Shiner) nine pelvic rays, prominent middorsal stripe, more anterior position of the dorsal fin, and the dark crescents between the nostrils (Smith 1985).

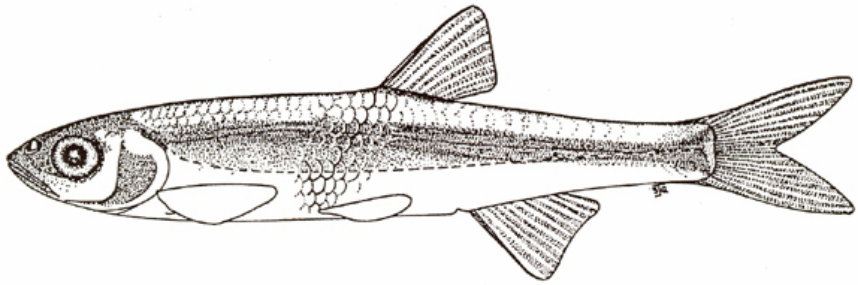


Figure 1. Rosyface Shiner, *Notropis rubellus* (NMC 64 0203, approximately 80 mm, drawing by Sally J. Gadd, courtesy D.E. McAllister, Canadian Museum of Nature).

The Rosyface Shiner is a slender minnow, silvery in colour, and derives its name from the bright red colour which develops on the head and bases of the pectoral fins in breeding males. The anal fin typically has 10 or 11 rays, the dorsal fin is usually located

about midway between the base of the caudal fin and the preopercle. The caudal fin is moderately forked with rounded lobes, the origin of the anal fin is located in line with the base of the last dorsal ray, and the pelvic origin and insertion are considerably anterior to the dorsal origin. The pectoral fins are low on the body and well forward, the length and width greater in males than in females (Becker 1983). The lateral line is complete and somewhat decurved towards the anterior. The mouth is terminal, large and slightly oblique. Proportional measurements and counts are summarized in Scott and Crossman (1973) and Smith (1985).

The normal colouration of the fish is overall silvery with slight olivaceous colouration dorsally and silvery white ventrally; the fins are transparent. Breeding males develop 100 or more tubercles on the upper half of the head from snout to occiput (Becker 1983) and the anterior rays of the pectorals; a few may occur on the opercles and the scales along the lateral line. Tubercles may also be found on the upper surfaces of the pelvic, dorsal and anal fins (Scott and Crossman 1973). Breeding males display orange to brick red colouration of the head to the nape of the neck with the rest of the body being light orange to orange-yellow (Becker 1983). The opercle, sides and ventral surface to the anal fin are a lighter red and the pectoral, pelvic, dorsal and anal fins may be diffused with red. Females may also develop this red colouration, but it is generally paler than on the males and may be absent (Becker 1983); they may also develop tubercles on the head (Pfeiffer 1955; Scott and Crossman 1973; Smith 1985).

The Rosyface Shiner resembles the Emerald Shiner, but differs in having the origin of the dorsal fin slightly posterior to the pelvic insertion, and has a shorter and blunter snout. The body is usually deeper and more compressed, there is no red colouration on breeding adults and the dorsal surface is usually not as darkly pigmented. The similarity of the two species has led to misidentifications and old records may be uncertain (Clay 1975).

## DISTRIBUTION

Rosyface Shiners are found in central and eastern North America (Figure 2). In the east the limit of the range is the upper St. Lawrence River drainage of southern Quebec, south through New York and Vermont to the James River drainage of Virginia, but excluding the Delaware. The range extends west through most of the Great Lakes drainage (excluding most tributaries to the north shore of Lake Superior) to the Red River of the North drainage in Minnesota and north into Manitoba. West of the Appalachians it occurs in the upper Ohio and Mississippi River basins from Pennsylvania possibly to North Dakota (one location record from the Sheyenne River), Minnesota and Iowa. East of the Mississippi it is found south to the Tennessee River drainage of North Carolina, Tennessee and Alabama and west of the Mississippi in the Ozark uplands of Arizona, Oklahoma and Kansas to southern tributaries of the Missouri River in Montana (Scott and Crossman 1973; Gilbert and Burgess 1980).

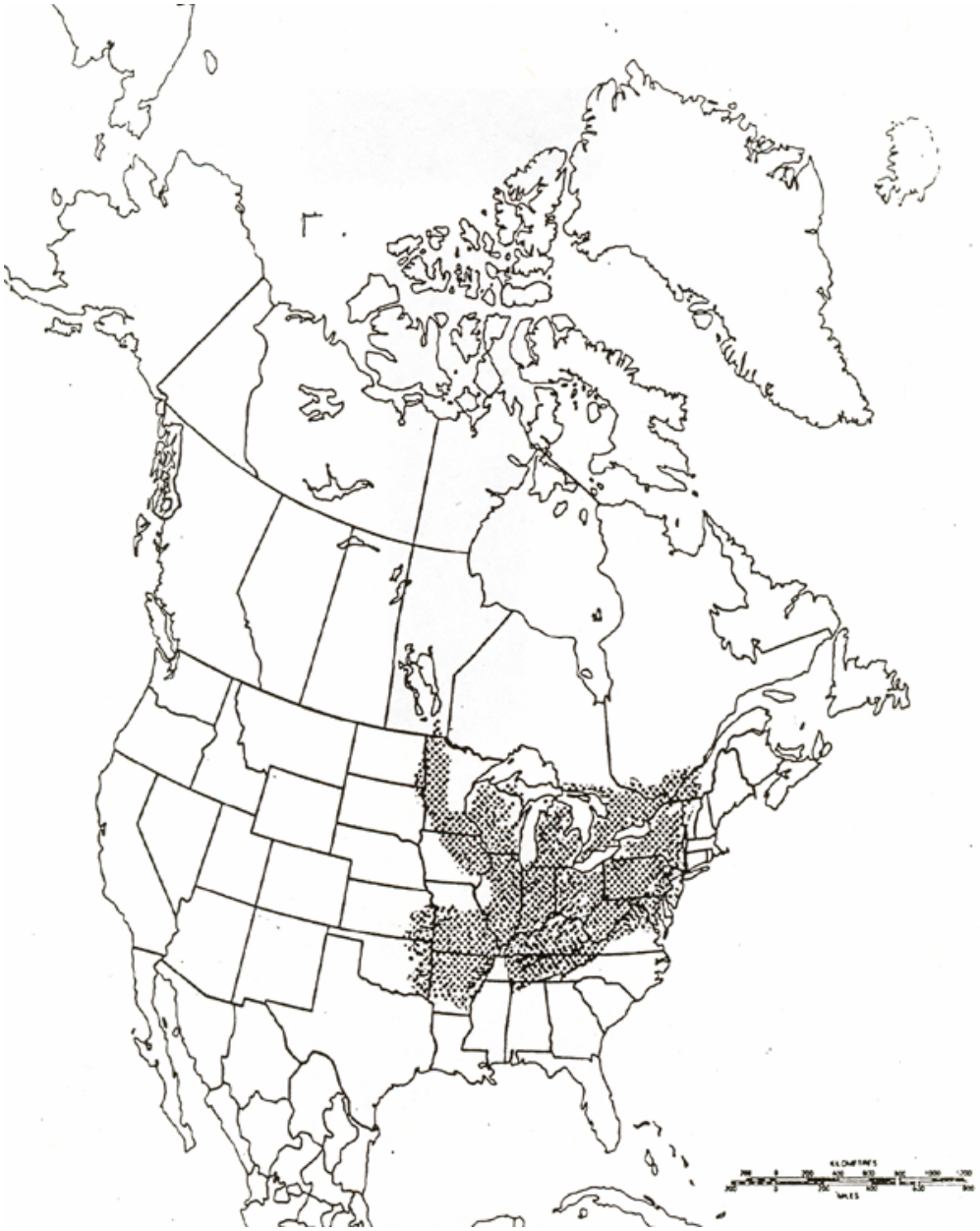


Figure 2. North American range of the Rosyface Shiner, *Notropis rubellus* (from sources cited in the text).

In Canada, the species is most widely distributed in Ontario, although the range more or less extends from the upper St. Lawrence near Quebec City, west to southcentral western Manitoba (Figure 2), with a hiatus on the north shore system of Lake Superior. The Manitoba records look unusual only if we look at the Canadian populations in exclusion of the distribution in Iowa, Wisconsin, Minnesota and the Dakotas.

The species is limited to the extreme southern region of Quebec (Figure 3) where it is known from tributaries of the Ottawa River north and west at least to the Black River

(Bergeron and Brousseau 1983), and of the St. Lawrence River as far downstream as the Nicolet River at the eastern end of Lake St. Pierre, just upstream of Quebec City (Mongeau *et al.*1974; Mongeau *et al*. 1979; Bergeron and Brousseau 1981). Rosyface Shiners have also been collected from the south shore of the St. Lawrence from the Richelieu and Châteauguay rivers and other St. Lawrence River tributaries east to Leclercville on the River Grande (ROM 42159; Mongeau *et al.* 1974). The distribution appears to be restricted to the St. Lawrence and Ottawa River drainages south of a line at approximately 46° N.

Figure 3. General distribution of collection records of *Notropis rubellus* in Quebec (from sources cited in the text).

In Ontario, the species occurs in southwestern Ontario (Figure 4) in streams draining into lakes Ontario, Erie, Huron and the eastern end of lake Superior and the Ottawa River watershed north to about the Mattawa River (Scott and Crossman 1973), as in Quebec at a line approximately at 46° N [(i.e., the Great Lakes watershed and not found in the Hudson, James or Ungava Bay (Arctic watersheds)]. Rosyface Shiners have not been recorded from north shore Lake Superior tributaries, although they have

been recorded from several streams in Michigan tributary to that lake (Scott and Crossman 1973; Smith 1979). Hinks (1943) referred to the species as occurring in the Lake of the Woods watershed, but there are no known records to support the statement. The species should be looked for there as suitable habitat exists and other cyprinids with similar habitat requirements and distributions, such as *Notropis heterodon*, previously not known west of Sault St. Marie have recently been recorded from the Rainy River watershed in Quetico Park and the Wabigoon River watershed of the Kenora District of northwestern Ontario (Crossman and McAllister 1986; Crossman 1986; Stewart 1988).

Figure 4. General distribution of collection records of *Notropis rubellus* in Ontario (Mandrak and Crossman 1992).

Figure 5. General distribution of collection records of *Notropis rubellus* in Manitoba (from sources cited in the text).

Literature records of the presence of the species in Manitoba where it is known (A.J. Derksen, Fisheries Specialist, Manitoba Department of Natural Resources, Winnipeg, Manitoba; personal communication) from the Whitemouth-Birch river systems (tributary to the Winnipeg River which it joins above an historically impassable falls), go back at least to Hinks (1943). However, these records are uncertain as they base the species' presence on unsupported evidence that it occurred in the Lake of the Woods

system. Fedoruk (1969) also lists the species among the fauna of Manitoba, but he did not give the distribution of any species. Scott and Crossman (1973) included its distribution in Manitoba as in the Red River in southern Manitoba, perhaps based on a 1955 collection by J.J. Keleher from the Whitemouth River at Whitemouth, Manitoba catalogued at the Royal Ontario Museum (ROM 17539), but more likely because of the reports of the species from the Red River Basin in Minnesota (Derksen, personal communication). The species does not occur along the axis of the Red River in Manitoba (K. Stewart, Department of Zoology, University of Manitoba, Winnipeg, Manitoba; personal communication). No other reliable literature records are known, although the species has been collected several times since from the Whitemouth and as recently as 1984 (ROM 45731; NMC 84-0010, NMC 85-0002). A previously unreported 1976 collection from Lake Manitoba, at Delta Marsh, catalogued in the Canadian Museum of Nature Collection (NMC 76-0421), has been re-examined and it was determined that the fish in this collection were actually *Notropis atherinoides*, not *Notropis rubellus* (B. Coad, Canadian Museum of Nature, Ottawa, Ontario; personal communication).

## PROTECTION

Rosyface Shiners are not subject to any specific protection in Canada, but general protection is afforded, if required, in Manitoba through the provincial Endangered Species Act. In Quebec, the species has been given little, or no attention, but could be given specific protection under provincial legislation (*Endangered Species Act* and law on faunic habitats) if required.

In the U.S., Rosyface Shiners are considered to be of "special concern" only in the states of Mississippi, North Carolina, North Dakota and South Dakota and are given protected status in Tennessee (Johnson 1987). It has been extirpated from most Ohio waters since 1950 (Trautman 1981) and is in decline in Minnesota and Illinois in concert with habitat loss due to siltation (Eddy and Underhill 1974; Smith 1979). However, forms of the species have developed in the Pecatonica and Sugar river basins of Wisconsin which are capable of withstanding considerable turbidity (Becker 1983).

## POPULATION SIZES AND TRENDS

There is no recent information from Quebec on this species where it is largely known only from presence and absence data (P. Houde, ministère du Loisir, de la Chasse, et de la Pêche, Direction de la gestion de la faune, Hull, Québec; personal communication), although a few incidental collections in the 1980s did note the presence of the species at some locations where it had been recorded earlier. Mongeau *et al*. (1979) found this fish to be abundant where found and Mongeau *et al*. (1979) found it to be common in the Châteauguay system, and it appears to be fairly abundant in the Ottawa River tributaries of Hull, Pontiac and Gatineau counties (McAllister and Coad 1974). The species is widely distributed in southern Ontario,

collection records of the Royal Ontario Museum (ROM), Canada Museum of Nature (NMC) and the Ontario Ministry of Natural Resources (OMNR) indicate that the species is usually numerous where found. There is no direct evidence of a decline in the species in southern Ontario where it has recently been recorded from the same streams where found earlier this century. Many of these streams, particularly in southwestern Ontario, have undergone habitat degradation similar to that responsible for the demise of the species in Minnesota, Illinois and Ohio. On the other hand there is no evidence to suggest the species is secure. However, the species is generally common where suitable habitat (clean, clear, weedy waters) exists (McAllister, personal communication). The species is not known in Ontario west of Sault Ste. Marie, but it should be looked for in Quetico Park [not found there in the ROM surveys (Crossman 1976)] and the Rainy River - Winnipeg River system in the Lake of the Woods area, and west into Manitoba where similar species, such as the Emerald Shiner have recently been recorded (Scott and Crossman 1973).

Although listed among the fishes of Manitoba by Hinks (1943), the first verified record of the species appears to be the 1955 collection by Keleher in the Whitemouth River (ROM 17539). The species is apparently abundant in this system (Derksen, personal communication).

Stewart *et al*. (1985) and Stewart (1988) discussed the disjunct and scattered populations of the Blackchin Shiner, *Notropis heterodon*, in Manitoba and concluded that the species has been there for some time, but had gone unreported through lack of collecting effort and/or confusion with other species. Similar arguments could be made for the dispersal of *Notropis rubellus*. This species like several others (Crossman and McAllister 1986) occurs mainly in the most southerly regions of the Hudson Bay system and gets into Canada only as far as the Whitemouth River and are non-existent north of this. These fishes are warm water adapted and have only recently (in geological time) arrived at their northerly limit or are probably still limited in their northward extensions by temperature preferences. Some species like the Rosyface Shiner have extended their range north only while others like the Blackchin Shiner have extended east to Lake of the Woods and Quetico (Crossman and McAllister 1986).

The fact that the Rosyface Shiner was not recorded in Manitoba until the latter half of this century might be related to lack of collecting effort and/or confusion with similar species such as the Emerald Shiner [the Silver Shiner is known in Canada only from southwestern Ontario (Baldwin 1988)] which is common in southern Manitoba (Scott and Crossman 1973). Continued sampling effort may produce additional records from the Winnipeg/Rainy River system and could provide evidence of the species from the Interlake area of Manitoba. However, Ken Stewart of the University of Manitoba has conducted extensive collections in and around the Winnipeg River and the Interlake area. So far these efforts have failed to turn up Rosyface Shiners in any of these areas, or in streams adjacent to the Whitemouth River (Derksen, personal communication).

## HABITAT

The typical habitat of the species is clear, fast flowing larger streams and small rivers over substrates of clean gravel (Gilbert and Burgess 1980). Generally said to avoid small and/or sluggish streams (Clay 1975), it is often found in schools in riffles and clear pools in the lower portion of streams near the confluence with larger streams or rivers (Scott and Crossman 1973; Smith 1979) where aquatic insects are plentiful. It is intolerant of turbidity and siltation (Trautman 1981).

Water temperature tolerances are not known, but Crossman and McAllister (1986) list this as a fish of warm waters, and water temperature may be limiting to its Canadian range which is the northern limit for the species. However, Smith (1979) suggests it is intolerant of high summer water temperatures. Clear, silt free pools and water temperature of at leat 21°C seem to be critical for spawning activity in New York (Pfeiffer 1955).

## GENERAL BIOLOGY

Apparently the biology and ecology of Canadian populations of this species have received little or no attention. The species has received some attention in the U.S. where it is more widely distributed.

In New York State, Rosyface Shiners spawn in late June when water temperatures are between 21 to 25°C (Pfeiffer 1955). In Illinois, Pennsylvania and Ohio spawning occurs in late May and early June (Reed 1957a; Smith 1979; Trautman 1981) and may continue into late June (Reed 1957b). Reed (1957a) noted that spawning in Pennsylvania occurred at water temperatures of 20 to 22°C. Spawning occurs in shallow water over gravel in riffles (Pfeiffer 1955; Reed 1957a; Trautman 1981). Becker (1983) mentions that spawning occurred during bright sunny days in a shallow water area containing nests of minnows. Pfeiffer (1955) and Becker (1983) provide detailed descriptions of spawning behaviour where schools of eight to 12 fish rush into the spawning area, the males colliding with females. During these brief (5 to 6 sec) sessions the fish vibrate over a depression in the gravel and the eggs are released and fertilized. Reed (1957b) noted that later spawnings involved smaller groups of fish with a preponderance of males.

Rosyface Shiners apparently spawn over the nests of *Nocomis* spp. (Reed 1957a) and *Luxilis cornutus* (Becker 1983). Hybrids involving *Notropis rubellus* and *Luxilus cornutus* are well documented in the U.S., and six collections of *Luxilis cornutus* X *Notropis rubellus* are catalogued in the ROM collection (Crossman, E.J., Royal Ontario Museum, Toronto, Ontario; personal communication). According to Smith (1979), this fish spawns over the nests of sunfish, but hybrids with sunfish are unknown and unlikely. There is a record between *Notropis rubellus* and *Notropis volucellus* (Bailey and Gilbert 1960). Rosyface and Silver Shiners are often associates and spawn on the same riffles (Trautman 1981); however, the Silver Shiner spawns later (late June to early July in Ohio) and hybridization is unlikely.

The development of young fish has not been well documented; however, Reed (1958) found that hatching occurred in about 60 hours at 20°C and Pfeiffer (1955) found 5 mm fry eight days after spawning. The fish are apparently mature at one year of age (males and females); one-year-old females were found to have 600 eggs on average (egg diameter being 1.1 to 1.5 mm) and three-year-old females averaged 1175 (Pfeiffer 1955); the eggs are demersal and sticky (Becker 1983). The males appear to grow faster than the females in the first year while the females grow faster in the second and third years. The maximum age is apparently three years (Pfeiffer 1955).

Rosyface Shiners are omnivorous, with aquatic insects making up about 72% of the diet (Reed 1957b), and algae, diatoms and inorganic material making up the remainder. Smith (1985) reported that aquatic and terrestrial invertebrates account for about 92% of the food.

Parasites of this species are listed by Hoffman (1967). There is no information on utilization by other fishes for forage.

## LIMITING FACTORS

The species appears to have a narrow range of habitat requirements and responds quickly to changes in habitat and water quality. Trautman (1981) indicated that since 1938 it has decreased in numbers, and even been extirpated from some areas in Ohio due to increased turbidity and siltation. In Illinois, the fish is disappearing from streams modified by impoundments and excessive siltation (Smith 1979). Clay (1975) also remarked on its absence from impounded waters in Kentucky. Similar reactions have also been noted in Minnesota (Eddy and Underhill 1974).

Ambient water temperature could also be a limiting factor as the species appears to favour cooler waters of glacial lakes and the headwaters of tributary streams; however, no information exists on the temperature requirements of the species. Smith (1979) thought it to be intolerant of high summer water temperatures.

## SPECIAL SIGNIFICANCE OF THE SPECIES

The Rosyface Shiner, like other small cyprinids, may be an important forage and bait species where abundant. Scott and Crossman (1973) indicated its potential in studies of water quality because of its sensitivity to turbidity and siltation. Cherry *et a*l. (1977) did utilize the species in a study to determine avoidance reactions of fish to free residual chlorine.

The disjunct distribution and habitat requirements are of interest to science in relation to the zoogeographical history and distribution of species subsequent to the Wisconsin Period of glaciation.

## EVALUATION

The Rosyface Shiner has a relatively wide distribution in Canada from southwestern Quebec to southcentral Manitoba. There is no indication that the species is in decline in Quebec and it is probably secure in that province at present, at least in streams tributary to the Ottawa River which have undergone little or no disturbance since the last surveys undertaken in early 1970s.

There is no evidence that Ontario populations are in decline, although those of southwestern Ontario should be surveyed on a regular basis. Scott and Crossman (1973) felt that it may be less common in some parts of the range than it was two or three decades ago, but had no evidence to support the supposition. Streams in southwestern Ontario are subject to a variety of human disturbances which could affect critical habitat resulting in demise of the resident stocks.

The species was brought to the attention of COSEWIC for consideration because of its apparent rarity in Manitoba, where it was supposedly known from only one location in the province, i.e., from the Whitemouth River. Its presence in Manitoba is undoubtedly of long standing, and it has likely previously escaped detection for a variety of reasons. However, the species may be of concern there (Manitoba) since it has a restricted distribution and is dependent on clear, fast moving waters which are being threatened by agricultural activity (Stewart, personal communication).

# TECHNICAL SUMMARY

**SPECIES: Rosyface Shiner, Tête Rose*, Notropis rubellus***
**Manitoba Population**

**DISTRIBUTION**

| | |
|---|---|
| | MB, ON, QC |
| Extent of occurrence: | < 150 $km^2$ |
| Area of occupancy: | < 100 $km^2$ |

**POPULATION INFORMATION**

| | |
|---|---|
| Total number of individuals in the Canadian population: | Unknown |
| Number of mature individuals in Canada (N): | Unknown |
| Generation time: | 1 year |
| Population trend: | Appears to be stable |
| Rate of population decline: | Unknown |
| Number of sub-populations: | |
| Is the population fragmented? | Yes (from those in Ontario, North Dakota and Manitoba) |
| Number of individuals in each subpopulation : | Not known |
| number of extant sites: | 1 |

**RESCUE POTENTIAL**

| | |
|---|---|
| Does species exist outside Canada? | YES |
| Is immigration known or possible? | Possible |
| Would immigrants survive in Canada? | YES |
| Is suitable habitat available for immigrants? | YES - but limited by water temperature and quality |

**THREATS**

Deterioration of water quality as a result of agricultural activity.

**EXISTING STATUS**

Nature Conservancy Ranks: Global - G5 National: US - N5 , Canada - N4; Regional: AL - S2, AR - S4, DE S?, DC - S2S3, GA - S!, IL - S3, IN - S4, IA - S5, KS - S4, KY - S4S5, MI S5, MN - S?, MD - S4S, MS - S1, MO - S?, NC - S4, NY - S4, PA - S5, ND - S3, OK - S4, PA - S5, SD - S2, TN - S5, VT - S3, VA - S5, WV - S5, WI - S4,

Special Concern Status: MS, NC, SD, ND, P – TN
Regional – Canada: MB - S2, ON - S4, QC - S4
COSEWIC – Vulnerable 1994

## ACKNOWLEDGEMENTS

Funding for production of the report was made available through World Wildlife Fund (Canada) and the Department of Fisheries and Oceans. The author is grateful for the assistance of A. Derksen, Manitoba Department of Renewable Resources; D.E. McAllister, Canadian Museum of Nature; E.J. Crossman, Royal Ontario Museum; G. Gale, Ontario Ministry of Natural Resources and P. Hood, Quebec Ministry of Recreation, Hunting and Fishing in provision of collection records and advice, and to COSEWIC for the opportunity to present the report.

## LITERATURE CITED

Bailey, R.M. and C.R. Gilbert. 1960. The American cyprinid fish *Notropis kanawha* identified as an interspecific hybrid. Copeia 1960(4): 354-357.

Baldwin, M.E. 1988. Updated status of the Silver Shine, *Notropis photogensis*, in Canada. Canadian Field-Naturalist 102(1): 147-157.

Becker, G.C. 1983. Fishes of Wisconsin. University of Wisconsin Press, Madison, Wisconsin. 1052 pp.

Bergeron, J.F. and J. Brousseau. 1983. Guide des poissons d'eau douce du Québec. Gouvernement du Québec, Ministère du Loisir, de la Chasse et de la Pêche. Québec, Québec.

Cherry, D.S., S.R. Larrick, K.L. Dickson, R.C. Hoehn and J. Cairns Jr. 1977. Significance of hypochlorous acid in free residual chlorine to the avoidance response of spotted bass *(Micropertus punctatus*) and rosyface shiner (*Notropis rubellus*). Journal of the Fisheries Research Board of Canada 34: 1365-1372.

Clay, W.M. 1975. Rosyface shiner, *Notropis rubellus* (Agassiz). Pages 169-170 *in* The Fishes of Kentucky. Kentucky Department of Fish and Wildlife Resources, Frankfort, Kentucky.

Crossman, E.J. 1976. Quetico fishes. Life Sciences Miscellaneous Publications. Toronto, Royal Ontario Museum.

Crossman, E.J. and D.E. McAllister. 1986. Zoogeography of freshwater fishes of the Hudson Bay drainage, Ungava Bay and Arctic Archipelago. Pages 53-104 *in* The zoogeography of North American freshwater fishes. *Edited by* C.H. Hocutt and E.O. Wiley. John Wiley and sons, New York, New York.

Eddy, S. and J.C. Underhill. 1974. Northern fishes. University of Minnesota Press, Minneapolis, Minnesota.

Fedoruk, A.N. 1969. Check list of and key to the freshwater fishes of Manitoba. Manitoba Department of Mines and Natural Resources, Winnipeg, Manitoba. Canada Land Inventory Project Report 6: 1-98.

Gilbert, C.R. and G.H. Burgess. 1980. *Notropis rubellus* (Agassiz), Rosyface shiner. Page 302 *in* Atlas of North American freshwater fishes. *Edited by* D.S. Lee, C.R. Gilbert, C.H. Hocutt, R.A. Jenkins, D.E. McAllister and J.R. Stauffer Jr. North Carolina State Museum of Natural History, North Carolina Biological Survey Number 1980-12.

Hinks, D. 1943. The fishes of Manitoba. Manitoba Department of Mines and Natural Resources, Winnipeg, Manitoba.
Hoffman, G.L. 1967. Parasites of North American freshwater fishes. University of California Press, Los Angeles, California. 486 p.
Johnson, J.E. 1987. Protected fishes of the United States and Canada. American Fisheries Society, Bethesda, Maryland.
Mandrak, N.E. and E.J. Crossman. 1992. A checklist of Ontario freshwater fishes annotated with distribution maps. Royal Ontario Museum Publications in Science, Toronto.
McAllister, D.E. and B.W. Coad. 1974. Fishes of Canada's national capital region. Fisheries and Marine Services Miscellaneous Publication 24.
Mongeau, J.-R., A. Courtemanche, G. Massé and B. Vincent. 1974. Cartes de répartition géographique des espèces de poissons du sud du Québec d'après les inventaires ichthyologiques effectués de 1963 à 1972. Ministère du Tourisme, de la Chasse et de la Pêche du Québec, Service de l'aménagement de la faune, Rapport spécial numéro 4.
Mongeau, J.-R., J. Leclerc and J. Brisebois. 1979. Les poissons du bassin de drainage de la rivière Châteauguay, leur milieu naturel, leur répartition géographique et leur abondance relative. Gouvernement du Québec, Ministère du Tourisme, de la Chasse et de la Pêche, Québec (Québec).
Pfeiffer, Reverand R.A. 1955. Studies on the life history of the rosyface shiner, *Notropis rubellus*. Copeia 1955(2): 95-104.
Reed, R.J. 1957a. The prolonged spawning of the rosyface shiner, *Notropis rubellus* (Agassiz), in southwestern Pennsylvania. Copeia 1957(3): 250.
Reed, R.J. 1957b. Phases of the life history of the rosyface shiner, *Notropis rubellus*, in southwestern Pennsylvania. Copeia 1957(4): 286-290.
Reed, R.J. 1958. The early life history of two cyprinids, *Notropis rubellus*, and *Campostoma anomalum pullum*. Copeia 1958(4): 325-327.
Scott, W.B. and E.J. Crossman. 1973. Freshwater fishes of Canada. Fisheries Research Board of Canada Bulletin 184. 966 p.
Smith, C.L. 1985. Rosyface shiner *Notropis rubellus* (Agassiz 1850). Pages 173-175 *in* The inland fishes of New York State. New York State Department of Environmental Conservation, Ithica, New York.
Smith, P.W. 1979. Rosyface shiner, *Notropis rubellus* (Agassiz). Pages 115-116. The fishes of Illinois. University of Illinois Press, Urbana, Illinois.
Stewart, K.W., I.M. Suthers and K. Leavelsey. 1985. New fish distribution records in Manitoba and the role of a man-made interconnection between two drainages as an avenue of dispersal. Canadian Field Naturalist 99(3): 317-326.
Stewart, K.W. 1988. First collections of the Weed Shiner, *Notropis texanus*, in Canada. Canadian Field-Naturalist 102(4): 657-660.
Trautman, M.B. 1981. Rosyface Shiner, *Notropis rubellus* (Agassiz). Pages 327-329 *in* The Fishes of Ohio, Revised Edition. Ohio State University Press, Columbus, Ohio.

## THE AUTHOR

Jim Houston has been the Environmental Advisor of the Canadian Section of the International Joint Commission (IJC) since June 1986. Before coming to the IJC, Mr. Houston worked with the Department of Fisheries in Ottawa and Burlington from 1982 to 1986 where he served in a number of capacities, including assessing northern and inland fisheries.

After receiving his B.Sc. in Marine Biology from the University of Guelph, Ontario, Mr. Houston consulted on a number of projects for the Department of Fisheries and Oceans and World Wildlife Fund (Canada). He has authored or co-authored over a dozen papers on the status of fish and marine mammals in Canada. Recently, he became a fellow member in an international group which has demonstrated skills for leadership in environment and development.