

COSSARO Candidate Species at Risk Evaluation
for
Eastern Sand Darter (*Ammocrypta pellucida*)

Committee on the Status of Species at Risk in Ontario (COSSARO)

Assessed by COSSARO as ENDANGERED

November 2009

Le **dard de sable** est un petit poisson habitant dans les fonds de sable de lacs et de cours d'eau. Il est différent des autres dards du Canada en raison de sa coloration translucide et de sa forme mince et allongée. Son aire de répartition comprend le bassin de la rivière Ohio, le bassin hydrographique inférieur des Grands Lacs, du fleuve Saint-Laurent et du Lac Champlain. En Ontario, il est présent à sept emplacements (rivière Sydenham, rivière Thames, lac Sainte-Claire, Grande Crique, rivière Grand, baie Long Point, et baie Rondeau), mais semble avoir disparu de quatre autres secteurs (île Pelée, rivière Ausable, ruisseau Catfish, et grand ruisseau Otter). Les tendances des populations ne sont pas connues avec certitude, mais certaines informations suggèrent que les populations ont décliné dans le lac Érié, le lac Sainte-Claire et la Grande Crique. Les menaces regroupent l'atterrissement des rivières, l'altération des canaux et la pollution aquatique. La prédation et la concurrence d'une nouvelle espèce envahissante, le gobie à taches noires, peuvent constituer une menace imminente. Le dard de sable est désigné « **en voie de disparition** » en raison de son déclin à l'échelle mondiale, de sa disparition de plusieurs cours d'eau en Ontario, et de sa vulnérabilité aux changements à son habitat et aux espèces envahissantes.

Cette publication hautement spécialisée (Eastern Sand Darter COSSARO Evaluation) n'est disponible qu'en Anglais en vertu du Règlement 411/97 qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez contacter le secrétariat de COSSARO par courrier électronique à l'adresse COSSAROsecretariat@ontario.ca.

**PART 1 COSSARO candidate species at risk evaluation form –
November 2009**

Eastern Sand Darter (*Ammocrypta pellucida*)

Current designations:

GRANK – G3

NRANK Canada – N3

COSEWIC – Threatened, November 2000

SARA – Threatened, Schedule 1

General status Canada – 1 – At risk

ESA 2007 – Threatened

SRANK – S2

General status Ontario – 1 – At risk

Distribution and status outside Ontario

Restricted to the Ohio River basin (OH, IN, IL, KY, WV, PA), the drainages of Lake Huron, Lake St. Clair, and Lake Erie (MI, OH, NY, ON), and the St. Lawrence River drainage (QC, VT, NY). Listed as Endangered in PA, Threatened in IL, NY, MI and VT, and as Special Concern in IN and OH.

Eligibility criteria:

Native status

Yes.

Taxonomic distinctness

Yes. Universally recognized as a full species.

Designatable units

Single Designatable Unit. All Ontario populations are found within the Great Lakes-Upper St. Lawrence Freshwater Ecological Area. No subspecies are recognized (COSEWIC 2009).

Priority-setting criteria:

Recent arrival

No. Ontario records date back to the 1920s or earlier.

Non-resident

No

Primary criteria (rarity and declines):

1. Global rank

THREATENED. G3.

2. Global decline

ENDANGERED. Has probably experienced non-cyclical declines over more than 50% of its range (Dextrase 2000). Holm and Mandrak (1996) cite declines in five of nine US jurisdictions. NatureServe (2009) reports substantial to moderate decline (decline of 25-75%).

3. Northeastern North America ranks

THREATENED. S1, S2, SH or in 73% of northeastern North American jurisdictions. (Downlisted from S2 to S4 Indiana in 2009).

4. Northeastern North America decline

ENDANGERED. Has probably experienced non-cyclical declines over more than 50% of its northeastern North American range (Dextrase 2000). Holm and Mandrak (1996) cite declines in five of nine US jurisdictions. NatureServe (2009) reports substantial to moderate decline (decline of 25-75%).

5. Ontario occurrences

THREATENED. Seven extant occurrences (Sydenham River, Thames River, Lake St. Clair, Big Creek, Grand River, Long Point Bay, Rondeau Bay) (COSEWIC 2009).

6. Ontario decline

SPECIAL CONCERN. Absent from 36% of documented Ontario sites since the 1950s, and estimated decline of 45% in Ontario extent of occurrence. Seven extant occurrences. Four historical populations are probably extirpated: Pelee Island (last seen in 1953), Ausable River (last seen in 1928), Catfish Creek (last seen in 1941), Big Otter Creek (last seen in 1955) (COSEWIC 2009).

7. Ontario's conservation responsibility

Not in any category. Ontario has about 5% of the global range of the species.

Secondary criteria (threats and vulnerability)

1. Population sustainability

Insufficient information. No studies on reproductive success or recruitment, nor Population Viability Analyses have been conducted for the species in Ontario.

2. Lack of regulatory protection for exploited wild populations

Not in any category. Protected under the federal *Species at Risk Act (SARA)* and Ontario's *Endangered Species Act, 2007*.

3. Direct threats

ENDANGERED. All Ontario populations occur in landscapes that have been largely cleared of forest cover and are subject to agriculture (row crop or livestock) and tile drainage. River populations (4 out of 7 – 57%) are vulnerable to increased siltation, pollution and nutrient enrichment. Channel alterations, dams and water level fluctuations are additional threats (COSEWIC 2009). Round Goby (*Neogobius melanostomus*) has invaded at least six of the seven Ontario rivers historically occupied by Eastern Sand Darter, and ranges for these two species now overlap for all 4 river systems where the Eastern Sand Darter occurs. Predation and competition from the Round Goby has been implicated in declines of several darter species in lakes Erie and St. Clair (COSEWIC 2009).

4. Specialized life history or habitat-use characteristics

THREATENED. Prefers clean, fine sand bottoms of streams and rivers and sandy shoals in lakes. Fossorial behaviour and its practice of burying eggs in sand make this species particularly sensitive to siltation.

COSSARO criteria met (primary/secondary):

Endangered – [2/0]

Threatened – [3/2]

Special concern – [1/0]

Recommended status: Endangered

Summary

Eastern Sand Darter (*Ammocrypta pellucida*) is a small fish inhabiting sandy streams and sandy shoals in lakes. It is distinguished from other Canadian darters by its translucent colouration and slender, elongate shape. Its range includes the Ohio River basin, the lower Great Lakes drainage and the St. Lawrence River and Lac Champlain drainages. In Ontario, it occurs at seven locations (Sydenham River, Thames River, Lake St. Clair, Big Creek, Grand River, Long Point Bay, Rondeau Bay) and is believed to be extirpated at four others (Pelee Island, Ausable River, Catfish Creek, and Big Otter Creek). Population trends are not known with certainty, but some information suggests that populations have declined in Lake Erie, Lake St. Clair, and Big Creek. Threats include siltation of stream habitats, channel alterations, and water pollution. Predation and competition from a recent invasive species, Round Goby, may be a significant impending threat. Eastern Sand Darter is classified as Endangered due to its global decline, extirpation from several Ontario streams, and vulnerability to habitat changes and invasive species.

Information sources

- COSEWIC 2009. COSEWIC assessment and update status on the eastern sand darter (*Ammocrypta pellucida*) in Canada. 6-month Interim Update Status Report. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 61 pp.
- Dextrase, A. 2000. COSSARO Candidate V, T, E Species Evaluation Form - Feb 1996. Eastern Sand Darter (*Ammocrypta pellucida*).
- Holm, E. and N.E. Mandrak. 1996. The status of the Eastern Sand Darter, *Ammocrypta pellucida*, in Canada. Canadian Field-Naturalist 110(3): 462-469.
- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: October 18 2009).

Appendix 1

Northeastern North America rank, status and decline

[for each jurisdiction list S-rank or not present. Include any information available re: declines]

Location	Rank
CT	Not present
DE	Not present
IL	S1
IN	S4*
IA	Not present
KY	S4*
LB	Not present
MA	Not present
MB	Not present
MD	Not present
ME	Not present
MI	S1S2
MN	Not present
NB	Not present
NF	Not present
NH	Not present
NJ	Not present
NS	Not present
NY	S2
OH	S3
ON	S2
PA	S1
PE	Not present
QC	S2
RI	Not present
VA	Not present
VT	S1
WI	Not present
WV	S2S3

Occurs as a native species in 11 of 29 northeastern jurisdictions

Srank or equivalent information available for 11 of 11 jurisdictions = (100%)

S1, S2, SH, or in 8 of 11 = (73%)

* revised since 2008 COSEWIC status report

PART 2 Ontario evaluation using COSEWIC criteria

Regional (Ontario) COSEWIC criteria assessment

Criterion A – declining population

N/A. Probably extirpated from four of the eleven known Ontario sites since the 1920s, but population trend over the past 10 years is unknown due to the lack of consistent sampling programs.

Criterion B – small distribution and decline or fluctuation

ENDANGERED. Meets Endangered B2ab(i,iii,iv,v). The area of occupancy (304 km²) is below the threshold of 500 km², the populations are severely fragmented, and continuing decline has been observed in the EO, quality and quantity of habitat, number of locations, and number of mature Individuals (COSEWIC 2009).

Criterion C – small population size and decline

N/A. Several thousand adults estimated in Thames River population. Other populations apparently much smaller. Population trend over the past 10 years is unknown.

Criterion D – very small or restricted

N/A. Several thousand adults estimated in Thames River population. Area of Occupancy is 21 km². Extant at 7 locations (COSEWIC 2008). Almost qualifies for Threatened status.

Criterion E – quantitative analysis

N/A. No quantitative analyses have been conducted.

Rescue effect

No. No potential of rescue from adjacent populations. Although the eastern sand darter occurs along the shores of Lake Erie in PA and OH, this fish is a very poor swimmer and its colonization potential is poor. Occurs in 5 jurisdictions adjacent to Canadian populations, but rare and a species at risk in all of these (COSEWIC 2009).