

**COSSARO Candidate Species at Risk Evaluation  
for  
American Burying Beetle (*Nicrophorus americanus*)**

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

Assessed by COSSARO as EXTIRPATED

November 2011

**Final**

Le **Nécrophore d'Amérique** (*Nicrophorus americanus*) est un coléoptère de grande taille (25 à 35 mm) de couleur noire avec des taches distinctives de couleur orange. On le trouve dans tous les habitats, mais il préfère les forêts de feuillus non perturbées. Le genre présente une caractéristique inhabituelle chez les insectes, puisque les deux parents s'occupent des petits en enterrant des charognes et en construisant une chambre à couvain que les deux parents protègent contre les concurrents et les prédateurs. Les deux parents nourrissent les jeunes en développement. Le Nécrophore d'Amérique occupait auparavant la plus grande partie de l'est des États-Unis et la zone adjacente de l'Ontario avant de connaître un déclin rapide; il occupe aujourd'hui moins de 10 p. 100 de son aire de répartition historique. En Ontario, on le trouvait au nord des lacs Érié et Ontario de Windsor à Toronto, mais les dernières observations remontent à 1972. Les menaces sont inconnues, mais comprennent probablement les modifications à l'habitat, l'extinction du pigeon voyageur (qui fournissait une quantité abondante de charogne), l'attraction à l'éclairage artificiel, les collisions avec les véhicules sur les routes ainsi que la prédation et la concurrence accrues du raton laveur, et des chats et chiens domestiques. Le Nécrophore d'Amérique est classé espèce disparue en Ontario, où il n'a pas été observé depuis 39 ans, malgré des relevés extensifs dans l'ensemble de son ancienne aire de répartition dans la province.

*Cette publication hautement spécialisée, COSSARO Evaluation for American Burying Beetle n'est disponible qu'en anglais en vertu du Règlement 671/92 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](mailto:COSSAROsecretariat@ontario.ca).*

## **PART 1 Current status and distribution**

### **Current Designations:**

GRANK – G2G3 (Assessed 14/05/2009) (NatureServe, accessed 31/10/2011)

NRANK Canada – NH (Assessed 14/05/2009) (NatureServe, accessed 31/10/2011)

COSEWIC – Extirpated Nov. 2011

SARA – Not listed.

ESA 2007 – Not listed.

SRANK – SH (NHIC/NatureServe, accessed 31/10/2011)

### **Distribution in Ontario:**

Formerly occurred north of lakes Erie and Ontario from Windsor to Toronto. One questionable record from Port Sydney east of Georgian Bay.

### **Distribution and Status Outside Ontario:**

Formerly occurred across the eastern US from Maine to the Dakotas, south to Florida and southern Texas with disjunct populations in Montana and south Texas. Records from Nova Scotia, Quebec, and Manitoba are probably erroneous. It is now extirpated across most of its range with remnant populations in South Dakota, Oklahoma, and Rhode Island.

## **PART 2 Eligibility for Ontario status assessment**

### **2.1 Application of eligibility criteria**

#### **Taxonomic Distinctness**

Yes. Recognized as a distinct species in all taxonomic literature. No described subspecies. Easily distinguished from other carrion beetles by its large size and distinctive orange markings.

#### **Designatable Units**

Now extirpated in Ontario. Formerly represented by a single DU in the Mixedwood Plains Ecozone.

#### **Native Status**

Yes. Native in Ontario. Earliest Ontario record from 1896.

#### **Presence/Absence**

Extirpated. No records in Ontario since 1972 (39 generations). It is a large, easily recognized, and high profile species. Where present, it is easily captured at carrion, in pitfall traps, and at light traps. Over 300,000 pitfall and light trap nights have been conducted within the historical Ontario range by knowledgeable observers since 1960 (COSEWIC 2011). In 2010, targeted surveys (with baited traps) conducted at the 1972 collection site were unsuccessful at recapturing the species. Given the extensive studies of Ontario silphids by Anderson and Peck (1985) and the fact that this species is easily recognized, relatively easily surveyed, and well known given its endangered status in the US, it is very unlikely that it still persists in the province (Sutherland pers. comm. 2011).

### **2.2 Eligibility results**

1. The putative taxon or DU is valid. **Yes**
2. The taxon or DU is native to Ontario. **Yes**
3. The taxon or DU is present in Ontario, extirpated from Ontario or extinct?

**Extirpated**

## **PART 3 Ontario status based on COSSARO evaluation criteria**

American Burying Beetle is Extirpated in Ontario and COSSARO Criteria are Not Applicable

### **3.1 Application of primary criteria (Rarity and Declines)**

1. Global rank  
Not applicable
2. Global decline  
Not applicable
3. Northeastern North America ranks  
Not applicable
4. Northeastern North America decline  
Not applicable
5. Ontario occurrences  
Not applicable
6. Ontario decline  
Not applicable
7. Ontario's conservation responsibility  
Not applicable

### **3.2 Application of secondary criteria (Threats and Vulnerability)**

8. Population sustainability  
Not applicable
9. Lack of regulatory protection for exploited wild populations  
Not applicable
10. Direct threats  
Not applicable
11. Specialized life history or habitat-use characteristics  
Not applicable

### **3.3 COSSARO evaluation results**

1. Criteria satisfied in each status category  
Number of primary and secondary criteria met in each status category.

Endangered – [0/0]  
Threatened – [0/0]  
Special concern – [0/0]

Number of Ontario-specific criteria met in each status category.

Endangered – [0]  
Threatened – [0]  
Special Concern – [0]

2. Data deficiency  
N/A

3. Status Based on COSSARO Evaluation Criteria

The application of COSSARO evaluation criteria suggests that American Burying Beetle is Extirpated in Ontario.

## **PART 4 Ontario status based on COSEWIC evaluation criteria**

### **4.1 Application of COSEWIC criteria**

#### **Regional (Ontario) COSEWIC criteria assessment**

**Criterion A – Decline in total number of mature individuals**

Insufficient information. No definitive data on historical abundance or decline but decline apparently began over 50 years ago

**Criterion B – Small Distribution Range and Decline or Fluctuation**

Not in any category. Extirpated. Therefore no continuing decline.

**Criterion C – Small and Declining Number of Mature Individuals**

Not in any category. Extirpated. Therefore no continuing decline.

**Criterion D – Very Small or Restricted Total Population**

Not in any category. Satisfies D1 (fewer than 250 mature individuals), but Extirpated in Ontario.

**Criterion E – Quantitative Analysis**

Insufficient information. Quantitative analysis not available.

**Rescue Effect**

No. Extirpated or known only from historical records in all jurisdictions bordering Ontario.

**Special Concern Status**

No.

### **4.2 COSEWIC evaluation results**

1. Criteria satisfied in each status category

Endangered – [No]

Threatened – [No]

Special concern – [No]

2. Data Deficiency

No. No records since 1972 despite extensive survey effort throughout its Ontario range. It is a large, easily recognized, and well known species. Where present, it is easily captured at carrion, in pitfall traps, and at light traps. Meets the COSEWIC criterion for Extirpated: "there is sufficient information to document that no individuals of the wildlife species remain alive" in Ontario.

3. Status based on COSEWIC evaluation criteria  
The application of COSEWIC evaluation criteria suggests that American Burying Beetle is Extirpated in Ontario.



## **PART 5 Ontario status determination**

### **5.1 Application of COSSARO and COSEWIC criteria**

COSSARO and COSEWIC criteria give the same result. **Yes**

### **5.2 Summary of status evaluation**

American Burying Beetle (*Nicrophorus americanus*) is a large (25 to 35 mm), black beetle with distinctive orange markings. It is a habitat generalist, but prefers undisturbed deciduous forest. This genus is unusual among insects in that both parents care for the young by burying carrion and building a brood chamber, which the parents guard from competitors and predators. Both parents feed the developing young. American Burying Beetle was formerly distributed across most of the eastern US and adjacent Ontario but has declined precipitously and is now restricted to less than 10% of its former range. In Ontario, it occurred north of lakes Erie and Ontario from Windsor to Toronto, but it was last seen in 1972. Threats are unknown but probably include habitat alteration, extinction of the Passenger Pigeon (which provided abundant carrion), attraction to artificial lights, road kill, and increased predation and competition from Raccoons and domestic dogs and cats. American Burying Beetle is classified as Extirpated in Ontario because it has not been recorded in 39 years despite extensive survey effort throughout its former Ontario range.

### **Information Sources**

#### 1. Literature Cited

Anderson, R. S. & S. B. Peck. 1985. The Carrion Beetles of Canada and Alaska (Coleoptera: Silphidae and Agyrtidae). The Insects and Arachnids of Canada, Part 13. Publication 1778, Research Branch Agriculture Canada, Ottawa. 121 pp.

COSEWIC. 2011. COSEWIC Status Report on American Burying Beetle *Nicrophorus americanus*. Two month Interim Status Report

NatureServe. 2011. [NatureServe Explorer: An online encyclopedia of life](http://explorer.natureserve.org/) [web application]. Version 6.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org/>. Accessed November 2011.

Natural Heritage Information Centre (NHIC). 2011. Website. Accessed November 2011.

Sutherland, D. pers. comm. 2011 Email correspondence to A. Harris. November 2011.

#### 2. Community and Aboriginal Traditional Knowledge Sources

*None received.*

#### 3. Acknowledgements

## Appendix 1 Northeastern North America status rank and decline

	Subnational Rank	Sources	Decline	Sources
<b>CT</b>	SX	NatureServe 2011	100%	
<b>DE</b>	SX	NatureServe 2011		
<b>IL</b>	SH	NatureServe 2011		
<b>IN</b>	SH	NatureServe 2011		
<b>IA</b>	SH*	COSEWIC 2011	Not ranked in NatureServe 2011, but not recorded since 1932 (COSEWIC 2011)	
<b>LB</b>	Not present	NatureServe 2011		
<b>KY</b>	SX	NatureServe 2011		
<b>MA</b>	S1	NatureServe 2011		
<b>MB</b>	Not present*	NatureServe 2011	Ranked SNR in NatureServe, but no records of the species in MB (COSEWIC 2011)	
<b>MD</b>	SX	NatureServe 2011		
<b>ME</b>	SX	NatureServe 2011		
<b>MI</b>	SH*	NatureServe 2011		
<b>MN</b>	SX	NatureServe 2011		
<b>NB</b>	Not present	NatureServe 2011		
<b>NF</b>	Not present	NatureServe 2011		
<b>NH</b>	SH*	COSEWIC 2011	Not ranked in NatureServe 2011, but not recorded since 1902 (COSEWIC 2011)	
<b>NJ</b>	S1	NatureServe 2011	SX in COSEWIC 2011	
<b>NS</b>	Not present*	COSEWIC 2011	Historical records probably in error (COSEWIC 2011)	
<b>NY</b>	SH	NatureServe 2011		
<b>OH</b>	SX	NatureServe 2011		
<b>ON</b>	SH	NatureServe 2011		
<b>PA</b>	SH	NatureServe 2011		
<b>PE</b>	Not present	NatureServe 2011		
<b>QC</b>	Not present*	Historical records probably in error (COSEWIC 2011)		
<b>RI</b>	S1	NatureServe 2011		
<b>VA</b>	SH	NatureServe 2011		
<b>VT</b>	Not present	NatureServe 2011		
<b>WI</b>	SX	NatureServe 2011		
<b>WV</b>	Not present	NatureServe 2011		

Occurs as a native species in 20 of 29 northeastern jurisdictions

Strank or equivalent information available for 20 of 20 jurisdictions = (100%)

S1, S2, SH, or SX in 20 of 20 = (100%)

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\* Inferred rank