COSSARO Candidate Species at Risk Evaluation Form

for

Woodland Vole (*Microtus pinetorum*)

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

Assessed February 2011 by COSSARO as Special Concern

February 2011

Final

PART 1

COSSARO Candidate Species at Risk Evaluation Form – January 2011

Woodland Vole (*Microtus pinetorum*)

Current Designations:
GRANK – G5 (1996)
NRANK Canada – N3 (01 Feb 2000)
COSEWIC – Special Concern (November 2010)
SARA – Special Concern
General Status Canada – Sensitive (2005)
ESA 2007 – Special Concern
SRANK – S3?
General Status Ontario – Sensitive (2005)

Distribution and Status Outside Ontario:
The Woodland Vole occurs throughout eastern North America, south to the Gulf of Mexico. This species reaches the northern edge of its range in southern Québec and southwestern Ontario.

ELIGIBILITY CRITERIA

Native Status
✔ **Yes.**

Taxonomic Distinctness
✔ **Yes** The only taxonomic controversy surrounding this species relates to whether or not it belongs to a genus separate from *Microtus* (*Pitymys*). Morphological, chromosomal, and molecular studies suggest it is better placed as a subgenus under *Microtus* (summarized in Wilson and Reeder 2005).

Designatable Units
All individuals in Canada belong to a single subspecies, and there is no additional information to suggest there should be more than one designatable unit.

PRIORITY-SETTING CRITERIA

Recent Arrival

✔ **no**

Non-resident

✔ **no**

PRIMARY CRITERIA (rarity and declines)

1. Global Rank

✔ **Not in any category.** The global status rank of this species was last assessed in 1996 as secure (G5; Nature Serve 2011).

2. Global Decline

✔ **Not in any category.** Although there are no reliable trend data, the Woodland Vole appears to be a more commonly occurring component of the small mammal fauna in the U.S. than in Ontario (COSEWIC 2010). There is no evidence to suggest any global range loss or population declines outside of natural fluctuations, and global status of this species was suggested to be stable by IUCN Red List evaluators (Linzey & Hammerson 2008).

3. Northeastern North America Ranks

✔ **Not in any category.** Woodland Vole has been assigned a ranking of S1, S2, SX or SH in 2 (9.5%) of 21 neighboring jurisdictions where it occurs: Wisconsin and Maine (Table 1; NatureServe 2011).

4. Northeastern North America Decline

✔ **Insufficient information.** There are no reliable data to assess trends of this species in Northeastern North America. It is considered secure (S5) or apparently secure (S4) in 23 of 36 U.S. jurisdictions where it occurs (NatureServe 2011).

5. Ontario Occurrences

✔ **Special Concern.** According to NHIC, there are 45 extant element occurrences in Ontario for this species (NHIC 2011); according to COSEWIC (2010) there are 32 extant populations where the species has been found in Ontario since 1956 and 9 extirpated populations in Ontario. Both classification systems meet the COSSARO criterion for Special Concern (fewer than 50 yet more than 20 populations). The relative absence of the species is a reflection of the lack of targeted surveys for this fossorial species in the province, although it is assumed to occur at relatively low densities at the northern edge of its range (COSEWIC 2010). This is all to say that density and distribution could be greater than suggested by recent surveys (Bowman et al. 2004, COSEWIC 2010). The known distribution of Woodland Voles in Ontario is based mostly on records prior to the previous assessment. Two targeted surveys have been

conducted in Ontario since 2000 but no voles were caught (COSEWIC 2010).

6. Ontario Decline

✔ **Insufficient information.** General small mammal surveys are not specifically designed to capture Woodland Voles, a species that requires sub-surface trapping due to its fossorial habits. Recent sampling efforts, including two targeted surveys that failed to captured any woodland voles, have been inadequate to determine the current distribution and or population size of this species in Ontario (COSEWIC 2010). Given this limited survey effort in Ontario, therefore, it is unknown whether woodland voles in Ontario are stable, increasing, or in decline. Changes are impossible to assess given the lack of reliable historical estimates.

7. Ontario's Conservation Responsibility

✔ **Not in any category.** Less than 2% of their global range occurs in Canada, including both Ontario and Québec (COSEWIC 2010).

SECONDARY CRITERIA (threats and vulnerability)

1. Population Sustainability

✔ **Insufficient information.** The absence of any trapping records, let alone demographic data from Ontario, makes it impossible to know whether Woodland Vole populations are sustainable. Although neighbouring New York State is thought to have a secure population, populations have not been reported in the areas that directly border Canada (Cooper 2000, Sullivan and Curtis 2002). Barriers to dispersal from Michigan into Ontario include large highways, significant waterways and large urban areas (COSEWIC 2010).

2. Lack of Regulatory Protection for Exploited Wild Populations

✔ **Not in any category.** Although this species receives no regulatory protection, it is not subject to any known targeted exploitation.

3. Direct Threats

✔ **Insufficient information.** Loss and degradation of Woodland Vole habitat is ongoing through urban development, agricultural intensification, and forest harvesting in woodlots. There is, however, no direct evidence from anywhere in the range of this species that this land use change poses a threat to the species' status, or that the species is at risk of disappearance or serious decline at more than 25% of the known Ontario sites. In fact, woodland voles are known orchard pests in the southern part of their range (COSEWIC 2010).

4. Specialized Life History or Habitat-use Characteristics

✔ **Not in any category.** The species has a unique fossorial life history but there is no indication that this increases its potential risk from environmental change or disturbance.

COSSARO CRITERIA MET (primary/secondary)
ENDANGERED – [0/0]
THREATENED – [0/0]
SPECIAL CONCERN – [1/0]

SUMMARY

Woodland Vole (*Microtus pinetorum*) is a species of Special Concern in Ontario because of its limited distribution and lack of data on population status and threats. These small, semi-fossorial mammals are widely distributed throughout eastern North America and reach the northernmost extent of their range in southern Ontario. This species appears to be less common in Canada, and does not reach the high numbers reported from sites further south. The animal has proved difficult to survey and this, combined with limited survey efforts, means that we lack data about the size and status of its populations in Ontario. Potential threats include urban development, agricultural intensification, and forest fragmentation. Our knowledge about the status of this species and threats to its persistence has not improved since the last assessment.

Information Sources

Bowman, J., K.R. Middel and J.R. Johnson. 2004. A landscape-based model of capable woodland vole habitats in Ontario. Ontario Ministry of Natural Resources, Peterborough. 6 pp. (from COSEWIC 2010).

COSEWIC. 2010. COSEWIC status report on Woodland Vole *Microtus pinetorum* in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa. ix + 35 pp. {Two-month interim report]

Linzey, A.V. & Hammerson, G. 2008. *Microtus pinetorum*. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. www.iucnredlist.org . Downloaded on 28 January 2011.

NatureServe. 2011. NatureServe Explorer An online encyclopedia of life: Woodland vole. *http://www.natureserve.org/explorer/*. Accessed Feb. 2 2011

NHIC 2011. Natural Heritage Information Centre Biodiversity Explorer *http://nhic.mnr.gov.on.ca/nhic_.cfm*

Wilson, D.E. and D.M. Reeder. 2005. Mammal species of the world: A taxonomic and geographic reference. Third edition. The John Hopkins University Press, Baltimore. 2,142 pp.

Appendix 1
NORTHEASTERN NORTH AMERICA RANK, STATUS AND DECLINE

(NatureServe 2011)[1]

CT	S5
DE	S4
IL	S5
IN	S4
IA	S3
KY	S5
LB	Not present
MA	S5
MB	Not present
MD	S5
ME	S1
MI	S3S4
MN	S3
NB	Not present
NF	Not present
NH	S4
NJ	S4
NS	Not present
NY	S5
OH	SNR
ON	S3?
PA	S5
PE	Not present
QC	Not present
RI	SU
VA	S5
VT	S3
WI	S1
WV	S4

Occurs as a native species in 22 of 28 northeastern jurisdictions
Srank or equivalent information available for 12 of 22 jurisdictions = 95%
S1, S2, SH, or SX in 2 of 21 = 9.5 %

[1] Accessed Jan. 12 2011

PART 2
Ontario Evaluation Using COSEWIC Criteria

Regional (Ontario) COSEWIC Criteria Assessment

Criterion A – Decline in Total Number of Mature Individuals
Not Applicable. No quantitative data on population size, and no information on population trend are available.

Criterion B – Small Distribution Range and Decline or Fluctuation
Not Applicable. May meet Endangered criteria for B2 (IAO < 500 km^2) based on known extant range, but habitat modeling suggests additional suitable habitat may be available (Bowman et al. 2004), and does not meet any subcriteria (COSEWIC 2010).

Criterion C – Small and Declining Number of Mature Individuals
Not Applicable. No quantitative data on population size of trend.

Criterion D – Very Small or Restricted Total Population
Not Applicable.

Criterion E – Quantitative Analysis
Not Applicable. No PVA has been conducted, no information on population trends.

Rescue Effect

No. Disjunct distribution in Canada precludes Ontario-Québec rescue potential. New York is the only adjacent jurisdiction where the population is considered secure, and extant populations do not occur immediately adjacent to the Canada-U.S.A. border in either New York or Michigan. There may be higher probability of rescue for Québec rather than Ontario populations due to adjacent populations (COSEWIC 2010).