

AN ASSESSMENT OF THE CONSERVATION STATUS OF MINNESOTA TRICHOPTERA

Margot P. Monson
Department of Entomology
University of Minnesota
St. Paul, MN 55108

INTRODUCTION

Based on examination of specimens in the University of Minnesota Insect Collection, a review of the literature, and recent field work, it appears that five of Minnesota's approximately 260 species of Trichoptera are endemic to the state. Five species seem to represent disjunct populations of more widespread species. Finally, two species appear to have regionally restricted distributions in North America, which include Minnesota. The distribution of each of these species is mapped and annotated. Recommendations for future assessment and study are presented.

METHODS

Determinations were verified for all adult specimens. Experts were consulted for questionable identifications. I arranged all species into five categories according to their distributions in North America. The first category includes endemics, those species native to and restricted to Minnesota. The second category includes disjunct species, those whose largest populations were concentrated in other regions of North America, but which also had a Minnesota population quite separate, or disjunct, from the main population. The third category, regionally restricted species, includes those recorded from Minnesota and only a few other localities in the region. The fourth category includes widely distributed species, whose Minnesota populations represent the northern, southern, eastern, or western limit of the range of the species. The fifth category includes species that are widely distributed and common throughout North America or the region. Only the first three categories were considered pertinent to this report.

CATEGORY 1

ENDEMIC SPECIES

Polycentropus milaca Etnier 1968 Family Polycentropodidae

DESCRIPTION: While similar to both *Polycentropus grellus* (Milne) and *Polycentropus glacialis* (Ross), the ventral aspect of the meso-dorsal lobe of the inferior appendages is triangular in *P. milaca*, truncate in *P. grellus*, and rounded in *P. glacialis* (Etnier 1968).

RANGE: This species is known only from the male holotype, collected at Link Lake Ranger Station, Itasca County, in July, 1965.

HABITAT & BIOLOGY: Nothing is known of the habitat or biology of this species. The larvae of other species of North American *Polycentropus* have been found in most freshwater habitats, including those that are warm, lentic, and temporary, as well as to a

depth of five meters in lake sediments. Two types of retreats are constructed by this primarily predaceous genus - a bag-like structure which expands in the current and a loosely constructed silken tube (Wiggins 1977).

***Chilostigma itasca* Wiggins 1975**
Family Limnephilidae

DESCRIPTION: This species is similar to the only other species in the genus, *C. sieboldi* McLachlan, from Scandinavia and Finland. In *C. itasca* the venter of segment IX is extended posteriorly as a scoop-shaped median process, longer than wide, with postero-mesal edge rounded and entire. In *C. sieboldi* the process is wider than long with a median notch. Larvae are unknown for both species (Wiggins 1975).

RANGE: This species is known only from Nicollet Creek, Itasca State Park, Clearwater County. It was collected in February and March, 1974, and has not been found since then.

HABITAT & BIOLOGY: Nicollet Creek is a meandering, silty-bottomed stream flowing through a lowland meadow in the coniferous biome of the Mississippi River headwaters. Adults were collected from the surface of the snow on sunny, winter days. Larvae are unknown.

REMARKS: The U.S. Fish & Wildlife Service considers this species as possibly appropriate for threatened or endangered status in the U.S., but indicates that conclusive data on biological vulnerability and threats are not currently available (U.S. Fed. Reg, 1989).

***Limnephilus acrocurvus* Denning 1942**
Family Limnephilidae

DESCRIPTION: This species seems to be most similar to *L. argenteus* Banks. In *L. argenteus* the preanal appendage and inferior appendage are about equal in size, but in *L. acrocurvus* the preanal appendage is much larger than the inferior appendage (Denning 1942, Ross & Merkley 1952).

RANGE: This species is known only from a male specimen collected at Gull Lake, Crow Wing County, in May, 1941.

HABITAT & BIOLOGY: Information on habitat and biology are unavailable since larvae are undescribed. Larvae of other *Limnephilus* species are usually found in lakes and ponds, but a few are found in streams and cold springs. Larvae are primarily detritivores and construct several kinds of cases, from those made of sand grains and pebbles, to those of plant material (Wiggins 1977).

***Ceraclea brevis* (Etnier) 1968**
Family Leptoceridae

DESCRIPTION: The rounded ventral aspect of the inferior appendages will serve to differentiate this species from the related species, *C. alagma* (Ross) and *C. tarsipunctata* (Vorhies). In *C. brevis* the preanal appendages terminate in a mesal projection well differentiated from the lateral flange of the appendage, while in *C. alagma* and *C. tarsipunctata* the preanal appendages taper gradually toward the tip (Etnier 1968).

RANGE: This is another species known from only the male holotype collected from Garrison Ranger Station, Crow Wing County, in August, 1965.

HABITAT & BIOLOGY: Information on microhabitat is unavailable since larvae are undescribed. *Ceraclea* larvae are found in lentic and lotic waters, usually on bottom substrates, with most species restricted to narrow limits within their range. Many are detritivores, but a large number feed on freshwater sponges. Tapered cases are made of sand grains or silk, often with an overhanging dorsal lip, and some have lateral flanges (Wiggins 1977).

Protophila talola Denning 1947
Family Glossosomatidae

DESCRIPTION: This species seems to be most similar to *P. maculata* (Hagen) and may be conspecific (Etnier 1965). It has been distinguished from that species primarily by a gradually, rather than abruptly, upturned apices of the phallic spines and other characteristics of the male genitalia (Denning 1947).

RANGE: This species is known only from Pine County, Minnesota, collected in May, 1941.

HABITAT & BIOLOGY: Information on habitat and biology are unavailable since larvae are undescribed. Larvae of other *Protophila* species are usually collected in larger, warmer, and more slow-flowing streams than other Glossosomatids. They feed primarily on fine particulate organic matter. (Wiggins 1977).

CATEGORY 2

DISJUNCT SPECIES

Rhyacophila angelita Banks
Family Rhyacophilidae

Widely distributed throughout entire Western montane region, with isolated records from Quebec, New Hampshire and Cook County, Minnesota.

Agapetus tomus Ross
Family Glossosomatidae

Known from Georgia, Alabama, Tennessee, and Kentucky in the Southeast, and Pine County, Minnesota.

Hydrophila metoeca Blicke & Morse
Family Hydrophilidae

This predominantly eastern species is known from Newfoundland, Maine, New Hampshire, New Jersey, Delaware, and Virginia, as well as Crow Wing County, Minnesota.

Hydroptila tortosa Ross
Family Hydroptilidae

Known from Maine, New Hampshire, and Virginia in the East, and also from Lake County, Minnesota.

Setodes guttatus (Banks)
Family Leptoceridae

Predominantly Northeastern, with disjunct populations in Alabama and Cass County, Minnesota.

CATEGORY 3

REGIONALLY RESTRICTED SPECIES

Cheumatopsyche wabasha Denning
Family Hydropsychidae

Known only from Oregon, Ohio, and Wabasha County, Minnesota.

Limnephilus rossi Leonard & Leonard
Family Limnephilidae

Recorded from Quebec, Michigan, Wisconsin, and Washington County, Minnesota.

Remarks: This species is on the Wisconsin Heritage Program's watch list, which indicates it is possibly in peril in Wisconsin, but its exact status is uncertain. More information is needed. It is not officially protected in Wisconsin.

CONCLUSIONS AND RECOMMENDATIONS

Of the five species thought to be endemic, only *Chilostigma itasca* has been searched for intensively since it was first collected. Wiggins (pers. comm.) attempted to locate the immatures the summer following the original 1974 winter collection of adults. I collected adult caddisflies with light traps from May-October, 1988-1989, as well as with a Malaise trap from January 1988-June 1990, at the Nicollet Creek type locality. I also searched for the adults during the winter months from February-March and for immatures during the summer months of those years. Neither Wiggins nor I were successful in obtaining specimens of adults or larvae.

I recommend that Nicollet Creek and the wetland meadow area be closely monitored for signs of habitat degradation and that further attempts be made to encounter the species. *Chilostigma itasca* may be a candidate for State Special Concern status as defined by Minnesota State Statute 84.0895: although the species may not be endangered or threatened, it is extremely uncommon in Minnesota or has unique or highly specific habitat requirements and deserves careful monitoring of its status (Coffin & Pfannmuller 1988).

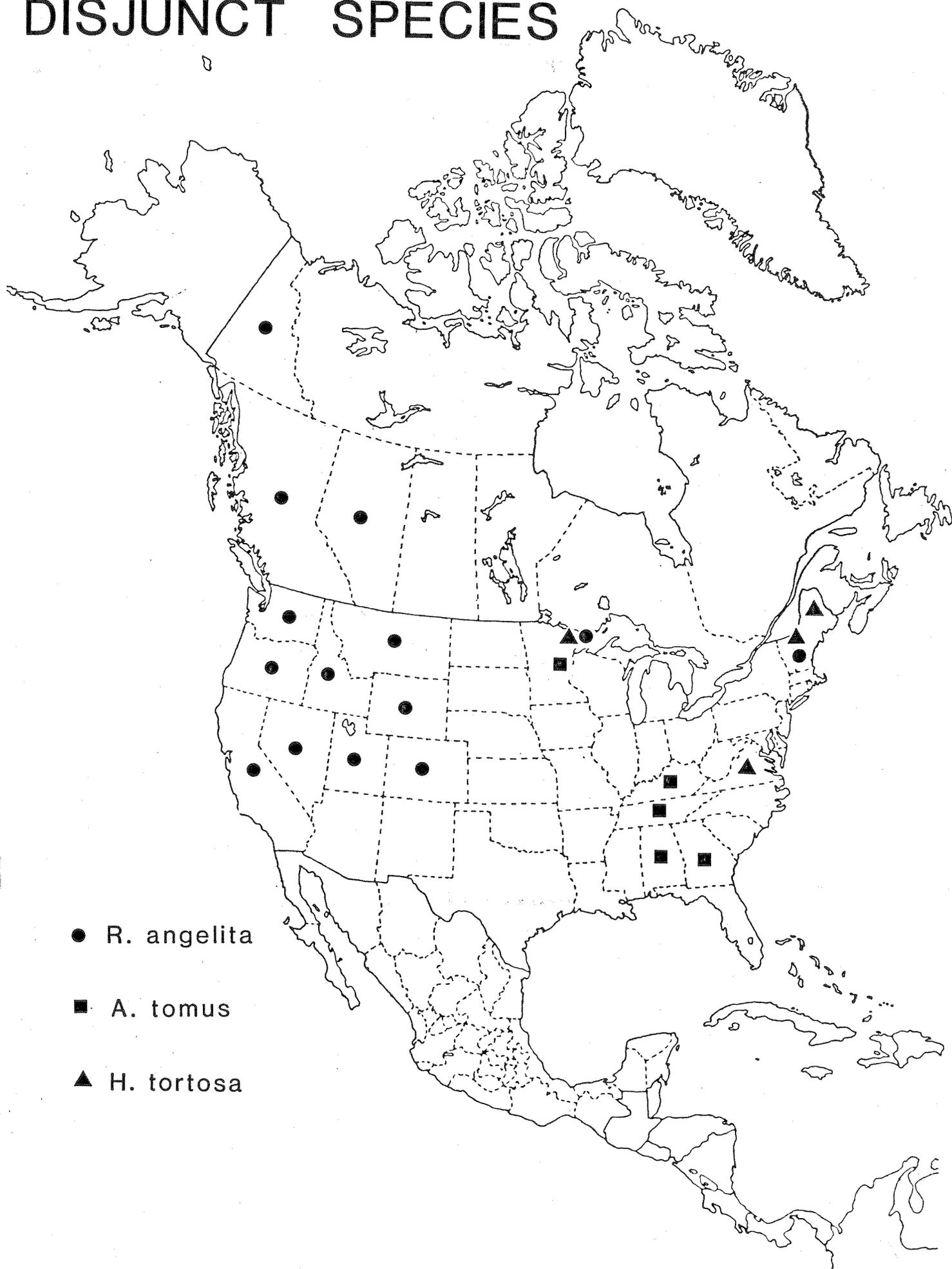
In addition, I recommend that field work be initiated to determine the population status of *P. talola*, *P. milaca*, *L. acrocurvus*, and *C. brevis*. Similarly, the population status and distribution of the disjunct and regionally restricted species should be determined

as well. In fact, a thorough, state wide inventory of Minnesota Trichoptera would be appropriate to more accurately determine the distribution of Minnesota Trichoptera.

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DISJUNCT SPECIES



● *R. angelita*

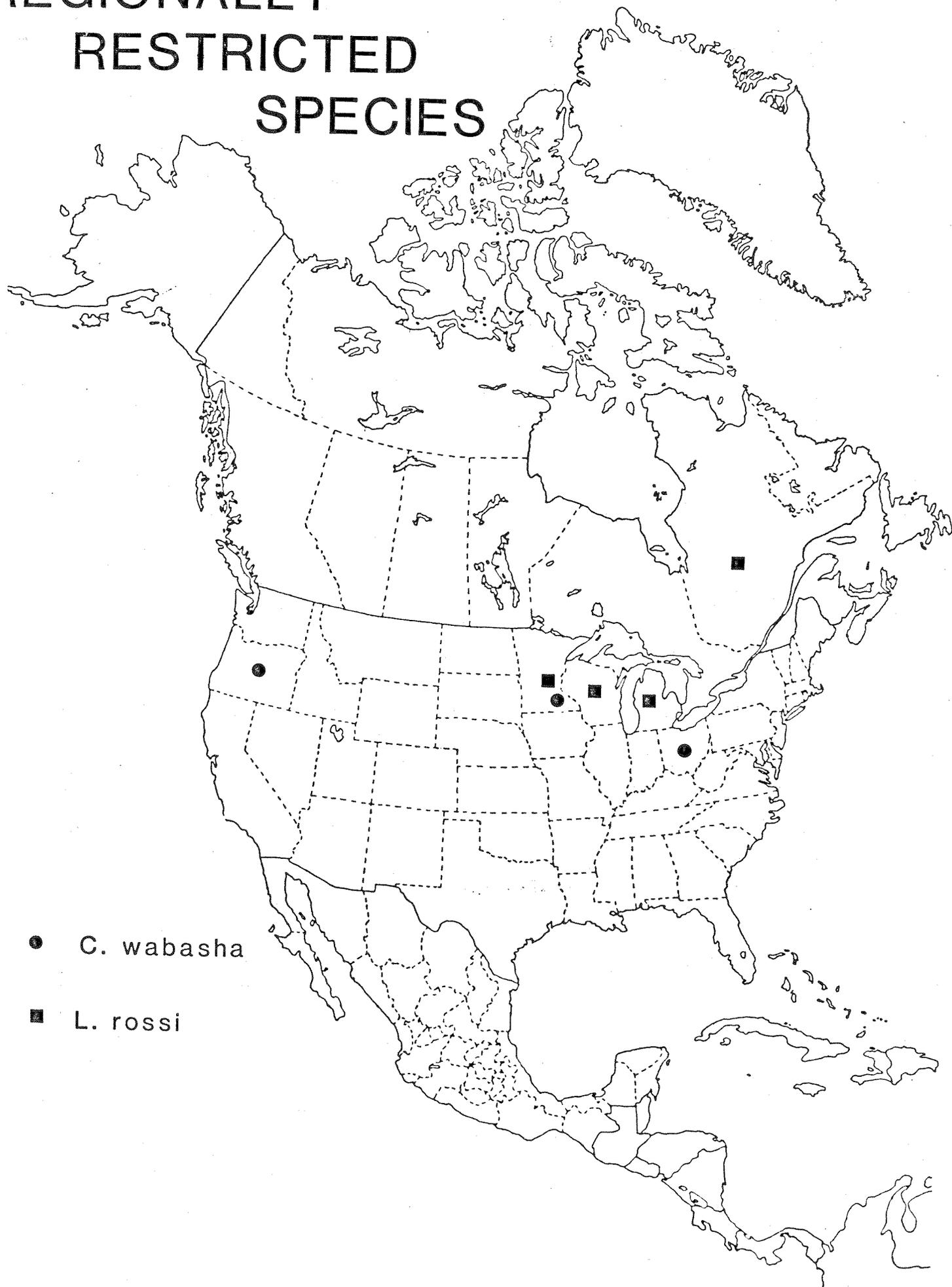
■ *A. tomus*

▲ *H. tortosa*

DISJUNCT SPECIES



REGIONALLY RESTRICTED SPECIES



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