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# THE TERRESTRIAL ISOPODS OF NEBRASKA (CRUSTACEA: ISOPODA)

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# THE TERRESTRIAL ISOPODS OF NEBRASKA (CRUSTACEA: ISOPODA)

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*ABSTRACT*

Nine species in three families of terrestrial isopods were collected by the author in Nebraska between 1948 and 1998: Oniscidae (*Oniscus asellus*), Cylisticidae (*Cylisticus convexus*), and Porcellionidae (*Armadillidium nasatum, A. vulgare, Metoponorthus pruinosus, Porcellio laevis, P. scaber, P. spinicornis, Trachelipus rathkei*). Only *Armadillidium vulgare* was reported before 1948. All are native to Europe and Asia, and no species is native to the state.

† † †

Although terrestrial isopods are found in most parts of Nebraska, there are very few published records. If one consults Richardson (1905) or Van Name (1936), the two standard works on North American isopods, one will find no Nebraska records. This paper is based on specimens collected by the author between 1948 and 1998.

All species of terrestrial isopods found in Nebraska are of Old World origin and represent recent introductions. When European people migrated to North America they brought with them plants, soil and terrestrial isopods. As man moved west to Nebraska, he brought terrestrial isopods with him.

Terrestrial isopods are found in many different ecological niches. In general, they are distributed according to the moisture content of their habitats, which can vary from wet to dry determined by rainfall, and evaporation They cannot survive in sunlight and are nocturnal and cryptozonic and are mainly active at night.

Isopods are found in areas where the soil is alkaline. Soils lacking in calcium can not support a population of isopods. Isopods break down organic vegetation, especially leaf litter, and they play an important role in the formation of humus. One species, *Armadillidium vulgare* Latr., under certain conditions is of economic importance, especially in greenhouses (Hatch 1947, Swenk 1929).

Isopods may be collected in many ways. Handpicking from under wood, under loose bark on dead trees, under stones and many types of debris, as well as using pitfall traps, will often yield many specimens. Extraction of soil and humus by use of Berlese/Tullgren funnels will often yield isopods.

All specimens are deposited at the Illinois Natural History Survey, Champaign, Illinois.

## DISTRIBUTION

The counties cited are shown in Fig. 1.

### Family ONISCIDAE

***Oniscus asellus*** Linnaeus

This species appears to be limited to extreme southeastern Nebraska. Brownsville, **Nemaha County**, 15 Nov. 1983 (under rocks along old railroad track south of village). Salem, **Richardson County**, 11 May 1975 (under boards around old mill).

### Family CYLISTICIDAE

***Cylisticus convexus*** (De Geer)—Fig. 2

Widely distributed especially south of the Platte River. Vandel (1962) states that it is common in Europe and Asia Minor. It has been transported to many parts of the world by man.

### Family PORCELLIONIDAE

***Trachelipus rathkei*** (Brandt)—Fig. 3

This is the most common and widely distributed isopod in Nebraska. It is commonly found in the eastern half of the state as a deciduous woodland species. Studies by the author (Rapp 1988) in an oak (*Quercus* sp.) woodland in southern Seward County, in which a series of one-square-meter samples of humus were extracted with a Berlese/Tullgren funnel, found a mean density of 6.7 per square meter. This translates to a theoretical population of 66,000 per hectare

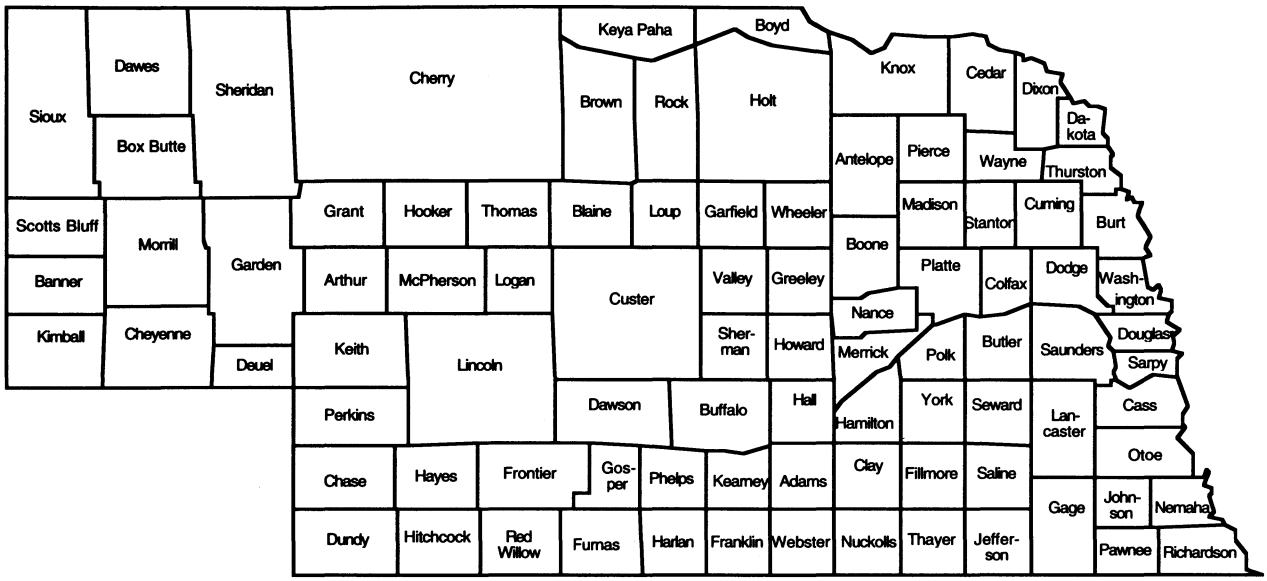


Figure 1. Map of the counties of Nebraska.

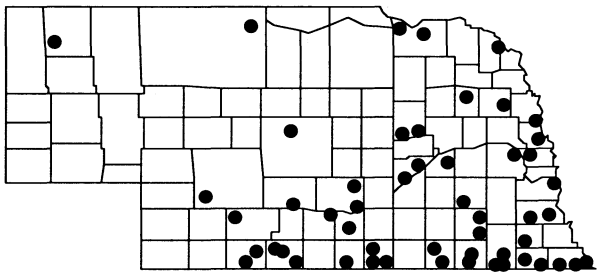

Figure 2. Distribution map for *Cylisticus convenus*.

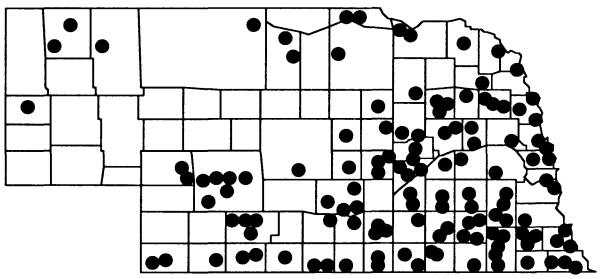

Figure 3. Distribution map for *Trachelipus rathkei*.

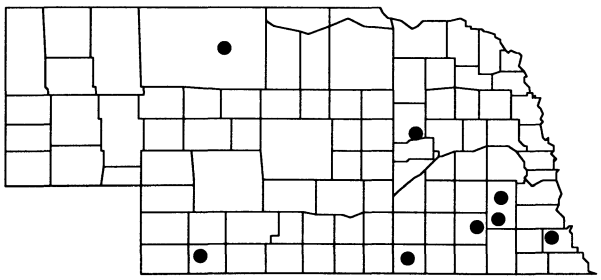

Figure 4. Distribution map for *Metoponorthus pruinosus*.

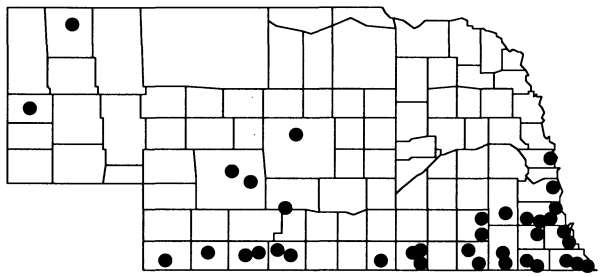

Figure 5. Distribution map for *Armadillidium vulgare*.

It is common in wooded areas along streams, especially in the easternalf of the state, where it is common in gardens in cities and villages. It is not found in the Sand Hills area. Vandel (1962) states that it is distributed in Central and Eastern Europe. However it is not found in the Mediterranean region or the Iberian Peninsula. It is found as far north as southwestern Finland (Lehtinen 1962).

***Metoponorthus pruinosus*** (Brandt)—Fig. 4

Some workers have placed this species in the genus *Porcellionides* Miers 1878, however Vandel (1962) has shown that it belongs in the genus *Metoponorthus* Budde-Lind 1870.

The distribution of this species is difficult to explain. It appears to be limited to cities and villages. The record from Cherry County is based on one specimen collected in a trash pile at a camp ground on Big Alkali Lake, August 14, 1980. Vandel (1962) considers that this species originated is the Mediterranean region and has been spread by man to many parts of the world.

***Porcellio laevis*** Latreille

This species is a southern form and apparently has not been able to adapt to Nebraska. It has been taken at the following stations: Chadron, **Dawes County**, May 18, 1981 (railroad yard); Maxwell, **Lincoln County**, August 21, 1974 (railroad right-of-way); Peru, **Nemaha County**, June 21, 1981 (around an old barn). Vandel (1962) considers this species to have originated in the Mediterranean region. It has become widespread in the warmer parts of the world.

***Porcellio scaber*** Latreille

To date there are only four records for this species. Keystone, **Keith County**, July 18, 1978 (under wood by railroad); Brownville, **Nemaha County**, June 16, 1976 (under stones around abandon building); Danbury, **Red Willow County**, July 7, 1981 (under wood by railroad); Valparaiso, **Saunders County**, 17 August 1976 (under boards by grain elevator).

East of the Mississippi River this is a common species around cities and villages. It appears to be a very successful colonized. It is very common in Europe and England.

***Porcellio spinicornis*** Say

This species is known from only two locations in Nebraska: **Jefferson County**, about 6 miles south of Fairbury, May 2, 1978 (under boards at abandoned farm); Beemer, **Cuming County**, October 18, 1973 (under boards along railroad). This is a European species which has been found in Eastern United States and Canada; It does not appear to be well established in North America. Vandel (1962) considers this species to have originated in western and northern Europe

***Armadillidium nasatum*** Budde-Lund

There is only one record: Auburn, **Nemaha County**, October 4, 1973. Taken under boards in an old building by the Missouri Pacific Railroad.

This species is usually found in greenhouses and caves. According to some workers, it can not overwinter in the north. It is common in greenhouses in eastern United States. According to Schultz (1961) it was first recorded in North America in 1902. Harding and Sutton (1985) report that it lives in the open in France and Spain.

***Armadillidium vulgare*** (Latreille)—Fig. 5

This species is widespread in the state, but appears to be more abundant in the southeast area. In most areas it has been taken along railway right-of-ways, usually under boards and other debris. It is a common species east of the Mississippi River. In Europe is common and in southern England it is often a household pest. Man has spread it to many parts of the world.

## IDENTIFICATION

Unfortunately, there are no modern keys to North American terrestrial isopods. Richardson (1905) and Van Name (1936, 1940, 1942) are the most detailed. Vandel (1960, 1962) is very detailed and covers most of the North American species. Muchmore (1990) has published an excellent key to North American genera.

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