INVENTORY OF THE WATER STRIDERS OF THE LOWER ILLINOIS RIVER BASIN

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Introduction

The insect suborder Gerromorpha (Insecta: Heteroptera) includes the water striders (Gerridae) and four other families (Hebridae, Hydrometridae, Mesoveliidae, and Veliidae) occurring in Illinois. These animals inhabit the surface film of both lotic and lentic waters, where they are predators and scavengers feeding upon insects trapped in the surface film. The biology, ecology, and distribution of Illinois Gerromorpha were the subject of my recent (Taylor 1996) dissertation. Currently, additional specimens are being collected to obtain more data on species distributions and habitats in Illinois. Data presented here will ultimately be published with more comprehensive distribution maps and keys to the species of the state.

Objectives

This study had four primary objectives:

- To conduct a faunal inventory of the Gerromorpha in six counties in the lower Illinois River basin and adjoining parts of the Lincoln Hills.
- To produce updated statewide distribution maps for all gerromorphan species in the study area.
- To produce a faunal list of gerromorphan species in the study area.
- To compile information on microhabitat and species associations for gerromorphan species found in the study area.

Methods

Field collections were conducted three multi-day trips to Brown, Calhoun, Greene, Jersey, Pike, and Scott counties: early Spring (16 March 1999), late Spring (7-9 May 1999), and Autumn (21-23 September 1999). One additional collection, not a part of this study, is included here for convenience (Brown County, 16 September 1998). Adults of many species are seasonally present, so collections during different sampling periods should increase the taxonomic diversity in samples. A variety of types of aquatic habitats (ponds, streams, rivers, springs, etc.) were sampled for gerromorphans. Sites were classified into habitat types based on field observations. Collections were made using an aquatic D-net and a small dipnet, supplemented by hand picking. Samples were preserved in 70% ethanol in the field.

In the laboratory, samples were sorted to species, sex, developmental stage, and wing morph. Data collected were used to develop a species list and distribution maps for the gerromorphans found in the study area. Information on habitats and species associations were also recorded. All material has been cataloged and deposited in the Illinois Natural History Survey Insect Collection.

Results

During the present study, 103 sites were visited (Table 1, Figure 1). A total of eighteen species (Table 2) were collected, 12 of which had not previously been reported from the study area. Updated state distribution maps for each of the species are presented in Figures 2 and 3.

Discussion of Taxa

The Illinois fauna is similar to that of many eastern and midwestern states. Taylor (1996) provided a key to Illinois species. Much of the discussion presented here is based on Taylor (1996).

Family Gerridae

Genus *Aquarius* (Schellenberg) 1800

Andersen (1990) revised this genus and provided a key to species of the world. Two species are known from Illinois, and a third is possible (Taylor 1996).

Aquarius nebularis (Drake and Hottes) 1925. *Aquarius nebularis* ranges from New Brunswick, New York, and New Jersey south to Florida, and west to Iowa, Kansas, and Louisiana (Smith 1988a). It occurs in the southern two thirds of Illinois, as far north as McDonough County (Taylor 1996). Material collected in the present study, all new county records, fills in a distributional gap in the state (Figure 2A) and confirms that *A. nebularis* is actually fairly prevalent in the study area. I propose that this species is probably underrepresented in collections because it often co-occurs with *Aquarius remigis*, which is less effective at getting out of the range of a collector's net. Both species are large and obvious, but *A. nebularis* is often found in deeper, slower moving pools. Thus, nonspecialists would tend pick up only a few representatives of what appears to be one species when, in actuality, two are present.

Aquarius remigis (Say) 1832. *Aquarius remigis* is found from Newfoundland to British Columbia, south throughout the continental United States into Mexico and Guatemala (Smith 1988a). It occurs commonly throughout Illinois (Taylor 1996). During the present study, this species was collected in all six counties (Table 1, Figure 2B). It was the most commonly collected species in the present study (Tables 1, 3), and three new county records are reported (Figure 2B).

Genus *Gerris* Fabricius 1794

Andersen (1993a) recently revised this genus and provided keys to adults of all species worldwide. Six species are known from Illinois (Taylor 1996).

Gerris argenticollis Parshley 1916. This species occurs from Ontario, Quebec (Scudder 1987), and Rhode Island south to Florida, and west to Michigan and Louisiana (Smith 1988a. Gonsoulin (1974) reported it as rare in Louisiana. Kittle (1980) noted it as rare in Arkansas, but locally abundant. Illinois specimens have been collected throughout much of the southern two thirds of the state (Taylor 1996). It was infrequently collected during the present study (Tables 1, 3) and two new county records are reported (Figure 2C).

Gerris insperatus Drake and Hottes 1925. This species is found from Nova Scotia (Scudder 1987), Quebec, Ontario, and Pennsylvania, south to Florida, and west to Minnesota, South Dakota, Illinois, and Texas; it has been reported from Mexico (Smith 1988a). It occurs in the southern two thirds of Illinois (Taylor 1996). It was infrequently collected during the present study (Tables 1, 3) and three new county records are reported (Figure 2D).

Gerris marginatus Say 1832. This is the most widespread gerrid in the Western Hemisphere, although some older records are questionable because related species of *Gerris* were described later. It is found throughout the continental United States (except Alaska and California); in the Canadian provinces of Manitoba, Nova Scotia, Ontario, and Quebec; and in Mexico (Smith 1988a). It is listed from Brazil by Smith (1988a), but not by Andersen (1993). It occurs throughout Illinois (Taylor 1996). This species was fairly commonly encountered in ponds and lakes during the present study (Tables 1, 3), and five new counted records are reported (Figure 2E).

Genus *Limnoporus* Stål 1868

A key to all species worldwide was provided by Andersen and Spence (1992). At least two species, possibly three, occur in Illinois (Taylor 1996).

Limnoporus canaliculatus (Say) 1832. This species occurs from Ontario (Scudder 1987) and Rhode Island south to Florida, and west to Iowa, Missouri, and Texas (Smith 1988a). It has been collected in Illinois as far north as McDonough County (Taylor 1996). Though infrequently collected in the present study (Tables 1, 3), two new county records have been recorded (Figure 2F).

Genus *Metrobates* Uhler 1871

Anderson (1932) revised this genus and provided a key to species and Polhemus and Polhemus (1993) list all known species for the world. Only one species occurs in Illinois (Taylor 1996).

Metrobates hesperius Uhler 1871. This species occurs from Quebec and Maine south to Florida and west to Manitoba, Minnesota, Kansas, and Louisiana; it also has been reported from Haiti (Smith 1988a). It occasionally has been collected in Illinois (Taylor 1996), and is probably more common than the collections indicate because it is best collected by boat. *Metrobates hesperius* was infrequently collected during the present study (Tables 1, 3) and two new county records are reported (Figure 2G).

Genus *Rheumatobates* Bergroth 1892

This genus was revised by Schroeder (1931) and Hungerford (1954); Drake and Harris (1942) list the species of the Western Hemisphere. Gonsoulin's (1974) Louisiana key covers Illinois' five species (two are treated as 'varieties') and his illustrations are useful. Sanderson's (1982) key to male *Rheumatobates* of North and South Carolina covers all Illinois species. Only two species (*Rheumatobates palosi* and *Rheumatobates tenuipes*) were confirmed as occurring in Illinois by Taylor (1996), but as many as five species may occur here.

Rheumatobates palosi Blatchley 1926. This species occurs from New York south to Florida, and west to Minnesota and Texas; it has been recorded from Saskatchewan (Smith 1988a). It has been collected in Illinois as far north as Cook County (Taylor 1996). This species was most commonly collected in streams (Tables 1, 3). Five new county records (Figure 2H) help fill in gaps in the known distribution of this species.

Rheumatobates tenuipes Meinert 1895. This species occurs from New York south to Florida, and west to Missouri, Oklahoma, and Texas; it also is reported from Belize (Smith 1988a). Taylor (1996) reported it in Illinois as occurring only in Williamson, Gallatin, and Saline counties. This species was surprisingly common in collections (Tables 1, 3). Its prevalence in the study area (five new county records [Figure 2I]) suggests that it may be more widespread in Illinois than earlier distributional data indicate.

Genus *Trepobates* Uhler 1883

Considerable confusion as to the identity of species in this genus has led to some published literature giving life history information on misidentified specimens. This genus was reviewed most recently by Kittle (1977). Hilsenhoff (1986), Deay and Gould (1936), Kittle (1977), and Sanderson (1982) included keys to adult *Trepobates*. Identification problems in this family are discussed in Taylor (1996), who lists four species for Illinois.

Trepobates knighti Drake and Harris 1928. This species occurs from Michigan south to Arkansas and west to North Dakota, Oklahoma, and Texas (Smith 1988a). Scattered records exist for several counties across Illinois (Taylor 1996). This species was not commonly collected in the present study (Tables 1, 3). Three new county records are reported (Figure 3A).

Trepobates subnitidus Esaki 1926. This species occurs from Ontario and Maine south to Florida, and west to Minnesota and New Mexico (Smith 1988a). It is the most common species of *Trepobates* in the eastern United States (Kittle 1977), and it is common and widely distributed in Illinois (Taylor 1996). Two new county records are recorded here (Figure 3B).

Family Hebridae

Genus *Merragata* White 1877

Sanderson (1982), Hilsenhoff (1986) and Taylor (1996) provided keys to the two Illinois species.

Merragata hebroides White 1877. This species occurs from Ontario and Massachusetts south to Florida, west to British Columbia and California, and then extending south from "Mexico to Argentina"; it also is reported from the West Indies (Polhemus and Polhemus 1988a). It has been collected throughout much of Illinois (Taylor 1996). *Merragata hebroides* was infrequently collected during the present study (Tables 1, 3) and only one new county record is reported (Figure 3C).

Family Hydrometridae

Torre-Bueno (1926) revised the species of the Western Hemisphere.

Genus *Hydrometra* Latreille 1796

Much of the older literature on *Hydrometra* was reviewed by Sprague (1956). Taylor (1996) listed two species for Illinois.

Hydrometra martini Kirkaldy 1900. This species occurs from New Brunswick south to Florida, and west to Oregon and Arizona (Smith 1988b); it also has been reported from British Columbia (Scudder 1987). It is commonly collected in Illinois (Taylor 1996). Four new county records are reported here (Figure 3D).

Family Mesoveliidae

Genus *Mesovelia* Mulsant and Rey 1852

Polhemus and Chapman (1979) provided a key to the *Mesovelia* species of America north of Mexico. Taylor (1996) provides a key to the three Illinois species.

Mesovelia cryptophila Hungerford 1924. This uncommon species occurs from New Jersey south to Florida and west to Michigan, Iowa, Oklahoma, and Mississippi (Smith 1988c); it also has been reported from Minnesota (Bennett and Cook 1981). Taylor (1996) collected it from Gallatin County, Illinois. Two new county records, from Calhoun and Greene counties (Figure 3E), are significant new additions to the known distribution of this uncommon species.

Mesovelia mulsanti White 1879. This species occurs from Nova Scotia, Newfoundland (Scudder 1987), and Massachusetts south to Florida, and west to British Columbia and California; it also has been reported from Mexico to Argentina (Smith 1988c). It occurs throughout much of Illinois (Taylor 1996). Three new county records reported here (Figure 3F) probably underrepresent the distribution of this common species in the lower Illinois River basin.

Family Veliidae

Genus *Microvelia* Westwood 1834

North American species of this genus were reviewed by Torre-Bueno (1924a). Smith and Polhemus (1978) provided a key to apterous adults of North America. Bennett and Cook's (1981) publication and key to the Minnesota species includes several helpful illustrations. Hilsenhoff's (1986) key to macropterous and apterous adults of Wisconsin included several Illinois species. Taylor (1996) confirmed the occurrence of six species in Illinois.

Microvelia americana (Uhler) 1884. This species occurs from Nova Scotia south to Florida, and west to Ontario and Texas (Smith 1988d). It has been collected throughout much of Illinois (Taylor 1996). This species was commonly collected during the present study (Tables 1, 3), and the five new county records (Figure 3G) help fill in a gap in its Illinois distribution.

Genus *Rhagovelia* Mayr 1865

Polhemus (1997) revised this genus for the Western Hemisphere. Taylor (1996) reports three species (*Rhagovelia knighti*, *Rhagovelia oriander*, and *Rhagovelia rivale*) from Illinois, but was not able to confirm the occurrence of *Rhagovelia obesa*.

Bennett and Cook's (1981) key and illustrations for the species of *Rhagovelia* occurring in Minnesota are helpful for Illinois. Smith and Polhemus (1978) and Polhemus (1997) provided keys to adults.

Rhagovelia obesa Uhler 1871. This species occurs from Maine south to Georgia, and west to Manitoba, Illinois, and Mississippi (Smith 1988d). Although Smith (1988d) reported it from Illinois, Taylor (1996) found only questionable locality data ("Ill." or "N. Ill." with no county or date given) associated with museum material, and did not collect the species. Polhemus (1997) gives Minnesota, Wisconsin, Michigan, Ohio, and Kentucky as the northwestern limits of the species distribution, not including Illinois or Indiana. Hilsenhoff (1986) noted this species was common in the north and rare in the south in Wisconsin, and Bennett and Cook (1981) reported a similar pattern in Minnesota. Hilsenhoff (1986) suggested it may be boreal in distribution, in spite of earlier distributional records further south. Here I report a single record from Pike County on the Mississippi River (Table 1, Figure 3H), apparently the first confirmed record of the species for Illinois.

Rhagovelia rivale Torre-Bueno 1924. Smith (1988d) and Polhemus (1997) reported this species as occurring from Iowa south to Texas, west to South Dakota and Colorado. Taylor (1996) first reported this species from Illinois in a clear rocky stream downstream from a reclaimed strip mine in Williamson County. The Greene County record reported here (Table 1, Figure 3I) is the second known occurrence of *R. rivale* in Illinois.

Habitats

Each collection site was assigned to one of eight different general habitat types. Lotic habitats were more common and more commonly examined than lentic habitats (ponds and lakes). Many of the temporary streams examined were dry in May and September, and the March collecting trip was generally too early for many of the species. The majority of the faunal diversity was found in permanent streams (Table 3). Lake and large river habitats (Table 1, 3) generally yielded more taxa than were found in Taylor (1996), probably because a small kayak, available for use in the present study, allowed access to more microhabitats.

Species presence/absence data were tallied for all sites, and these data were used to construct a phenogram of similarity among species (Figure 4). This phenogram is compared to a similar phenogram constructed by Taylor (1996, Figure 14), based on collections made in the 13 southernmost counties of Illinois. Several of the dominant (Table 3) species in collections, *Aquarius remigis*, *Microvelia americana*, *Aquarius nebularis*, *Gerris marginatus*, and *Hydrometra martini*, tended to demonstrate similar patterns of species associations as were found by Taylor (1996). In addition, a cluster formed by *Rheumatobates palosi*, *Rheumatobates tenuipes*, and *Trepobates subnitidus* probably represents a natural association. However, many of the other taxa, especially those less frequently collected, show no obviously meaningful species associations.

Table 1. Species and collections sites (N=103) with habitats indicated[1], visited during the present study (March-September 1999) in six counties of the lower Illinois River basin. Universal Transverse Mercator (UTM) projection, North American datum 1983, coordinates are given as zone 16 unless otherwise noted.

Habitat	Collection Site	Gerromorphan Taxon																								
		Underwater mine Gerrinae	Aquarius spp.	Aquarius nebularis	Aquarius rigis	Gerris argentinicollis	Gerris insularis	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates hesperus	Rheumatobates palosi	Rheumatobates pecinus	Trepobates spp.	Trepobates kniguti	Trepobates subnitidus	Merragata hebroides	Hydrometra spp.	Hydrometra martini	Mesovelia spp.	Mesovelia cryptophila	Mesovelia mulsanti	Microvelia spp.	Microvelia americana	Rhagovelia obesa	Rhagovelia trivalea
	Brown County:																									
R	Little Missouri Creek:11.2 km NW Timewell (center): UTM 176303mE 4444618mN: Lake Mt. Sterling 7.5' Quad.: 16 September 1998: SJT98-84a	○	●	●	●	○	○	○	○	○	○	●	○	○	●	○	○	○	●	○	○	○	○	●	○	○
P	Puddle at Little Missouri Creek:11.2 km NW Timewell (center): UTM 176303mE 4444618mN: Lake Mt. Sterling 7.5' Quad.: 16 September 1998: SJT98-84b	○	○	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
T	Unnamed tributary (Spunky Ridge) of Camp Creek, 3.9 km ENE of Versailles (center): UTM 190704mE 4423391mN: 7 May 1999: SJT99-93	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
R	Little Creek at County Road 675N, 6.0 km NE of Versailles (center): UTM 191168mE 4427222mN: 7 May 1999: SJT99-94	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
V	La Moine River near Cooperstown, 11.4 km NE of Versailles (center): UTM 194085mE 4431644mN: 7 May 1999: SJT99-95	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
L	Lake Mt. Sterling, 2.7 km NNE of Mt. Sterling (center): UTM 178916mE 4435876mN: 7 May 1999: SJT99-96	○	○	○	○	○	○	●	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
T	Wells Fork at county road 900N, 9.6 WSW of Mt. Sterling (center): UTM 168587mE 4432050mN: 7 May 1999: SJT99-97	●	○	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
R	Wells Fork at county road 575N, 13.1 km SW of Mt. Sterling (center): UTM 166941mE 4426405mN: 7 May 1999: SJT99-98	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
A	Dry Fork at county road 550N, 7.5 km SSW of Mt. Sterling (center): UTM 175917mE 4425927mN: 7 May 1999: SJT99-99	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 1. Continued.

Habitat	Collection Site	Gerromorphan Taxon																									
		Undetermined Gerrinae	Aquarius sp	Aquarius nebularis	Aquarius remigis	Gerris argentifrons	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates pallosi	Rheumatobates tenuipes	Trepobates spp	Trepobates knighti	Trepobates subnitidus	Merragata hebroides	Hydrometra spp	Hydrometra martini	Mesovelia spp	Microvelia scripta	Microvelia mustanti	Microvelia spp	Mineracanna	Rhagovelia obesa	Rhagovelia rivale
	Brown County:																										
T	Dry Fork of McKee Creek, 11.4 km NW of Perry (center): UTM 174803mE 4420902mN: 7 May 1999: SJT99-101	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Calhoun County:																										
T	Geske Hollow Creek at Mississippi River Rd., 5.2 km W of Hardin (center): UTM 182120mE 4340363mN: 8 May 1999: SJT99-122	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
V	Mississippi River at Red's Landing, 7.0 km W of Hardin (center): UTM 180415mE 4341388mN: 8 May 1999: SJT99-123	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Gresham Hollow Creek at Mississippi River Road, 1.3 km SE of Hamburg (center): UTM 179870mE 4347780mN: 8 May 1999: SJT99-124	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
O	Micheal Hollow Creek at cnty rd 2600N (Michael): UTM 187455mE 4349123mN: 8 May 1999: SJT99-125	○	●	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Unnamed tributary of Illinois River at state route 100, 2.3 km S of Hardin (center): UTM 187251mE 4337919mN: 9 May 1999: SJT99-126	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Unnamed tributary of Illinois River at state route 100, 8.8 km S of Hardin (center): UTM 187525mE 4331463mN: 9 May 1999: SJT99-127	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
T	Unnamed tributary of Madison Creek, 0.7 km E of Batchtown (center): UTM 184080mE 4326739mN: 9 May 1999: SJT99-128	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
V	Mississippi River at West Point Creek, 3.8 km NW of Beechville (center): UTM 181689mE 4322942mN: 9 May 1999: SJT99-129	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 1. Continued.

Habitat	Collection Site	Gerromorphan Taxon																									
		Undetermined Gerrinae	Aquarius spp.	Aquarius nebularis	Aquarius remigis	Gerris argentinicollis	Gerris insularis	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates spp.	Rheumatobates palosi	Rheumatobates tenuipes	Trepobates spp.	Trepobates knight	Trepobates subnitidus	Merragata hebroides	Hydromeatra spp.	Hydrometra martini	Mesovelia spp.	Mesoveliidae	Mesovelia cryptophila	Mesovelia mulsanti	Microvelia spp.	Microvelia americana	Rhagovelia obesa	Rhagovelia arvale
	Calhoun County:																										
R	Dogtown Hollow Creek at Mississippi River Rd., 0.6 km N of Beechville (center): UTM 184084mE 4320457mN: 9 May 1999: SJT99-130	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
O	Cache Hollow Creek at Cache Hollow Rd., 5.9 km SW of Brussels (center): UTM 184847mE 4313371mN: 9 May 1999: SJT99-131	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	Backwater pond by Mississippi River and Mississippi River Rd., 4.4 km N of South Shore, MO (center): UTM 194472mE 4312070mN: 9 May 1999: SJT99-132	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	Pond in Quarry nr. Mississippi River, 4.8 km N of South Shore, MO (center): UTM 194735mE 4312483mN: 9 May 1999: SJT99-133	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
V	Illinois River at Kampsville: UTM Z15, 706321mE 4352625mN: NAD1983: 22 September 1999: SJT99-260	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Fox Creek at Illinois River Rd, 3.7 mi W of Kampsville: UTM Z15, 695055mE 4350446mN: 22 September 1999: SJT99-261	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Stream at Illinois River Rd, 3.1 mi NNW of Hamburg: UTM Z15, 696058mE 4348233mN: 22 September 1999: SJT99-262	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	West Panther Creek off Panther Creek Rd, 1.9 mi NW of Mozier: UTM Z15, 693132mE 4354556mN: 22 September 1999: SJT99-263	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
L	Slough at Mozier, off IL 96: UTM Z15, 694130mE 4351947mN: 22 September 1999: SJT99-265	○	○	○	○	○	○	○	○	○	●	●	●	○	○	●	○	○	○	○	○	○	●	○	○	○	○
T	Creek at Wildcat Hollow at IL 96 (at Belleview): UTM Z15, 690979mE 4357906mN: 22 September 1999: SJT99-266	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 1. Continued.

Habitat	Collection Site	Gerromorphan Taxon																								
		Undetermined Gerrinae	Aquarius spp	Aquarius nebularis	Aquarius remigis	Gerris argenticollis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates spp	Rheumatobates palosi	Rheumatobates tenuipes	Trepobates spp	Trepobates knighti	Trepobates subnitidus	Merragata hebroides	Hydrometra spp	Hydrometra martini	Mesovelia spp	Mesoveliidae cryptophilia	Mesoveliidae musanti	Microveliidae spp	Microvelia americana	Rhagovelia obesa	Rhagovelia rivale
	Calhoun County:																									
V	Mississippi River at Lock & Dam 24, 4.4 mi SW of Pleasant Hill: UTM Z15, 680744mE 4361484mN: 22 September 1999: SJT99-268	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
L	Backwater slough/lake of Mississippi River at Lock & Dam 24, 4.4 mi SW of Pleasant Hill: UTM Z15, 680785mE 4361534mN: 22 September 1999: SJT99-269	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○
	Greene County:																									
V	Macoupin Creek at Hwy 267: 7.2 km S of Carrollton (center): UTM Z15, 724918mE 4345925mN: 16 March 1999: SJT99-54	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Link Branch of Macoupin Creek x Hwy 267: 3.5 km S of Carrollton (center): UTM Z15, 724063mE 4349774mN: 16 March 1999: SJT99-55	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
V	Apple Creek, 8.5 km N of Carrollton: UTM Z15, 723256mE 4361973mN: 16 March 1999: SJT99-56	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Unnamed tributary of Apple Creek, 5.5 km S of White Hall (center) at Hwy 267: UTM Z15, 723146mE 4362753mN: 16 March 1999: SJT99-57	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Unnamed tributary of Sand Branch of Macoupin Creek, 2.1 km NE of Spankey: UTM 195237mE 4344554mN: 9 May 1999: SJT99-137	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Unnamed tributary of Dry Branch of Macoupin Creek, 7.6 km SW of Carrollton (center): UTM 199340mE 4352240mN: 9 May 1999: SJT99-138	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
O	Unnamed tributary of Apple Creek, 9.7 km NW of Carrollton (center): UTM 198991mE 4362196mN: 9 May 1999: SJT99-139	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
O	Hurricane Creek, 8.8 km W of White Hall (center): UTM 198535mE 4372704mN: 9 May 1999: SJT99-140	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○

Table 1. Continued.

Habitat	Collection Site	Gerromorphan Taxon																										
		Undetermined Gerrinae	Aquarius nebularis	Aquarius remigis	Gerris	Gerris	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates	Rheumatobates tenuipes	Trepobates	Trepobates knighti	Trepobates subnitidus	Merragata hebroides	Hydrometra	Hydrometra martini	Mesovelia	Mesovelia cryptophilia	Mesovelia fitchi	Microvelia	Microvelia	Microvelia	Microvelia america	Rhagovelia	Rhagovelia obesa	Rhagovelia
L	White Hall Reservoir, 2.2 km ENE of White Hall (center): UTM 209344mE 4372132mN: 9 May 1999: SJT99-141	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○
O	Roadside ditch at cnty rd 2300 N near Birch Creek, 11.2 km E of White Hall (center): UTM 218221mE 4371517mN: 9 May 1999: SJT99-142	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Bear Creek at U.S. Hwy 67, 6.9 km N of Greenfield (center): UTM 223399mE 4366568mN: 9 May 1999: SJT99-143	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
L	Lake, 1.4 km E of Greenfield (center): UTM 224617mE 4359642mN: 9 May 1999: SJT99-144	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○	○	○	○	○	○	○
R	Taylor Creek at U.S. Hwy 67, 1.7 km NNW of Rockbridge: UTM 223399mE 4353244mN: 9 May 1999: SJT99-145	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
A	Lick Creek at US67, 5.7 mi SSE of Murrayville (Center): UTM Z15, 740020mE 4377150mN: 21 September 1999: SJT99-252	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
A	Apple Creek x U.S. Hwy 67, 8.8 mi N of Greenfield (center): UTM Z15, 740150mE 4372600mN: 21 September 1999: SJT99-253	○	●	○	○	○	○	○	○	○	●	●	●	○	●	○	○	○	○	○	●	○	○	●	○	○
A	Apple Creek at county road 4.7 mi SE of White Hall (center): UTM Z15, 730167mE 4365116mN: 21 September 1999: SJT99-254	○	○	●	○	○	○	○	●	○	●	●	●	○	○	●	○	○	○	○	○	●	○	○	○	○
R	Seminary Creek at IL 267, 1.2 mi S of White Hall (center): UTM Z15, 723254mE 4366984mN: 21 September 1999: SJT99-255	○	●	○	○	○	○	○	●	○	●	●	●	●	●	●	○	●	○	○	○	●	○	●	○	○
R	Macoupin Creek at IL 267, 4.5 mi S of Carrollton (center): UTM Z15, 724920mE 4345900mN: 21 September 1999: SJT99-256	○	○	○	○	○	○	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○	●	○	○	●
	Greene County:																										

Table 1. Continued.

Habitat	Collection Site	Gerromorphan Taxon																								
		Undetermined Gerrinae	Aquarius sp	Aquarius nebularis	Aquarius remigis	Gerris arge ntico llis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates spp	Rheumatobates palosi	Rheumatobates tenuipes	Trepobates spp	Trepobates kennicotti	Trepobates subnitidus	Merragata hebroides	Hydrometra spp	Hydrometra martini	Mesovelia sp	Mesovelia vigilax	Mesovelia mulsanti	Microvelia spp	Microvelia americana	Rhagovelia obesa	Rhagovelia arivale
	Jersey County:																									
T	Unnamed tributary of Piasa Creek at Beltrees Rd.: UTM Z15, 735896mE 4315493mN: 16 March 1999: SJT99-46	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Unnamed tributary of Mill Creek at Beltrees Road: UTM Z15, 733548mE 4315389mN: 16 March 1999: SJT99-48	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Mill Creek at Beltrees Rd.: UTM Z15, 731714mE 4315691mN: 16 March 1999: SJT99-49	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Unnamed stream at Elsah: UTM Z15, 728739mE 4315102mN: 16 March 1999: SJT99-50	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S	'Chautauqua Spring' by IL 3 at New Piasa Chautauqua: UTM Z15, 726439mE 4315740mN: 16 March 1999: SJT99-51	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Unnamed stream N of Grafton: UTM Z15, 722540mE 4318027mN: 16 March 1999: SJT99-52	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	DeArcy Branch of Macoupin Creek at Hwy 267: 4 km NW of Jerseyville (center): UTM Z15, 729165mE 4336953mN: 16 March 1999: SJT99-53	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Coon Creek, 5.9 km SSE of Nutwood (center): UTM 194163mE 4326549mN: 9 May 1999: SJT99-134	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
O	Otter Creek, 5.5 km ESE of Nutwood (center): UTM 197817mE 4330685mN: 9 May 1999: SJT99-135	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Unnamed tributary of Sugar Creek at Gunterman Rd., Haushalter Hollow, 3.8 km N of Fieldon (center): UTM 197280mE 4338426mN: 9 May 1999: SJT99-136	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Elm Branchof Macoupin Creek at U.S. Hwy 67, 4.3 km NNW of Medora (center): UTM 227042mE 4345076mN: 9 May 1999: SJT99-146	○	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○

Table 1. Continued.

Habitat	Collection Site	Gerromorphan Taxon																							
		Undetermined Gerrinae	Aquarius sp	Aquarius nebularis	Aquarius remigis	Gerris argenticollis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates sp	Rheumatobates pallosi	Rheumatobates tenuipes	Trepobates sp	Trepobates knight	Trepobates subnitidus	Meragata hebroides	Hydrometra sp	Hydrometra martini	Mesovelia sp	Mesovelia cryptophila	Mesovelia mulsanti	Microvelia sp	Microvelia americana	Rhagovelia obesa	Rhagovelia rivale
	Jersey County:																								
R	Phils Creek, 8.7 km ENE of Jerseyville (center): UTM 220602mE 4337932mN: 9 May 1999: SJT99-147	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
A	Piasa Creek at cnty rd 800N, 6.8 km W of Brighton: UTM 221517mE 4326525mN: 9 May 1999: SJT99-148	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	○	○
R	Phils Creek at East Kane Road, 3.4 mi E of Kane (center): UTM Z15, 734117mE 4341410mN: 21 September 1999: SJT99-257	○	○	●	●	○	○	○	○	○	●	●	●	●	●	●	○	○	○	○	○	○	○	●	○	○
P	Small pond near Illinois River, 4.6 mi ENE of Batchtown, near Godar Diamond Fish & Wildlife Area River Access: UTM Z15, 710116mE 4324705mN: 22 September 1999: SJT99-258	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○
V	Illinois River at 12 mile access of Godar Diamond Fish & Wildlife Area, 4.3 mi ENE of Batchtown: UTM Z15, 709806mE 4324810mN: 22 September 1999: SJT99-259	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Pike County:																								
V	Illinois River at 104 bridge, 0.8 km W of Meridosia (center): UTM 194716mE 4414863mN: 7 May 1999: SJT99-91	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	Backwater pond of Illinois River at 104 bridge, 0.9 km W of Meridosia (center): UTM 194641mE 4414911mN: 7 May 1999: SJT99-92	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Unnamed tributry of Middle Fork of McKee Creek at county road 3168E, 5.4 km NW of Perry (center): UTM 177391mE 4415417mN: 7 May 1999: SJT99-100	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Middle Fork of McKee Creek at Brower Creek and county road 3000E, 4.7 km W of Perry (center): UTM 174664mE 4410805mN: 7 May 1999: SJT99-102	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 1. Continued.

Habitat	Collection Site	Undetermined Gerrinae	Aquarius sp	Aquarius nebularis	Aquarius remigis	Gerris argenticollis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates pallosi	Rheumatobates tenuipes	Trepobates sp	Trepobates knighti	Trepobates subnitidus	Merragata hebroides	Hydrometra sp	Hydrometra martini	Mesovelia sp	Mesovelia cryptophila	Mesovelia mulsanti	Microvelia sp	Microvelia americana	Rhagovelia obesa	Rhagovelia arivale
	Pike County:																								
R	South Fork of McKee Creek at 3000N, 6.8 km WNW of Griggsville (center): UTM 174389mE 4405099mN: 7 May 1999: SJT99-103	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
O	Unnamed tributary upstream of Lake Pittsfield, 5.2 km NE of Pittsfield (center): UTM 177263mE 4393906mN: 8 May 1999: SJT99-104	○	○	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
L	Lake Pittsfield, 5.3 km NE of Pittsfield (center): UTM 177310mE 4393943mN: 8 May 1999: SJT99-105	○	○	○	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	Small pond near Lake Pittsfield, 5.3 km NE of Pittsfield (center): UTM 177695mE 4393647mN: 8 May 1999: SJT99-106	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	●	○	○	○	○	○	○
V	Illinois River at Valley City, 6.3 km E of Griggsville (center): UTM 186964mE 4401482mN: 8 May 1999: SJT99-107	○	●	○	○	○	○	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
R	Bay Creek at cnty rd 2800 E, 6.4 km NW of Pittsfield (center): UTM 170755mE 4397026mN: 8 May 1999: SJT99-108	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Hadley Creek at cnty rd 1700 E, 3.6 km N of Barry (center): UTM 153225mE 4405322mN: 8 May 1999: SJT99-109	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
V	Mississippi River at Hannibal bridge (Hwy 36/106), 12.3 km W of Hull (center): UTM 127077mE 4405448mN: 8 May 1999: SJT99-110	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	Backwater pond of Mississippi River at Hannibal bridge (Hwys 36/106), 12.3 km W of Hull (center): UTM 127077mE 4405660mN: 8 May 1999: SJT99-111	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	Roadside ditch by Hwy 106, 10.4 km W of Hull (center): UTM 128852mE 4405278mN: 8 May 1999: SJT99-112	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
R	McCraney Creek at Hwy106, 2.2 km NW of Kinderhook: UTM 142242mE 4404604mN: 8 May 1999: SJT99-113	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Table 1. Continued.

Habitat	Collection Site	Undetermined Gerrinae	Aquarius spp	Aquarius nebularis	Aquarius remigis	Gerris arcticollis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates spp	Rheumatobates palosi	Rheumatobates tenuipes	Trepobates spp	Trepobates knighti	Trepobates subnitidus	Merragata hebroides	Hydrometra spp	Hydrometra martini	Mesovelia spp	Microvelia cryptophila	Mesovelia mulsanti	Microvelia spp	Microcorixa anna	Rhagovelia obesa	Rhagovelia arivale
	Pike County:																									
T	Brown Branch, 5.1 km SE of New Canton (center): UTM 152005mE 4391795mN: 8 May 1999: SJT99-114	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
R	Six Mile Creek, 10.8 km SW of Pittsfield (center): UTM 165556mE 4383313mN: 8 May 1999: SJT99-115	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Buckeye Creek at cnty rd 900N, 8.4 km S of Pittsfield (center): UTM 173166mE 4382674mN: 8 May 1999: SJT99-116	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Honey Creek at cnty rd 900N, 9.7 km SSE of Pittsfield (center): UTM 177453mE 4382342mN: 8 May 1999: SJT99-117	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
T	Bedford Creek. 2.2 km W of Bedford: UTM 189792mE 4381430mN: 8 May 1999: SJT99-118	●	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
V	Illinois River at Bedford: UTM 191967mE 4381538mN: 8 May 1999: SJT99-119	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R	Unnamed tributary of Hill Creek at Twin Culverts, 3.5 km WSW of Pearl (center): UTM 184715mE 4372736mN: 8 May 1999: SJT99-120	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S	Spring nr power plant, 1.7 km SE of Pearl (center): UTM 188693mE 4372458mN: 8 May 1999: SJT99-121	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
O	Bay Creek at IL 96, 1.7 mi SE of Pleasant Hill (center): UTM Z15, 685145mE 4366590mN: 22 September 1999: SJT99-267	○	○	○	○	○	○	○	○	○	●	●	●	○	○	●	○	○	○	○	○	○	○	○	○	○
O	The Sny at county rd 400N, 6.3 mi WNW of Pleasant Hill (center): UTM Z15, 673081mE 4370003mN: 22 September 1999: SJT99-270	○	○	○	○	○	○	○	○	○	○	○	●	○	○	●	○	○	○	○	○	○	○	○	○	○
V	Mississippi River at US54 bridge, 0.3 mi NE of Louisiana (MO) (center): UTM Z15, 668494mE 4369672mN: 22 September 1999: SJT99-271	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○

Table 1. Continued.

Habitat	Collection Site	Undetermined Gerrinae	Aquarius sp	Aquarius nebularis	Aquarius remigis	Gerris argenticollis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates pallosi	Rheumatobates tenuipes	Trepobates sp	Trepobates knight	Trepobates subnitidus	Merragata hebroides	Hydrometra spp	Hydrometra marina	Mesovelia sp	Mesovelia scrypta ophia	Mesovelia mulsanti	Microvelia america	Rhagovelia obesa	Rhagovelia rivale
	Pike County:																							
R	Bay Creek at county rd 3400E, 3.6 mi ENE of Nebo: UTM Z15, 695775mE 4370609mN: 23 September 1999: SJT99-272	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
V	Illinois River at Florence, IL 106/100 bridge: UTM Z15, 705154mE 4389517mN: 23 September 1999: SJT99-273	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	Scott County:																							
A	North Little Sandy Creek, 3 km N of Alsey at Hwy 106: UTM Z15, 720660mE 4385229mN: 16 March 1999: SJT99-58	O	O	O	●	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
O	Sandy Creek at Hwy 106, 1.5 km E of Winchester (center): UTM Z15, 719800mE 4389801mN: 16 March 1999: SJT99-59	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
O	Walnut Creek at Interstate 72, 4 km W of Lynnville: UTM Z15, 723458mE 4395604mN: 16 March 1999: SJT99-60	O	O	O	●	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
O	Mauvaise Terre Creek, 4 km S of Chapin (center): UTM 208021mE 4403465mN: 7 May 1999: SJT99-84	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
T	Unnamed trib Mauvaise Terre Creek, 4.6 km S of Chapin (center): UTM 207371mE 4402866mN: 7 May 1999: SJT99-85	●	O	O	●	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
O	Mauvaise Terre Creek, 0.5 km W of Exeter (center): UTM 199815mE 4402610mN: 7 May 1999: SJT99-86	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
A	Unnamed tributary of Wolf Run, 1.9 km NW of Exeter (center): UTM 199454mE 4404297mN: 7 May 1999: SJT99-87	●	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
O	Wolf Run, 2.2 km NW of Bluffs (center): UTM 195387mE 4407271mN: 7 May 1999: SJT99-88	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
O	Coon Run, 2.8 km NNE of Naples (center): UTM 192815mE 4409056mN: 7 May 1999: SJT99-89	O	O	O	O	O	O	●	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

Table 1. Continued.

Habitat	Collection Site	Undetermined Gerrinae	Aquarius spp	Aquarius nebularis	Aquarius remigis	Gerris argenticollis	Gerris insperatus	Gerris marginatus	Limnoporus canaliculatus	Metrobates hesperius	Rheumatobates spp	Rheumatobates palosi	Rheumatobates tenuipes	Trepobates spp	Trepobates knighti	Trepobates subnitidus	Merragata hebroides	Hydrometra spp	Hydrometra martini	Mesovelia spp	Mesoveliidae cryptophilia	Mesoveliidae mulsanti	Microveliidae spp	Microcoveliidae america	Rhagovelia obesa	Rhagovelia avale
	Scott County:																									
O	Sandy Creek at county rd. 525E, 6.2 mi SW of Winchester (center): UTM Z15, 712752mE 4381609mN: 23 September 1999: SJT99-274	○	○	●	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○
A	Little Sandy Creek at hwy 106, 5.3 mi WSW of Manchester (center): UTM Z15, 721227mE 4378080mN: 23 September 1999: SJT99-275	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

[1]Habitats codes are: A-Sand Bottom Temporary Stream; L-Lake; O-Muddy Organic Permanent Stream; P-Pond; R-Clear Rocky Permanent Stream; S-Spring; T-Clear Rocky Temporary Stream; V-River.

Table 2. List of Gerromorpha (Insecta: Heteroptera) collected during the present study (March-September 1999) in Brown, Calhoun, Greene, Jersey, Pike, and Scott counties, Illinois. Classification follows Henry and Froeschner (1988).

Family	Subfamily	Genus	Species
Gerridae	Gerrinae		
			Gerrinae (undetermined nymphs)
		Aquarius	*Aquarius* sp.
			Aquarius nebularis (Drake & Hottes)
			Aquarius remigis (Say)
		Gerris	*Gerris argenticollis* Parshley
			Gerris insperatus Drake & Hottes
			Gerris marginatus Say
		Limnoporus	*Limnoporus canaliculatus* (Say)
	Halobatinae		
		Rheumatobates	*Rheumatobates* sp. (undetermined nymphs and adult females)
			Rheumatobates palosi Blatchley
			Rheumatobates tenuipes Meinert
	Trepobatinae		
		Metrobates	*Metrobates hesperius* Uhler
		Trepobates	*Trepobates* sp. (undetermined nymphs)
			Trepobates knighti Drake & Harris
			Trepobates subnitidus Esaki
Hebridae	Hebrinae		
		Merragata	*Merragata hebroides* White
Hydrometridae	Hydrometrinae		
		Hydrometra	*Hydrometra* sp. (undetermined nymphs)
			Hydrometra martini Kirkaldy
Mesoveliidae	Mesoveliinae		
		Mesovelia	*Mesovelia* sp. (undetermined nymphs)
			Mesovelia cryptophila Hungerford
			Mesovelia mulsanti White
Veliidae	Microveliinae		
		Microvelia	*Microvelia* sp. (undetermined nymphs)
			Microvelia americana (Uhler)
	Rhagoveliinae		
		Rhagovelia	*Rhagovelia obesa* Uhler
			Rhagovelia rivale Torre-Bueno

Table 3. Percent (within each habitat type) of sites at which species were found. Includes only sites where at least one species was collected. Based on collections made during the present study (March-September 1999) in Brown, Calhoun, Greene, Jersey, Pike, and Scott counties, Illinois.

Species (Number of Sites at which species was found)	Habitat (number of sites sampled)							
	Sand Bottom Temp. Stream (8)	Clear Rocky Temp. Stream (20)	Clear Rocky Perm. Stream (29)	Muddy Organic Perm. Stream (16)	River (14)	Pond (8)	Lake (6)	Spring (2)
Aquarius nebularis (12)	25	5	24.1	12.5	0	0	0	0
Aquarius remigis (41)	12.5	60	70.0	37.5	0	12.5	0	50
Gerris argenticollis (2)	0	0	0	0	7.1	0	16.7	0
Gerris insperatus (4)	0	10	0	6.3	0	12.5	0	0
Gerris marginatus (9)	0	0	0	18.8	1	25	50	0
Limnoporus canaliculatus (3)	12.5	0	3.5	0	0	0	16.7	0
Metrobates hesperius (2)	0	0	3.5	0	7.1	0	0	0
Rheumatobates palosi (8)	25	0	13.8	6.3	0	0	16.7	0
Rheumatobates tenuipes (9)	25	0	10.4	18.8	0	0	16.7	0
Trepobates knighti (4)	12.5	0	10.4	0	0	0	0	0
Trepobates subnitidus (7)	12.5	0	6.9	12.5	7.1	0	16.7	0
Merragata hebroides (1)	0	0	0	0	0	12.5	0	0
Hydrometra martini (7)	12.5	0	3.5	0	7.1	12.5	50	0
Mesovelia cryptophila (2)	12.5	0	0	0	0	0	16.7	0
Mesovelia mulsanti (4)	12.5	0	3.5	0	0	12.5	16.7	0
Microvelia americana (19)	25	25	34.5	6.3	0	12.5	0	0
Rhagovelia obesa (1)	0	0	0	0	7.1	0	0	0
Rhagovelia rivale (1)	0	0	3.5	0	0	0	0	0

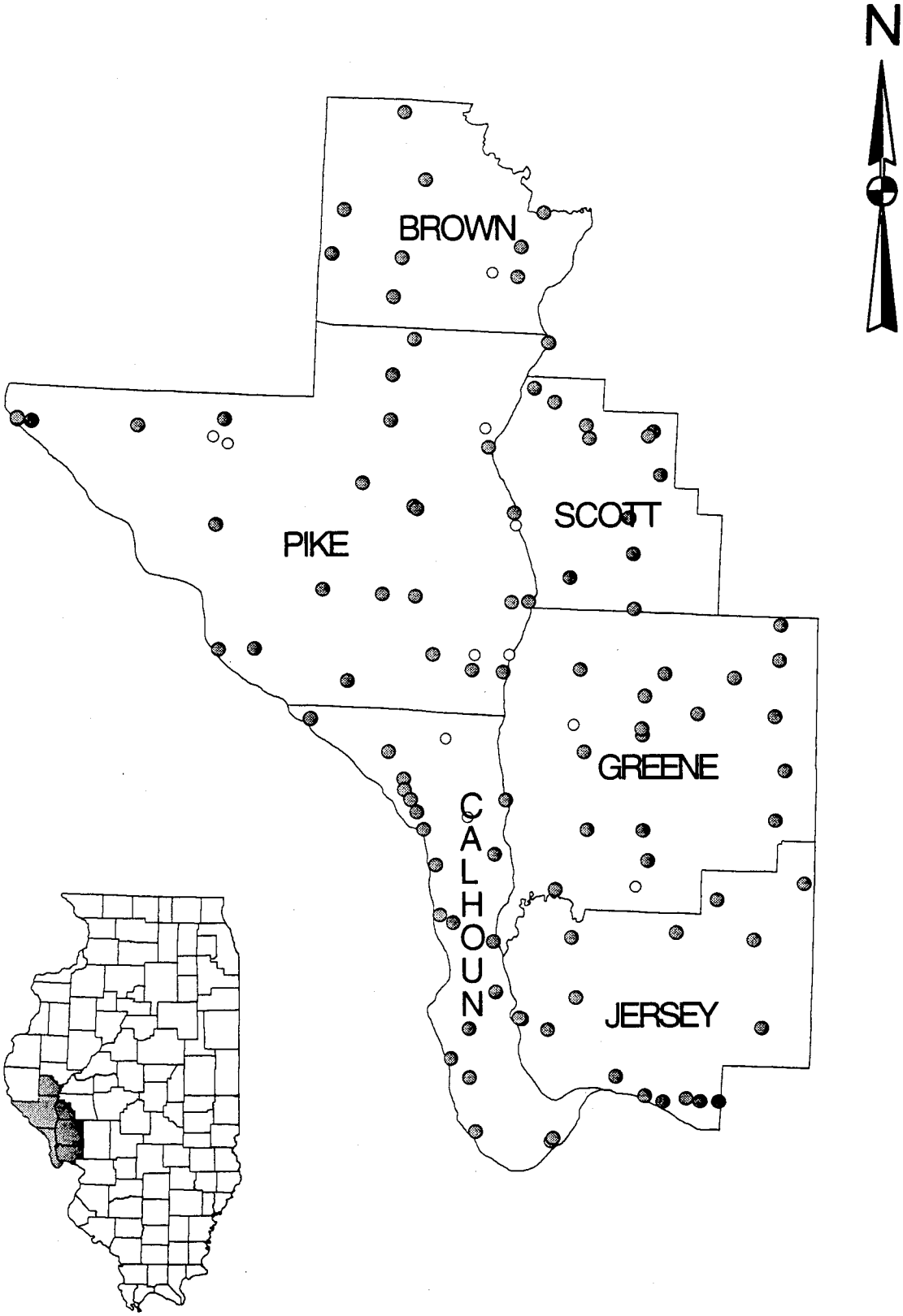

Figure 1. Distribution of collection sites in the study area. Open circles represent historical collections, shaded circles are the 103 sites visited during the present study (March-September 1999) in Brown, Calhoun, Greene, Jersey, Pike, and Scott counties, Illinois.

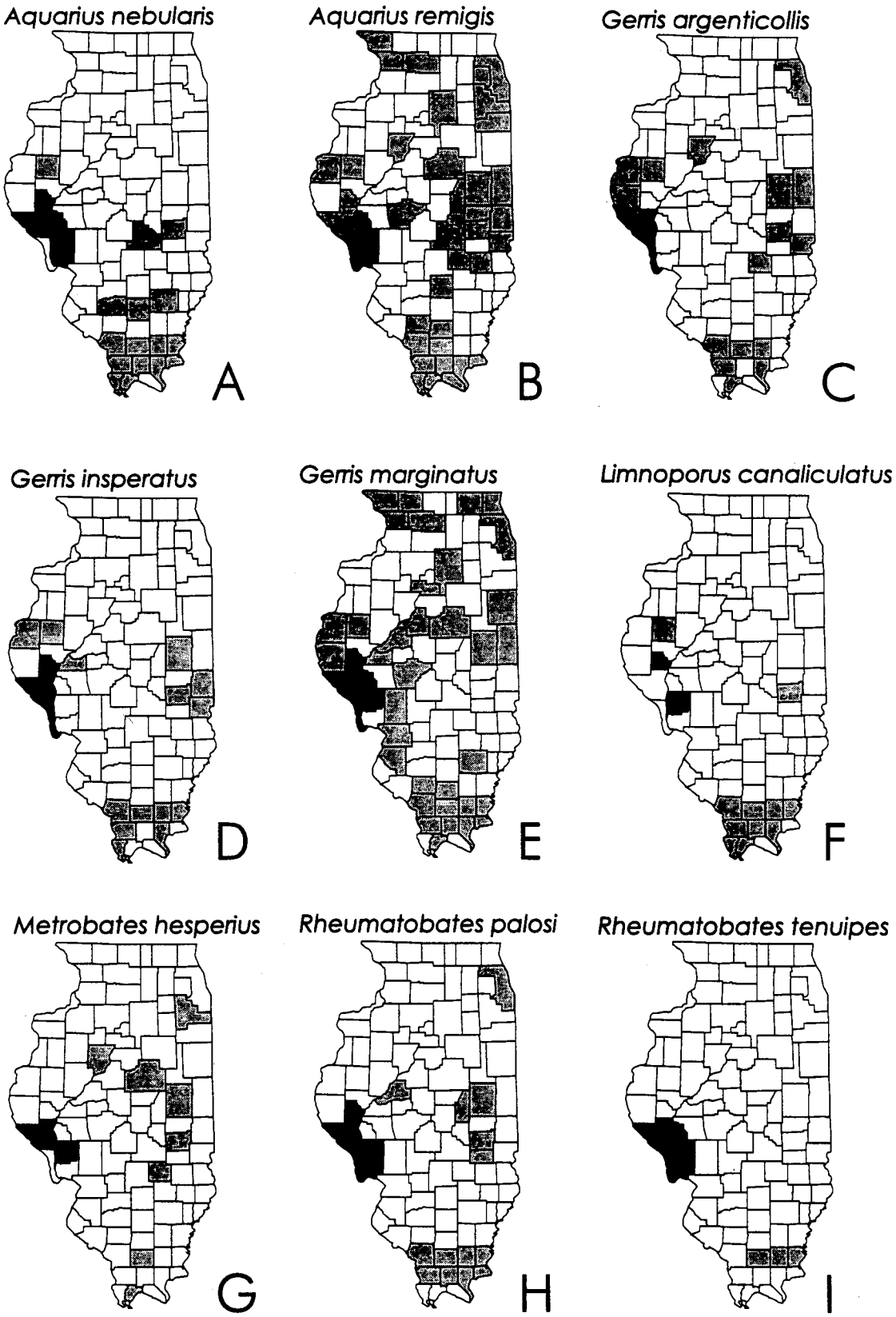

Figure 2. Updated Illinois distribution maps for A) *Aquarius nebularis*; B) *Aquarius remigis*; C) *Gerris argenticollis*; D) *Gerris inperatus*; E) *Gerris marginatus*; F) *Limnoporus canaliculatus*; G) *Metrobates hesperius*; H) *Rheumatobates palosi*; and I) *Rheumatobates tenuipes*. Gray counties indicate distribution as reported in Taylor (1996), black counties indicate new county records reported in the present study (March-September 1999).

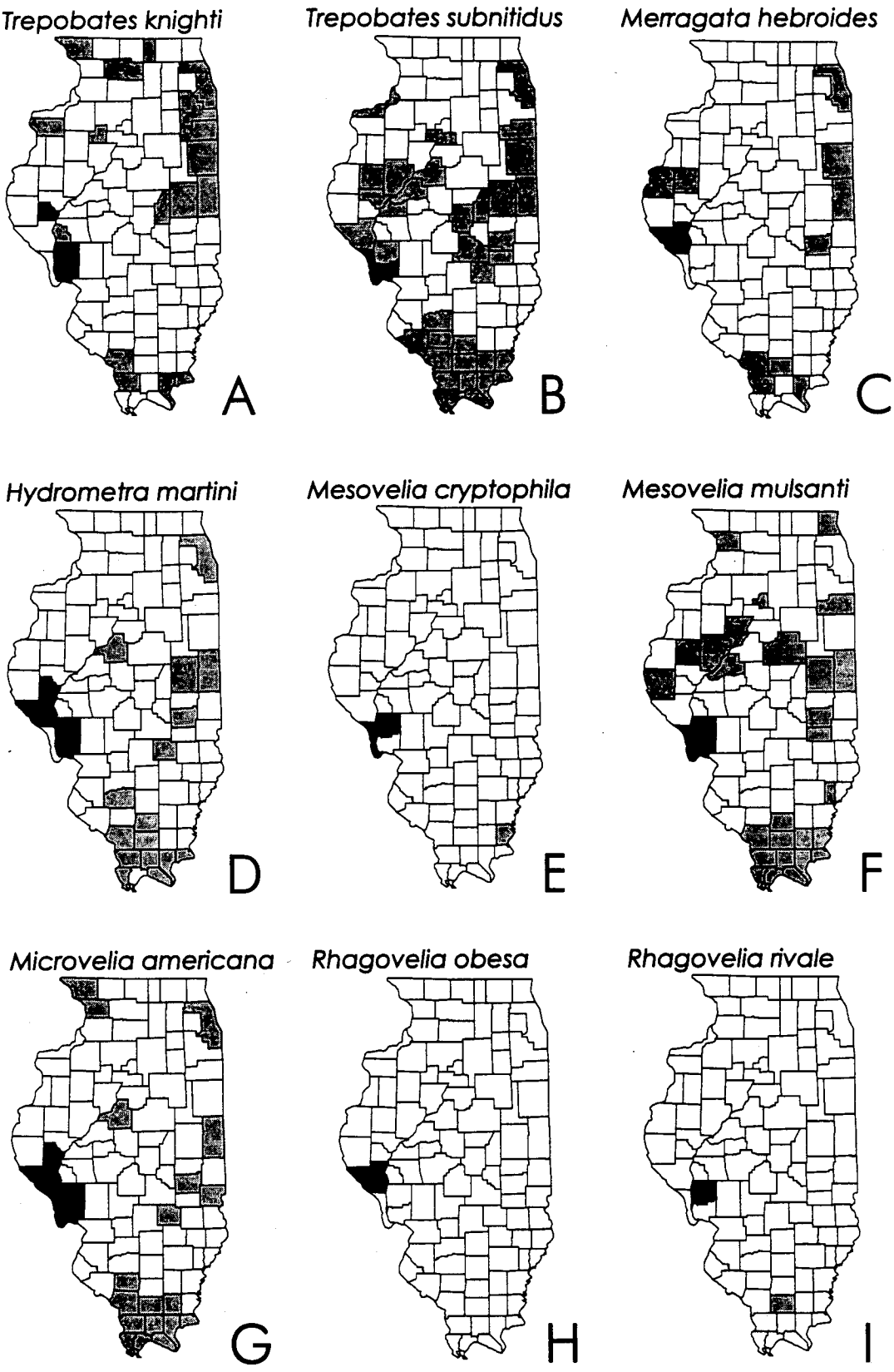

Figure 3. Updated Illinois distribution maps for A) *Trepobates knighti*; B) *Trepobates subnitidus*; C) *Merragata hebroides*; D) *Hydrometra martini*; E) *Mesovelia cryptophila*; F) *Mesovelia mulsanti*; G) *Microvelia americana*; H) *Rhagovelia obesa*; and I) *Rhagovelia rivale*. Gray counties indicate distribution as reported in Taylor (1996), black counties indicate new county records reported in the present study (March-September 1999).

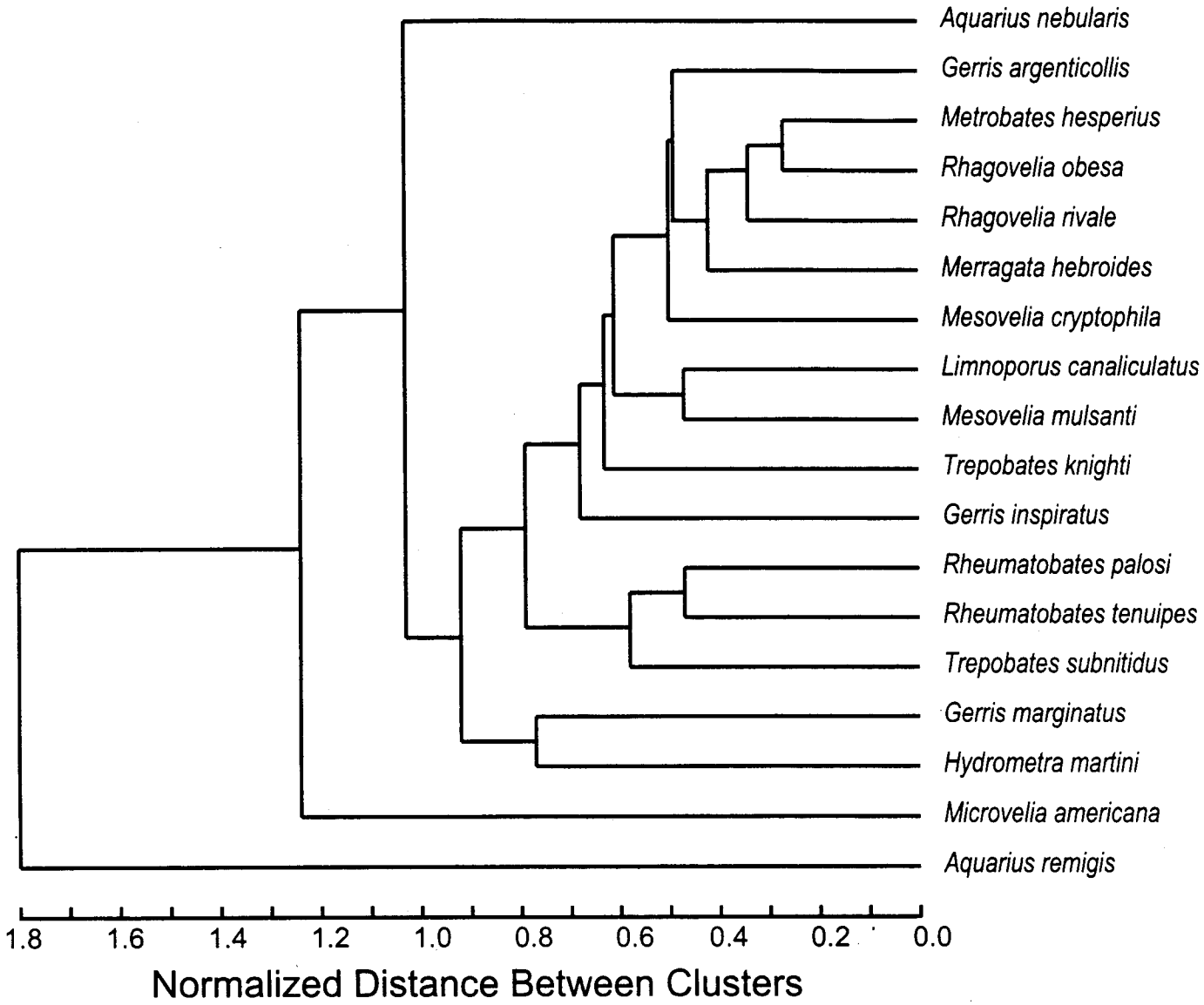

Figure 4. Phenogram of Normalized Root Mean Square Distance (average linkage cluster analysis) between gerromorphan species collected in Brown, Calhoun, Greene, Jersey, Pike, and Scott counties, Illinois, during the present study (March-September 1999) based on species presence/absence data at each site. Taxa not identified to species level were excluded from the analysis.

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