PRELIMINARY LIST OF THE HYDRACARINA OF WISCONSIN
I. THE RED MITES

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The interest of students of fresh water biology in the water mites makes it desirable to have lists of determined species for different regions in America. Such a list is now being compiled for Wisconsin from the data and collections in the writer's possession. This list when completed will probably be equally applicable to the entire upper Mississippi basin and southern Canada. The present paper, which is the beginning of a check list, records fourteen species belonging to the group of "red mites". Data on distribution and one or more figures are given for each species. In this paper synopses are included only in the case of the two new species to be described. The figures, it is hoped, will be sufficient in most cases to enable the student who has some general knowledge of the group to make identifications for himself. The accompanying bibliography gives the papers where full or original descriptions may be found. For the determination of the genera the reader is referred to Dr. Wolcott's *A Review of the Genera of the Water Mites* or his article on the group in Ward & Whipple's *Fresh Water Biology*. For a more recent and fuller account of the genera and a description of the cosmopolitan species, Soar & Williamson's *British Hydracarina* should be consulted. In the grouping of the genera the writer has followed Dr. Koenike's article on Hydracarina in *Tierwelt Mitteleuropas*.

The red water mites form the super-family *Limnocharae* which is divided into eight families, all but one of which are known to be represented in the Wisconsin fauna. They are common in shallow waters and are the simplest members of the group of the Hydracarina (which may be regarded as forming a suborder). They are usually large, oval mites, red or orange in color; the skin is soft, covered with papillae of different kinds, and often develops dorsal plates. The double eyes of each side lie on chitinized capsules; an unpaired eye may be

present. The epimera (leg plates) are in four groups, often considerably separated. The genital area is near the epimera; the character of the plates and acetabula of this region are important in distinguishing the genera. Sexual dimorphism is not very marked. The five-jointed palpi are sometimes chelate. The legs (of six segments each) are short, end in claws and bear numeous bristles and sometimes swimming hairs.

Limnochares aquaticus (L.)

Pl. VII, fig. 1–3.

This common mite, one of the largest, is the only species recorded for the genus. It is widely distributed over Europe and has been found also in British Columbia, Ontario, Minnesota, Michigan, Indiana, and New York. In Wisconsin it has been found in Catfish Lake (Vilas County), in ponds near Cable and Green Bay, in Storr Lake (near Milton), in Fox Lake and the Waupaca Chain-o'-Lakes.

Eylais desecta Koen.

Pl. VII, fig. 13, 14.

The highly variable character of the eye plate upon which so far the determination of the species of this large genus has been largely based, together with the uncertainty of what should be regarded as specific characters, make identifications here very difficult. This is the only species which has been determined with some degree of certainty; other species are undoubtedly present in the state. It has been recognized in material from Ontario and Michigan; in Wisconsin specimens have been found in pools near Madison, Green Bay, Green Lake, Jordan Lake (Adams County), in Lake Koshkonong, Bass Lake (Waupaca), Little John (Vilas County) and in the Wisconsin River near Kilbourn.

Protzia ovata n. sp.

Pl. VII, fig. 9–12.

The body is obovate, slightly shouldered. The largest specimen found measured 1.20 mm. The surface of the body has conspicuous papillae, rounded or slightly pointed. The double eyes of each side are large and lie on distinct plates. The epim-

era are typical of the genus. The genital area is extensive and lies between the epimeral groups. The genital plates are inconspicuous; they are surrounded by large oval stipitate irregularly placed acetabula, of which there are about thirty in the female, with numerous long hairs among them. The capitulum is large and broad, extending over the body margin. The palpi are short and bear short hairs; the distal projection of segment four is conspicuous. The legs are short, resembling those of *P. eximia* Protz, the type species; they are without swimming hairs and end in serrated spoon-shaped claws.

The new species appears to resemble most closely *P. caucasica* Sok., found in Russia; the stalked acetubula, however, are more numerous. The shape of the body together with details of the genital area distinguish this species from others of the genus described.

Five individuals were found in Green Lake by Professor C. Juday. All but one appear to be females; the remaining one, probably a young male, was not sufficiently well preserved to permit of a determination. This is the first described species of the genus Protzia to be reported for North America.

Hydrachna crenulata Mar.

Pl. VIII, fig. 28.

This species has been found in but two localities: in Fox Lake and in a pool near Oxford.

Hydrachna rotunda Mar.

Pl. VIII, fig. 23.

Specimens of this species have been found in Lake Winnebago and in pools near Green Bay, Green Lake and Jordan Lake. The small dorsal plates are irregular and variable.

Hydrachna canadensis Mar.

Pl. VIII, fig. 24.

As in the last species, the dorsal plates show a considerable degree of variability. Specimens have been found in Lake Winnebago and Trout Lake.

Hydrachna bilunata n. sp.

Pl. VIII, fig. 26, 27.

The body is hemispherical and may attain a length of 3.00 mm. The surface shows very small low papillae. The color is bright red. A small irregularly lunate plate lies just back of each eye plate; still farther back are two irregular, somewhat oblong plates or bars, all of these structures variable in shape. The fourth pair of epimera show a prominent rounded projection on the inner posterior corner, these plates thus largely surrounding the female genital area. The new species resembles *H. amplexa* Koen., found in Madagascar. The male is unknown.

Specimens have been found in British Columbia and in Wisconsin in pools near Green Lake, Trout Lake and Jordan Lake.

Hydrachna schneideri americana Mar.

Pl. VIII, fig. 21, 22.

The large plate posterior to the eyes is variable in outline as it is in the parent species. The male of this variety has now been identified; the genital area is somewhat cordate, broader than in *H. schneideri* Koen.

The species has been found in Alberta, North Dakota and Maine. In Wisconsin it has been found in Lake Winnebago, Trout Lake pool, ponds at Big Spring (Adams County), Mirror Lake and the Wisconsin River near Kilbourn.

Hydrachna magniscutata Mar.

Pl. VIII, fig. 25.

This species has been found in Indiana, New Jersey and Michigan. In Wisconsin it is known for Lake Winnebago, Fox Lake, Lake Pewaukee, Mirror Lake, Silver and Ballard lakes near Trout Lake, and in pools near Green Lake and Burlington.

Pseudosperchon verrucosus (Protz)

Pl. VIII, fig. 15–18.

Much interest attaches to the finding of this cosmopolitan species, the first record for the New World to the writer's knowledge. It has been known heretofore for Europe and northern Africa. Two specimens, each measuring 0.50 mm.,

were found in Green Lake by Professor Juday. They have been compared with identified material from the collection of the late Dr. Koenike and also with specimens kindly sent to the writer by Dr. Viets. There seems to be no doubt of the identification. Drawings are submitted in confirmation of this finding.

Hydryphantes ruber (deGeer)

Pl. VII, fig. 5, 6.

This species, common throughout Europe, has been found in a pool near Jordan Lake. It has also been found in Illinois and Ohio and is reported by Dr. Nathan Banks for Northwest Territory.

Hydryphantes tenuabilis Mar.

Pl. VII, fig. 4.

This common species has been found in Lakes Winnebago, Delavan, Storr and Mason; and in pools and ponds near lakes Jordan, Beulah, Geneva and Waubesa. It also occurs in Iowa, Michigan and Ohio.

Hydryphantes multiporus Mar.

Pl. VII, fig. 7, 8.

This is a rare species and has been found only in Goose Pond near Jordan Lake.

Diplodontus despiciens (Müll.)

Pl. VIII, fig. 19, 20.

This is one of the commonest and most widely distributed species of water mites. It has been found in or near the following lakes and ponds: Lauderdale, Beulah, Burlington, Delavan, Whitewater, Wingra, Fox, Storr, Buffalo (Waupaca), Big Spring, Silver (Portage), Mason, Oxford, Jordan, Mirror, Spooner, Cable, Otter (Eagle River), and ten lakes in Vilas County. It has also been found in New York, New Jersey, South Carolina, Michigan, Iowa, North Dakota, Ontario, British Columbia, Cuba and Panama. It has been reported for all parts of Europe, for South America, Asia and Africa.

ROCKFORD COLLEGE,
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EXPLANATION OF THE PLATES

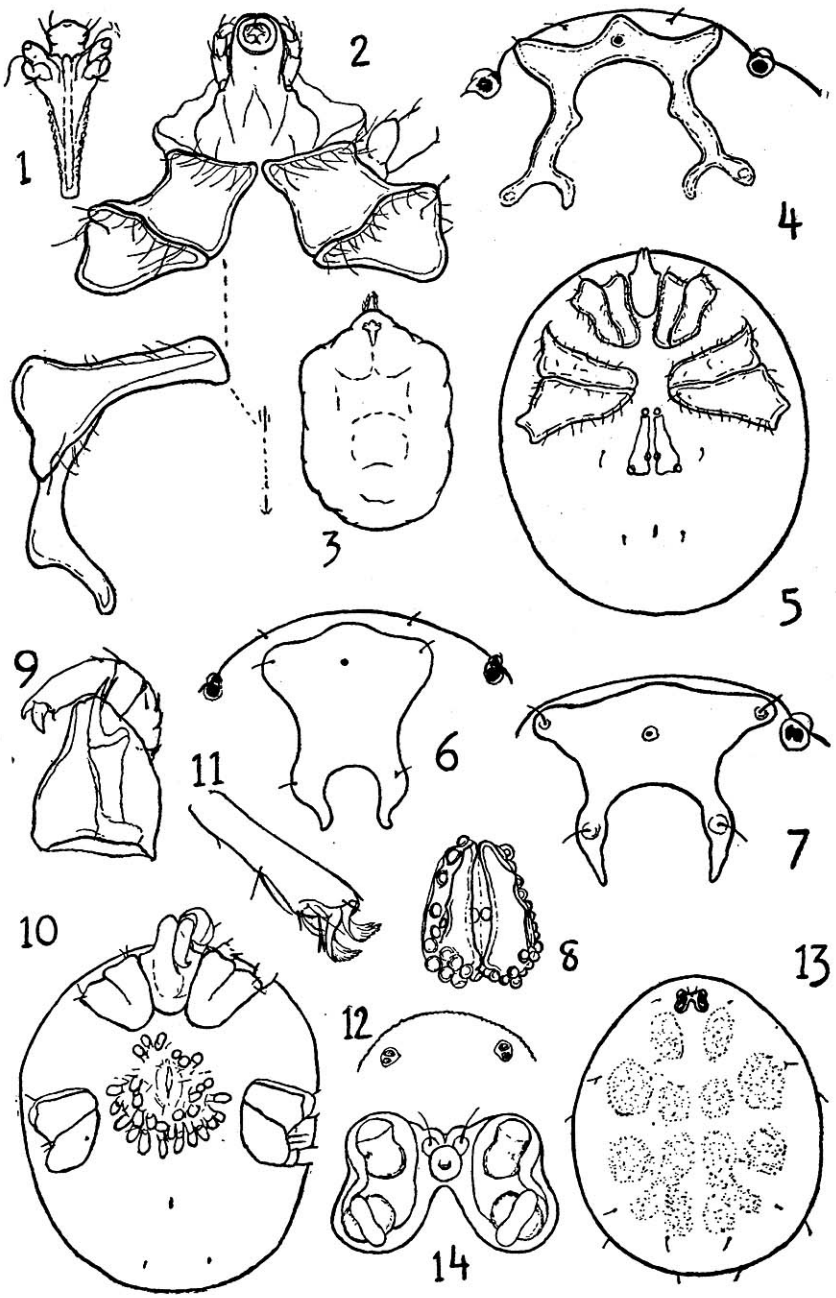
PLATE VII

1. *Limnochares aquaticus*, dorsal eye plate
2. *Limnochares aquaticus*, ventral plates (left 3rd and 4th epimera omitted)
3. *Limnochares aquaticus*, dorsal view
4. *Hydryphantes tenuabilis*, dorsal plate
5. *Hydryphantes ruber*, ventral view
6. *Hydryphantes ruber*, dorsal plate
7. *Hydryphantes multiporus*, dorsal plate
8. *Hydryphantes multiporus*, genital area
9. *Protzia ovata*, capitulum and right palpus
10. *Protzia ovata*, ventral surface, female
11. *Protzia ovata*, end of leg IV

12. *Protzia ovata*, eye region
13. *Eylais desecta*, dorsal surface
14. *Eylais desecta*, eye plate

PLATE VIII

15. *Pseudosperchon verrucosus*, dorsal view
16. *Pseudosperchon verrucosus*, detail of a tubercule
17. *Pseudosperchon verrucosus*, right palpus
18. *Pseudosperchon verrucosus*, ventral surface
19. *Diplodontus despiciens*, dorsal view
20. *Diplodontus despiciens*, ventral plates, young male
21. *Hydrachna schneideri americana*, male genital area
22. *Hydrachna schneideri americana*, dorsal plate
23. *Hydrachna rotunda*, anterior dorsal region
24. *Hydrachna canadensis*, anterior dorsal region
25. *Hydrachna magniscutata*, dorsal view
26. *Hydrachna bilunata*, anterior dorsal region
27. *Hydrachna bilunata*, ventral plates, female
28. *Hydrachna crenulata*, anterior dorsal region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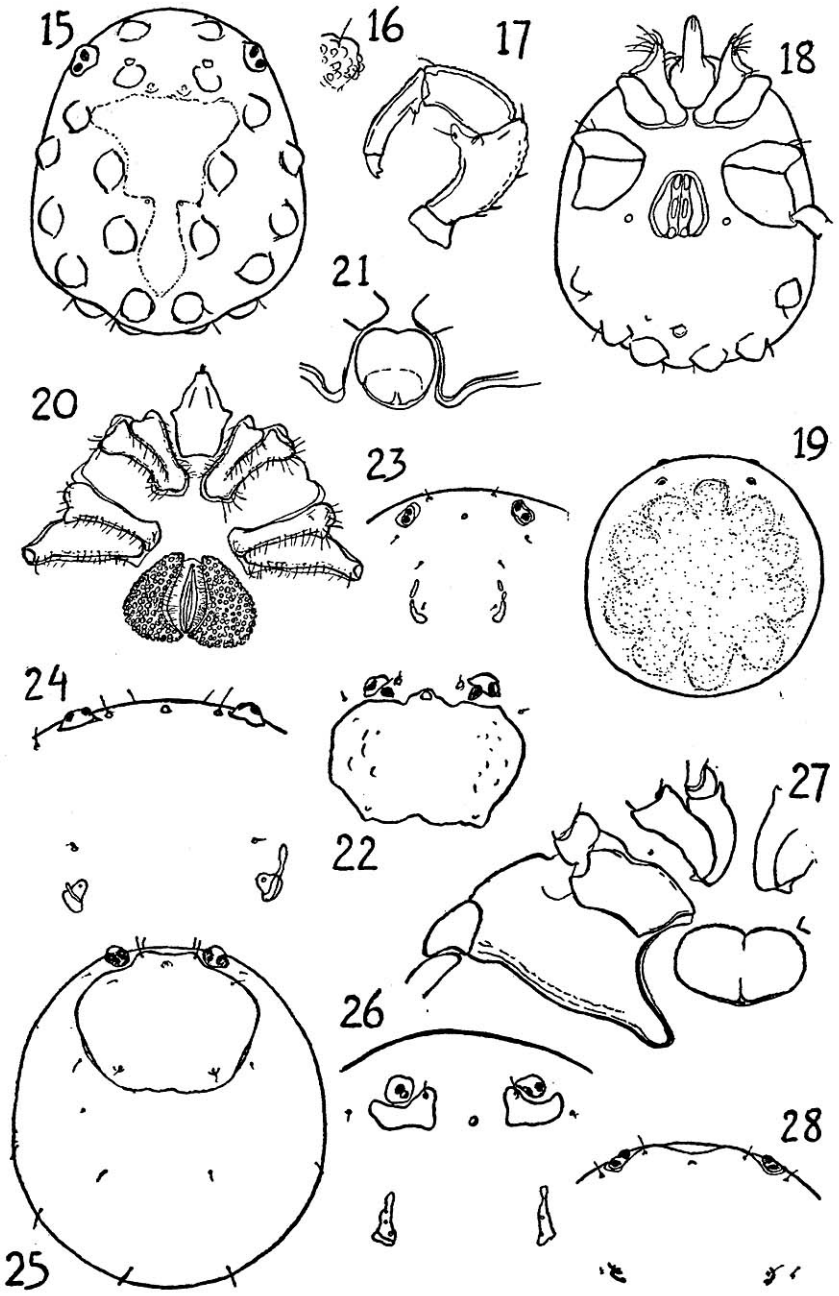
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