

THE WATER MITES OF THE JORDAN LAKE REGION

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Jordan Lake is in the extreme southwestern part of Adams County, Wisconsin, fifteen miles from Kilbourn and the Dells of Wisconsin River. It is one of a group of small lakes, ponds and pools, all situated within an area of some five square miles. This lake is about one mile long, irregular in shape, with a large extent of marshy and weedy border. A few rods away to the west lies Goose Pond, a very shallow spring-fed body, irregularly C-shaped, with a surface of about five acres; it is choked with water plants and teems with small animal forms. Haynes' Pond, a similar body of water, lies a short distance to the north of Jordan Lake and there are also three very small pools in the immediate neighborhood. About two miles north of this region lie three small lakes somewhat similar to Jordan Lake, Parker, Deep and Crooked, and beyond these is Goose Lake. At the village of Oxford, three miles north-east of Jordan Lake, is a pond which has been dammed. South-east of Jordan Lake are two other mill ponds near the village of Big Spring, while some three miles eastward from these, near the village of Briggsville, lies Lake Mason, the largest lake of the region. In all, these bodies of water afford a rich collecting ground for aquatic forms.

In the summer of 1927 the writer spent four months at Jordan Lake working on the hydracarina. Collections were made in all of these bodies of water, but especially in Goose Pond, which was visited once a week. The Birge cone net was used in securing material; it was cast from shore, or in a few cases, thrown from a boat or dragged through shallow water. In addition, a few clams from Jordan Lake were examined for parasitic mites.

Nearly fourteen hundred individuals were obtained in some forty collections from these waters, of which number about one thousand have been identified. It appears probable that this is a fair representation of the water mite fauna of the shallow waters of this biological area.

Nineteen genera with fifty-nine species and varieties were found, of which four of the latter are new, while several new records were established for the state. The "red mites" were present in large numbers; about two hundred individuals were found, the greater number of which belong to the common species *Hydryphantes tenuabilis*. A few specimens of Eylais were present, but only one species was identified with certainty (*E. desecta*). About one-third of all of the individuals were Pionas, most of which were assigned to eleven recognized species. The Limnesias comprised about one-fourth of all individuals and represented six species, the great majority being *L. fulgida wolcotti*. The Arrhenuri were abundant and very rich in species, eighteen being recognized, with a number of unidentified females.

Descriptions of the new species, notes on certain new records and a list of the species follow.

Hydrachna schneideri americana Mar.

Pl. 5, Fig. 8

Four individuals of this species were found in the two ponds at Big Spring. One of these proved to be a young male, the sex not previously described. The epimera are in form like those of the female; the fourth, which is somewhat angular, nearly encloses the genital area. The male genital plates in this variety are similar to those of the parent species, but are not so elongated.

Hydrachna rotunda nov. spec.

Pl. 5, Fig. 4, 5

The color is deep red. The body is rotund, 1.20 mm. long. The surface shows small papillae. The dorsal plates are represented by two very small somewhat crescent-shaped pieces just anterior to the center of the body, near which are two small muscle attachments. The fourth epimera are nearly rectangular except for the slim projecting inner lower corner of each. The male genital area is large, obovate, and is nearly enclosed by the last epimeral pair. The palpi are slim. The female is unknown.

One young male was found in Goose Pond. The species has

also been found in two other places in the state (Green Lake and a pool near Green Bay).

Hydrachna crenulata nov. spec.

Pl. 5, Fig. 6, 7

The color is deep red with indistinct deep blotches; the eyes are very dark red. The body is circular in outline, highly arched and has two slight projections between the eyes. It measures 1.92 mm. The surface shows faint papillae. Dorsal plates are not developed, but there is a small thickening near a large hair papilla some distance back of each eye. The epimera are heavy, with rounded corners, and the groups are close together. The male genital area is cordate in form, closely and almost entirely surrounded by the last epimeral pair.

The female is unknown. One male was found in a pool near Oxford.

Hydryphantes ruber (de Geer)

Pl. 6, Fig. 9, 10

One adult, found in one of the pools near Jordan Lake is referred to this common European species. The epimera and genital area agree closely with Piersig's figure in *Zoologica* (fig. 130, a). The dorsal plate, however, does not agree so well with this and other published descriptions, being relatively narrower with more conspicuous posterior prolongations. But, as the figures of various authors show some degree of variation, the present identification seems justifiable. Figures are submitted in confirmation of this opinion.

Hydryphantes multiporus nov. spec.

Pl. 5, Fig. 1-3

The color is bright orange red and the surface is finely papillose. The larger of two adults found measured 1.50 mm. The large dorsal shield has conspicuous posterior lateral prolongations and closely resembles that of *H. alienus* Lund., reported from Peru. The epimera have the usual form; the fourth show a considerable convexity where they approach the genital plates. The genital area is distinguished by the great

number of acetabula present on the plates; these are variable in number, even in the two plates of the same individual. There is an acetabulum on either side close to the genital slit and from fourteen to eighteen arranged around the outer margin of each of the plates. In the allied species there is likewise a large and variable number of acetabula, but the range is not so great. In the nymphs this variability is likewise shown: in the seven specimens found, while the left plate bore always five, the right one in two individuals bore an additional acetabulum (one very small), and two specimens, one a very young one, had but four on this side.

The legs are stout; the last one is about the length of the body. The first three pairs bear many stout bristles, especially on the distal ends of the segments. The second and third pairs have a few long coarse hairs on the fourth and fifth segments; the fourth legs have more and longer hairs. The palpi are stout.

The nine individuals described were found in Goose Pond and a nearby pool in June and mid-July.

Atractides jordanensis nov. spec.

Pl. 6, Fig. 12-14

The body is nearly circular in outline, compressed, the dorsal and ventral parts separated by a deep lateral furrow. The surface of the body and appendages is conspicuously papillose. The largest males measured 0.985 mm. The colors are conspicuous, red orange predominating; a reddish area borders the circumference while farther in are irregular blotches which may be brown or pink on a ground color of pale yellow. Younger individuals show a more variegated pattern and brighter colors. The eyes are red.

There is a large dorsal plate with four well defined smaller ones on its anterior border, the middle two smallest, nearly trapezoidal, the lateral ones elongate. In this respect the new species resembles *A. anomalus* Koch. The epimera are typical of the genus except that the united first pair are small and the anterior margins of both first and second do not project very far over the body margin. The genital plates of the male are typical, being nearly surrounded by the united third and fourth epimera. The capitulum is very small, the rostrum is little

developed. The palpi are small and stout; there are numerous bristles on the palpal segments, some of which are slightly feathered, while hair papillae are little developed. The legs are short, the fourth about the length of the body; there are many heavy bristles, with a few swimming hairs on the last three pairs.

Twenty five individuals, all males, were found in nine collections in debris from Goose Pond and in two collections from Jordan Lake. They were found in June, July and August; young individuals appeared in late August.

Piona conglobata (Koch)

Pl. 6, Fig. 11

Two collections from Oxford mill pond gave seven individuals (one male, five females, one nymph) of this cosmopolitan species, the first record to the author's knowledge for America. The specimens have been compared with material identified by Dr. Viets. The color was dull yellow with brown patches, a faint red showing in the center of the body. The scattered acetabula of the female genital area are variable in number and position.

Arrhenurus birgei Mar.

Pl. 6, Fig. 16, 17

The female of this common species has now been definitely identified. The body is ovate, 0.85 mm. long, the posterior end slightly projecting. The fourth epimeral plates are narrow on the inner borders. The wing-shaped genital areas project nearly straight out from the genital cleft.

LIST OF THE SPECIES

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| 1. <i>Eylais desecta</i> Koen. | 30. <i>Piona inconstans</i> (Wol.) |
| 2. <i>Hydrachna schneideri</i> americana Mar. | 31. <i>Piona setiger</i> (Wol.) |
| 3. <i>Hydrachna rotunda</i> nov. spec. | 32. <i>Piona media</i> (Wol.) |
| 4. <i>Hydrachna crenulata</i> nov. spec. | 33. <i>Piona conglobata</i> (Koch) |
| 5. <i>Hydryphantes tenuabilis</i> Mar. | 34. <i>Piona pugilis</i> (Wol.) |
| 6. <i>Hydryphantes ruber</i> (Geer) | 35. <i>Piona crassa</i> (Wol.) |
| 7. <i>Hydryphantes multiporus</i> nov. spec. | 36. <i>Piona debilis</i> (Wol.) |
| 8. <i>Diplodontus despiciens</i> (Müll.) | 37. <i>Piona turgida</i> (Wol.) |
| 9. <i>Lebertia quinquemaculosa</i> Mar. | 38. <i>Piona constricta</i> (Wol.) |
| 10. <i>Lebertia porosa</i> Thor | 39. <i>Hydrochoreutes unguulatus</i> (Koch) |
| 11. <i>Oxus connatus</i> Mar. | 40. <i>Mideopsis orbicularis</i> (Müll.) |
| 12. <i>Frontipoda americana</i> Mar. | 41. <i>Albia caerulea</i> Mar. |
| 13. <i>Atractides jordanensis</i> nov. spec. | 42. <i>Arrhenurus rotundus</i> Mar. |
| 14. <i>Limnesia fulgida wolcottii</i> Piers. | 43. <i>Arrhenurus crenellatus</i> Mar. |
| 15. <i>Limnesia undulata</i> (Müll.) | 44. <i>Arrhenurus scutulatus</i> Mar. |
| 16. <i>Limnesia maculata americana</i> Piers. | 45. <i>Arrhenurus infundibularis</i> Mar. |
| 17. <i>Limnesia columbica</i> Mar. | 46. <i>Arrhenurus birgei</i> Mar. |
| 18. <i>Limnesia paucispina</i> Wol. | 47. <i>Arrhenurus manubriator</i> Mar. |
| 19. <i>Limnesia cornuta</i> Wol. | 48. <i>Arrhenurus parallelatus</i> Mar. |
| 20. <i>Megapus parviscutus</i> (Mar.) | 49. <i>Arrhenurus marshallae</i> Piers. |
| 21. <i>Unionicola crassipes</i> (Müll.) | 50. <i>Arrhenurus megalurus</i> Mar. |
| 22. <i>Unionicola aculeata sayi</i> Piers. | 51. <i>Arrhenurus pseudocylindrat</i> Piers. |
| 23. <i>Neumania semicircularis</i> Mar. | 52. <i>Arrhenurus apetiulatus</i> Piers. |
| 24. <i>Neumania punctata</i> Mar. | 53. <i>Arrhenurus magnicaudatus</i> Mar. |
| 25. <i>Neumania extendens</i> Mar. | 54. <i>Arrhenurus superior</i> Mar. |
| 26. <i>Koenikea concava</i> Wol. | 55. <i>Arrhenurus americanus</i> Mar. |
| 27. <i>Forelia ovalis</i> Mar. | 56. <i>Arrhenurus reflexus</i> Mar. |
| 28. <i>Piona rotunda</i> (Kram.) | 57. <i>Arrhenurus pollictus</i> Mar. |
| 29. <i>Piona reighardi</i> (Wol.) | 58. <i>Arrhenurus falcicornis</i> Mar. |
| | 59. <i>Arrhenurus laticornis</i> Mar. |

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EXPLANATION OF PLATES

PLATE 5

- FIG. 1. *Hydryphantes multiporus*, ventral plates.
 FIG. 2. *Hydryphantes multiporus*, dorsal plate.
 FIG. 3. *Hydryphantes multiporus*, genital area of nymph.
 FIG. 4. *Hydrachna rotunda*, anterior dorsal region.
 FIG. 5. *Hydrachna rotunda*, third and fourth epimera, left side, male.

- FIG. 6. *Hydrachna crenulata*, anterior dorsal region.
FIG. 7. *Hydrachna crenulata*, ventral plates.
FIG. 8. *Hydrachna schneideri americana*, male genital area and left epimera.

PLATE 6

- FIG. 9. *Hydryphantes ruber*, ventral surface.
FIG. 10. *Hydryphantes ruber*, dorsal plate.
FIG. 11. *Piona conglobata*, genital area of female.
FIG. 12. *Atractides jordanensis*, dorsal surface.
FIG. 13. *Atractides jordanensis*, right palpus.
FIG. 14. *Atractides jordanensis*, ventral surface of male.
FIG. 15. *Lebertia quinquemaculosa*, ventral plates of nymph.
FIG. 16. *Arrhenurus birgei*, dorsal surface of female.
FIG. 17. *Arrhenurus birgei*, genital area of female.





