

LATE CENOZOIC NON-MARINE MOLLUSCAN ASSOCIATIONS
IN EASTERN NORTH AMERICA

AURÈLE LA ROCQUE

Department of Geology, The Ohio State University, Columbus 10, Ohio

(Continued from STERKIANA 12: 60)

OHIO - 38 (Cont.)

Physa gyrina
Pseudosuccinea columella
Land Gastropods:
Deroceras reticulatum

OHIO - 39. Portage County, a willow swamp.
(Dexter, 1953: 31).

Sphaeriidae:
Sphaerium sp.
Freshwater lung-breathing Gastropods:
Promenetus exacuus
Land Gastropods:
Deroceras laeve
D. reticulatum
Oxyloma retusa

OHIO - 40. Portage County, a woodland
pond. (Dexter, 1953: 31).

Sphaeriidae:
Sphaerium, 2 sp.
Freshwater lung-breathing Gastropods:
Fossaria obrussa
Gyraulus parvus
Physa gyrina

OHIO - 41. Portage County, a floodplain
pond. (Dexter, 1953: 31).

Sphaeriidae:
Sphaerium, 2 sp.

OHIO - 41 (cont.)

Freshwater lung-breathing Gastropods:
Fossaria obrussa
Gyraulus parvus
Physa gyrina
Promenetus exacuus
Stagnicola palustris

OHIO - 42. Portage County, another flood-
plain pond. (Dexter, 1953: 31).

Sphaeriidae:
Sphaerium, 2 sp.
Freshwater lung-breathing Gastropods:
Fossaria obrussa
Gyraulus parvus
Helisoma trivolvis
Physa gyrina
Stagnicola palustris
Land Gastropods:
Deroceras reticulatum

OHIO - 43. Tuscarawas County. Sterki's list, an example of what may be expected in an Ohio county in an unglaciated area with Pennsylvanian bedrock. The list for pre-Wisconsin time may have been considerably shorter, especially before the establishment of the present Ohio River drainage but the land snail assemblage may have been just as numerous, with the exception of the introduced species, which are few. The list is

¹ The page number in parentheses is that of the complete paper; the one to the right of it is that of this number of STERKIANA

OHIO - 43 (cont.)

given in the same order as the original by Sterki (1899).

Land Gastropods:

1. *Triodopsis albolabris*
2. *Mesodon thyroideus*
3. *Triodopsis multilineata*
4. *Allogona profunda*
5. *Mesodon mitchellianus*
6. *Mesodon pennsylvanicus*
7. *Triodopsis tridentata*
8. *T. fraudulenta vulgata*
9. *T. denotata*
10. *Mesodon inflectus*
11. *Stenotrema leai*
12. *S. hirsutum*
13. *Vallonia pulchella*
14. *V. excentrica*
15. *Anguispira kochi*
16. *A. alternata*
17. *Discus patulus*
18. *D. cronkhitei*
19. *Helicodiscus parallelus*
20. *Punctum minutissimum*
21. *Columella edentula*
22. *Strobilops labyrinthica*
23. *S. virgo*
24. *Pupoides albilabris*
25. *Gastrocopta corticaria*
26. *G. armifera*
27. *G. contracta*
28. *G. pentodon* ("Bifidaria curvidens")
29. *G. pentodon*
30. *Vertigo gouldii*
31. *V. ovata*
32. *V. ventricosa*
00. *Vallonia costata* Müller; not rare. (Added at bottom of page 4, in Sterki's handwriting in my copy of his paper.)
00. *Vertigo elatior*
33. *V. tridentata*
34. *V. milium*
35. *Cionella lubrica*
36. *Haplotrema concavum*
37. *Mesomphix cupreus*
38. *Nesovitrea electrina*

OHIO - 43 (cont.)

39. *Retinella wheatleyi*
 40. *Retinella* (?) sp. ("Hyalinia --- ?")
 41. *R. indentata*
 42. *Striatura ferrea*
 43. *Striatura milium*
 44. *S. exigua*
 45. *Hawaiiia minuscula*
 46. *Helicodiscus singleyanus*
 47. *Zonitoides nitidus*
 48. *Zonitoides arboreus*
 49. *Ventridens intertextus*
 50. *V. ligera*
 51. *V. suppressus*
 52. *Paravitrea multidentata*
 53. *Euconulus fulvus*
 54. *Guppya sterki*
 55. *Deroceras laeve*
 56. *Philomycus carolinianus*
 57. *Pallifera dorsalis*
 58. *Oxyloma retusa*
 59. *Succinea?* (MS: *ovalis* Say).
 60. *S. avara*
 61. *Carychium exiguum*
 62. *C. exile*
- Freshwater lung-breathing Gastropods:
63. *Pseudosuccinea columella*
 64. *Stagnicola palustris*
 65. *S. desidiosa*
 66. *Fossaria humilis*
 67. "Limnaea? very rare."
 68. *Helisoma trivolvis*
 69. "Planorbis lentus Say" (= *H. trivolvis*)
 70. *Helisoma anceps*
 71. *H. campanulatum*
 72. *Promenetus dilatatus*
 73. *Gyraulus deflectus* (? in MS)
 74. *Promenetus umbilicatellus*
 75. *Promenetus exacuus*
 76. *P. rubellus*
 77. *Gyraulus parvus*
 78. *G. circumstriatus*
 79. *G. hirsutus*
 80. *Planorbula armigera*
 81. *Ferrissia meekiana*
 82. *F.* (?) *shimeki* (*shimeki* Pils. added in MS)

OHIO - 43 (cont.)

83. *Laevapex diaphanus*
 84. *Ferrissia tarda*
 00. *Ferrissia kirklandi* (added in MS)
 85. *F. rivularis*
 86. "Ancyclus --- ?" (*A. pumilus* in MS. =
F. meekiana, No. 81).
 87. *Aplexa hypnorum*
 88. *Physa heterostropha*
 88a. *Physa gyrina* (added in MS)
 89. "Physa --- ?"
 90. "Physa (?ancillaria)" (*P. integra* substituted in MS).
 91. "Physa --- ?" (*P. aplectoides* substituted in MS).
- Freshwater gill-breathing Gastropods:
92. *Campeloma integrum*
 93. *Somatogyryus subglobosus isogonus*
 94. *Amnicola limosa*
 95. "A. orbiculata" (= *A. limosa*)
 96. "A. parva" (= *A. limosa*)
 00. *Amnicola lustrica* (added in MS, "not rare")
 00. *Amnicola walkeri* (added in MS)
 97. *Amnicola lacustris*
 98. *Pomatiopsis lapidaria*
 99. "Bithynella obtusa Say" (= *A. lacustris*, No. 97).
 100. *Pleurocera "labiatum Lea"*
 101. *Goniobasis livescens*
 102. *G. livescens gracillior*
 103. *Lithasia obovata*
 104. *Valvata tricarinata*
- Naiades:
105. *Actinonaias carinata*
 106. *Ligumia recta latissima*
 107. *Lampsilis radiata siliquoidea*
 108. *L. ventricosa*
 109. *L. fasciola*
 110. *Villosa iris*
 111. *V. iris "novi-eloraci Lea"* (= *V. iris*)
 112. *V. fabalis*
 113. *Dysnomia torulosa rangiana*
 114. *Truncilla triquetra*
 115. *Carunculina parva*
 116. *Obovaria subrotunda*

OHIO - 43 (cont.)

117. *Tritogonia tuberculata*
 118. *Amblema costata*
 119. *Quadrula pustulosa*
 120. *Cyclonaias tuberculata*
 121. *Pleurobema cordatum*
 121a. *P. cordatum coccineum*
 122. *P. cordatum pyramidatum*
 123. *Fusconaia flava*
 124. *F. subrotunda*
 000. *F. subrotunda kirtlandiana*
 125. *Plethobasus cyphus*
 126. *Pleurobema clava*
 127. *Elliptio dilatatus*
 128. *E. complanatus*
 129. *Quadrula cylindrica*
 130. *Q. metanevra wardii*
 131. *Ptychobranthus fasciolaris*
 132. *Cyprogenia irrorata*
 133. *Lasmigona compressa*
 134. *L. costata*
 135. *L. complanata*
 136. *Alasmidonta marginata*
 137. *A. calceolus*
 138. *Simpsoniconcha ambigua*
 139. *Lastena lata*
 140. *Strophitus undulatus*
 141. *Anodontoides ferussacianus*
 142. *Anodonta grandis*
 143. *Anodonta "salmonea"*
 144. *A. "decora"*
 145. *A. imbecillis*
- Sphaeriidae:
146. *Sphaerium sulcatum*
 147. *S. striatinum*
 148. *S. striatinum stamineum*
 000. *S. striatinum solidulum* (added in MS)
 149. *S. fabale*
 150. *S. rhomboideum*
 151. *S. occidentale*
 152. *S. transversum*
 153. *S. partumeium*
 154. *S. securis*
 155. *Pisidium compressum*
 156. *P. fallax*
 157. *P. cruciatum*

OHIO - 43 (cont.)

- 158. *P. punctiferum*
- 159. *P. variabile*
- 160. *P. casertanum*
- 161. *P. adamsi*
- 162. *P. walkeri*
- 163. *P. casertanum* ("abditum Hald.")
- 164. *P. casertanum* ("politum Sterki")
- 165. *P. nitidum*

ONTARIO - 1. Carleton County, Ottawa River, Duck Island, a few miles below the city of Ottawa. The island is a sandbank high enough to support deciduous trees and much scrub vegetation. It is underlain by Ordovician dolomite and limestone. Here the water is shallow and flows swiftly. Naiades and other mollusks are abundant in the sand and in the roots of vegetation near shore. The remarkable abundance of mollusks here may be due in no small part to the fact that sewage from the city of Ottawa is abundant but sufficiently diluted to obviate pollution. The locality has been a favorite collecting place since the days of Latchford (1880-1935). The list given here has been compiled from several papers by Latchford and Poirier and personal collecting by the writer and several associates.

Naiades:

- Alasmidonta undulata*
- Anodonta "cataracta"*
- A. grandis*
- Anodontoides ferussacianus*
- Elliptio dilatatus*
- E. complanatus*
- Lampsilis radiata "borealis"*
- L. ventricosa*
- Leptodea fragilis*
- Ligumia recta latissima*
- Obovaria olivaria*
- Proptera alata*
- Strophitus undulatus*

Sphaeriidae:

- Pisidium dubium*
- Sphaerium partumeium*

ONTARIO - 1 (cont.)

- S. rhomboideum*
- S. striatinum*
- S. transversum*

Freshwater gill-breathing Gastropods:

- Bulimus tentaculatus*
- Campeloma decisum*
- Somatogyrus subglobosus*

Freshwater lung-breathing Gastropods:

- Helisoma trivolvis*
- Lymnaea stagnalis jugularis*

ONTARIO - 2. Carleton County: Woods between St. Louis Dam and Experimental Farm, Ottawa. (Taylor and Latchford, 1890:52). The woods have long since disappeared but similar woods still existed around 1930 in Dow's Swamp (see Ontario - 3). The writer and George E. Fairbairn obtained from dried moss similar assemblages of land snails. This kind of habitat commonly exists in the near vicinity of a marl lake and this explains the presence of some of these species in minor numbers, in a good many marl deposits.

Land Gastropods:

- Columella edentula*
- Gastrocopta contracta*
- G. pentodon*
- Striatura exigua*
- S. milium*
- Vertigo bollesiana*
- V. gouldii*
- V. ovata*

ONTARIO - 3. Carleton County: Dow's Swamp and Lake, Ottawa. Until some ten years ago, Dow's Lake was an enlargement of the Rideau Canal just inside the city of Ottawa. It was crossed by a causeway and dammed at the south end. The dam was once called St. Louis dam. The north half of the lake has been filled in and the old causeway has been demolished. Much of the area of Dow's Swamp south of St. Louis dam has now been filled in, cut over, and part of it has become the campus of Carleton University. The lake in the swamp, not much more than a

ONTARIO - 3 (cont.)

large pond, had a large molluscan fauna and the swamp a good variety of land snails. In the lists below several collections by Latchford and Taylor, G. E. Fairbairn, and the writer have been combined. The following abbreviations are used: S, swamp; L, Dow's Lake; P, lake in Dow's Swamp; M, species from moss in Dow's Swamp.

Sphaeriidae:

<i>Pisidium casertanum</i>	P
<i>P. obtusale</i>	P
<i>Sphaerium partumeium</i>	P
<i>S. rhomboideum</i>	L
<i>S. securis</i>	L P

Freshwater gill-breathing Gastropods:

<i>Amnicola limosa</i>	P
<i>Bulimus tentaculatus</i>	L

Freshwater lung-breathing Gastropods:

<i>Armiger crista</i>	P
<i>Gyraulus deflectus</i>	P
<i>Helisoma trivolvis</i>	L P
<i>Physa "ancillaria"</i>	L
<i>Promenetus exacuous</i>	L
<i>Stagnicola palustris</i>	L P

Land Gastropods:

<i>Carychium exile</i>	S
<i>Cionella lubrica</i>	S
<i>Columella edentula</i>	M
<i>Gastrocopta contracta</i>	S
<i>G. corticaria</i>	S
<i>Helicodiscus parallelus</i>	M
<i>Planogyra asteriscus</i>	M
<i>Punctum minutissimum</i>	M
<i>Striatura exigua</i>	M
<i>S. milium</i>	M
<i>Vertigo ovata</i>	M
<i>Zonitoides nitidus</i>	M

ONTARIO - 4. Carleton County: Rideau River at Rifle Range (now built over) just upstream from Strathcona Park, Ottawa. In a short stretch of the river there is a radical change of environment from deep, muddy pools to rapids running over exposures of Ordovician shales strewn with glacial erratics. The following species live in the rapids or just below them.

ONTARIO - 4 (cont.)

Naiades:

Lasmigona compressa

Sphaeriidae:

Sphaerium striatinum

Freshwater gill-breathing Gastropods:

Goniobasis livescens (concentrated just below a small riffle produced by a ledge in the stream)

Freshwater lung-breathing Gastropods:

Fossaria umbilicata
Stagnicola emarginata

ONTARIO - 5. Carleton County: Rideau River at Billings Bridge. The village of Billings Bridge has been swallowed up in the expansion of the city of Ottawa but a bridge which gave it its name still exists. Just above the bridge, the river is rather wide and obstructed by two islands, one of which has since been removed. Two distinct habitats, not more than 25 feet away from each other, may be distinguished. The first of these is listed below, the second under Ontario - 6. The lists are compiled from Latchford's several papers on this locality and the writer's personal collections. Habitat 1. Backwater above rapids; water quiet, vegetation abundant, depth of water 1 to 4 feet; bottom of mud with occasional glacial boulders, some of which may be quite large.

Naiades:

Alasmidonta marginata
Lampsilis radiata siliquoidea
Lasmigona costata
Ligumia recta latissima
Strophitus undulatus

Sphaeriidae:

Sphaerium sulcatum

Freshwater gill-breathing Gastropods:

Campeloma decimum
Valvata lewisi

Freshwater lung-breathing Gastropods:

Ferrissia parallela
Helisoma anceps "sayi"
H. campanulatum
H. trivolvis "infracarinatum"
Lymnaea stagnalis jugularis
Physa "ancillaria"
P. "integra"

ONTARIO - 6. Carleton County, same locality as Ontario - 5, but: Habitat 2: small rapids (formerly between the two islands), bottom bouldery, current strong, water 1-2 feet deep, no vegetation except algae on rocks.

Sphaeriidae:

- Sphaerium striatinum*
- S. transversum*

Freshwater gill-breathing Gastropods:

- Goniobasis livescens*

Freshwater lung-breathing Gastropods:

- Physa "billingsi"* (type locality)
- Stagnicola emarginata*

ONTARIO - 7. Russell County: Woods near Casselman. Freshwater species from ponds and streams in the vicinity of the town, some of them perhaps from the Nation River nearby. This appears to be the northernmost locality for *Triodopsis denotata*. (Latchford, 1895: 156).

Naiades:

- Anodonta "fluviatilis"*
- Elliptio complanatus*
- Lampsilis radiata siliquoidea*

Sphaeriidae:

- Pisidium casertanum*
- Sphaerium occidentale*
- S. sulcatum*

Freshwater gill-breathing Gastropods:

- Campeloma decisum*
- Goniobasis livescens*

Freshwater lung-breathing Gastropods:

- Ferrissia parallela*
- Gyraulus parvus*
- Helisoma anceps*
- H. trivolvis*
- Physa "billingsi"*
- P. heterostropha*
- Stagnicola caperata*
- S. palustris*

Land Gastropods:

- Anguispira alternata*
- Deroceras laeve*
- Discus cronkhitei*
- Euconulus fulvus*
- Haplotrema concavum*

ONTARIO - 7 (cont.)

- Mesodon dentiferus*
- M. sayanus*
- Nesovitrea electrina*
- N. binneyana*
- Oxyloma retusa*
- Philomycus carolinianus*
- Stenotrema leai*
- Succinea ovalis*
- Triodopsis albolabris*
- T. denotata*
- Vallonia pulchella*
- Vertigo ovata*
- Vitrina limpida*
- Zonitoides arboreus*
- Z. nitidus*

ONTARIO - 8. Carleton County: Land snails from open deciduous woods growing on marl bed of former McKay Lake (earlier known as Hemlock Lake). Land snails here are notably abundant, probably because of the exceptionally favorable conditions of the site. This assemblage gives an idea of conditions obtaining when a lake is drained and its bed is invaded by vegetation without the intervention of a boggy stage and therefore without the formation of a peat layer. Lists combined from Latchford and Poirier (1884) and personal collecting.

Land Gastropods:

- Anguispira alternata*
- Cionella lubrica*
- Discus cronkhitei*
- Euconulus fulvus*
- Haplotrema concavum*
- Helicodiscus parallelus*
- Mesodon sayanus*
- Mesomphix inornatus*
- Nesovitrea electrina*
- Oxyloma retusa*
- Stenotrema leaii*
- Succinea ovalis*
- Triodopsis albolabris*
- Zonitoides arboreus*

ONTARIO - 9. Carleton County: McKay Lake, Ottawa. It has been studied by Whittaker and Kindle from the standpoint of sediments and fauna. The following are species living in the lake.

ONTARIO - 9 (cont.)

Combined lists of Latchford and Poirier (1884), Kindle (MSS), Whittaker (1918) and personal collecting.

Naiades:

- Anodonta "cataracta"
- A. grandis
- Lampsilis radiata
- L. radiata siliquoidea

Sphaeriidae:

- Pisidium casertanum
- P. compressum
- Sphaerium rhomboideum
- S. simile

Freshwater gill-breathing Gastropods:

- Amnicola limosa
- A. lustrica
- Campeloma decisum
- Valvata tricarinata

Freshwater lung-breathing Gastropods:

- Gyraulus deflectus
- G. hirsutus
- G. parvus
- Helisoma anceps
- H. campanulatum
- H. trivolvis
- Lymnaea stagnalis jugularis
- Physa heterostropha
- Promenetus exacuus
- Stagnicola desidiosa

ONTARIO - 10. Renfrew Co.: Mohr's Wharf, Chats Falls, Ottawa River. Land snails from woods at the same locality. (Latchford and Poirier, 1884). The freshwater species are notable as they are above the Chaudière Falls, an effective barrier to migration upstream along the Ottawa River; the list suggests that at least the Naiades have been brought here from the Lake Huron drainage and Georgian Bay through the Pleistocene Georgian Bay outlet of the Great Lakes.

Naiades:

- Anodontoides ferussacianus
- Elliptio complanatus
- Lampsilis radiata
- Lasmigona costata

ONTARIO - 10 (cont.)

Strophitus rugosus

Freshwater lung-breathing Gastropods:

- Helisoma trivolvis*
- Stagnicola caperata*
- S. catascopium*

Land Gastropods:

- Discus cronkhitei*
- Euconulus fulvus*
- Gastrocopta contracta*
- Nesovitretea electrina*
- Oxyloma retusa*
- Philomycus carolinianus*
- Retinella indentata*
- Strobilops labyrinthica*
- Succinea ovalis*
- Triodopsis albolabris*
- Zonitoides arboreus*

ONTARIO - 11. Middle Island, Lake Erie.

Goodrich lists few snails because of the presence of chickens and turkeys on this island. (Goodrich, 1916: 530).

Land Gastropods:

- Allogona profunda*
- Anguispira alternata*
- A. kochi*
- A. kochi roseo-apicata*
- Gastrocopta armifera*
- G. contracta*
- G. corticaria*
- Haplotrema concavum*
- Hawaiiia minuscula*
- Mesodon inflectus*
- M. zaletus*
- Stenotrema traernum*
- Succinea avara*
- Triodopsis fraudulenta*
- T. notata*
- Vallonia parvula*
- Zonitoides arboreus*

ONTARIO - 12. Middle Sister Island, Lake Erie. Goodrich lists snails plentiful, the island uninhabited, no chickens. (Goodrich, 1916: 531).

ONTARIO - 12 (cont.)

Land Gastropods:

Allogona profunda strontiana
Anguispira alternata eriensis
A. kochi strontiana
Gastrocopta contracta
Haplotrema concavum
Helicodiscus parallelus
Mesodon inflectus
M. thyroidus
M. zaletus
Succinea avara
Triodopsis albolabris goodrichi
T. fraudulenta

ONTARIO - 13. North Harbor Island, Lake Erie. Goodrich reports this to be a rookery for terns; snails in fair abundance, but less than Middle Sister (Ont. -12, above). (Goodrich, 1916: 531).

Land Gastropods:

Allogona profunda strontiana
Anguispira alternata eriensis
A. kochi roseo-apicata
Haplotrema concavum
Mesodon inflectus
Triodopsis albolabris goodrichi
T. fraudulenta

ONTARIO - 14. East Sister Island, Lake Erie. Goodrich reports few snails. (Goodrich, 1916: 531).

Land Gastropods:

Allogona profunda
Anguispira alternata
A. kochi roseo-apicata
Deroceras laeve
Gastrocopta contracta
Mesodon inflectus
M. zaletus
Nesovitrea electrina
Succinea avara
Vallonia parvula
Zonitoides arboreus

QUEBEC - 1. Gatineau County: Meach Lake.

This is the lowest of three lakes in a chain, Philippe, Harrington, and Meach, in a glacial valley gouged out in Precambrian rock and dammed at the foot of Meach Lake. I have studied in detail the molluscan fauna of this lake (La Rocque, 1935) and the following summary indicates only the three main habitats.

Naiades:	Rock	Sand	Mud
<i>Anodonta marginata</i>	-	-	x
<i>Elliptio complanatus</i>	x	x	-
Sphaeriidae:			
<i>Pisidium</i> sp.	-	x	-
<i>Sphaerium lacustre</i>	-	x	-
Freshwater gill-breathing Gastropods:			
<i>Amnicola limosa</i>	-	x	x
<i>Campeloma</i> cf. <i>C. decisum</i>	-	x	-
Freshwater lung-breathing Gastropods:			
<i>Bulimnea megasoma</i>	x	-	-
<i>Ferrissia parallela</i>	-	-	x
<i>Gyraulus parvus</i>	-	-	x
<i>Helisoma anceps latchfordi</i>	x	x	x
<i>H. campanulatum wisconsinense</i>	-	x	x
<i>H. trivolvis pilsbryi</i>	x	-	x
<i>Lymnaea stagnalis lillianae</i>	x	x	x
<i>Physa parkeri latchfordi</i>	x	x	x
<i>P. gyrina</i>	-	-	x
<i>Pseudosuccinea columella</i>	-	-	x
Land Gastropods:			
<i>Oxyloma retusa</i>	-	-	x

QUEBEC - 2. Gatineau County: Gauvreau

Lake, Gatineau River drainage. The lake is about the same size as Meach Lake but is differently shaped. It does not have the peculiar forms noted for that lake. No marl is in evidence around the margins of the lake but it may be forming in the deeper, central parts of it. The following list combines personal collecting with the list of Latchford and Poirier (1884:265).

Naiades:

Anodonta cataracta
Elliptio complanatus
Lampsilis siliquoidea

QUEBEC - 2 (cont.)

Sphaeriidae:

Sphaerium sulcatum

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Campeloma decisum*

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus**Helisoma campanulatum wisconsinense**H. infracarinatum**Stagnicola desidiosa*, var.

QUEBEC - 3. Gatineau County: Chilcott Lake. - A shallow lake, deeper at the center, invaded by vegetation along its margins. The lake bottom is almost exclusively marl with a small proportion of black mud and organic debris. The following list is compiled from data by Latchford (1926) and La Rocque (1932).

Naiades:

*Alasmidonta undulata**Anodonta marginata**Elliptio complanatus**Lasmigona costata*

Sphaeriidae:

*Pisidium compressum**Sphaerium sulcatum**Sphaerium* ("Musculium") sp.

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Campeloma decisum*

Freshwater lung-breathing Gastropods:

Gyraulus sp.*Helisoma anceps**H. campanulatum wisconsinense**H. trivolvis**Lymnaea stagnalis jugularis**Physa parkeri latchfordi**Pseudosuccinea columella**Stagnicola emarginata canadensis*

Land Gastropods:

Oxyloma retusa

QUEBEC - 4. Gatineau County: Bernard Lake, a lake of medium size, very similar to Meach Lake in that it has fine sandy beaches and muddy bays, with here and there an ex-

QUE. - 4 (cont.)

posure of bare Precambrian rock, but unlike it in shape. The following list, which is probably incomplete, is from personal collections.

Naiades:

*Alasmidonta undulata**Anodonta marginata**Elliptio complanatus*

Freshwater gill-breathing Gastropods:

Campeloma decisum

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus obliquus**Helisoma anceps sayi**H. campanulatum wisconsinense**Lymnaea stagnalis lillianae**Physa* sp.

QUEBEC - 5. Gatineau County: Blue Sea Lake: a large lake with many bays and islands, connected with Grant Lake by Ellard Creek. Four habitats are listed from personal collecting, some of which have been published before (La Rocque, 1936).

Habitat 1: Blue Sea Lake proper, rocky, gravelly, and sandy shores, water 1-4 feet deep, little vegetation.

Naiades:

*Anodonta grandis**Elliptio complanatus**Lampsilis siliquoidea*

Freshwater lung-breathing Gastropods:

Lymnaea stagnalis jugularis

QUEBEC - 6. Gatineau County: Blue Sea Lake, Habitat 2: Big Island, a large island with many summer cottages, but still untouched except in the vicinity of the cottages. Land snails from moss.

Land Gastropods:

*Discus cronkhitei**Haplotrema concavum**Helicodiscus parallelus**Punctum pygmaeum**Retinella* sp.*Stenotrema leali**Striatura exigua**S. ferrea**S. milium*

QUEBEC - 6 (cont.)

Strobilops labyrinthica
Vertigo sp.
Zonitoides sp.

QUEBEC - 7. Gatineau County: Blue Sea Lake, Habitat 3: Ellard Creek, bottom blue clay, with floating duckweed and water lilies; water 0-4 feet deep, clear and cold, no perceptible current.

Naiades:

Anodonta marginata
Elliptio complanatus
Lampsilis siliquoidea

Freshwater lung-breathing Gastropods:

Bulimnea megasoma, abundant near shore on sticks, stones, weeds, and bottom, some almost out of water, all covered with a thin coating of gray clay.

QUEBEC - 8. Gatineau County: Blue Sea Lake area, Habitat 4: Grant Lake, a small lake connected with Blue Sea Lake by Ellard Creek. Bottom blue clay, some stretches of sand and gravel, and a few bays with deep, soft, black mud. The following species are from the blue clay bottom:

Naiades:

Elliptio complanatus
Lampsilis radiata siliquoidea

Freshwater gill-breathing Gastropods:

Valvata tricarinata

Freshwater lung-breathing Gastropods:

Bulimnea megasoma
Helisoma anceps
H. campanulatum wisconsinense
H. trivolvis
Lymnaea stagnalis jugularis
Physa sp.

WISCONSIN - 1. Tomahawk Lake, Oneida and Vilas counties. Species living on sandy shore subject more or less to rough water. (Baker, 1911: 219). No abundance data.

Naiades:

Anodonta grandis footiana
A. marginata
Lampsilis siliquoidea

WIS-1 (cont.)

Sphaeriidae:

Sphaerium sulcatum

Freshwater gill-breathing Gastropods:

Campeloma decusum

Freshwater lung-breathing Gastropods:

Helisoma anceps striatum
H. "binneyi"
H. campanulatum
Lymnaea stagnalis lillianae
L. stagnalis "wisconsinensis"

WISCONSIN - 2. Tomahawk Lake, Oneida and Vilas counties. Species living in enclosed or sheltered bays which are connected with the open lake and in which the water never becomes stagnant. (Baker, 1911: 219). No abundance data.

Naiades:

Anodonta grandis footiana
A. marginata

Freshwater lung-breathing Gastropods:

Helisoma anceps striatum
H. "binneyi"
H. campanulatum
Lymnaea stagnalis lillianae
Physa ancillaria
Stagnicola lanceata

WISCONSIN - 3. Tomahawk Lake, Oneida and Vilas counties. Species living on *Castalia* - *Nymphaea* society in clear water of creek or in enclosed bay. (Baker, 1911: 220).

Freshwater gill-breathing Gastropods:

Amnicola cincinnatiensis

Freshwater lung-breathing Gastropods:

Ferrissia parallela
Gyraulus parvus
G. hirsutus
Helisoma campanulatum
Physa ancillaria
Pseudosuccinea columella

WISCONSIN - 4. Tomahawk Lake, Oneida and Vilas counties. Species living in swampy ponds or in *Typha* plant societies where the water is more or less stagnant. (Baker, 1911: 220).

WISCONSIN - 4 (cont.)

Sphaeriidae:

- Pisidium casertanum*
- Sphaerium occidentale*
- S. partumeium*
- S. securis*

Freshwater lung-breathing Gastropods:

- Aplexa hypnorum*
- Bulimnea megasoma*
- Ferrissia parallela*
- Fossaria obrussa*
- Gyraulus hirsutus*
- Helisoma anceps*
- H. "binneyi"*
- H. trivolvis*
- Lymnaea stagnalis jugularis*
- Physa gyrina*
- Planorbula armigera*
- Pseudosuccinea columella*
- Stagnicola lanceata*

WISCONSIN - 5. Tomahawk Lake, Oneida and Vilas counties. Species living in swales. (Baker, 1911: 220).

Sphaeriidae:

- Pisidium casertanum*
- Sphaerium lacustre*

Freshwater lung-breathing Gastropods:

- Ferrissia parallela*
- Gyraulus parvus*

WISCONSIN - 6. Tomahawk Lake, Oneida and Vilas counties. Species living in river with swift current. (Baker, 1911: 221).

Naiades:

- Actinonaias carinata*
- Amblema plicata*
- Lampsilis radiata siliquoidea*
- L. ventricosa*
- Ligumia recta*

Sphaeriidae:

- Pisidium dubium*
- Sphaerium striatinum*

Freshwater lung-breathing Gastropods:

- Campeloma decisum*

WISCONSIN - 7. Tomahawk Lake, Oneida and Vilas counties. Species living in creek with sandy bottom and clear, cold water; current swift. (Baker, 1911: 221).

Naiades:

- Actinonaias carinata*
- Anodonta grandis footiana*
- A. implicata*
- A. marginata*
- Lampsilis radiata siliquoidea*
- L. ventricosa*
- Lasmigona compressa*
- L. costata*
- Strophitus rugosus*

Freshwater gill-breathing Gastropods:

- Campeloma decisum*

WISCONSIN - 8. Lake Superior drainage: Anna Lake. (Morrison, 1932).

Naiades:

- Anodonta marginata*

Freshwater lung-breathing Gastropods:

- Helisoma anceps cahni*
- Pseudosuccinea columella*

WISCONSIN - 9. Lake Superior drainage: Armour Lake. (Morrison, 1932).

Naiades:

- Anodonta marginata*
- Lampsilis radiata siliquoidea*

Freshwater lung-breathing Gastropods:

- Gyraulus deflectus*
- Helisoma anceps cahni*
- H. campanulatum wisconsinense*
- Physa laphami*
- Stagnicola lanceata*

WISCONSIN - 10. Lake Superior drainage: Black Oak Lake. (Morrison, 1932).

Sphaeriidae:

- Sphaerium securis*

Freshwater lung-breathing Gastropods:

- Helisoma trivolvis*

- WISCONSIN - 11. Lake Superior drainage:
Harris Lake. (Morrison, 1932).
Freshwater gill-breathing Gastropods:
Amnicola limosa
Freshwater lung-breathing Gastropods:
Acella haldemani
Physa laphami
- WISCONSIN - 12. Lake Superior drainage:
Horsehead Lake. (Morrison, 1932).
Naiades:
Anodonta marginata
Lampsilis radiata siliquoidea
- WISCONSIN - 13. Lake Superior drainage:
Katinka Lake. (Morrison, 1932).
Sphaeriidae:
Pisidium lilljeborgi
P. obrusale
- WISCONSIN - 14. Lake Superior drainage:
Montreal River at Pine Lake. (Morrison, 1932).
Naiades:
Anodonta grandis plana
A. marginata
Anodontoides ferussacianus
Lasmigona compressa
Freshwater gill-breathing Gastropods:
Amnicola limosa
Freshwater lung-breathing Gastropods:
Fossaria exigua
Gyraulus deflectus obliquus
G. parvus
Helisoma anceps
Physa laphami
- WISCONSIN - 15. Lake Superior drainage:
Palmer Lake. (Morrison, 1932).
Naiades:
Anodonta kennicottii
Sphaeriidae:
Pisidium adamsi
P. compressum
P. lilljeborgi
P. nitidum
P. variabile
Sphaerium fallax
- WISCONSIN - 15 (cont.)
Freshwater gill-breathing Gastropods:
Amnicola limosa
A. lustrica
Valvata lewisi
V. tricarinata
Freshwater lung-breathing Gastropods:
Ferrissia parallela
Gyraulus deflectus obliquus
Helisoma anceps
H. campanulatum
H. trivoivis
Physa sayii
Promenetus exacuus
- WISCONSIN - 16. Lake Superior drainage:
Presque Isle Lake. (Morrison, 1932).
Naiades:
Anodonta grandis footiana
A. kennicottii
A. marginata
Lampsilis radiata rosacea
Sphaeriidae:
Pisidium compressum
P. nitidum
P. variabile
Sphaerium sulcatum
Freshwater gill-breathing Gastropods:
Amnicola limosa
A. lustrica
Freshwater lung-breathing Gastropods:
Gyraulus deflectus obliquus
G. parvus
Helisoma anceps cahni
H. campanulatum wisconsinense
Lymnaea stagnalis jugularis
Physa laphami
Stagnicola emarginata
- WISCONSIN - 17. Lake Superior drainage:
South Branch, Presque Isle River at Winegar.
(Morrison, 1932).
Naiades:
Anodonta grandis plana
Anodontoides birgei
Lampsilis radiata siliquoidea
Lasmigona compressa

WISCONSIN - 17 (cont.)

Sphaeriidae:

*Pisidium compressum**Sphaerium striatinum*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Campeloma decisum*

Freshwater lung-breathing Gastropods:

Physa integra

WISCONSIN - 18. Lake Superior drainage:
Pond near Presque Isle River at Winegar. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

*Bulimnea megasoma**Gyraulus parvus**Stagnicola palustris elodes*

WISCONSIN - 19. Green Bay drainage: Butternut Lake. (Morrison, 1932).

Naiades:

Anodonta marginata

Freshwater gill-breathing Gastropods:

Campeloma decisum

Freshwater lung-breathing Gastropods:

*Helisoma anceps**H. campanulatum**Lymnaea stagnalis sanctaemariae*

WISCONSIN - 20. Green Bay drainage: Kentucky Lake. (Morrison, 1932).

Naiades:

Anodonta marginata

Freshwater lung-breathing Gastropods:

*Helisoma anceps uncarinatum**H. campanulatum*

WISCONSIN - 21. Green Bay drainage: Pools in lumber slashings, 4 miles east of Butternut Lake. (Morrison, 1932).

Sphaeriidae:

*Pisidium casertanum**P. obtusale**Sphaerium occidentale*

WISCONSIN - 22. Flambeau drainage: Adelaide Lake. (Morrison, 1932).

WISCONSIN - 22 (cont.)

Naiades:

*Anodonta grandis footiana**A. marginata*

WISCONSIN - 23. Flambeau drainage: Allequash Lake. (Morrison, 1932).

Naiades:

*Anodonta marginata**Lampsilis radiata siliquoidea*

Sphaeriidae:

Sphaerium securis

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus**Helisoma campanulatum**H. campanulatum wisconsinense**H. trivolvis**Physa sayii*

WISCONSIN - 24. Flambeau drainage: Ballard Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

Physa sayii

WISCONSIN - 25. Flambeau drainage: Big Lake. (Morrison, 1932).

Naiades:

*Anodonta grandis footiana**Lampsilis radiata siliquoidea**L. ventricosa lurida*

Sphaeriidae:

Sphaerium sulcatum

Freshwater gill-breathing Gastropods:

Campeloma decisum

Freshwater lung-breathing Gastropods:

*Helisoma anceps**Lymnaea stagnalis lillianae**Physa laphami*

WISCONSIN - 26. Flambeau drainage: Big Lake, inlet. (Morrison, 1932)

Naiades:

Lampsilis ventricosa lurida

WISCONSIN - 27. Flambeau drainage: Big Lake, outlet. (Morrison, 1932).

Naiades:

Actinonaias carinata

WISCONSIN - 27 (cont.)

- Anodonta grandis plana*
A. marginata
Elliptio dilatatus delicatus
Fusconaia flava
Lampsilis radiata siliquoidea
L. ventricosa occidens
Lasmigona compressa
L. costata
Strophitus edentulus
- Sphaeriidae:
Pisidium adamsi
P. compressum
P. lilljeborgi
Sphaerium striatinum stamineum
- Freshwater gill-breathing Gastropods:
Amnicola limosa
- Freshwater lung-breathing Gastropods:
Gyraulus parvus
Helisoma anceps
Lymnaea stagnalis jugularis
Physa michiganensis

WISCONSIN - 28. Flambeau drainage: Big Muskellunge Lake. (Morrison, 1932).

- Naiades:
Anodonta marginata
- Sphaeriidae:
Pisidium compressum
P. nitidum
P. variabile
Sphaerium lacustre
S. sulcatum
- Freshwater gill-breathing Gastropods:
Amnicola limosa
A. lustrica
A. walkeri
Campeloma milesii
- Freshwater lung-breathing Gastropods:
Gyraulus parvus
Helisoma anceps
H. anceps sayi
H. anceps uncarinatum
H. campanulatum
H. campanulatum wisconsinense
Physa sayii
Promenetus exacuus megas
Stagnicola emarginata vilasensis

WISCONSIN - 29. Flambeau drainage: Boulder Lake. (Morrison, 1932).

- Naiades:
Lampsilis radiata siliquoidea rosacea
- Sphaeriidae:
Pisidium compressum
P. lilljeborgi
P. nitidum
P. variabile
- Freshwater gill-breathing Gastropods:
Amnicola limosa
A. lustrica
Campeloma milesii
- Freshwater lung-breathing Gastropods:
Ferrissia parallela
Gyraulus hirsutus
G. parvus
Helisoma anceps
H. campanulatum
H. pilsbryi

WISCONSIN - 30. Flambeau drainage: Catfish Lake. (Morrison, 1932).

- Sphaeriidae:
Sphaerium partumeium
- Freshwater lung-breathing Gastropods:
Helisoma campanulatum
Physa sayii

WISCONSIN - 31. Flambeau drainage: Channel between Fishtrap and High lakes. (Morrison, 1932).

- Freshwater lung-breathing Gastropods:
Acella haldemani
Bulimnea megasoma
Helisoma anceps uncarinatum
Pseudosuccinea columella

WISCONSIN - 32. Flambeau drainage: Clear Crooked Lake. (Morrison, 1932).

- Sphaeriidae:
Pisidium variabile
- Freshwater gill-breathing Gastropods:
Amnicola limosa

WISCONSIN - 33. Flambeau drainage: Constance Lake. (Morrison, 1932).

Naiades:

WISCONSIN - 33 (cont.)

Anodonta marginata

Freshwater gill-breathing Gastropods:

*Cameloma milesii*WISCONSIN - 34. Flambeau drainage:
Cranberry Lake. (Morrison, 1932).

Naiades:

*Anodonta marginata*WISCONSIN - 35. Flambeau drainage:
Crooked Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

*Cameloma milesii*WISCONSIN - 36. Flambeau drainage:
Crystal Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

*Physa sayii*WISCONSIN - 37. Flambeau drainage: Dead
Pike Lake. (Morrison, 1932).

Sphaeriidae:

Pisidium variabile

Freshwater gill-breathing Gastropods:

Amnicola limosa

Freshwater lungbreathing Gastropods:

*Gyraulus deflectus**Physa sayii*WISCONSIN - 38. Flambeau drainage: Di-
amond Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Cameloma decisum*

Freshwater lung-breathing Gastropods:

Physa sayii

(WISCONSIN - 39: omitted by error)

WISCONSIN - 40. Flambeau drainage: Duck
Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

*Bulimnea megasoma**Helisoma trivolvis*WISCONSIN - 41. Flambeau drainage: Fa-
vil Lake. (Morrison, 1932).

Naiades:

*Anodonta marginata*WISCONSIN - 42. Flambeau drainage: Fish-
trap Lake. (Morrison, 1932).

Naiades:

*Anodonta grandis footiana**A. marginata**Anodontooides ferussacianus subcylindraceus**Lampsilis radiata siliquoidea rosacea**L. ventricosa lurida*

Sphaeriidae:

*Pisidium adamsi**P. variabile**Sphaerium partumeium**S. rhomboideum**S. sulcatum*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**A. walkeri**Cameloma decisum*

Freshwater lung-breathing Gastropods:

*Acella haldemani**Bulimnea megasoma**Ferrissia parallela**Gyraulus deflectus**G. deflectus obliquus**H. anceps sayi**H. anceps unicarinatum**H. campanulatum**H. trivolvis**H. trivolvis pilsbryi**Lymnaea stagnalis lillianae**Physa sayii**Promenetus exacuus**Stagnicola exilis*WISCONSIN - 43. Flambeau drainage: For-
est Ponds, 10 miles northeast of Boulder Junction.
(Morrison, 1932).

Sphaeriidae:

*Pisidium casertanum**P. obtusale**Sphaerium occidentale**S. securis*

WISCONSIN - 43 (cont.)

Freshwater lung-breathing Gastropods:
Gyraulus circumstriatus

WISCONSIN - 44. Flambeau drainage: Lake George. (Morrison, 1932).
Naiades:

Anodonta marginata
Freshwater lung-breathing Gastropods:
Helisoma anceps

WISCONSIN - 45. Flambeau drainage: Harvey Lake. (Morrison, 1932).
Sphaeriidae:

Sphaerium partumeium
Freshwater gill-breathing Gastropods:
Amnicola limosa
Freshwater lung-breathing Gastropods:
Physa sayii

WISCONSIN - 46. Flambeau drainage: Helen Lake. (Morrison, 1932).
Sphaeriidae:

Sphaerium securis
Freshwater gill-breathing Gastropods:
Amnicola limosa
Campeloma decisum
Freshwater lung-breathing Gastropods:
Helisoma anceps

WISCONSIN - 47. Flambeau drainage: High Lake. (Morrison, 1932).
Naiades:

Anodonta marginata
Anodontoides ferussacianus subcylindraceus
Lampsilis radiata siliquoidea rosacea
L. ventricosa lurida
Sphaeriidae:
Sphaerium sulcatum
Freshwater gill-breathing Gastropods:
Amnicola limosa
A. lustrica
Campeloma decisum
Freshwater lung-breathing Gastropods:
Acella haldemani
Bulimnea megasoma
Ferrissia parallela

WISCONSIN - 47 (cont.)

Gyraulus deflectus
Helisoma anceps
H. campanulatum
H. campanulatum wisconsinense
H. trivolvis
H. pilsbryi
Lymnaea stagnalis lillianae
Physa laphami
Stagnicola exilis
S. lanceata

WISCONSIN - 48. Flambeau drainage: Ike Walton Lake. (Morrison, 1932).
Freshwater gill-breathing Gastropods:

Amnicola limosa
Campeloma milesii
Freshwater lung-breathing Gastropods:
Fossaria obrussa

WISCONSIN - 49. Flambeau drainage: Irving Lake, outlet. (Morrison, 1932).
Naiades:

Anodonta grandis plana
A. marginata
Anodontoides ferussacianus subcylindraceus
Sphaeriidae:
Pisidium adamsi
P. compressum
Sphaerium sulcatum
Freshwater gill-breathing Gastropods:
Campeloma milesii
Freshwater lung-breathing Gastropods:
Helisoma trivolvis

WISCONSIN - 50. Flambeau drainage: Island Lake. (Morrison, 1932).
Sphaeriidae:

Sphaerium sulcatum
Freshwater lung-breathing Gastropods:
Helisoma campanulatum ferrissii
Physa sayii

WISCONSIN - 51. Flambeau drainage: Laura Lake. (Morrison, 1932).
Naiades:

Anodonta marginata

WISCONSIN - 51 (cont.)

Sphaeriidae:

- Pisidium ferrugineum*
- P. nitidum*
- Sphaerium lacustre*

Freshwater gill-breathing Gastropods:

- Amnicola limosa*
- A. lustrica*
- Valvata tricarinata*

Freshwater lung-breathing Gastropods:

- Gyraulus parvus*
- Helisoma pseudotrivolvis*

WISCONSIN - 52. Flambeau drainage: Little Crooked Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

- Amnicola limosa*
- A. lustrica*

WISCONSIN - 53. Flambeau drainage: Little Long Lake. (Morrison, 1932).

Naiades:

- Anodonta grandis footiana*
- A. marginata*

Sphaeriidae:

- Sphaerium securis*

Freshwater gill-breathing Gastropods:

- Campeloma decisum*

WISCONSIN - 54. Flambeau drainage: Little Rice Lake. (Morrison, 1932).

Naiades:

- Anodonta grandis plana*
- A. marginata*
- Anodontoides ferussacianus*
- Lampsilis radiata siliquoidea*

Sphaeriidae:

- Pisidium compressum*
- P. nitidum*
- P. variabile*
- Sphaerium lacustre*
- S. sulcatum*

Freshwater gill-breathing Gastropods:

- Amnicola lustrica*

Freshwater lung-breathing Gastropods:

- Bulimnea megasoma*
- Fossaria obrussa*

WISCONSIN - 54 (cont.)

- Gyraulus parvus*
- Helisoma trivolvis*
- Physa sayi*
- Promenetus exacuus*

WISCONSIN - 55. Flambeau drainage: Little White Birch Lake. (Morrison, 1932).

Naiades:

- Anodonta marginata*

Sphaeriidae:

- Pisidium adamsi*
- P. compressum*
- P. lilljeborgi*
- P. nitidum*

Freshwater gill-breathing Gastropods:

- Amnicola limosa*
- A. lustrica*
- Campeloma milesii*

Freshwater lung-breathing Gastropods:

- Fossaria obrussa decampi*
- Gyraulus hirsutus*
- G. parvus*

WISCONSIN - 56. Flambeau drainage: Lost Canoe Lake. (Morrison, 1932).

Naiades:

- Anodonta grandis footiana*
- A. marginata*

Sphaeriidae:

- Pisidium compressum*

Freshwater gill-breathing Gastropods:

- Amnicola limosa*
- Campeloma milesii*

Freshwater lung-breathing Gastropods:

- Helisoma anceps*
- H. campanulatum wisconsinense*
- Physa laphami*

WISCONSIN - 57. Flambeau drainage: Lower Gresham Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

- Campeloma milesii*

WISCONSIN - 58. Flambeau drainage: Manitowish River. (Morrison, 1932).

WISCONSIN-58 (cont.)

Naiades:

- Alasmidonta marginata variabilis*
 - Amblema costata*
 - Anodonta grandis plana*
 - A. imbecillis*
 - A. marginata*
 - Anodontoides ferussacianus subcylindraceus*
 - Elliptio dilatatus*
 - E. dilatatus delicatus*
 - Fusconaia flava*
 - Lampsilis radiata siliquoidea*
 - L. ventricosa occidens*
 - Lasmigona compressa*
 - L. costata*
 - Ligumia recta latissima*
 - Pleurobema cordatum coccineum*
 - Strophitus rugosus*
- Sphaeriidae:
- Pisidium adamsi*
 - Sphaerium striatinum*
- Freshwater gill-breathing Gastropods:
- Campeloma decisum*
- Freshwater lung-breathing Gastropods:
- Helisoma anceps*
 - H. trivolvis winslowi*
 - Physa sayii*
 - Promenetus exacuus*

WISCONSIN - 59. Flambeau drainage: Mann Lake. (Morrison, 1932).

Naiades:

- Anodonta marginata*
 - Anodontoides ferussacianus subcylindraceus*
 - Lampsilis radiata siliquoidea rosacea*
- Sphaeriidae:
- Pisidium variabile*
- Freshwater gill-breathing Gastropods:
- Amnicola limosa*
 - A. lustrica*
 - Valvata tricarinata*
- Freshwater lung-breathing Gastropods:
- Fossaria exigua*
 - F. obrussa*
 - Gyraulus arcticus*
 - G. deflectus obliquus*
 - Helisoma anceps sayi*

WISCONSIN-59 (cont.)

- H. campanulatum wisconsinense*
- H. trivolvis*
- H. trivolvis pilsbryi*
- Physa gyrina*
- Promenetus exacuus megas*

WISCONSIN - 60. Flambeau drainage: Mann Lake, outlet. (Morrison, 1932).

Naiades:

- Anodonta grandis plana*
 - A. marginata*
- Sphaeriidae:
- Pisidium compressum*
 - P. variabile*
 - Sphaerium partumeium*
 - S. securis*
 - S. striatinum*
 - S. sulcatum*
- Freshwater gill-breathing Gastropods:
- Amnicola limosa*
 - Campeloma decisum*
- Freshwater lung-breathing Gastropods:
- Bulimnea megasoma*
 - Ferrissia parallela*
 - Gyraulus deflectus*
 - Helisoma anceps sayi*
 - H. trivolvis*

WISCONSIN - 61. Flambeau drainage: Pond along Mann Lake outlet. (Morrison, 1932).

Sphaeriidae:

- Pisidium "pusillum"*
 - Sphaerium securis*
- Freshwater lung-breathing Gastropods:
- Fossaria obrussa*
 - Gyraulus deflectus*
 - Promenetus exacuus*

WISCONSIN - 62. Flambeau drainage: Marion Lake. (Morrison, 1932).

Naiades:

- Anodonta marginata*
- Sphaeriidae:
- Sphaerium sulcatum*
- Freshwater gill-breathing Gastropods:
- Campeloma decisum*

WISCONSIN - 62 (cont.)

Freshwater lung-breathing Gastropods:

Physa sayi

WISCONSIN - 63. Flambeau drainage: Mary Lake. (Morrison, 1932).

Sphaeriidae:

*Pisidium adamsi**Sphaerium securis**S. truncatum*

Freshwater gill-breathing Gastropods:

Campeloma milesii

Freshwater lung-breathing Gastropods:

*Ferrissia parallela**Helisoma anceps unicarinarum*

WISCONSIN - 64. Flambeau drainage: Mud Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

Ferrissia parallela

WISCONSIN - 65. Flambeau drainage: Nebish Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Amnicola limosa

WISCONSIN - 66. Flambeau drainage: Nelson Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

*Gyraulus hirsutus**Physa gyrina*

WISCONSIN - 67. Flambeau drainage: Nixon Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

*Helisoma anceps sayi**H. campanulatum wisconsinense**Physa sayii*

WISCONSIN - 68. Flambeau drainage: Nixon Lake, outlet. (Morrison, 1932).

Naiades:

Anodonta marginata

Sphaeriidae:

*Pisidium casertanum**P. variabile**Sphaerium lacustre*

WISCONSIN - 68 (cont.)

*S. rhomboideum**S. sulcatum*

Freshwater gill-breathing Gastropods:

Amnicola limosa

Freshwater lung-breathing Gastropods:

*Gyraulus parvus**Helisoma anceps unicarinarum**H. campanulatum**H. trivolvis**Promenetus exacuus megas*

WISCONSIN - 69. Flambeau drainage: Pa-poose Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Valvata lewisii*

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus obliquus**Helisoma campanulatum*

WISCONSIN - 70. Flambeau drainage: Partridge Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Amnicola limosa

Freshwater lung-breathing Gastropods:

Gyraulus hirsutus

WISCONSIN - 71. Flambeau drainage: Pauto Lake. (Morrison, 1932).

Sphaeriidae:

Pisidium variabile

WISCONSIN - 72. Flambeau drainage: Pike Lake, inlet (Morrison, 1932).

Freshwater lung-breathing Gastropods:

*Bulimnea megasoma**Helisoma trivolvis*

WISCONSIN - 73. Flambeau drainage: Rest Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Campeloma decisum

Freshwater lung-breathing Gastropods:

*Helisoma anceps**Stagnicola emarginata*

WISCONSIN - 74. Flambeau drainage: Road-side spring, 3 miles northwest of Winchester. (Morrison, 1932).

Freshwater lung-breathing Gastropods:
Physa obruroides

WISCONSIN - 75. Flambeau drainage: Silver Lake. (Morrison, 1932).

Naiades:

Anodonta marginata

Anodontoides ferussacianus subcylindraceus

Freshwater gill-breathing Gastropods:

Valvata tricarinata

Freshwater lung-breathing Gastropods:

Gyraulus parvus

Physa sayii

WISCONSIN - 76. Flambeau drainage: South Fork Flambeau River. (Morrison, 1932).

Naiades:

Actinonaias carinata

Alasmidonta marginata variabilis

Elliptio dilatatus delicatus

Fusconaia flava

Lampsilis radiata siliquoidea

L. ventricosa occidentis

Lasmigona compressa

L. costata

Ligumia recta latissima

Strophitus undulatus

Sphaeriidae:

Sphaerium striatinum

Freshwater gill-breathing Gastropods:

Campeloma decisum

WISCONSIN - 77. Flambeau drainage: Tamarac Lake. (Morrison, 1932).

Naiades:

Anodonta grandis plana

WISCONSIN - 78. Flambeau drainage: Tamarac Lake, outlet. (Morrison, 1932).

Naiades:

Anodonta marginata

Lampsilis radiata siliquoidea

Sphaeriidae:

Pisidium variabile

WISCONSIN - 78 (cont.)

Sphaerium lacustre

S. sulcatum

WISCONSIN - 79. Flambeau drainage: Trout Lake. (Morrison, 1932).

Naiades:

Actinonaias carinata

Anodonta grandis

A. marginata

Lampsilis radiata siliquoidea rosacea

L. ventricosa lurida

Strophitus undulatus

Sphaeriidae:

Pisidium adamsi

P. casertanum

P. compressum

P. ferrugineum

P. liljeborgi

P. nitidum

P. obtusale

P. variabile

Sphaerium lacustre

S. striatinum

Freshwater gill-breathing Gastropods:

Amnicola limosa

A. lustrica

Campeloma decisum

C. milesii

Valvata tricarinata

Freshwater lung-breathing Gastropods:

Bulinnea megasoma

Fossaria obrussa

F. obrussa decampi

Gyraulus circumstriatus

G. deflectus obliquus

G. hirsutus

G. parvus

Helisoma anceps

H. campanulatum

H. trivolvis

Lymnaea stagnalis lillianae

Physa gyrina elliptica

Promenetus exacuus

P. exacuus megas

Stagnicola catascopium

WISCONSIN - 80. Flambeau drainage: Trout Lake, inlet. (Morrison, 1932).

Naiades:

Actinonaias carinata
Anodonta marginata
Lampsilis radiata siliquoidea
L. ventricosa lurida
Lasmigona costata
Strophitus undulatus

Sphaeriidae:

Pisidium compressum
P. "fallax septentrionale"
Sphaerium striatinum
S. sulcatum

Freshwater gill-breathing Gastropods:

Amnicola limosa
Campeloma decisum

Freshwater lung-breathing Gastropods:

Gyraulus deflectus
G. deflectus obliquus
Helisoma trivolvis
Lymnaea stagnalis jugularis

WISCONSIN - 81. Flambeau drainage: Trout River at Trout Lake. (Morrison, 1932).

Naiades:

Amblema costata
Anodonta grandis plana
A. marginata
Anodontoides ferussacianus subcylindraceus
Lampsilis radiata siliquoidea
L. ventricosa occidens
Lasmigona compressa
L. costata
Strophitus undulatus

Sphaeriidae:

Pisidium adamsi
Sphaerium striatinum

Freshwater gill-breathing Gastropods:

Amnicola walkeri
Campeloma decisum

Freshwater lung-breathing Gastropods:

Helisoma anceps
H. trivolvis
Lymnaea stagnalis lillianae
Physa obrussoides

WISCONSIN - 82. Flambeau drainage: Turtle Lake. (Morrison, 1932).

Naiades:

Anodonta grandis footiana
A. marginata
Elliptio dilatatus sterkii
Fusconaia flava
Lampsilis radiata siliquoidea rosacea
Lasmigona compressa
Ligumia recta

WISCONSIN - 83. Flambeau drainage: Turtle River. (Morrison, 1932).

Naiades:

Actinonaias carinata
Amblema costata
Anodonta grandis plana
A. imbecillis
A. marginata
Anodontoides ferussacianus subcylindraceus
Elliptio dilatatus delicatus
Fusconaia flava
Lampsilis radiata siliquoidea
L. ventricosa
Lasmigona compressa
L. costata
Ligumia recta latissima
Pleurobema cordatum coccineum
Strophitus undulatus

Sphaeriidae:

Sphaerium striatinum
S. sulcatum

Freshwater gill-breathing Gastropods:

Campeloma decisum
C. milesii

Freshwater lung-breathing Gastropods:

Bulimnea megasoma
Ferrissia parallela
Helisoma campanulatum wisconsinense
H. trivolvis
Stagnicola exilis

WISCONSIN - 84. Flambeau drainage: Upper Gresham Lake. (Morrison, 1932).

Sphaeriidae:

Pisidium compressum
P. variable

WISCONSIN - 84 (cont.)

Freshwater gill-breathing Gastropods:

*Amnicola lustrica**Valvata lewisii*

Freshwater lung-breathing Gastropods:

*Fossaria obrussa decampi**Gyraulus parvus*

WISCONSIN - 85. Flambeau drainage:

Whitefish Lake. (Morrison, 1932).

Naiades:

*Anodonta grandis footiana**Anodontoides ferussacianus subcylindraceus**Lampsilis radiata siliquoidea rosacea*

Sphaeriidae:

*Pisidium adamsi**P. compressum**P. lilljeborgi**P. variabile*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**A. lustrica**Campeloma milesii**Valvata lewisii*

Freshwater lung-breathing Gastropods:

*Fossaria obrussa decampi**Gyraulus circumstriatus**G. deflectus**G. deflectus obliquus**G. parvus**Helisoma anceps**H. campanulatum*

WISCONSIN - 86. Flambeau drainage: White Sand Lake. (Morrison, 1932).

Naiades:

*Anodonta grandis plana**Lampsilis radiata siliquoidea rosacea*

Sphaeriidae:

*Pisidium compressum**P. variabile*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**A. lustrica**Campeloma milesii**Valvata lewisii**V. tricarinata*

WISCONSIN - 86 (cont.)

Freshwater lung-breathing Gastropods:

*Bulinnea megasoma**Gyraulus deflectus obliquus**G. parvus**Helisoma anceps sayi**H. campanulatum wisconsinense**H. trivolvis**Laevapex fuscus*

WISCONSIN - 87. Flambeau drainage: White Sand Lake, inlet. (Morrison, 1932).

Naiades:

*Anodonta imbecillis**A. marginata**Anodontoides ferussacianus subcylindraceus**Lasmigona compressa**L. costata**Strophitus undulatus*

Sphaeriidae:

*Pisidium "fallax septentrionale"**Sphaerium "steinii"**S. striatinum*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Campeloma decisum**C. milesii*

Freshwater lung-breathing Gastropods:

*Helisoma anceps uncarinatum**H. campanulatum**H. trivolvis*

WISCONSIN - 88. Flambeau drainage: Whitney Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

*Amnicola limosa**A. lustrica*

Freshwater lung-breathing Gastropods:

Physa laphami

WISCONSIN - 89. Flambeau drainage: Wildcat Lake. (Morrison, 1932).

Naiades:

*Anodonta grandis footiana**A. marginata**Anodontoides ferussacianus subcylindraceus**Lampsilis radiata siliquoidea rosacea*

WISCONSIN - 89 (cont.)

Sphaeriidae:

Pisidium casertanum
P. compressum
P. variabile
Sphaerium sulcatum

Freshwater gill-breathing Gastropods:

Amnicola limosa
A. lustrica
Valvata tricarinata

Freshwater lung-breathing Gastropods:

Gyraulus deflectus
G. hirsutus
G. parvus
Helisoma anceps
H. campanulatum
H. trivolvis
Lymnaea stagnalis lillianae

WISCONSIN - 90. Flambeau drainage: Wolf Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Amnicola limosa
A. lustrica

Freshwater lung-breathing Gastropods:

Gyraulus deflectus obliquus
Helisoma campanulatum

WISCONSIN - 91. Tomahawk drainage: Big Arbor Vitae Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

Helisoma campanulatum wisconsinense
H. trivolvis winslowi

WISCONSIN - 92. Tomahawk drainage: Blue Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Amnicola limosa

WISCONSIN - 93. Tomahawk drainage: Brandy Lake. (Morrison, 1932).

Naiades:

Anodonta grandis plana
A. marginata
Anodontoides ferussacianus subcylindraceus
Lampsilis radiata siliquoidea rosacea

WISCONSIN - 93 (cont.)

Sphaeriidae:

Pisidium compressum
P. nitidum
P. variabile

Freshwater gill-breathing Gastropods:

Amnicola limosa
Campeloma milesii
Valvata lewisii

Freshwater lung-breathing Gastropods:

Gyraulus deflectus obliquus
Helisoma anceps
H. campanulatum
H. trivolvis pilsbryi
Lymnaea stagnalis jugularis
Physa sayii

WISCONSIN - 94. Tomahawk drainage: Carroll Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Amnicola limosa

Freshwater lung-breathing Gastropods:

Gyraulus deflectus obliquus
G. parvus
Helisoma campanulatum
Lymnaea stagnalis jugularis

WISCONSIN - 95. Tomahawk drainage: Clear Lake. (Morrison, 1932).

Naiades:

Anodonta marginata

Sphaeriidae:

Pisidium adamsi
P. casertanum

Freshwater gill-breathing Gastropods:

Amnicola limosa

Freshwater lung-breathing Gastropods:

Gyraulus circumstriatus
G. deflectus
Physa laphami
Pseudosuccinea columella

WISCONSIN - 96. Tomahawk drainage: Johnson Lake. (Morrison, 1932).

Naiades:

Anodonta grandis plana
A. marginata

WISCONSIN - 96 (cont.)

Freshwater gill-breathing Gastropods:

Campeloma milesii

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus obliquus**Helisoma campanulatum**Lymnaea stagnalis jugularis**Physa sayii*

WISCONSIN - 97. Tomahawk drainage: Kawagesaga Lake. (Morrison, 1932).

Sphaeriidae:

*Pisidium compressum**P. variabile*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**Valvata tricarinata*

Freshwater lung-breathing Gastropods:

*Helisoma campanulatum**Promenetus exacuus megas**Stagnicola emarginata*

WISCONSIN - 98. Tomahawk drainage: Little Arbor Vitae Lake. (Morrison, 1932).

Sphaeriidae:

*Pisidium ferrugineum**P. lilljeborgi*

Freshwater gill-breathing Gastropods:

*Amnicola limosa**A. lustrica**A. walkeri**Valvata sincera nylanderii**V. tricarinata*

Freshwater lung-breathing Gastropods:

*Ferrissia kirklandi**Gyraulus deflectus obliquus**G. hirsutus**Helisoma anceps sayi**H. campanulatum wisconsinense**H. trivolvis winslowi**Lymnaea stagnalis sanctaemariae**Physa sayii**Promenetus exacuus**Stagnicola emarginata wisconsinensis*

WISCONSIN - 99. Tomahawk drainage: Little Rice River. (Morrison, 1932).

WISCONSIN - 99 (cont.)

Sphaeriidae:

Sphaerium partumeium

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus**Helisoma anceps unicarinatum**Stagnicola lanceata*

WISCONSIN - 100. Tomahawk drainage: Little Star Lake. (Morrison, 1932).

Naiades:

Anodonta grandis plana

Freshwater gill-breathing Gastropods:

Campeloma decium

Freshwater lung-breathing Gastropods:

*Helisoma anceps**H. campanulatum**Physa laphami**Stagnicola exilis*

WISCONSIN - 101. Tomahawk drainage: Madeline Creek near Woodruff. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

Helisoma campanulatum wisconsinense

WISCONSIN - 102. Tomahawk drainage: Pond near State Fish Hatchery Ponds at Woodruff. (Morrison, 1932).

Sphaeriidae:

*Pisidium casertanum**Sphaerium lacustre**S. securis*

Freshwater lung-breathing Gastropods:

*Gyraulus deflectus obliquus**Helisoma anceps unicarinatum**Lymnaea stagnalis sanctaemariae**Physa laphami*

WISCONSIN - 103. Tomahawk drainage: Skunk Lake. (Morrison, 1932).

Freshwater gill-breathing Gastropods:

Campeloma milesii

Freshwater lung-breathing Gastropods:

Helisoma anceps

WISCONSIN - 104. Tomahawk drainage:
Stream 10 miles southwest of Hazelhurst.
(Morrison, 1932).

Freshwater lung-breathing Gastropods:

Ferrissia parallela
Gyraulus parvus
Helisoma anceps
Physa gyrina

WISCONSIN - 105. Tomahawk drainage:
Stream at State Fish Hatchery, Woodruff.
(Morrison, 1932).

Naiades:

Anodonta grandis plana
A. marginata
Lampsilis radiata siliquoidea

Freshwater lung-breathing Gastropods:

Lymnaea stagnalis sanctaemariae

WISCONSIN - 106. Tomahawk drainage:
Tomahawk Lake. (Morrison, 1932).

Naiades:

Anodonta grandis plana
A. marginata
Lampsilis radiata siliquoidea rosacea

Sphaeriidae:

Pisidium casertanum
Sphaerium securis
S. sulcatum

Freshwater gill-breathing Gastropods:

Amnicola limosa
Campeloma milesii

Freshwater lung-breathing Gastropods:

Bulinnea megasoma
Ferrissia parallela
Fossaria obrussa
Gyraulus hirsutus
G. parvus
Helisoma anceps sayi
H. anceps uncarinatum
H. campanulatum wisconsinense
H. trivolvis
H. trivolvis pilsbryi
Lymnaea stagnalis jugularis
L. stagnalis lillianae
Physa sayii

WISCONSIN - 106 (cont.)

Planorbula armigera
Pseudosuccinea columella
Stagnicola emarginata wisconsinensis
S. lanceata

WISCONSIN - 107. Tomahawk drainage:
Kettle hole ponds near Tomahawk Lake. (Mor-
rison, 1932).

Sphaeriidae:

Pisidium casertanum
Sphaerium lacustre
S. securis

Freshwater lung-breathing Gastropods:

Ferrissia parallela
Gyraulus parvus
Planorbula armigera

WISCONSIN - 108. Tomahawk drainage:
Tomahawk River, 4 miles west of Minocqua.
(Morrison, 1932).

Naiades:

Actinonaias carinata
Alasmidonta marginata
Anodontoides ferussacianus subcylindraceus
Elliptio dilatatus delicatus
Fusconaia flava
Lampsilis ventricosa occidens
Lasmigona compressa
L. costata
Ligumia recta latissima
Pleurobema cordatum coccineum
Strophitus undulatus

Sphaeriidae:

Sphaerium striatinum

Freshwater gill-breathing Gastropods:

Campeloma milesii

Freshwater lung-breathing Gastropods:

Ferrissia tarda

WISCONSIN - 109. Tomahawk drainage:
Trilby Lake. (Morrison, 1932).

Sphaeriidae:

Pisidium casertanum
P. variabile

- WISCONSIN - 110. Tomahawk drainage:
Walker Lake. (Morrison, 1932).
Sphaeriidae:
Pisidium idahoense
- WISCONSIN - 111. Tomahawk drainage:
Weber Lake. (Morrison, 1932).
Freshwater gill-breathing Gastropods:
Campeloma milesii
Freshwater lung-breathing Gastropods:
Helisoma anceps unicarinatum
- WISCONSIN - 112. Tomahawk drainage:
Willow River Flowage, 14 miles southwest of
Hazelhurst. (Morrison, 1932).
Freshwater lung-breathing Gastropods:
Gyraulus deflectus
Helisoma anceps
H. campanulatum
H. trivolvis
Planorbula armigera
- WISCONSIN - 113. Wisconsin drainage:
Bragonier Lake. (Morrison, 1932).
Freshwater gill-breathing Gastropods:
Amnicola limosa
Freshwater lung-breathing Gastropods:
Gyraulus deflectus
- WISCONSIN - 114. Wisconsin drainage:
Clear Water Lake Creek. (Morrison, 1932).
Naiades:
Actinonaias carinata
Lampsilis radiata siliquoidea
L. ventricosa occidens
- WISCONSIN - 115. Wisconsin drainage:
Clear Water Lake. (Morrison, 1932).
Naiades:
Amblema costata
Fusconaia flava
- WISCONSIN - 116. Wisconsin drainage:
Crescent Lake. (Morrison, 1932).
Naiades:
Anodonta marginata
- WISCONSIN - 116 (cont.)
Sphaeriidae:
Pisidium adamsi
P. ferrugineum
P. lilljeborgi
P. nitidum
P. variabile
Freshwater gill-breathing Gastropods:
Amnicola limosa
A. lustrica
Campeloma milesii
Freshwater lung-breathing Gastropods:
Gyraulus deflectus obliquus
Helisoma anceps
H. campanulatum
H. trivolvis
Physa laphami
Promenetus exacuus
- WISCONSIN - 117. Wisconsin drainage:
Deerskin River, six miles south of Phelps. (Mor-
rison, 1932).
Naiades:
Anodonta grandis plana
A. marginata
Anodontoides ferussacianus subcylindraceus
Lampsilis radiata siliquoidea
Sphaeriidae:
Sphaerium striatinum
S. sulcatum
Freshwater gill-breathing Gastropods:
Campeloma decisum
Freshwater lung-breathing Gastropods:
Ferrissia parallela
Helisoma anceps
H. trivolvis
Physa sayii
- WISCONSIN - 118. Wisconsin drainage: Fin-
ley Lake. (Morrison, 1932).
Sphaeriidae:
Pisidium casertanum
Freshwater gill-breathing Gastropods:
Campeloma decisum

WISCONSIN - 119. Wisconsin drainage:
Found Lake. (Morrison, 1932).

Naiades:

Anodonta grandis footiana

Freshwater lung-breathing Gastropods:

Fossaria obrussa

Gyraulus hirsutus

Helisoma anceps sayii

H. campanulatum wisconsinense

WISCONSIN - 120. Wisconsin drainage: Gil-
more Creek and Wisconsin River, northeast of
Tomahawk Lake. (Morrison, 1932).

Naiades:

Actinonaias carinata

Anodonta grandis plana

A. marginata

Lampsilis radiata siliquoidea

L. ventricosa

Lasmigona compressa

L. costata

Strophitus undulatus

Freshwater gill-breathing Gastropods:

Campeloma decisum

WISCONSIN - 121. Wisconsin drainage: Lit-
tle St. Germain River. (Morrison, 1932).

Naiades:

Actinonaias carinata

Alasmidonta marginata variabilis

Anodonta marginata

Lampsilis radiata siliquoidea

L. ventricosa occidens

Lasmigona complanata

L. costata

Ligumia recta latissima

Strophitus undulatus

Sphaeriidae:

Pisidium adamsi

P. compressum

P. ferrugineum

WISCONSIN - 122. Wisconsin drainage:
Plum Creek. (Morrison, 1932).

Naiades:

Anodonta grandis plana

Lampsilis radiata siliquoidea rosacea

WISCONSIN - 122 (cont.)

Lasmigona costata

Strophitus undulatus

Sphaeriidae:

Sphaerium striatinum

WISCONSIN - 123. Wisconsin drainage: Plum
Lake. (Morrison, 1932).

Naiades:

Anodonta grandis footiana

A. marginata

Anodontoides ferussacianus subcylindraceus

Lampsilis radiata siliquoidea rosacea

Lasmigona compressa

Sphaeriidae:

Pisidium adamsi

P. compressum

P. dubium

P. liljeborgi

P. nitidum

P. variabile

Sphaerium sulcatum

Freshwater gill-breathing Gastropods:

Ammicola limosa

A. lustrica

Campeloma decisum

C. milesii

Valvata lewisii

V. tricarinata

Freshwater lung-breathing Gastropods:

Bulimnea megasoma

Ferrissia parallela

Fossaria obrussa decampi

Gyraulus circumstriatus

G. deflectus obliquus

G. hirsutus

G. parvus

Helisoma anceps

H. anceps sayii

H. campanulatum

H. campanulatum wisconsinense

H. trivolvis

Physa sayii

Stagnicola emarginata

S. lanceata

WISCONSIN - 124. Wisconsin drainage: Razorback Lake. (Morrison, 1932).

Naiades:

Anodonta marginata

Sphaeriidae:

Pisidium variabile

Freshwater gill-breathing Gastropods:

Amnicola walkeri

Campeloma milesii

Valvata tricarinata

Freshwater lung-breathing Gastropods:

Ferrissia parallela

Gyraulus deflectus obliquus

G. parvus

Helisoma anceps unicarinatum

H. campanulatum

Physa sayii

WISCONSIN - 125. Wisconsin drainage: Rice Creek, near Plum Lake. (Morrison, 1932).

Sphaeriidae:

Sphaerium sulcatum

Freshwater lung-breathing Gastropods:

Helisoma trivolvis

Physa gyrina

WISCONSIN - 126. Wisconsin drainage: St. Germain Lakes. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

Helisoma campanulatum wisconsinense

WISCONSIN - 127. Wisconsin drainage: St. Germain River. (Morrison, 1932).

Naiades:

Actinonaias carinata

Anodonta grandis

A. marginata

Fusconaia flava

Lampsilis radiata siliquoidea

L. ventricosa occidens

Lasmigona complanata

L. costata

Strophitus undulatus

Freshwater lung-breathing Gastropods:

Helisoma anceps

WISCONSIN - 128. Wisconsin drainage: Star Lake. (Morrison, 1932).

Naiades:

Anodonta marginata

Sphaeriidae:

Pisidium adamsi

P. compressum

P. ferrugineum

P. lilljeborgi

P. nitidum

P. variabile

Freshwater gill-breathing Gastropods:

Amnicola lustrica

Campeloma milesii

Valvata tricarinata

Freshwater lung-breathing Gastropods:

Fossaria obrussa

Gyraulus hirsutus

Helisoma anceps

H. anceps unicarinatum

H. campanulatum

Lymnaea stagnalis lillianae

Physa sayii

WISCONSIN - 129. Wisconsin drainage: Sterrett Lake. (Morrison, 1932).

Sphaeriidae:

Pisidium nitidum

Freshwater gill-breathing Gastropods:

Campeloma milesii

WISCONSIN - 130. Wisconsin drainage: Wisconsin River at Lac Vieux Desert. (Morrison, 1932).

Naiades:

Actinonaias carinata

Anodonta grandis plana

A. marginata

Anodontoides ferussacianus subcylindraceus

Fusconaia flava

Lampsilis radiata siliquoidea

L. ventricosa

Lasmigona complanata

L. compressa

Strophitus undulatus

WISCONSIN - 130 (cont.)

Sphaeriidae:

- Pisidium adamsi*
- Sphaerium sulcatum*

Freshwater gill-breathing Gastropods:

- Campeloma decisum*

WISCONSIN - 131. Wisconsin drainage: Wisconsin River, 5 miles below Lac Vieux Desert. (Morrison, 1932).

Naiades:

- Actinonaias carinata*
- Amblema costata*
- Anodonta grandis plana*
- Anodontoides ferussacianus subcylindraceus*
- Elliptio dilatatus*
- Fusconaia flava*
- Lampsilis radiata siliquoidea*
- L. ventricosa occidentens*
- Lasmigona complanata*
- L. compressa*
- L. costata*
- Pleurobema cordatum coccineum*

Sphaeriidae:

- Sphaerium striatinum*

Freshwater gill-breathing Gastropods:

- Campeloma milesii*

WISCONSIN - 132. Wisconsin drainage: Wisconsin River at Otter Rapids, 5 miles west of Eagle River. (Morrison, 1932).

Naiades:

- Actinonaias carinata*
- Alasmidonta marginata*
- Amblema costata*
- Anodonta grandis plana*
- Lampsilis radiata siliquoidea*
- L. ventricosa occidentens*
- Lasmigona complanata*
- L. costata*
- Ligumia recta latissima*

Sphaeriidae:

- Sphaerium striatinum*
- S. sulcatum*

Freshwater gill-breathing Gastropods:

- Campeloma decisum*
- Somatogyrus tryoni*

WISCONSIN - 133. Wisconsin drainage: Wisconsin River at Rainbow Rapids, southeast of Lake Tomahawk. (Morrison, 1932).

Naiades:

- Actinonaias carinata*
- Lampsilis radiata siliquoidea*
- L. ventricosa occidentens*

Sphaeriidae:

- Pisidium adamsi*
- P. compressum*
- P. dubium*
- P. nitidum*
- P. punctiferum*
- P. variable*
- Sphaerium securis*
- S. striatinum*

Freshwater gill-breathing Gastropods:

- Amnicola limosa*
- Campeloma decisum*
- Somatogyrus tryoni*

Freshwater lung-breathing Gastropods:

- Helisoma anceps*
- Physa hatchfordi*

WISCONSIN - 134. Wisconsin drainage: Wisconsin River, 4 miles northeast of Lake Tomahawk. (Morrison, 1932).

Sphaeriidae:

- Pisidium casertanum*
- Sphaerium striatinum*

Freshwater lung-breathing Gastropods:

- Fossaria modicella*

WISCONSIN - 135. Wisconsin drainage: Shore pool, Wisconsin River, 4 miles northeast of Tomahawk Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

- Gyraulus deflectus obliquus*
- Physa gyrina*

WISCONSIN - 136. Wisconsin drainage: Ponds in swamp along Wisconsin River, 4 miles northeast of Tomahawk Lake. (Morrison, 1932).

Sphaeriidae:

- Sphaerium occidentale*
- S. partumeium*

WISCONSIN - 136 (cont.)

Freshwater lung-breathing Gastropods:

- Aplexa hypnorum*
- Planorbula armigera*

WISCONSIN - 137. Wisconsin drainage:

Slough along Wisconsin River, northeast of Tomahawk Lake. (Morrison, 1932).

Freshwater lung-breathing Gastropods:

- Bulimnea megasoma*

WISCONSIN - 138. Crawford County: Floodplain of the Kickapoo River, near the mouth of Trout Creek. Snails were found dead in the drift and alive under drift logs and in the finer portions of the drift. The river is rather deep, with high banks, and most of the drift is found a small distance away from the river where the floodplain is wider. (Morrison, 1929: 42, 43, his Station I).

A. Living species

Freshwater gill-breathing Gastropods:

- Pomatiopsis lapidaria*

Land Gastropods:

- Anguispira alternata*
- Deroceras laeve*
- Discus cronkhitei*
- Oxyloma retusa*
- Stenotrema fraternum*
- Succinea avara*
- S. ovalis*
- Zonitoides arboreus*

B. Dead in the drift

Sphaeriidae:

- Sphaerium partumeium*

Freshwater gill-breathing Gastropods:

- Campeloma rufum*

Freshwater lung-breathing Gastropods:

- Fossaria parva*
- Gyraulus parvus*
- Helisoma trivolvis*
- Physa gyrina* "elliptica"
- Planorbula armigera*
- Stagnicola caperata*
- S. exilis*

WISCONSIN - 138 (cont.)

Land Gastropods:

- Helicodiscus parallelus*

WISCONSIN - 139. Crawford County: The lower portion of the floodplain of Trout Creek that is subject to overflow. Not very much drift is found here; the soil shows a layer of very fine silt as a result of its flooding. Snails were found under logs and in the scanty leaf mold. (Morrison, 1929: 42-43, his Station II).

Land Gastropods:

- Anguispira alternata*
- Deroceras laeve*
- Discus cronkhitei*
- Helicodiscus parallelus*
- Nesovitrea electrina*
- Stenotrema fraternum*
- Succinea ovalis*
- Vallonia pulchella*

WISCONSIN - 140. Crawford County: That portion of the floodplain of Trout Creek that is above the reach of ordinary high waters. This station includes the very mesophytic slopes of the sides of the creek valley that are rather heavily overgrown with brush and small trees. The snails were found under small logs (not drift logs) and in the leaf mold. (Morrison, 1929: 43, his Station III).

Freshwater gill-breathing Gastropods:

- Pomatiopsis lapidaria*

Land Gastropods:

- Allogona profunda*
- Anguispira alternata*
- Carychium exile*
- Cionella lubrica*
- Deroceras laeve*
- Discus cronkhitei*
- Euconulus fulvus*
- Gastrocopta contracta*
- Helicodiscus parallelus*
- Hendersonia occulta*
- Mesodon clausus*
- Pallifera dorsalis?* (immature)
- Retinella indentata*

WISCONSIN - 140 (cont.)

Stenotrema fraternum
S. hirsutum
Strobilops affinis
Succinea avara
S. ovalis
Vallonia costata
Zonitoides limatulus

WISCONSIN - 141. Crawford County: Wooded portions of the ravines that branch off Trout Creek Valley; the exposure of the slopes studied (on the Himley Farm) was mostly to the north-east. The ravine studied in detail is about one mile up from the mouth of Trout Creek, and nearly two miles out of town. (Morrison, 1929: 43-44, his Station IV).

Land Gastropods:

Allogona profunda
Anguispira alternata
Carychium exile
Discus cronkhitei
Euconulus fulvus
Helicodiscus parallelus
Hendersonia occulta
Mesodon thyroidus
Nesovitrea electrina
Stenotrema fraternum
Strobilops affinis

WISCONSIN - 142. Crawford County: Slopes of northern exposure in the valley of the Kickapoo. These were studied on Asper Heims Hill, which is an outlier, just to the west of the town. The slope here is very steep, and heavily wooded, with a good many fallen logs. Snails were collected from the leaf mold and from under the logs, which were mostly in stage three of decay, with the inner, heart-wood still solid. (Morrison, 1929: 44, his Station V).

Land Gastropods:

Allogona profunda
Anguispira alternata
Gastrocopta contracta
Helicodiscus parallelus

WISCONSIN - 142 (cont.)

Hendersonia occulta
Stenotrema fraternum
Strobilops affinis
Zonitoides limatulus

WISCONSIN - 143. Crawford County: Smaller ravines branching directly off the valley of the river. These ravines have no permanent streams in them; they are covered with rather open woods and brush. The exposure is to the north. Snails were found under logs, under rocks, and in the rather dry and loose leaf mold. (Morrison, 1929: 44, his Station VI).

Land Gastropods:

Anguispira alternata
Carychium exile
Cionella lubrica
Euconulus fulvus
Gastrocopta armifera
G. contracta
G. pentodon
Nesovitrea electrina
Philomycus carolinianus
Strobilops affinis

WISCONSIN - 144. Crawford County: Slopes of southern exposure in the valley of the Kickapoo. These also were studied on Asper Heims Hill. This portion of the hill is under pasturage, and represents perhaps the most unfavorable habitat for snails, of all. The ground is bare except for grass and a few small herbs; there are many flat limestone rocks, under which the snails were found. (Morrison, 1929: 44, his Station VII).

Land Gastropods:

Deroceras laeve
Gastrocopta armifera
Helicodiscus parallelus
Pupoides albilabris
Succinea avara
Vallonia pulchella
Zonitoides arboreus

(TO BE CONTINUED IN A FUTURE NUMBER OF STERKIANA)

- NYLA: Lyceum of Natural History of New York, Annals. Albany.
- NYLP: Ibid., Proceedings.
- NYMB: New York State Museum, Bulletin. Albany.
- NYMM: Ibid., Memoirs.
- NYMR: Ibid., University of the State of New York, Annual Report of the Regents. Albany.
- OASA: Ohio State Academy of Science, Annual Report. Columbus.
- OASP: Ohio State Academy of Science, Proceedings. Columbus.
- OASS: Ibid., Special Papers.
- OHJS: Ohio Journal of Science. Columbus.
- OHNA: Ohio Naturalist, Ohio State University. Columbus. Later OHJS.
- OPMC: Occasional Papers on Mollusks. Cambridge, Mass.
- OTFT: Ottawa Field-Naturalists' Club, Transactions. Ottawa.
- OTNA: The Ottawa Naturalist. Ottawa. Later CAFN.
- QJGS: Quarterly Journal of the Geological Society. London.
- QJOC: Quarterly Journal of Conchology. London.
- R SCT: Royal Society of Canada, Proceedings and Transactions. Ottawa.
- RSEP: Royal Society of Edinburgh, Proceedings. Edinburgh.
- RSET: Ibid., Transactions.
- RSLP: Royal Society of London, Proceedings. London.
- RSLT: Ibid., Philosophical Transactions.
- SAMA: South African Museum, Annals. Cape Town.
- SCGO: Science-Gossip, an illustrated monthly record of Nature and country-lore. London.
- SCAB: Southern California Academy of Sciences, Bulletin. Los Angeles.
- SCIE: Science, a weekly journal. New series. New York.
- SGFB: Société géologique de France, Bulletin (incl. Compte-rendu). Paris.
- SGFM: Ibid., Mémoires.
- SGPM: Ibid., Mémoires, Paléontologie.
- SMBA: Société royale malacologique de Belgique, Annales. Bruxelles.
- SMBB: Société royale malacologique de Belgique, Bulletin des séances. Bruxelles.
- SMBP: Ibid., procès-verbaux des séances. Reappears later, with a different number to the volume, as SMBB.
- SMCK: Smithsonian Contributions to Knowledge. Washington, D. C.
- SMCW: Smithsonian Miscellaneous Collections. Washington, D. C.
- SMFB: Société malacologique de France, Bulletin. Paris.
- SMFR: Ibid., revue biographique. Paris.
- SMIB: Società malacologica italiana. Pisa.
- SNBA: Senckenbergiana. Frankfurt-am-Main.
- STER: Sterkiana. Columbus, Ohio.
- SZFB: Société zoologique de France, Bulletin. Paris.
- SZFM: Ibid., Mémoires. Paris.
- TIPA: Treatise on Invertebrate Paleontology, Part A. Lawrence, Kansas and New York, N. Y. (TIPB, TIPC, etc. for all other parts to TIPZ).
- UFCE: United States Fish Commission, Bulletin. Washington, D. C.
- UFCR: Ibid., Report of the Commissioner.
- UGSB: United States Geological Survey, Bulletin. Washington, D. C.
- UGSM: Ibid., Monographs. Washington, D. C.
- UGSP: Ibid., Professional Papers.
- UNMB: United States National Museum, Bulletin. Washington, D. C.
- UNMP: Ibid., Proceedings.
- UNMR: Ibid., Annual Report of the Board of Regents of the Smithsonian Institution.
- VELL: The Veliger. Berkeley, Calif.
- VENU: The Venus. Kyoto, Japan.
- WAMS: The West American Scientist. Los Angeles, etc.
- WASJ: Washington Academy of Sciences. Journal. Washington, D. C.
- WASP: Ibid., Proceedings.
- WAST: Wisconsin Academy of Sciences, Arts, and Letters, Transactions. Madison, Wis.
- WFIT: Wagner Free Institute of Science of Philadelphia, Transactions. Philadelphia.
- WGNB: Wisconsin Geological Survey, Geology of Wisconsin. Later, Wis. Geol. and Nat.

WGNS (cont.) History Survey, Bulletin.
Madison, Wis.

ZBML: Zeitschrift für Biologie. München
and Leipzig.

ZFMH: Zeitschrift für Malakozoologie. Han-
nover, etc. Later MABL.

ZRML: The Zoological Record, Mollusca.
London.

ZSLP: Zoological Society of London, Proceed-
ings of the Scientific Meetings. London.

ZSLT: Ibid., Transactions. London.