

*Bulletin of the American Malacological Union, Inc.*  
March 1973

A PRELIMINARY REPORT ON THE NAIAD FAUNA OF THE CLINCH RIVER IN THE  
SOUTHERN APPALACHIAN MOUNTAINS OF VIRGINIA AND TENNESSEE  
(MOLLUSCA: BIVALVIA: UNIONOIDA)

David H. Stansbery \*

The Mississippi River system of central North America has the most diverse naiad mollusk fauna known. While the exact number of species found here is as yet uncertain, studies of the Ohio River system alone have revealed at least 120 species and subspecies. A consideration of the distribution patterns of these species demonstrates that they can be placed in three groups on a geographic basis (Ortmann, 1924, 1925). Some species are found generally throughout the Ohio basin. A second group is restricted to the Ohio River proper and its tributaries in the Central Lowlands and the Interior Low Plateau. These are referred to as the Ohioan fauna. A third group is found only in streams of the Tennessee and Cumberland River systems flowing out of the Southern Appalachians and the Cumberland Plateau. This assemblage is known as the Cumberlandian Fauna and has a number of elements analogous to the Ozarkian Fauna of the Ozark Plateau and Ouachita Mountains west of the Mississippi.

The Cumberlandian Fauna of the main stem of the Cumberland and Tennessee Rivers has been largely destroyed by impoundments, pollution, dredging operations and other activities which have greatly reduced or eliminated much of the naiad habitat. Field studies over the past decade have revealed that most species of this "high country" fauna still live in those few tributaries of the Cumberland and Tennessee Rivers that remain relatively unmodified. The fauna of the Clinch River above Norris Reservoir appears to be one of the best preserved of the entire area. This paper is a brief preliminary account of the naiad species found today in the Clinch River and some of its tributaries from its headwaters near Tazewell, Virginia, down to the head of Norris Reservoir near Tazewell, Tennessee. In spite of quantities of trash and obvious pollution in a number of places, this part of the river still retains most of the species recorded by Ortmann (1918) half a century ago (1912-1915). A concerted effort has been made to visit this free-flowing portion of the Clinch River at every bridge, ford, or other point of access at times of either normal or low water and to sample each of the habitat areas present.

Wherever possible the shell midden heaps left by

raccoon, muskrat or other mammals were salvaged and carefully checked. Such collections commonly contained a few to several hundred fresh-dead shells. Some middens containing over a thousand such specimens were found. Representative series of each species from each site studied are deposited in the Ohio State University Museum of Zoology.

Although data from other tributaries of the Tennessee and Cumberland Rivers are not presented here, it seems reasonably certain from our work in the area that the Clinch River has the greatest diversity of Cumberlandian species yet surviving. The 28 endemic species still living in the upper Clinch River are, with rare exception, found nowhere outside the Cumberland and Tennessee River systems. Some of these species are restricted to the Clinch River while others reach peak abundance here.

Every reasonable effort should be made to preserve this highly restricted, purely North American mollusk fauna. Present plans to improve the economic life of the people of Appalachia by the further impounding of these mountain rivers and the introduction of heavy industry into these valleys could easily destroy what little remains of this rare heritage.

LITERATURE CITED

- Ortmann, Arnold E. 1918. The nayades (freshwater mussels) of the upper Tennessee drainage. With notes on synonymy and distribution. *Proc. Amer. Philos. Soc.* 57(6): 521-626.  
1924. The naiad-fauna of the Duck River in Tennessee. *Amer. Midl. Nat.* 9 (1): 3-47.  
1925. The naiad-fauna of the Tennessee River system below Walden Gorge. *Amer. Midl. Nat.* 9 (8): 321-373.  
Stansbery, David H. 1970. Eastern freshwater mollusks, The Mississippi and St. Lawrence River systems, p. 9-21. *In* A. H. Clarke (editor) *Papers on the rare and endangered mollusks of North America*. *Malacologia* 10 (1): 1-56.  
1971. Rare and endangered mollusks in eastern United States, p. 5-18. *In* S. E. Jorgensen and R. W. Sharp (editors) *Proceedings of a symposium on rare and endangered mollusks (naiads) of the U. S. Bur. Sport Fish. and Wild., Department of the Interior, Region 3, Twin Cities, Minn., 79 p.*

\*Museum of Zoology, Ohio State University, Columbus, Ohio 43210

THE NAIADES OF THE CLINCH RIVER  
ABOVE NORRIS RESERVOIR

C - Cumberlandian P - Previously recorded (Ortmann, 1918)  
(Collected by Adams, 1899 and Ortmann, 1912-1915)  
O - Ohioan R - Recently recorded (Stansbery, 1972)  
(Collected by Stansbery and others, 1963-1971)  
U - Undetermined E - Believed extinct (Stansbery, 1970, 1971)

FAMILY MARGARITIFERIDAE Ortmann, 1911.

1. *Cumberlandia monodonta* (Say, 1829).

Fauna	Recorded
U	R

FAMILY UNIONIDAE (Fleming, 1828) Ortmann, 1911.

SUBFAMILY ANODONTINAE (Swainson, 1840) Ortmann, 1910.

2. *Strophitus undulatus shaefferianus* (Lea, 1852).  
3. *Alasmidonta marginata* Say, 1818.  
4. *Alasmidonta viridis* (Rafinesque, 1820).  
5. *Pegias fabula* (Lea, 1836).  
6. *Lamigona costata* (Rafinesque, 1820).  
7. *Lamigona holstonia* (Lea, 1838).

C	P R
U	P R
U	P R
C	R
U	P R
C	P R

SUBFAMILY AMBLEMINAE Moerhous, 1855.

8. *Quadrula cylindrica strigillata* (Wright, 1898).  
9. *Quadrula sparsa* (Lea, 1841).  
10. *Quadrula intermedia* (Conrad, 1836).  
11. *Quadrula pustulosa* (Lea, 1831).  
12. *Amblema plicata plicata* (Say, 1817).  
13. *Fusconaia subrotunda lesueuriana* (Lea, 1840).  
14. *Fusconaia cuneolus* (Lea, 1840).  
15. *Fusconaia edgariana* (Lea, 1840).  
16. *Fusconaia barnesiana* (Lea, 1838).  
17. *Cyclonaias tuberculata* (Rafinesque, 1820).  
18. *Lexingtonia dolabelloides* (Lea, 1840).  
19. *Pleurobema cyphus* (Rafinesque, 1820).  
20. *Pleurobema oviforme* (Conrad, 1834).  
21. *Pleurobema coccineum* (Conrad, 1836).  
22. *Pleurobema plenum* (Lea, 1840).  
23. *Pleurobema pyramidatum* (Lea, 1831).  
24. *Elliptio crassidens* (Lamarck, 1819).  
25. *Elliptio dilatatus* (Rafinesque, 1820).  
26. *Lastena lata* (Rafinesque, 1820).

C	P R
C	R
C	P R
U	P R
U	P R
C	P R
C	P R
C	P R
U	P R
C	P R
U	P R
C	P R
U	P R
U	P R
U	P R
U	P R
U	P R

SUBFAMILY LAMPSILINAE (von Ihering, 1901) Ortmann, 1910

27. *Ptychobranhus fasciolaris* (Rafinesque, 1820).  
28. *Ptychobranhus subtentum* (Say, 1825).  
29. *Cyprogenia irrorata* (Lea, 1828).  
30. *Dromus dromas* (Lea, 1834).  
31. *Actinonaias ligamentina orbis* Morrison, 1942.  
32. *Actinonaias pectorosa* (Conrad, 1834).  
33. *Truncilla truncata* Rafinesque, 1820.  
34. *Leptodea fragilis* (Rafinesque, 1820).  
35. *Potamilus alatus* (Say, 1817).  
36. *Toxolasma lividus lividus* (Rafinesque, 1831).  
37. *Medionidus conradicus* (Lea, 1834).  
38. *Ligumia recta* (Lamarck, 1819).  
39. *Conradilla caelata* (Conrad, 1834).  
40. *Villosa fabalis* (Lea, 1831).  
41. *Villosa trabalis* (Conrad, 1834).

U	P R
C	P R
U	R
C	R
C	P R
U	P R
U	P R
U	P R
C	P R
C	P R
U	P R
C	P R
U	P R
C	P R
U	P R
C	P R

42. <i>Villosa perpurpurea</i> (Lea, 1861).	C	P	R
43. <i>Villosa iris nebulosa</i> (Conrad, 1834).	C	P	R
44. <i>Villosa vomaxemi</i> (Lea, 1838).	C	P	R
45. <i>Lampsilis ovata</i> (Say, 1817).	U	P	R
46. <i>Lampsilis ventricosa</i> (Barnes, 1823).	U	P	R
47. <i>Lampsilis fasciola</i> Rafinesque, 1820.	U	P	R
48. <i>Epioblasma triquetra</i> (Rafinesque, 1820).	U	P	R
49. <i>Epioblasma brevidens</i> (Lea, 1831).	C	P	R
50. <i>Epioblasma haysiana</i> (Lea, 1834).	C	P	R
51. <i>Epioblasma lenior</i> (Lea, 1843).	C	P	E
52. <i>Epioblasma stewardsoni</i> (Lea, 1852).	C	P	E
53. <i>Epioblasma capsaeformis</i> (Lea, 1834).	C	P	R
54. <i>Epioblasma walkeri</i> (Wilson and Clark, 1914).	C		R
55. <i>Epioblasma torulosa gubernaculum</i> (Reeve, 1865).	C	P	R

NAIAD SPECIES RECORDED ONLY FROM THE LOWER (IMPOUNDED)  
SECTION OF THE CLINCH RIVER (COLLECTIONS MADE BEFORE  
IMPOUNDMENT)

56. <i>Fusconaia subrotunda subrotunda</i> (Lea, 1831).	U	P	
57. <i>Pleurobema cordatum</i> (Rafinesque, 1820).	U	P	
58. <i>Obliquaria reflexa</i> Rafinesque, 1820.	U	P	
59. <i>Plagiola lineolata</i> (Rafinesque, 1820).	U	P	
60. <i>Obovaria retusa</i> (Lamarck, 1819).	U	P	
61. <i>Leptodea leptodon</i> (Rafinesque, 1820).	U	P	
62. <i>Lampsilis orbiculata</i> (Hildreth, 1828).	U	P	
63. <i>Epioblasma arcaeformis</i> (Lea, 1831).	C	P	E
64. <i>Epioblasma lewisi</i> (Walker, 1910).	C	P	E
65. <i>Epioblasma propinqua</i> (Lea, 1857).	C	P	E

While the details concerning each of the above species are beyond the scope of this report, some statistics may be of interest.

Number of species and subspecies previously recorded from the upper Clinch River (Ortmann, 1918) . . .	49
New Records for the upper Clinch River contained herein . . . . .	6
Total species and subspecies recorded from the upper Clinch River . . . . .	55
Additional species recorded from the lower Clinch only (prior to impoundment) . . . . .	10
Total species and subspecies recorded from the Clinch River . . . . .	65
Species recorded from the Clinch River believed extinct . . . . .	5
Species believed living in the Clinch River today . . . . .	60
Species of Cumberlandian origin recorded from the Clinch River . . . . .	33
Species of undetermined origin recorded from the Clinch River . . . . .	32
New records for the Clinch River contained herein . . . . .	3*

\**Pegias fabula*, *Quadrula sparsa*, and *Epioblasma walkeri*.