

LIBRARY  
AUG 01 1997  
HARVARD  
UNIVERSITY

# Occasional Papers on Mollusks

---

Published by  
THE DEPARTMENT OF MOLLUSKS  
Museum of Comparative Zoölogy, Harvard University  
Cambridge, Massachusetts

---

Volume 5

1 August 1997

Number 71

---

COMMENTS ON "THE FINAL REPORT" OF A  
MASSIVE SEARCH FOR  
*LASMIGONA DECORATA* (LEA, 1852) AND  
*ALASMIDONTA ROBUSTA* CLARKE, 1981  
(BIVALVIA: UNIONIDAE) FROM THE CAROLINAS

Richard I. Johnson<sup>1</sup>

ABSTRACT. An extensive search of the Cooper-Santee and Pee Dee River Systems by Keferl and Shelley (1988) in a quest for the nominal species *Lasmigona decorata* (Lea, 1852) and *Alasmidonta robusta* Clarke, 1981 resulted in finding a few specimens that were identified as the former and none identified as the latter. I suggest that both these nominal species may be large examples of well known species. A number of unionid species previously unrecorded from the Pee Dee River System are listed.

---

<sup>1</sup> Department of Mollusks, Museum of Comparative Zoology, Cambridge, MA 02138.



In 1986 the North Carolina State Museum of Natural Science was contracted by the Office of Endangered Species, U.S. Fish and Wildlife Service to make a status survey of *Alasmidonta robusta* Clarke, 1981 and *Lasmigona decorata* (Lea, 1852), which Clarke (1985: 57) had removed from the Johnson (1970: 343) synonymy of *Lasmigona subvirdis* (Conrad, 1835). An astonishing number of localities were sampled during the survey by Keferl and Shelley (1988), 452 on 237 different rivers, streams, and impoundments in the Catawba River drainage of the Cooper-Santee River System and the Lynches and Pee Dee River drainages of the Pee Dee River System. Their efforts at five localities in the headwater streams of the two river systems resulted in the discovery of a few specimens identified by them as *L. decorata*; no examples of *A. robusta* were collected.

Isaac Lea (1792-1886) described more than a score of nominal unionid species from the headwater streams of the Catawba River in Mecklenburg County, part of the Cooper-Santee River System, and from the upper part of the Pee Dee River System in Union County; both counties being in North Carolina. Many of these nomina are now recognized as synonyms of species of *Elliptio* or *Uniomereus*. It would appear that the streams in this area once abounded with unionids. Specimens of some described taxa such as *Anodonta doliaris* Lea, 1863 (Johnson, 1970, pl. 14, fig. 3) and *Unio charlottensis* Lea, 1863 (Johnson, 1970, pl. 12, fig. 9) attained large size as, it appears, did *Alasmidonta robusta* Clarke, 1985 (p. 81, fig. 27. a-c).

Keferl and Shelley (1988: 21) noted that in the nineteenth century many of these headwater streams were dammed to produce mill ponds (Bissels Pond, Elias Pond, Flanigans Pond, and Pfeiffers Pond may be examples) since "many remnants of small dams and walls made of native rock were discovered." The exact location of all of these ponds, some



which are type localities, has not been determined. Johnson (1970: 345) assumed that the existence of ponds produced an environment favorable to growth which led to both *Unio decoratus* and *charlotensis* being placed in the synonymy of *L. subviridis* (Conrad, 1835). Clarke (1985: 57) stated that, "except for its much larger size and increased shell thickness, the shells of *L. decorata* do not differ significantly from those of *L. subviridis*."

Most of the nominal species described by Lea from the Abbeville District, South Carolina appeared to Johnson (1970) to belong to the Savannah River System. Clarke (1985: 60) correctly noted that the district was bordered on the east by the Saluda River and that since no *Lasmigona* have been positively reported from the Savannah River System there is no reason to think that *L. decorata* ever extended beyond the Cooper-Santee River System. Clarke concluded that *L. decorata* was probably restricted to the upper tributaries of the Catawba and Pee Dee drainages in the vicinity of Mecklenberg and Union Counties, North Carolina. Since then, however, Athearn (1992: 91) has reported the finding of *Lasmigona decorata* [not seen] from the Oconee River (a tributary of the Savannah River) about 0.4 mi. NW of Wallace Dam Site, Putnam County, Georgia.

Specimens identified by Keferl and Shelley (1988: 24) as *L. decorata* were collected living at two sites in Waxahaw Creek of the Catawba River drainage and at three sites in Goose Creek and Lynches River of the Pee Dee River System. Three of the specimens from Waxahaw Creek measured from 100 to 118 mm in length and even smaller ones from Goose Creek and Lynches River are larger from those of *L. subviridis* found in more northern river systems. However, if there is sufficient genetic differences to distinguish that *L. subviridis* and *decorata* are distinct species it will be done by electrophoresis and not on the basis of shell



characteristics.

Clarke (1981: 81-84) based his description of *Alasmidonta robusta* on five examples from Long Creek [near Charlotte], Mecklenburg County, North Carolina collected by Charles M. Wheatley (1822-1882) who wrote "new" in the largest specimen. Four of these are in the Academy of Natural Sciences of Philadelphia and one is now in the Museum of Comparative Zoology.

Clarke, after a considerable discussion of the differences between *robusta* and *Alasmidonta varicosa* (Lamarck, 1819) conceded that it was a problem to decide if *robusta* was distinct from the latter. The largest specimen, mentioned above, measuring 65.65 mm in length, was selected as holotype ANSP 126755 and illustrated by line drawings. Since the reproduction of the photograph of the holotype, showing its tooth structure and another of a paratype in Keferl and Shelley (1988: figs. 19 and 17) are not especially clear, the holotype and two of the paratypes are here illustrated (Plate 20). Johnson (1970) illustrated the holotypes of the other nominal species discussed above, *Unio decoratus*, *U. charlottensis*, and *Anodonta doliaris*, and it is suggested that they are, as well as *A. robusta*, ecophenotypic variants of other species.

Since it is not known if the "Final Report" (Keferl and Shelley, 1988) is actually considered a publication, it should in any case, be pointed out that while their incredibly extensive collecting did not add any additional species to the 21 recorded from the Cooper-Santee River System by Johnson (1970: 274 [given as 20, *Pleurobema masoni* (Conrad, 1834) was inadvertently left off the chart]). Their collecting in the Pee Dee River System, of species previously unrecorded from it, listed below, indicates that this system contains about the same number of species as the Cooper-Santee River System to the south and the Cape Fear River



System to the north.

*Elliptio* sp. (A lanceolate species)

*Elliptio folliiculata* (Lea, 1838)

*Elliptio* spp.

*Alasmidonta varicosa* (Lamarck, 1819)

*Lasmigona decorata* (Lea, 1852)<sup>1</sup>

*Strophitus undulatus* (Say, 1817)

*Toxolasma pullus* (Conrad, 1834)<sup>2</sup>

*Villosa constricta* (Conrad, 1838)

*Villosa* sp.

*Ligumia nasuta* (Say, 1817)<sup>3</sup>

*Lampsilis radiata conspicua* (Lea, 1872)<sup>4</sup>

## ACKNOWLEDGMENTS

The author is grateful to Mr. Richard G. Biggins of the U.S. Fish and Wildlife Service, Asheville, North Carolina for a copy of "The Final Report" by Keferl and Shelley (1988) and to Dr. Kenneth J. Boss and Mr. Daniel L. Graf for reading the manuscript.

## REFERENCES CITED

- Athearn, H.D. 1992. New records for some species of Alasmidontini. *Malacology Data Net* 3(1-4): 90-91 (April).

---

<sup>1</sup> *Lasmigona subviridis* (Conrad, 1835) *teste* (Johnson, 1970: 344).

<sup>2</sup> *Carunculina pulla* (Johnson, 1970: 370).

<sup>3</sup> A species of the Northern Atlantic Slope. The single record from the Southern Atlantic slope from the James River given by Johnson (1970: 382) was based on Conrad (1836: 38, pl. 18, fig.1).

<sup>4</sup> *Lampsilis radiata radiata* (Gmelin, 1791) *teste* Johnson, 1970: 390).



- Clarke, A.H. 1981. The Tribe Alasmidontini (Unionidae: Anodontinae), Part I: *Pegias*, *Alasmidonta*, and *Arcidens*. Smithsonian Contributions to Zoology **326**: i-iv + 101 pp., 32 figs., 24 tables.
- Clarke, A.H. 1985. The Tribe Alasmidontini (Unionidae: Anodontinae), Part II: *Lasmigona* and *Simpsonaias*. Smithsonian Contributions to Zoology **399**: i-iii + 75 pp., 22 figs., 14 tables.
- Conrad, T.A. 1836-40. Monography of the family Unionidae, or naiades of Lamarck, (freshwater bivalve shells) of North America. Philadelphia, Pennsylvania. i-iv + 118 pp. [pp. 13-16 never printed], pls. 1-65.
- Johnson, R.I. 1970. The systematics and zoogeography of the Unionidae (Mollusca: Bivalvia) of the Southern Atlantic Slope Region. Bulletin of the Museum of Comparative Zoology, Harvard University **140**: 263-449, plates 1-22.
- Keferel, E.P. and R.M. Shelley 1988. The final report on a status survey of the Carolina Heelsplitter, *Lasmigona decorata* and the Carolina Elktoe, *Lasmigona robusta*. Prepared for U.S. Department of the Interior Fish and Wildlife Service and North Carolina State Museum of Natural Science. pp. 47, figs. 1-19 July. Appendix A. Localities examined in the Saluda, Catawba and Pee Dee River Systems in north Carolina and South Carolina [not seen]. Xeroxed report available from U.S. Fish and Wildlife Service, Ashville Field Office, Ashville, North Carolina, 28801.

## Plate 20

*Alasmidonta robusta* Clarke, 1981

- Fig. 1. Long Creek [of the Catawba River] Mecklenberg County, North Carolina. Holotype Academy of Natural Sciences of Philadelphia 126755. Length 66 mm, height 33 mm, width 43 mm (slightly reduced).
- Fig. 2. *Ibid.* Paratype Academy of Natural Sciences of Philadelphia 126575. Length 57 mm, height 31 mm, width 25 mm, (slightly reduced).
- Fig. 3. *Ibid.* Paratype Museum of Comparative Zoology 294959. Length 51 mm, width 22 mm, height 31 mm (natural size).



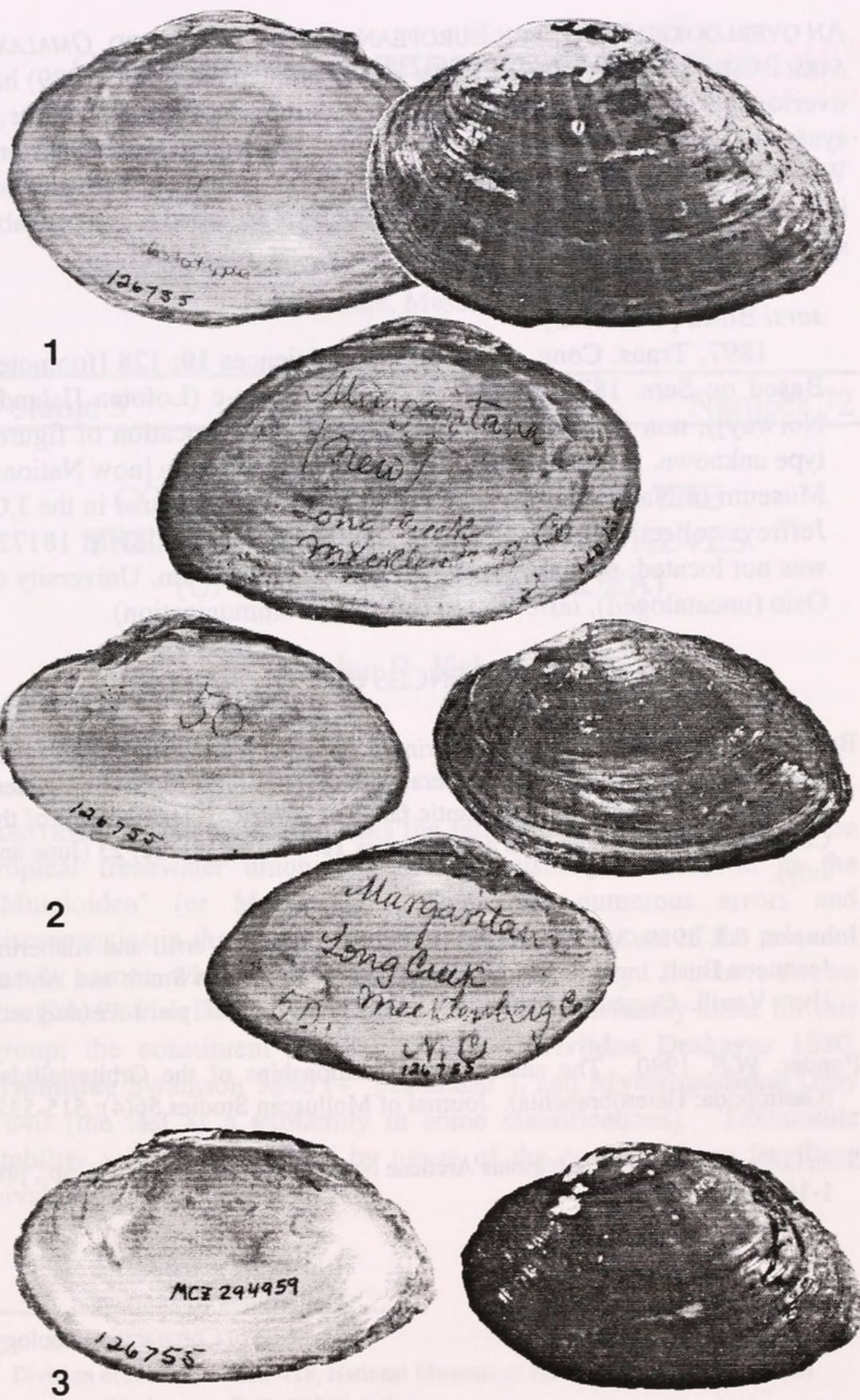


Plate 20



Johnson, Richard Irwin. 1997. "Comments on "the final report" of a massive search for *Lasmigona decorata* (Lea, 1852) and *Alasmidonta robusta* Clarke, 1981 (Bivalvia: Unionidae) from the Carolinas." *Occasional papers on mollusks* 5(71), 371–378.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/25416>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/241657>

**Holding Institution**

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

**Sponsored by**

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

**Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.