RICHARD J. NEVES Quadrula sparsa 1976

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Final No. 1

the ohio state university research foundation
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Fish & Wildlife Service
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QUADRULA SPARSA (LEA, 1841)

by
David H. Stansbery
The Ohio State University Museum of Zoology
May, 1976

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QUADRULA SPARSA (LEA, 1841).

Synonymy

Unio sparsus Lea, 1841. Original Description: Proc. Amer. Philos. Soc. 2:82. Type Locality: "Holston River, East Tenn. Dr. Troost and Mr. Edgar." Further Description: Trans. Amer. Philos. Soc. 8, 1842:242, pl. 25, fig. 58; Obsv. Genus Unio 3, 1842:80, pl. 25, fig. 58. Holotype: "Figured holotype USNM 84222." (Johnson, 1974:134).

Margaron sparsus (Lea, 1841). Lea, 1852, Syn. Family Naiades:22; 1870, Syn. Family Unionidae:33.

Quadrula sparsa (Lea, 1841). Simpson, 1900, Syn. Naiades:775.

Quadrula tuberosa sparsa (Lea, 1841). Simpson, 1914, Descript. Catal. Naiades:837.

Quadrula intermedia (Conrad, 1836) (in part). Ortmann, 1918, Nayades Upper Tenn. Drain.:541.

Quadrula metanevra tuberosa (Lea, 1840) (in part). Frierson, 1927, Check. North Amer. Naiades:52.

Orthonymus metanevrus tuberosus (Lea, 1840) (in part). Haas, 1969, Superfamilia Unionacea:310.

Taxonomic Status

The superficial resemblance of this form to Quadrula intermedia (Conrad, 1836), Quadrula metanevra (Rafinesque, 1820), and Quadrula tuberosa (Lea, 1840) has led some to conclude that Q. sparsa is a subspecies or synonym of one or the other of these latter forms. The fact that intergrading or intermediate specimens are lacking makes such a merging impossible. It may be that Q. tuberosa is the downstream form of Q. intermedia or that Q. sparsa is the upper Tennessee system headwater form of Q. metanevra but the necessary evidence for these inferences is lacking.

Diagnostic Characteristics

This species has the general form of the Q. metanevra complex being sub-quadrate to sub-triangulate in outline. The posterior ridge extends from the umbos to the postventral margin where it forms the posterior extremity of the shell. In this character, and in the lack of development of the postdorsal expansion, it differs from Q. intermedia and Q. tuberosa. It differs from Q. metanevra in being typically more compressed, in lacking the development of knobs on the posterior ridge, in having smaller tubercles and in the characteristic triangular green markings of the periostracum being small and generally inconspicuous.

Former Distribution

Simpson (1914:837) describes the distribution of Q. sparsa as simply "Holston and Clinch rivers, Tennessee." Since Ortmann (1914) considered sparsa a synonym of Q. intermedia there is no means of discerning the distribution of either species from his paper. The same or similar difficulty exists in the case of other recent authors. An examination of collections reveals this species to be rare and no records have been found outside the upper Tennessee River system. I have, in fact, yet to see a specimen from the Tennessee River proper.

Recent Distribution

The only specimens collected since 1960 appear to be those in OSUM. They are as follows:

Mississippi River
Ohio River
Tennessee River

Clinch River	1963(OSUM 8663)
Powell River	1967(OSUM 19372, 19533)
	1968(OSUM 20777, 23191)

Repeated efforts since 1963 to obtain evidence of the continued existence of this species in the Clinch River have failed. The only population extant today may be the one still persisting in the Powell River above Norris impoundment. This population is confined by an impoundment downstream and acid mine drainage upstream.

Possible Reasons For Current Status

The Powell River population of this riffle species is bounded downstream by the Norris impoundment. We were told that upstream, near Big Stone Gap, the system receives acid drainage from coal mines. This may well be true since the North Fork Powell River above Big Stone Gap and the Powell River proper below the mouth of the North Fork are apparently without mollusks of any kind for many miles. This population of Q. sparsa is found in a zone of at least partial recovery some miles downstream.

Potential Threats

If the Powell River population is the last remaining of Q. sparsa there is cause for concern. Further impounding of the Powell River or increased activity in coal mining upstream might result in the extinction of this species.

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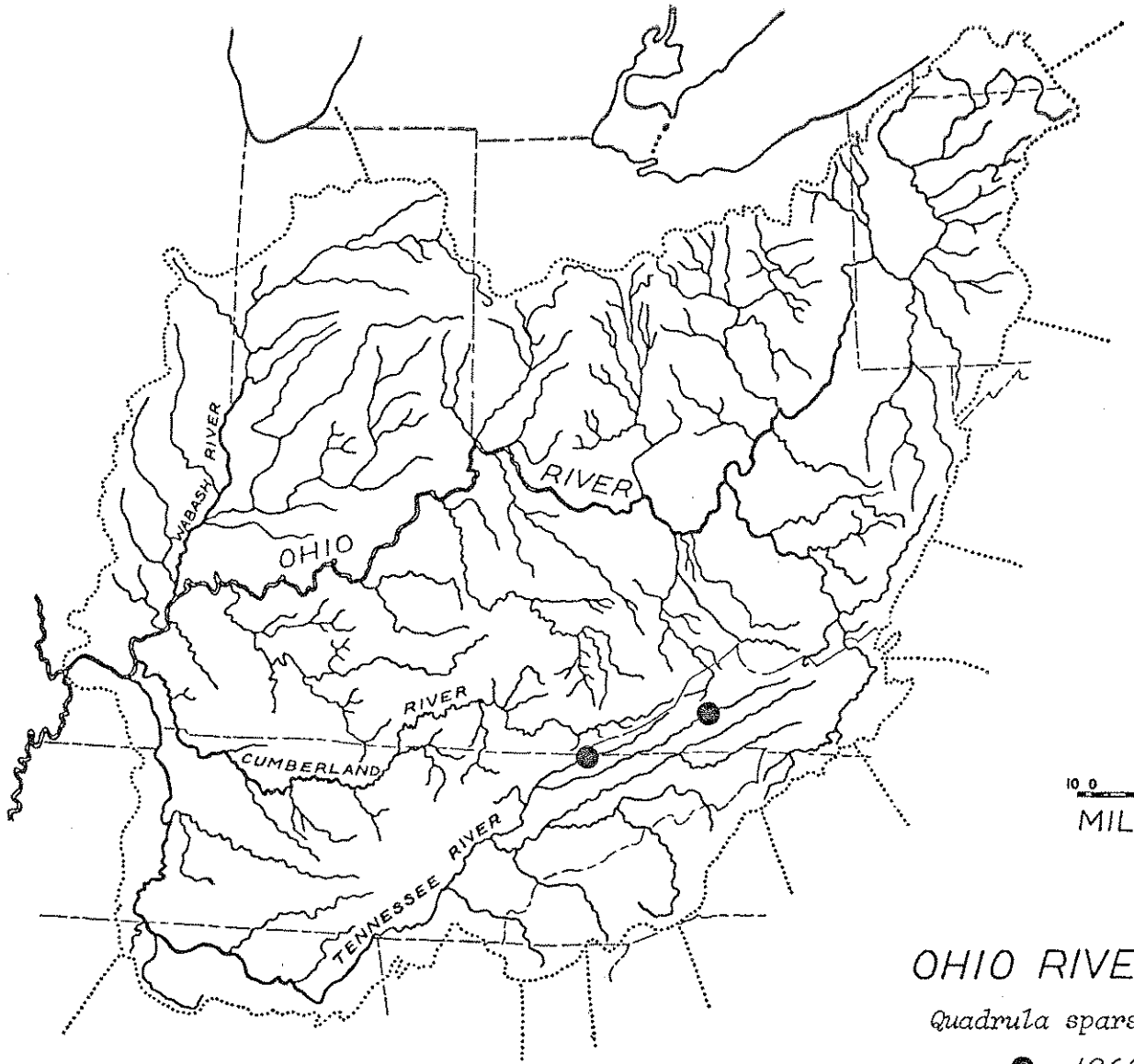
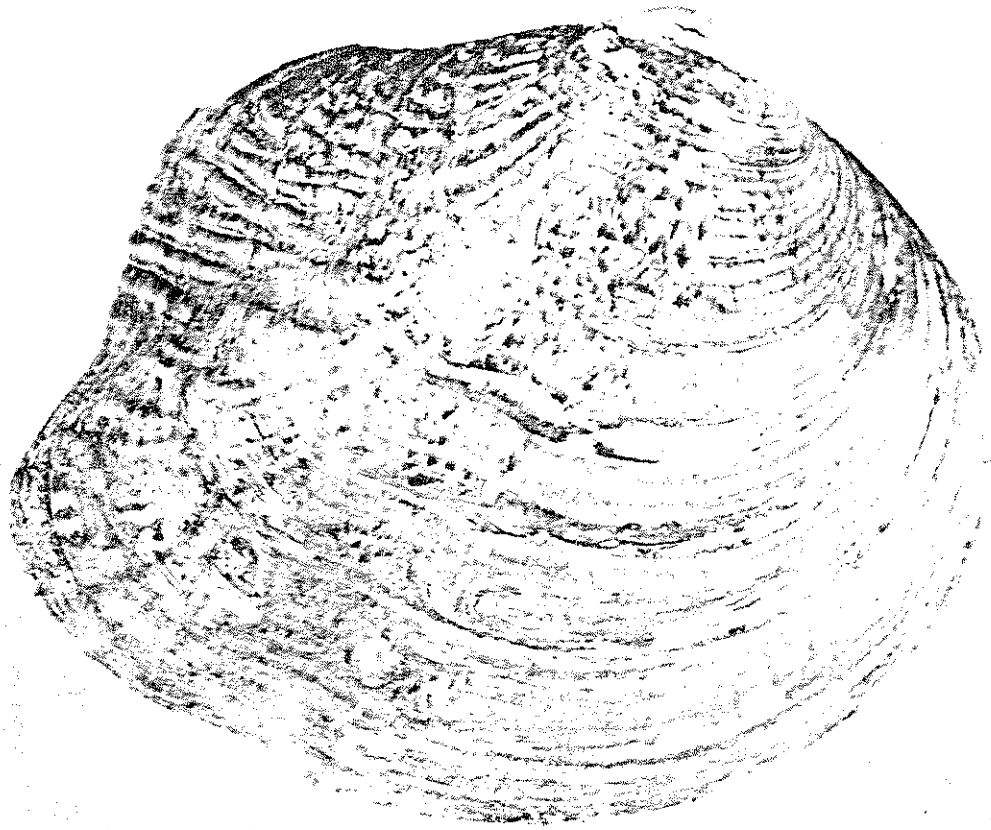


OHIO RIVER SYSTEM

Quadrula sparsa (Lea, 1841).

● = 1960 - 1976

KGB 1976



Quadrula sparsa (Lea, 1841).

OSUM 19372.6, Powell River at Hoop, Claiborne Co., Tennessee. 22 Sept. 1967. L=62, H=48, W=27 mm.