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(Mollusca: Unionidae)
of Middle Island Creek, West Virginia

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A Survey of the Freshwater Mussels (Mollusca: Unionidae) of Middle Island Creek, West Virginia

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ABSTRACT.— Twenty-two native species of freshwater mussels plus the introduced Asiatic clam, *Corbicula fluminea*, were collected from six stations along the seventy-five mile course of Middle Island Creek, a tributary of the Ohio River in West Virginia. Eight species are reported from this creek for the first time. The occurrence of *Villosa fabalis*, *Pleurohema clava*, and *Alasmidonta marginata* is significant because of the rarity of these species within the state. The more commonly found species include *Lampsilis radiata luteola*, *Lampsilis ventricosa*, *Elliptio dilatata*, *Amblema plicata plicata*, and *Tritogonia verrucosa*.

INTRODUCTION

As a result of pollution, impoundment, clear-cutting, and other factors, many of North America's larger streams have experienced severe reductions in plant and animal diversity (Starrett 1971). Freshwater mussels are among the species that have been most seriously affected by habitat changes in such streams. In numbers of animals and species composition, current mussel populations and communities in most major waterways no longer resemble those that were present at the turn of the twentieth century (Taylor 1980a). Smaller streams have not been altered quite so severely (Taylor 1980b,c). Thus, since it may already be too late to save the mussel faunas of large rivers, a logical conservation approach might be to concentrate on protecting smaller streams in which populations persist and that may serve as refugia for mussels. Later, if water quality in larger waterways can be sufficiently improved, the smaller tributaries could provide mussels with which to restock the major systems.

A first step in implementing a plan of this nature must be to thoroughly document the native mussel species that inhabit tributaries of major rivers. Only by such studies can the baseline data be obtained that will allow future investigators to monitor trends in mussel populations and communities. Toward this end, we conducted surveys of the mussel fauna of Middle Island Creek, a small tributary of the Ohio River in West Virginia. Mussel populations in the Ohio have declined drastically in numbers of individuals and diversity over the last seventy-five years (Taylor 1980a).

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Middle Island Creek flows for approximately 120 km (75 mi.) through the rolling hills of Doddridge, Tyler, and Pleasants counties, and confluences with the Ohio River (RM 154) at St. Marys, Pleasants County. Since there are only a few towns, little industry, and no agriculture in these areas, most of the creek's watershed is relatively undisturbed. Hillside vegetation along the creek may generally be classified as second growth mixed mesophytic forest, 75 to 100 years old.

No extensive survey of the mussels of Middle Island Creek has been previously conducted. The first malacologist to visit the creek (ca. 1900) was A. E. Ortmann of the Carnegie Museum, who listed two species from there (1919). Bates (1971) reported eight species from two localities on the creek.

METHODS AND PROCEDURES

During October 1980, six sites along Middle Island Creek were extensively sampled for freshwater mussels. Specimens were hand-picked from banks and shallow water. Representative specimens were accessioned into the Marshall University Malacological Collections, and additional specimens were placed with the Ohio State University Museum of Zoology. Material from Middle Island Creek taken in earlier studies is housed at the Ohio State University Museum of Zoology (OSU); Museum of Comparative Zoology, Harvard University (MCZ); and Carnegie Museum of Natural History (CM).

Species names are those used by Stansbery (1971).

SAMPLING SITES

In the following list, SR = state route and CR = county road. All sites were on Middle Island Creek.

Doddridge County:

1. West Union, approx. 200 m above Main St. bridge at SR18 and old route 50.

Tyler County:

2. 11.3 km N of West Union on SR18.
3. intersection of SR18 and SR74, 20 km N of West Union.
4. SR18 at "The Jug," 3.3 km SE of Middlebourne.
5. bridge near southern boundary of Middlebourne, SR18 at CR26.
6. 1.3 km W of Little, along CR14.

RESULTS

Twenty-two species of freshwater mussels were collected in Middle Island Creek (Table 1). The Asiatic clam, *Corbicula fluminea*, was found at all collecting stations. All specimens of mussels housed at the previously mentioned museums were collected at least fifty years ago.

Freshwater Mussels Middle Island Creek

Additional data on the museum specimens are included in Table 1. Over two hundred specimens were collected during this study.

DISCUSSION

Middle Island Creek apparently is a stream of good water quality. The large number of mussel species and individuals indicate thriving populations. Eight species were newly found in the creek, and all species previously reported (Ortmann 1919; Bates 1971) were still present. Most of the species are very common and widespread throughout the upper Ohio River basin, but *Villosa fabalis* (Lea, 1831) and *Pleurohema clava*

Table 1. List of mussel species of Middle Island Creek, West Virginia, and sampling sites where each occurred. Museums housing historical specimens are indicated in parentheses. Asterisk (*) indicates first time collected in Middle Island Creek.

Species	Sampling site					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
<i>Anodonta grandis grandis</i> Say (OSU)	X	X				
<i>Strophitus undulatus undulatus</i> (Say) (MCZ)	X	X				
<i>Alasmidonta marginata</i> Say*						X
<i>Simpsonaias ambigua</i> (Say)*		X				
<i>Lasmigona complanata</i> (Barnes) (OSU, CM)	X					
<i>Lasmigona costata</i> (Rafinesque) (OSU)					X	X
<i>Tritogonia verrucosa</i> (Rafinesque) (OSU)		X	X	X	X	
<i>Quadrula quadrula</i> (Rafinesque) (OSU, CM)					X	X
<i>Quadrula pustulosa pustulosa</i> (Lea)*				X	X	
<i>Amblyema plicata plicata</i> (Say) (OSU)	X	X	X	X	X	X
<i>Fusconaia flava</i> (Rafinesque) (MCZ, OSU)	X	X	X		X	
<i>Pleurohema clava</i> (Lamarck)*		X				
<i>Elliptio dilatata</i> (Rafinesque) (OSU)	X	X	X	X	X	
<i>Ptychobranchus fasciolaris</i> (Rafinesque) (OSU)	X	X				
<i>Actinonaias ligamentina carinata</i> (Barnes)*		X				
<i>Ohovaria subrotunda</i> (Rafinesque)	X	X	X	X		
<i>Villosa fabalis</i> (Lea)*		X				
<i>Villosa iris iris</i> (Lea)*		X				
<i>Lampsilis radiata luteola</i> (Lamarck) (MCZ)	X	X	X	X	X	X
<i>Lampsilis ventricosa</i> (Barnes) (MCZ)	X		X	X	X	
<i>Lampsilis fasciola</i> Rafinesque (OSU)		X				
<i>Epioblasma triquetra</i> (Rafinesque)*		X		X		

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(Lamarck, 1819) are presently considered rare (Stansbery 1971). *Alasmidonta marginata* Say, 1818, normally is not found in the western half of West Virginia. The more commonly found species in Middle Island Creek include *Lampsilis radiata luteola* (Lamarck, 1819), *Lampsilis ventricosa* (Barnes, 1823), *Elliptio dilatata* (Rafinesque, 1820), and *Tritogonia verrucosa* (Rafinesque, 1820).

ACKNOWLEDGMENTS.— We thank David H. Stansbery for confirming identification of some of our specimens. An anonymous reviewer also provided helpful comments on the manuscript.

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Accepted 15 April 1982

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The editors anticipate two issues of approximately 150 pages each annually. Rates for subscriptions for all issues appearing within the calendar year:

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DATE OF MAILING

Brimleyana No. 6 was mailed on 16 April 1982.

ERRATA

The following errors appeared in *Brimleyana* No. 6:

Page 10, *Notropis petersoni* account, line 3: change *at* to *as*.

Page 21, paragraph 2, line 11 should read: "This may explain *absence* of . . ."

