

Neves

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while 38 out of 150 *B. truncatus* radulae showed the rachidian cusp deformity with either 1 or both cusps missing.

- (4) The numbers of lateral teeth of *B. sericinus* were always greater than those of *B. truncatus* of equivalent shell lengths.
- (5) Reproductive maturity (using the initial enlargement of the seminal vesicle as an indicator) of *B. sericinus* occurred at 6.8-7.0 mm shell length, while that of *B. truncatus* was attained at 4.6-5.0 mm shell length.
- (6) The percentage of euphallic specimens was low (1.8%) for *B. sericinus*, while it was high (15.2%) for *B. truncatus*.

Experimental infections of *Bulinus sericinus* with the Egyptian strain of *Schistosoma haematobium* were 52.6% positive, while Lo's data (1972, *Malacologia*, 11: 225-280) on experimental infections of *B. truncatus* with the same parasite strain showed only 3% positive. Cross-breeding of *B. sericinus* with a diploid albino strain of *B. tropicus* showed that 1 of 3 experiments succeeded in producing vigorous but sterile F₁ progeny, while none of 4 *B. truncatus* mated with the same albino succeeded in producing F₁ progeny. Electrophoretically separated foot muscle esterases of both *B. sericinus* and *B. truncatus* were identical. The foot muscle antigen of *B. sericinus* tested against antisera for *B. truncatus* showed no 'non-identity' precipitin reactions.

Because of the close morphological similarities between the 2 populations, *Bulinus sericinus* might well be only a race of *B. truncatus*. Cross-breeding studies may shed further light on this suggestion.

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ON THE DISTRIBUTION OF UNIONIDAE IN THE SYDENHAM RIVER, SOUTHERN ONTARIO, CANADA

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Abstract

Field experience by H. D. Athearn in 1963 and Dr. Carol B. Stein in 1965 and 1967 has shown that the unionid fauna of the Sydenham River is remarkably diverse. Further investigation seemed desirable, and therefore the writer and Louise R. Clarke collected specimens and performed water analyses on the river between August 21 and 25, 1971. Eleven stations were visited, their localities ranging from the headwaters to near the mouth. Some of the basic data obtained, including those from the August 4, 1963 collection of Athearn (Sta. 552), are condensed and summarized below.

Sydenham River water is hard and all stations gave hardness values between 170 and 270 ppm (as CaCO₃). The region of greatest species diversity begins about 10 miles southwest of Strathroy where the river first attains what may be "critical size," i.e., a width of about 50 feet. Local ecological conditions (sediments, current, etc.) influence local species composition, but diversity in general continues high downstream to near the town of Dresden, a distance of about 60 miles. Below that point no unionids were found.

The Lake Erie-Lake St. Clair drainage basin contains by far the richest unionid fauna in Canada. Within that region the molluscan communities of the Sydenham River appear to be the most natural and least disturbed. Every effort must be made to ensure their continued healthy survival.

TABLE 1. Collecting stations and ecological data*

Sta. No.	Location (headwater to mouth sequence)	Width (est. ft)	Current (est. mph)	Bottom	Vegetation abundance	Apparent Pollution	Time spent (hrs)
1040	2.7 mi SE of Ilderton	5-10	0	S, M	A	none	1.0
1041	2.6 mi NE of Coldstream	10	0	M	0	cows	0.7
1042	0.5 mi NNE of Coldstream	20-25	1	M, S	0	none	1.2
1043	2.2 mi NE of Strathroy	20-30	2	MS	0	none	1.0
1044	10.0 mi SW of Strathroy	50-60	2	SM	S	none	1.5
1045	3.0 mi NE of Alvinston	60-75	3	G, MS	0	none	1.5
1051	3.7 mi S of Alvinston	75	1	G, M	S	none	1.8
1050	3.4 mi NE of Shetland	75	1	M	S	none	1.0
552	1.8 mi NE of Shetland	75	-	R, S	-	none	4 ±
1046	0.4 mi S of Croton	100	1	M	M	none	1.0
1049	0.5 mi N of Dawn Mills	75-100	2	M, G	0	none	1.2
1048	1.0 mi W of Tupperville	150	1	M	S	indust.(?)	0.7

*Abbreviations. Bottom; G, gravel; M, mud; MS, muddy sand; R, rocks; S, sand; SM, sandy mud. Vegetation abundance: A, abundant; M, moderate; 0, none; S, sparse.

TABLE 2. Species and subspecies collected

Species and subspecies	Station numbers											
	1040	1041	1042	1043	1044	1045	1051	1050	552	1046	1049	1048
<i>Fusconaia flava</i>					+	+	+		+	+	+	
<i>Quadrula quadrula</i>									+	+		
<i>Q. pustulosa</i>										+		
<i>Cyclonaias tuberculata</i>						+	+		+		+	
<i>Amblyema plicata</i>					+	+	+	+	+	+	+	
<i>Pleurobema coccineum</i>					+	+						+
<i>Elliptio dilatata</i>						+	+		+	+	+	
<i>Alasmidonta calceola</i>			+									
<i>A. marginata</i>						+	+		+		+	
<i>Lasmigona complanata</i>					+							
<i>L. compressa</i>					+							
<i>L. costata</i>					+	+	+	+	+		+	
<i>Anodontoides ferussacianus</i>	+			+								
<i>Anodonta grandis</i>	+		+		+	+		+	+	+		
<i>Strophitus undulatus</i>					+	+			+			
<i>Ptychobranthus fasciolaris</i>						+	+		+		+	
<i>Truncilla truncata</i>										+		
<i>Proptera alata</i>										+	+	
<i>Obovaria subrotunda</i>					+	+	+					
<i>Leptodea fragilis</i>					+		+	+	+	+	+	
<i>Actinonaias carinata</i>						+	+		+	+	+	
<i>Ligumia recta</i>					+	+	+		+		+	
<i>Lampsilis fasciola</i>						+	+					
<i>L. ovata ventricosa</i>					+	+			+	+	+	
<i>L. radiata siliquoidea</i>					+	+	+	+		+		
<i>Villosa fabalis</i>									+			
<i>V. iris</i>						+			+		+	
<i>Dysnomia torulosa rangiana</i>									+			
<i>D. triquetra</i>									+			
Totals	2	0	2	1	13	17	12	5	18	12	14	0

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A CASE FOR PROTECTING THE DRIFTLESS AREA OF THE UPPER MIDWEST

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Abstract

In the Driftless Area of southeastern Minnesota, southwestern Wisconsin, northeastern Iowa and northwestern Illinois at least 4 likely endangered species of clams and snails still survive. This is the famous Northern Area, about 150 miles in diameter, that the 4 recent ice ages did not significantly demolish with their great glacial drifts. Other than by visiting this spectacular northern area, one must travel several hundred miles south to find areas with ancient dendritic patterned drainages, low mosquito counts and tall conical outliers of deep valleys.

One of the endangered mollusks (see Stansbery, 1971, in: *Proc. Symp. Rare and Endangered Moll. of U.S.*, U.S. Dept. Interior, p 5-19) is the freshwater mussel, *Cumberlandia monodonta*, commonly known as the Spectacle Case. This is the only species in an ancient genus which has more poorly-developed hinge teeth than most modern mussels (hinge teeth serve to avoid the shearing action of spring torrents that tend to tear the 2 shell valves apart). This species also appears to have more protein than other mussels in its shell composition. It inhabits firm mud and quiet water (possibly due to its rather fragile nature), but is stationed very near rapid water (because of heavy respiratory requirements) (see Stansbery, 1966, *Amer. malacol. Union, ann. Repts.*, p 29-30). *C. monodonta* was found in the Driftless Area (Baker, 1928, *The fresh water Mollusca of Wisconsin*. Pt. 2, Wisc. geol. & natur. Hist. surv., p 48-49) at Prairie du Chien. The nearest known population to this one is several hundred miles further south. Fortunately for