

Winston
1995

FINAL REPORT

A Survey of the Freshwater Mussel Fauna
at the Route 811 Bridge Crossing of Smith Creek,
Rockingham County, Virginia

Prepared by
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For
Virginia Department of Transportation
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SURVEY PROCEDURES

On August 11, 1995, the reach of Smith Creek in proximity to the Route 811 bridge crossing, Rockingham County, VA was surveyed by a biologist (Matthew Winston) with the Virginia Cooperative Fish and Wildlife Research Unit and four VDOT personnel (Bill Beuter, Virginia Brown, Bill Jones, and Jim Durban). Conditions were ideal for surveying for mussels: flow was low, the water was clear, and the weather was sunny and warm. The stream reach beginning 400 m downstream to about 100 m upstream of the bridge was surveyed for freshwater mussels (see topographic map). Survey procedures consisted of two persons snorkeling the stream (Winston and Brown), two persons using water scopes (Beuter and Durban), and one person checking the banks for muskrat middens (Jones) within the designated reach. All live mussels, fresh-dead mussels and relic valves were identified. Total survey time by the five personnel was 3.3 hours (16 man-hours).

At this site, Smith Creek averaged about 5 m wide. Substrate consisted mostly of bedrock, with gravel\cobble in riffles and sand\silt in pools. The surrounding area was used as pasture for cattle. Trees in the riparian zone were scarce, and bank erosion was evident in some places. Overall, the pasture did not look heavily grazed, and the stream looked in fair to good condition. Distances were determined by topographic map.

RESULTS AND DISCUSSION

Two species of mussels were found in this reach of Smith

Creek: squawfoot (Strophitus undulatus) and triangle floater (Alasmidonta undulata). No living or dead individuals of the state endangered brook floater (Alasmidonta varicosa) were found in this reach. Fourteen live S. undulatus were found. Most live specimens were found in sand substrates in pools. Six fresh-dead mussels were found: five S. undulatus and one A. undulata. Locations and counts of live mussels and valves are summarized in Table 1.

Because no federal or state listed mussel species were found in the project area, replacement of the route 811 bridge should not detrimentally affect rare mussel species. Nevertheless, I recommend controls to minimize sedimentation to the stream during construction in order to lessen impacts to the other species of fishes and invertebrates in Smith Creek.

Table 1

VIRGINIA COOPERATIVE FISH & WILDLIFE RESEARCH UNIT

FIELD COLLECTION RECORD (MUSSELS)

COLLECTORS M. R. Winston, W. G. Beuter, V. Brown, B. Jones,

J. Durban

DATE: DAY 11 MONTH 8 YEAR 1995

SPECIFIC LOCALITY Route 811 bridge crossing of Smith Creek

DRAINAGE Shenandoah QUADRANGLE Broadway, Tenth Legion

COUNTY Rockingham STATE VA TOWN Zenda

COMMENTS VDOT bridge survey; warm, sunny weather; water

low and clear; effort = 3.3 hours, five people

No. of Specimens

Species	Live	Fresh Dead	Subfossil
<u>Strophitus undulatus</u>	14	5	3
<u>Alasmidonta undulata</u>	0	1	2

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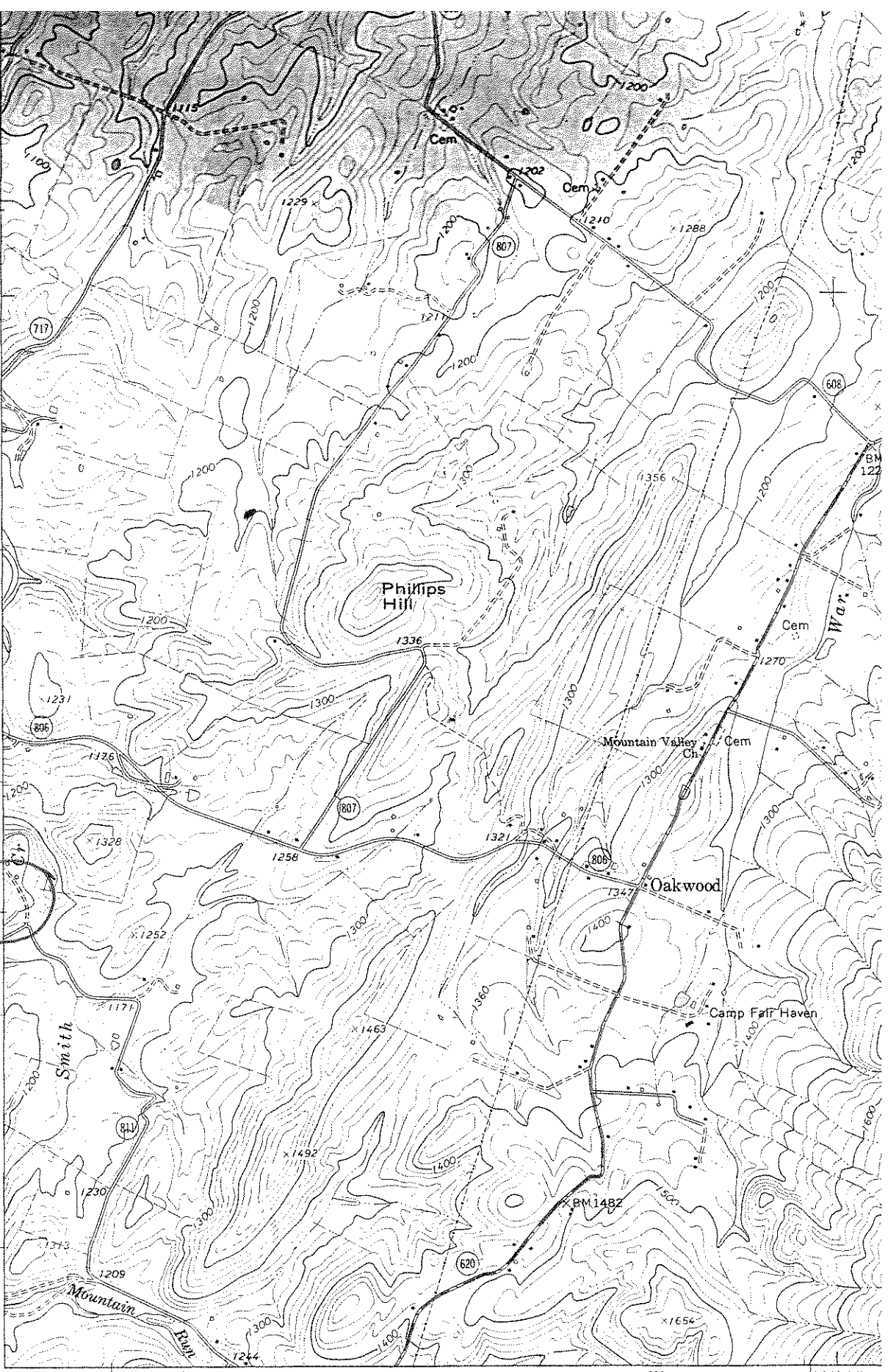
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38°30'



Jenth
Legion
Quad

(HARRISONBURG)
5260 IV NE

Mapped, edited, and published by the Geological Survey
 Control by USGS and USC&GS
 Topography by photogrammetric methods from aerial photographs
 taken 1964 and 1965. Field checked 1967
 Polyconic projection. 1927 North American datum
 10,000 foot grid based on Virginia coordinate system, north zone

