

A Survey of the Freshwater Mussel Fauna
in Lickinghole Creek,
Albemarle County, Virginia

by

Virginia Department of Conservation and Recreation
Division of Natural Heritage
203 Governor Street, Suite 402
Richmond, Virginia 23219

for

Rivanna Water and Sewer Authority

January 25, 1991

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INTRODUCTION

Rivanna Water and Sewer Authority is seeking a permit for the construction of a sedimentation basin in Albemarle County, Virginia. This site occupies a portion of the drainage of Lickinghole Creek, a tributary of the Mechums River located approximately 7.5 miles west of Charlottesville and adjacent to the town of Crozet. As part of the environmental assessment of the proposed project, the Division of Natural Heritage was requested to undertake a survey of Lickinghole Creek to determine the status of the freshwater mussel fauna and possible impacts of this project on these species or their habitat.

METHODS

Lickinghole Creek in Albemarle County, Virginia was surveyed for the presence of rare freshwater mussels. The area most intensively surveyed was from the confluence of Lickinghole Creek and Mechums River to a point approximately 0.5 miles upstream of the proposed project. Active sampling was also performed at the Route 240 crossing south of Crozet. A brief examination of the Route 684 crossing was also performed. The areas surveyed are indicated on Figure 1, a selected portion of the U.S.G.S. topographic 7.5 minute map of the Crozet quadrangle. The species of particular focus was the James spiny mussel (Pleurobema collina), a federally-listed and state-listed endangered species known to occur in this region. A review of database records at the Division of Natural Heritage indicated that recent collections of the James

spiny mussel from the Mechums River were made downstream and upstream of the confluence of Lickinghole Creek and Mechums River.

Intensive searching was largely limited to those areas of run and riffle habitat which were considered to be significant for the James spiny mussel. Survey methods included waterscoping, handpicking, and raking the substrate. In addition stream banks were searched for muskrat middens of discarded shells. Two man days were spent performing field surveys on January 4, 1991. Chris Pague and Phil Stevenson of the Division of Natural Heritage conducted the field survey. Mussel identifications were preliminarily made and then confirmed by M. L. Lipford of the Division of Natural Heritage. Voucher specimens will be deposited in the Virginia Museum of Natural History.

RESULTS and DISCUSSION

Four mussel species, including the endangered James spiny mussel (Pleurobema collina), were found during the survey and are listed in Table 1. In Table 1, the presence of mussels is indicated for three sites in which active sampling was performed. The fourth site, the crossing of Lickinghole Creek by Route 684, is not listed since visual inspection indicated the creek here was inappropriate for mussels due to its small size and apparent channelization. For each site listed, the site is described and the survey results presented.

Site 1 is the stretch of stream extending from the mouth of Lickinghole Creek upstream to the railroad crossing. All mussels

found during this survey came from this portion of the creek. A fresh shell of the James spinymussel was found here as was a single live notched rainbow (Villosa constricta). Additionally, a healthy population of the interior squawfoot (Strophitus undulatus) was observed with over twenty live individuals found. The exotic clam (Corbicula fluminea) was common here as it is in the Mechums River. The habitat here appears to be of good quality without excessive siltation or eutrophication. The substrate is composed of mixed gravel, sand, and cobble. The habitat is dominated by riffles and runs.

Site 2 is that portion of Lickinghole Creek from the railroad crossing upstream to approximately 0.5 mile beyond the proposed project. This site did not yield any evidence of the presence of freshwater mussels or clams. It would appear that previous impacts eliminated the fauna. Re-invasion may be blocked as a result of the dispersal barrier created by the culverts through which Lickinghole Creek flows underneath the railroad. The stream was noticeably siltier here than in Site 1. The banks of the stream are heavily eroded in places and cattle graze throughout this site.

Site 3, the furthest upstream sampling site, was sampled up and downstream of the westernmost crossing of Route 240, south of Crozet. This site did not yield evidence of the presence of mussels or clams. This site is less suitable than the downstream sites due primarily to the coarseness of the substrate which is dominated by cobbles and boulders with exposed bedrock present. While the creek is small here, it could have been expected to contain mussels. The results at this site suggest, as in Site 2, that the bivalves were

probably eliminated by poor water quality; and, subsequent re-invasion is blocked.

Freshwater mussels, including the endangered James spinymussel, are found in Lickinghole Creek from below the railroad crossing to the confluence with Mechums River. The watershed above the railroad crossing, which includes the site of the proposed dam and sedimentation, appears to be devoid of freshwater mussels.

RECOMMENDATIONS

Evidence of the James spinymussel's presence was found within the study area and therefore may be impacted by the proposed project. Construction activities should seek to avoid siltation as it negatively affects mussel species and has observably reduced habitat quality in those areas where it has occurred. In operation of the proposed facility, an emphasis must be placed on providing for sufficient instream flow to preserve the mussel habitat downstream of the facility. As this facility is described as a sedimentation basin, if it functions as intended, it should positively influence the water quality in the portion of Lickinghole Creek occupied by mussels.

The proponents of this project should consult directly with the U. S. Fish and Wildlife Service and the Virginia Department of Game and Inland Fisheries to receive management recommendations and to assure that the project meets the requirements of the federal and state endangered species acts.

Table 1. MUSSELS FOUND IN LICKINGHOLE CREEK, ALBEMARLE COUNTY

Species	Survey Sites		
	1	2	3
<u>Pleurobema collina</u>	present	absent	absent
<u>Villosa constricta</u>	present	absent	absent
<u>Strophitus undulatus</u>	present	absent	absent
<u>Corbicula fluminea</u>	present	absent	absent

