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PARKER

CUMBERLANDIAN MOLLUSK CONSERVATION PROGRAM
STATUS REPORT AS OF JULY 1980

Research Phase Activities

Activity 1: Cumberlandian Mollusk Distribution Survey

Float surveys have been completed on Copper Creek and the Nolichucky River (below Nolichucky Dam) and are underway on the Buffalo, Paint Rock and Elk Rivers. An access point survey has been completed on the Duck River above Normandy Reservoir. None of these surveys have yet been described in written reports because of continuing low water conditions and fieldwork commitments.

Significant finds to date have included larger than expected populations of the river snail Io fluvialis in the Nolichucky River and one living specimen of the Cumberland monkeyface pearly mussel Quadrula intermedia in the Elk River. This activity is approximately 50 percent complete.

Activity 2: Identification of Potential Fish Hosts

The fourth and final round of samples of fish populations in the Duck, Powell and Clinch Rivers were completed during June. Data collected during 1979 was used to prepare a preliminary report on the composition and similarities of these fish faunas for use by the life history laboratories.

This activity is approximately 80 percent complete with only the final report yet to be written.

Activity 3: Determination of Fish Hosts

The Lillard Mill laboratory on the Duck River has become operational and approximately 12 multiple fish infection runs have been made. Modifications to the water handling system, the arrangement of fish and mussel holding facilities and fish handling procedures continue to be made, all directed at improving the success of the experimental work.

Significant progress to date includes the apparent identification of two sunfish hosts for Carunculina moesta (=Toxolasma lividus lividus), a nonendangered Cumberlandian species, and the strong suggestion that the banded darter, Etheostoma zonale, may be a host for the birdwing pearly mussel, Conradilla caelata. Confirmation of these suggested relationships and additional testing of other fish and mussel species will continue at this laboratory.

Preliminary work has begun on locating and staffing a similar facility on the Powell or Clinch Rivers. This second laboratory is scheduled to be operational for the 1981 mussel reproductive season.

Activity 4: Development of an Artificial Culture Medium

With the aid of a fish cell culture consultant, Dr. Robert Hudson, preliminary experiments on controlling fungal and bacterial infections and determining basic medium requirements were begun during June. These and succeeding experiments on the detailed composition of a culture medium will continue whenever viable glochidia can be obtained.

Activity 5: Analysis of Physical Habitat

Baselines were established and staff gauges were installed at all of the 15 designated study reaches during June. Generalized substrate

maps are being prepared for each of these areas now. Specific sampling activities will begin once these necessary preliminary matters have been completed.

Activities 6, 7, and 8: Analyses of Water Quality; Macrophyton, Periphyton and Plankton Communities; and Macrofauna

Sampling for these activities will begin in either July or August, now that the baselines have been established. The delay in starting to collect all of these samples has permitted the refinement of some techniques and the application of more rigorous statistical designs to some sampling schemes. These changes will be reflected in proposed revisions to the workplans. The delay may also require the extension or modification of some sampling time schedules.

Activity 9: Selection of Transplant Sites

The designated study reaches were selected early in May and are being laid out and studied by activities 5-8. The statistical team to perform the combined analysis of research data has been appointed and has begun to work with other activities to ensure compatability of all data sets.

Conservation Phase Activities

A number of TVA employees from a variety of disciplines are beginning to examine ways in which ongoing programs are addressing stream restoration activities and ways in which ongoing and proposed programs could be modified to incorporate or improve an emphasis on stream habitat restoration and protection of endangered species. Because

of the large number and the broad scope of TVA programs that affect streams, watersheds, and regional development, this is not a simple process nor one that can be accomplished fully through informal contacts between staff members.

Preliminary indications are that a surprisingly large number of TVA programs already in existence directly or indirectly are improving water quality and habitat stability in streams, although very few of these programs address mollusks or endangered species specifically. Discussions are underway concerning future programs or modifications to existing programs, however, deliberations by the TVA Board of Directors will be necessary before major changes in scope can occur.

JJJ:DMS
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