

# ECONOMIC IMPACT ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR FIVE CUMBERLANDIAN MUSSELS: SUMMARY

## Background

In June 2003, the U.S. Fish and Wildlife Service (Service) proposed designation of critical habitat for the Cumberland elktoe (*Alasmidonta atropurpurea*), oyster mussel (*Epioblasma capsaeformis*), Cumberlandian combshell (*Epioblasma brevidens*), purple bean (*Villosa perpurpurea*), and rough rabbittsfoot (*Quadrula cylindrica strigillata*), hereafter referred to as the mussels, on various portions of 13 rivers in Tennessee, Kentucky, Virginia, Mississippi, and Alabama. The Service also determined that the French Broad River, Holston River, and the Rockcastle River are essential to the conservation of the mussels. However, based on the Service's analysis under section 4(b)(2) of the Act these areas have been proposed for exclusion from designation of critical habitat for the mussels.<sup>1</sup> The proposed designation is large, encompassing 544 river miles in various portions of 21 counties. The areas proposed for exclusion encompass 100 river miles in various portions of seven counties. Approximately 525 river miles (79 percent) adjacent to critical habitat units and areas essential to the conservation of the mussels are privately owned, 116 river miles (18 percent) are Federally owned, and 20 river miles (three percent) are owned by the State of Tennessee.<sup>2</sup>



*(Epioblasma capsaeformis)*  
Photo by Dick Biggins, Service

### KEY FINDINGS

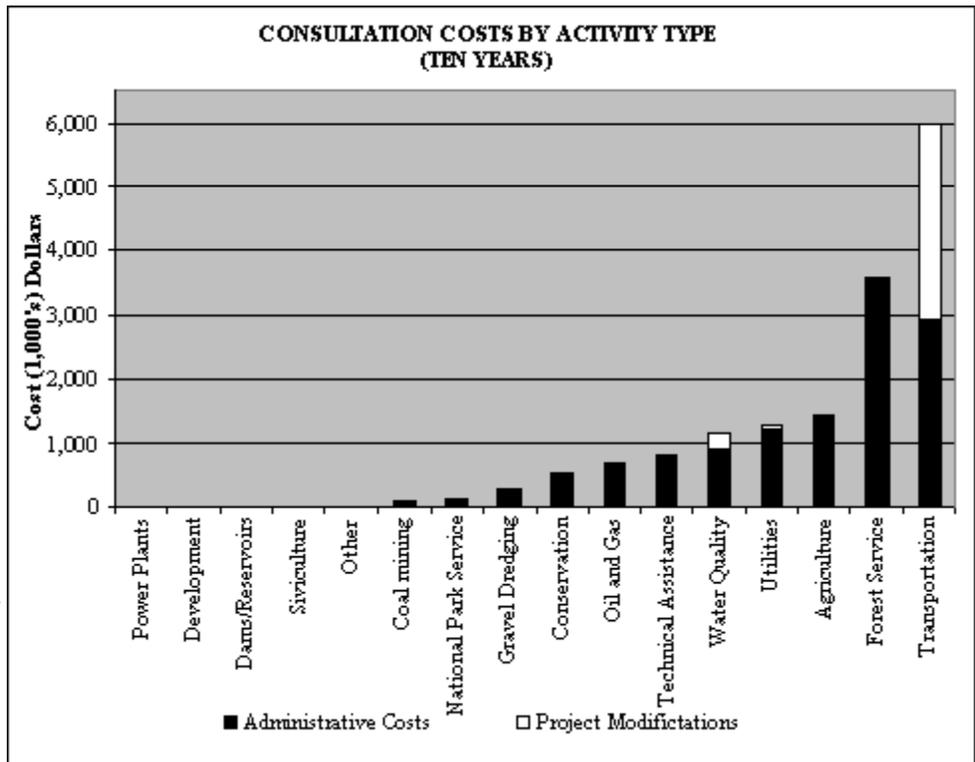
- Road/bridge construction and maintenance projects and Daniel Boone National Forest activities account for over half of the costs of the designation.
- The administrative cost of consultation and technical assistance efforts account for almost 80 percent of the costs of the designation.
- Third parties are expected to incur half the costs of the designation, but project modifications represent 37 percent of these costs.
- Approximately half of the costs of the designation are expected to occur in Area 3 Rockcastle River, Unit 5 Clinch River, Unit 9 Big South Fork, Area 1 French Broad River, and Unit 4 Powell River.
- The designation is not expected to have a significant economic impact on small businesses.

## Major Effects of the Proposed Rule

Federal agencies are required to consult with the Service under section 7 of the Endangered

Species Act (Act) to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of a listed species' habitat. This analysis forecasts approximately 700 to 900 informal and 100 formal section 7 consultations regarding the mussels over the next ten years. While a range of activities may be affected by the designation of critical habitat for the mussels, the activities most impacted by the designation are road/bridge construction and maintenance projects (37 percent) and national forest activities (22 percent).

Impacts are defined in terms of both the anticipated number and effort level of future consultations, as well as any associated project modifications taking place under section 7 of the Act. Because current state and Federal regulations provide the mussels with a high level of baseline protection, most of the projected economic impacts are expected to stem

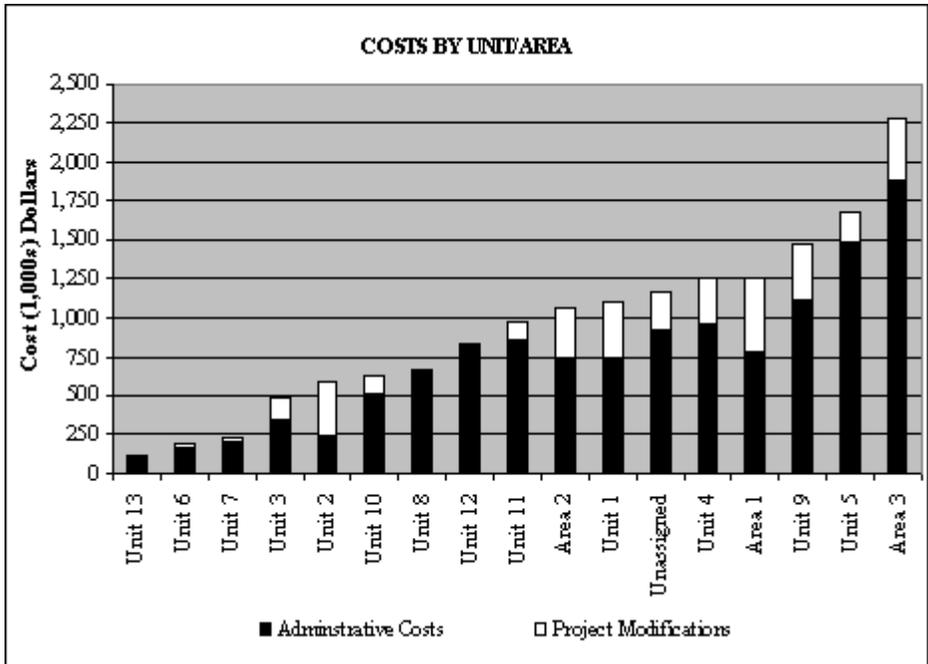


from the administrative cost of consultation and technical assistance efforts (79 percent); project modifications are not expected to result in a large proportion of total costs. Most of the costs of the designation will be borne by third parties (55 percent), followed by Action agencies (41 percent) and then the Service (four percent). While third parties are expected to incur over half the costs of the designation, project modifications represent 37 percent (approximately \$3.3 million) of their costs, the administrative cost of consultation and technical assistance efforts are expected to make up the remaining 63 percent (approximately \$5.5 million).

In addition to road/bridge construction and maintenance projects and national forest activities, activities potentially affected by the designation of critical habitat for the mussels include: agriculture (nine percent), utilities (eight percent), water quality (seven percent), technical assistance (five percent), oil and gas drilling (four percent), conservation and recreation (three percent), gravel dredging (two percent), coal mining (one percent), and national park activities (one percent). The graph above highlights the relative contributions of each land use activity to total section 7 costs.

The largest portion of section 7 costs are expected to occur in Area 3 Rockcastle River (14

percent). The high costs in Area 3 Rockcastle River are due primarily to the presence of Daniel Boone National Forest. After Area 3 most of the costs occur in Unit 5 Clinch River (11 percent), Unit 9 Big South Fork (nine percent), Area 1 French Broad River (eight percent), and Unit 4 Powell River (eight percent). No one activity drives the unit or area costs, high costs are attributable to the size of the unit or area. Unit 5



Clinch River, Unit 9 Big South Fork, Area 2 Holston River, and Unit 4 Powell River are the largest four units and areas. The graph to the right highlights the relative contributions of each unit to total section 7 costs.

### Benefits Associated with the Proposed Rule

Although the economic analysis does not quantify the benefits arising from designation of critical habitat for the mussels, various categories of benefit may derive from the listing and the designation of critical habitat. For example, survival and conservation of the species may lead to enhanced existence values. In addition, protection of mussel habitat may produce benefits such as preservation of habitat suitable for recreational uses, improved water quality, and habitat improvement for other species.

### Small Business Effects

All the projects potentially affected by section 7 implementation for the mussels are expected to involve either no project modifications, or minor project modifications. Because small entities are unlikely to be significantly affected by consultations that do not involve costly project modifications, a significant economic impact on a substantial number of small entities is not expected to result from the designation of critical habitat for the mussels.

## Key Assumptions

The following table presents the key assumptions of this economic analysis, as well as the potential direction of the bias introduced by each assumption.

<b>CAVEATS TO THE ECONOMIC ANALYSIS AND POTENTIAL DIRECTION OF BIAS ON TOTAL SECTION 7 COSTS</b>	
<b>Key Assumption</b>	<b>Effect on Cost Estimate</b>
The rate of formal and informal consultations will not decrease over time.	+
The presence of other threatened and endangered species with and without critical habitat (i.e., spotfin chub, yellowfin madtom, slender chub, etc.) has no influence on consultation/project modification costs.	+
The historic occurrence and cost of project modifications are good predictors of future consultation costs.	+/-
Action agency Best Management Practices are baseline protections that are practiced consistently and as such, do not introduce additional costs to section 7 consultations.	+/-
All costs to development are captured by increased costs of construction of pipelines, water supply and wastewater infrastructure, and roads and bridges within the proposed critical habitat.	+/-
- : This assumption may result in an underestimate of real costs. + : This assumption may result in an overestimate of real costs. +/- : This assumption has an unknown effect on estimates.	

## Additional Information Request

To provide additional support for the analysis the Service solicits specific public comment on the following issues:

- Are data available to develop more accurate estimates of the number of future consultations and type and cost of project modifications for:
  - road/bridge construction and maintenance
  - NRCS projects
  - oil and gas drilling
  - coal mining
  - agriculture
- Are data available detailing additional, specific benefits of the species or habitat that may be incorporated qualitatively or quantitatively into the discussion of benefits?

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1. This analysis considers the effects of the regulatory action as proposed in the Federal Register on June 3, 2003 (68 FR 33234). See the proposed rule for a complete discussion of the proposed exclusion.
  2. Adjacent riparian land ownership data comes from the regulatory action as proposed in the Federal Register on June 3, 2003 (68 FR 33234) Table 4 Totals.