DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AI76

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Five Endangered Mussels in the Tennessee and Cumberland River Basins

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), designate 13 river and stream segments (units) in the Tennessee and/or Cumberland River Basins, encompassing a total of approximately 885 river kilometers (rkm) (550 river miles (rmi)) of river and stream channels, as critical habitat for five endangered mussels [Cumberland elktoe (*Alasmidonta atropurpurea*), oyster mussel (*Epioblasma capsaeformis*), Cumberlandian combshell (*Epioblasma brevidens*), purple bean (*Villosa perpurpurea*), and rough rabbitsfoot (*Quadrula cylindrica strigillata*)] under the Endangered Species Act of 1973, as amended (Act). We solicited data and comments from the public on all aspects of this designation, including data on economic and other impacts of the designation. This publication also provides notice of the availability of the final economic analysis for this designation.

DATES: This rule is effective September 30, 2004.

ADDRESSES: Comments and materials received, as well as supporting documentation used in preparation of this final rule, are available for public inspection, by appointment, during normal business hours at the Tennessee Field Office, U.S. Fish and Wildlife Service, 446 Neal Street, Cookeville, TN 38501.

You may obtain copies of the final rule or the economic analysis from the field office address above, by calling (931) 528–6481, or from our Web site at *http://cookeville.fws.gov.*

If you would like copies of the regulations on listed wildlife or have questions about prohibitions and permits, please contact the appropriate State Ecological Services Field Office: Tennessee Field Office (see **ADDRESSES** section above); Alabama Field Office, U.S. Fish and Wildlife Service, P.O. Box 1190, Daphne, AL 36526 (telephone (251) 441–5181); Kentucky Field Office, USFWS, 3761 Georgetown Road, Frankfort, KY 40601 ((502) 695–0468); Mississippi Field Office, USFWS, 6578 Dogwood View Parkway, Ste. A, Jackson, MS 39213 ((601) 965–4900); Southwestern Virginia Field Office, USFWS, 330 Cummings Street, Abingdon, VA 24210 ((276) 623–1233).

FOR FURTHER INFORMATION CONTACT: Timothy Merritt, Tennessee Field Office (telephone (931) 528–6481, facsimile (931) 528–7075).

SUPPLEMENTARY INFORMATION:

Designation of Critical Habitat Provides Little Additional Protection to Species

In 30 years of implementing the Act, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of available conservation resources. The Service's present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation and the courts rather than biology, limits our ability to fully evaluate the science involved, consumes enormous agency resources, and imposes huge social and economic costs. The Service believes that additional agency discretion would allow our focus to return to those actions that provide the greatest benefit to the species most in need of protection.

Role of Critical Habitat in Actual Practice of Administering and Implementing the Act

While attention to and protection of habitat is paramount to successful conservation actions, we have consistently found that, in most circumstances, the designation of critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources. Sidle (1987) stated, ''Because the Act can protect species with and without critical habitat designation, critical habitat designation may be redundant to the other consultation requirements of section 7.'' Currently, only 446, or 36 percent, of the 1,252 listed species in the U.S. under the jurisdiction of the Service have designated critical habitat. We address the habitat needs of all 1,252 listed species through conservation mechanisms such as listing, section 7 consultations, the section 4 recovery planning process, the section 9 protective prohibitions of unauthorized take, section 6 funding to the States, and the section 10 incidental take permit process. The Service believes it is these measures that may make the difference between extinction and survival for many species.

We note, however, that a recent 9th Circuit judicial opinion, *Gifford Pinchot Task Force* v. *United State Fish and Wildlife Service,* has invalidated the Service's regulation defining destruction or adverse modification of critical habitat. We are currently reviewing the decision to determine what effect it may have on the outcome of consultations pursuant to Section 7 of the Act.

Procedural and Resource Difficulties in Designating Critical Habitat

We have been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of court orders and court-approved settlement agreements, compliance with which now consumes nearly the entire listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that limited listing funds are used to defend active lawsuits, to respond to Notices of Intent to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list critically imperiled species, and final listing determinations on existing proposals are all significantly delayed.

The accelerated schedules of court ordered designations have left the Service with almost no ability to provide for adequate public participation or to ensure a defect-free rulemaking process before making decisions on listing and critical habitat proposals due to the risks associated with noncompliance with judicially-imposed deadlines. This in turn fosters a second round of litigation in which those who fear adverse impacts from critical habitat designations challenge those designations. The cycle of litigation appears endless, is very expensive, and in the final analysis provides relatively little additional protection to listed species.

The costs resulting from the designation include legal costs, the cost of preparation and publication of the designation, the analysis of the economic effects and the cost of requesting and responding to public

comment, and in some cases the cost of compliance with the National Environmental Policy Act. None of these costs result in any benefit to the species that is not already afforded by the protections of the Act enumerated earlier, and they directly reduce the funds available for direct and tangible conservation actions.

Background

This final rule addresses five mussels in the family Unionidae that are historically native to portions of the ''Cumberlandian'' Region of the Tennessee and Cumberland River Basins, including the Cumberland elktoe (*Alasmidonta atropurpurea*), oyster mussel (*Epioblasma capsaeformis*), Cumberlandian combshell (*Epioblasma brevidens*), purple bean (*Villosa perpurpurea*), and rough rabbitsfoot (*Quadrula cylindrica strigillata*). It is our intent, in this final rule, to discuss information obtained since the proposed critical habitat designation. Please refer to our proposed critical habitat rule (68 FR 33234, June 3, 2003) for a more detailed discussion of the species' general life history and our current understanding of their historical and current range and distribution.

We present information below on taxonomy, life history, and distribution specific to these 5 Cumberlandian mussels. The following section incorporates information received during the public comment period, thereby updating and/or revising this section from the information presented in the proposed rule. Additional information can be found in the listing determination (62 FR 1647) and the final recovery plan for these five mussels (Service 2004).

Taxonomy, Life History, and Distribution

Cumberland Elktoe (Alasmidonta atropurpurea (Rafinesque 1831))

Gravid Cumberland elktoe females (females with larvae) have been observed between October and May, but fish infected with glochidia of the Cumberland elktoe have not been encountered until March (Gordon and Layzer 1993). While glochidial infestation from this species has been recorded on five native fish species, glochidia successfully transformed or developed only on the northern hogsucker (*Hypentelium nigricans*) under laboratory conditions (Gordon and Layzer 1993). This species appears to prefer habitats in medium-sized streams to large rivers that contain sand and mud substrata interspersed with cobbles and large boulders (Call and Parmalee 1981; Parmalee and Bogan 1998).

The Cumberland elktoe is endemic to the upper Cumberland River System in southeast Kentucky and north-central Tennessee. It appears to have historically occurred only in the main stem of the Cumberland River and primarily its southern tributaries upstream from the hypothesized original location of Cumberland Falls near Burnside, Pulaski County, Kentucky (Cicerello and Laudermilk 2001). This species has apparently been extirpated from the main stem of the Cumberland River as well as Laurel River and its tributary, Lynn Camp Creek (Service 2004). Based on recent records, the Cumberland elktoe continues to persist in 12 Cumberland River tributaries: Laurel Fork, Claiborne County, Tennessee, and Whitley County, Kentucky; Marsh Creek, McCreary County, Kentucky; Sinking Creek, Laurel County, Kentucky; Big South Fork, Scott County, Tennessee, and McCreary County, Kentucky; Rock Creek, McCreary County, Kentucky; North Fork White Oak Creek, Morgan and Fentress Counties, Tennessee; Clear Fork, Fentress, Morgan, and Scott Counties, Tennessee; North Prong Clear Fork and Crooked Creek, Fentress County, Tennessee; White Oak Creek, Scott County, Tennessee; Bone Camp Creek, Morgan County, Tennessee; and New River, Scott County, Tennessee (Call and Parmalee 1981; Bakaletz 1991; Gordon 1991; Cicerello 1996; Parmalee and Bogan 1998; Cicerello and Laudermilk 2001; R.R. Cicerello, Kentucky State Nature Preserves Commission (KSNPC), personal communication (pers. comm.) 2002, 2003; Service 2004; Ahlstedt *et al.* 2003).

Oyster Mussel (Epioblasma capsaeformis (Lea 1834))

Ortmann (1924) was the first to note color differences in female oyster mussel mantle pads (shell lining). The mantle color appears to be bluish or greenish white in the Clinch River, grayish to blackish in the Duck River, and mottled brown in the Big South Fork population (Ortmann 1924; Service 2004; J.W. Jones, Virginia Polytechnic Institute and State University (Virginia Tech), pers. comm. 2003). In addition, the Duck River form achieves nearly twice the size of specimens from other populations. Two small projections (microattractants) at the junction of the mantle pads serve to attract host fish. Subtle differences in the morphology of these projections or structures also exist in these two populations and coupled with additional data, suggest that they are distinct species (J.W. Jones, pers. comm. 2002).

Spawning probably occurs in the oyster mussel in late spring or early summer (Gordon and Layzer 1989; J.W. Jones, pers. comm. 2003). Glochidia of the oyster mussel have been identified on seven native host fish species, including the wounded darter (*Etheostoma vulneratum*), redline darter (*E. rufilineatum*), bluebreast darter (*E. camurum*), dusky darter (*Percina sciera*), banded sculpin (*Cottus carolinae*), black sculpin (*C. baileyi*), and mottled sculpin (*C. bairdi*) (Yeager and Saylor 1995; J.W. Jones and R.J. Neves, U.S. Geological Survey (USGS), unpublished (unpub.) data 1998). Oyster mussels typically occur in sand and gravel substrate in streams ranging from medium-sized creeks to large rivers (Gordon 1991; Parmalee and Bogan 1998). They prefer shallow riffles and shoals and have been found associated with water willow (*Justicia americana*) beds (Ortmann 1924; Gordon 1991; Parmalee and Bogan 1998).

The oyster mussel was one of the most widely distributed Cumberlandian mussel species, with historical records existing from six States (Alabama, Georgia, Kentucky, North Carolina, Tennessee, and Virginia). It has been eliminated from the entire Cumberland River System and the Tennessee River main stem and a large number of its tributaries (Fraley and Ahlstedt 2001; S.A. Ahlstedt, USGS, pers. comm. 2002, 2003; Service 2004; Ahlstedt 1991a; J.W. Jones, pers. comm. 2003). This mussel is now extant only in a handful of stream and river reaches in two States, including the Duck River, Maury and Marshall counties, Tennessee; Clinch River, Hancock County, Tennessee, and Scott County, Virginia; and Nolichucky River, Hamblen and Cocke counties, Tennessee (Wolcott and Neves 1990; Ahlstedt 1991b; Bakaletz 1991; Gordon 1991; Ahlstedt and Tuberville 1997; S.A. Ahlstedt, pers. comm. 2003; Service 2004; J.W. Jones, pers. comm. 2003).

Cumberlandian Combshell (Epioblasma brevidens (Lea 1831))

Spawning in Cumberlandian combshell most likely occurs in late summer and fall, while the actual release of glochidia takes place during the remainder of the year.

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2003). Glochidia of the Cumberlandian combshell have been identified on several native host fish species, including the wounded darter, redline darter, bluebreast darter, snubnose darter (*Etheostoma simoterum*), greenside darter (*E. blennioides*), logperch (*Percina caprodes*), banded sculpin, black sculpin, and mottled sculpin (Yeager and Saylor 1995; J.W. Jones and R.J. Neves, unpub. data 1998). This species is typically associated with riffle and shoal areas in medium to large-sized rivers (Gordon 1991; Parmalee and Bogan 1998). It is found in substrate ranging from coarse sand to cobble (Gordon 1991).

This species, like the oyster mussel, was once widely distributed, historically occurring in five States (Alabama, Kentucky, Mississippi, Tennessee, and Virginia). It has likewise apparently been eliminated from the main stems of the Tennessee and Cumberland rivers and several of their tributaries (Service 2004). It is now restricted to five stream reaches. The Cumberlandian combshell persists in Bear Creek, Colbert County, Alabama, and Tishomingo County, Mississippi; Powell River, Claiborne and Hancock Counties, Tennessee, and Lee County, Virginia; Clinch River, Hancock County, Tennessee, and Scott and Russell Counties, Virginia; Big South Fork, Scott County, Tennessee, and McCreary County, Kentucky; and Buck Creek, Pulaski County, Kentucky (Isom and Yokely 1968; Schuster *et al.* 1989; Ahlstedt 1991b; Bakaletz 1991; Gordon 1991; Ahlstedt and Tuberville 1997; Hagman 2000; S.A. Ahlstedt, pers. comm. 2002; R.M. Jones, Mississippi Museum of Natural Science, pers. comm. 2002; R.R. Cicerello, pers. comm. 2003; McGregor and Garner 2004).

Purple Bean (Villosa perpurpurea (Lea 1861))

Gravid female purple beans have been observed in January and February (Ahlstedt 1991b; R.S. Butler, Service, pers. comm. 2003). Glochidia of the purple bean have been identified on the fantail darter (*Etheostoma flabellare*), greenside darter, banded sculpin, black sculpin, and mottled sculpin (Watson and Neves 1996; J. W. Jones, pers. comm. 2003). This species inhabits small creeks to medium-sized rivers and can be found in a variety of substrates (Gordon 1991; Parmalee and Bogan 1998).

The purple bean is endemic to the upper Tennessee River drainage in Tennessee and Virginia. Its historical range included Powell River, Lee County, Virginia; Clinch River System, Claiborne, Grainger, and Hancock Counties, Tennessee, and Russell, Scott, Tazewell, and Wise counties, Virginia; Emory River System Morgan and Cumberland Counties, Tennessee; and Holston River System, Hawkins and Sullivan Counties, Tennessee, and Scott and Washington Counties, Virginia. It has apparently been extirpated from Powell River, Emory River, Daddys Creek (Emory River System), North Fork Beech Creek (Holston River System), and North Fork Holston River (Service 2004). The purple bean persists in portions of the Clinch River main stem, Hancock County, Tennessee, and Scott, Russell, and Tazewell Counties, Virginia; Copper Creek (a Clinch River tributary), Scott County, Virginia; Indian Creek (a Clinch River tributary), Tazewell County, Virginia; Obed River (an Emory River tributary), Morgan and Cumberland Counties, Tennessee; and Beech Creek (a Holston River tributary), Hawkins County, Tennessee (Ahlstedt 1991b; Gordon 1991; Winston and Neves 1997; Watson and Neves 1996; Ahlstedt and Tuberville 1997; S.A. Ahlstedt, pers. comm. 2000, 2002, 2003; Fraley and Ahlstedt 2001).

Rough Rabbitsfoot (Quadrula cylindrica strigillata (Wright 1898))

Spawning for the rough rabbitsfoot apparently occurs from May through June (Yeager and Neves 1986). Glochidia of rough rabbitsfoot have been identified on the whitetail shiner (*Cyprinella galactura*), spotfin shiner (*Cyprinella spiloptera*), and bigeye chub (*Hybopsis amblops*) (Yeager and Neves 1986). This species prefers clean sand and gravel substrate in streams ranging from medium-sized creeks to medium-sized rivers (Parmalee and Bogan 1998).

Like the purple bean, the rough rabbitsfoot is endemic to the upper Tennessee River System. The rough rabbitsfoot historically occupied Powell River, Hancock and Claiborne Counties, Tennessee, and Lee County, Virginia; Clinch River System, Hancock and Claiborne Counties, Tennessee, and Russell, Scott, and Tazewell Counties, Virginia; and Holston River System, Hawkins and Sullivan Counties, Tennessee, and Scott and Washington Counties, Virginia. It is apparently extirpated from the entire Holston River System (Service 2004). It currently persists in portions of Powell River, Claiborne and Hancock Counties, Tennessee and Lee County, Virginia; Clinch River, Hancock County, Tennessee and Scott, Russell, and Tazewell Counties, Virginia; and in Indian Creek, Tazewell County, Virginia (Ahlstedt 1981; Gordon 1991; Ahlstedt and Tuberville 1997; Winston and Neves 1997; Watson and Neves 1996; S.A. Ahlstedt, pers. comm. 2000, 2002, 2003; Fraley and Ahlstedt 2001).

The summary of these five mussels presented above represents our current understanding of their historical and current range and distribution. Research is ongoing regarding further taxonomic division of some species. For example, varying mantle coloration, microattractant configuration, size differential, and spawning cycles may indicate that the oyster mussel is actually a species complex (more than one species represented). Researchers from Virginia Tech are in the process of formally describing the Duck River variety (J.W. Jones, unpub. data), and most malacologists (biologists specializing in the life history and ecology of mollusks) believe that the Big South Fork variety is actually a sister species of the federally listed endangered tan riffleshell (*Epioblasma florentina walkeri*), a closely related species (historical records do exist, however, for true oyster mussels in the Big South Fork (see Unit 9 description) (S.A. Ahlstedt, pers. comm. 2002, 2003; J.W. Jones, pers. comm. 2003). Research focusing on the Big South Fork *Epioblasma* should be completed and published later this year (J.W. Jones, pers. comm. 2003). Therefore for this final rule, we recognize the extant *Epioblasma* in the Big South Fork River main stem as a sister species of the tan riffleshell. We also believe for this final rule that the Duck River oyster mussel population is true *E. capsaeformis.* For the remainder of the species, the distributions presented above are based upon shell morphology as described and currently recognized in the best available information. Therefore, we will consider these species' current ranges as outlined above, until presented with new information.

Summary of Decline and Threats to Surviving Populations

Please refer to our proposed rule (68 FR 33234, June 3, 2003) and the recovery plan (Service 2004) for a summary of the decline of and threats to all five mussel species.

Previous Federal Actions

On October 12, 2000, the Southern Appalachian Biodiversity Project filed a lawsuit in U.S. District Court for the Eastern District of Tennessee against the Service, the Director of the Service, and the Secretary of the Department of the Interior, challenging our not-prudent critical habitat determination for the 5 Cumberlandian Region mussel species. On November 8, 2001, the District Court issued an order directing us to re-evaluate our prudency determination for

these five mussels and submit new proposed prudency determinations for the Cumberland elktoe to the **Federal Register** no later than May 19, 2003, and for the remaining four mussels to the **Federal Register** no later than June 16, 2003. We were also directed to submit by those same dates new proposed critical habitat designations, if prudent. Additionally, for the mussels in which critical habitat was found to be prudent, we were directed to finalize our designation not less than 12 months following the prudency determination. On January 8, 2004, the District Court extended our deadline to submit the final rule to the Office of the Federal Register to not later than August 19, 2004.

Other Federal actions for these species prior to June 3, 2003, are outlined in our proposed rule to designate critical habitat for these 5 mussel species (68 FR 33234). Publication of the proposed rule opened a 60-day comment period, which closed on September 2, 2003. The comment period was reopened October 6, 2003, through December 5, 2003, in order to receive comments on a draft economic analysis, a technical correction and possible modification of Unit 8 Rock Creek, and to accommodate a public hearing which was held on October 29, 2003, in Tazewell County, Virginia (68 FR 57643).

Summary of Comments and Recommendations

During the open comment periods for the proposed rule (68 FR 33234), public hearing, and draft economic analysis (68 FR 57643), and the October 2003 reopening (68 FR 57643), we requested all interested parties to submit comments or information concerning the proposed designation of critical habitat for the 5 mussels. We contacted all appropriate Federal, State, and local agencies, county governments, elected officials, scientific organizations, and other interested parties and invited them to comment. We also sent notifications to the following newspapers: TimesDaily, Florence, Alabama; The Tennessean, Nashville, Tennessee; The Knoxville News-Sentinel, Knoxville, Tennessee; The Kingsport Times-News, Kingsport, Tennessee; The Columbia Daily Herald, Columbia, Tennessee; and The Commonwealth Journal, Somerset, Kentucky.

We received a total of 27 comments at the public hearing and during the two comment periods. A transcript of the hearing is available for inspection (see **ADDRESSES** section). Nine comments supported the proposed designation. Of these, two also supported an expansion of critical habitat, ten comments expressed opposition, and four either provided additional information, were noncommittal, or expressed both opposition to and support of certain aspects of the proposed designation. Four of the responses were from the peer reviewers. Comments were received from five private organizations, four Federal agencies, three State governmental agencies, one business, three local governments, and four individuals. Several of the respondents commented on more than one occasion (*e.g.*, at the public hearing and during the first comment period).

We directly notified and requested comments from all affected States. The State comments can be found in the Comment Section under numbers 1, 2, and 3 for Kentucky State Nature Preserves Commission (KNPC), 13 and 34 for the Virginia Department of Transportation (VDOT), and 14 and 35 for the Tennessee Department of Environment and Conservation (TDEC). TDEC and KNPC both submitted comments in support of the designation. KNPC also supported an expansion of designated areas. The States of Virginia, Alabama, and Mississippi expressed no position.

Peer Review

In accordance with our peer review policy published in the **Federal Register** on July 1, 1994 (59 FR 34270), we requested the expert opinions of four independent specialists who are recognized authorities on freshwater mussels and the Tennessee and Cumberland River Basins regarding pertinent scientific or commercial data and assumptions relating to the supporting biological and ecological information in the proposed designation. The purpose of such review is to ensure that the designation is based on scientifically sound data, assumptions, and analyses, including input of appropriate experts and specialists. All four experts submitted written responses that the proposal included a thorough and accurate review of the available scientific and commercial data on these mussels and their habitats. The peer reviewers neither endorsed nor opposed the proposed designation, but provided technical corrections and additional information for consideration. Comments from peer reviewers are included in the summary below and have been incorporated into this final rule.

We reviewed all comments received for substantive issues and any new information regarding the mussels and critical habitat, and the draft economic analysis. Written comments and oral statements presented at the public hearing and received during the comment periods are addressed in the following summary. For readers' convenience, we have assigned comments to major issue categories and we have combined similar comments into single comments and responses.

Peer Review Comments

(1) *Comment:* The current distribution of the Cumberland elktoe in Rock Creek extends upstream from Dolen Branch. It is described inaccurately in the text, but it is depicted accurately on the Unit 8 map.

Response: After our proposed rule was published, we were informed by the U.S. Forest Service (USFS) that we did not include a reach of Rock Creek upstream of Dolen Branch that contains a 1998 record of a live Cumberland elktoe. This specimen was collected approximately 5 rkm (3 rmi) upstream of Dolen Branch, southwest of Bell Farm. In an October 6, 2003, **Federal Register** notice (68 FR 57643), we announced that we were considering a 6.4 rkm (4.0 rmi) upstream extension to Unit 8. We visited the proposed extension and found that it contains one or more of the primary constituent elements and is of similar quality habitat and character as the remainder of the Unit. We are, therefore, including the upstream extension in our final designation (see Map Unit 8).

(2) *Comment:* The Sinking Creek (Unit 11) Cumberland elktoe population is described as ''strong,'' but it should be considered ''uncommon.''

Response: We concur and have modified the text accordingly (see ''Critical Habitat Unit Description'' section).

(3) *Comment:* Critical habitat must include the upstream watershed to conserve aquatic organisms.

Response: Critical habitat designations have relevance to section 7 consultations, which apply solely to Federal actions, including those funded or authorized by Federal agencies. When evaluating the effects of any Federal action subject to a section 7 consultation, activities upstream or along the margin of a designated area must be considered for adverse impacts to critical habitat. Therefore, specific designation of areas above or adjacent to stream channel critical habitats is unnecessary. Identification of the stream channel as critical habitat will provide notice to Federal agencies to review activities conducted within the drainage on their potential effects to the channel, and will alert third parties of the

importance of the area to the survival of the species.

(4) *Comment:* The identified spawning period for the oyster mussel and Cumberlandian combshell is really the glochidial release period.

Response: We have made the appropriate change to the ''Taxonomy, Life History, and Distribution'' section.

(5) *Comment:* The Duck River population of the oyster mussel will be described as a new species within the next year or so.

Response: We concur that there are differences between the oyster mussel in the Duck River and in other extant populations of the oyster mussel in the Tennessee River System. However, for the purpose of this rule, we continue to consider the oyster mussel in the Duck River as true *E. capsaeformis* (see Taxonomy, Life History, and Distribution section).

(6) *Comment:* The taxonomic status of tan riffleshell (*Epioblasma florentina walkeri*) in the Big South Fork National River and Recreation Area (BSFNRRA) is unambiguous; therefore, this population is not the oyster mussel (*Epioblasma capsaeformis*).

Response: We concur and have made the appropriate changes to the text (see ''Taxonomy, Life History, and Distribution'' and ''Critical Habitat Unit Descriptions'' sections).

(7) *Comment:* The mantle pad color of the tan riffleshell (*Epioblasma florentina walkeri*) in the Big South Fork is mottled-brown, not white.

Response: We have modified the text accordingly (see ''Taxonomy, Life History, and Distribution'' section).

(8) *Comment:* The oyster mussel is likely extirpated from the Clinch River in Russell and Tazewell counties, Virginia, and perhaps from the entire Powell River in Virginia and Tennessee.

Response: We believe that the oyster mussel is likely extirpated from the Powell River, since no live individuals or shells have been found there in the last 14 years. The last time it was found in the Powell River was in Tazewell County, Virginia, in 1990. However, mussels are cryptic species living embedded in the bottom of rivers, and rare species, the oyster mussel in particular, may be difficult to find. The oyster mussel may be found again in this stretch of the Powell in the near future. It has been found recently in Scott County, Virginia, in the Clinch River. We have revised the appropriate sections in the rule to reflect this information.

(9) *Comment:* Black sculpin (*Cottus baileyi*) and banded sculpin (*Cottus carolinae*) also serve as host fish for purple bean.

Response: We concur and have modified the rule accordingly (see ''Taxonomy, Life History, and Distribution'' section).

Public Comments

Issue A: Comments on Adequacy and Extent of Critical Habitat

(10) *Comment:* It is premature to consider the lower Holston River, lower French Broad River, and Tennessee River below Wilson Dam as potential components of critical habitat for any of these species.

Response: We have determined that these areas are essential to the conservation of the oyster mussel and Cumberlandian combshell. These areas are some of the only river sections remaining that contain the primary constituent elements that are needed for reintroducing these species into their historical habitat. The Tennessee River below Wilson Dam is an established nonessential experimental population (NEP) for 16 mussel species, which includes the oyster mussel and Cumberlandian combshell. Under section 10(j) of the Act, we cannot designate critical habitat for nonessential experimental populations. We are also actively considering the lower French Broad, lower Holston, and Rockcastle Rivers for designation as NEPs to create additional viable populations necessary to conserve and recover the species. Therefore, with this rule, we are not designating the free-flowing reach of the French Broad River below Douglas Dam to its confluence with the Holston River, the free-flowing reach of the Holston River below Cherokee Dam to its confluence with the French Broad River, and the free-flowing reach of the Rockcastle River from the backwaters of Cumberland Lake upstream to Kentucky Route 1956 bridge as critical habitat due to their current or potential status as NEPs. Based on our evaluation under section 4(b)(2) of the Act, we have excluded these potential NEP areas from consideration as critical habitat. See ''Exclusions Under Section 4(b)(2).''

(11) *Comment:* It is unclear why suitable river areas (*e.g.,* Knox County sections of the French Broad for the oyster mussel) should be excluded from critical habitat consideration because of ''potential status as nonessential experimental population area.''

Response: Section 10(j)(2) of the Act provides for the designation of specific reintroduced populations of listed species as ''experimental populations.'' It also states that critical habitat shall not be designated under the Act for any experimental population determined to be not essential to the continued existence of a species. We are actively working with partners and pursuing an NEP designation in the lower French Broad and lower Holston Rivers in Tennessee as well as the Rockcastle River in Kentucky. We believe that the benefits of excluding the remaining river reaches from the designation, from a conservation standpoint, outweigh the benefits of their inclusion (See the Benefits of Inclusion and Benefits of Exclusion Sections in the Proposed Rule, 68 FR 33234). Experimental populations provide us with a flexible, proactive means to meet recovery criteria while not alienating stakeholders, such as municipalities and landowners, whose cooperation is essential for eventual success of the reintroduced population.

(12) *Comment:* Consider using NEPs of nonendangered species and, on occasion, endangered species in the tailwaters of the lower French Broad River, lower Holston River, and Tennessee River downstream of Wilson Dam to determine the realistic limits of their potential use as habitat.

Response: NEPs, as specified in section 10(j) of the Act, are only used for federally listed species. A NEP already exists in the Tennessee River downstream of Wilson Dam for 16 federally listed mussels and under section 10(j) of the Act, we can not designate critical habitat for nonessential experimental populations. The lower French Broad and lower Holston Rivers are presently being considered for designation as NEPs. We have concluded that these three areas, in addition to the Rockcastle River, are essential to the conservation of the oyster mussel and Cumberlandian combshell and are important to our recovery strategy. These areas are some of the only river sections remaining that contain the primary constituent elements that are needed for reintroducing these species into their historical habitat. Based on our evaluation under section 4(b)(2) of the Act, we have excluded these potential NEP areas from consideration as critical habitat.

(13) *Comment:* The Service should exclude any roadway and bridge projects in the Powell and Clinch River systems from the section 7 consultations that might result from the critical habitat designation because of the precautions implemented by the VDOT during design, construction, and maintenance activities to minimize projects' effects on the mussel species.

Response: Only projects that have a Federal nexus (*i.e.*, Federal funding, Federal permit required, etc.) will

trigger section 7 of the Act. Federal agencies consult on actions that may affect listed species of its designated critical habitat. One of the benefits of critical habitat designation is to inform Federal agencies and other third parties of the importance of habitats to the conservation of species, and thus allow for the early consideration of alternatives to actions that might destroy or adversely affect critical habitat. We acknowledge the precautions taken by the VDOT to protect these species and encourage early planning and coordination that can help by resulting in projects that may be determined ''not likely to adversely affect'' under section 7 and thus avoid a formal consultation. However, we cannot exempt an entity entirely from provisions of section 7 of the Act if there is a Federal nexus. These areas are being retained in the final critical habitat designation because the Powell and Clinch Rivers represent some of the best remaining habitat for four of the five mussels in question. Both streams contain one or more primary constituent elements along with populations of the mussels and are essential to their conservation.

(14) *Comment:* The TDEC and others commented that the Service should exclude the Old Columbia Dam and its impoundment from the final designation because it does not contain the primary constituent elements or mussels in question.

Response: The Old Columbia Dam in Unit 1, at approximately 4.3 meters (14.0 feet) in height, impounds an area from rkm 211 (rmi 131) to rkm 220 (rmi 136.4). Our regulations allow us to designate inclusive areas where the species is not present if they are adjacent to areas occupied by the species and essential to their management and protection (50 CFR 424.12(d)). The dam is inundated during extreme high water conditions and has flow-through during lower water conditions which allows for at least downstream movement of host fishes and possibly attached glochidia. This short reach does contain one or more of the primary constituent elements and is important in maintaining downstream water quality and quantity. It also serves as a downstream corridor between the areas below and above the dam where the oyster mussel is known to survive. Including this reach in the designation will not preclude its continued use for water supply, and the dam itself, which was constructed in 1925, is not included in the critical habitat designation (see ''Critical Habitat Unit Descriptions'' section discussion of existing features).

(15) *Comment:* The areas designated as critical habitat should be larger to include historical habitat.

Response: Each of the 13 critical habitat units contains one or more of the primary constituent elements and is currently occupied by one or more of the five listed mussels. Because portions of the historical range of each of the five mussels are shared with two or more of the other mussel species, there is considerable overlap between species' current and historical distribution within the 13 habitat units (*e.g.*, the critical habitat for the oyster mussel includes the Powell River, even though this mussel has not been found in the Powell River in 14 years). We believe that we have an adequate mix of occupied and unoccupied habitat (historical) in our final critical habitat designation to establish additional viable populations necessary to conserve the species. Including a mix of occupied and unoccupied habitat offers opportunities to increase each species' current range and number of extant populations into units currently occupied by other listed species included in this designation. We are either designating critical habitat or actively pursuing NEPs for all the remaining habitat that could support these five mussel species.

(16) *Comment:* The designation of critical habitat for the Cumberland elktoe mussel in upper Crooked Creek and upper North Prong of Clear Fork will preclude future construction of a water supply reservoir potentially located in these headwaters and should be moved downstream to accommodate this need.

Response: The Cumberland elktoe presently occurs in both Crooked Creek and the North Prong of Clear Fork. Section 7 of the Act already applies to Federal agencies and their actions as a result of the presence of this federally listed mussel. The habitat designated in Crooked Creek and North Prong Clear Fork contains one or more of the primary constituent elements and has been found to be essential to the conservation of this mussel. After reviewing the best available information, including all public comments, new information, and the economic analysis, we are designating critical habitat for the Cumberland elktoe in these two streams. We refer the reader to the ''Methods and Analysis Used to Identify Critical Habitat for Five Mussel Species'' section in which we explain our rationale for designating critical habitat.

(17) *Comment:* Can the area designated as critical habitat be expanded in the future to include other streams located in Tazewell County, Virginia, and wouldn't any potential expansion of the areas likewise negatively impact the county?

Response: Under the Act, we can, from time to time as appropriate, revise critical habitat based on the best available information. Such a revision would require us to complete the same rulemaking procedures that occurred with this rule. These procedures include publishing a proposed designation, requesting public comment on a proposed rule, peer-reviewing the proposed rule, conducting public hearings if requested, and publishing a final rule. We are required under the Act when designating or revising critical habitat to evaluate economic or any other relevant impacts associated with specifying an area as critical habitat. Therefore, we would also conduct a new economic analysis as part of this process.

Issue B: Procedural and Legal Comments

(18) *Comment:* Several commenters stated that the critical habitat designation will place undue bureaucratic requirements on small businesses.

Response: Small businesses will only be involved in a section 7 requirement if a project or activity that they are working on is federally funded or permitted or otherwise involves a Federal nexus. The designation of critical habitat for these five mussels will not have a significant economic impact on a substantial number of small entities. Impacts to small businesses are included in the small business analysis in Appendix C of the economic analysis. We refer the reader to the sections below entitled ''Regulatory Flexibility Act'' (5 U.S.C. 601 *et seq.*) and ''Small Business Regulatory Enforcement Fairness Act'' (5 U.S.C. 802(2)) for more details.

(19) *Comment:* Comments were received regarding the accuracy of the Service's disclaimer and the belief that the text in the sections ''Designation of Critical Habitat Provides Little Additional Protection to Species,'' ''Role of Critical Habitat in Actual Practice of Administering and Implementing the Act,'' and ''Procedural and Resource Difficulties in Designating Critical Habitat'' of the proposed rule is factually inaccurate on three specific topics: (1) That critical habitat provides little additional protection to species, (2) that there are insufficient budgetary resources and time to designate critical habitat for listed species, and (3) that the statement ''these measures * * * may make the difference between

extinction and survival for many species'' applies a standard of survival that is different from the standard of conservation that is mandated by the Act.

Response: As discussed in the sections ''Designation of Critical Habitat Provides Little Additional Protection to Species,'' ''Role of Critical Habitat in Actual Practice of Administering and Implementing the Act,'' and ''Procedural and Resource Difficulties in Designating Critical Habitat'' and other sections of this and other critical habitat designations, we believe that, in most cases, conservation mechanisms provided through section 7 consultations, the section 4 recovery planning process, the section 9 protective prohibitions of unauthorized take, section 6 funding to the States, the section 10 incidental take permit process, and cooperative programs with private and public landholders and tribal nations provide greater incentives and conservation benefits than does the designation of critical habitat.

(20) *Comment:* Existing public facilities serving essential needs of the community would be considered to be in noncompliance by the Service when the critical habitat designation is made official.

Response: The areas designated as critical habitat do not include existing features such as water intakes and outfalls, low-level dams, bridge footings, piers and abutments, boat ramps, and exposed pipelines. Federal actions limited to these existing features would not trigger consultation pursuant to section 7 of the Act, unless they adversely modify or destroy critical habitat.

(21) *Comment:* The Columbia Power and Water Systems (CPWS) requested that they be allowed to provide input into the regulatory flexibility analysis on behalf of the local small entities that would be affected by the proposed designation.

Response: No regulatory flexibility analysis is required if the head of the Federal agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. We have certified that this rule will not have a significant effect on a substantial number of small entities. We refer the reader to the ''Regulatory Flexibility Act'' section of this rule in which we explain why we came to that conclusion.

(22) *Comment:* CPWS requested that we revisit our initial certification that a regulatory flexibility analysis is not required.

Response: We have revisited that decision and, relying upon data in the final economic analysis, we have again certified that the designation of critical habitat for these five mussel species will not have a significant economic impact on a substantial number of small entities and that a regulatory flexibility analysis is not required (see ''Regulatory Flexibility Analysis'' section).

(23) *Comment:* CPWS is concerned about the possibility of ''taking'' (as defined under the Act) implications of this proposed designation.

Response: As defined under section 3(18) of the Act: the term ''take'' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Section 9 of the Act applies to the species itself and not to the critical habitat. Since federally listed species already exist in this reach of the Duck River, section 9 of the Act already applies and will not change as a result of the designation of critical habitat. For the same reasons, section 7 already applies to any Federal activity. The designation of critical habitat will not affect the operation of existing structures such as the Old Columbia Dam, as they are presently being operated. Any additions, modifications, new structures, etc., would be subject to section 7.

(24) *Comment:* The critical habitat designation for the entire Duck River reach could prevent development of several of the Tennessee Valley Authority (TVA) water supply alternatives.

Response: These alternatives were already subject to section 7 of the Act due to the fact that federally listed species occur in the Duck River. The inclusion of a reach of the Duck River as critical habitat will not affect this requirement for Federal agencies. They will still have to comply with section 7, but their consultation with the Service now must include a determination on whether the proposed action may affect critical habitat as well as the species.

(25) *Comment:* Areas proposed as critical habitat in the Daniel Boone National Forest (DBNF) should be excluded from the designation because they currently are, and will continue to be, managed to protect endangered mussels.

Response: The DBNF final forest management plan was completed in April 2004 after our proposed critical habitat rule for the five mussel species was published. We reviewed this plan prior to completing our final critical habitat rule to determine if it provided sufficient conservation benefits specific to the mussel species and if there were assurances that the conservation management strategies would be implemented and effective. We found that though the plan was generic in nature and does provide indirect benefits to overall aquatic systems, it did not specifically address the mussel species. For example, a riparian corridor prescription area was established that includes the watercourse and, for varying widths, its associated uplands; standards were developed for the prescription area to lessen the impacts of various activities on water quality and the physical characteristics of the corridor. However, these standards were not specifically developed for the mussel species, and do not address all the threats to mussels in that area.

Furthermore, the plan does not commit the DBNF to any specific project or local action, thus there are no assurances that any conservation management strategies will be implemented for the area, nor these mussel species. In Chapter 1 of the plan, the DBNF states that ''As a framework for decision-making, this Plan does not commit the Forest Service to any specific project or local action. Rather, it describes general management direction; estimates production levels, and assesses the availability and suitability of lands for resource management practices.'' Since the plan does not specifically address mussels and does not provide for measures to reduce threats to mussels, we have not excluded this area from the designation.

(26) *Comment:* Several commenters suggested that critical habitat could impact private property.

Response: The consultation history for these species does not include any consultations for private activities on private lands and few such consultations are anticipated for the future. No Federal nexus exists for activities on private lands that do not require a Federal permit or involve the use of Federal funds. Streambeds of non-navigable waters and most navigable waters are owned by the riparian landowner, which can include private lands. Though streambeds designated can include private lands, without a Federal nexus, these streambeds will not be affected by the designation. Waters of navigable streams are considered public waters by the States of Mississippi, Alabama, Tennessee, Kentucky, and Virginia. The designation includes streams and river channels within the ordinary high water line. No private upland areas were proposed. In addition, development activities with the greatest potential to affect the mussels and habitat revolve around the increased construction of pipelines, water supply and wastewater infrastructure, and roads and bridges

within the proposed critical habitat. These activities involved Federal entities or have a Federal nexus, and thus do not impact entirely private activity. Increased costs of these activities due to the presence of species and habitat is captured through the anticipated consultations and project modifications as quantified within the economic analysis.

(27) *Comment:* The City of Columbia, Tennessee, commented that the designation of critical habitat for the mussels may engender additional State water quality requirements under the Clean Water Act (CWA) involving total maximum daily load (TMDL) approvals and antidegradation language.

Response: As discussed in Section 4.3.3 of the economic analysis, the designation of critical habitat can result in greater State protection to a stream segment. Critical habitat is one of many considerations used by TDEC when determining whether a water body is a high quality water (Tier II or Tier III, also known as Outstanding National Resource Waters) and thus to determine the level of water quality protection, including the application of TMDLs and antidegradation language. However, there are stream sections in Tennessee that contain critical habitat, but are listed on the State's 303(d) list of impaired streams. Therefore, the designation of critical habitat does not automatically mean that the water body is classified as high quality water. The designation of critical habitat will not affect the State water quality requirements on existing discharges. It could result in greater State protections for new discharges or modifications to existing discharges. However, since this section of the Duck River already contains federally listed species, we believe that the addition of critical habitat will not significantly increase the State's water quality requirements.

(28) *Comment:* Will the area designated as critical habitat be required to comply with or be subject to more stringent conditions or regulations, either now or in the future, and will this stop or delay economic development along the Clinch River or within the identified drainage area?

Response: The designation of critical habitat on private land will have no impact on private landowner activities that do not involve federally funded or authorized activities. Section 7 of the Act already applies to projects that are federally funded or authorized due to the existing presence of federally listed species in the stream. Thus, the designation of critical habitat will not increase the section 7 consultation burden to either the Federal agency or the permit applicant.

(29) *Comment:* Tazewell County, Virginia, currently has no zoning. What will be the method of enforcement for the critical habitat?

Response: The burden to comply with the section 7 of the Act falls only on Federal agencies and projects that they fund or authorize. Likewise, the burden to enforce the Act is a Federal responsibility that has been given to the Service. The county is not responsible for enforcement of the Act regardless of the zoning laws.

Issue C: Comments on Individual Units

(30) *Comment:* For the proposed critical habitat in Unit 1 Duck River, Table 4 does not indicate that any of the 74 rkm (46 rmi) is bordered by State or Federal land.

Response: We acknowledge this discrepancy and have modified the text accordingly (see ''Land Ownership'' section and Table 4).

(31) *Comment:* There does not appear to be adequate justification for the designation of critical habitat for the oyster mussel and the Cumberlandian combshell in the Duck River Unit. The Service states in the rule that from a resource perspective, critical habitat designation is ineffective.

Response: We noted in our prudency determination that, according to the standards placed upon us by the courts, a designation for these five mussels is warranted (see ''Prudency Determination'' in the proposed rule). The Duck River contains a highly diverse mussel fauna that is one of the best remaining in the Cumberlandian Region, perhaps in the country. It contains one or more of the primary constituent elements and is currently occupied by the oyster mussel and historically contained the Cumberlandian combshell. It is essential to the conservation of both taxa. We acknowledge that critical habitat, from a resource perspective, is often ineffective (see ''Designation of Critical Habitat Provides Little Additional Protection to Species'' section).

(32) *Comment:* The Cumberlandian combshell does not currently occur in the Duck River; therefore, critical habitat for this species should not be designated there.

Response: The Cumberlandian combshell historically occurred in the Duck River. Water quality and habitat conditions in the Duck River have improved since the TVA instituted minimum flows for Normandy Dam. The section of the Duck River designated as critical habitat now contains higher levels of dissolved oxygen and continuous flow and therefore possesses one or more of the primary constituent elements for the Cumberlandian combshell. This reach, although currently devoid of the Cumberlandian combshell, is essential to its conservation. The Duck River is also occupied by the oyster mussel.

(33) *Comment:* Critical habitat is not needed because this measure will not add to the overall or site-specific protection already afforded to the three federally listed mussels (Cumberland elktoe, Cumberlandian combshell, and oyster mussel) that occur in Units 8, 10, 11, and 12.

Response: The Act has given us the requirement to designate critical habitat once we found that the designation of critical habitat for these five mussels was prudent (68 FR 33234) in accordance with standards established by the courts. Once a prudency determination was made, we set about determining what the primary constituent elements were and deciding what areas were essential to the conservation of these species. Units 8, 10, 11, and 12 all contain one or more of the primary constituent elements and we have determined that all these units are essential to the conservation of these three mussels. Therefore, critical habitat is warranted for all four of these units.

(34) *Comment:* VDOT commented that 425 projects in the Powell River System and 275 projects in the Clinch River System may be impacted by the designation of critical habitat for the mussels. The commenter also noted that existing critical habitat for the spotfin chub (*Erimonax monacha*), yellowfin madtom (*Noturus flavipinnis*), and slender chub (*Erimystax cahni*) overlap with the proposed designation for the mussels by 36 percent and none of the past consultations for roadway projects found that the proposed action would adversely modify habitat.

Response: The final economic analysis addresses the estimated total costs of section 7 projects, which include the VDOT projects that might be affected by the designation of critical habitat in the Clinch and Powell River systems. Most of the cost of the designation (77 percent) is comprised of the administrative costs. The analysis found that existing State and Federal regulations provide sufficient protection of these waterways, and as a result section 7 project modifications are unlikely for most activities. The commenter points out that there is existing critical habitat and that there have been no past consultations for roadway projects that have resulted in an adverse modification of critical habitat. This fact points to the excellent

working relationship between our two agencies and the mutual desire to insure that areas that are essential to the conservation of a federally listed species are adequately protected.

(35) *Comment:* Multiple commenters provided information on the status of the Yanahli Wildlife Management Area (YWMA) in Unit 1 Duck River. In 2001, TVA transferred the area from rmi 137 to rmi 166 to the Tennessee Wildlife Resource Agency (TWRA).

Response: We acknowledge this new information regarding YWMA and have incorporated that information into the final rule and Appendix B of the economic analysis. TWRA is managing YWMA for wildlife, recreation, and natural and cultural preservation. The deed transfer from TVA to TWRA requires no land be sold or used for residential development. In addition, no industrial use will be allowed on the land. In total, 2,752 ha (6,800 ac) are protected through development and use restrictions, 809 ha (2,000 ac) are protected as State Natural Areas, and 1,538 ha (3,800 ac) that includes Fountain Creek are protected for water supply. This will aid in the protection of the designated critical habitat on the Duck River.

A management plan for this site is still in development. We anticipate that this plan will be generic in nature to protect overall water quality, and will not specifically address the mussel species. Thus, we have not excluded this area from the designation.

Issue D: Comments on Science

(36) *Comment:* The introduction of cultured mussels and host fish will provide much greater hope for the preservation of these species than a critical habitat designation.

Response: We believe the reintroduction of captively propagated mussels and host fish is an essential part of the conservation strategy for these mussels. In the 13 critical habitat units and the potential NEP areas in lower French Broad, lower Holston, and Rockcastle River areas that contain one or more of the primary constituent elements essential for the conservation of these mussels, we have identified areas that are suitable for reintroductions for the conservation of all of these mussels.

(37) *Comment:* The designation of critical habitat will not stop the decline of these species, which is due to of the introduction of exotic clams and other species.

Response: Our recovery biologists are tasked with identifying threats to federally listed species and using the Service's resources to reduce or eliminate those threats in our effort to recover the species. We are aware that exotic species may pose threats to the native mussel fauna and that critical habitat may not address that threat. We are working closely with our State partners to address these threats.

Issue E: Comments on Economic Impacts and Economic Analysis

(38) *Comment:* Tazewell County, Virginia, provided a list of 55 businesses that may potentially be affected by critical habitat designation for the mussels and inquired as to whether any of these businesses had been contacted in the process of conducting the economic analysis.

Response: The Tazewell County Administrator was contacted February 27, 2003, and interviewed regarding potential impacts of critical habitat on the county, as were representatives of each of the 20 other counties in which critical habitat is being designated. In addition, all relevant State and Federal regulatory agencies were contacted regarding potential impacts to projects they authorize or fund. It is not feasible to contact every small business which might be affected, nor is there any requirement to do so.

(39) *Comment:* The draft economic analysis should assess potential economic benefits of the critical habitat designation.

Response: The published economic and conservation biology literature indicates that welfare benefits can result from the conservation of endangered and threatened species. A regional economy can benefit from the preservation of healthy populations of endangered and threatened species and the habitat on which they depend. In the final economic analysis of critical habitat designation for the mussels, additional discussion has been provided concerning the potential economic benefits associated with measures implemented for the protection of water and habitat quality that may occur and be attributable to the effects of future section 7 consultations. It is not feasible, however, due to the scarcity of available studies and information relating to the size and value of potential beneficial changes that are likely to occur as a result of the listing of the species or the designation of their critical habitat, to fully describe and accurately quantify all the benefits of potential future section 7 consultation in the context of the economic analysis. Although there are existing studies valuing ecosystem services related to the mussels, such as water filtration, they have limited applicability for valuing the benefits of the critical habitat designation.

The economic analysis does not conclude that the mussels or their critical habitat have no economic value; rather, it simply states that the value cannot be quantified at this time. Further, while the economic analysis concludes that many of the benefits of critical habitat designation are difficult to estimate, it does not necessarily lead to the conclusion that the benefits are exceeded by the costs. We also note that we did not exclude any area due to economic reasons.

(40) *Comment:* If the stream reach below the Old Columbia Dam is designated critical habitat, it is believed that gravel removal will not be permitted. Failure to remove the gravel buildup will cause long-term economic loss to the CPWS and impair our rights under the Federal Energy Regulatory Commission (FERC) license.

Response: The Old Columbia Dam is a FERC licensed hydropower facility with a generating capacity of 300 kilowatts. The dam is not currently in production for two reasons, (1) a flood in March of 2002 damaged the system and repairs have yet to be made, and (2) a gravel bar has formed at the tailwater area of the dam, causing a 1.2 m (4.0-foot) elevation of the water level against the downstream side of the turbine, resulting in a loss of power production. The second issue could impact the mussels, as the oyster mussel currently occupies the gravel bar. A formal consultation with the U.S. Army Corps of Engineers (Corps) and the CPWS would result if the CPWS were to apply for a 404 permit to remove the gravel bar. A potential project modification for this permit is mussel relocation of half a mile of habitat. It is also possible that the permit may not be issued. The total project modification cost, if the permit was issued and mussels were relocated, could be $75,500 per relocation effort. The present value of the opportunity cost of lost power production if the permit was not issued and power generation did not commence would be $452,000 over the next 40 years. Therefore, the costs associated with the Old Columbia Dam hydropower project could be $75,500 (if the permit was issued and mussels were relocated as a result of a formal consultation) to $452,000 (opportunity cost of hydropower generation). However, it has not been determined whether the CPWS will pursue this project based on the costs required to rebuild the equipment damaged in the 2002 flood.

(41) *Comment:* The draft economic analysis completely omits any discussion of water-supply reservoirs and any analysis of potential indirect economic impacts of this designation

resulting from the denial of municipal water supply impoundments by regulatory authorities.

Response: A discussion of water-supply reservoirs is addressed in the final economic analysis. Any possible denial of municipal water supply impoundments by regulatory authorities is based on many different issues (*e.g.,* water quality, federally listed species, loss of free-flowing streams, etc.). In each critical habitat unit that we designated, there are existing federally listed species. As a result, section 7 of the Act already applies to any project that has a Federal nexus (*e.g.,* federally funded or authorized) in these units.

The potential indirect economic impacts cannot be quantified since proposals do not presently exist for a municipal water supply impoundment in any of the designated critical habitat units. Additionally, there is no way to quantify any potential permit denials from regulatory authorities based on the single criteria of critical habitat. We have stated in the final economic analysis that the section 7 consultations would be greater due to the critical habitat designation. These costs are clearly spelled out in section 4 of the economic analysis and were considered in the final critical habitat designation.

(42) *Comment:* The economic analysis should go beyond direct and indirect costs of the consultation process and address the wide-ranging potential impacts on equestrian visitation to the Big South Fork National River and Recreation Area (BSFNRRA.)

Response: River crossings in mussel habitat may be altered but will not be precluded in the BSFNRRA. The economic analysis does not anticipate a measurable reduction in equestrian visitation to the Big South Fork due to alteration of certain river crossings in mussel habitat. Therefore, the economic analysis does not quantify potential impacts on equestrian visitation. We do not believe that there will be any wide-ranging impacts on equestrian visitation to the BSFNRRA due to the critical habitat designation. The critical habitat unit already contains existing federally listed species, so section 7 already applied to equestrian projects such as river crossings and has not resulted in the termination of any river crossings to date.

(43) *Comment:* The draft economic analysis anticipated that a river crossing project within the BSFNRRA may lead to such project modifications as temporary mussel relocation in order to minimize disturbance to the mussels, or termination of the project altogether. The potential termination of the crossing project is inconsistent with the National Park Service's (NPS) January 2003 Supplemental Draft General Management Plan Environmental Impact Statement Big South Fork National River and Recreation Area.

Response: The Draft General Management Plan states that the Station Camp Ford is a designated river crossing for horses and that the riverbed at this location is habitat for endangered mussels. The draft plan states that an ''interim method for addressing this issue, *i.e.,* a flagged trail and educational signs, continues to provide for visitor use across, or through, the river'' and that additional studies are planned. The preferred alternative is to continue the interim trail crossing method and continue to investigate the most appropriate long-term crossing method. The NPS is still exploring a range of alternatives for this crossing, including ''(1) construction of horse bridges over the river, (2) hardening of crossings in the river, (3) relocation of the horse crossings to a less sensitive location, (4) removal of horse crossings from the river, and (5) relocation of mussels to a more suitable location.'' Therefore, the economic analysis and the General Management Plan do consider a consistent set of possible planning outcomes.

(44) *Comment:* Areas with strong economies, such as the lower French Broad River below Douglas Dam and the Holston River below Cherokee Dam in Grainger, Jefferson, and Knox Counties, were excluded from the proposed critical habitat designation while economically depressed areas (*e.g.,* Clinch River, Tazewell County) were included. The proposal appears to give preferential treatment to these economically strong areas.

Response: The reasons for excluding three river reaches from the proposed, and this final, critical habitat designation had nothing to do with the economics of the areas. We excluded the French Broad River below Douglas Dam and Holston River below Cherokee Dam in Tennessee, and a 24-km (15-mi) stretch of the Rockcastle River in Kentucky, because of our intent to establish NEPs for these areas. While it is true that the economic impact of including these areas would be high (estimated costs top $4.5 million), they were not excluded on economic grounds, but because of their potential status as NEPs for the oyster mussel and Cumberlandian combshell under section 10(j)(2) of the Act. The historical populations of these two species have been extirpated from (and are not able to naturally recolonize) the referenced segments of the Rockcastle, French Broad, and Holston Rivers. The reason we included the Clinch River was because it contained one or more of the primary constituent elements and was found to be essential to the conservation of, and occupied by, four of the five mussel species. The Clinch River is one of the last strongholds for Cumberlandian Region mussels.

(45) *Comment:* A regional economic analysis is not appropriate in the economic analysis for this rule.

Response: The economic analysis conducted with this rule assesses economic impacts incurred by the Service, action agencies, and third parties conducting affected activities in, and adjacent to, the critical habitat designation for the 5 mussels. A regional economic analysis was not performed for this rule.

(46) *Comment:* The Birmingham, Alabama, Field Office of the Office of Surface Mining commented that no impacts to coal mining in Alabama and Mississippi are anticipated due to the designation of critical habitat for the mussels.

Response: This comment confirms the findings discussed in section 4.2.6 of the economic analysis with which we concur.

(47) *Comment:* There are 28 active mines within Tazewell County, Virginia, affecting 588 ha (1,454 ac) in the Clinch River System. How will critical habitat designation impact these operations?

Response: The critical habitat does not include existing features of the human-built environment. These existing mine sites would not be subject to the reinitiation of section 7 consultation as long as the companies met all their existing permit conditions. States are allowed to assume exclusive jurisdiction over the regulation of surface coal mining and reclamation operations on non-Federal lands, contingent upon the State regulation being as effective and no less stringent than the Federal regulation of the Office of Surface Mining with the Department of the Interior. We do not anticipate any adverse effect on these existing operations. We believe that these 28 active mines are included in the Viriginia's Division of Mined Land Reclamation estimate of 300 permits associated with Unit 5 (Clinch River) and are expected to require technical assistance efforts with the Service during their review process.

(48) *Comment:* The impact analysis (economic) did not include the current gas well operations in the Clinch River drainage, and the impact on these types of operations should be considered.

Response: In Virginia, oil and gas drilling permits are issued by the

Division of Gas and Oil. Because Virginia has regulatory authority, there is no nexus to require section 7 consultation unless a project involves constructing or modifying a FERC-licensed interstate gas line. While FERC maintains a short-term ''On the Horizon'' listing of major pipeline projects, the agency is unable to estimate the number or location of projects which may require consultation with the Service in the critical habitat units over the next 10 years. If a consultation were required, the project modifications likely to be recommended include minimizing stream crossings, spanning lines along existing bridges to avoid instream work, and constructing catchment basins around wells.

(49) *Comment:* Comments were also received stating that critical habitat for the mussels may impact Tazewell County, Virginia. Tazewell County commented that the designation of critical habitat will be ''devastating to Tazewell County's economic growth and development.'' Comments were also submitted stating that the designation of critical habitat will not have a negative impact on the economy of Tazewell County.

Response: With the exception of cases in which critical habitat designation excludes a portion of available land from development, and where substitutes are limited, designation is unlikely to substantially affect the course of regional economic development. In cases where an industry requires the direct use of the natural resources of mussel habitat (*e.g.,* large volume of water for cooling or discharge), the presence of the mussels or critical habitat may impact a decision to locate in that area. Environmental regulations such as critical habitat designation likely constitute some fraction of the many factors involved in the decision to locate a facility. However, in the absence of information on the type of economic activity being considered, it is not feasible to determine what level of economic impact the designation may create on the activity. Therefore, the economic analysis recognizes, but does not quantify, potential impacts to the future growth and development.

Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the Act is no longer necessary.

Critical habitat receives protection under section 7 of the Act through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 requires consultation on Federal actions that are likely to result in the destruction or adverse modification of critical habitat.

To be included in a critical habitat designation, the habitat must first be ''essential to the conservation of the species.'' Critical habitat designations identify, to the extent known and using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (*i.e.,* areas on which are found the primary constituent elements, as defined at 50 CFR 424.12(b)).

Occupied habitat may be included in critical habitat only if the essential features thereon may require special management or protection. Thus, we do not include areas where existing management is sufficient to conserve the species. (As discussed below, such areas may also be excluded from critical habitat pursuant to section 4(b)(2).)

Our regulations state that ''The Secretary shall designate as critical habitat areas outside the geographic area presently occupied by the species only when a designation limited to its present range would be inadequate to ensure the conservation of the species'' (50 CFR 424.12(e)). Accordingly, when the best available scientific and commercial data do not demonstrate that the conservation needs of the species so require, we will not designate critical habitat in areas outside the geographic area currently occupied by the species.

Our Policy on Information Standards Under the Endangered Species Act, published on July 1, 1994 (59 FR 34271), provides criteria, establishes procedures, and provides guidance to ensure that decisions made by the Service represent the best scientific and commercial data available. It requires Service biologists, to the extent consistent with the Act and with the use of the best scientific and commercial data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

Critical habitat designations do not signal that habitat outside the designation is unimportant to these five mussels. Areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard and the section 9 take prohibitions, as determined on the basis of the best available information at the time of the action. We specifically anticipate that federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

Methods and Criteria Used To Identify Critical Habitat for the Five Mussel Species

As required by section 4(b)(2) of the Act and its implementing regulations (50 CFR 424.12), we used the best scientific and commercial information available to determine critical habitat areas that contain the physical and biological features that are essential for the conservation of these five mussels. We reviewed the available information pertaining to the historical and current distributions, life histories, host fishes, habitats of, and threats to these species. The information used in the preparation of this designation includes: our own site-specific species and habitat information; unpublished survey reports, notes, and communications with other qualified biologists or experts; statewide Geographic Information System (GIS) species occurrence coverages provided by the KSNPC, TDEC, and TVA; peer-reviewed scientific publications; the final listing rule for the five mussels; and our recovery plan for these mussels (Service 2004). We considered all collection records within the last 15 years from streams currently and historically known to be occupied by one or more of the species (see ''Taxonomy, Life History, and Distribution'' section).

As discussed in part under the ''Summary of Decline'' section of the proposed rule (68 FR 33237) and the recovery plan (Service 2004), the five mussels are highly restricted in

distribution, generally occur in small populations, exhibit limited recruitment, and show little evidence of recovering from historical habitat loss without significant human intervention. In fact, the recovery plan states that recovery for the five mussels is not likely in the near future because of the extent of their decline, the relative isolation of remaining populations, and varied threats to their continued existence (Service 2004). Therefore, the recovery plan emphasizes protection of surviving populations of these five mussels and their stream and river habitats, enhancement and restoration of habitats, and population management, including augmentation and reintroduction of the mussels.

Primary Constituent Elements

In accordance with sections 3(5)(A)(I) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. These include, but are not limited to: Space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species.

As detailed in the Background section in the proposed critical habitat rule (refer to 68 FR 33234, June 3, 2003) and in this final rule, these five mussels, in general, live embedded in the bottom sand, gravel, and/or cobble substrates of rivers and streams. They also have a unique life cycle that involves a parasitic stage on host fish. Juvenile mussels require stable substrates with low to moderate amounts of sediment and low amounts of filamentous algae, and correct flow and water quality to continue to develop. The presence of suitable host fish is considered an essential element in these mussels' life cycles. In addition, because of their life cycle, small population sizes, and limited habitat availability, they are highly susceptible to competitive or predaceous nonnative species.

Unfortunately, knowledge of the essential features required for the survival of any particular freshwater mussel species consists primarily of basic concepts with few specifics (Jenkinson and Todd 1997). Among the difficulties in defining habitat parameters for mussels are that specific physical and chemical conditions (*e.g.,* water chemistry, flow, etc.) within stream channel habitats may vary widely according to season, precipitation, and human activities within the watershed. In addition, conditions between different streams, even those occupied by the same species, may vary greatly due to geology, geography, and/or human population density and land use. Based on the best available information at this time, the primary constituent elements of critical habitat for all five species discussed herein consist of:

1. Permanent, flowing stream reaches with a flow regime (*i.e,* the magnitude, frequency, duration, and seasonality of discharge over time) necessary for normal behavior, growth, and survival of all life stages of the five mussels and their host fish;

2. Geomorphically stable stream and river channels and banks (structurally stable stream cross section);

3. Stable substrates, consisting of mud, sand, gravel, and/or cobble/boulder, with low amounts of fine sediments or attached filamentous algae;

4. Water quality (including temperature, turbidity, oxygen content, and other characteristics) necessary for the normal behavior, growth, and survival of all life stages of the five mussels and their host fish; and

5. Fish hosts with adequate living, foraging, and spawning areas for them.

All areas designated as critical habitat for the five mussels are within the species' historic ranges and contain one or more of the physical or biological features (primary constituent elements) identified as essential for the conservation of these species. We believe these physical and biological features are essential to the conservation of the species and provide space for individual and population growth and for normal behavior [Constituent elements 1, 2, 3, and 5]; food, water, air, light, minerals, or other nutritional or physiological requirements [Constituent elements 1, 3, and 4]; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring [Constituent elements 3 and 5]; and habitats that are protected from disturbance [Constituent element 1, 2, and 3].

In identifying primary constituent elements, we have taken into account the dynamic nature of riverine systems. We recognize that riparian areas and floodplains are integral parts of the stream ecosystem because they are important in maintaining channel geomorphology, providing nutrient input, and buffering from sediments and pollution. Further, side channel and backwater habitats may be important in the life cycle of fish that serve as hosts for mussel larvae.

Analysis Used To Delineate Critical Habitat

We considered several factors in the selection of specific areas for critical habitat for these five mussels. We assessed the recovery strategy outlined in the recovery plan for these species, which emphasizes: (1) Protection and stabilization of surviving populations; (2) protection and management of their habitat; (3) augmentation of existing small populations; (4) reestablishment/reintroduction of new populations within their historical ranges; and (5) research on species biology and ecology. Small, isolated populations are subject to the loss of unique genetic material (genetic drift) (Soulé 1980; Lacy *et al.* 1995) and the gradual loss of reproductive success or fecundity due to limited genetic diversity (Foose *et al.* 1995). They are likewise more vulnerable to extirpation from random catastrophic events and to changes in human activities and land-use practices (Soulé 1980; Lacy *et al.* 1995). The ultimate goal of the recovery plan is to restore enough viable (self-sufficient) populations of these five mussels such that each species no longer needs protection under the Act (Service 2004).

In the recovery plan, we selected the number of distinct viable stream populations required for delisting of each of the five mussels on the basis primarily of the historical distribution of each species (Table 1). For example, the rough rabbitsfoot is narrowly endemic to the upper Tennessee River System. It historically occupied only three river reaches and, therefore, its conservation can be achieved with fewer populations than the historically wider-ranging oyster mussel. We have concluded that identification of critical habitat that would provide for the number of populations outlined in Table 1 for each species is essential to their conservation.

TABLE 1.—NUMBER OF DISTINCT VIABLE STREAM POPULATIONS OF THE FIVE CUMBERLANDIAN MUSSELS REQUIRED BEFORE DELISTING CAN OCCUR AS OUTLINED IN RECOVERY PLAN (SERVICE 2004)

Species	Number of populations required for delisting
Cumberland elktoe	7
Oyster mussel	9
Cumberlandian combshell	9
Purple bean	5
Rough rabbitsfoot	4

Our approach to delineating specific critical habitat units, based on the recovery strategy outlined above, focused first on considering the historical ranges of the five mussels. We evaluated streams and rivers within the historical ranges of these five mussels for which there was evidence that these species had occurred there at some point (*i.e.,* museum collection records). Within the historical range of these species, we found that a large proportion of the streams and rivers in the Tennessee and Cumberland River Basins that historically supported these mussels have been modified by existing dams and their impounded waters. Extensive portions of these drainages, including the Cumberland and Tennessee River main stems, segments of the Holston River and Powell River, and numerous tributaries of these rivers, cannot be considered essential to the conservation of these species because they no longer provide the physical and biological features that are essential for their conservation (*see* ''Primary Constituent Elements'' section). We also did not consider several streams with single site occurrence records of a single species as essential to the conservation of these species because these areas exhibited limited habitat availability, isolation, degraded habitat, and/or low management value or potential (*e.g.,* Cedar Creek, Colbert County, Alabama; Little Pigeon River, Sevier County, Tennessee). Similarly, we did not consider as essential areas from which there have been no collection records of these species for several decades (*e.g.,* portions of the upper Holston River System in Tennessee and Virginia, Buffalo River, Little South Fork of the Cumberland River, Laurel River).

We then identified 13 stream or river reaches (units) within the historical ranges of these species for which our data (*i.e.,* collection records over the last 15 years, expert opinion) indicate that one or more of the five mussel species are present along with the primary constituent elements (*see* Table 2, Index map). These units total approximately 885 rkm (550 rmi) in Alabama, Kentucky, Mississippi, Tennessee, and Virginia. We believe that these areas support darters, minnows, sculpins, and other fishes that have been identified as hosts or potential hosts for one or more of the mussels, as evidenced by known fish distributions (Etnier and Starnes 1993), the persistence of the mussels over extended periods of time, or field evidence of recruitment (S.A. Ahlstedt pers. comm. 2002, Butler pers. comm. 2002). We consider all of these 13 reaches essential for the conservation of these five mussels. As discussed in the recovery plan, recovery in the near future is not likely for these five mussel species in their currently reduced and fragmented state. Nonetheless, it is essential to include in this designation these 13 reaches within the historical range of all five mussels that still contain mussels and the primary constituent elements.

We then considered whether these essential areas were adequate for the conservation of these five mussels. As indicated in the recovery plan, threats to the five species are compounded by their limited distribution and isolation and it is unlikely that currently occupied habitat is adequate for the conservation of all five species. Conservation of these species requires expanding their ranges into currently unoccupied portions of their historical habitat because small, isolated, fragmented aquatic populations, as discussed previously, are subject to chance catastrophic events and to changes in human activities and land-use practices that may result in their elimination. Larger, more contiguous populations can reduce the threat of extinction.

Each of the 13 habitat units is currently occupied by one or more of the five listed mussels. Because portions of the historical range of each of the five mussels are shared with two or more of the other mussel species, there is considerable overlap between species' current and historical distribution within the 13 habitat units. This offers opportunities to increase each species' current range and number of extant populations into units currently occupied by other listed species included in this designation. For example, the oyster mussel historically inhabited seven units and currently inhabits three. Successful reintroduction of the species into units that they historically occupied (and that are currently occupied by another one or more of the five mussels) would expand the number of populations, thereby reducing the threat of extinction.

We believe that the habitat designation in these 13 units is essential to the conservation of all five mussels and that the 13 units encompass sufficient habitat necessary for the recovery of three of these five species (*e.g.,* Cumberland elktoe, purple bean, rough rabbitsfoot). However, we do not believe that the 13 units provide sufficient essential habitat for the conservation of the oyster mussel and Cumberlandian combshell, based on the number of viable populations required for conservation and recovery of these more widespread species (Table 1). For example, these 13 units include occupied habitat for four existing oyster mussel populations and include unoccupied habitat in four other areas that could support oyster mussel populations. Our recovery plan, however, requires nine viable populations of the oyster mussel before it may be delisted. Therefore, we have determined it is essential to identify all opportunities outside our 13 units to conserve the oyster mussel and Cumberlandian combshell.

We then considered free-flowing river reaches that historically contained the Cumberlandian combshell and oyster mussel but that have had no collection records for the past 15 years, and that, resulting from water quality and quantity improvements, likely contain suitable habitat for these mussels. Through our analysis, we identified four such reaches that contain one or more of the primary continuant elements, and are separated by dams and impoundments from free-flowing habitats that contain extant populations of oyster mussels and Cumberlandian combshells. These areas are the lower French Broad River below Douglas Dam to its confluence with the Holston River, Sevier and Knox counties, Tennessee; the free-flowing reach of the Holston River below Cherokee Dam to its confluence with the French Broad River, Jefferson, Grainger, and Knox Counties, Tennessee; the Tennessee River main stem below Wilson Dam in Colbert and Lauderdale counties, Alabama; and a stretch of the lower Rockcastle River in Laurel, Rockcastle, and Pulaski Counties, Kentucky. Natural recolonization of these areas by these two species is unlikely; however, these species can be reintroduced into these areas to create the additional viable populations necessary to conserve and recover the species. We have therefore concluded that these four reaches are also essential to the conservation of the

oyster mussel and Cumberlandian combshell.

Although we have concluded that they are essential, we are not designating critical habitat in any of these four reaches due to their current or potential status as NEP areas. Section 10(j) of the Act states critical habitat shall not be designated for any experimental population determined to be not essential to the continued existence of the species. On June 14, 2001, we published a final rule to designate NEP status under section 10(j) of the Act for the reintroduction of 16 federally listed mussels (including the oyster mussel and Cumberlandian combshell) to the free-flowing reach below Wilson Dam, in the Tennessee River (66 FR 32250). Therefore, we are not designating critical habitat for the oyster mussel and Cumberlandian combshell in the Tennessee River main stem below Wilson Dam in Colbert and Lauderdale Counties, Alabama.

In addition, we are actively considering the remaining three reaches (the lower French Broad, lower Holston, and Rockcastle Rivers) for designation as NEPs in order to facilitate the reintroduction of the oyster mussel and Cumberlandian combshell, as well as numerous other listed mussels, fishes, and snails. Therefore, while we recognize their likely importance to our recovery strategy for these species, we are not designating these three river reaches as critical habitat. A further discussion of these areas can be found below (*see* ''Exclusions under 4(b)(2)'' section).

In summary, the habitat contained within the 13 units described below and the habitat within the four historical reaches designated or under consideration for NEP status constitute our best determination of areas essential for the conservation, and eventual recovery, of these five Cumberlandian mussels. We are designating as critical habitat 13 habitat units encompassing approximately 885 rkm (550 rmi) of stream and river channels in Alabama, Mississippi, Tennessee, Kentucky, and Virginia. Each of these units is occupied by one or more of the five mussels. Although these 13 units represent only a small proportion of each species' historical range, these habitat units include a significant proportion of the Cumberlandian Region's remaining highest-quality free-flowing rivers and streams and reflect the variety of small-stream-to-large-river habitats historically occupied by each species. Because mussels are naturally restricted by certain physical conditions within a stream or river reach (*e.g.,* flow, stable substrate), they may be unevenly distributed within these habitat units. Uncertainty on upstream and downstream distributional limits of some populations may have resulted in small areas of occupied habitat excluded from, or areas of unoccupied habitat included in, the designation.

The habitat areas contained within the units described below constitute our best evaluation of areas needed for the conservation of these species at this time. Critical habitat may be revised for any or all of these species should new information become available.

Special Management Consideration or Protection

When designating critical habitat, we assess whether the areas determined to be essential for conservation may require special management considerations or protections. All 13 critical habitat units identified in this final designation may require special management considerations or protection to maintain geomorphic stability, water quantity or quality, substrates, or presence of fish hosts. All of these units are threatened by actions that alter the stream slope (*e.g.*, channelization, instream mining, impoundment) or create significant changes in the annual water or sediment budget (*e.g.*, urbanization, deforestation, water withdrawal); and point and/or nonpoint source pollution that results in contamination, nutrification, or sedimentation. Habitat fragmentation, population isolation, and small population size compounds these threats to the species. Various activities in or adjacent to each of the critical habitat units described in this final rule may affect one or more of the primary constituent elements that are found in the unit. These activities include, but are not limited to, those listed below in the ''Effects of Critical Habitat'' section as ''Federal Actions That May Affect Critical Habitat and Require Consultation.'' None of the critical habitat units is presently under special management or protection provided by a legally operative, adequate plan or agreement for the conservation of these mussels. These threats may render the habitat less suitable for these five mussels, therefore, we have determined that the critical habitat units may require special management or protection. At this time, special management considerations under 3(5)(a) of the Act warrant designating these units as critical habitat.

Critical Habitat Designation

In accordance with our recovery plan, protection of the habitat in these units and their surviving populations is essential to the conservation of the five mussels. The areas that we are designating as critical habitat for the five mussels provide one or more of the primary constituent elements described above. Table 2 summarizes the location and extent of critical habitat and whether or not that critical habitat is currently occupied or unoccupied. All of the designated areas require special management considerations to ensure their contribution to the conservation of these mussels. For each stream reach designated as a critical habitat unit, the upstream and downstream boundaries are described in general detail below; more precise estimates are provided in the ''Regulation Promulgation'' section of this rule.

*TABLE 2.—APPROXIMATE RIVER DISTANCES, BY DRAINAGE AREA, FOR OCCUPIED AND UNOCCUPIED CRITICAL HABITAT FOR THE FIVE ENDANGERED MUSSEL SPECIES

Species, stream (unit), and State	Currently occupied		Currently unoccupied	
	River kilometers	River miles	River kilometers	River miles
Cumberland elktoe:				
Rock Creek (Unit 8), KY	17	11	.....	.....
Big South Fork (Unit 9), TN, KY	43	27	.....	.....
North Fork White Oak Creek (Unit 9), TN	11	7	.....	.....
New River (Unit 9), TN	14.5	9	.....	.....
Clear Fork (Unit 9), TN	40	25	.....	.....
White Oak Creek (Unit 9), TN	10	6	.....	.....
Bone Camp Creek (Unit 9), TN	6	4	.....	.....

*TABLE 2.—APPROXIMATE RIVER DISTANCES, BY DRAINAGE AREA, FOR OCCUPIED AND UNOCCUPIED CRITICAL HABITAT FOR THE FIVE ENDANGERED MUSSEL SPECIES—Continued

Species, stream (unit), and State	Currently occupied		Currently unoccupied	
	River kilometers	River miles	River kilometers	River miles
Crooked Creek (Unit 9), TN	14.5	9	.....	.....
North Prong Clear Fork (Unit 9), TN	14.5	9	.....	.....
Sinking Creek (Unit 11), KY	13	8	.....	.....
Marsh Creek (Unit 12), KY	24	15	.....	.....
Laurel Fork (Unit 13), TN, KY	8	5	.....	.....
Total	215.5	135	.....	.....
Oyster mussel:				
Duck River (Unit 1), TN	74	46	.....	.....
Bear Creek (Unit 2), AL, MS	.....	.....	40	25
Powell River (Unit 4), TN, VA	.....	.....	154	94
Clinch River (Unit 5), TN, VA	242	150	.....	.....
Copper Creek (Unit 5), VA	.....	.....	21	13
Nolichucky River (Unit 6), TN	8	5	.....	.....
Big South Fork (Unit 9), TN, KY	.....	.....	43	27
Buck Creek (Unit 10), KY	.....	.....	58	36
Total	324	201	316	195
Cumberlandian combshell:				
Duck River (Unit 1), TN	.....	.....	74	46
Bear Creek (Unit 2), AL, MS	40	25	.....	.....
Powell River (Unit 4), TN, VA	154	94	.....	.....
Clinch River (Unit 5), TN, VA	242	148	.....	.....
Nolichucky River (Unit 6), TN	.....	.....	8	5
Big South Fork (Unit 9), TN, KY	43	27	.....	.....
Buck Creek (Unit 10), KY	58	36	.....	.....
Total	537	330	82	51
Purple bean:				
Obed River (Unit 3), TN	40	25	.....	.....
Powell River (Unit 4), TN, VA	.....	.....	154	94
Clinch River (Unit 5), TN, VA	242	148	.....	.....
Copper Creek (Unit 5), VA	21	13	.....	.....
Indian Creek (Unit 5), VA	4	2.5	.....	.....
Beech Creek (Unit 7), TN	23	14	.....	.....
Total	330	202.5	154	94
Rough rabbitsfoot:				
Powell River (Unit 4), TN, VA	154	94	.....	.....
Clinch River (Unit 5), TN, VA	242	148	.....	.....
Copper Creek (Unit 5), VA	.....	.....	21	13
Indian Creek (Unit 5), VA	4	2.5	.....	.....
Total	400	244.5	21	13

*Table 2 refers to the location and extent of critical habitat for each species. For more detail, refer to § 17.95. Table 2 will reflect totals on a species level only, because units are listed under each species as appropriate.

Critical Habitat Unit Descriptions

The critical habitat units described below include the stream and river channels within the ordinary high-water line. As defined in 33 CFR 329.11, the ordinary high water line on nontidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas. The critical habitat does not include existing features of the human-built environment such as water intakes and outfalls, low-level dams, bridge footings, piers and abutments, boat ramps, and exposed pipelines. As such, Federal actions limited to these areas would not trigger consultation pursuant to section 7 of the Act, unless they affect the species or destroy or adversely modify its critical habitat. We are designating the following units as critical habitat for these five mussels (refer to Table 2 for the location and extent of critical habitat designated for each species and more specifically to § 17.95, Critical habitat—fish and wildlife, at the end of this rule).

Unit 1. Duck River, Maury and Marshall Counties, Tennessee

Unit 1 encompasses 74 rkm (46 rmi) of the main stem of the Duck River channel from rkm 214 (rmi 133) (0.3 rkm (0.2 rmi) upstream of the First Street Bridge in the City of Columbia, Maury County, Tennessee, upstream to Lillard Mill Dam at rkm 288 (rmi 179), Marshall County, Tennessee. This reach of the Duck River contains a robust, viable population of the oyster mussel (Ahlstedt 1991b; Gordon 1991; S.A. Ahlstedt, pers. comm. 2002) and historically supported the Cumberlandian combshell (Hinkley and Marsh 1885; Ortmann 1925; Isom and

Yokley 1968; van der Schalie 1973; Gordon 1991). Approximately 59 percent of this Unit is now bounded by the YWMA (recently transferred from the TVA to TWRA).

Unit 2. Bear Creek, Colbert County, Alabama, and Tishomingo County, Mississippi

Unit 2 encompasses 40 rkm (25 rmi) of the main stem of Bear Creek from the backwaters of Pickwick Lake at rkm 37 (rmi 23), Colbert County, Alabama, upstream through Tishomingo County, Mississippi, ending at the Mississippi/Alabama State line. Recent mussel surveys in the Mississippi section of Bear Creek confirmed that the Cumberlandian combshell is still extant (R.M. Jones, pers. comm. 2002), and continues to be present in the Colbert County, Alabama portion of the unit (Isom and Yokley 1968; McGregor and Garner 2004). Bear Creek is in the historical range of the oyster mussel (Ortmann 1925).

Unit 3. Obed River, Cumberland and Morgan Counties, Tennessee

Unit 3 encompasses 40 rkm (25 rmi) and begins at the confluence of the Obed River with the Emory River, Morgan County, Tennessee, and continues upstream to Adams Bridge, Cumberland County, Tennessee. This unit currently contains a population of the purple bean (Gordon 1991; S.A. Ahlstedt, pers. comm. 2002) and is also within designated critical habitat for the federally listed spotfin chub (see ''Existing Critical Habitat'' and Table 3). Unit 3 is located within the Obed National Wild and Scenic River (ONWSR), a unit of the NPS, and the Catoosa Wildlife Management Area (CWMA), which is owned by the TWRA.

Unit 4. Powell River, Claiborne and Hancock Counties, Tennessee, and Lee County, Virginia

Unit 4 encompasses 154 rkm (94 rmi) and includes the Powell River from the U.S. 25E Bridge in Claiborne County, Tennessee, upstream to rkm 256 (rmi 159) (upstream of Rock Island in the vicinity of Pughs), Lee County, Virginia. This reach is currently occupied by the Cumberlandian combshell (Ahlstedt 1991b; Gordon 1991) and rough rabbitsfoot (Service 2004), and was historically occupied by the oyster mussel (Wolcott and Neves 1990) and the purple bean (Ortmann 1918). It is also existing critical habitat for the federally listed slender chub and yellowfin madtom (see ''Existing Critical Habitat'' and Table 3).

Unit 5. Clinch River and tributaries, Hancock County, Tennessee, and Scott, Russell, and Tazewell Counties, Virginia

Unit 5 totals 272 rkm (171 rmi), including 242 rkm (148 rmi) of the Clinch River from rkm 255 (rmi 159) immediately below Grissom Island, Hancock County, Tennessee, upstream to its confluence with Indian Creek in Cedar Bluff, Tazewell County, Virginia; 4 rkm (2.5 rmi) of Indian Creek from its confluence with the Clinch River upstream to the fourth Norfolk Southern Railroad crossing at Van Dyke, Tazewell County, Virginia; and 21 rkm (13 rmi) of Copper Creek from its confluence with the Clinch River upstream to Virginia State Route 72, Scott County, Virginia. The Clinch River main stem currently contains the oyster mussel, rough rabbitsfoot, Cumberlandian combshell, and purple bean (Gordon 1991; Ahlstedt and Tuberville 1997; S.A. Ahlstedt, pers. comm. 2002). Indian Creek currently supports populations of the purple bean and rough rabbitsfoot (Winston and Neves 1997; Watson and Neves 1996). Copper Creek is currently occupied by a low-density population of the purple bean and contains historical records of both the oyster mussel and rough rabbitsfoot (Ahlstedt 1981; Fraley and Ahlstedt 2001; S.A. Ahlstedt, pers. comm. 2003). Copper Creek is critical habitat for the yellowfin madtom and a portion of the Clinch River main stem section is critical habitat for both the slender chub and the yellowfin madtom (see ''Existing Critical Habitat'' and Table 3).

Unit 6. Nolichucky River, Hamblen and Cocke Counties, Tennessee

Unit 6 includes 8 rkm (5 rmi) of the main stem of the Nolichucky River and extends from rkm 14 (rmi 9) (approximately 0.6 rkm (0.4 rmi) upstream of Enka Dam to Susong Bridge in Hamblen and Cocke counties, Tennessee. The Nolichucky River currently supports a small population of the oyster mussel (S.A. Ahlstedt, pers. comm. 2002) and was historically occupied by the Cumberlandian combshell (Gordon 1991).

Unit 7. Beech Creek, Hawkins County, Tennessee

Unit 7 encompasses 23 rkm (14 rmi) and extends from rkm 4 (rmi 2) of Beech Creek in the vicinity of Slide, Hawkins County, Tennessee, upstream to the dismantled railroad bridge at rkm 27 (rmi 16). It supports the best remaining population of purple bean and the only remaining population of any of these species in the Holston River drainage (Ahlstedt 1991b; S.A. Ahlstedt, pers. comm. 2002).

Unit 8. Rock Creek, McCreary County, Kentucky

Unit 8 includes 17.4 rkm (11.0 rmi) of the main stem of Rock Creek and begins at the Rock Creek/White Oak Creek confluence and extends upstream to the low water crossing at rkm 25.6 (rmi 15.9) approximately 2.6 km (1.6 mi) southwest of Bell Farm in McCreary County, Kentucky. This unit, which is bounded by the DBNF and some private inholdings, is currently occupied by the Cumberland elktoe (Cicerello 1996).

Unit 9. Big South Fork and Tributaries, Fentress, Morgan, and Scott Counties, Tennessee, and McCreary County, Kentucky

Unit 9 encompasses 153 rkm (95 rmi) and consists of 43 rkm (27 rmi) of the Big South Fork of the Cumberland River main stem from its confluence with Laurel Crossing Branch downstream of Big Shoals, McCreary County, Kentucky, upstream to its confluence with the New River and Clear Fork, Scott County, Tennessee; 11 rkm (7 rmi) of North White Oak Creek from its confluence with the Big South Fork upstream to Panther Branch, Fentress County, Tennessee; 14.5 rkm (9.0 rmi) of the New River from its confluence with Clear Fork upstream to U.S. Highway 27, Scott County, Tennessee; 40 rkm (25 rmi) of Clear Fork from its confluence with the New River upstream to its confluence with North Prong Clear Fork, Morgan and Fentress Counties, Tennessee; 10 rkm (6 rmi) of White Oak Creek from its confluence with Clear Fork upstream to its confluence with Bone Camp Creek, Morgan County, Tennessee; 6 rkm (4 rmi) of Bone Camp Creek from its confluence with White Oak Creek upstream to Massengale Branch, Morgan County, Tennessee; 14.5 rkm (9.0 rmi) of Crooked Creek from its confluence with Clear Fork upstream to Buttermilk Branch, Fentress County, Tennessee; and 14.5 rkm (9 rmi) of North Prong Clear Fork from its confluence with Clear Fork upstream to Shoal Creek, Fentress County, Tennessee. The main stem of the Big South Fork currently supports the Cumberland elktoe and the best remaining Cumberlandian combshell population in the Cumberland River System (Bakaletz 1991; Gordon 1991; R.R. Cicerello, pers. comm. 2003). The main stem of the Big South Fork historically contained the oyster mussel (S.A. Ahlstedt, pers. comm. 2002; Service 2004). The *Epioblasma* mussel that currently inhabits the Big South Fork main stem, and that is occasionally

referred to as the oyster mussel, is now recognized as a sister species of the tan riffleshell (see ''Taxonomy, Life History, and Distribution'' section) (Service 2004; J. Jones, pers. comm. 2003). The remainder of the unit contains habitat currently occupied by the Cumberland elktoe (Call and Parmalee 1981; Bakaletz 1991; Gordon 1991). The largest population of Cumberland elktoe in Tennessee is in the headwaters of the Clear Fork System (Call and Parmalee 1981; Bakaletz 1991). The Big South Fork and its many tributaries may actually serve as habitat for one large interbreeding population of the Cumberland elktoe (Service 2004).

Unit 10. Buck Creek, Pulaski County, Kentucky

Unit 10 encompasses 58 rkm (36 rmi) and includes Buck Creek from the State Route 192 Bridge upstream to the State Route 328 Bridge in Pulaski County, Kentucky. Buck Creek is currently occupied by the Cumberlandian combshell (Gordon 1991; Hagman 2000; R.R. Cicerello, pers. comm. 2003) and historically supported the oyster mussel (Schuster *et al.* 1989; Gordon 1991). This unit is adjacent to the DBNF.

Unit 11. Sinking Creek, Laurel County, Kentucky

Unit 11 encompasses 13 rkm (8 rmi) and extends from the Sinking Creek/Rockcastle River confluence upstream to Sinking Creek's confluence with Laurel Branch in Laurel County, Kentucky. The Cumberland elktoe is present but uncommon in this Unit (R.R. Cicerello, pers. comm. 2003). This unit is primarily within land owned by the DBNF, but also includes private lands.

Unit 12. Marsh Creek, McCreary County, Kentucky

Unit 12 includes 24 rkm (15 rmi) and consists of Marsh Creek from its confluence with the Cumberland River upstream to the State Road 92 Bridge in McCreary County, Kentucky. This unit, which is bounded by lands owned by the DBNF and private landowners, currently contains the State of Kentucky's best population of Cumberland elktoe (R.R. Cicerello, pers. comm. 2003) and the best remaining mussel fauna in the Cumberland River above Cumberland Falls (Cicerello and Laudermilk 2001).

Unit 13. Laurel Fork, Claiborne County, Tennessee, and Whitley County, Kentucky

Unit 13 includes 8 rkm (5 rmi) of Laurel Fork of the Cumberland River from the Campbell/Claiborne County line upstream 11.0 rkm (6.9 rmi) through Claiborne County, Tennessee, to Whitley County, Kentucky. The upstream terminus is 3 rkm (2 rmi) upstream of the Kentucky/Tennessee State line. A ''sporadic'' population of Cumberland elktoe currently persists in this area (Cicerello and Laudermilk 2001).

Existing Critical Habitat

Approximately 332.0 rkm (206.5 rmi) (38 percent) of the critical habitat for the five mussels (within three units) are already designated critical habitat for the yellowfin madtom, slender chub, or spotfin chub (Table 3). The spotfin chub, slender chub, and yellowfin madtom are listed as threatened species under the Act. Our consultation history on these existing critical habitat units is provided in the ''Effects of Critical Habitat Designation'' section.

TABLE 3.—CRITICAL HABITAT DESIGNATION FOR THE FIVE MUSSELS THAT OVERLAP REACHES AND STREAMS THAT ARE CURRENTLY DESIGNATED CRITICAL HABITAT FOR OTHER FEDERALLY LISTED SPECIES

Unit (unit #)	Species	Reference	Length of overlap (rkm/rmi)
Obed River (3)	Spotfin chub	42 FR 45527	40/25
Powell River (4)	Yellowfin madtom, slender chub	42 FR 45527	154/94
Clinch River (5) (and Copper Creek)	Yellowfin madtom, slender chub	42 FR 45527	142.0/87.5
Total			336/206.5

Land Ownership

Streambeds of non-navigable waters and most navigable waters are owned by the riparian landowner. Waters of navigable streams are considered public waters by the States of Mississippi, Alabama, Tennessee, Kentucky, and Virginia. Table 4 summarizes primary riparian land ownership in each of the critical habitat units. Approximately 75 percent, 655 rkm (407 rmi), of stream channels designated as critical habitat are bordered by private lands.

Public land adjacent to final critical habitat units consists of approximately 230 km (143 mi) of riparian lands, including the ONWSR and the CWMA in the Obed River Unit (40 rkm (25 rmi)); DBNF in the Rock Creek, Sinking Creek, and Marsh Creek Units (30 rkm (19 rmi)); the YWMA along the Duck River Unit (43 rkm (27 rmi)); and the BSFNRRA in the Big South Fork Unit (109 rkm (68 rmi)).

TABLE 4.—ADJACENT RIPARIAN LAND OWNERSHIP IN CRITICAL HABITAT UNITS (RKM/RMI) IN THE TENNESSEE AND CUMBERLAND RIVER BASINS

Critical habitat units	Private	State	Federal
1. Duck River	31/19	43/27	.....
2. Bear Creek	40/25	.....	.....
3. Obed River	.....	32/20	8/5
4. Powell River	154/94	.....	.....
5. Clinch River and tributaries	272/171	.....	.....
6. Nolichucky River	8/5	.....	.....
7. Beech Creek	23/14	.....	.....
8. Rock Creek	.....	.....	18/11
9. Big South Fork and tributaries	44/27	.....	109/68
10. Buck Creek	58/36	.....	.....
11. Sinking Creek	8/5	.....	5/3

TABLE 4.—ADJACENT RIPARIAN LAND OWNERSHIP IN CRITICAL HABITAT UNITS (RKM/RMI) IN THE TENNESSEE AND CUMBERLAND RIVER BASINS—Continued

Critical habitat units	Private	State	Federal
12. Marsh Creek	10/6	.....	14/9
13. Laurel Fork	8/5	.....	.....
Totals	656/407	75/47	154/96

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7 of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. In our regulations at 50 CFR 402.2, we define destruction or adverse modification as ''a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to: Alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.'' We are currently reviewing the regulatory definition of adverse modification in relation to the conservation of the species.

Section 7(a) of the Act requires Federal agencies, including the Service, to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is proposed or designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory. If a species is listed or critical habitat is designated, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Through this consultation, the action agency ensures that the permitted actions do not destroy or adversely modify critical habitat.

When we issue a biological opinion concluding that a project is likely to result in the destruction or adverse modification of critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. ''Reasonable and prudent alternatives'' are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where critical habitat is subsequently designated and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation or conference with us on actions for which formal consultation has been completed, if those actions may affect designated critical habitat or adversely modify or destroy proposed critical habitat.

We may issue a formal conference report if requested by a Federal agency. Formal conference reports on proposed critical habitat contain an opinion that is prepared according to 50 CFR 402.14, as if critical habitat were designated. We may adopt the formal conference report as the biological opinion when the critical habitat is designated, if no substantial new information or changes in the action alter the content of the opinion (see 50 CFR 402.10(d)).

Activities on Federal lands that may affect these 11 mussels or their critical habitat will require section 7 consultation. Activities on private or State lands requiring a permit from a Federal agency, such as a permit from the USACE under section 404 of the Clean Water Act, a section 10(a)(1)(B) permit from the Service, or some other Federal action, including funding (*e.g.*, Federal Highway Administration or Federal Emergency Management Agency funding), will also continue to be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat and actions on non-Federal and private lands that are not federally funded, authorized, or permitted do not require section 7 consultation.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation. Activities that may destroy or adversely modify critical habitat include those that appreciably reduce the value of critical habitat to the 5 mussels. We note that such activities may also jeopardize the continued existence of the species.

To properly portray the effects of critical habitat designation, we must first compare the section 7 requirements for actions that may affect critical habitat with the requirements for actions that may affect a listed species. Section 7 prohibits actions funded, authorized, or carried out by Federal agencies from jeopardizing the continued existence of a listed species or destroying or adversely modifying the listed species' critical habitat. Actions likely to ''jeopardize the continued existence'' of a species are those that would appreciably reduce the likelihood of the species' survival and recovery. Actions likely to ''destroy or adversely modify'' critical habitat are those that would appreciably reduce the value of critical habitat to the listed species.

Common to both definitions is an appreciable detrimental effect on both survival and recovery of a listed species. Given the similarity of these definitions, actions likely to destroy or adversely

modify critical habitat would often result in jeopardy to the species concerned when the area of the proposed action is occupied by the species concerned.

Federal agencies already consult with us on activities in areas currently occupied by the species to ensure that their actions do not jeopardize the continued existence of the species. These actions include, but are not limited to:

(1) Actions that would alter the minimum flow or the existing flow regime. Such activities could include, but are not limited to, impoundment, channelization, water diversion, water withdrawal, and hydropower generation. These activities could eliminate or reduce the habitat necessary for the growth and reproduction of these mussels and their fish host.

(2) Actions that would significantly alter water chemistry or temperature. Such activities could include, but are not limited to, release of chemicals, biological pollutants, or heated effluents into the surface water or connected groundwater at a point source or by dispersed release (non-point source). These activities could alter water conditions that are beyond the tolerances of the mussels or their fish host and result in direct or cumulative adverse affects to these individuals and their life cycles.

(3) Actions that would significantly increase sediment deposition within the stream channel. Such activities could include, but are not limited to, excessive sedimentation from livestock grazing, road construction, channel alteration, timber harvest, off-road vehicle use, and other watershed and floodplain disturbances. These activities could eliminate or reduce the habitat necessary for the growth and reproduction of these mussels and their fish host by increasing the sediment deposition to levels that would adversely affect their ability to complete their life cycles.

(4) Actions that would significantly increase the filamentous algal community within the stream channel. Such activities could include, but are not limited to, release of nutrients into the surface water or connected groundwater at a point source or by dispersed release (non-point source). These activities can result in excessive filamentous algae filling streams and reducing habitat for mussels and their fish hosts, degrading water quality during their decay, and decreasing oxygen levels at night from their respiration to levels below the tolerances of the mussels and/or their fish host. Algae can also directly compete with mussel offspring by covering the sediment that prevents the glochidia from settling into the sediment.

(5) Actions that would significantly alter channel morphology or geometry. Such activities could include but are not limited to channelization, impoundment, road and bridge construction, mining, dredging, and destruction of riparian vegetation. These activities may lead to changes in water flows and levels that would degrade or eliminate the mussels or their fish host and/or their habitats. These actions can also lead to increased sedimentation and degradation in water quality to levels that are beyond the tolerances of the mussels or their fish host.

We consider the 13 critical habitat units to be occupied by the species because at least one of the 5 mussels occurs in these units. Federal agencies already consult with us on activities in areas currently occupied by the species or if the species may be affected by the action to ensure that their actions do not jeopardize the continued existence of the species.

Previous Section 7 Consultations

We have consulted on approximately 129 Federal actions (or activities that required Federal permits) involving these five species since they received protection under the Act. Nine of these were formal consultations. Federal actions that we have reviewed include Federal land management plans, road and bridge construction and maintenance, water quality standards, recreational facility development, dam construction and operation, surface mining proposals, and issuance of permits under section 404 of the CWA. Federal agencies involved with these activities included the Corps; TVA; USFS; EPA; Office of Surface Mining, Reclamation and Enforcement; NPS; Federal Highway Administration; and the Service. The nine formal consultations that have been conducted all involved Federal projects, including five bridge replacements in Tennessee, Kentucky, and Virginia; two Federal land management plans; and the review of two scientific collecting permits for one or more of the five mussel species. None of these formal consultations resulted in a finding that the proposed action would jeopardize the continued existence of any of the five species.

In each of the biological opinions resulting from these consultations, we included discretionary conservation recommendations to the action agency. Conservation recommendations are activities that would avoid or minimize the adverse effects of a proposed action on a listed species or its critical habitat, help implement recovery plans, or develop information useful to the species' conservation.

Previous biological opinions also included nondiscretionary reasonable and prudent measures, with implementing terms and conditions, which are designed to minimize the proposed action's incidental take of these five mussels. Section 3(18) of the Act defines the term take as ''to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct.'' Harm is further defined in our regulations (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Conservation recommendations and reasonable and prudent measures provided in previous biological opinions for these mussels have included maintaining State water quality standards, maintaining adequate stream flow rates, minimization of work in the wetted channel, restriction of riparian clearing, monitoring of channel morphology and mussel populations, sign installation, protection of buffer zones, avoidance of pollution, cooperative planning efforts, minimization of ground disturbance, use of sediment barriers, use of best management practices to minimize erosion, mussel relocation from bridge pier footprints, and funding research useful for mussel conservation. In reviewing past formal consultations, we anticipate the need in our proposed rule to reinitiate only one consultation on Federal actions as a result of this final designation. The DBNF in Kentucky since then has finalized their Forest Plan. The USFS has accounted for critical habitat designations in Rock Creek, Buck Creek, Sinking Creek, and Marsh Creek in their plan.

As mentioned in the ''Existing Critical Habitat'' section, 36 percent of the critical habitat being designated for these five mussels is currently designated critical habitat for the spotfin chub, yellowfin madtom, or slender chub. We have conducted 56 informal consultations involving existing critical habitat for these fish in the areas designated as critical habitat for the five mussels in the Obed River, Powell River, and Clinch River in Tennessee. All of these consultations involved both the potential adverse effects to the species and the potential adverse modification or destruction of critical habitat. These consultations, which

were similar to consultations carried out for the five mussel species, primarily included utility lines, bridge replacements and reconstructions, gravel dredging, and an oil spill on Clear Creek (a tributary of the Obed River and designated critical habitat for the spotfin chub). We have consulted on seven projects that involved existing critical habitat for the yellowfin madtom and/or slender chub in Virginia; three of these consultations were formal, involving projects such as bridge crossings on the Clinch and Powell rivers. None of these formal consultations resulted in a finding that the proposed activity would destroy or adversely modify existing critical habitat previously designated in the area.

The designation of critical habitat will have no impact on private landowner activities that do not involve Federal funding or permits. Designation of critical habitat is only applicable to activities approved, funded, or carried out by Federal agencies.

If you have questions regarding whether specific activities would constitute adverse modification of critical habitat, you may contact the following Service field offices:

Alabama Field Office (251–441–5181)
Kentucky Field Office (502–695–0468)
Mississippi Field Office (601–965–4900)
Tennessee Field Office (931–528–6481)
Southwest Virginia Field Office (276–623–1233).

Exclusions Under Section 4(b)(2)

Section 4(b)(2) of the Act requires that we designate critical habitat on the basis of the best scientific and commercial information available and that we consider the economic impact, effects to national security, and any other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat based on these and other reasons (*e.g.*, the preservation of conservation partnerships) if the benefits of exclusion outweigh the benefits of designation, provided the exclusion will not result in the extinction of the species. We have prepared an economic analysis that is consistent with the ruling of the 10th Circuit Court of Appeals in *New Mexico Cattle Growers Association* v. *U.S. Fish and Wildlife Service*, 248 F. 3d 1277 (10th Cir. 2001) and that was available for public review and comment during the comment period for the proposed rule. The final economic analysis is available from our Web site at *http://cookeville.fws.gov.* Since the critical habitat designation involves no Tribal lands and no lands pertinent to national security and includes no areas presently under special management or protection provided by a legally operative, adequate plan or agreement for the conservation of these mussels, we believe, other than economics and preservation of conservation partnerships, there are no other relevant impacts to evaluate under section 4(b)(2).

Based on the best available information, including the prepared economic analysis, we have excluded three river reaches: the free-flowing reach of the French Broad River below Douglas Dam to its confluence with the Holston River, Sevier and Knox Counties, Tennessee; the free-flowing reach of the Holston River below Cherokee Dam to its confluence with the French Broad River, Jefferson, Grainger, and Knox Counties, Tennessee; and the free-flowing reach of the Rockcastle River from the backwaters of Cumberland Lake upstream to Kentucky Route 1956 Bridge, in Laurel, Rockcastle, and Pulaski Counties, Kentucky, because of their potential status as NEP areas for the oyster mussel and Cumberlandian combshell. When these river reaches are designated NEP areas and the oyster mussel and Cumberlandian combshell are reintroduced, these two species will be treated as species proposed for listing. However, these areas are already occupied by other federally listed species, namely the Cumberland bean mussel in the Rockcastle and pink mucket mussel and snail darter in the Holston and French Broad Rivers; thus the oyster mussel and Cumberlandian combshell will receive protections from these other listed species. Furthermore, these exclusions will preserve existing conservation partnerships and facilitate (through increased public support) the successful reintroduction of these species, as well as 18 other federally listed species, into their historic habitat. We therefore continue to find that the benefits of excluding these areas outweigh the benefits of designating them as critical habitat. For more information on this exclusion, please refer to the proposed rule to designate critical habitat (June 3, 2003; 68 FR 33234). We have concluded, after careful analysis of the best available information including the economic analysis, to exclude the 3 areas listed above and include the remaining 13 units that we have determined are essential to the conservation of the species in this final designation of critical habitat. The Tennessee River below Wilson Dam was not proposed for critical habitat because it is an established NEP for the oyster mussel and Cumberlandian combshell. Under section 10(j) of the Act, we cannot designate critical habitat for nonessential experimental populations.

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order 12866, this document is a significant rule in that it may raise novel legal and policy issues, but it is not anticipated to have an annual effect on the economy of $100 million or more or affect the economy in a material way. Due to the tight timeline for publication in the **Federal Register**, the Office of Management and Budget (OMB) has not reviewed this rule. We prepared an economic analysis of this action. The draft economic analysis was made available for public comment and we considered those comments during the preparation of this rule. The economic analysis indicates that this rule will not have an *annual* economic effect of $100 million or more; the economic analysis indicates that this rule will have an annual economic effect of $0.7 to $1.6 million. This rule is not expected to adversely affect an economic sector, productivity, jobs, the environment, or other units of government. Under the Act, critical habitat may not be destroyed or adversely modified by a Federal agency action; the Act does not impose any restrictions related to critical habitat on non-Federal persons unless they are conducting activities funded or otherwise sponsored or permitted by a Federal agency. Because of the potential for impacts on other Federal agencies' activities, we reviewed this action for any inconsistencies with other Federal agency actions. We believe that this rule will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients, except those involving Federal agencies, which would be required to ensure that their activities do not destroy or adversely modify designated critical habitat. As discussed above, we do not anticipate that the adverse modification prohibition (from critical habitat designation) will have any significant economic effects such that it will have an annual economic effect of $100 million or more. The final rule follows the requirements for designating critical habitat required in the Act.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996),

whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.*, small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act (RFA) to require Federal agencies to provide a statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA also amended the RFA to require a certification statement. We are hereby certifying that this rule will not have a significant effect on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations, such as independent nonprofit organizations, and small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents, as well as small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts to these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result.

The economic analysis determined whether this critical habitat designation potentially affects a ''substantial number'' of small entities in counties supporting critical habitat areas. It also quantified the probable number of small businesses that experience a ''significant effect.'' SBREFA does not explicitly define either ''substantial number'' or ''significant economic impact.'' Consequently, to assess whether a ''substantial number'' of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in the area. Similarly, the analysis considers the relative cost of compliance on the revenues/profit margins of small entities in determining whether or not entities incur a ''significant economic impact.'' Only small entities that are expected to be directly affected by the designation are considered in this portion of the analysis. This approach is consistent with several judicial opinions related to the scope of the RFA (*Mid-Tex Electric Co-Op, Inc.* v. *FERC* and *American Trucking Associations, Inc.* v. *EPA).*

The economic analysis identified activities that are within, or will otherwise be affected by, section 7 of the Act for the mussels. Third parties are not involved in several of the activities potentially affected by section 7 implementation for the mussels (*i.e.*, only the Action agency and the Service are involved in the consultation). Of the remaining activities potentially affected by section 7 implementation for the mussels and involving a third party, many have no directly-regulated small business or government involvement. Private entities are forecast to incur 15 percent of the costs. State and local governments are expected to incur 50 percent of the costs. Project modification costs are associated with road and bridge construction and maintenance and dams/reservoirs. The costs associated with road and bridge construction and maintenance are expected to be borne directly by or passed on to the Federal government. The costs associated with dams/reservoirs are expected to be borne by municipal utilities and passed on to the consumer. Thus, small entities should not be directly impacted by section 7 implementation for these affected projects: road and bridge construction and maintenance; agricultural activities; utilities construction and maintenance; activities in National Forests, National Parks, Wild and Scenic Rivers, and National River and Recreation Areas; coal mining; gravel dredging and excavation; oil and gas development; power plants; dams/reservoirs; water quality activities; and conservation and recreation activities (see the economic analysis for a detailed analysis of affected projects).

To determine if the rule would affect a substantial number of small entities, we considered the number of small entities affected within particular types of economic activities (*e.g.*, housing development, grazing, oil and gas production, timber harvesting). We applied the ''substantial number'' test individually to each industry to determine if certification is appropriate. In estimating the number of small entities potentially affected, we also considered whether their activities have any Federal involvement; some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation. Designation of critical habitat only affects activities conducted, funded, or permitted by Federal agencies; non-Federal activities are not affected by the designation. Federal agencies are already required to consult with the Services under section 7 of the Act on activities that they fund, permit, or implement that may affect the five mussels.

Federal agencies must also consult with us if their activities may affect designated critical habitat. However, we believe this will result in only minimal additional regulatory burden on Federal agencies or their applicants because consultation would already be required because of the presence of the listed mussel species. Consultations to avoid the destruction or adverse modification of critical habitat would be incorporated into the existing consultation process and trigger only minimal additional regulatory impacts beyond the duty to avoid jeopardizing the species.

Since the five mussels were listed (1997), we have conducted nine formal consultations involving one or more of these species. These formal consultations, which all involved Federal projects, included five bridge replacements, two Federal land management plans, an intra-agency review of the Wilson Dam NEP and associated collecting permits, and an intra-agency review of collection permits needed by researchers involved in endangered mussel propagation. These nine consultations resulted in non-jeopardy biological opinions.

We also reviewed approximately 129 informal consultations that have been conducted since these five species were listed involving private businesses and industries, counties, cities, towns, or municipalities. At least 15 of these were with entities that likely met the definition of small entities. These informal consultations concerned activities such as excavation or fill, docking facilities, transmission lines, pipelines, mines, and road and utility development authorized by various Federal agencies, or review of NPEDS permit applications to State water quality agencies by developers, municipalities, mines, businesses, and others. Informal consultations regarding the mussels usually resulted in recommendations to employ best management practices for sediment control, relied on current State water quality standards for protection of water quality, and resulted in little to no modification of the proposed activities.

In reviewing these past informal consultations and the activities involved in light of proposed critical habitat, we do not believe the outcomes would have been different in areas designated as critical habitat.

In summary, we have considered whether this designation would result in a significant economic impact on a substantial number of small entities and find that it would not. Informal consultations on approximately 129 activities in the Tennessee and Cumberland River Basins, by businesses and governmental jurisdictions that might affect these species and their habitats, resulted in little to no economic effect on small entities. In the seven years since the five mussels were listed, there have been no formal consultations regarding actions by small entities. This does not meet the definition of ''substantial.'' In addition, we see no indication that the types of activities we review under section 7 of the Act will change significantly in the future. There would be no additional section 7 consultations resulting from this rule as all 13 of the critical habitat units are currently occupied by one or more listed mussels, so the consultation requirement has already been triggered. Future consultations are not likely to affect a substantial number of small entities. This rule would result in major project modifications only when proposed activities with a Federal nexus would destroy or adversely modify critical habitat. While this may occur, it is not expected to occur frequently enough to affect a substantial number of small entities. Therefore, we are certifying that the designation of critical habitat for these five mussels will not have a significant economic impact on a substantial number of small entities, and an initial regulatory flexibility analysis is not required.

Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 802(2))

Under the Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 801 *et seq.*), this rule is not a major rule. Our detailed assessment of the economic effects of this designation is described in the economic analysis. Based on the effects identified in the economic analysis, we believe that this rule will not have an effect on the economy of $100 million or more, will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Please refer to the final economic analysis for a discussion of the effects of this determination.

Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. The Office of Management and Budget has provided guidance for implementing this executive order that outlines nine outcomes that may constitute ''a significant adverse effect'' when compared without the regulatory action under consideration:

- Reductions in crude oil supply in excess of 10,000 barrels per day (bbls);
- Reductions in fuel production in excess of 4,000 bbls per day;
- Reductions in coal production in excess of 5 million tons per year;
- Reductions in natural gas production in excess of 25 million Mcf per year;
- Reductions in electricity production in excess of 1 billion kilowatts per year or in excess of 500 megawatts of installed capacity;
- Increases in energy use required by the regulatory action that exceed the thresholds above;
- Increases in the cost of energy production in excess of one percent;
- Increases in the cost of energy distribution in excess of one percent; or
- Other similarly adverse outcomes.

Five of these criteria are relevant to this analysis: (1) Potential reductions in crude oil supply; (2) potential reductions in coal production; (3) potential reductions in natural gas production; (4) potential increases in the cost of energy production; and (5) potential increases in the cost of energy distribution. The following analysis determines whether these five relevant criteria are likely to experience ''a significant adverse effect'' as a result of section 7 implementation for the mussels.

Evaluation of Whether Section 7 Implementation Will Result in Reductions in Crude Oil Supply, Coal Production, and Natural Gas Production

Section 7 consultations with respect to oil, gas, and coal operations are anticipated to occur within four Tennessee counties containing proposed critical habitat for the mussels; Cumberland, Fentress, Morgan, and Scott Counties. Exhibit C–1, C–2, and C–3 provide an analysis of whether the energy industry, specifically, crude oil, natural gas, and coal producers, are likely to experience ''a significant adverse effect'' as a result of section 7 implementation for the mussels.

TABLE 5.—HISTORIC CRUDE OIL PRODUCTION (FENTRESS, MORGAN, AND SCOTT COUNTIES, TENNESSEE, AND MCCREARY COUNTY, KENTUCKY)

[bbls (barrels)]

Year	McCreary County	Fentress County	Morgan County	Scott County	Total bbls	Total bbls/day
1997	1,457	29,193	65,585	69,198	165,433	453
1998	2,365	25,973	50,870	60,340	139,548	382
1999	3,850	26,603	55,275	63,420	149,148	409
2000	3,998	14,114	35,259	49,758	103,129	283
2001	5,702	31,920	45,147	48,683	131,452	360
Average	3,475	25,561	50,427	58,280	137,742	377

As Table 5 illustrates, the Tennessee and Kentucky counties containing proposed critical habitat collectively produce less than 500 bbls of crude oil on a daily basis. Therefore, should section 7 implementation cause the abandonment of future development of 35 to 50 oil wells within McCreary, Fentress, Morgan or Scott Counties, it is unlikely that crude oil supply will drop by more than the threshold of 10,000 bbls per day. In fact, the entire States of Kentucky and Tennessee together produce less oil than the 10,000 bbls threshold (Kentucky produced 7,671 bbls per day in 2001 and Tennessee produced 1,059 bbls per day).

As Table 6 illustrates, the Tennessee and Kentucky counties containing proposed critical habitat collectively produce less than 0.8 million Mcf of natural gas on an annual basis. Therefore, should section 7 implementation cause the abandonment of future development of 35 to 50 natural gas wells within McCreary, Fentress, Morgan or Scott counties, it is unlikely that natural gas production will decrease by more than the threshold of 25 million Mcf per year.

TABLE 6.—HISTORIC NATURAL GAS PRODUCTION (FENTRESS, MORGAN, AND SCOTT COUNTIES, TENNESSEE, AND MCCREARY COUNTY, KENTUCKY)

[Mcf (thousand cubic feet)]

Year	McCreary County	Fentress County	Morgan County	Scott County	Total Mcf	Total million Mcf
1997	22,340	64,401	301,328	331,072	719,141	0.7
1998	43,263	75,408	289,483	314,213	722,367	0.7
1999	139,950	62,494	298,609	335,990	837,043	0.8
2000	217,974	55,018	277,140	307,739	857,871	0.9
2001	229,874	46,422	280,191	245,831	802,318	0.8
Average	130,680	60,749	289,350	306,969	787,748	0.8

As Table 7 illustrates, the Tennessee counties containing proposed critical habitat collectively produce approximately 0.4 million tons of coal on an annual basis. Therefore, should section 7 implementation cause the abandonment of future development of any two mines within Cumberland, Fentress, Morgan or Scott County, it is unlikely that coal production will decrease by more than the threshold of 5 million tons per year. In fact, the entire State of Tennessee produces less coal than the 5 million ton threshold (the State produced 3.3 million tons in 2001).

TABLE 7.—HISTORIC COAL PRODUCTION (CUMBERLAND, FENTRESS, MORGAN, AND SCOTT COUNTIES, TENNESSEE)

[thousand short tons]

Year	Cumberland County	Fentress County	Morgan County	Scott County	Total thousand short tons	Total tons
1997	0	288	56	108	452	452,000
1998	86	211	11	47	355	355,000
1999	256	3	8	168	435	435,000
2000	265	12	31	59	367	367,000
2001	268	83	0	22	373	373,000
Average	175	119	21	81	396	396,400

Evaluation of Whether Section 7 Implementation Will Result in a Reduction in Electricity Production in Excess of 500 Megawatts of Installed Capacity

Installed capacity is ''the total manufacturer-rated capacity for equipment such as turbines, generators, condensers, transformers, and other system components'' and represents the maximum rate of flow of energy from the plant or the maximum output of the plant. The Old Columbia dam has 0.3 megawatts (MW) of installed capacity and in five years may have 0.6 MW of installed capacity. The average annual generation of the Dam is 1,994,400 KWhr and may increase to 3,555,000 KWhr in the next five years.

The total installed capacity of the Old Columbia Dam is 0.6 MW (600 KW) of hydroelectricity. The average annual generation at these facilities could be up to 3.6 million KWhr. The impact threshold for installed capacity is 500 MW (500,000 KW) and the threshold for annual generation is one billion KWhr. The impact to hydropower production is therefore not expected to surpass the threshold of 500 MW.

Evaluation of Whether Section 7 Implementation Will Result in an Increase in the Cost of Energy Production in Excess of One Percent

In order to determine whether implementation of section 7 of the Act will result in an increase in the cost of energy production, this analysis considers the maximum possible increase in energy production costs. Under the high cost scenario, all decreased hydropower generation is substituted with the more expensive, but most common, coal production. Coal production has production costs of $0.02 per kilowatt-hour, $0.01 greater than the cost of hydropower production. Under this scenario, $36,000 in additional production costs will be incurred, an increase in production costs of approximately 0.002 percent. This analysis therefore does not anticipate an increase in the cost of energy production in excess of one percent. Table 8 summarizes the cost of energy production in Tennessee according to two scenarios, Scenario I in which there is no change due to critical habitat, and Scenario II in which the lost power generation due to the designation of critical habitat is substituted with coal production.

TABLE 8.—AVERAGE PRODUCTION AND ASSOCIATED COSTS FOR ENERGY PRODUCERS IN TENNESSEE

Fuel type	Net generation (1000 KWhrs)	Weighted average of total production (percent)	Production costs ($/KWhr)	Total costs (1,000 dollars)
SCENARIO I				
Hydro	5,665,000	5.91	0.01	56,650
Gas	648,000	0.68	0.04	25,920
Coal	62,349,000	65.00	0.02	1,246,980
Petroleum	549,000	0.57	0.02	10,980
Nuclear	25,825,000	26.92	0.02	516,500
Total	95,191,800	99.08	.....	1,857,030
SCENARIO II				
Hydro	5,661,445	5.90	0.01	56,614
Gas	648,000	0.68	0.04	25,920
Coal	62,352,555	65.01	0.02	1,247,051
Petroleum	549,000	0.57	0.02	10,980
Nuclear	25,825,000	26.92	0.02	516,500
Total	95,191,800	99.08	.....	1,857,065

(Note: totals may not sum because of rounding.)

Evaluation of Whether Section 7 Implementation Will Result in an Increase in the Cost of Energy Distribution in Excess of One Percent

TVA anticipates 38 informal consultations on transmission line construction and maintenance with respect to the mussels during the next ten years. The total administrative costs incurred by TVA as a result of section 7 implementation are $35,000, while costs associated with project modifications are anticipated to total $38,000. In 2002, total operating expenses for TVA were $5.2 billion. Thus, the total costs incurred by TVA as a result of section 7 over ten years ($73,000) are less than one ten-thousandth of one percent of TVAs operating expenses. The impact to energy distribution is therefore not anticipated to exceed the one percent threshold.

Based on the above analysis, this rule is not a significant regulatory action under Executive Order 12866, and it is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*):

(a) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute or regulation that would impose an enforceable duty upon State, local, tribal governments, or the private sector and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; AFDC work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply; nor would critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(b) We do not believe that this rule will significantly or uniquely affect small governments. This determination is based on the economic analysis conducted for this designation of critical habitat for these five mussel species. As such, a Small Government Agency Plan is not required.

Takings

In accordance with Executive Order 12630 (''Government Actions and

Interference with Constitutionally Protected Private Property Rights''), we have analyzed the potential takings implications of designating approximately 885 rkm (550 rmi) in 13 river and stream reaches in Alabama, Mississippi, Tennessee, Kentucky, and Virginia as critical habitat for these five mussel species in a takings implication assessment. The takings implications assessment concludes that this final designation of critical habitat does not pose significant takings implications.

Federalism

In accordance with Executive Order 13132, this rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior policies, we requested information from, and coordinated development of this critical habitat designation with, appropriate State resource agencies in Alabama, Mississippi, Tennessee, Kentucky, and Virginia. The impact of the designation on State and local governments and their activities was fully considered in the economic analysis. The designation of critical habitat for these five species imposes no additional restrictions to those currently in place, and, therefore, has little additional impact on State and local governments and their activities. The designation may provide some benefit to these governments in that the areas essential to the conservation of the species are more clearly defined, and the primary constituent elements of the habitat necessary to the conservation of the species are specifically identified. While making this definition and identification does not alter where and what federally sponsored activities may occur, it may assist these local governments in long-range planning, rather than waiting for case-by-case section 7 consultations to occur.

Civil Justice Reform

In accordance with Executive Order 12988, the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order. We designate critical habitat in accordance with the provisions of the Act. The rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of these 5 mussels.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain new or revised collections of information that require OMB approval under the Paperwork Reduction Act. Information collections associated with certain permits pursuant to the Endangered Species Act are covered by an existing OMB approval, and are assigned clearance No. 1018–0094, with an expiration date of July 31, 2004. Detailed information for Act documentation appears at 50 CFR 17. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act

We have determined that we do not need to prepare an Environmental Assessment or an Environmental Impact Statement as defined by the National Environmental Policy Act of 1969 in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951), Executive Order 13175, and the Department of Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We are not aware of any Tribal lands essential for the conservation of the five mussels. Therefore, the critical habitat for the five mussels does not contain any Tribal lands or lands that we have identified as impacting Tribal trust resources.

References Cited

A complete list of all references cited in this final rule is available upon request from the Tennessee Field Office (see **ADDRESSES** section).

Author

The author of this notice is the Tennessee Field Office (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Final Regulation Promulgation

■ For the reasons outlined in the preamble, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

■ 2. In § 17.11(h), revise each of the entries here listed, in alphabetical order under ''CLAMS'' in the List of Endangered and Threatened Wildlife, so that they read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
CLAMS							
*	*	*	*	*	*	*	
Bean, Purple	*Villosa perpurpurea*	U.S.A. (TN, VA)	NA	E	602	17.95 (f)	NA
*	*	*	*	*	*	*	
Combshell, Cumberlandian.	*Epioblasma brevidens*.	U.S.A. (AL, KY, MS, TN, VA).	NA	E	602	17.95 (f)	NA

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*		*
Elktoe, Cumberland	*Alasmidonta atropurpurea*.	U.S.A. (KY, TN)	NA	E	602	17.95 (f)	NA
*	*	*	*	*	*		*
Mussel, oyster	*Epioblasma capsaeformis*.	U.S.A. (AL, GA, KY, MS, NC, TN, VA).	NA	E	602	17.95 (f)	NA
*	*	*	*	*	*		*
Rabbitsfoot, rough ...	*Quadrula cylindrica strigillata*.	U.S.A. (TN, VA)	NA	E	602	17.95 (f)	NA
*	*	*	*	*	*		*

■ 3. In § 17.95, at the end of paragraph (f), add an entry for five Cumberland and Tennessee River Basin mussels species to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(f) *Clams and snails.*

* * * * *

Five Tennessee and Cumberland River Basin mussels species: Purple bean (Villosa perpurpurea), Cumberlandian combshell (Epioblasma brevidens), Cumberland elktoe (Alasmidonta atropurpurea), oyster mussel (Epioblasma capsaeformis), and rough rabbitsfoot (Quadrula cylindrica strigillata).

(1) The primary constituent elements essential for the conservation of the purple bean (*Villosa perpurpurea*), Cumberlandian combshell (*Epioblasma brevidens*), Cumberland elktoe (*Alasmidonta atropurpurea*), oyster mussel (*Epioblasma capsaeformis*), and rough rabbitsfoot (*Quadrula cylindrica strigillata*) are those habitat components that support feeding, sheltering, reproduction, and physical features for maintaining the natural processes that support these habitat components. The primary constituent elements include:

(i) Permanent, flowing stream reaches with a flow regime (i.e, the magnitude, frequency, duration, and seasonality of discharge over time) necessary for normal behavior, growth, and survival of all life stages of the five mussels and their host fish;

(ii) Geomorphically stable stream and river channels and banks;

(iii) Stable substrates consisting of mud, sand, gravel, and/or cobble/boulder, with low amounts of fine sediments or attached filamentous algae;

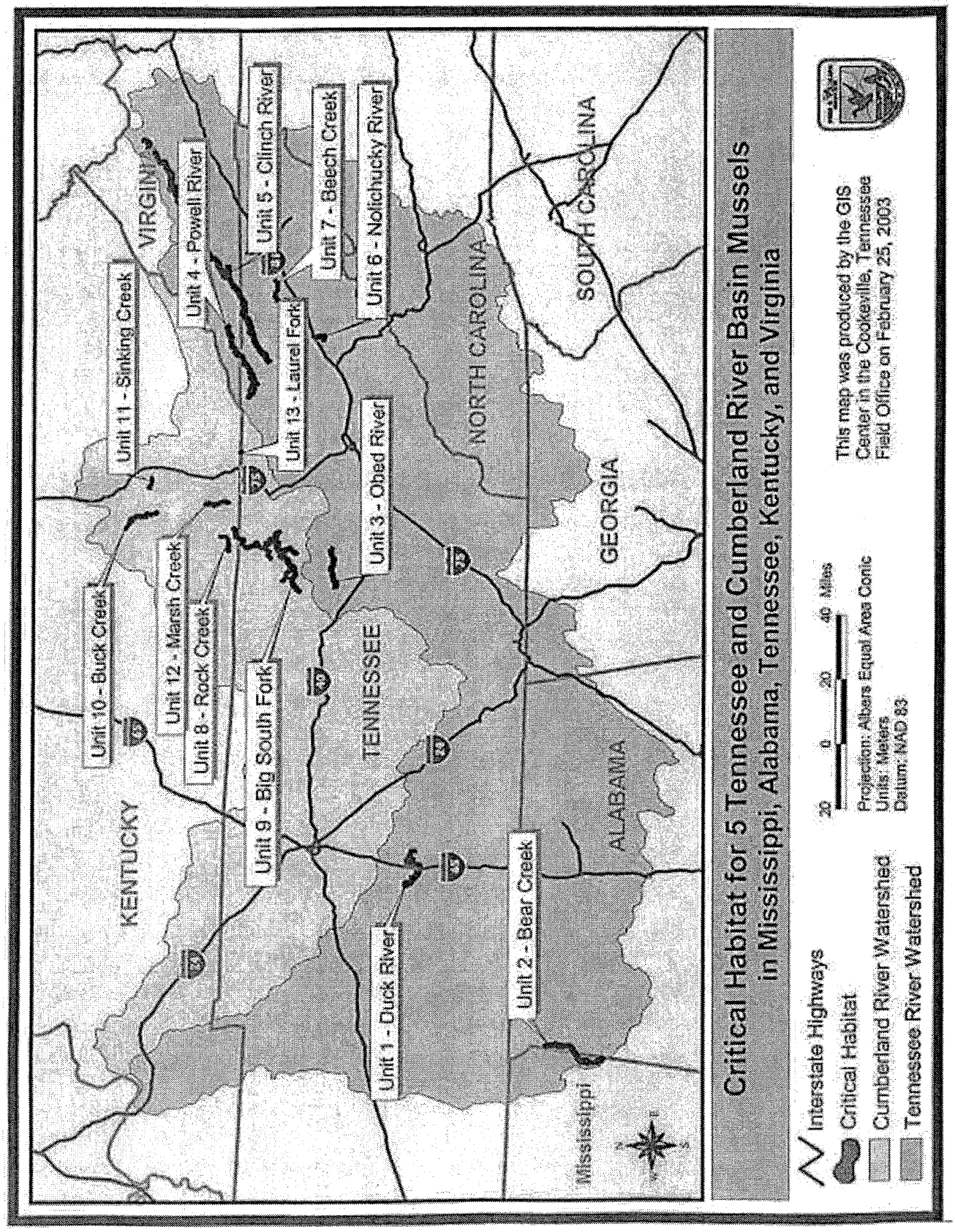
(iv) Water quality (including temperature, turbidity, oxygen content, and other characteristics) necessary for the normal behavior, growth, and survival of all life stages of the five mussels and their host fish; and

(v) Fish hosts with adequate living, foraging, and spawning areas for them.

(2) Critical habitat unit descriptions and maps.

(i) Index map. The index map showing critical habitat units in the States of Mississippi, Alabama, Tennessee, Kentucky, and Virginia for the five Tennessee and Cumberland River Basin mussels follows:

BILLING CODE 4310–55–P


Critical Habitat for 5 Tennessee and Cumberland River Basin Mussels
in Mississippi, Alabama, Tennessee, Kentucky, and Virginia
Unit 1 - Duck River
Unit 2 - Bear Creek
Unit 3 - Obed River
Unit 4 - Powell River
Unit 5 - Clinch River
Unit 6 - Nolichucky River
Unit 7 - Beech Creek
Unit 8 - Rock Creek
Unit 9 - Big South Fork
Unit 10 - Buck Creek
Unit 11 - Sinking Creek
Unit 12 - Marsh Creek
Unit 13 - Laurel Fork
KENTUCKY
VIRGINIA
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
Mississippi
Interstate Highways
Critical Habitat
Cumberland River Watershed
Tennessee River Watershed
20 0 20 40 Miles
Projection: Albers Equal Area Conic
Units: Meters
Datum: NAD 83
This map was produced by the GIS
Center in the Cookeville, Tennessee
Field Office on February 25, 2003

(ii) Table of protected species and critical habitat units. A table listing the protected species, their respective critical habitat units, and the States that contain those habitat units follows. Detailed critical habitat unit descriptions and maps appear below the table.

TABLE OF FIVE TENNESSEE AND CUMBERLAND RIVER BASIN MUSSELS, THEIR CRITICAL HABITAT UNITS, AND STATES CONTAINING THOSE CRITICAL HABITAT UNITS

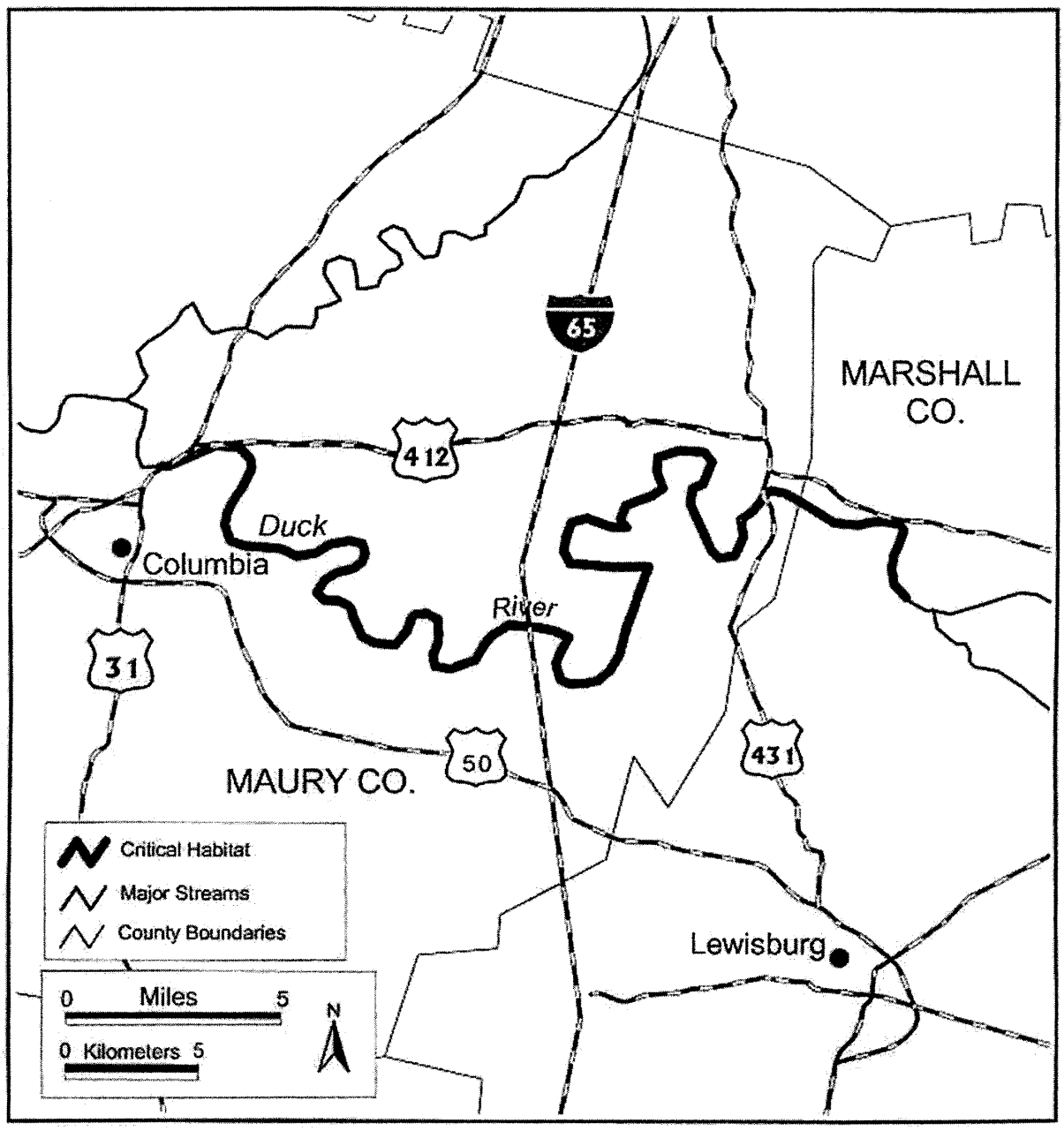
Species	Critical habitat units	States
purple bean (*Villosa perpurpurea*).	Units 3, 4, 5, 7	TN, VA
Cumberlandian combshell (*Epioblasma brevidens*).	Units 1, 2, 4, 5, 6, 9, 10.	AL, KY, MS, TN, VA
Cumberland elktoe (*Alasmidonta atropurpurea*).	Units 8, 9, 11, 12, 13.	KY, TN
oyster mussel (*Epioblasma capsaeformis*).	Units 1, 2, 4, 5, 6, 9,10.	AL, KY, MS, TN, VA
rough rabbitsfoot (*Quadrula cylindrica strigillata*).	Units 4, 5	TN, VA

(iii) Unit 1. Duck River, Marshall and Maury Counties, Tennessee. This is a critical habitat unit for the oyster mussel and Cumberlandian combshell.

(A) Unit 1 includes the main stem of the Duck River from rkm 214 (rmi 133) (0.3 rkm (0.2 rmi) upstream of the First Street Bridge) (−87.03 longitude, 35.63 latitude) in the City of Columbia, Maury County, Tennessee, upstream to Lillard Mill Dam at rkm 288 (rmi 179) (−86.78 longitude, 35.58 latitude), Marshall County, Tennessee.

(B) Map of Unit 1 follows:

Unit 1 - Duck River: Critical Habitat for Oyster mussel and Cumberlandian combshell

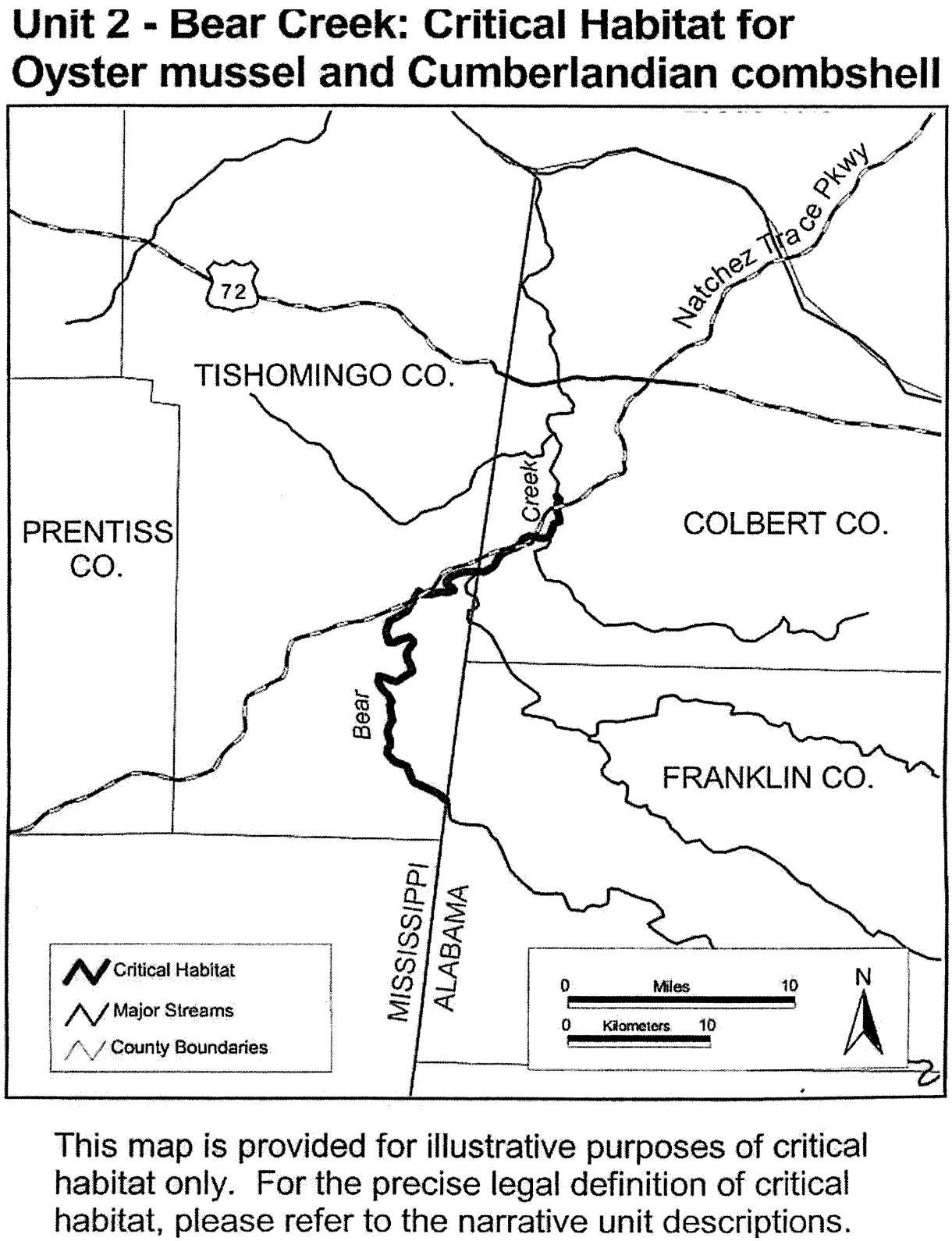


This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(iv) Unit 2. Bear Creek, Colbert County, Alabama, and Tishomingo County, Mississippi. This is a critical habitat unit for the oyster mussel and Cumberlandian combshell.

(A) Unit 2 consists of the main stem of Bear Creek from the backwaters of Pickwick Lake at rkm 37 (rmi 23) (-88.09 longitude, 34.81 latitude), Colbert County, Alabama, upstream through Tishomingo County, Mississippi, ending at the Mississippi/Alabama State line.

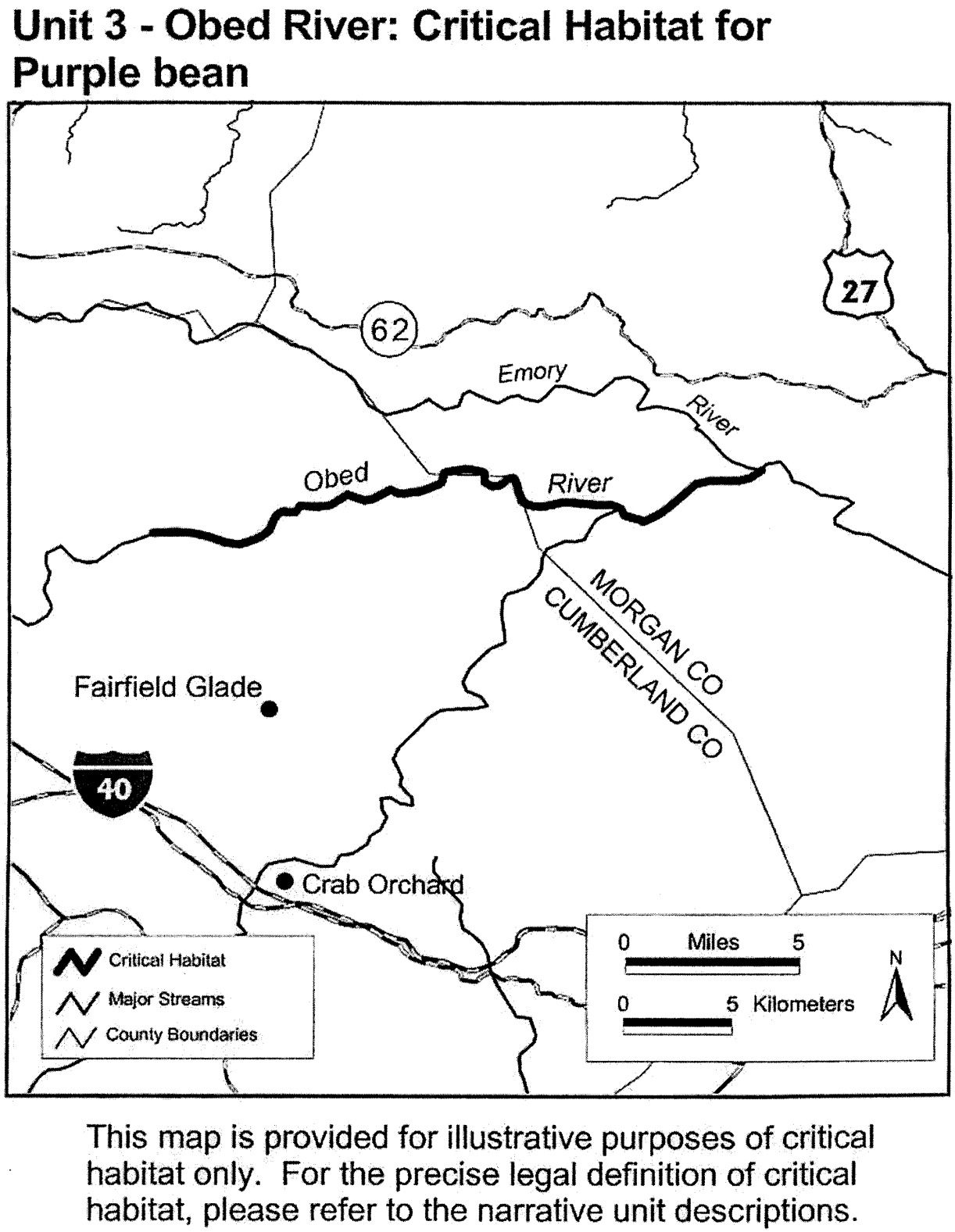
(B) Map of Unit 2 follows:



(v) Unit 3. Obed River, Cumberland and Morgan Counties, Tennessee. This is a critical habitat unit for the purple bean.

(A) Unit 3 includes the Obed River main stem from its confluence with the Emory River (-84.69 longitude, 36.09 latitude), Morgan County, Tennessee, upstream to Adams Bridge, Cumberland County, Tennessee (-84.95 longitude, 36.07 latitude).

(B) Map of Unit 3 follows:

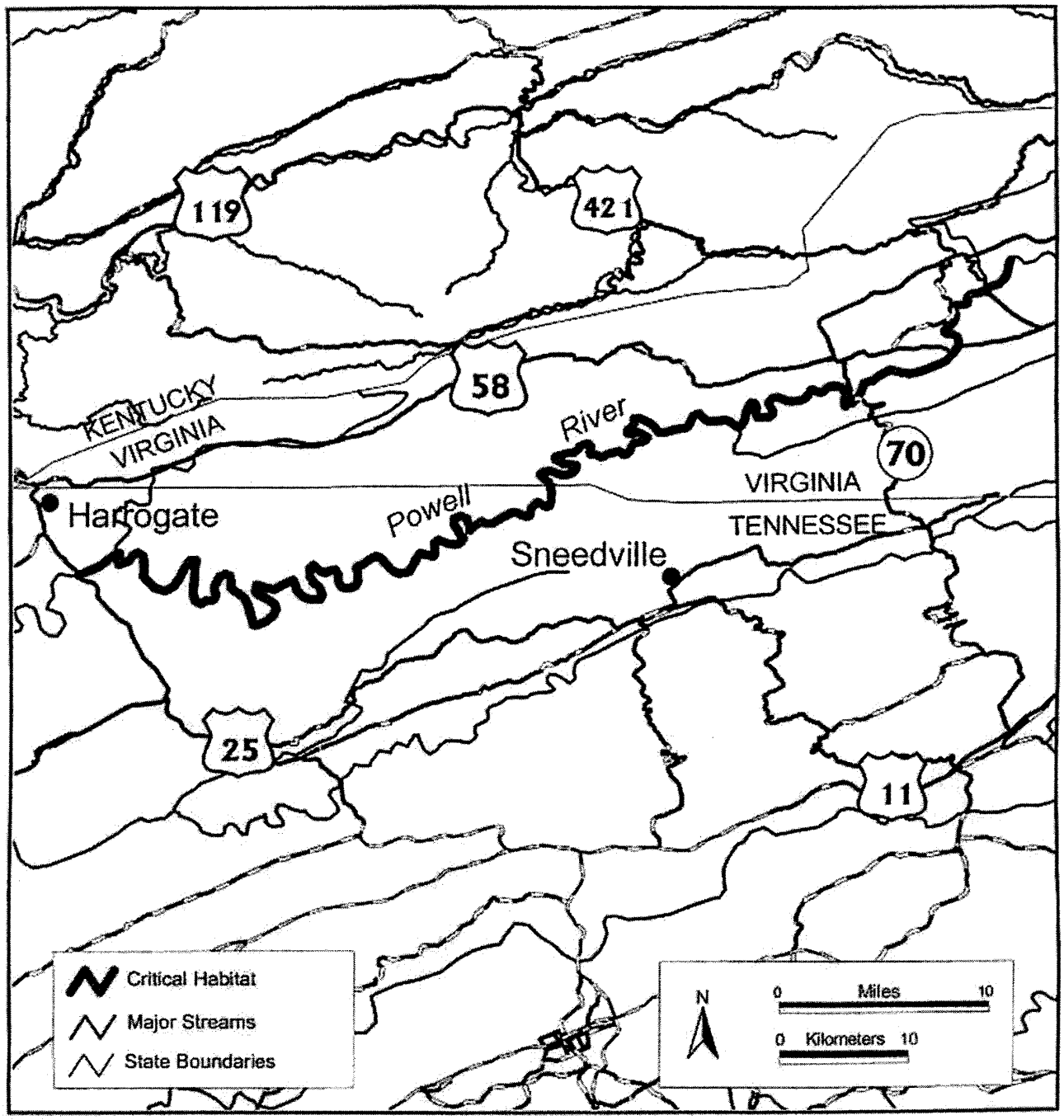


(vi) Unit 4. Powell River, Claiborne and Hancock Counties, Tennessee, and Lee County, Virginia. This is a critical habitat unit for the purple bean, Cumberlandian combshell, oyster mussel, and rough rabbitsfoot.

(A) Unit 4 includes the main stem of the Powell River from the U.S. 25E bridge in Claiborne County, Tennessee (-83.63 longitude, 36.53 latitude), upstream to river mile 159 (upstream of Rock Island in the vicinity of Pughs) Lee County, Virginia.

(B) Map of Unit 4 follows:

Unit 4 - Powell River: Critical Habitat for Purple bean, Cumberlandian combshell, Oyster mussel, and Rough rabbitsfoot



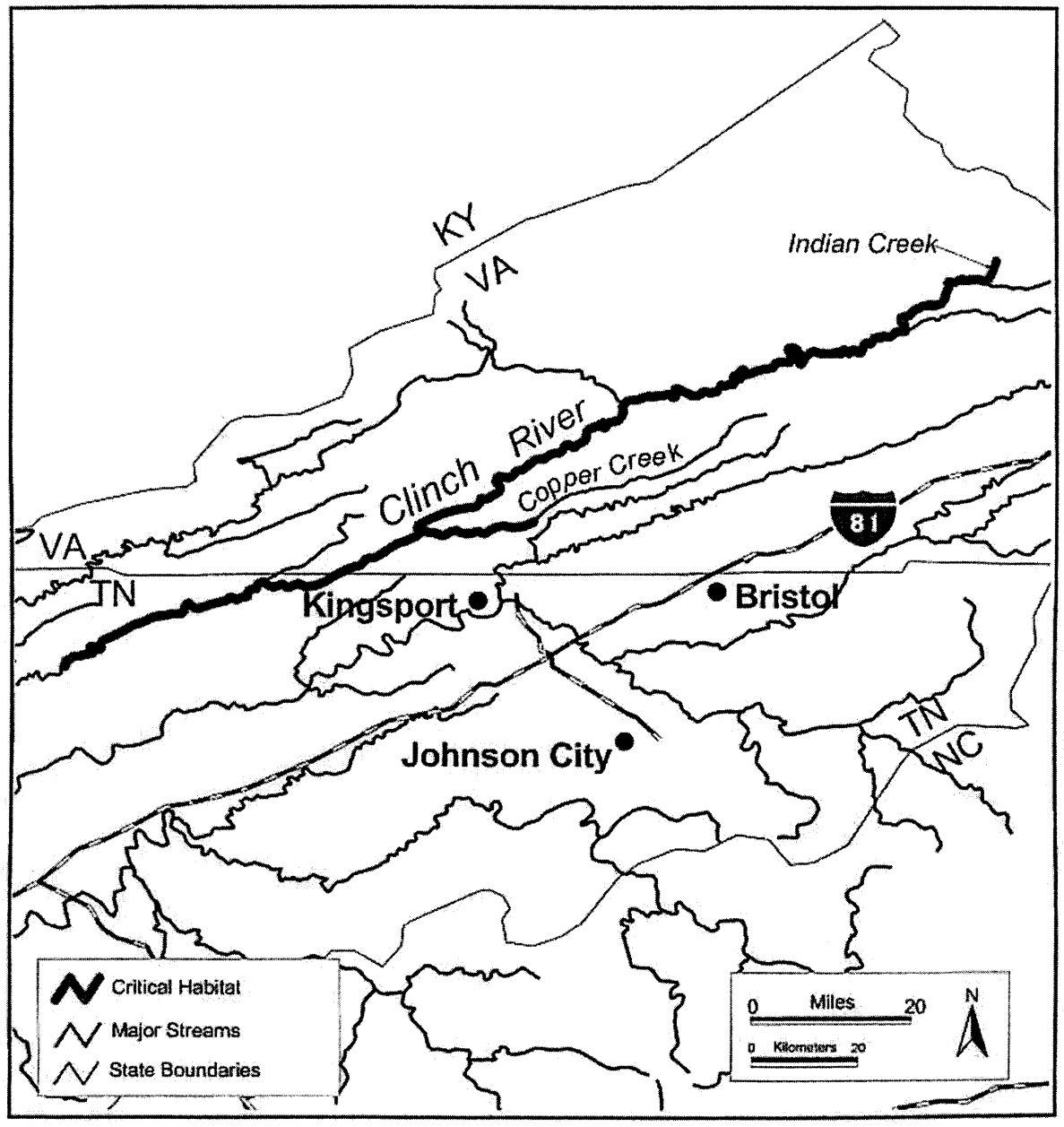
This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(vii) Unit 5. Clinch River, Hancock County, Tennessee, and Scott, Russell, and Tazewell Counties, Virginia; Copper Creek, Scott County, Virginia; and Indian Creek, Tazewell County, Virginia. This is a critical habitat unit for the purple bean, Cumberlandian combshell, oyster mussel, and rough rabbitsfoot.

(A) Unit 5 includes the Clinch River main stem from rkm 255 (rmi 159) (−83.36 longitude, 36.43 latitude) immediately below Grissom Island, Hancock County, Tennessee, upstream to its confluence with Indian Creek in Cedar Bluff, Tazewell County, Virginia (−81.80 longitude, 37.10 latitude); Copper Creek in Scott County, Virginia, from its confluence with the Clinch River (−82.74 longitude, 36.67 latitude) upstream to Virginia State Route 72 (−82.56 longitude, 36.68 latitude); and Indian Creek from its confluence with the Clinch River upstream to the fourth Norfolk Southern Railroad crossing at Van Dyke, Tazewell County, Virginia (−81.77 longitude, 37.14 latitude).

(B) Map of Unit 5 follows:

Unit 5 - Clinch River: Critical Habitat for Purple bean, Cumberlandian combshell, Oyster mussel, and Rough rabbitsfoot.



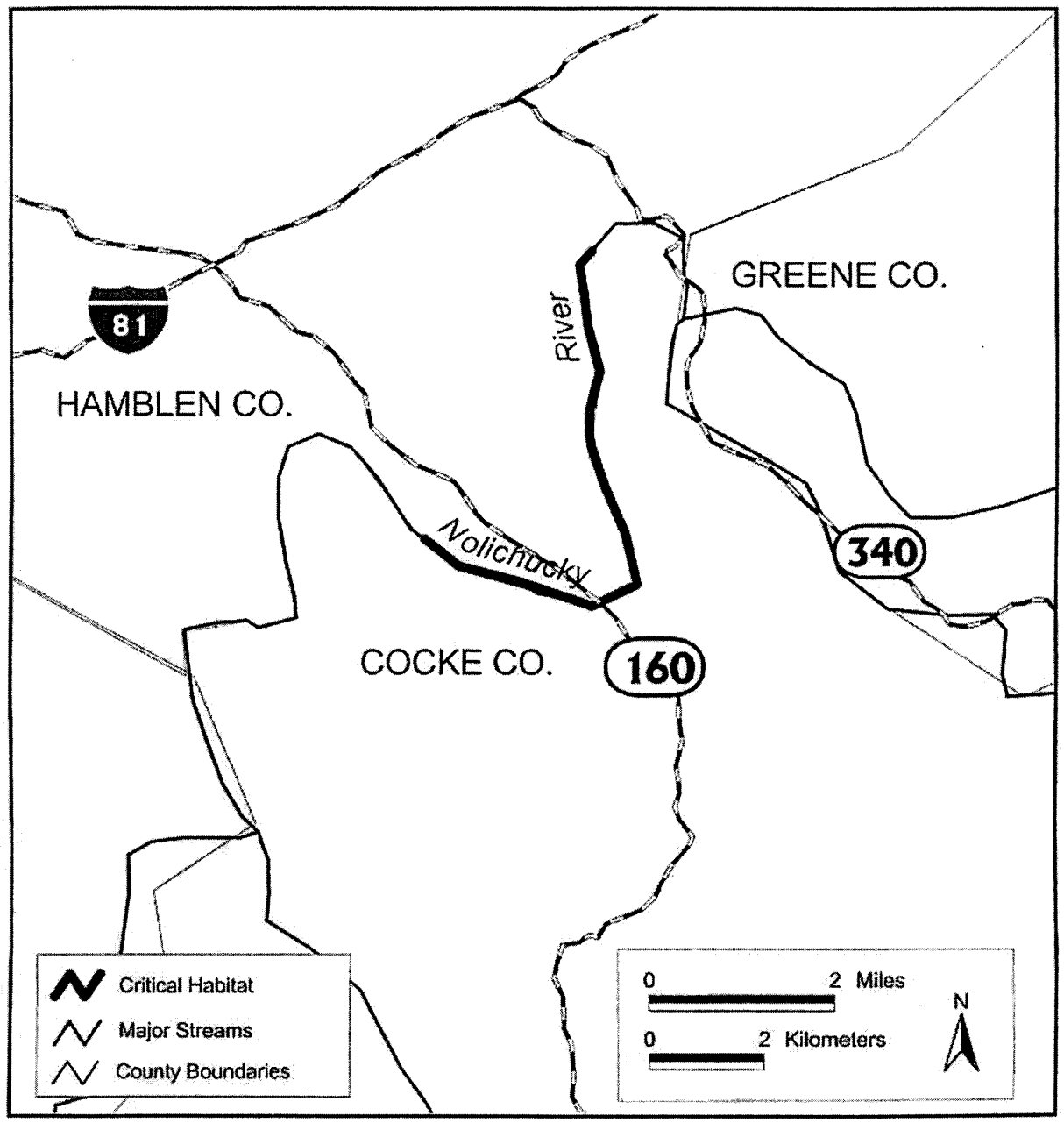
This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(viii) Unit 6. Nolichucky River, Hamblen and Cocke Counties, Tennessee. This is a critical habitat unit for the Cumberlandian combshell and oyster mussel.

(A) Unit 6 consists of the main stem of the Nolichucky River from rkm 14 (rmi 9) (−83.18 longitude, 36.18 latitude) (approximately 0.6 rkm (0.4 rmi) upstream of Enka Dam) upstream to Susong Bridge (−83.20 longitude, 36.14 latitude) in Hamblen and Cocke Counties, Tennessee.

(B) Map of Unit 6 follows:

Unit 6 - Nolichucky River: Critical Habitat for Cumberlandian combshell and Oyster mussel

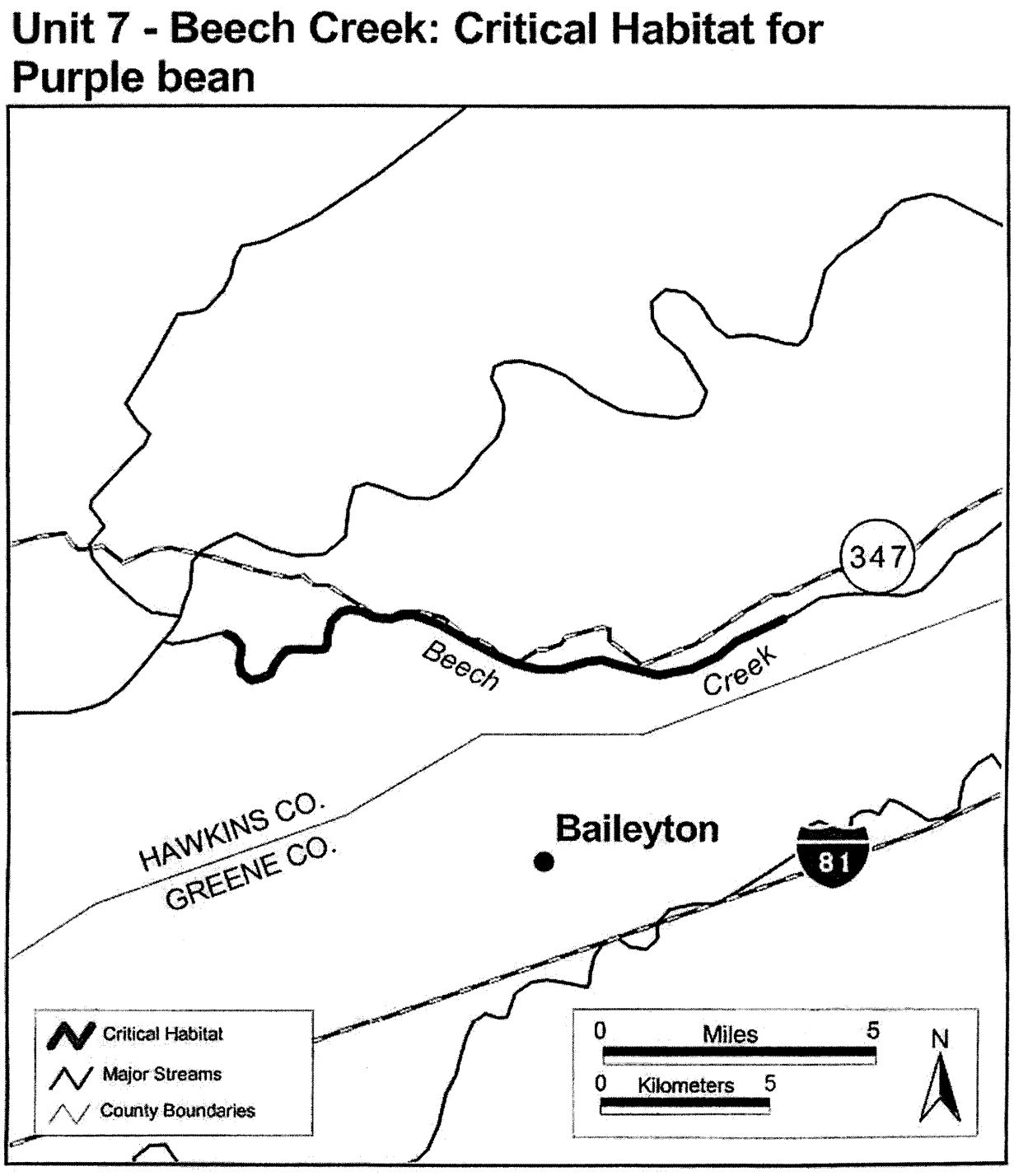


This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(ix) Unit 7. Beech Creek, Hawkins County, Tennessee. This is a critical habitat unit for the purple bean.

(A) Unit 7 includes the Beech Creek main stem from rkm 4 (rmi 2) (−82.92 longitude, 36.40 latitude) of Beech Creek (in the vicinity of Slide, Tennessee) upstream to the dismantled railroad bridge at rkm 27 (rmi 16) (−82.77 longitude, 36.40 latitude).

(B) Map of Unit 7 follows:

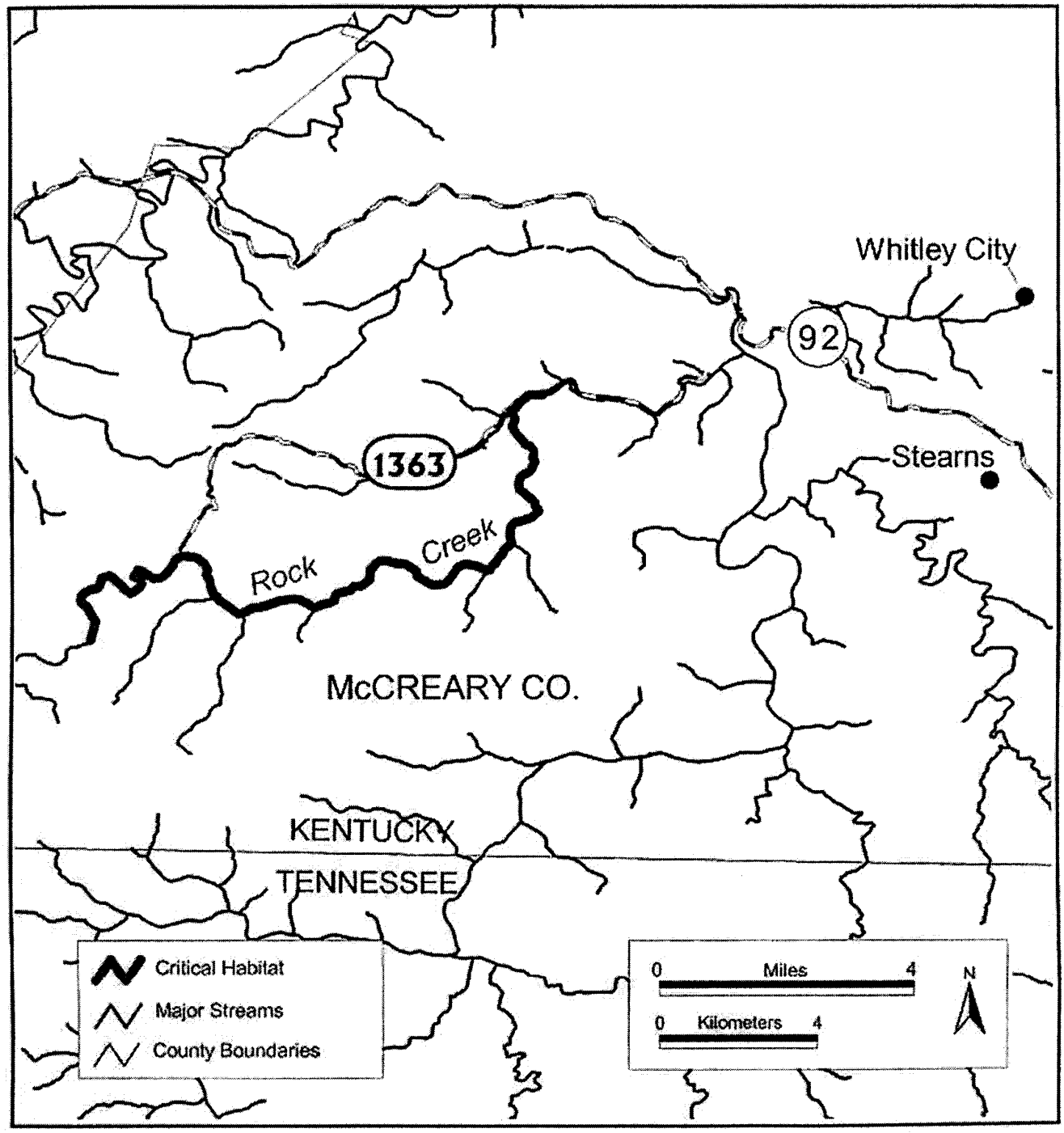


(x) Unit 8. Rock Creek, McCreary County, Kentucky. This is a critical habitat unit for the Cumberland elktoe.

(A) Unit 8 includes the main stem of Rock Creek from its confluence with White Oak Creek (−84.59 longitude, 36.71 latitude), upstream to the low-water crossing at rkm 25.6 (rmi 15.9) approximately 2.6 km (1.6 mi) southwest of Bell Farm (−84.69 longitude, 36.65 latitude), McCreary County, Kentucky.

(B) Map of Unit 8 follows:

Unit 8 - Rock Creek: Critical Habitat for Cumberland elktoe



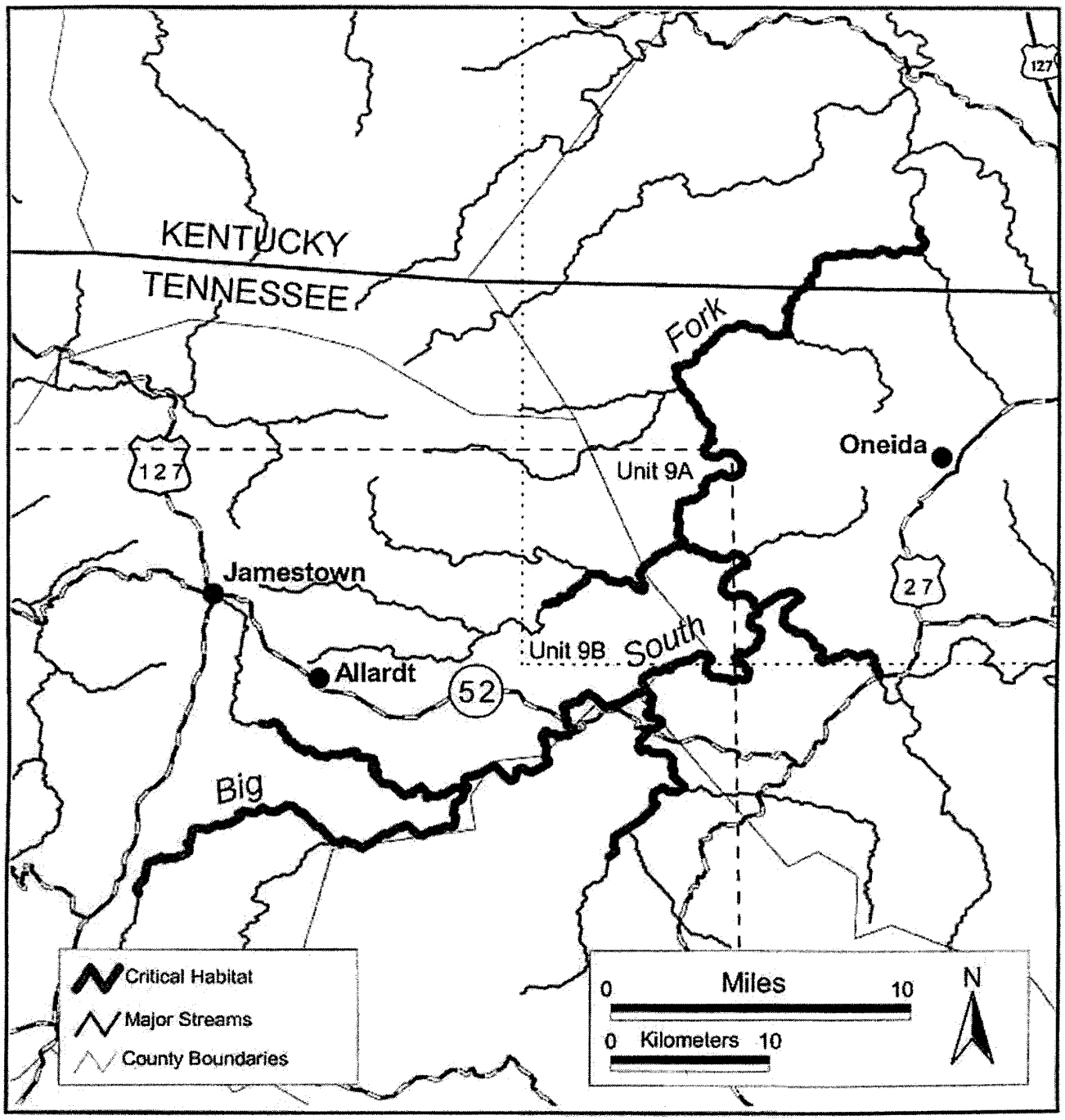
This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(xi) Unit 9. Big South Fork of the Cumberland River and its tributaries, Fentress, Morgan, and Scott Counties, Tennessee, and McCreary County, Kentucky. This is a critical habitat unit for the Cumberlandian combshell, Cumberland elktoe, and oyster mussel.

(A) Unit 9 consists of the Big South Fork of the Cumberland River main stem from its confluence with Laurel Crossing Branch (−84.54 longitude, 36.64 latitude), McCreary County, Kentucky, upstream to its confluence with the New River and Clear Fork, Scott County, Tennessee; North White Oak Creek from its confluence with the Big South Fork upstream to Panther Branch (−84.75 longitude, 36.42 latitude), Fentress County, Tennessee; New River from its confluence with Clear Fork upstream to U.S. Highway 27 (−84.55 longitude, 36.38 latitude), Scott County, Tennessee; Clear Fork from its confluence with the New River upstream to its confluence with North Prong Clear Fork, Morgan and Fentress Counties, Tennessee; White Oak Creek from its confluence with Clear Fork upstream to its confluence with Bone Camp Creek, Morgan County, Tennessee; Bone Camp Creek from its confluence with White Oak Creek upstream to Massengale Branch (−84.71 longitude, 36.28 latitude), Morgan County, Tennessee; Crooked Creek from its confluence with Clear Fork upstream to Buttermilk Branch (−84.92 longitude, 36.36 latitude), Fentress County, Tennessee; and North Prong Clear Fork from its confluence with Clear Fork upstream to Shoal Creek (−84.97 longitude, 36.26 latitude), Fentress County, Tennessee.

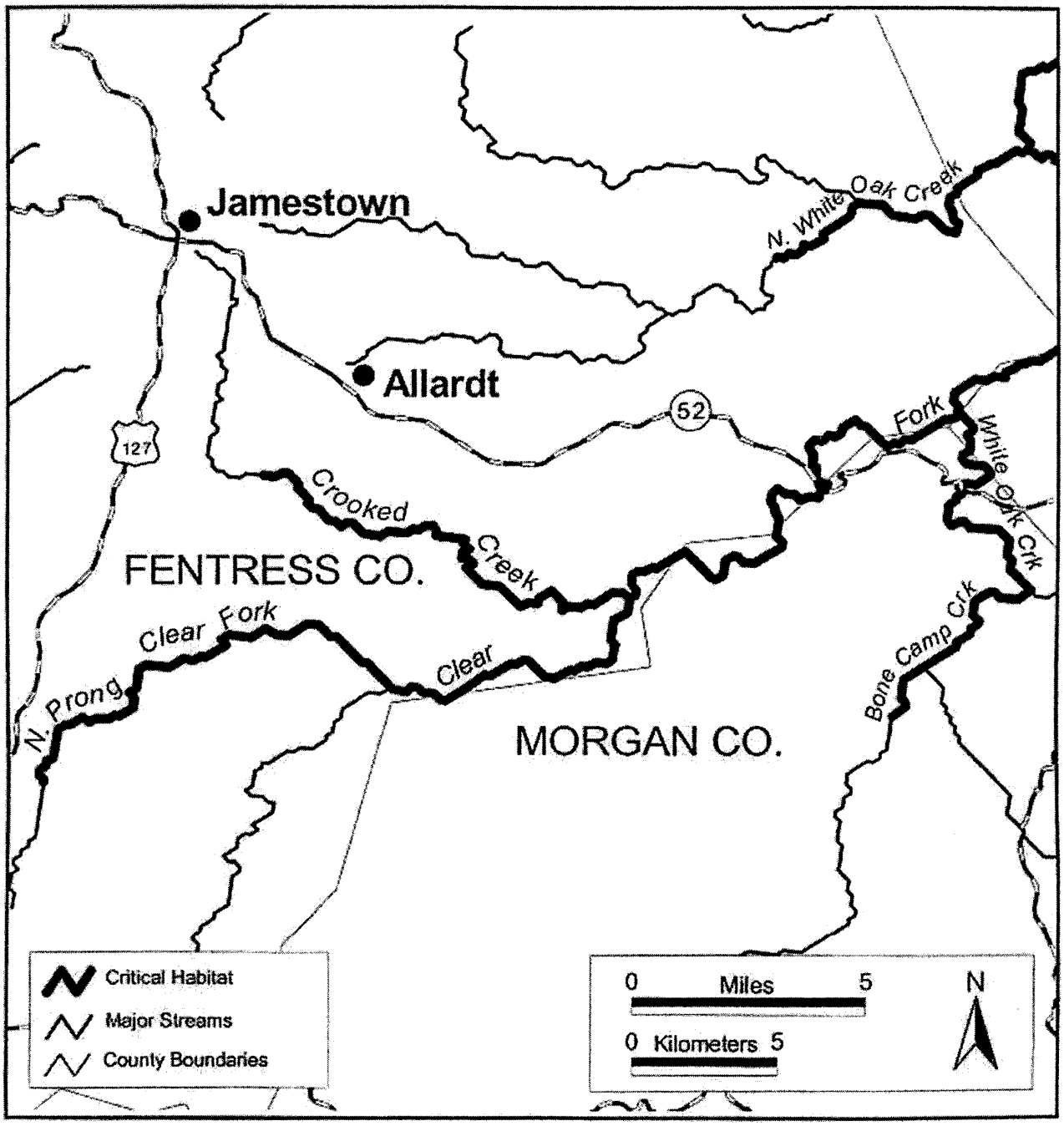
(B) Maps of Unit 9 follow:

Unit 9 - Big South Fork: Critical Habitat for Cumberlandian combshell, Cumberland elktoe, and Oyster mussel



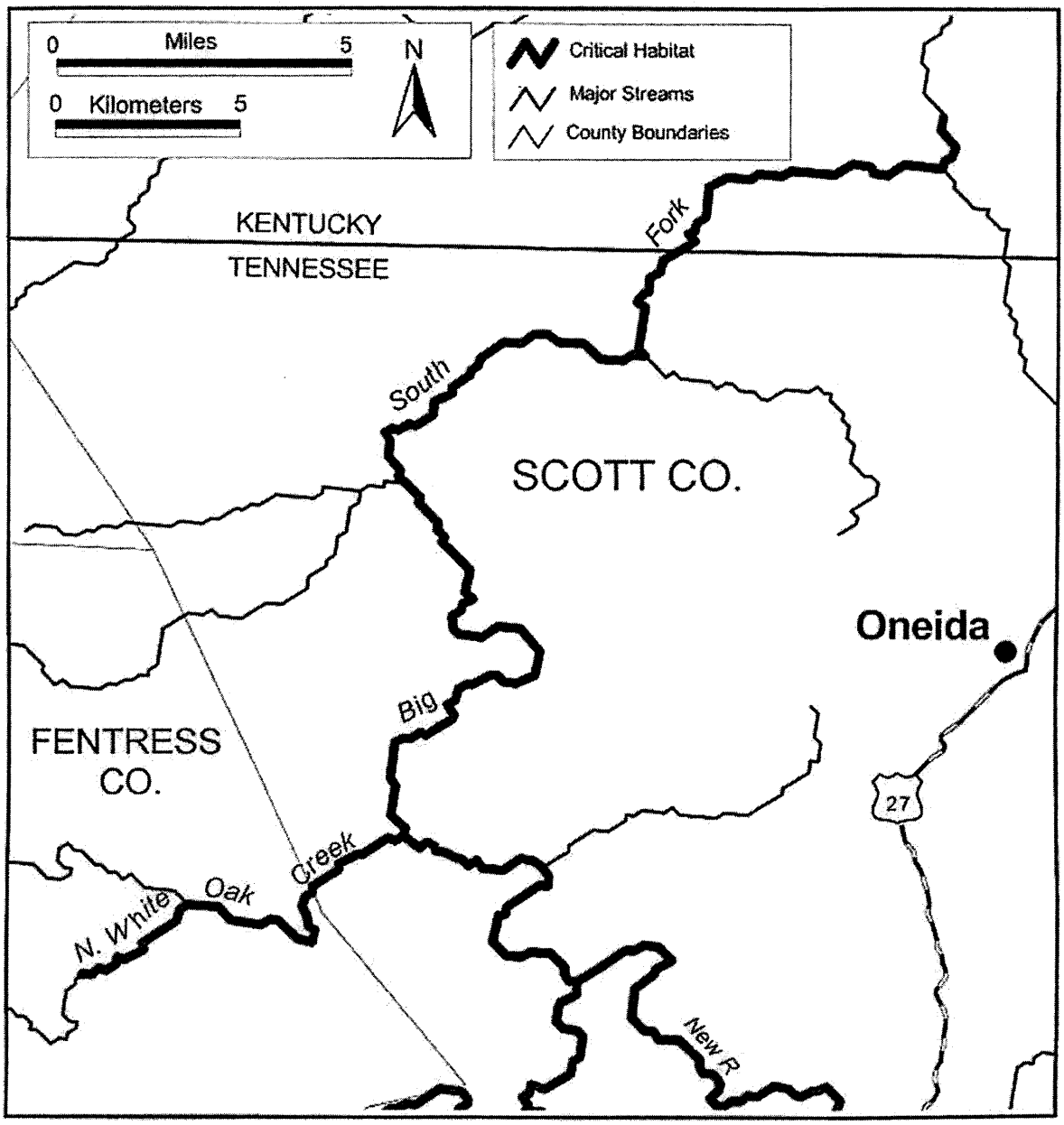
This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

Unit 9A - Big South Fork: Critical Habitat for Cumberlandian combshell, Cumberland elktoe, and Oyster mussel



This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

Unit 9B - Big South Fork: Critical Habitat for Cumberlandian combshell, Cumberland elktoe, and Oyster mussel

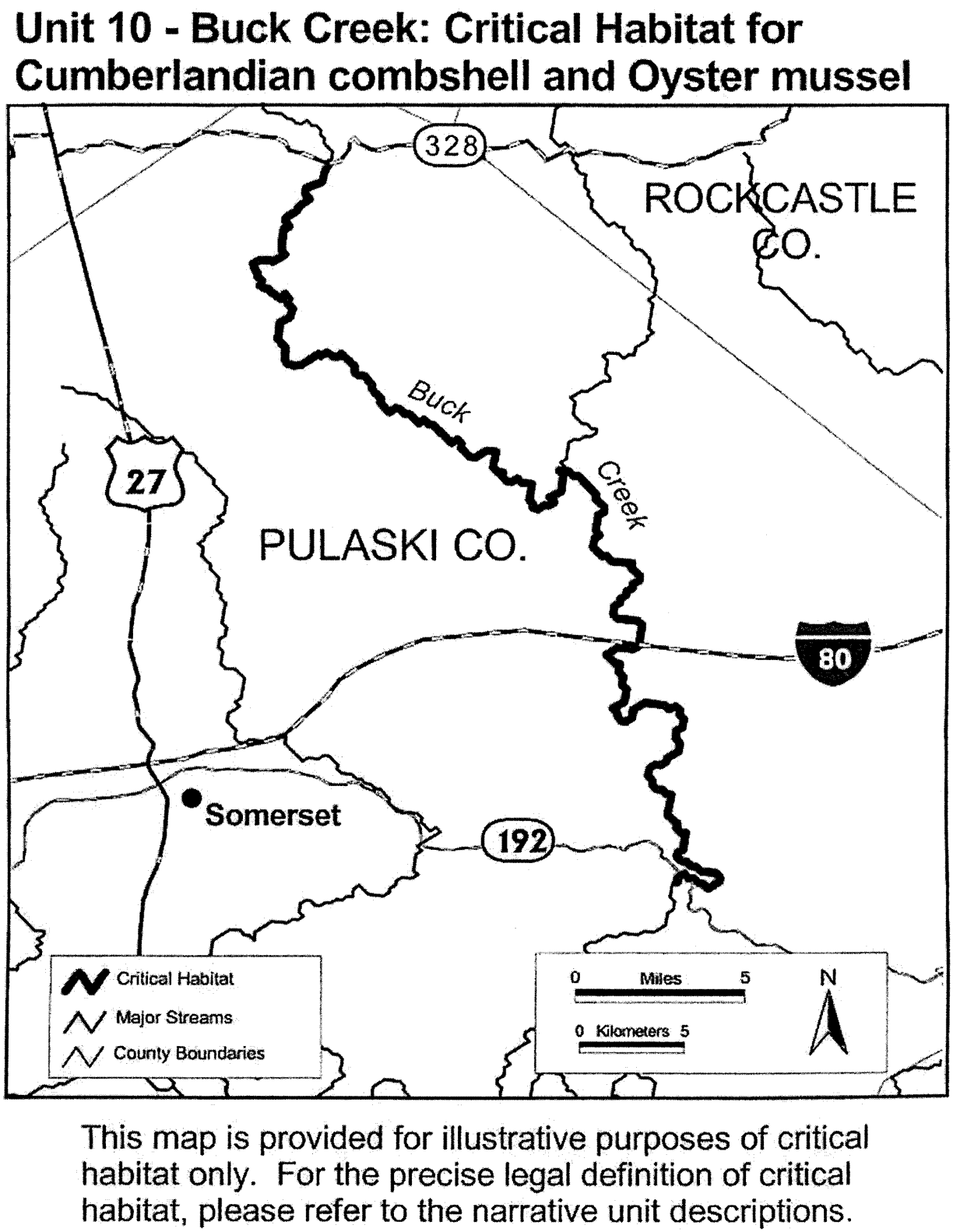


This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(xii) Unit 10. Buck Creek, Pulaski County, Kentucky. This is a critical habitat unit for the Cumberlandian combshell and oyster mussel.

(A) Unit 10 includes the Buck Creek main stem from the State Road 192 Bridge (−84.43 longitude, 37.06 latitude) upstream to the State Road 328 Bridge (−84.56 longitude, 37.32 latitude) in Pulaski County, Kentucky.

(B) Map of Unit 10 follows:

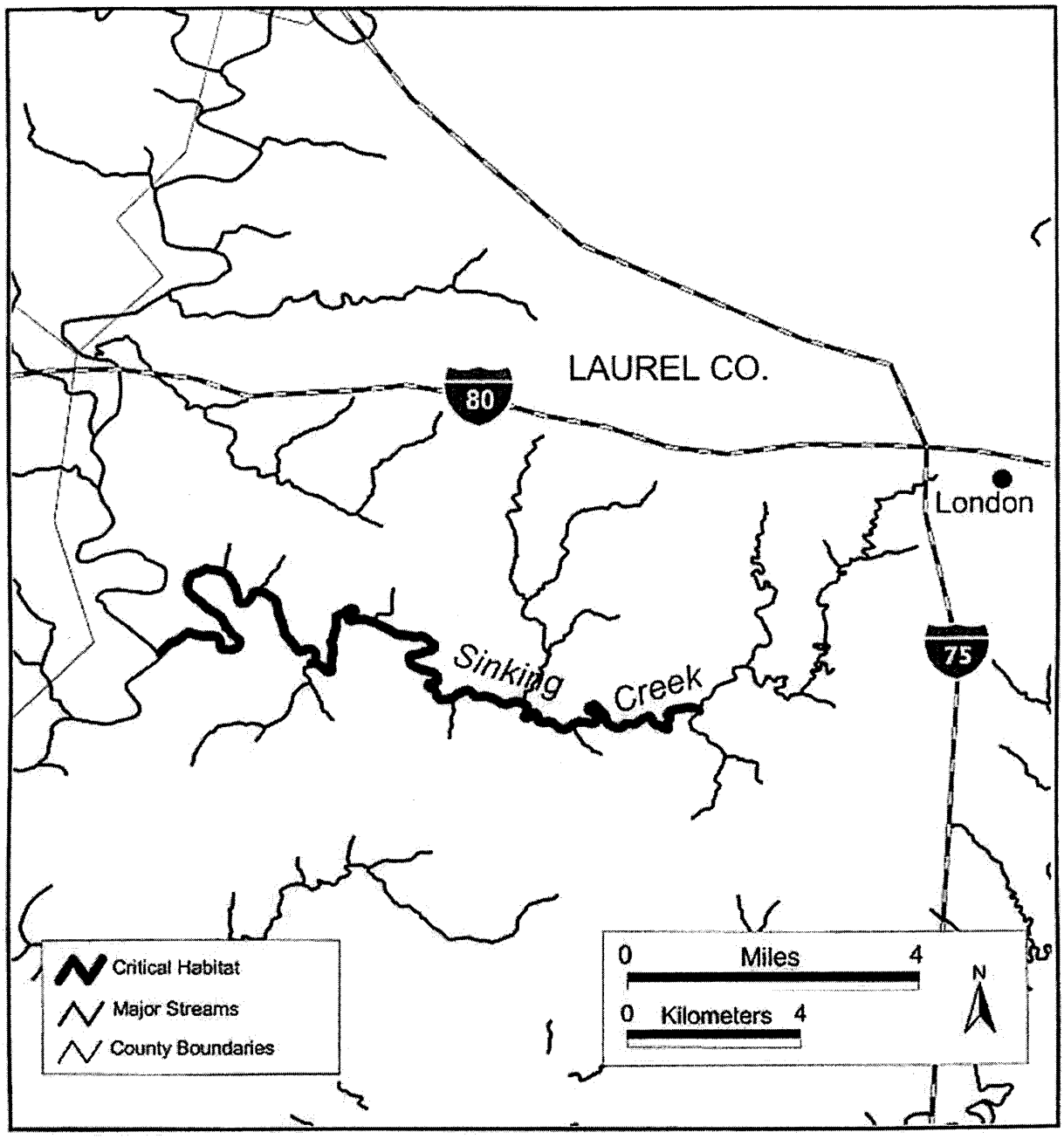


(xiii) Unit 11. Sinking Creek, Laurel County, Kentucky. This is a critical habitat unit for the Cumberland elktoe.

(A) Unit 11 includes the main stem of Sinking Creek from its confluence with the Rockcastle River (−84.28 longitude, 37.10 latitude) upstream to its confluence with Laurel Branch (−84.17 longitude, 37.09 latitude) in Laurel County, Kentucky.

(B) Map of Unit 11 follows:

Unit 11 - Sinking Creek: Critical Habitat for Cumberland elktoe



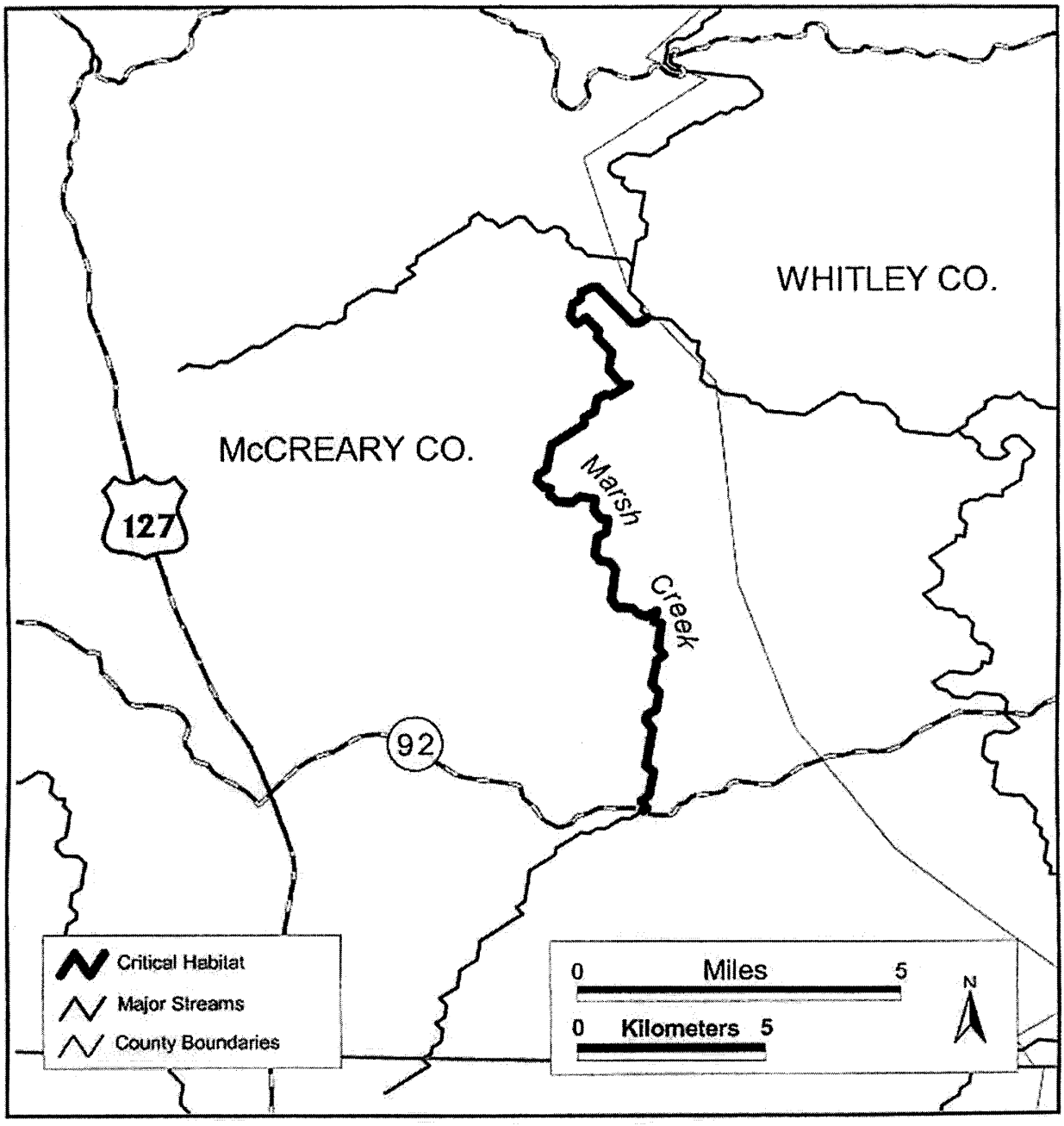
This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(xiv) Unit 12. Marsh Creek, McCreary County, Kentucky. This is a critical habitat unit for the Cumberland elktoe.

(A) Unit 12 includes the Marsh Creek main stem from its confluence with the Cumberland River (−84.35 longitude, 36.78 latitude) upstream to State Road 92 Bridge (−84.35 longitude, 36.66 latitude) in McCreary County, Kentucky.

(B) Map of Unit 12 follows:

Unit 12 - Marsh Creek: Critical Habitat for Cumberland elktoe



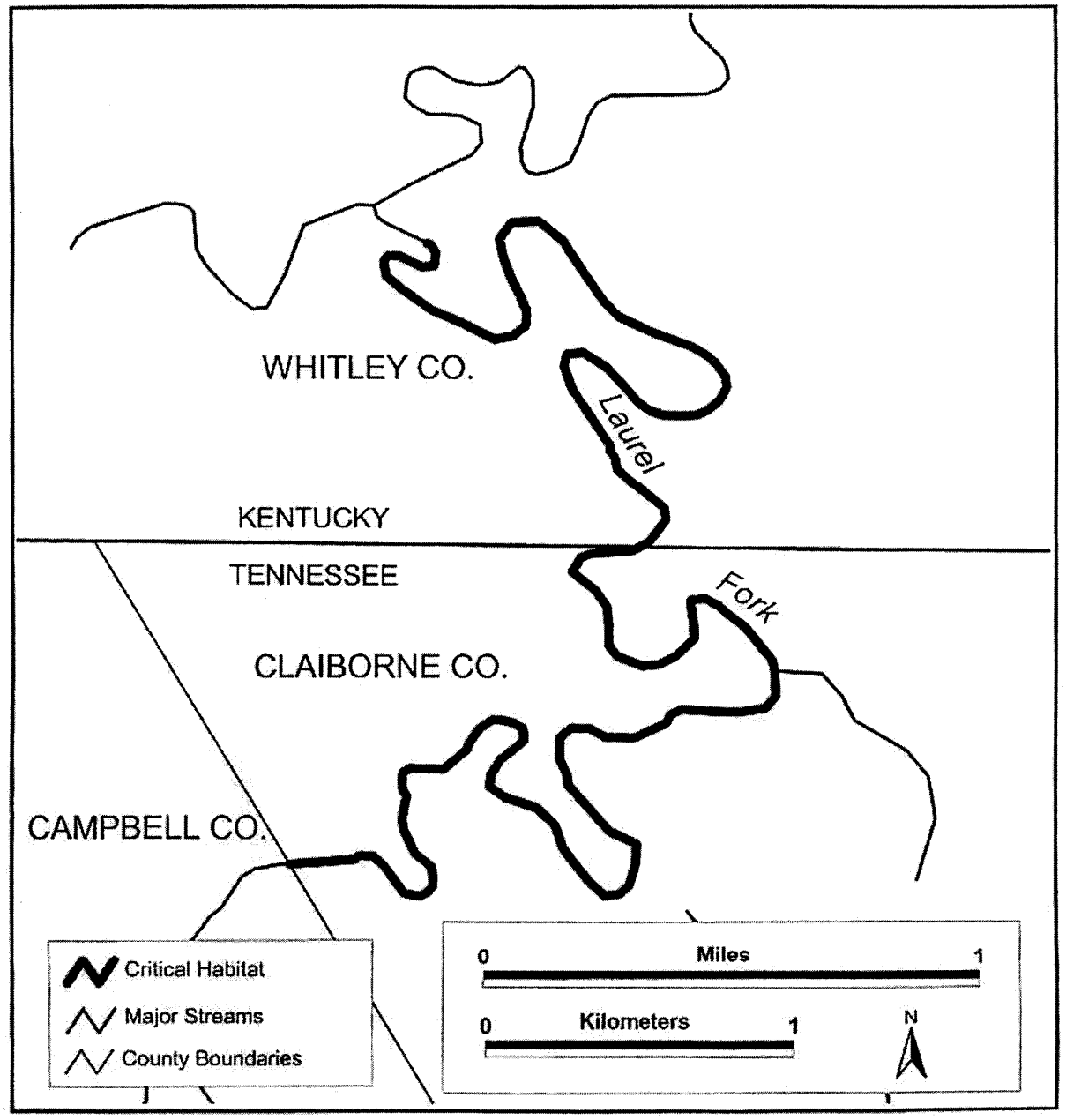
This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

(xv) Unit 13. Laurel Fork, Claiborne County, Tennessee, and Whitley County, Kentucky. This is a critical habitat unit for the Cumberland elktoe.

(A) Unit 13 includes the main stem of the Laurel Fork of the Cumberland River from the boundary between Claiborne and Campbell Counties (−84.00 longitude, 36.58 latitude) upstream to rkm 11 (rmi 6.85) in Whitley County, Kentucky. The upstream terminus is 3 rkm (2 rmi) upstream of the Kentucky/Tennessee State line (−84.00 longitude, 36.60 latitude).

(B) Map of Unit 13 follows:

Unit 13 - Laurel Fork: Critical Habitat for Cumberland elktoe



This map is provided for illustrative purposes of critical habitat only. For the precise legal definition of critical habitat, please refer to the narrative unit descriptions.

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Dated: August 17, 2004.

Craig Manson,

Assistant Secretary, Fish, Wildlife, and Parks.

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