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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Carolina Heelsplitter; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

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RIN 1018–AH31

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Carolina Heelsplitter

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the Fish and Wildlife Service (Service), designate critical habitat for the Carolina heelsplitter (*Lasmigona decorata*), a freshwater mussel, pursuant to the Endangered Species Act of 1973, as amended (Act). The areas designated as critical habitat for the Carolina heelsplitter total approximately 148.4 kilometers (92.2 miles) of streams, including portions of three creeks in North Carolina and one river and six creeks in South Carolina.

Critical habitat identifies specific areas that are essential to the conservation of a listed species and that may require special management considerations or protection.

Section 7(a)(2) of the Act requires that each Federal agency shall, in consultation with the Service, insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat. Section 4 of the Act requires us to consider economic and other relevant impacts of specifying any particular area as critical habitat.

We solicited data and comments from the public on all aspects of this proposal, including data on economic and other impacts of the designation.

DATES: This rule is effective August 1, 2002.

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 Asheville Field Office, U.S. Fish and Wildlife Service, 160 Zillicoa Street, Asheville, NC 28801.

FOR FURTHER INFORMATION CONTACT: John Fridell, Fish and Wildlife Biologist (see **ADDRESSES** section), (telephone 828/258–3939, extension 225; facsimile 828/258–5330).

SUPPLEMENTARY INFORMATION:

Background

Lea (1852) originally described the Carolina heelsplitter, a native freshwater mussel, as *Unio decoratus.* Johnson (1970) synonymized this species with *Lasmigona subviridis* (Conrad 1835). Clarke (1985) recognized the Carolina heelsplitter as a distinct species, *Lasymigona decorata*, and synonymized *Unio charlottensis* (Lea 1863) and *Unio insolidus* (Lea 1872) with *Lasmigona decorata.* A genetic comparison of a specimen of *L. decorata* with specimens of *L. subviridis* (Tim King, U.S. Geological Survey, Leetown, West Virginia, pers. comm. 2001) supports Clarke's (1985) position on the taxonomy (scientific classification) of this species.

The Carolina heelsplitter has an ovate, trapezoid-shaped, unsculptured (smooth with no distinct bumps or protrusions) shell. The shell of the largest known specimen measures 11.5 centimeters (cm) (4.5 inches (in)) in length, 3.9 cm (1.5 in) in width, and 6.8 cm (2.7 in) in height. The shell's outer surface varies from greenish brown to dark brown in color, and shells from younger specimens have faint greenish brown or black rays. The nacre (inside surface) is often pearly white to bluish white, grading to orange in the area of the umbo (bulge or beak that protrudes near the hinge of a mussel). However, in older specimens the entire nacre may be a mottled pale orange. The hinge teeth (pseudocardinal teeth and lateral teeth) of the species are well developed but thin and rather delicate. The left valve (half of a mussel shell) has two blade-like pseudocardinal teeth and two lateral teeth, and the right valve has one of each. The left valve may also have an interdental projection, a slight projection located between the lateral and pseudocardinal teeth (adapted from Keferl 1991). Clarke (1985) provides a detailed description of the shell, with illustrations.

Distribution, Habitat, and Life History

The Carolina heelsplitter currently has a very fragmented, relict distribution but historically was known from several locations within the Catawba and Pee Dee River systems in North Carolina and the Pee Dee and Savannah River systems, and possibly the Saluda River system, in South Carolina. Historically, the species was collected from the Catawba River, Mecklenburg County, NC; several streams and ''ponds'' in the Catawba River system around the Charlotte area of Mecklenburg County, NC; one small stream in the Pee Dee River system in Cabarrus County, NC; one ''pond'' in the Pee Dee River system in Union County, NC; and an area in South Carolina referred to only as the ''Abbeville District,'' a terminology no longer employed (Clarke 1985, Keferl and Shelly 1988, Keferl 1991). The records from the Abbeville District, SC, previously were believed to have been from the Saluda River system (Clarke 1985, Keferl and Shelly 1988, Keferl 1991, Service 1993). However, biologists discovered a population of the Carolina heelsplitter in the spring of 1995 in the Savannah River system (Stevens Creek watershed) (Alderman 1995, 1998a, and 1998b; J. Fridell personal observation 1995, 1998, 2000, 2001). Therefore, the historic records from the Abbeville District may have been from either the Saluda River system or the Savannah River system or both. An additional historic record of the Carolina heelsplitter from the main stem of the Pee Dee River in Richmond County, NC, was discovered recently (Art Bogan, North Carolina Museum of Science and Natural History, pers. comm. 2001); however, surveys by biologists with the North Carolina Wildlife Resources Commission (NCWRC) and North Carolina Department of Transportation (NCDOT) have failed to find any evidence of a surviving population of the species at the site of this record or elsewhere in the main stem of the Pee Dee River (John Alderman, NCWRC, personal communication 2001; Tim Savidge, NCDOT, personal communication 2001).

Recent collection records (Keferl and Shelly 1988; Keferl 1991; Alderman 1995, 1998a, and 1998b; North Carolina Wildlife Resources Commission 1999 and 2000) indicate that the Carolina heelsplitter has been eliminated from the majority of its historical range, and only six populations are presently known to exist. In Union County, NC, one small remnant population occurs in Waxhaw Creek, a tributary to the Catawba River, and another small population occurs in both Goose Creek, a tributary in the Rocky River, and Duck Creek, a tributary to Goose Creek, in the Pee Dee River system. In South Carolina, there are four small surviving populations—one each in the Pee Dee and Catawba River systems and two in the Savannah River system. The population in the Pee Dee River system occurs in a relatively short reach of the Lynches River in Chesterfield, Lancaster, and Kershaw Counties and extends into Flat Creek, a tributary to the Lynches River in Lancaster County. In the Catawba River system, the species survives only in a short reach of Gills Creek in Lancaster County. In the

Savannah River system, one population is found in Turkey Creek in Edgefield and McCormick Counties, and two of its tributaries, Mountain Creek and Beaverdam Creek in Edgefield County; another smaller population survives in Cuffytown Creek, in Greenwood and McCormick Counties. Despite extensive surveys in recent years, no evidence of a population has been found in the Saluda River system (Keferl and Shelly 1988; Keferl 1991; Alderman 1998a).

Historically, the Carolina heelsplitter was reported from small to large, moderate-gradient streams and rivers as well as ponds. The ''ponds'' referred to in historic records are believed to have been mill ponds on some of the smaller streams within the species' historic range (Keferl 1991). Presently, the species is known to occur in only nine small streams and one small river. It has been recorded from a variety of substrates (including mud, clay, sand, gravel, and cobble/boulder/bedrock) without significant silt accumulations, along stable, well-shaded stream banks (Keferl and Shelly 1988, Keferl 1991). However, in Mountain Creek in Edgefield County, SC, two young, live individuals were found near the center of the stream channel in a stable, relatively silt-free substrate comprised primarily of a mixture of coarse sand, gravel, and cobble, with scattered areas of exposed boulders/bedrock (J. Fridell personal observation, 1995). It is conceivable that this is the preferred habitat type for the species and that in other areas scouring and degradation of the gravelly substrate in the center of the channel has restricted the species to the softer substrates found along the portion of the stream banks that receive less scouring (Service 1997). The stability of the stream banks and stream-bottom appears to be a habitat feature essential to the species. Keferl (1991) noted that in his surveys of Goose, Waxhaw, and Flat Creeks and the Lynches River, he found the highest concentrations of the species in (bank) undercuts and along shaded banks stabilized with extensive tree roots, a buried log, and rocks.

Like other freshwater mussels, the Carolina heelsplitter feeds by filtering food particles from the water column. The specific food items of the species are unknown, but other freshwater mussels have been documented to feed on detritus (decaying organic matter), diatoms (various minute algae), phytoplankton (microscopic floating aquatic plants), and zooplankton (microscopic floating aquatic animals). The Carolina heelsplitter's life span, their specific fish host species, and many other specific aspects of its life history are unknown, but likely are similar to that of other native freshwater mussels. For the reproductive cycle of mussels in general, males release sperm into the water column; the sperm are then taken in by the females through their siphons during feeding and respiration. The females retain the fertilized eggs in their gills until the larvae (glochidia) fully develop. The mussel glochidia are released into the water, and within a few days they must attach to the appropriate species of host fish, which are then parasitized for a short time while the glochidia develop into juvenile mussels. They then detach from their ''fish host'' and sink to the stream bottom where they continue to develop, provided they land in a suitable substratum with the correct water conditions.

Reasons for Decline and Threats to Surviving Populations

Available information indicates that several factors have contributed to the decline and loss of populations of the Carolina heelsplitter, and threaten the remaining populations. These factors include pollutants in wastewater discharges (sewage treatment plants and industrial discharges); habitat loss and alteration associated with impoundments, channelization, and dredging operations; channel and streambank scouring associated with increased storm-water runoff; and the runoff of silt, fertilizers, pesticides, and other pollutants from various land disturbance activities with inadequate or poorly maintained erosion and stormwater control (Service 1993, 1997). Many of the streams in the area of Charlotte, NC, that are known to have historically supported the Carolina heelsplitter, but which no longer do, have been degraded by a combination of the factors listed above and appear to no longer support, or be capable of supporting, any species of native mussels. Additionally, large reaches of the main stems of the Pee Dee, Catawba, Saluda, and upper Savannah Rivers, that likely once supported the Carolina heelsplitter, have been significantly affected by impoundments, as well as the other factors listed above, and have lost much of their historic freshwater mussel abundance and diversity (Keferl and Shelly 1988; Kerfel 1991; Alderman 1995, 1998a, 1998b; North Carolina Wildlife Resources Commission 1999, 2000).

The species continues to face a number of threats. In 1997, when the Recovery Plan for the Carolina Heelsplitter was approved (Service 1997) only four populations were known. Although two additional populations—in Gill Creek and Cuffytown Creek—have been found since then, the concerns expressed in the recovery plan regarding the vulnerability of the Carolina heelsplitter are still valid. The recovery plan states: ''The low number of individuals and the restricted range of each of the surviving populations make them extremely vulnerable to extirpation from a single catastrophic event or activity, such as a toxic chemical spill or major channel alteration. Also, the existing and potential future land-uses of the surrounding area threaten the habitat and water quality of all four populations with increased discharge or runoff of silt, sediments, and organic and chemical pollutants.''

Freshwater mussels, especially in their early life stages, are extremely sensitive to many pollutants (chlorine, ammonia, heavy metals, high concentrations of nutrients, etc.) commonly found in municipal and industrial wastewater effluents (Havlik and Marking 1987, Goudreau *et al.* 1988, Keller and Zam 1991). In the early 1900s, Ortmann (1909) noted that the disappearance of mussels is one of the first and most reliable indicators of stream pollution. The life cycle of native mussels makes the reproductive stages particularly vulnerable to pesticides and other pollutants (Ingram 1957, Stein 1971, Fuller 1974, Gardner *et al.* 1976). Mussels also have been identified as being more sensitive to metals than commonly tested fish and aquatic insects (Keller and Zam 1991).

Activities such as impoundments, channelization projects, and in-stream dredging operations eliminate mussel habitat. These activities can also alter the quality and stability of the remaining stream reaches by affecting the flow regimes, water velocities, and water temperature and chemistry. The effects of impoundments on mussels are summarized as follows in the recovery plan: ''Closure of dams changes the habitat from a lotic [moving water] to lentic [standing water] condition. Depth increases, flow decreases, and silt accumulates on the bottom. Fish communities change, and host fish species may be eliminated. Mussel communities change; species requiring clean gravel and sand substrate are eliminated (Bates 1962). In addition, dams result in the fragmentation of populations, making the surviving isolated population segments more vulnerable to extirpation'' (Service 1997).

Agriculture (both crop and livestock) and forestry operations, highway and road construction, residential and industrial developments, and other

construction and land-use activities that do not adequately control soil erosion and storm-water runoff alter the hydrology of the stream and contribute excessive amounts of silt, pesticides, fertilizers, heavy metals, and other pollutants. These pollutants can suffocate and poison freshwater mussels. Excessive sediment poses a threat to mussels because they are not able to move long distances to more suitable areas in response to heavy silt loads. Although natural sources of sediment resulting from seasonal storms probably do not significantly affect mussels, several types of human activities can create heavy silt loads that can severely affect native freshwater mussels. As noted in the recovery plan, ''Siltation has been documented to adversely affect native freshwater mussels both directly and indirectly. Siltation degrades water and substrate quality, limiting the available habitat for freshwater mussels (and their fish hosts); irritates and clogs the gills of filter-feeding mussels, resulting in reduced feeding and respiration; smothers mussels if sufficient accumulation occurs; and increases the potential exposure of the mussels to other pollutants (Ellis 1936, Marking and Bills 1979, Kat 1982). Ellis (1936) found that less than 1 inch of sediment deposition caused high mortality in most mussel species. Sediment accumulations that are less than lethal to adults may adversely affect or prevent recruitment of juvenile mussels into the population through the direct mortality of juvenile mussels or effects to the species' fish host(s)'' (Service 1997)

The runoff of storm water from cleared areas, roads, rooftops, parking lots, and other developed areas, which often is ditched or piped directly into streams, not only results in stream pollution but also results in increased water volume and velocity during heavy rains. This change in water volume and velocity causes channel and stream-bank scouring that leads to the degradation and elimination of mussel habitat. Construction and land-clearing operations are particularly detrimental when they result in the alteration of floodplains or the removal of forested stream buffers that ordinarily would help maintain water quality and the stability of stream banks and channels by absorbing, filtering, and slowly releasing rainwater. Also, when storm water runoff increases from land-clearing activities, less water is absorbed to recharge ground water levels. Therefore, flows during dry months can decrease and adversely affect mussels and other aquatic organisms.

Previous Federal Actions

In the Animal Notice of Review published in the January 6, 1989, **Federal Register** (54 FR 579), we recognized the Carolina heelsplitter as a species under review for potential addition to the Federal List of Endangered and Threatened Wildlife and Plants. In that document, we designated the Carolina heelsplitter as a category 2 candidate for Federal listing. We no longer maintain a list of category 2 candidate species. At that time, category 2 represented those species for which we had some information indicating that the taxa may be under threat, but sufficient information was lacking, to determine if they warranted Federal listing and to prepare a proposed rule. Subsequently, surveys of historical and potential Carolina heelsplitter habitat were conducted and revealed that the species had undergone a significant decline throughout its historical range and that the remaining known occurrences were threatened by many of the same factors that are believed to have resulted in this decline.

On May 26, 1992, we published a proposed rule to list the Carolina heelsplitter as an endangered species (57 FR 21925). The proposed rule provided information on the species' biology, status, and threats to its continued existence and included our proposed determination that the designation of critical habitat was not prudent for the Carolina heelsplitter. We solicited comments and suggestions concerning the proposed rule from the public, concerned governmental agencies, the scientific community, industry, and other interested parties.

Following our review of all the comments and information received throughout the listing process, we incorporated appropriate changes and, on June 30, 1993, published a final rule listing the Carolina heelsplitter as endangered (58 FR 34926). That decision included our determination that the designation of critical habitat was not prudent for the Carolina heelsplitter because, after a review of all the available information, we determined that the Carolina heelsplitter was threatened by taking and that the designation of critical habitat could be expected to increase the degree of such threat to the species and would not be beneficial to the species.

On June 30, 1999, the Southern Appalachian Biodiversity Project and the Foundation for Global Sustainability filed a lawsuit in United States District Court for the District of Columbia against the Service, the Director of the Service, and the Secretary of the Interior, challenging the Service's ''not prudent'' critical habitat determinations for four species in North Carolina—the Carolina heelsplitter (*Lasmigona decorata*), spruce-fir moss spider (*Microhexura montivaga*), Appalachian elktoe (*Alasmidonta raveneliana*), and rock gnome lichen (*Gymnoderma lineare*). On February 29, 2000, the U.S. Department of Justice entered into a settlement agreement with the plaintiffs in which we agreed to reexamine our prudency determination and, if appropriate, submit to the **Federal Register**, by July 1, 2001, a withdrawal of the existing not prudent determination for the Carolina heelsplitter, together with a new proposed critical habitat determination. We agreed further that if, upon consideration of all the available information and comments, we determined that the designation of critical habitat was prudent for the Carolina heelsplitter, we would send a final rule of this finding to the **Federal Register** by April 1, 2002.

On July 11, 2001, we published a prudency determination and a proposed designation of critical habitat for the Carolina heelsplitter (66 FR 36229). The proposed rule included maps and a description of all areas under consideration for designation as critical habitat for the species. On the same date, by letter, we also notified appropriate Federal and State agencies, local governments, scientific organizations, individuals knowledgeable about the species, and other interested parties about the proposal and requested their comments. A legal notice that announced the availability of the proposed rule and invited public comment was published in the following newspapers—*Enquirer-Journal,* Monroe, NC; *Lancaster News,* Lancaster, SC; *Chronicle-Independence,* Camden, SC; *Cheraw Chronicle,* Cheraw, SC; *The Index-Journal,* Greenwood, SC; *Citizen News,* Edgefield, SC; and, *McCormick Messenger,* McCormick, SC.

In the proposed rule and associated notifications, all interested parties were requested to submit, by September 10, 2001, comments, factual reports or information that might contribute to our determination and the development of a final rule. On March 6, 2002, we published a notice in the **Federal Register** (67 FR 10118) reopening the comment period on the proposed rule and announcing the availability of a draft economic analysis for the proposed designation of critical habitat for the Carolina heelsplitter. We notified appropriate agencies, government

officials, institutions, and other interested parties, by letter dated March 6, 2002, of the availability of the draft economic analysis and the reopening of the comment period until April 5, 2002, and published legal notices in the newspapers listed above inviting comments from the public. Because completion of the draft economic analysis for the proposed critical habitat designation was delayed, we filed a motion in the District Court pursuant to our settlement agreement, requesting an extension to complete the final designation. On April 15, 2002, the District Court granted the Service an extension until June 17, 2002 to finalize the critical habitat designation for the Carolina heelsplitter.

Summary of Comments and Recommendations

We received nine written comments during the two comment periods—four during the initial comment period and five during the reopened comment period. We received written comments from one Federal agency, three State agencies, two private organizations, and one private individual. One of the respondents provided comments during the initial comment period on the proposed rule and also submitted two additional letters with comments on the draft economic analysis during the reopened comment period. Of the seven respondents, three expressed support for the designation of critical habitat for the Carolina heelsplitter, while two stated they did not agree that there is a need for the designation of critical habitat for the species. The other two respondents provided comments on the draft economic analysis but expressed neither support nor opposition to the proposed designation of critical habitat for the Carolina heelsplitter.

We also contacted three experts in the field of malacology (native freshwater mussel biology and ecology) and requested that they serve as peer reviewers of the proposal to designate critical habitat for the Carolina heelsplitter. However, none of the three submitted comments on the proposal.

We reviewed all comments received for substantive issues and new information regarding the Carolina heelsplitter. Similar comments were grouped into issues relating specifically to the proposed critical habitat determination and draft economic analysis on the proposed determination. These issues and our response to each are presented below.

Issue 1: Two respondents stated that they have been working closely with the Service to evaluate, and consult on, their activities with regard to their potential to harm the Carolina heelsplitter and its habitat since the species was listed as endangered. They indicated that they agreed with the Service's 1993 determination that the designation of critical habitat would not provide additional protection to the Carolina heelsplitter beyond what is already afforded the species by the listing. One of these respondents stated that they have been involved in numerous section 7 consultations for activities in other areas that are already designated as critical habitat for other listed aquatic species and that in those cases the manner in which the consultations were handled did not differ from the manner in which consultations involving listed aquatic species without designated critical habitat were handled.

Response: Both respondents have been working closely with us to identify their activities with the potential to affect the Carolina heelsplitter and to implement conservation measures to avoid or minimize potential effects to the species and further the conservation of the species. We agree with their comments that the designation of critical habitat is not likely to significantly affect future section 7 consultations with respect to this species. (See section entitled Effects of Critical Habitat Designation, below, for additional information on this topic.) We also agree that the benefits to the Carolina heelsplitter from the designation of critical habitat may be minimal. However, based on our review of all available information, and with consideration of the standards for making a ''not prudent'' determination and recent court rulings on this topic, we cannot support a ''not prudent'' determination for the designation of critical habitat for the Carolina heelsplitter. We have not received or obtained any new information that alters the prudency determination we included in the proposed designation of critical habitat for the Carolina heelsplitter that we published in the **Federal Register** on July 11, 2001 (66 FR 36229). As we noted in the proposed rule, the designation of critical habitat may provide some benefit to the Carolina heelsplitter by providing additional information to individuals, local and State governments, and others that join conservation efforts for the species, to assist these entities in long-range planning since areas essential to the conservation of the species are specifically identified and the primary constituent elements of the habitat necessary to the conservation of the species are more clearly defined.

Issue 2: One respondent agreed that the identified habitats for the Carolina heelsplitter are essential and that the designation (of critical habitat) may assist individuals, local and State governments, and others that join conservation efforts to protect the Carolina heelsplitter, as suggested in the proposed rule.

Response: No response necessary.

Issue 3: One respondent expressed support for the designation of critical habitat for the Carolina heelsplitter but expressed concern that protection of habitat only to the ordinary high-water line will be insufficient to protect the species from habitat degradation. The respondent commented on the importance of buffers along proposed stream reaches and suggested the need for 100-foot buffers to protect the Carolina heelsplitter from the effects of sedimentation.

Response: We agree with the respondent about the importance of stream/riparian buffers. Along with other conservation measures as part of an ongoing revision to their Land and Resource Management Plan, the U.S. Forest Service is currently working with us to establish an appropriate minimum width for a forested corridor on each side of all perennial streams and intermittent streams in the watersheds of the creeks supporting the Carolina heelsplitter on the Sumter National Forest in South Carolina. The functions and values of forested buffers to stream ecosystems are numerous. They include, for example, providing essential nutrients and cover substrates, maintaining stream temperature, protecting water quality by capturing and assimilating pollutants carried in run-off from the surrounding watershed, protecting the hydrology of the stream, and maintaining stream channel and bank stability.

The width of the buffer necessary to perform the functions and values necessary for the protection and health of the stream and the Carolina heelsplitter depends on several variables; in most cases, however, a vegetated buffer by itself is not adequate. In many cases, a buffer larger than 100 or 200 feet may be necessary, depending on the activity in question and the health of the rest of the watershed, the type or lack of measures implemented to control runoff, and other relevant factors. However, in other cases, activities carried out in closer proximity to the streams may be acceptable. Accordingly, we are concerned that designating a standard size buffer as part of the designated critical habitat might imply that the fixed width always will be adequate to

protect the Carolina heelsplitter and its habitat. Therefore, we elected to designate only habitat directly utilized by the Carolina heelsplitter and which, if affected, regardless of the proximity of the activity in question, could affect the conservation of species. We note also that designated critical habitat is subject to the provisions of Section 7(a)(2) of the Act with regard to the actions of Federal agencies. Thus, all Federal agencies must, in consultation with the Service, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of the Carolina heelsplitter or result in the destruction or adverse modification of designated critical habitat (see section entitled Critical Habitat, below). This requirement applies regardless of the location of the Federal action in relation to designated critical habitat—what is important is the likely effect such an action may have on the habitat features essential to the conservation of the species. We will continue working with Federal agencies and landowners through section 7 of the Act, the Service's Partners for Fish and Wildlife Program, Section 10 permits, and other regulations and/or programs to evaluate activities with the potential to affect the Carolina heelsplitter and to recommend sufficient size buffers and implement other conservation measures as necessary to ensure compliance with the Act and/or further the conservation of the species.

Issue 4: One respondent provided comments stating that to ensure the survival and recovery of the Carolina heelsplitter, the Service must designate well-distributed, well-connected areas as critical habitat regardless of whether they are currently occupied, and to do otherwise would consign some populations and perhaps the species to extinction.

Response: The Catawba, Pee Dee, and Savannah River systems are not connected and each feeds separately into the Atlantic Ocean. Consequently, it is not possible to connect the habitat or populations across these three systems. Further, within each river system, each of the surviving populations is separated from the other population in the same river system by extensive stream reaches that, based on the most recent survey data, do not appear to be capable of supporting the Carolina heelsplitter.

The areas we are designating as critical habitat constitute our best assessment of the areas needed for the conservation of the Carolina heelsplitter in accordance with the goals outlined in our recovery plan for the species (Service 1997) and based on the best scientific and commercial information currently available to us concerning the known historic range of the species and the physical and biological features that are essential to its conservation and that may require special management considerations or protection. The Service's recovery plan for the Carolina heelsplitter, which was written at a time when there were four known populations, states that the species will be considered for delisting (recovered) when a total of six distinct viable populations of the species exist that meet the criteria outlined in the plan. (See the section entitled Methods, below, for further explanation of recommendations and criteria in the recovery plan.) Based on the most recent survey data for the Carolina heelsplitter (Keferl and Shelly 1988; Keferl 1991; Alderman 1995, 1998a, and 1998b; North Carolina Wildlife Resources Commission 1999, 2000), there are six known surviving populations—the Goose Creek/Duck Creek population, Waxhaw Creek population, Gills Creek population, Lynches River/Flat Creek population, Turkey Creek/Mountain Creek/Beaverdam Creek population, and Cuffytown Creek population (see ''Background'' section). The areas that we are designating as critical habitat for the Carolina heelsplitter contain the habitat elements essential to the life cycle needs of the species, as they are currently known. These areas are distributed in different portions of the species' known historical range, with two occurring in the Catawba River system (Waxhaw Creek population and Gills Creek population), two in the Pee Dee River system (Goose Creek/Duck Creek population and the Flat Creek/Lynches River population), and two in the Savannah river system (Turkey Creek/Mountain Creek/Beaverdam Creek population, and Cuffytown Creek population). Extensive surveys have been conducted, but we are not currently aware of any other streams/stream reaches within the Carolina heelsplitter's historical range that provide suitable habitat for the species.

As discussed in the ''Background'' section of this document (under ''Reasons for Decline and Threats to Surviving Populations''), the majority of the streams known to have historically supported occurrences of the Carolina heelsplitter have been significantly degraded by a variety of factors and appear to no longer be capable of supporting the Carolina heelsplitter. In fact, many appear to no longer be capable of supporting any species of native mussels, even the most tolerant species. Because, based on the most recent data, the species and suitable habitat for the species are still present in each of the areas that we are designating as critical habitat, we considered these areas as the most likely sites for focusing conservation efforts for maintaining and recovering the species.

However, to the extent feasible, we will continue, with the assistance of other Federal, State, and private agencies or organizations, to conduct surveys and research on the species and to evaluate habitat throughout its historic range. Should additional information become available that indicates other areas within the Carolina heelsplitter's historical range are essential to the conservation of the species, we may revise the designated critical habitat accordingly. Similarly, if new information indicates any of the areas we have designated should not be included in the critical habitat designation because they no longer meet the definition of critical habitat, we may revise this final critical habitat designation. If, consistent with available funding and program priorities, we elect to revise the designation, we will do so through a subsequent rulemaking.

Issue 5: One respondent commented that the draft economic analysis for the proposed designation of critical habitat for the Carolina heelsplitter (1) appears to contain contradictory and/or unclear statements concerning distinctions made between section 7 consultation costs associated with critical habitat designation and section 7 consultation costs without critical habitat and (2) does a poor job of distinguishing between the two (upper bound and lower bound) baselines in the reporting of costs. The respondent cited statements in the document demonstrating that there are no anticipated costs associated solely with the critical habitat designation, while other statements (section headings) attribute section 7 costs to the designation of critical habitat.

Response: The Service agrees with the respondent's comments on this issue. We have attempted to clarify in the addendum to the economic analysis that the statements in the draft economic analysis addressing the potential costs analyzed under the upper bound baseline are potential future section 7 costs that would occur regardless of whether critical habitat was designated.

Issue 6: Three respondents commented that the draft economic analysis did not adequately assess the benefits of implementation of measures for the protection and recovery of the Carolina heelsplitter and its habitat, and one of these respondents stated that the assessment did not adequately address

the cost to small businesses and to society at large if the heelsplitter were to become extinct.

Response: There is little disagreement in the published economic literature that real social welfare benefits can result from the conservation and recovery of endangered and threatened species. Such benefits have also been ascribed to the preservation of open space and biodiversity, both of which are associated with species conservation. Likewise, a local and regional economy can benefit from the preservation of healthy populations of endangered and threatened species and the habitat on which these species depend.

It is not feasible, however, to fully describe and accurately quantify these benefits in the specific context of the economic analysis. For example, most of the studies in the economic literature do not allow for the separation of the benefits of listing (including the Act's take provisions) from the benefits of critical habitat designation. As our past experience with other species has shown, the designation of critical habitat does not necessarily inhibit the development of private property, which makes it difficult to draw from the literature the economic value of open space to identify the potential benefits of critical habitat designation. Also, while some economic studies attempt to measure the social value of protecting endangered species, the values identified in these studies would be most closely associated with the listing of a species as endangered or threatened because listing serves to provide the majority of the protection and conservation benefits afforded under the Act. Accordingly, the discussion presented in this report provides examples of potential benefits, which derive primarily from the listing of the species, based on information obtained in the course of developing the economic analysis. It is not intended to provide a complete analysis of the benefits that could result from section 7 of the Act in general or critical habitat designation in particular.

Issue 7: One respondent commented that their Federal agency currently is undertaking an accelerated construction program and expressed concern that the designation of critical habitat for the Carolina heelsplitter may affect the agency's efforts to complete projects. The agency requested that the Service work with them to draft an agreement that would allow the projects to proceed without the need for formal consultation.

Response: The Service's role in informal consultation is to assist the action agency with the identification of the potential direct and indirect effects of the agency's proposed projects and determine what measures can be implemented to avoid the potential adverse effects, when possible. We are always willing to work with any agency concerning a project, at their earliest convenience. The earlier in project planning that we are brought into the process, the more likely it is that formal consultation will be unnecessary and that project delays and modifications at later stages of the project can be avoided. Through cooperation during the early design stages of a project, the Service usually is able to work with the action agency to develop or adjust any project design features that might be needed to avoid or minimize adverse impacts to listed species and/or designated critical habitat as a result of the project. (See also our response to Issue 9, below.) However, section 7 of the Act requires formal consultation on any Federal action that is likely to adversely affect a federally listed species and/or designated critical habitat. Unless the potential adverse effect(s) associated with the proposed projects can be eliminated through informal consultation, formal consultation will be required. Also, all of the units that we are designating as critical habitat for the Carolina heelsplitter currently support populations of the species. Any activity that is likely to result in adverse effects to designated critical habitat would most likely also result in adverse effects to the species and, therefore, would require consultation regardless of whether critical habitat is designated.

Issue 8: One respondent emphasized the difficulty of estimating the number of projects that will require formal consultation. This respondent noted that there has been only one formal consultation involving the Carolina heelsplitter to date, yet the analysis predicts six to eight projects in the future (over the next 10 years) that will require formal consultation.

Response: We agree with the respondent that it is extremely difficult to estimate the number of potential future section 7 consultations that are likely to require formal consultation and that formal consultation is only rarely required. Based on new information provided by the NCDOT, we have revised the estimated number of potential future Federal activities over the next 10 years that are likely to require formal consultation in the addendum to the draft economic analysis. However, while some of the formal consultations included in the estimate in the addendum to the economic analysis may very likely not be required, as stated in the draft economic analysis, the estimates in the analysis are conservative (more likely to be overstated) in order to ensure that the costs/effects associated with potential future section 7 consultations are not understated.

Issue 9: One respondent commented that some of the costs in the draft economic analysis associated with project modifications to their agency's activities were too high, because the estimates were based on past projects, where concerns with the Carolina heelsplitter were not addressed in the project planning and design stages. The respondent stated that their agency has been making a concerted effort to address protected species issues early in the project planning stages so that these concerns can be addressed through project planning, alternative selection, and project design, thereby eliminating many costs associated with project delays and design changes.

Response: We agree with the respondent's comments on this issue and commend the agency for their efforts to address endangered species concerns early in the project planning stages. We have addressed the respondent's comments by amending the costs associated with project design changes relative to the respondent agency's actions in the addendum to the draft economic analysis.

Issue 10: One respondent questioned whether some of the costs in the draft economic analysis associated with the implementation of measures to control erosion and storm water were attributable to section 7 consultation or whether they are more appropriately attributable to other Federal and State regulations, such as the North Carolina Sedimentation Pollution Control Act and the Clean Water Act.

Response: In the addendum to the draft economic analysis, we have acknowledged that some of the costs we are attributing to potential future section 7 consultations may likely be incurred in order to comply with other Federal, State, and local regulations, even in the absence of the listing of the Carolina heelsplitter or designation of critical habitat. However, it is difficult to separate the costs associated with the implementation of measures that some agencies believe they may be required to implement as a result of section 7 consultation (that they believe may go beyond the sedimentation/erosion-control measures required by other regulations) from the costs associated with these other regulations. Therefore, we have elected to be conservative in our estimation of the costs potentially

associated with future section 7 consultations on the Carolina heelsplitter and its designated critical habitat rather than risk understating these costs.

Issue 11: One respondent stated that cost figures for timber sales on the Sumter National Forest in the draft economic analysis were inaccurate. According to this respondent, the Sumter National Forest lost $1.4 million on its timber sales in 1997; therefore, refraining from logging riparian zones in order to protect the Carolina heelsplitter might actually reduce the net costs of this program to the government.

Response: The draft economic analysis focuses on impacts to the local timber economy in the Sumter National Forest and does not attempt to calculate whether the National Forest's timber sale program is profitable for these particular actions. Such an analysis for these particular forecast sales is beyond the scope of this analysis. The opportunity cost of lost timber sales due to the protection of a riparian buffer zone was derived using cost estimates obtained from personnel at the Sumter National Forest and is based on current base rates for timber sales.

Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as (i) the specific areas within the geographic area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management consideration or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. Pursuant to regulations at 50 CFR 424.12(e), areas outside the geographical area presently occupied by the species shall be designated as critical habitat only when a designation limited to its present range would be inadequate to ensure the conservation of the species. ''Conservation'' is defined in section 3(3) of the Act as the use of all methods and procedures necessary to bring endangered or threatened species to the point where listing under the Act is no longer necessary. Regulations under 50 CFR 424.02(j) define ''special management considerations or protection'' to mean any methods or procedures useful in protecting the physical and biological features of the environment for the conservation of listed species.

In order 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 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 one or more of the primary constituent elements, as defined at 50 CFR 424.12(b)).

Section 4 of the Act requires that we designate critical habitat for a species at the time of listing, to the extent such habitat is determinable. We are required to designate those areas we know to be critical habitat, based on the best information available to us. When designating critical habitat, we will designate only areas currently known to be essential. We will not speculate about what areas might be found to be essential if better information became available, or what areas may become essential over time.

Our regulations state that, ''The Secretary shall designate as critical habitat areas outside the geographical area presently occupied by a 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, unless the best available scientific and commercial data demonstrate that the conservation needs of the species can not be met within currently occupied areas, we will not designate critical habitat in areas outside the geographical area presently occupied by the species.

The Service's Policy on Information Standards Under the Endangered Species Act, published in the **Federal Register** 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. This policy 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. When determining which areas are critical habitat, a primary source of information should be the listing package for the species and the recovery plan, if one has been adopted by the Service. Additional information may be obtained from articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, and biological assessments or other unpublished materials (i.e., gray literature), and expert opinions.

Section 4 of the Act requires that we designate critical habitat based on what we know at the time of the designation. Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize that the designation of critical habitat may not include all of the habitat areas that may eventually be determined to be necessary for the conservation of the species. For these reasons, it should be understood that critical habitat designations do not signal that habitat outside the designation is unimportant or may not be necessary for the conservation of the species. 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 prohibition, as determined on the basis of the best available information at the time of the action. We anticipate that federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. 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.

Section 4(b)(2) of the Act requires us to base critical habitat designations on the best scientific and commercial data available and after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation if we determine that the benefits of excluding those areas outweigh the benefits of including the areas within the critical habitat, provided the exclusion will not result in the extinction of the species.

Methods

As required by section 4(b)(2) of the Act and regulations at 50 CFR 424.12, we used the best scientific data available to determine areas that contain the physical and biological features that are essential for the conservation of the Carolina heelsplitter. This included information from the listing package for the species, the recovery plan, scientific publications, and recent surveys and reports.

We also reviewed the goals for delisting the Carolina heelsplitter, as provided in our recovery plan for this species (Service 1997). The plan

provides five criteria that would need to be met to consider delisting the species. The first criterion calls for protection of existing populations, successful establishment of reintroduced populations, or discovery of additional populations, such that six distinct viable populations exist. These six populations must be distributed throughout the species' known historic range, with at least one each in the Catawba, Pee Dee, and Savannah River systems. The criterion also states that these populations must be extensive enough that it is unlikely that a single event would eliminate or significantly reduce one or more of them. In defining a viable population for the Carolina heelsplitter, the recovery plan states: ''A viable population is defined as a naturally reproducing population that is large enough to maintain sufficient genetic variation to enable it to evolve and respond to natural environmental changes. The number of individuals needed to reach a viable population will be determined as one of the recovery tasks.''

In addition to the criterion concerning the existence of six viable populations, the recovery plan includes four other criteria that would need to be achieved to consider removal of the Carolina heelsplitter from Endangered Species Act protection. They include: protection of the six populations and their habitats from any present and foreseeable threats that would jeopardize their continued existence; improvements in habitat where certain types of degradation have occurred; completion of studies and successful implementation of recovery measures to increase population density and/or the length of the river reach inhabited by each of the six populations; and the existence of a certain age class structure in the populations, as well as the presence of appropriate host fish for the mussel's reproductive cycle, over specified periods of time.

The areas we are designating as critical habitat, described below, constitute our best assessment of the areas needed for the conservation and recovery of the Carolina heelsplitter, are consistent with the goals and information outlined in our recovery plan for the species (Service 1997), and are based on the best scientific and commercial information currently available to us concerning the species' known present and historical range, habitat, biology, and threats. All of the areas we are designating as critical habitat are within what we believe to be the geographical area occupied by the Carolina heelsplitter, include all known surviving occurrences of the species, and are essential for the conservation of the species. These designated areas are distributed throughout the species' range with at least one occurring in the Catawba, Pee Dee, and Savannah river systems. We will continue, with the assistance of other Federal, State, and private researchers, to conduct surveys and research on the species and its habitat. If new information becomes available indicating that other areas within the Carolina heelsplitter's historical range are essential to the conservation of the species and provide for the essential life cycle needs of the species, we will revise the designated critical habitat for the Carolina heelsplitter accordingly.

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, in determining which areas to propose as critical habitat 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 physical and biological features 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 of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species (50 CFR 424.12(b)).

When considering areas for designation as critical habitat, we are required to focus on the principal biological and physical constituent elements within the defined area that are essential to the conservation of the species (50 CFR 424.12 (b)). Although additional information is needed to better define the habitat requirements of the Carolina heelsplitter, particularly the microhabitat requirements, all of the stream reaches that support occurrences of the Carolina heelsplitter are free flowing (no major impoundments) and natural (have not been channelized or otherwise significantly altered), and are not associated with (located a substantial distance from) significant point (discharges) and non-point (runoff) sources of pollutants. Although the species has been observed in a variety of substrates (see ''Background'' section), it has only been recorded from stable pockets of substrates in stream reaches with stable, well-vegetated stream bank and riparian areas, and in substrates without heavy accumulations of silt. Based on the best available information, the primary constituent elements essential for the conservation of the Carolina heelsplitter are:

(1) Permanent, flowing, cool, clean water;

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

(3) Pool, riffle, and run sequences within the channel;

(4) Stable substrates with no more than low amounts of fine sediment;

(5) Moderate stream gradient;

(6) Periodic natural flooding; and

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

Critical Habitat Designation

The Service's recovery plan for the Carolina heelsplitter states that the species will be considered for delisting when a total of six distinct viable populations exist and other criteria outlined in the plan are met (Service 1997). The critical habitat areas described below constitute our best assessment of the areas essential for the conservation of the Carolina heelsplitter. Critical habitat includes six units that currently are occupied by the species. Based on the most recent survey data for the Carolina heelsplitter (Keferl and Shelly 1988; Keferl 1991: Alderman 1995, 1998a, and 1998b; North Carolina Wildlife Resources Commission 1999 and 2000), there are currently six surviving populations: the Goose Creek/Duck Creek population, Waxhaw Creek population, Gills Creek population, Flat Creek/Lynches River population, Turkey Creek/Mountain Creek/Beaverdam Creek population, and Cuffytown Creek population (see ''Background'' section). The areas in the six units that we are designating as critical habitat for the Carolina heelsplitter include habitat for each of these populations. The lateral extent of designated critical habitat is up to the ordinary high-water line on each bank. In addition, given the threats to the species' habitat discussed in the final listing rule (58 FR 34926) and summarized in the ''Background'' section, we believe these areas may need special management considerations or protection. We are designating the following areas as critical habitat for the Carolina heelsplitter (see Table 1 below for a summary of approximate stream lengths):

Unit 1. Goose Creek and Duck Creek (Pee Dee River system), Union County, NC

Unit 1 encompasses approximately 7.2 km (4.5 mi) of the main stem of Goose Creek, Union County, NC, from the N.C. Highway 218 Bridge, downstream to its confluence with the Rocky River, and approximately 8.8 km (5.5 mi) of the main stem of Duck Creek, Union County, NC, from the Mecklenburg/Union County line downstream to its confluence with Goose Creek. This unit is part of the currently occupied range of the Carolina heelsplitter and, based on the best available information, provides the physical and biological habitat elements necessary for the life cycle needs of the species. The area is occupied by one of the six known populations of the Carolina heelsplitter, and supports one of the only two known populations in the Pee Dee River system. Based on our consideration of the best available information, including the recovery goals and criteria outlined in the recovery plan for the Carolina heelsplitter (Service 1997), protection of this unit is essential to the conservation of the species.

Unit 2. Waxhaw Creek (Catawba River system), Union County, NC

Unit 2 encompasses approximately 19.6 km (12.2 mi) of the main stem of Waxhaw Creek, Union County, NC, from the N.C. Highway 200 Bridge, downstream to the North Carolina/South Carolina State line. This unit is part of the currently occupied range of the Carolina heelsplitter and, based on the best available information, provides the physical and biological habitat elements necessary for the life cycle needs of the species. The area is occupied by one of the six known populations of the Carolina heelsplitter, and supports one of the only two known populations in the Catawba River system. Based on our consideration of the best available information, including the recovery goals and criteria outlined in the recovery plan for the Carolina heelsplitter (Service 1997), protection of this unit is essential to the conservation of the species.

Unit 3. Gills Creek (Catawba River system), Lancaster County, SC

Unit 3 encompasses approximately 9.6 km (6.0 mi) of the main stem of Gills Creek, Lancaster County, SC, from the County Route S–29–875, downstream to the S.C. Route 51 Bridge, east of the city of Lancaster. This unit is part of the currently occupied range of the Carolina heelsplitter and, based on the best available information, provides the physical and biological habitat elements necessary for the life cycle needs of the species. The area is occupied by one of the six known populations of the Carolina heelsplitter, and supports one of the only two known populations in the Catawba River system. Based on our consideration of the best available information, including the recovery goals and criteria outlined in the recovery plan for the Carolina heelsplitter (Service 1997), protection of this unit is essential to the conservation of the species.

Unit 4. Flat Creek (Pee Dee River system), Lancaster County, SC, and the Lynches River (Pee Dee River system), Lancaster, Chesterfield, and Kershaw Counties, SC

Unit 4 encompasses approximately 18.4 km (11.4 mi) of the main stem of Flat Creek, Lancaster County, SC, from the S.C. Route 204 Bridge, downstream to its confluence with the Lynches River, and approximately 23.6 km (14.6 mi) of the main stem of the Lynches River, Lancaster and Chesterfield Counties, SC, from the confluence of Belk Branch, Lancaster County, northeast (upstream) of the U.S. Highway 601 Bridge, downstream to the S.C. Highway 903 Bridge in Kershaw County, SC. This unit is part of the currently occupied range of the Carolina heelsplitter and, based on the best available information, provides the physical and biological habitat elements necessary for the life cycle needs of the species. The area is occupied by one of the six known populations of the Carolina heelsplitter, and supports one of the only two known populations in the Pee Dee River system. Based on our consideration of the best available information, including the recovery goals and criteria outlined in the recovery plan for the Carolina heelsplitter (Service 1997), protection of this unit is essential to the conservation of the species.

Unit 5. Mountain and Beaverdam Creeks (Savannah River system), Edgefield County, South Carolina, and Turkey Creek (Savannah River system), Edgefield and McCormick Counties, SC

Unit 5 encompasses approximately 11.2 km (7.0 mi) of the main stem of Mountain Creek, Edgefield County, SC, from the S.C. Route 36 Bridge, downstream to its confluence with Turkey Creek; approximately 10.8 km (6.7 mi) of Beaverdam Creek, Edgefield County, from the S.C. Route 51 Bridge, downstream to its confluence with Turkey Creek; and approximately 18.4 km (11.4 mi) of Turkey Creek, from the S.C. Route 36 Bridge, Edgefield County, downstream to the S.C. Route 68 Bridge, Edgefield and McCormick Counties, SC. This unit is part of the currently occupied range of the Carolina heelsplitter and, based on the best available information, provides the physical and biological habitat elements necessary for the life cycle needs of the species. The area is occupied by one of the six known populations of the Carolina heelsplitter, and supports one of the only two known populations in the Savannah River system. Based on our consideration of the best available information, including the recovery goals and criteria outlined in the recovery plan for the Carolina heelsplitter (Service 1997), protection of this unit is essential to the conservation of the species.

Unit 6. Cuffytown Creek (Savannah River system), Greenwood and McCormick Counties, SC

Unit 6 encompasses approximately 20.8 km (12.9 mi) of the main stem of Cuffytown Creek, from the confluence of Horsepen Creek, northeast (upstream) of the S.C. Route 62 Bridge in Greenwood County, SC, downstream to the U.S. Highway 378 Bridge in McCormick County. This unit is part of the currently occupied range of the Carolina heelsplitter and, based on the best available information, provides the physical and biological habitat elements necessary for the life cycle needs of the species. The area is occupied by one of the six known populations of the Carolina heelsplitter, and supports one of the only two known populations in the Savannah River system. Based on our consideration of the best available information, including the recovery goals and criteria outlined in the recovery plan for the Carolina heelsplitter (Service 1997), protection of this unit is essential to the conservation of the species.

TABLE 1.—APPROXIMATE LENGTHS OF STREAM DESIGNATED AS CRITICAL HABITAT FOR THE CAROLINA HEELSPLITTER

State	County	Unit and stream	Length in kilometers (miles)
North Carolina	Union	Unit 1—Goose Creek	7.2 (4.5)
		Unit 1—Duck Creek	8.8 (5.5)
		Unit 2—Waxhaw Creek	19.6 (12.2)
South Carolina	Lancaster	Unit 3—Gills Creek	9.6 (6.0)
		Unit 4—Flat Creek	18.4 (11.4)
	Lancaster, Chesterfield, and Kershaw	Unit 4—Lynches River	23.6 (14.6)
	Edgefield	Unit 5—Mountain Creek	11.2 (7.0)
		Unit 5—Beaverdam Creek	10.8 (6.7)
	Edgefield and McCormick	Unit 5—Turkey Creek	18.4 (11.4)
	Greenwood and McCormick	Unit 6—Cuffytown Creek	20.8 (12.9)

Land Ownership

Of the stream reaches we are designating as critical habitat, approximately 6.0 km (3.7 mi) of Beaverdam Creek, 13.6 km (8.5 mi) of Turkey Creek, and 1.6 km (1.0 mi) of Cuffytown Creek are bordered by the Sumter National Forest in South Carolina, and 2.4 km (1.5 mi) of Flat Creek that we are designating as critical habitat, are bordered by the Flat Creek Heritage Preserve, which is managed by the State of South Carolina. The remainder of the areas that we are designating as critical habitat for the Carolina heelsplitter, with the exception of State road and highway rights-of-way, are bordered by lands under private ownership.

Effects of Critical Habitat Designation

Designating critical habitat does not, in itself, lead to the recovery of a listed species. The designation does not establish a reserve, create a management plan, establish numerical population goals, prescribe specific management practices (inside or outside of critical habitat), or directly affect areas not designated as critical habitat. Specific management recommendations for areas designated as critical habitat are most appropriately addressed in recovery and management plans and through section 7 consultation and section 10 permits.

Critical habitat receives regulatory protection only under section 7 of the Act through the prohibition against destruction or adverse modification of designated critical habitat by actions carried out, funded, or authorized by a Federal agency. Aside from the protection that may be provided under section 7, the Act does not provide other forms of protection to land designated as critical habitat. Because consultation under section 7 of the Act does not apply to activities on private or other non-Federal land that do not involve a Federal action, critical habitat designation would not afford any protection under the Act against such activities. Accordingly, the designation of critical habitat will not have any regulatory effect on private or State activities unless those activities require a Federal permit, authorization, or funding.

Section 7(a)(2) of the Act and regulations at 50 CFR 402.10 require Federal agencies to ensure, in consultation with us, that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. ''Destruction or adverse modification'' is defined as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of the listed species for which critical habitat was designated. Such alternations 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 (50 CFR 402.02).

Activities on Federal land, activities on private or State land carried out by a Federal agency, or activities receiving funding or requiring a permit from a Federal agency that may affect designated critical habitat of the Carolina heelsplitter will require consultation under section 7 of the Act. However, pursuant to section 7 of the Act and the related consultation regulations, Federal agencies also are required to consult with us on any action that may affect a listed species and to ensure that actions they authorize, fund, or carry out do not jeopardize the continued existence of listed species. Activities that jeopardize listed species are defined as actions that ''directly or indirectly, reduce appreciably the likelihood of both the survival and recovery of a listed species'' (50 CFR 402.02). Federal agencies are prohibited from jeopardizing listed species through their actions, regardless of whether critical habitat has been designated for the species.

Common to the definitions of both ''jeopardy'' and ''destruction or adverse modification of critical habitat'' is the concept that the likelihood of both survival and recovery of the species are appreciably reduced by the action. Because of the small size of surviving populations of the Carolina heelsplitter, the species' restricted range, and the limited amount of suitable habitat available to the species; and because all of the units that we are designating as critical habitat for the Carolina heelsplitter currently support populations of the species, actions that are likely to destroy or adversely modify critical habitat are also likely to jeopardize the species. Accordingly, even though Federal agencies will be required to evaluate the potential effects of their actions on any habitat that is designated as critical habitat for the Carolina heelsplitter, this designation would not be likely to change the outcome of section 7 consultations.

If, through section 7 consultation, a Federal agency determines that an action/activity that they propose may adversely affect a listed species and/or designated critical habitat, we will issue a biological opinion determining whether the effects of the action are likely to jeopardize the continued existence of the species and/or destroy or adversely modify designated critical habitat. If we issue a biological opinion concluding that the action is likely to jeopardize the species or destroy or adversely modify designated critical habitat, we will also provide reasonable and prudent alternatives to the project, if any are identifiable. Reasonable and prudent alternatives are defined as alternative actions 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 of the Service believes would avoid jeopardizing the species' continued existence and/or the destruction or adverse modification of designated critical habitat.

Section 4(b)(8) of the Act requires us to briefly describe and evaluate, 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 may be affected by such designation. Activities that may destroy or adversely modify critical habitat are, as discussed above, those that alter the primary constituent elements to the extent that the value of critical habitat for both the survival and recovery of the Carolina heelsplitter is appreciably diminished. This may include any activity, regardless of the activity's location in relation to designated critical habitat, that would significantly alter the natural flow regime, channel morphology or geometry, or water chemistry or temperature of any of the six designated critical habitat units, as described by the primary constituent elements, or any activity that could result in the significant discharge or deposition of sediment, excessive nutrients, or other organic or chemical pollutants into any of the six designated critical habitat units. Such Federal activities include (but are not limited to) carrying out or issuing permits, authorizations, or funding for reservoir construction; stream/streambank alterations; wastewater facility development; hydroelectric facility construction and operation; pesticide/herbicide applications; forestry operations; and road, bridge, and utility construction. These same activities also have the potential to jeopardize the continued existence of the Carolina heelsplitter, and Federal agencies are already required to consult with us on these types of activities, or any other activity, that may affect the species.

Requests for copies of the regulations on listed wildlife and inquiries about prohibitions and permits, or questions regarding whether specific activities will constitute adverse modification of critical habitat, may be addressed to the U.S. Fish and Wildlife Service, Asheville Field Office (see **ADDRESSES** section).

Economic Analysis

Section 4(b)(2) of the Act requires us to designate critical habitat on the basis of the best scientific and commercial information available and to consider the economic and other relevant impacts of designating a particular area as critical habitat. We may exclude areas as critical habitat upon reaching a determination that the benefits of such exclusion outweigh the benefits of specifying such areas as critical habitat. We cannot exclude such areas from critical habitat when such exclusion will result in the extinction of the species.

Following publication of the proposed critical habitat designation, a draft economic analysis was conducted to estimate the potential economic effect of the designation. The draft analysis was made available for public review on March 6, 2002 (67 FR 10118). We accepted comments on the draft analysis until April 5, 2002.

Our draft economic analysis evaluated the potential future effects associated with the listing of the Carolina heelsplitter as an endangered species under the Act, as well as any potential effect of the designation of critical habitat above and beyond those regulatory and economic impacts associated with the listing. To quantify the proportion of total potential economic impacts attributable to the critical habitat designation, the analysis evaluated a ''without critical habitat'' baseline and compared it to a ''with critical habitat'' scenario. The ''without critical habitat'' baseline represented the current and expected economic activity under all modifications prior to the critical habitat designation, including protections afforded the species under Federal and State laws. The difference between the two scenarios measured the net change in economic activity attributable to the designation of critical habitat. The categories of potential costs considered in the analysis included the costs associated with: (1) Conducting section 7 consultations associated with the listing or with the critical habitat, including incremental consultations and technical assistance; (2) modifications to projects, activities, or land uses resulting from the section 7 consultations; (3) uncertainty and public perceptions resulting from the designation of critical habitat; and (4) potential offsetting beneficial costs associated with critical habitat, including educational benefits.

The majority of future section 7 consultations associated with the areas being designated as critical habitat for the Carolina heelsplitter are likely to address residential development, road and bridge construction, water utility expansion, and Federal forestry activities. The draft analysis estimated that, over a 10-year period, approximately 14 formal consultations and 301 informal consultations will occur on projects with the potential to affect the Carolina heelsplitter and its proposed critical habitat. In addition, the draft analysis estimated that the Service will provide technical assistance to various parties on 200 occasions. Our draft analysis assumed that many of the potential future consultations are likely to result in Service recommendations for certain types of project modifications. Based on our draft analysis, we concluded that costs associated with future section 7 consultations involving the Carolina heelsplitter and its designated critical habitat could potentially range from $9,995,000 to $66,686,000 over the next 10 years, but that these potential costs are most appropriately attributable to the listing of the Carolina heelsplitter rather than the designation of critical habitat for the species. Accordingly, we determined that the designation of critical habitat will not result in a significant economic impact.

Following the close of the comment period on the draft economic analysis, a final addendum was completed that incorporated public comments on the draft analysis. Based on new information provided by some of the respondents and additional research conducted pursuant to the comments received, we reduced the estimated number of formal consultations potentially occurring over the next 10 years from 14 to 9 and reevaluated the potential economic effects and costs associated with certain types of project modifications. Based on these changes, in the final addendum, we estimate that costs associated with future section 7 consultations involving the Carolina heelsplitter and its designated critical habitat could potentially range from $9,189,000 to $63,791,000 over the next 10 years. However, as stated in the draft economic analysis, the listing of the heelsplitter and the resultant Federal responsibility to avoid projects that would jeopardize the continued existence of the species is likely to trigger these impacts, whether or not critical habitat is designated, and the designation of critical habitat for the Carolina heelsplitter will not result in a significant economic impact.

A detailed discussion of our analysis is contained in the Draft Economic Analysis of Proposed Critical Habitat Designation for the Carolina Heelsplitter (February 2002) and the Final Addendum to Economic Analysis of Critical Habitat Designation for the Carolina Heelsplitter (April 2002). Both documents are included in the supporting documentation for this rulemaking and are available for inspection at the Asheville Field Office (see **ADDRESSES** section).

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order 12866, this document is a significant rule and was reviewed by the Office of Management and Budget (OMB), as OMB determined that this rule may raise novel legal or policy issues. The Service prepared an economic analysis of this action. The Service used this analysis to meet the requirement of section 4(b)(2) of the Endangered Species Act to determine the economic consequences of designating the specific areas as critical habitat. The draft economic analysis was made available for public comment, and we considered comments on it during the preparation of this rule.

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 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 a 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 designating critical habitat for the Carolina heelsplitter will not have a significant economic impact on a substantial number of small entities. The following discussion explains our rationale for this assertion.

According to the Small Business Administration (*http://www.sba.gov/size/*), small entities include small organizations, such as independent non-profit organizations, small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents, as well as small businesses. 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. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

In estimating the numbers of small entities potentially affected, we also considered whether their activities have any Federal involvement. Designation of critical habitat only has the potential to affect activities conducted, funded, or permitted by Federal agencies. Some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation. Activities with Federal involvement that may require consultation regarding the Carolina heelsplitter and its critical habitat include: Regulation of activities affecting waters of the United States by the U.S. Army Corps of Engineers under section 404 of the Clean Water Act; forestry activities carried out by the U.S. Forest Service; and, road construction, maintenance, and right of way designation authorized, funded, or carried out by a Federal agency. As required under section 4(b)(2) of the Act, we conducted an analysis of the potential economic impacts of this critical habitat designation. In the analysis, we found that the future section 7 consultations resulting from the listing of the Carolina heelsplitter and the proposed designation of critical habitat could potentially impose total economic costs for consultations and modifications to projects to range between approximately $9.2 and $63.8 million over a ten year period.

In determining whether this rule could ''significantly affect a substantial number of small entities,'' the economic analysis first determined whether critical habitat could potentially affect a ''substantial number'' of small entities in counties supporting critical habitat areas. While SBREFA does not explicitly define ''substantial number,'' the Small Business Administration, as well as other Federal agencies, have interpreted this to represent an impact on 20 percent or greater of the number of small entities in any industry. Based on the past consultation history of the Carolina heelsplitter, the economic analysis anticipated that future section 7 consultations could potentially affect small businesses associated with residential development. To be conservative (i.e., more likely to overstate impacts than understate them), the economic analysis assumed that a unique company will undertake each of the consultations forecasted in a given year, and so the number of businesses affected is equal to the total annual number of consultations projected in the economic analysis. Based on our analysis, the number of small businesses estimated to be impacted by future section 7 consultations is approximately 15 percent of the small businesses in the residential development industry in the affected counties. This finding is based on the extremely conservative assumption that the potential universe of affected entities includes only those within the counties in which critical habitat units are located, and attributes all of the effects of section 7 consultation on these activities solely to the critical habitat designation, even though these effects would likely occur with or without the designation of critical habitat for the heelsplitter due to the listing of the species. Because these estimates are less than the 20 percent threshold that would be considered ''substantial,'' the analysis provided a basis for concluding that this designation will not affect a substantial number of small entities as a result of the designation of critical habitat for the Carolina heelsplitter. The draft Economic Analysis and final Addendum contain the factual bases for this certification and contain a complete analysis of the potential economic effects of this designation. Copies of these documents are in the supporting record for the rulemaking and are available at the Service's Asheville, North Carolina, Field Office (see **ADDRESSES** section).

In summary, we have considered whether this rule could result in significant economic effects on a substantial number of small entities. We have determined, for the above reasons, that it will not affect a substantial number of small entities. Therefore, we are certifying that the designation of critical habitat for the Carolina heelsplitter will not have a significant economic impact on a substantial number of small entities. Accordingly, a regulatory flexibility analysis is not required.

Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 804(2))

As discussed above, this rule is not a major rule under 5 U.S.C. 804(2), the

Small Business Regulatory Enforcement Fairness Act. This final designation of critical habitat: (a) Does not have an annual effect on the economy of $100 million; (b) will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; and (c) does 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. As discussed in the economic analysis, future potential section 7 costs in areas that we are designating as critical habitat for the Carolina heelsplitter are anticipated to have a total estimated economic effect ranging between approximately $9.2 and $63.8 million over a 10-year period. Furthermore, because all the areas that we are designating as critical habitat in this rule currently support populations of the Carolina heelsplitter, the Service would consult on the same range of activities in the absence of this critical habitat designation and the above costs are most appropriately attributable to the section 7 jeopardy provisions of the Act due to the listing of the species (see ''Effects of Critical Habitat'' section).

Proposed and final rules designating critical habitat for listed species are issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises will not be affected by the final rule designating critical habitat for this species. Therefore, we anticipate that this final rule will not place significant additional burdens on any entity.

Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211, which applies to 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 primary land uses within designated critical habitat for the Carolina heelsplitter include residential development and forestry operations. No significant energy production, supply, and distribution facilities are included within designated critical habitat. Therefore, this action is not a significant action affecting energy production, supply, and distribution facilities, 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 ''significantly or uniquely'' affect small governments. A Small Government Agency Plan is not required. Small governments will be affected only to the extent that any programs having Federal funds, permits, or other authorized activities must ensure that their actions will not adversely affect the critical habitat. However, as discussed above, these actions are currently subject to equivalent restrictions through the listing protections of the species, and no further restrictions are anticipated in areas of occupied designated critical habitat.

b. This rule will not produce a Federal mandate of $100 million or greater in any year, that is, it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments.

Takings

In accordance with Executive Order 12630 (''Government Actions and Interference with Constitutionally Protected Private Property Rights''), we have analyzed the takings implications of designating approximately 148.4 km (92.2 mi) of streams in North Carolina and South Carolina in six units of critical habitat for the Carolina heelsplitter. Based on our consideration of the economic analysis and other pertinent information, this rule does not have significant takings implications, and a takings implication assessment is not required. This rule will not ''take'' private property. The designation of critical habitat affects only Federal agency actions. Federal actions on private land could be affected by the critical habitat designation; however, we expect no regulatory effect from this designation because all areas designated as critical habitat for the Carolina heelsplitter are considered to be within the geographical range occupied by the species and Federal actions would be reviewed under both the jeopardy and adverse modification standards under section 7 of the Act.

This rule will not increase or decrease the current restrictions on private property concerning taking of the Carolina heelsplitter as defined in section 9 of the Act and its implementing regulations (50 CFR 17.31). Additionally, critical habitat designation does not preclude the development of habitat conservation plans and the issuance of incidental take permits. Any landowner in areas that are included in the designated critical habitat will continue to have opportunity to use his or her property in ways consistent with the survival of the Carolina heelsplitter.

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 policy, we requested information from, and coordinated the development of this critical habitat designation with, appropriate State natural resources agencies in North Carolina and South Carolina. We will continue to coordinate any future changes in the designation of critical habitat for the Carolina heelsplitter with the appropriate State agencies. The designation of critical habitat for the Carolina heelsplitter imposes few, if any, additional restrictions to those currently in place and therefore has little incremental 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 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 Department of the Interior's Office of the Solicitor has determined that this rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have designated critical habitat in accordance with the provisions of the Endangered Species Act, as amended. 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 that are essential for the conservation of the Carolina heelsplitter. We have made every effort to ensure that the final determination contains no drafting errors, provides clear standards, simplifies procedures, reduces burdens, and is clearly written, such that the risk of litigation is minimized.

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

This rule does not contain any new collections of information that require approval by the OMB under the Paperwork Reduction Act. This rule will not impose new record-keeping or reporting requirements on State or local governments, individuals, businesses, or organizations. 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 Endangered Species Act, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This determination does not constitute a major federal action significantly affecting the quality of the human environment.

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 the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a Government-to-Government basis. We are not aware of any Tribal lands essential for the conservation of the Carolina heelsplitter. Therefore, the designated critical habitat for the Carolina heelsplitter 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 rule is available upon request from the Asheville Field Office (see **ADDRESSES** section).

Author

The primary author of this document is John Fridell (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and record-keeping requirements, Transportation.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations as set forth below:

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 the entry for the ''Heelsplitter, Carolina'' under ''CLAMS'' in the List of Endangered and Threatened Wildlife to 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							
*	*	*	*	*	*		*
Heelsplitter, Carolina	*Lasmigona decorata*	U.S.A. (NC, SC)	Entire	E	505	17.95(f)	NA
*	*	*	*	*	*		*

3. Amend § 17.95(f) by adding critical habitat for the Carolina heelsplitter (*Lasmigona decorata*) in the same alphabetical order as the species occurs in 17.11(h).

§ 17.95 Critical habitat-fish and wildlife.

* * * * *

(f) *Clams and snails.* * * *

Carolina heelsplitter (*Lasmigona decorata*)

(1) Critical habitat units are described below and depicted in the maps that follow, with the lateral extent of each designated unit bounded by the ordinary high-water line.

(2) Unit 1.

(i) Union County, NC—main stem of Goose Creek (Pee Dee River system) from the N.C. Highway 218 Bridge, downstream to its confluence with the Rocky River, and the main stem of Duck Creek, from the Mecklenburg/Union County line, downstream to its confluence with Goose Creek.

(ii) Map of Unit 1 follows:

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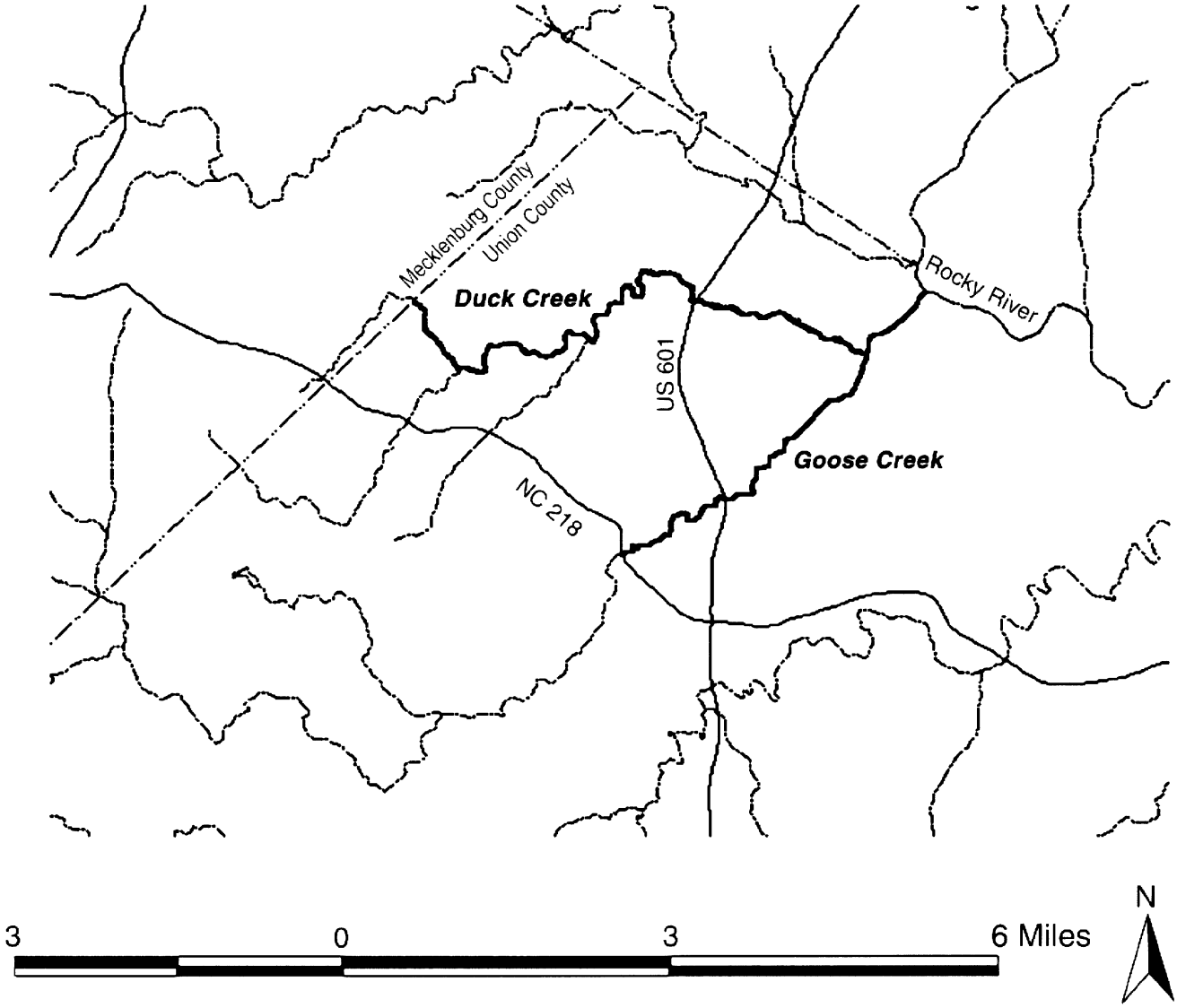
Unit 1. Goose Creek and Duck Creek (Pee Dee River System), Union County, North Carolina.

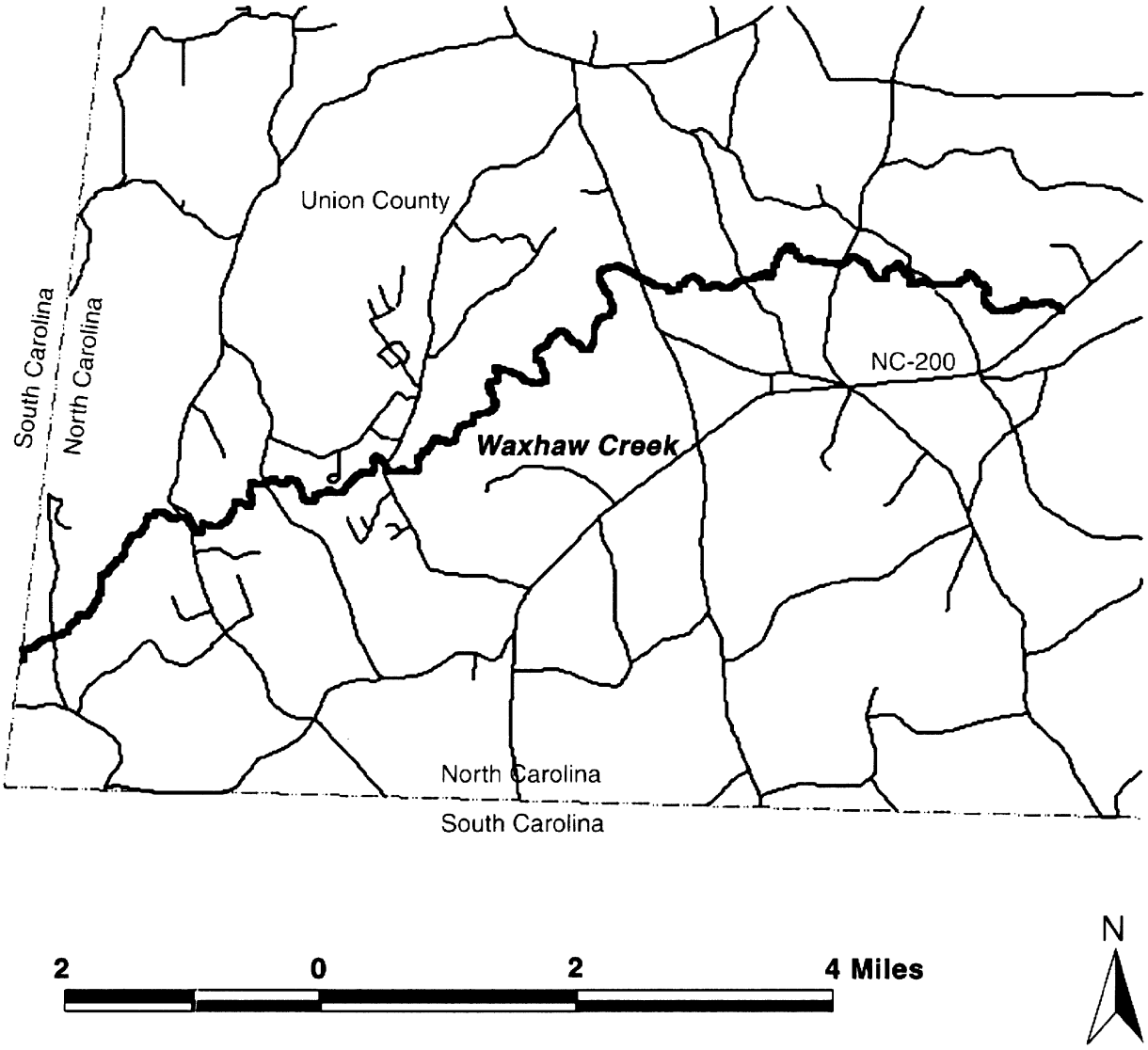


(3) Unit 2.

(i) Union County, NC—main stem of Waxhaw Creek (Catawba River system) from the N.C. Highway 200 Bridge, downstream to the North Carolina/South Carolina State line.

(ii) Map of Unit 2 follows:

Unit 2. Waxhaw Creek (Catawba River System), Union County, North Carolina.

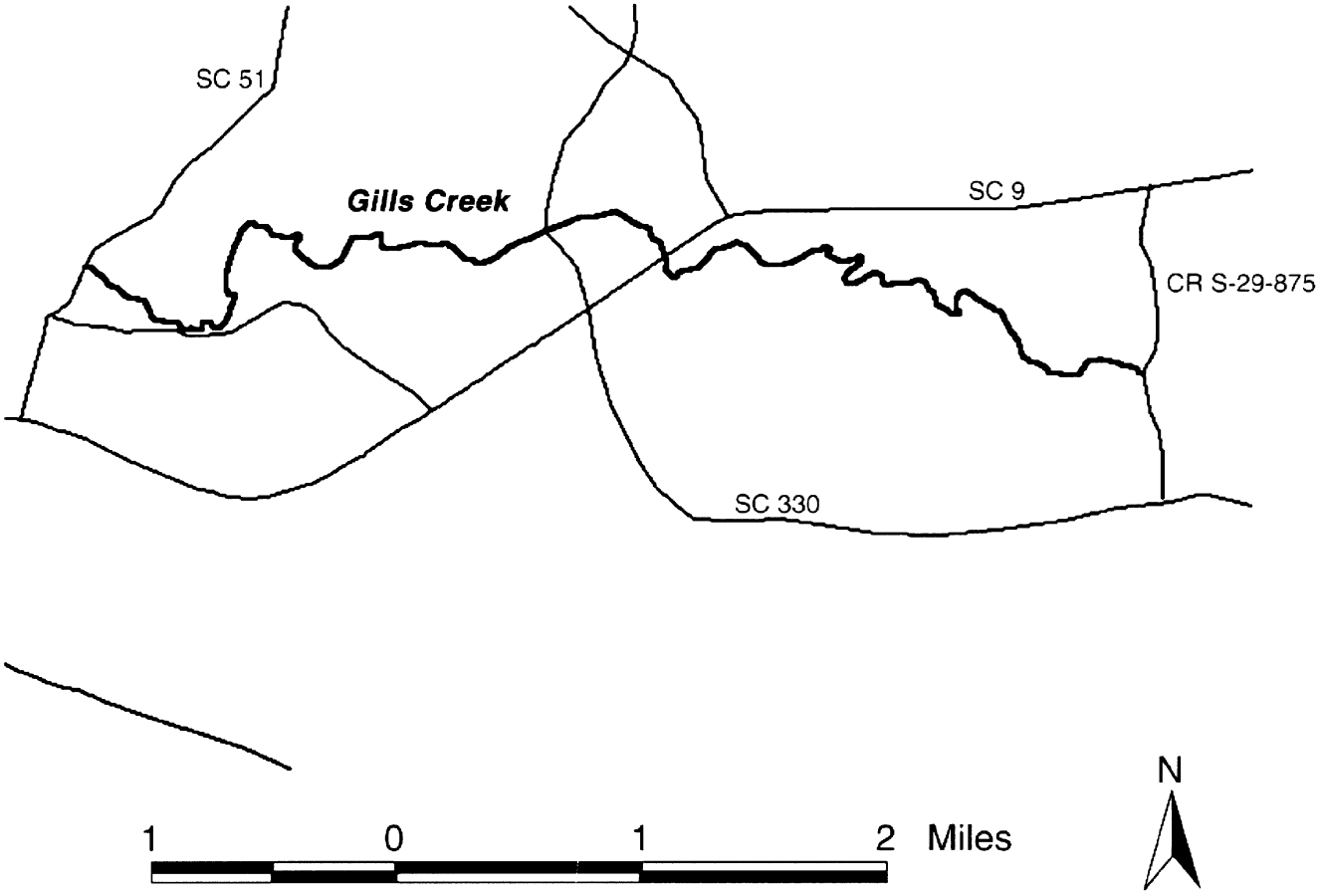


(4) Unit 3.

(i) Lancaster County, SC—main stem of Gills Creek (Catawba River system) from the County Route S–29–875, downstream to the S.C. Route 51 Bridge, east of the city of Lancaster.

(ii) Map of Unit 3 follows:

Unit 3. Gills Creek (Catawba River System), Lancaster County, South Carolina.

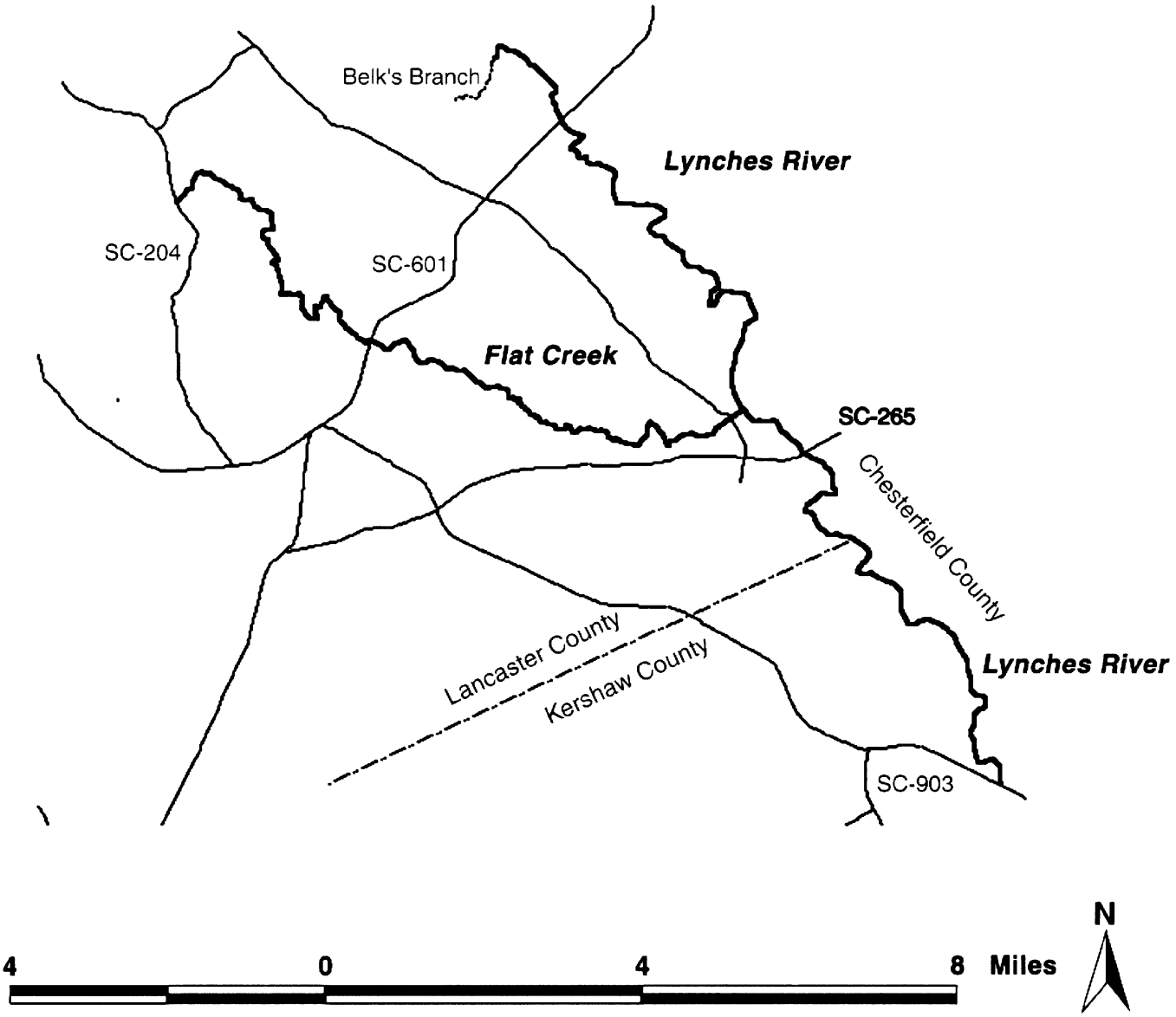


(5) Unit 4.

(i) Lancaster, Chesterfield, and Kershaw Counties, SC—main stem of Flat Creek (Pee Dee River system), Lancaster County, from the S.C. Route 204 Bridge, downstream to its confluence with Lynches River, and the main stem of the Lynches River, Lancaster and Chesterfield Counties, from the confluence of Belk Branch, Lancaster County, northeast (upstream) of the U.S. Highway 601 Bridge, downstream to the S.C. Highway 903 Bridge in Kershaw County.

(ii) Map of Unit 4 follows:

Unit 4. Flat Creek and Lynches River (Pee Dee River System), Lancaster and Kershaw Counties, South Carolina.

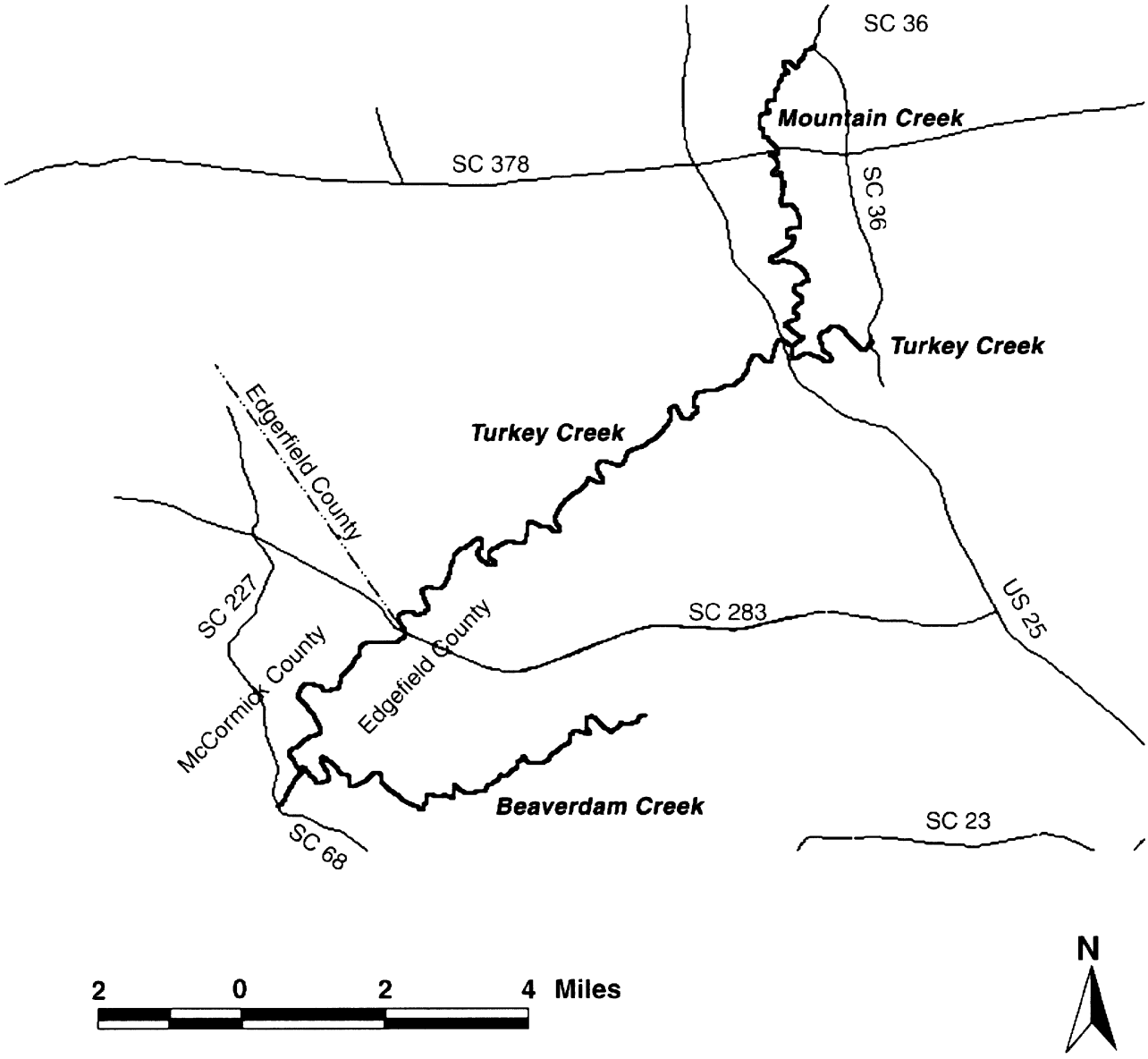


(6) Unit 5.

(i) Edgefield and McCormick Counties, SC—main stem of Mountain Creek (Savannah River system), Edgefield County, SC, from the S.C. Route 36 Bridge, downstream to its confluence with Turkey Creek; Beaverdam Creek, Edgefield County, from the S.C. Route 51 Bridge, downstream to its confluence with Turkey Creek; and Turkey Creek, from the S.C. Route 36 Bridge, Edgefield County, downstream to the S.C. Route 68 Bridge, Edgefield and McCormick Counties.

(ii) Map of Unit 5 follows:

Unit 5. Mountain and Beaverdam Creeks (Savannah River System), Edgefield County, South Carolina, and Turkey Creek (Savannah River System), Edgefield and McCormick Counties, South Carolina.

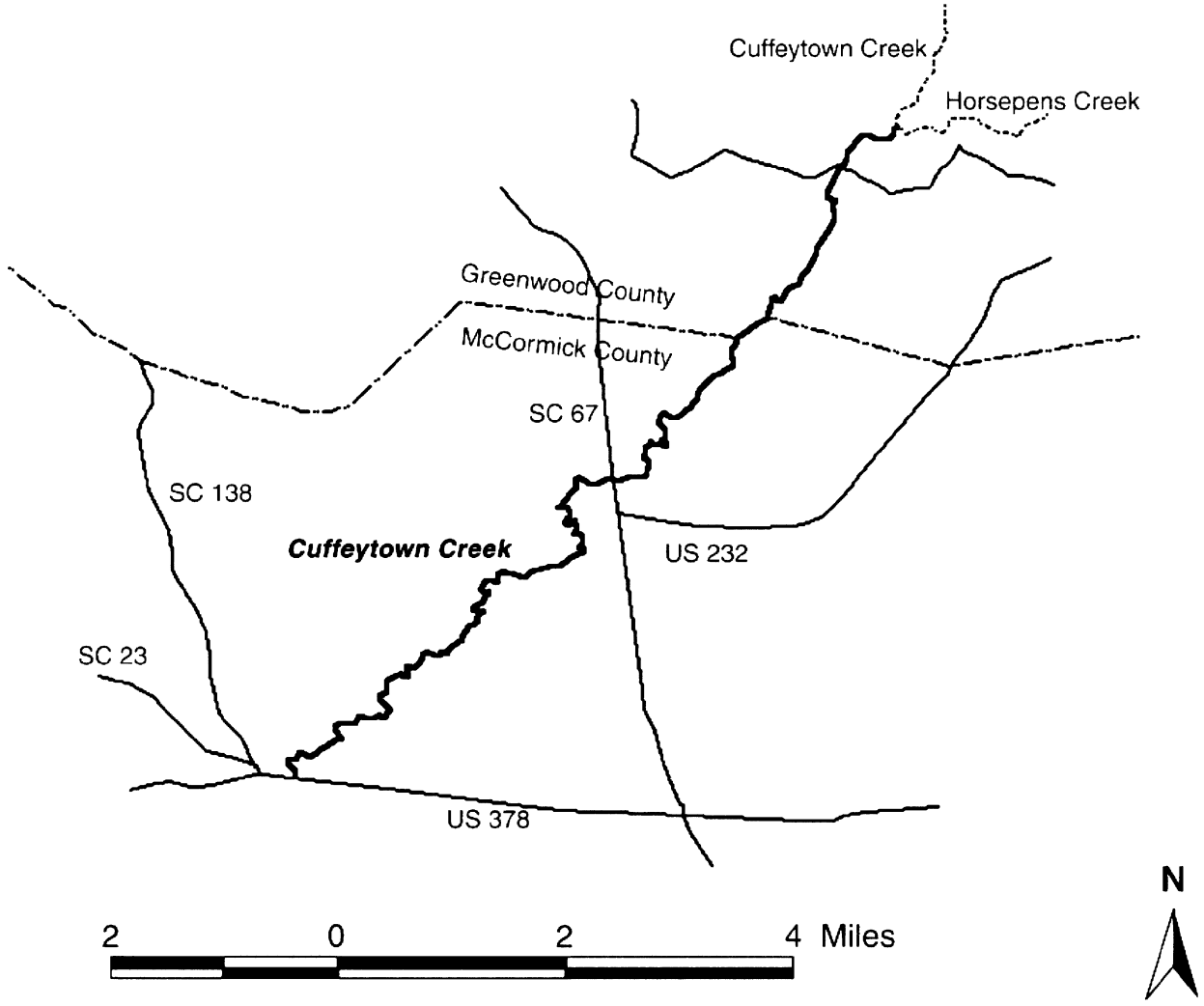


(7) Unit 6.

(i) Greenwood and McCormick Counties, SC—main stem of Cuffytown Creek (Savannah River system), from the confluence of Horsepen Creek, northeast (upstream) of the S.C. Route 62 Bridge in Greenwood County, downstream to the U.S. Highway 378 Bridge in McCormick County.

(ii) Map of Unit 6 follows:

Unit 6. Cuffeytown Creek (Savannah River System), Greenwood and McCormick Counties, South Carolina.



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(8) Within these areas, the primary constituent elements include:

(i) Permanent, flowing, cool, clean water;

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

(iii) Pool, riffle, and run sequences within the channel;

(iv) Stable substrates with no more than low amounts of fine sediment;

(v) Moderate stream gradient;

(vi) Periodic natural flooding; and

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

* * * * *

Dated: June 24, 2002.

Craig Manson,

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 02–16580 Filed 7–1–02; 8:45 am]

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