

removal), and gravel mining, caused stream bed scour and erosion, increased turbidity, reduction of groundwater levels, and sedimentation, often resulting in severe local impacts to and even extirpation of mussel species. Sedimentation may also eliminate or reduce recruitment of juvenile mussels (Negus 1966), and suspended sediments can also interfere with feeding (Dennis 1984).

Water pollution from various point-sources such as mines, industrial plants, and municipal sewage treatment facilities also have contributed to the demise or decline of the five species in certain portions of their historical ranges. Freshwater mussels, especially in their early life stages, are extremely sensitive to many pollutants (e.g., chlorine, ammonia, heavy metals, high concentrations of nutrients) commonly found in municipal and industrial wastewater effluents (Havlik and Marking 1987; Goudreau *et al.* 1988; Keller and Zam 1991). Stream discharges from these sources could result in decreased dissolved oxygen concentration, increased acidity and conductivity, and other changes in water chemistry, which may impact mussels or their host fish.

An additional major impact on individual populations of the five mussels that has resulted from historic activities (especially dam construction) was separation and isolation of populations by impoundments or large stretches of unsuitable habitat, rendering natural reproduction between those populations (and associated genetic interchange) problematic (Service 2003). Once existing in hundreds of river kilometers, these five mussels now survive in only a few relatively small, isolated populations of questionable long-term viability which cover portions of Virginia, Kentucky, Alabama, Tennessee, and Mississippi (Service 2003). Small populations are more vulnerable to natural random events such as droughts, as well as to changes in human activities and land-use practices that impact aquatic habitats (Neves *et al.* 1997). Current threats to surviving populations of these five mussels include continued habitat loss and fragmentation, cumulative effects of land use activities on aquatic environments, population isolation and associated deleterious genetic effects such as inbreeding depression, and competition with invasive exotic mussel species (Foote *et al.* 1995; Neves *et al.* 1997). Non-point source pollution, such as sediment and agrochemical run-off, which are known to adversely affect aquatic invertebrates (Waters 1995; Folkerts 1997) also poses a continuing

threat to the long-term survival of these remaining mussel populations (Wolcott and Neves 1990; Neves *et al.* 1997; Service 2003). More detailed information on the threats to these species can be found in the January 10, 1997, final listing determination (62 FR 1647) and the agency draft recovery plan for these five species (Service 2003).

Previous Federal Actions

We discussed our previous Federal actions in the Final listing rule for these 5 mussel species (62 FR 1649). The following discuss our Federal actions since the Final listing rule.

On January 10, 1997, we published a final rule listing the 5 mussels as endangered. At that time, we determined that critical habitat was not prudent because it would result in no known benefit to the five species and that designation could pose a further threat to the five mussels by publishing their site-specific localities.

In June 1998, a technical draft recovery plan for the five mussels was written and underwent a technical review dealing primarily with the biological accuracy and sufficiency of the plan. We released an agency draft recovery plan on April 22, 2003, and disseminated to State and Federal agencies, universities, public officials, nongovernmental organizations, and knowledgeable individuals for review and comment on all aspects of the plan. We published in the **Federal Register** a Notice of Draft Recovery Plan Availability (68 FR 19844). The comment period will close on June 23, 2003.

On October 12, 2000, the Southern Appalachian Biodiversity Project filed a lawsuit in U.S. District Court for the Eastern District of Tennessee against the Service, the Director of the Service, and the Secretary of the Department of the Interior, challenging our not-prudent critical habitat determination for the Cumberlandian combshell, Cumberland elktoe, purple bean, rough rabbitsfoot, and oyster mussel (United States District Court, Eastern District of Tennessee (*Southern Appalachian Biodiversity Project v. U.S. Fish and Wildlife Service et al.*, No. 2:00-CV-361). On November 8, 2001, the District Court issued an order directing us to re-evaluate our prudency determination for these five mussels and submit new proposed prudency determinations for the Cumberland elktoe to the **Federal Register** no later than May 19, 2003, and for the remaining four mussels to the **Federal Register** no later than June 16, 2003. We were also directed to submit by those same dates new proposed

critical habitat designations, if prudent. Additionally, for these mussels in which critical habitat was found to be prudent, we were directed to finalize our designation not less than 12 months following the prudency determination.

This proposal is the product of our re-evaluation of our 1997 determination that critical habitat for these five mussels was not prudent. It reflects our interpretation of recent judicial opinions on critical habitat designation and the standards placed on us for making a prudency determination. If additional information becomes available on the species' biology or distribution, or threats to the species, we may reevaluate this proposal to propose additional critical habitat, propose boundary refinements that substantially change existing proposed critical habitat, or withdraw our proposal to designate critical habitat.

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

The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. It does not allow government or public access to private lands. Federal agencies must consult with the Service on activities they undertake, fund, or permit that may affect critical habitat. However, the Act prohibits unauthorized take of listed species and requires consultation for activities that may affect them, including habitat alterations, regardless of whether critical habitat has been designated. The Service has found that the designation of critical habitat provides little additional protection to most listed species.

In order for habitat to be included in a critical habitat designation, the habitat features must be "essential to the conservation of the species." Such