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# Part II

# Department of the Interior

## Fish and Wildlife Service

**50 CFR Part 17**

**Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Rio Grande Silvery Minnow; Final Rule**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**RIN 1018–AH91**

## Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Rio Grande Silvery Minnow

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule; notice of availability.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), designate critical habitat for the Rio Grande silvery minnow (*Hybognathus amarus*) (silvery minnow), an endangered species under the Endangered Species Act of 1973, as amended (Act). On June 6, 2002, we proposed that 212 miles (mi) (339 kilometers (km)) be designated as critical habitat for the silvery minnow. The silvery minnow critical habitat designation in the Rio Grande extends from Cochiti Dam, Sandoval County, New Mexico (NM) downstream to the utility line crossing the Rio Grande, a permanent identified landmark in Socorro County, NM, a total of approximately 157 mi (252 km), referred to as the ''middle Rio Grande.'' The designation also includes the tributary Jemez River from Jemez Canyon Dam in NM to the upstream boundary of Santa Ana Pueblo, which is not included. The critical habitat designation defines the lateral extent (width) as those areas bounded by existing levees or, in areas without levees, 300 feet (ft) (91.4 meters (m)) of riparian zone adjacent to each side of the bankfull stage of the middle Rio Grande. The Pueblo lands of Santo Domingo, Santa Ana, Sandia, and Isleta within this area are not included in the final critical habitat designation. Except for these areas, the final remaining portion of the silvery minnow's occupied range in the middle Rio Grande in NM is being designated as critical habitat. This publication also provides notice of the availability of the final economic analysis and the final Environmental Impact Statement (EIS) for this final rule.

This final rule and EIS are being issued pursuant to a court order. On November 21, 2000, the United States District Court for the District of New Mexico, in *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F. Supp. 2d 1156 (D.N.M. 2000), set aside the July 6, 1999, critical habitat designation for the minnow and ordered us to issue both an EIS pursuant to the National Environmental Policy Act (NEPA) and a new proposed rule designating critical habitat for the silvery minnow.

**DATES:** This final rule is effective March 21, 2003.

**ADDRESSES:** Comments and materials received, as well as supporting documentation used in the preparation of this final rule, are available for public inspection, by appointment, during normal business hours at the New Mexico Ecological Services Field Office, 2105 Osuna Road NE, Albuquerque, NM 87113.

You may obtain copies of the final rule, the economic analysis, or the final EIS from the field office address above or by calling 505–346–2525. All documents are also available from our Web site at *http://ifw2es.fws.gov/Library/.*

If you would like copies of the regulations on listed wildlife or have questions about prohibitions and permits, contact the U.S. Fish and Wildlife Service, Division of Endangered Species, P.O. Box 1306, Albuquerque, NM 87103.

**FOR FURTHER INFORMATION CONTACT:** Field Supervisor, New Mexico Ecological Services Field Office (see **ADDRESSES** section above); telephone: 505–346–2525. Division of Endangered Species (see **ADDRESSES** section above); telephone 505–248–6920; facsimile 505–248–6788.

**SUPPLEMENTARY INFORMATION:**

### Background

The Rio Grande silvery minnow is one of seven species in the genus *Hybognathus* found in the United States (Pflieger 1980). The species was first described by Girard (1856) from specimens taken from the Rio Grande near Fort Brown, Cameron County, TX. It is a stout silvery minnow with moderately small eyes and a small, slightly oblique mouth. Adults may reach 3.5 inches (in) (90 millimeters (mm)) in total length (Sublette *et al.* 1990). Its dorsal fin is distinctly pointed with the front of it located slightly closer to the tip of the snout than to the base of the tail. The fish is silver with emerald reflections. Its belly is silvery white, its fins are plain, and barbels are absent (Sublette *et al.* 1990).

This species was historically one of the most abundant and widespread fishes in the Rio Grande Basin, occurring from Española, NM, to the Gulf of Mexico (Bestgen and Platania 1991). It was also found in the Pecos River, a major tributary of the Rio Grande, from Santa Rosa, NM, downstream to its confluence with the Rio Grande (Pflieger 1980). The silvery minnow is extirpated from the Pecos River and also from the Rio Grande downstream of Elephant Butte Reservoir and upstream of Cochiti Reservoir (Bestgen and Platania 1991). The current distribution of the silvery minnow is limited to the Rio Grande between Cochiti Dam and Elephant Butte Reservoir. Throughout much of its historic range, the decline of the silvery minnow has been attributed to modification of the flow regime (hydrological pattern of flows that vary seasonally in magnitude and duration, depending on annual precipitation patterns such as runoff from snowmelt) and channel drying resulting from impoundments, water diversion for agriculture, stream channelization, and perhaps both interactions with non-native fish and decreasing water quality (Cook *et al.* 1992; Bestgen and Platania 1991; Service 1999; Buhl 2001).

Much of the species' life history information detailed below comes from studies conducted within the middle Rio Grande, the current range of the silvery minnow. Nevertheless, we believe that our determinations for other areas outside of the middle Rio Grande, but within the historic range of the silvery minnow, are consistent with the data collected to date on the species' ecological requirements (*e.g.,* Service 1999).

The role of the plains minnow (*Hybognathus placitus*) in the decline and extirpation of the silvery minnow from the Pecos River is uncertain; however, the establishment of the plains minnow coincided with the disappearance of the silvery minnow from the Pecos River (Bestgen and Platania 1991; Cook *et al.* 1992). Cook *et al.* (1992) believed that the non-native plains minnow was introduced into the Pecos drainage prior to 1964, and was probably the result of the release of ''bait minnows'' collected from the Arkansas River drainage. It is unclear, however, if populations of the native silvery minnow were depleted prior to the introduction of the plains minnow, or if the reduction and extirpation of the silvery minnow was a consequence of the interactions between the two species (C. Hoagstrom, U.S. Fish and Wildlife Service, pers. comm. 2001). One theory is that the plains minnow may be more tolerant of modified habitats and, therefore, was able to replace the silvery minnow in the degraded reaches of the Pecos River. Nevertheless, the plains minnow has experienced population declines within its native range from highly variable water levels, unstable streambeds, and fluctuating water temperatures (Cross *et al.* 1985, cited in

Taylor and Miller 1990). Although the interactions (*e.g.,* hybridization or competition) between the silvery minnow and the introduced plains minnow are believed by some to be one of the primary causes for the extirpation of the silvery minnow in the Pecos River, this hypothesis is unsubstantiated (Hatch *et al.* 1985; Bestgen *et al.* 1989; Cook *et al.* 1992). Currently, New Mexico State University is conducting research on the plains minnow and silvery minnow to determine if the two species hybridize. These studies are ongoing and results should be available in 2003 (C. Caldwell, U.S. Geological Survey, Biological Resources Division pers. comm. 2002).

Within its native range, the plains minnow is sympatric (occurs at the same localities) with other species of *Hybognathus,* but is separated ecologically from them. For example, the plains minnow is found in the main river channel where the substrate is predominantly sand, whereas related species such as the western silvery minnow (*Hybognathus argyritis*) predominate in backwaters and protected areas with little to no current and sand or silt substrate (Pflieger 1997). Consequently, if the silvery minnow and plains minnow do not hybridize, they may be ecologically segregated and able to co-exist.

The plains minnow and silvery minnow appear to have little in the way of behavioral or physiological isolating mechanisms and may hybridize (Cook *et al.* 1992); yet the combined effects of habitat degradation (*i.e.*, modification of the flow regime, channel drying, water diversion, and stream channelization) may be another potential explanation for the silvery minnow's extirpation from the Pecos River (Bestgen and Platania 1991; C. Hoagstrom, pers. comm. 2001). We acknowledge that no conclusive data exist to determine the cause of extirpation of the silvery minnow from the Pecos River.

The silvery minnow has also been extirpated from the Rio Grande downstream of Elephant Butte Reservoir, NM, to the Gulf of Mexico, Texas (TX), including the river reach within Big Bend National Park (Hubbs *et al.* 1977; Bestgen and Platania 1991). Reasons for the species' extirpation in the lower Rio Grande are also uncertain. The last documented collection of a silvery minnow in the Big Bend area was 1961, but reexamination of that specimen revealed it was a plains minnow (Bestgen and Propst 1996). Therefore, the last silvery minnow from the lower Rio Grande was apparently collected in the late 1950s (Trevino-Robinson 1959; Hubbs *et al.* 1977; Edwards and Contreras-Balderas 1991).

Prior to measurable human influence on the middle Rio Grande, starting in the 1300's, (Biella and Chapman 1977), the Rio Grande was a perennially flowing, aggrading river with a shifting sand substrate. In general, the river was slightly sinuous and braided, and freely migrated across the floodplain. Strong evidence now suggests that the middle Rio Grande started drying up on a fairly regular basis only after the development of Colorado's San Luis Valley in the 1870's. Prior to this, there are only two examples of its flow ceasing, during prolonged, severe droughts in 1752 and 1861. Over the past century, and particularly in the last few decades, the middle Rio Grande has been frequently dewatered, particularly in the river reach from Isleta Diversion Dam to the San Acacia Diversion Dam (Isleta reach) and the reach from San Acacia Diversion Dam to Elephant Butte Reservoir (San Acacia reach) (Middle Rio Grande Conservancy District (MRGCD) 1999; Scurlock and Johnson 2001; Scurlock 1998).

Decline of the species in the middle Rio Grande probably began in 1916 when the gates of Elephant Butte Dam were closed. Construction of the dam signaled the beginning of an era of dam construction on the mainstem Rio Grande that resulted in five major mainstem dams within the silvery minnow's historic range (Shupe and Williams 1988). These dams (Cochiti, Elephant Butte, Caballo, International Amistad, and International Falcon) allowed manipulation and diversion of the river's flow. Often this manipulation severely altered the flow regime and likely precipitated the decline of the silvery minnow (Bestgen and Platania 1991). Water management and use has resulted in a large reduction of suitable habitat for the silvery minnow. Lack of water is likely the single most important limiting factor for the survival of the species (Service 1999). Agriculture accounts for 90 percent of the water consumption in the middle Rio Grande (Bullard and Wells 1992). The average annual diversion of water in the middle Rio Grande by the MRGCD was 535,280 acre-feet (af) for the period from 1975 to 1989 (U.S. Bureau of Reclamation (BOR) 1993). The silvery minnow historically survived low flow periods because such events were infrequent and of lesser magnitude, and there were no diversion dams to restrict free movement of silvery minnows in the river (59 FR 36988). Concurrent with construction of the mainstem dams was an increase in the abundance of non-native fish (largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*)) as these species were stocked into the reservoirs created by the dams (*e.g.*, Cochiti Reservoir) (Sublette *et al.* 1990). Once established, these species often completely replaced the native fish fauna (Propst *et al.* 1987; Propst 1999).

Development of agriculture and the growth of cities within the historic range of the silvery minnow resulted in a decrease in the quality of river water caused by municipal and agricultural runoff (*i.e.*, sewage and pesticides) that may have also adversely affected the range and distribution of the silvery minnow. Historically there were four other small native fish species (speckled chub (*Macrohybopsis aestivalis*); Rio Grande shiner (Notropis jemezanus); phantom shiner (*Notropis orca*); and Rio Grande bluntnose shiner (*Notropis simus simus*)) within the middle Rio Grande that had similar reproductive attributes, but these species are now either extinct or extirpated (Platania 1991).

The various life history stages of the silvery minnow require shallow waters with a sandy and silty substrate that is generally associated with a meandering river that includes sidebars, oxbows, and backwaters (C. Hoagstrom, pers. comm, 2001; Bestgen and Platania 1991; Platania 1991). However, physical modifications to the Rio Grande over the last century—including the construction of dams, levees, and channelization of the mainstem—have altered much of the habitat that is necessary for the species to persist (Service 1999). Channelization has straightened and shortened mainstem river reaches; increased the velocity of the current; and altered riparian vegetation, instream cover, and substrate composition (BOR 2001a). Adult silvery minnows occur in shallow braided runs over sand substrate, but rarely in habitat with substrate of gravel or cobble (Platania 1991; Dudley and Platania 1997; Platania and Dudley 1997; Remshardt *et al.* 2001).

The silvery minnow is a pelagic spawning species; *i.e.*, its eggs flow in the water column. The silvery minnow is the only surviving small, native pelagic spawning minnow in the middle Rio Grande, and its range has been reduced to only 5 percent of its historic extent. Although the silvery minnow is a hearty fish, capable of withstanding many of the natural stresses of the desert aquatic environment, most individual silvery minnows live only one year (Bestgen and Platania 1991). Thus, a successful annual spawn is key to the survival of the species (Platania and Hoagstrom 1996; Service 1999; Dudley and Platania 2001, 2002b). The

silvery minnow's range has been so greatly restricted that the species is extremely vulnerable to catastrophic events, such as a prolonged period of low or no flow (*i.e.*, the loss of all surface water) (59 FR 36988; Dudley and Platania 2001).

In the middle Rio Grande, the spring runoff coincides with and may trigger the silvery minnow's spawn (Platania and Hoagstrom 1996; Service 1999; Dudley and Platania 2001). For example, 1,850 cubic feet per second (cfs) of water was released from Cochiti Reservoir on May 13, 2002, to provide for silvery minnow spawning. Following the release, a significant spawning event occurred in the middle Rio Grande. During a spawn, semibuoyant (floating) eggs drift downstream in the water column (Smith 1999; Dudley and Platania 2001) (see ''Primary Constituent Elements'' section of this final rule for further information on spawning). However, diversion dams are believed to act as instream barriers and prevent silvery minnows from moving upstream after hatching (Service 2001b; Dudley and Platania 2001; 2002a). In fact, the continued downstream displacement and decline of the silvery minnow in the middle Rio Grande is well documented (Dudley and Platania 2001).

During the irrigation season (approximately March 1 to October 31 of each year) in the middle Rio Grande, silvery minnow often become stranded in the diversion channels (or irrigation ditches), where they are unlikely to survive (Smith 1999; Lang and Altenbach 1994). For example, when the irrigation water in the diversion channels is used on agricultural fields, the possibility for survival of silvery minnows in the irrigation return flows (excess irrigation water that flows from agricultural fields and is eventually returned to the river) is low, because silvery minnows perish in canals because of unsuitable habitat, dewatering, or predation (Lang and Altenbach 1994). Unscreened diversion dams also entrain (trap) silvery minnow fry (fish that have recently emerged from eggs) and semibuoyant eggs (Smith 1998; 1999). However, some irrigation water is returned to the river via irrigation waterways in the reach of the middle Rio Grande from the Isleta reach, which helps sustain flow in certain segments of this reach. Nevertheless, we do not have evidence that these riverside drains offer suitable refugia for the silvery minnow.

Perhaps even more problematic for the silvery minnow in the middle Rio Grande are drought years during the irrigation season when there may be little supplemental water (water that is used to augment river flows) available. Compounding this problem is stream bed aggradation (*i.e.*, the river bottom is rising due to sedimentation) below San Acacia, NM, where the bed of the river is now perched above the bed of the low flow conveyance channel (LFCC). The LFCC is immediately adjacent to and parallels the Rio Grande for approximately 75 mi (121 km) and was designed to expedite delivery of water to Elephant Butte Reservoir, pursuant to the Rio Grande Compact of 1939. The LFCC diverted water from the Rio Grande from 1959 to 1985. Because the river bed is now above the LFCC, waters in the mainstem of the river are drained from the river bed into the LFCC. The LFCC has the capacity to take approximately 2,000 cfs of the river's flow, via gravity. If natural river flow is 2,000 cfs or less, the LFCC can dewater the Rio Grande from its heading at the San Acacia Diversion Dam south to Elephant Butte Reservoir.

However, the LFCC has not been fully operational since 1985 because of siltation of the lower end (*i.e.*, stream bed aggradation) at Elephant Butte Reservoir. Even without water diversion into the LFCC, seepage from the river to the LFCC is occurring and causing some loss of surface flows in the river channel (BOR 2001a). In effect, water is drained from the Rio Grande into the LFCC thereby resulting in water losses in the reach from the San Acacia reach. During some years this can result in prolonged recurring periods of low or no flow.

It is believed that, historically, the silvery minnow was able to withstand periods of drought primarily by retreating to pools and backwater refugia, and swimming upstream to repopulate upstream habitats (Deacon and Minckley 1974; J. Smith, U.S. Fish and Wildlife Service, pers. comm. 2001). Platania (1995) posits that after prolonged recurring periods of low or no flow the silvery minnow may have been able to repopulate downstream habitat the following year because eggs drifted from upstream populations (Platania 1995). Although able to survive droughts historically through such movements, the present-day middle Rio Grande dries and dams prevent upstream movement. As a result silvery minnows can become trapped in dewatered reaches and may die in isolated pools before the river becomes wetted again. The inability of the population to find adequate refugia during prolonged recurring periods of low or no flow and to repopulate extirpated reaches creates a very unstable population (Service 2001b).

In some isolated pools, Smith and Hoagstrom (1997) and Smith (1999) documented complete mortality of silvery minnows in the middle Rio Grande in both 1996 and 1997 during prolonged periods of low or no flow. These studies documented both the relative size of the isolated pool (*i.e.*, estimated surface area and maximum depth) in relation to pool longevity (*i.e.*, number of days the isolated pool existed) and the fish community within isolated pools. Isolated pools found during these conditions typically only lasted for about 48 hours before drying up completely (Smith 1999). Those isolated pools that persisted longer than 48 hours lost greater than 81 percent of their estimated surface area and greater than 26 percent of their maximum depth within 48 hours. Moreover, isolated pools receive no surface inflow, water temperatures increase, and dissolved oxygen decreases; depending on location, size, and duration of the prolonged recurring periods of low or no flow, these factors may result in the death of all fish (Tramer 1977; Mundahl 1990; Platania 1993b; Ostrand and Marks 2000; Ostrand and Wilde 2001). Therefore, when periods of low or no flow are longlasting (over 48 hours), complete mortality of silvery minnows in isolated pools can occur.

Formation of isolated pools also increases the risk of predation of silvery minnows in drying habitats. Predators, primarily fish and birds, have been observed in high numbers in the middle Rio Grande, consuming fish in drying, isolated pools where those fish become concentrated and are more vulnerable to predation (J. Smith, pers. comm. 2001).

The potential for prolonged recurring periods of low or no flow in the middle Rio Grande becomes particularly significant for the silvery minnow below the San Acacia Diversion Dam, where most silvery minnows have been recently captured. In the river reach above (north of) the San Acacia Diversion Dam, return flows from current irrigation operations and other activities are routed back into the mainstem of the middle Rio Grande. At times, this can provide a fairly consistent flow in particular stretches of the Isleta reach. However, at the San Acacia Diversion Dam, once diversions are made (*i.e.*, to irrigation canals, as well as seepage losses to the LFCC) the return flows continue in off-river channels (with a few exceptions at Brown's Arroyo and the 10-mile outfall of the LFCC) until they enter Elephant Butte Reservoir. Thus, unlike in the Isleta reach, the silvery minnow does not receive the benefit of irrigation return flows in the San Acacia reach.

**Previous Federal Action**

We proposed to list the silvery minnow as an endangered species with critical habitat on March 1, 1993 (58 FR 11821). The comment period, originally scheduled to close on April 30, 1993, was extended to August 25, 1993 (58 FR 19220; April 13, 1993). That extension allowed us to conduct public hearings and to receive additional public comments. Public hearings were held in Albuquerque and Socorro, NM, on the evenings of June 2 and 3, 1993, respectively. After a review of all comments received in response to the proposed rule, we published the final rule to list the silvery minnow as endangered on July 20, 1994 (59 FR 36988).

Section 4(a)(3) of the Act requires that the Secretary, to the maximum extent prudent and determinable, designate critical habitat at the time a species is listed as endangered or threatened. Our regulations (50 CFR 424.12(a)(2)) state that critical habitat is not determinable if information sufficient to perform required analyses of the impacts of the designation is lacking or if the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. At the time the silvery minnow was listed, we found that critical habitat was not determinable because there was insufficient information to allow us to perform the required analyses of the impacts of the designation.

We contracted for an economic analysis of the proposed critical habitat designation in September 1994, and a draft analysis was prepared and provided to us on February 29, 1996. The draft document was then provided to all interested parties on April 26, 1996. That mailing included 164 individuals and agencies, all affected Pueblos in the valley, all county commissions within the occupied range of the species, and an additional 54 individuals who had attended the public hearings on the proposed listing and who had requested that they be included on our mailing list, particularly for the economic analysis. At that time, we notified the public that, because of a moratorium on final listing actions and determinations of critical habitat imposed by Public Law 104–6, no work would be conducted on the analysis or on the final decision concerning critical habitat. However, we solicited comments from the public and agencies on the document for use at the time such work resumed.

On April 26, 1996, the moratorium was lifted. Following the waiver of the moratorium, we reactivated the listing program that had been shut down for over a year and faced a backlog of 243 proposed species listings. In order to address that workload, we published, on May 16, 1996, our Listing Priority Guidance for the remainder of Fiscal Year 1996 (61 FR 24722). That guidance identified the designation of critical habitat as the lowest priority upon which we could expend limited funding and staff resources. Subsequent revisions of the guidance for Fiscal Years 1997 (December 5, 1996; 61 FR 64475) and for 1998–1999 (May 8, 1998; 63 FR 25502) retained critical habitat as the lowest priority for the listing program within the Service. Thus, no work resumed on the economic analysis.

On February 22, 1999, in *Forest Guardians* v. *Babbitt,* Civ. No. 97–0453 JC/DIS, the United States District Court for the District of New Mexico ordered us to publish a final determination with regard to critical habitat for the silvery minnow within 30 days. The deadline was subsequently extended by the court to June 23, 1999. On July 6, 1999, we published a final designation of critical habitat for the silvery minnow (64 FR 36274), pursuant to the court order.

On November 21, 2000, the United States District Court for the District of New Mexico, in *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F. Supp. 2d 1156 (D.N.M. 2000), set aside the July 6, 1999, critical habitat designation because we had not issued an EIS, hence we were ordered to issue both an EIS pursuant to the National Environmental Policy Act (NEPA) and a new proposed rule designating critical habitat for the silvery minnow. This final rule and the EIS are being issued pursuant to that court order.

On April 5, 2001, we mailed approximately 500 copies of a preproposal notification letter to the 6 middle Rio Grande Indian Pueblos (Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, and Isleta), various governmental agencies, interested individuals, and the New Mexico Congressional delegation. The letter informed them of our intent to prepare an EIS for the proposed designation of critical habitat for the silvery minnow and announced public scoping meetings pursuant to NEPA. On April 17, 23, 24, and 27, 2001, we held public scoping meetings in Albuquerque, NM; Carlsbad, NM; Fort Stockton, TX; and Socorro, NM, respectively. We solicited oral and written comments and input. We were particularly interested in obtaining additional information on the status of the species or information concerning threats to the species. The comment period closed June 5, 2001. We received approximately 40 comments during the EIS scoping process. During April 2001, we contracted with Industrial Economics Incorporated for an economic analysis and the Institute of Public Law at the University of New Mexico School of Law for an EIS on the proposed critical habitat designation.

Following the closing of the scoping comment period, we outlined possible alternatives for the EIS. We held a meeting on September 12, 2001, to solicit input on the possible alternatives from the Rio Grande Silvery Minnow Recovery Team (Recovery Team) and other invited participants including individuals from the Carlsbad Irrigation District, Fort Sumner Irrigation District, the States of New Mexico and Texas, and potentially affected Pueblos and Tribes. Following this meeting, we sent letters to the Recovery Team and other invited participants, including Tribal entities and resource agencies in NM and TX, to solicit any additional information (particularly biological, cultural, social, or economic data) that may be pertinent to the economic analysis or EIS. We received 10 comments in response to our requests for additional information. We fully considered the information provided in the comment letters as we developed the alternatives analyzed in the draft EIS, which included the proposed rule as our preferred alternative.

On June 6, 2002, we proposed that 212 mi (339 km) be designated as critical habitat for the silvery minnow (67 FR 39206). The comment period for the proposed rule, draft EIS, and draft Economic Analysis was originally scheduled to close on September 4, 2002, but was extended until October 2, 2002 (67 FR 57783).

In this final rule, we determine that a river reach in the lower Rio Grande in Big Bend National Park downstream of the park boundary to the Terrell/Val Verde County line, TX (lower Rio Grande), and a river reach in the middle Pecos River, from Sumner Dam to Brantley Dam in De Baca, Chaves, and Eddy Counties, NM (middle Pecos River), are essential to the conservation of the silvery minnow. However, these areas are not designated as critical habitat because of our analysis under section 4(b)(2) (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section of this rule). This critical habitat designation includes the middle Rio Grande from Cochiti Dam to the utility line crossing the Rio Grande just east of the Bosque Well as demarcated on USGS Paraje Well 7.5 minute quadrangle (1980), Socorro County, NM, with the Universal Transverse Mercator

(UTM) coordinates of UTM Zone 13: 311474 E, 3719722 N, as referenced with the 1927 North American Datum (NAD27). The designation also includes the tributary Jemez River from Jemez Canyon Dam to the upstream boundary of Santa Ana Pueblo, which is not included (*see* the ''Regulation Promulgation'' section of this rule for exact descriptions of boundaries of critical habitat), and no other reaches within the historic range of the silvery minnow. We have also not included four areas of the middle Rio Grande in the critical habitat because of Tribal management plans and other relevant issues (*see* ''Relationship of Critical Habitat to Pueblo Lands under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section of this rule). Therefore, we are only designating some sections of the river reaches currently occupied by the silvery minnow.

This final rule is selected as the preferred alternative in the final EIS, pursuant to NEPA, which we were required to prepare under court order from the United States District Court for the District of New Mexico, in *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F. Supp. 2d 1156 (D.N.M. 2000). The two reaches referenced above (*i.e.*, middle Pecos River and lower Rio Grande) were also analyzed in the EIS and Economic Analysis. We followed the procedures required by the Act, NEPA, and the Administrative Procedure Act during this Federal rulemaking process. Therefore, we solicited public comment on all reaches identified in the proposed rule as essential, including whether any of these or other areas should be excluded from the final designation pursuant to section 4(b)(2). As required by law, we have considered all comments received on the proposed rule, the draft EIS, and the draft economic analysis before making this final determination.

**Recovery Plan**

Restoring an endangered or threatened species to the point where it is recovered is a primary goal of our endangered species program. To help guide the recovery effort, we prepare recovery plans for most of the listed species native to the United States. Recovery plans describe actions considered necessary for conservation of the species, establish criteria for downlisting or delisting the species, and estimate time and cost for implementing the recovery measures needed. Although a recovery plan is not a regulatory document (*i.e.*, recovery plans are advisory documents because there are no specific protections, prohibitions, or requirements afforded to a species solely on the basis of a recovery plan), the information contained in the Rio Grande Silvery Minnow Recovery Plan (Recovery Plan) was considered in developing this critical habitat designation.

On July 1, 1994, the Recovery Team was established by the Service pursuant to section 4(f)(2) of the Act and our cooperative policy on recovery plan participation, a policy intended to involve stakeholders in recovery planning (July 1, 1994; 59 FR 34272). Stakeholder involvement in the development of recovery plans helps minimize the social and economic impacts that could be associated with recovery of endangered species. Numerous individuals, agencies, and affected parties were involved in the development of the Recovery Plan or otherwise provided assistance and review (Service 1999). On July 8, 1999, we finalized the Recovery Plan (Service 1999), pursuant to section 4(f) of the Act.

The Recovery Plan recommends recovery goals for the silvery minnow, as well as procedures to better understand the biology of the species. The primary goals of the Recovery Plan are to: (1) Stabilize and enhance populations of silvery minnow and its habitat in the middle Rio Grande valley and (2) reestablish the silvery minnow in at least three other areas of its historic range (Service 1999). The reasons for determining that these three areas were necessary for recovery include: (1) Consideration of the biology of the species (*e.g.*, few silvery minnows live more than 12 to 14 months, indicating the age-1 fish (*i.e.*, all fish born in 2000 that remain alive in 2001 would be age-1 fish) are almost entirely responsible for perpetuation of the species); (2) the factors in each reach that may inhibit or enhance reestablishment and security of the species vary among areas; and (3) it is unlikely that any single event would simultaneously eliminate the silvery minnow from three geographic areas (Service 1999).

In accordance with the Recovery Plan, we have initiated a captive propagation program for the silvery minnow (Service 1999; Brooks 2001). Silvery minnows are currently being propagated at five facilities in NM and one in South Dakota (SD); one additional NM facility will come on-line in 2003. We currently have silvery minnows housed at: (1) The Service's Dexter National Fish Hatchery and Technology Center, NM; (2) the Service's Mora National Fish Hatchery and Technology Center, NM; (3) the City of Albuquerque's Biological Park, NM; (4) the New Mexico State University, NM; (5) the New Mexico Department of Game and Fish's Rock Lake State Fish Hatchery, NM; and (6) the U.S. Geological Survey Biological Resources Division's Yankton Laboratory, SD (J. Brooks, pers. comm., 2002). Progeny of these fish are being used to augment the middle Rio Grande silvery minnow population, but could also be used in future augmentation or reestablishment programs for the silvery minnow in other river reaches (J. Remshardt, New Mexico Fishery Resources Office, pers. comm. 2001).

We have also salvaged and transplanted silvery minnows within the middle Rio Grande in recent years (Service 1996, 1998, 1999, 2000, 2001, 2002). Approximately 225,500 silvery minnow larvae and adults have been released (*i.e.*, stockings from captive bred fish or translocated from downstream reaches) since May 1996 (J. Remshardt, U.S. Fish and Wildlife Service, pers. comm. 2001). For example, in late 2001, the University of New Mexico (UNM) released 11,900 silvery minnows into the San Acacia Reach. In June 2002, we released 2,500 marked silvery minnows within the Angostura Reach. These fish were marked to determine the movement of silvery minnows in the wild. Results of studies of the effectiveness of these releases will be useful for evaluating future efforts to reintroduce the species. These results should be available in 2003 (R. Dudley and S. Platania, UNM, pers. comm. 2002).

We have also continued working with the Recovery Team since the Recovery Plan was finalized. We believe this critical habitat designation and our conservation strategy (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section below) are consistent with the Recovery Plan (Service 1999). The purpose of the Recovery Plan is to outline the research and data collection activities that will identify measures to ensure the conservation of the silvery minnow in the wild. We believe this critical habitat designation and our conservation strategy are consistent with the recommendations of the Recovery Plan and Recovery Team.

**Summary of Comments and Recommendations**

In the June 6, 2002, proposed rule, we requested all interested parties to submit comments or information concerning the designation of critical habitat for the silvery minnow (67 FR 39206). During the comment period, we held public hearings in Socorro and Albuquerque on June 25, and 26, 2002, respectively. We published newspaper notices inviting public comment and announcing the public hearings in the

following newspapers in NM: Albuquerque Journal, Albuquerque Tribune, Socorro Defensor Chieftain, Sante Fe New Mexican, and Las Cruces Sun. Transcripts of these hearings are available for inspection (*see* **ADDRESSES** section). The comment period was originally scheduled to close on September 4, but was extended until October 2, 2002 (September 12, 2002; 67 FR 57783). We contacted all appropriate State and Federal agencies, Tribes, county governments, scientific organizations, and other interested parties and invited them to comment. On June 6, 2002, we hosted a teleconference to provide a short presentation and answer questions by reporters on all aspects of the proposed critical habitat designation, the draft economic analysis, and draft EIS. We also provided notification of these documents through e-mail, telephone calls, letters, and news releases faxed and/or mailed to affected elected officials, media outlets, local jurisdictions, Tribes, and interest groups. We also published all of the associated documents on our Region 2 Internet site following their release on June 6, 2002.

We solicited five independent experts who are familiar with this species to peer review the proposed critical habitat designation. Only one of the peer reviewers submitted comments, and these supported the proposed designation. We also received a total of 34 oral and 54 written comments. Of the oral comments, 10 supported critical habitat designation and 24 opposed designation. Of the written comments, 17 supported critical habitat designation, 22 opposed designation, and 15 were neutral or provided additional information. We reviewed all comments received for substantive issues and new data regarding critical habitat and the silvery minnow, the draft economic analysis, and the draft EIS. In the following summary of issues we address all comments received on all three documents during the comment periods and public hearing testimony. Comments of a similar nature are grouped into issues.

*Issue 1: Biological Concerns*

(1) *Comment:* Some commenters state that the extent of critical habitat proposed by us is inadequate to address survival and recovery of the species (*e.g.*, critical habitat for the silvery minnow should be expanded beyond the current proposal). Recommendations for additional areas designated include the Rio Grande from Caballo to the NM-TX border, the area from the confluence of the Rio Conchas to the downstream boundary of Big Bend National Park, and the Pecos River from Sumner to Brantley Reservoir.

*Our Response:* Our analysis of the following two areas—(1) the river reach in the middle Pecos River, NM, from Sumner Dam to Brantley Dam in De Baca, Chaves, and Eddy Counties, NM; and (2) the river reach in the lower Rio Grande in Big Bend National Park downstream of the National Park boundary to the Terrell/Val Verde County line, TX—finds that the benefits of excluding these areas from the designation of critical habitat outweigh the benefits of including them (*see* ''Exclusions Under Section 4(b)(2)'' section). Although we believe these areas are essential to the conservation of the silvery minnow, these areas are not designated as critical habitat.

It is critical to the recovery of the silvery minnow that we reestablish the species in areas outside of its current occupied range. We believe that one of the goals of the Recovery Plan can be fulfilled by reestablishing the silvery minnow in areas of its historic range using the flexibility provided for in section 10(j) of the Act. In order to achieve recovery for the silvery minnow, we need assistance from local stakeholders to ensure the success of reestablishing the minnow in areas of its historic range. Use of section 10(j) is meant to encourage local cooperation through management flexibility. Critical habitat is often viewed negatively by the public since it is not well understood and there are many misconceptions about how it affects private landowners (E. Hein, U.S. Fish and Wildlife Service, pers. comm, 2002). It is important for recovery of this species that we have the support of the public when we move toward meeting the second recovery goal of reestablishing the species in areas of its historic range.

The reasons why other areas of the silvery minnow's historic range were not designated as critical habitat are detailed within the ''Reach-by-Reach Analysis'' section below. If, in the future, we determine from information or analysis that those areas designated in this final rule need further refinement or if we identify and determine additional areas to be essential to the conservation of the species and requiring special management or protection, we will evaluate whether a revision of critical habitat is warranted at that time.

(2) *Comment:* The current proposal for critical habitat for the silvery minnow is contrary to the recommendations of the Rio Grande Silvery Minnow Recovery Team and the Recovery Plan. The proposed designation is deficient in its omission of critical habitat in the ''three other areas within its historic range'' as required by the Recovery Plan. Our proposal to not designate the lower Rio Grande as critical habitat has no factual basis.

*Our Response:* It is important to note that we utilized the recommendations of the Recovery Team in the Recovery Plan, consistent with this definition of conservation, to conclude that the middle Rio Grande and the middle Pecos River from Sumner Dam to Brantley Dam, NM, and the lower Rio Grande from the upstream boundary of Big Bend National Park downstream through the area designated as a wild and scenic river to the Terrell/Val Verde County line, TX, are ''essential to the conservation of'' the silvery minnow. Although the middle Pecos River and the lower Rio Grande are not designated as critical habitat, we believe they are important for the recovery of the silvery minnow. Thus, we concur with the Recovery Plan that reestablishment of the silvery minnow within additional geographically distinct areas, within its historical range, is necessary to ensure the minnow's survival and recovery (Service 1999). However, recovery is not achieved by designating critical habitat. The Act provides for other mechanisms that will provide for reestablishment of the minnow outside of the middle Rio Grande and the eventual recovery of the silvery minnow. In addition, please see responses 1 and 44 for information related to this particular issue.

(3) *Comment:* The Service appears to be greatly concerned that critical habitat could jeopardize the trust and spirit of cooperation that has been established over the last several years because critical habitat designation would be viewed as an unwarranted and unwanted intrusion in the middle Pecos and lower Rio Grande. However, the same arguments can be made in the middle Rio Grande.

*Our Response:* The middle Pecos and lower Rio Grande are essential to the conservation of the silvery minnow. Still, the silvery minnow has been extirpated from these areas of its historic range and we believe that the appropriate means to potentially reestablish the species is through use of the 10(j) experimental population rule (*see* ''Exclusions Under Section 4(b)(2)'' section). We also have not included areas within the middle Rio Grande where we believe adequate special management is in place and because of other relevant issues (*see* ''Relationship of Critical Habitat to Pueblo Lands under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section).

However, we determine that other areas of the middle Rio Grande meet the definition of critical habitat, and we did not exclude these areas under section 4(b)(2) based upon economic or other relevant impacts.

We are actively involved with ensuring conservation benefits to the listed species within the middle Rio Grande by participating in a collaborative working group to develop a long-term strategy/solution (Middle Rio Grande Endangered Species Act Collaborative Program). We believe this type of cooperative program is an important opportunity to achieve and facilitate conservation of the minnow, while allowing water activities to continue.

(4) *Comment:* It is well documented that the Rio Grande has historically gone dry. The current proposal to keep the river running throughout the year is not reasonable, feasible, or necessary. You are attempting to create a habitat that has never existed. The proposed rule does not identify minimum flow requirements to maintain the primary constituent elements. Critical habitat will only increase the ''bureaucratic red tape,'' not silvery minnow habitat.

*Our Response:* Critical habitat primarily focuses on the maintenance of habitat features identified as primary constituent elements. Critical habitat does not serve to create these features where they do not currently exist.

We agree that some areas designated as critical habitat within the middle Rio Grande have the potential for periods of low or no flow under certain conditions (*see* ''Primary Constituent Elements'' section). We also recognize that the critical habitat designation specifically includes some areas that have lost flow periodically (MRGCD 1999; Scurlock and Johnson 2001; Scurlock 1998). We nevertheless believe these areas are essential to the conservation of the silvery minnow because they likely serve as connecting corridors for fish movement between areas of sufficient flowing water (*e.g., see* Deacon and Minckley 1974; Eberle et al. 1993). Additionally, we believe the designated critical habitat is essential for the natural channel geomorphology (the topography of the river channel) to maintain habitat, such as pools, by removing or redistributing sediment during high flow events (*e.g., see* Simpson *et al.* 1982; Middle Rio Grande Biological Interagency Team 1993). Therefore, we believe that the inclusion of an area that has the potential for periods of low or no flow as critical habitat will ensure the long-term survival and recovery of silvery minnow. As such, we believe that the primary constituent elements as described in this final rule provide for a flow regime that allows for short periods of low or no flow.

The primary constituent elements identified below provide a qualitative description of those physical and biological features necessary to ensure the conservation of the silvery minnow. We did not identify quantitative estimates of specific minimum thresholds (*e.g.,* minimum flows or depths), because we believe these estimates vary seasonally and annually, and by river reach within the designated critical habitat. Thus, we believe these thresholds are appropriately enumerated through section 7 provisions 7(a)(1) and 7(a)(2) (*e.g., see* Service 2001b), which can be easily changed if new information reveals effects to critical habitat in a manner or extent not previously considered (*see* 50 CFR 402.16(b)).

We based this final rule on the best available scientific information, including the recommendations in the Recovery Plan (Service 1999). We have designated only river reaches that currently contain the primary constituent elements (described below) during all or a part of the year and that are currently occupied by the minnow. We did not include river reaches where the current or potential suitability for the silvery minnow is unknown. Consequently, we are not attempting to create habitat conditions or minimum flow requirements, but rather, we will review projects that have a Federal nexus to ensure that any proposed actions do not adversely affect the current primary constituent elements to the extent that the designated critical habitat will be adversely modified or destroyed.

(5) *Comment:* The silvery minnow is doing very well in its current situation and is not vulnerable to a single catastrophic event. The captive breeding program is flourishing and it seems reasonable that you could release many millions of silvery minnows each spring. Therefore, you should not condemn the river to support a species that has an arbitrary designation and is not truly endangered.

*Our Response:* The purpose of the Act is to conserve listed species and the ecosystems on which they depend. Relegating a species to captivity does not conserve the ecosystem on which they depend. Controlled propagation is not a substitute for addressing factors responsible for an endangered or threatened species' decline. Therefore, our first priority is to recover wild populations in their natural habitat wherever possible, without resorting to the use of controlled propagation. This position is fully consistent with the Act. Moreover, there has been insufficient time to develop a captive propagation management plan that captures the majority of genetic variability of the minnow in the wild to maximize the low genetic diversity in captively propagated silvery minnows (Turner 2002).

We reviewed the best scientific and commercial data available to determine that the silvery minnow should be classified as an endangered species on July 20, 1994 (59 FR 36988). Procedures found at section 4(a)(1) of the Act, and regulations (50 CFR Part 424) issued to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. There is no evidence to suggest that the silvery minnow is recovered, and recovery goals outlined in the Recovery Plan have not yet been met. Therefore, we do not agree that the silvery minnow is ''doing very well in its current situation.'' Additionally, the silvery minnow occupies less than 5 percent of its historic range, and the likelihood of extinction from catastrophic events is high because of its limited range (Hoagstrom and Brooks 2000, Service 1999).

(6) *Comment:* In the proposed rule, the Service suggests that the primary constituent elements for the silvery minnow and Pecos bluntnose shiner are compatible. However, if this were the case, the silvery minnow would not be extirpated from the Pecos River.

*Our Response:* We continue to believe that the primary constituent elements for the Pecos bluntnose shiner critical habitat (*e.g.,* clean permanent water; a main river channel habitat with sandy substrate; and a low velocity flow (February 20, 1987; 52 FR 5295)) are compatible with our conservation strategy for repatriating the silvery minnow. There are no conclusive data to substantiate any reasons for extirpation of the silvery minnow from the Pecos River. Primary constituent elements are those physical and biological habitat components that are essential for the conservation of the species, and are not determined based upon the species' presence. The absence of silvery minnows from the Pecos River does not mean that the minnow's primary constituent elements are not present. (Also refer to the ''Background'' section for information on the role of the plains minnow (*Hybognathus placitus*) in the decline and extirpation of the silvery minnow from the Pecos River).

(7) *Comment:* One of the most significant threats to native fish in the southwestern United States is non-native fish; however, the Service did not provide any information on whether non-native fish affect the silvery minnow or its habitat.

*Our Response:* In the proposed critical habitat designation rule, we stated: ''Habitat alteration and loss, and non-native competition, predation, and other effects are inextricably intertwined and have contributed substantially to the endangered status of the silvery minnow (Service 1999; Dudley and Platania 2001). Furthermore, habitat alteration has been a significant contributor to non-native fish invasion, competition, and adverse effects. In turn, non-native species have likely contributed significantly to the inability of native fish, such as the silvery minnow, to persist in altered environments (Hubbs 1990; Propst 1999)'' (June 6, 2002; 67 FR 39206).

(8) *Comment:* There is a notable lack of data in your reports concerning the plains minnow found within the middle Rio Grande.

*Our Response:* Although the plains minnow was found infrequently in a survey of bait-fishing stores within the Rio Grande Basin (Schmitt 1975), the plains minnow has never been documented in the wild within the middle Rio Grande (R. Dudley, American Southwest Ichthyological Research Foundation, pers. comm., 2002; K. Bestgen, Colorado State University, Larval Fish Laboratory, pers. comm., 2002). The silvery minnow and plains minnow can be distinguished from each other by morphological and genetic differences (Bestgen and Propst 1996; Cook *et al.* 1992). Therefore, we believe that ''a lack of data'' is reflective of a lack of presence of the plains minnow in the middle Rio Grande.

(9) *Comment:* Critical habitat could result in the loss of flood pulses for uses such as periodic flooding of the bosque.

*Our Response:* The silvery minnow requires a spike in early spring to trigger spawning (Platania and Dudley 2000). Critical habitat will not result in the loss of this pulse of water. In fact, this hydrologic event could also periodically flood some areas of the bosque (bosque is the riparian areas adjacent to the Rio Grande).

(10) *Comment:* One commenter believes the Service overlooked important information that silvery minnows can bury in the wet sand and survive extensive periods, especially when the river bed is dry. This commenter states that when the river is dry, silvery minnows have been found by digging in the sand.

*Our Response:* There is no information in the scientific literature or provided by biologists researching the silvery minnow to indicate that the species can either bury underground or survive in the wet sand when the river is dry. Available evidence indicates that silvery minnows die only minutes after being removed from water.

(11) *Comment:* The Service should consider the use of irrigation ditches to recover the silvery minnow.

*Our Response:* Ephemeral or perennial irrigation canals and ditches, including the LFCC (*i.e.,* downstream of the southern boundary of Bosque del Apache National Wildlife Refuge to the headwaters of Elephant Butte Reservoir) do not offer suitable refugia and are not useful for conservation of the silvery minnow because they do not contain the primary constituent elements and the habitat is not sufficient to support viable populations of silvery minnow for extended periods of time (*see also* BOR 2001c). Silvery minnows found in canals and ditches are believed to represent silvery minnows that became entrapped due to the diversion of irrigation water from the mainstem middle Rio Grande. Nevertheless, we are aware that a study is being conducted by New Mexico State University to evaluate the usefulness of irrigation canals and ditches to the silvery minnow (Thompson 2002). We will assess the results of this study when they are available.

(12) *Comment:* Why does the Service indicate that agricultural runoff is detrimental to the silvery minnow, when the return flows are an important source of water for the species?

*Our Response:* We recognize that under current irrigation operations, the delivery of irrigation water and associated return flows play an important role in supporting fish survival in the lower reaches of the river. The return flows also help to provide water to meet Rio Grande Compact delivery obligations. Irrigation water deliveries to MRGCD and the six middle Rio Grande Pueblos provide ''carriage'' water that facilitates the more efficient delivery of supplemental water to benefit the silvery minnow. However, as noted in the background section, development of agriculture and the growth of cities within the historic range of the silvery minnow may have resulted in a decrease in the quality of river water through municipal and agricultural runoff (*i.e.,* sewage and pesticides).

*Issue 2: Procedural and Legal Compliance*

(13) *Comment:* The U.S. Army Corps of Engineers (Corps) should be held responsible for the plight of the silvery minnow because they constructed Cochiti Dam and drastically altered the species' habitat.

*Our Response:* The effects of past and ongoing human and natural factors leading to the current status of the silvery minnow is called the environmental baseline. The environmental baseline is a snapshot of the species' status at any point in time, and is updated when we conduct a section 7 biological opinion. No single entity can be held responsible for the status of the silvery minnow. However, the Corps is (as are many other entities) included in the Middle Rio Grande Endangered Species Act Collaborative Program and is part of the long-term solution to develop and implement activities to conserve the minnow.

(14) *Comment:* We must specify in the final rule for critical habitat whether the experimental population under section 10(j) of the Act would be essential or nonessential.

*Our Response:* When we designate a population as experimental, section 10(j) of the Act requires that we determine whether that population is either essential or nonessential to the continued existence of the species on the basis of the best available information. Any future recovery efforts, including repatriation of the species to areas of its historical range under section 10(j) of the Act, will be conducted in accordance with the pertinent sections of the Act, NEPA, and Federal rulemaking procedures. A NEPA analysis is necessary to carefully consider information concerning every significant environmental impact among all the alternatives and select a preferred alternative. We find that nonessential designations garner wider and more meaningful public support. However, at this time we cannot determine the type of 10(j) rule that may be proposed for the minnow.

(15) *Comment:* The establishment of experimental populations is purely speculative because according to the Service's regulations, the establishment of an experimental population requires an agreement among the Service, affected States, Federal agencies, and landowners. An agreement is unlikely to happen.

*Our Response:* We believe that the use of section 10(j) will encourage local cooperation through management flexibility. Our regulations state that we shall consult with appropriate State fish

and wildlife agencies, local government entities, affected Federal agencies, and affected private landowners in developing and implementing experimental population rules (50 CFR 17.81(d)). As noted above, any future recovery efforts, including reintroduction of the species to areas of its historic range, will be conducted in accordance with NEPA and the Act.

(16) *Comment:* Executive Orders 12866 and 12988 appear to apply to the proposed designation of critical habitat.

*Our Response:* We again read through the comments and information provided concerning Executive Orders 12866 (''Regulatory Planning and Review'') and 12988 (''Civil Justice Reform''). While the commenter did not adequately explain the rationale for why they believe our initial determinations in the proposed critical habitat designation were inadequate, we found nothing to warrant changing our original determinations about the applicability of these Executive Orders.

(17) *Comment:* How can critical habitat include the Isleta reach that the District Court for the District of New Mexico has determined could be dry? The District Court order provides for the potential draining of Heron Reservoir. If the current drought continues through 2003, potentially 75 percent of critical habitat could be dry. The court order from the District Court changes all of the previous analyses and conclusions concerning critical habitat designation. The Service has not considered Judge Parker's recent court order to provide water for the silvery minnow. The Service must consider and analyze all sources of storage water that will now be used for the silvery minnow.

*Our Response:* On September 23, 2002, the District Court for the District of New Mexico ordered the following: (1) The BOR must provide sufficient flows of water for the remainder of 2002 to maintain a flow of 50 cfs at San Acacia Diversion Dam, and to maintain a flow in the Albuquerque Reach from Angostura Diversion Dam to Isleta Diversion Dam; (2) if necessary to meet these flow requirements for the remainder of 2002, the BOR must release water from Heron Reservoir in 2002; and (3) the Federal Government must compensate those, if any, whose contractual rights to water are reduced in order to meet the flow requirements (*Rio Grande Silvery Minnow* v. *Keys,* Civ. No. 99–1320 JP/RLP–ACE).

In a court order issued October 16, 2002, the Tenth Circuit Court of Appeals stayed the District Court's order (*Rio Grande Silvery Minnow* v. *Keys,* Civ. No. 02–2254, 02–2255, 02–2267). The court order from the District Court for the District of New Mexico is currently under appeal in the Tenth Circuit Court of Appeals and a written decision has not been issued. On the basis of the consultation history of the silvery minnow, we do not anticipate that the voluntary supplemental water program discussed in responses to comments 56 and 57 will change. Because we anticipate that supplemental flows to avoid destruction or adverse modification of critical habitat will be similar, if not identical, to what is currently required to avoid jeopardizing the species, we do not believe that critical habitat will result in additional flow requirements during consultation. Nevertheless, future section 7 consultations will evaluate whether proposed actions jeopardize the continued existence of the silvery minnow or adversely modify or destroy critical habitat. Each consultation will be evaluated on a case-by-case basis following our regulations (50 CFR part 402).

(18) *Comment:* The Service should consider water table augmentation to satisfy the primary constituent elements rather than flow augmentation. Habitat restoration activities need to move forward quickly because the supplemental water program cannot continue at the current level.

*Our Response:* We appreciate these and other numerous suggestions we received regarding special management considerations. Water table augmentation and habitat restoration activities may provide for the maintenance and improvement of one or more of the primary constituent elements important for the species' long-term conservation. These types of special management activities, as well as other measures to avoid or minimize incidental take, will be reviewed during consultations with Federal agencies. (Refer to our response to comment 3 above for information on the collaborative working group.)

(19) *Comment:* The Service should consider the affidavits that were filed in September 2002, in response to the court case (*Rio Grande Silvery Minnow* v. *Keys,* Civ. No. 99–1320 JP/RLP–ACE). These include: Dr. Thomas Wesche, Subhas K. Shah, Sterling Grogan, Dr. Richard Valdez, Christopher S. Altenbach, John Whipple, John M. Stomp III, Rolf-Schmidt-Peterson, F. Lee Brown, and Walter G. Hines.

*Our Response:* We have considered the affidavits and found that none of the information appears to contradict the relevant conclusions for this final designation of critical habitat.

(20) *Comment:* The Service needs to consult with the State Department and Mexico as directed by Executive Order 12114 because the designation of critical habitat in the lower Rio Grande may have international implications.

*Our Response:* We are not designating critical habitat along the international border in the lower Rio Grande. We did not consult with the State Department and Mexico because we believe that the action of designating critical habitat within the middle Rio Grande will not have significant effects on the environment outside the geographical borders of the United States and its territories.

(21) *Comments:* The economic analysis and proposed critical habitat demonstrate a complete disregard for the unique culture and historic heritage associated with agriculture within the middle Rio Grande.

*Our Response:* As described in the final EIS, we are aware of the unique heritage associated with agriculture within the middle Rio Grande. Still, the regulatory requirements associated with critical habitat do not apply to any agricultural activities, including farming or livestock grazing, or any other activity carried out on private land that does not require and/or involve a Federal permit, authorization, or funding. Because the silvery minnow is listed as endangered, Federal agencies already are required to consult with us on any of their actions that are likely to adversely affect the species and to ensure that their actions do not jeopardize the species' continued existence, regardless of whether critical habitat has been designated. Therefore, we do not believe the designation of critical habitat for the silvery minnow will result in any significant additional regulatory burden on landowners or affect the use of their private property.

(22) *Comment:* No one was aware that the silvery minnow was going to be listed in 1994. Once a species is listed, critical habitat appears to be an unavoidable consequence.

*Our Response:* On February 19, 1991, about 80 prelisting proposal letters of inquiry were mailed to various governmental agencies, knowledgeable individuals, and the New Mexico Congressional delegation. On March 20, 1992, we held a meeting in Albuquerque, NM, with various interested governmental and private entities to explore existing or potential flexibility in water delivery schedules that might avoid dewatering of the Rio Grande within the range of the silvery minnow. In the March 1, 1993, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the

development of a final rule. The comment period originally scheduled to close on April 30, 1993, was extended until August 25, 1993 (58 FR 19220), to conduct public hearings and allow submission of additional comments. We also published notices of the proposed listing in five local newspapers and mailed copies of the proposed rule to list the silvery minnow as endangered to 148 different government agencies, private organizations, and interested individuals, including all counties having lands that border on or were within the area being proposed for critical habitat designation. Two public hearings were also held. Prior to listing the silvery minnow as endangered, we fully met the requirements of the Act for public notification. As discussed in the ''Previous Federal Action'' section of this rule, section 4 of the Act requires us to designate critical habitat at the time of listing, unless a determination is made that such designation is not prudent or not determinable. If a not determinable determination is made, we would have an additional year to make such a determination.

(23) *Comment:* The proposed rule and associated documents did not mention how critical habitat and section 7 consultation may affect the National Pollution Discharge Elimination System, water quality issues, or flood control structures.

*Our Response:* The EIS analyzed the impacts to the Albuquerque Metropolitan Arroyo Flood Control Authority, National Pollution Discharge Elimination System (NPDES) permitting, and other impacts on water quality (also see ''Effect of Critical Habitat Designation'' below). The final EIS found that the silvery minnow will most likely be protected by existing water quality standards, and that changes to current EPA discharge permitting activities are expected to be minimal, although the possibility exists for EPA's consultations with us to change as more becomes known about the water quality needs of the silvery minnow.

It is important to note that section 7(a)(2) of the Act requires that Federal agencies ensure that actions they fund, authorize, or carry out are not likely to result in the ''destruction or adverse modification'' of critical habitat. In our regulations at 50 CFR 402.02, we define destruction or adverse modification as ''direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.'' Where no such Federal agency action is involved, critical habitat designation has no effect on private landowners, State, or Tribal activities.

(24) *Comment:* How will critical habitat affect the City of Albuquerque's Drinking Water Project?

*Our Response:* Analysis of effects to listed species will be addressed in detail during section 7 consultation between the BOR and us. The section 7 consultation will determine whether the City of Albuquerque's Drinking Water Project jeopardizes the continued existence of the silvery minnow or adversely modifies or destroys critical habitat. As we have in the past, we will continue to work with the City of Albuquerque on conservation issues for the silvery minnow (*see* our response to comment 57 below).

(25) *Comment:* The Service proposed a 300-ft (91.4-m) lateral width for the boundary of critical habitat, but there is no site specific information to determine whether any particular area even has a floodplain or whether the floodplain, if present, extends 300 ft (91.4 m).

*Our Response:* We recognize that the lateral width of riparian areas fluctuates considerably in the middle Rio Grande. The 300-ft (91.4-m) lateral width includes the riparian zone, if present, that is adjacent to each side of the middle Rio Grande. We believe the riparian zone adjacent to the river channel provides an important function for the protection and maintenance of the primary constituent elements and is essential to the conservation of the species.

Developed lands within the 300-ft (91.4-m) lateral width are not considered critical habitat because they do not include the primary constituent elements. These lands were specifically excluded from the designation and include: developed flood control facilities, existing paved roads, bridges, parking lots, dikes, levees, diversion structures, railroad tracks, railroad trestles, water diversion and irrigation canals outside of natural stream channels, the low flow conveyance channel, active gravel pits, cultivated agricultural land, and residential, commercial, and industrial developments.

(26) *Comment:* The Service only considered excluding the Cochiti or San Acacia Reach. No other reaches were considered for exclusion within the middle Rio Grande.

*Our Response:* We did not include four areas within the Angostura and Isleta Reaches (*see* ''Relationship of Critical Habitat to Pueblo Lands under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section below). Additionally, we solicited comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning the reasons why any habitat should or should not be determined to be critical habitat as provided by section 4 of the Act, including whether the benefits of excluding areas will outweigh the benefits of including areas as critical habitat. We requested information on any lands included in the proposed rule for which there was special management and protection in place such that those lands could not be included as critical habitat. We reviewed and considered all of the information and comments received and concluded that special management or protection is provided only for the management plans we received during the comment period from the Pueblos of Santo Domingo, Santa Ana, Sandia, and Isleta. Consequently, no other areas were determined to be not essential for inclusion for the final critical habitat designation.

(27) *Comment:* The City of Albuquerque requested that we exclude existing projects, facilities, and structures within the designated critical habitat.

*Our Response:* The City of Albuquerque did not provide a list describing the specific projects, facilities, or structures. However, some existing facilities and structures are excluded from the designation because they do not include the primary constituent elements. See response to comment 25 and the ''Regulation Promulgation'' section of this rule for specific exclusions.

(28) *Comment:* The designation of critical habitat will seize control of our water through Federal regulations and Federal courts. Elected officials and State Engineers are constitutionally responsible for decisions on state water management.

*Our Response:* An area designated as critical habitat is not a refuge or sanctuary for the species. Listed species are protected by the Act whether or not they are in an area designated as critical habitat.

We published required determinations in the proposed and final rules, including one in accordance with Executive Order 13132, which considered whether this rule has significant Federalism effects (*see* ''Required Determinations'' section below). We requested information from and coordinated development of the

proposed and final rules with appropriate resource agencies in NM and TX (*e.g.*, during the EIS scoping and proposed rule public comment period). During the open comment period for the proposed rule, we met on several occasions with the New Mexico Interstate Stream Commission (NMISC) to further coordinate and address issues concerning the designation of critical habitat for the silvery minnow.

We do not anticipate that this regulation will intrude on State policy or administration, change the role of the Federal or State government, or affect fiscal capacity. For example, we have conducted two formal consultations, one of which included a formal conference, with the Corps and BOR, and non-Federal entities over actions related to water operations on the middle Rio Grande (Service 2001b, 2002a). In our experience, the vast majority of such projects can be successfully implemented with, at most, minor changes that avoid significant economic impacts to project proponents.

(29) *Comment:* Other than the initial scoping letter, the City of Socorro or Bernalillo County was not contacted for either development of the EIS or economic analysis. Several other commenters voiced concern that they were not directly contacted for their opinions on the economic impacts of critical habitat designation.

*Our Response:* On April 5, 2001, the **Federal Register** notice announcing public scoping meetings and development of a draft EIS was mailed to the Mayor of Socorro and the Socorro County Board of Commissioners and to Bernalillo County Commissioners. Moreover, on October 4, 2001, our EIS contractor mailed letters to the Chairman of Socorro County Board of Commissioners and the Bernalillo County Manager, and on August 22, 2001, a letter was mailed to the Mayor of the City of Socorro requesting specific information for the development EIS. We did not receive any response to these letters. Economic Analysis contractors utilized databases with information provided by the County of Socorro.

It was not feasible to contact every potential stakeholder in order for us to develop a draft economic analysis. We believe we were able to understand the issues of concern to the local communities on the basis of our review of public comments submitted on the proposed rule and draft economic analysis, transcripts from public hearings, and detailed discussions with 65 local governments. To clarify issues, we solicited information and comments from representatives of Federal, State, Tribal, and local government agencies, as well as some landowners.

(30) *Comment:* The amount of time and information available were insufficient for more detailed responses.

*Our Response:* On June 6, 2002, we published the proposed critical habitat determination in the **Federal Register** (67 FR 39205), announced public hearings, and invited public comment for 90 days. The public hearings were held on June 25 and 26. These public hearings were also announced in several newspapers (described above under the introduction of the ''Summary of Comments and Recommendations'' section). On June 6, we mailed the proposed rule and information on how to obtain the draft economic analysis and draft EIS to over 600 different interested parties. All of the documents were also available at the hearings, from us by request, or by download from our Web site. On August 28, we mailed a prepublication notice of the comment period extension. The comment period was subsequently extended and closed on October 2, 2002.

(31) *Comment:* The Service held public hearings only to fulfill a legal obligation and will not pay attention to any public comment.

*Our Response:* All comments received, including oral comments provided at the public hearing, were carefully evaluated before we made a final determination. In fact, we used special management plans received during the public comment period and other relevant issues to determine specific areas to not include for the final critical habitat designation.

(32) *Comment:* Some commenters asked whether critical habitat designation would affect the building or maintenance of flood control systems (*e.g.*, levee) to protect the town of Socorro and other areas within the designation.

*Our Response:* Levees are specifically excluded from the designation (*see* ''Regulation Promulgation'' section below). Since 1995, the Corps has entered into section 7 consultation with us regarding its water operations, flood control and levee maintenance, bridge construction, section 404 permitting under the Clean Water Act, and other activities. Through this process, we have reviewed various Corps projects to ensure that the continued existence of the silvery minnow is not jeopardized and that previously designated critical habitat was not adversely modified or destroyed. Since the silvery minnow was federally listed, no Corps projects have been stopped, delayed, or altered in a significant way resulting from section 7 consultation. The draft EIS noted that the Corps will likely propose a design and develop a plan for construction that would permit levees to be rehabilitated without adversely modifying critical habitat.

It is also important to note that we have a special category of section 7 consultation, and corresponding regulations (50 CFR 402.05) called ''Emergency Consultations.'' The consultation process does not affect the ability of an agency to respond to emergency events such as levee failure or fire. During emergency events, our primary objective is to provide recommendations for minimizing adverse effects to listed species without impeding response efforts. During emergency events, protecting human life and property comes first every time. Consequently, no constraints for protection of listed species or their critical habitat are ever recommended if they place human lives or structures (*e.g.*, houses) in danger. We are currently working with many of our Federal partners to provide technical assistance, coordination, and, in some instances, section 7 consultation for proactive projects to reduce the potential for emergency events (*e.g.*, wildland urban interface fuels management).

(33) *Comment:* The designation of critical habitat will impose section 9 restrictions against taking of silvery minnow in areas that do not currently have those restrictions (*e.g.*, within the headwaters of Elephant Butte Reservoir).

*Our Response:* Section 9 of the Act prohibits the harm or harassment of individuals of listed species. There are no section 9 take prohibitions for critical habitat. Within the middle Rio Grande, prohibitions against take are in effect regardless of whether or not critical habitat has been designated because we consider this area occupied by the silvery minnow. Whether or not a species has designated critical habitat, it is protected from any actions resulting in an unlawful take under section 9 of the Act.

(34) *Comment:* The Service needs to provide specific analyses on whether each reach contains or is void of primary constituent elements. The constituent elements described are vague and violate 50 CFR 424.12(c), lack sufficient detail and justification, and should include a more specific description that defines what constitutes critical habitat. Several commenters were concerned that the mapping lacked precision for use by the public and the critical habitat boundaries are ambiguous and difficult

to identify. Information is available for us to refine the 300-foot lateral width including National Wetlands Inventory data. The Rio Grande Compact Engineer Advisor from the State of Colorado submitted comments in October 2001 that suggested we use the ''daily'' Elephant Butte Reservoir water line as the lower terminus of critical habitat. Comments submitted in October 2002 suggested that the boundary as proposed would change from day to day and create total chaos in the operation of Elephant Butte Dam and Reservoir.

*Our Response:* The critical habitat designation includes the middle Rio Grande from Cochiti Dam to the utility line crossing the Rio Grande with UTM coordinates of UTM Zone 13: 311474 E, 3719722 N, just east of the Bosque Well demarcated on USGS Paraje Well 7.5 minute quadrangle (1980), Socorro County, NM. The designation also includes the tributary Jemez River from Jemez Canyon Dam to the upstream boundary of Santa Ana Pueblo, which is not included. (see the ''Regulation Promulgation'' section of this rule for exact descriptions of boundaries of critical habitat). We believe that with the revision to the downstream terminus of critical habitat, the boundary should be clear. Moreover, this final rule describes in the greatest detail possible the primary constituent elements important to the silvery minnow. In addition, please see responses to comments 26 and 45 for information related to this particular issue.

In our proposal and this final rule, we indicate our belief that the primary constituent elements provide for a flow regime that allows for short periods of low or no flow. In the proposal, we also highlighted the difficulties in describing the existing conditions of areas with low or no flow and solicited further information to refine the primary constituent elements and how they relate to the existing conditions (*e.g.,* flow regime). We noted that flow requirements are dynamic and change during the year and among years. The status of the species also contributes to specific flow requirements at specific areas or stream gages, for example. Consultation under section 7, rather than regulation, is the proper procedure for outlining specific flow requirements.

During the comment period we requested, but did not receive, any information that would either enable us to further refine the primary constituent elements or conduct further analysis on whether particular reaches contained or lacked one or more primary constituent elements. Further, while we welcome and encourage additional studies on the biological requirements of the silvery minnow, we believe the best available information has been used in defining the primary constituent elements necessary for the species' conservation. Nevertheless, we recognize that not all of the developed lands area within the boundaries of the designation will contain the habitat components essential to the conservation of the silvery minnow. For this reason, some developed lands are excluded by definition (*see* the ''Regulation Promulgation'' section below).

We considered National Wetlands Inventory data and other sources of information to refine the lateral width of the designation. Because of the dynamic nature of the Rio Grande and the corresponding ephemeral nature of wetland and riparian vegetation adjacent to the river (Middle Rio Grande Biological Interagency Team 1993; Taylor *et al.* 1999; BOR 2001c), we believe that using National Wetlands Inventory or other data to select the lateral width of critical habitat would not be consistent with our regulations (50 CFR 424.12(c)), which do not allow us to use ephemeral reference points. Consequently, we are designating critical habitat using specific limits and reference points.

(35) *Comment:* Depletion of stored water in reservoirs by supplemental water releases to benefit critical habitat will affect BOR's ability to deliver water to the MRGCD.

*Our Response:* According to BOR (2001c), the voluntary supplemental water program for the silvery minnow is not expected to have an adverse affect on the MRGCD. Thus, it is the Service's understanding that BOR's voluntary supplemental water program will be consistent with existing laws and contracts to ensure delivery of water to the MRGCD and to the six middle Rio Grande Pueblos (Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, and Isleta) (BOR 2001c). Moreover, section 7 consultation has been occurring regardless of critical habitat designation because of the Federal listing alone. We note that despite one of the State's worst droughts in 50 years, ''the Rio Grande helped some farms grow bumper crops of alfalfa * * *'' (Albuquerque Tribune December 16, 2002).

(36) *Comment:* One commenter believes that the proposed rule should be incontrovertible, but it is currently laced with supposition and conjecture, and it contains no conclusive data.

*Our Response:* As required by section 4(b)(2), the Service used the best available scientific and commercial data. In accordance with our policy published on July 1, 1994 (59 FR 34270), we sent the proposed rule to five peer reviewers to solicit their expert opinions. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analyses. We received only one reply from our peer reviewers. The peer reviewer concluded that our proposal was scientifically sound.

(37) *Comment:* It does not appear that your EIS analyzed evaporation losses from restoration activities.

*Our Response:* This issue is discussed in the EIS. We concluded that the extent to which riverine and riparian restoration results in a net gain or net loss to the water supply depends on the design of the project.

(38) *Comment:* Several commenters suggested that the San Acacia reach be excluded from the designation because of economic or other relevant impacts.

*Our Response:* This is described as alternative D in the EIS. The analysis in the EIS found a lower likelihood that habitat essential for the conservation of the silvery minnow would be preserved if this reach were excluded from the critical habitat designation. We also conclude in this final rule that this area is essential to the conservation of the silvery minnow because it likely serves as connecting corridors for fish movements between areas of sufficient flowing water (*e.g., see* Deacon and Minckley 1974; Eberle *et al.* 1993). Moreover, this reach is important because the additional loss of any habitat that is currently occupied could increase the likelihood of extinction (Hoagstrom and Brooks 2000, Service 1999).

(39) *Comment:* Several commenters noted that the San Acacia reach has historically experienced prolonged periods of low or no flow, but the construction of reservoirs has actually benefitted the silvery minnow by allowing runoff to extend over a longer time period than was previously possible.

*Our Response:* The construction and operation of reservoir dams has changed the natural flow regime of the river and thus may affect the survival of the Rio Grande silvery minnow. In the proposed rule, we acknowledged the historic periods of drying in the middle Rio Grande and suggested that reservoirs can facilitate management of water on the Rio Grande to avoid prolonged periods of low or no flow and provide sufficient flowing water during critical time periods, such as from May to October (Service 2001a, 2001b). Reservoirs and diversion dams have fragmented the middle Rio Grande and prevented silvery minnows from movement upstream after hatching

(Service 2001b; Dudley and Platania 2001; 2002a). Still, availability of flow is likely not the only factor affecting the silvery minnow (July 20, 1994; 59 FR 36988).

(40) *Comment:* The designation of critical habitat within the middle Rio Grande will Federalize the water administration and usurp the powers of TX, NM, and Colorado to regulate their water.

*Our Response:* Designation of critical habitat will not affect the authorities of TX, NM, and Colorado to regulate their water. In fact, critical habitat applies only to actions carried out, funded, or permitted by the Federal Government.

(41) *Comment:* The proposed rule suggests that future section 7 consultations regarding the critical habitat designation will be analyzed on a case-by-case basis and can provide for flexibility. However, one commenter was concerned that current consultations will affect the outcome of future consultations, resulting in overly restrictive measures.

*Our Response:* Our regulations require that we use the best scientific and commercial data available for consultations (50 CFR 402.14(d)). This information is used to update and analyze the effects of past and ongoing human and natural activities or events that have led up to the current status of the species and its habitat. One of the benefits of formal consultation is that we are required to provide an up-to-date biological status of the species or critical habitat (*i.e.*, environmental baseline), which is used to evaluate a proposed action. Consequently, the status of the species or critical habitat influences the outcome of a particular consultation more than when that consultation is conducted.

(42) *Comment:* If the bankfull width of the middle Rio Grande increases, would the additional area be considered critical habitat? It is not clear which lands within the critical habitat boundary are considered critical habitat.

*Our Response:* Lands are considered critical habitat when they are within critical habitat boundaries, contain one or more of the primary constituent elements, and require special management and protection. In this case those boundaries are based in part on the bankfull stage, which can easily be determined by visual or physical indicators including: the top of the highest depositional features (*e.g.*, point bars), staining of rocks, exposed root hairs, and other features (Rosgen 1996). Federal actions conducted in areas within or outside the boundary of the mapped critical habitat that do not contain any of the primary constituent elements would not trigger a section 7 consultation unless those activities may affect the silvery minnow or the primary constituent elements in the adjacent critical habitat (*see* ''Effect of Critical Habitat Designation'' section).

(43) *Comment:* The Service cannot substitute the proposed conservation strategy for critical habitat; critical habitat triggers section 7 consultation, whereas the proposed conservation strategy offers no protection to the silvery minnow.

*Our Response:* We believe that the benefits of excluding the middle Pecos River and lower Rio Grande outweigh the benefits of their inclusion as critical habitat (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section below). We conclude that the exclusion of these areas is consistent with the Recovery Plan (Service 1999) and consistent with our regulations (50 CFR 424.19), and that the added management flexibility provided under section 10(j) will be beneficial to the conservation of the silvery minnow. Additionally, the adverse modification standard serves to preserve the status quo of critical habitat during section 7 consultations. But critical habitat, by itself, does not help to reestablish minnows into areas where they have been extirpated—a primary goal of the Recovery Plan for the minnow.

(44) *Comment:* If the lateral boundary of critical habitat extends from the bankfull stage, how does one determine the point of bankfull stage when the Rio Grande is not at this stage?

*Our Response:* Bankfull stage is the point at which the river overflows its lowest bank, which is the elevation at which flow can be carried by the main channel before spilling over into the floodplain. The bankfull stage is not defined by water, and can easily be determined by visual or physical indicators including: the top of the highest depositional features (*e.g.*, point bars), staining of rocks, exposed root hairs, and other features (Rosgen 1996).

(45) *Comment:* The designation for the silvery minnow and related documents are flawed and inaccurate, contain numerous errors, and make improper assumptions.

*Our Response:* As previously discussed, section 4(b)(2) of the Act and 50 CFR 424.19 require us to consider the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We published our proposed designation of critical habitat for the silvery minnow in the **Federal Register** on June 6, 2002 (67 FR 39206). The draft EIS and draft economic analysis of the proposed critical habitat designation were made available for review and public comment concurrently with the proposed rule during the public comment period. Based on the public comments received during the open comment period, a final EIS and final Economic Analysis of critical habitat for the silvery minnow were completed. These documents and this final rule addressed or took into consideration information and concerns raised through the comment period. Please refer to the final EIS and final Economic Analysis. Copies of both the draft and final EIS and the draft and final economic analysis are in the supporting record for this rulemaking and can be inspected or obtained by contacting the New Mexico Ecological Services Field Office (refer to the **ADDRESSES** section of this rule).

(46) *Comment:* The draft economic analysis is not a full analysis. It is still an incremental analysis, and it is not in compliance with the recent Tenth Circuit Court ruling on the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) critical habitat.

*Our Response:* The economic analysis is a full analysis. Our standard best practice in economic analyses is to apply an approach that measures costs, benefits, and other impacts arising from a regulatory action against a baseline scenario of the world without the regulation. Guidelines on economic analyses, developed in accordance with the recommendations set forth in Executive Order 12866 (''Regulatory Planning and Review''), for both the Office of Management and Budget and the Department of the Interior, note the appropriateness of the approach: ''The baseline is the state of the world that would exist without the proposed action. All costs and benefits that are included in the analysis should be incremental with respect to this baseline.'' When viewed in this way, the economic impacts of critical habitat designation involve evaluating the ''without critical habitat'' baseline versus the ''with critical habitat'' scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios. Measured differences between the baseline and the scenario in which critical habitat is designated may include (but are not limited to) changes in land use, environmental quality, property values, or time and effort expended on consultations and other activities by Federal landowners, Federal action agencies, and, in some instances, State and local governments and/or private third parties. Incremental changes may

be either positive (benefits) or negative (costs).

In *New Mexico Cattle Growers Ass'n* v. *U.S. Fish and Wildlife Service,* 248 F.3d 1277, however, the Tenth Circuit recently held that the baseline approach to economic analysis of critical habitat designations used by us for the southwestern willow flycatcher designation was ''not in accord with the language or intent of the ESA.'' In particular, the court was concerned that we had failed to analyze any economic impact that would result from the designation, because it took the position in the economic analysis that there was no economic impact from critical habitat that was incremental to, rather than merely co-extensive with, the economic impact of listing the species. We had therefore assigned all of the possible impacts of critical habitat designation to the listing of the species, without acknowledging any uncertainty in this conclusion or considering such potential impacts as transaction costs, reinitiations, or indirect costs. The court rejected the baseline approach incorporated in that designation.

In our analysis, we addressed the Tenth Circuit's concern that we give meaning to the Act's requirement of considering the economic impacts of critical habitat designation by acknowledging the uncertainty of assigning certain post-designation economic impacts (particularly section 7 consultations) as having resulted from either the listing or the designation. We believe that for many species the designation of critical habitat has a relatively small economic impact, particularly in areas where consultations have been ongoing with respect to the species. This is because the majority of the consultations and associated project modifications, if any, already consider habitat impacts and, as a result, the process is not likely to change significantly as a result of the designation of critical habitat. Nevertheless, we recognize that the nationwide history of consultations on critical habitat is not broad, and, in any particular case, there may be considerable uncertainty whether an impact results from the critical habitat designation or the listing alone. We also understand that the public wants to know more about the kinds of costs section 7 consultations impose and frequently believes that critical habitat designation could require additional project modifications. Therefore, the final economic analysis incorporates two baselines. One addresses the impacts of critical habitat designation that may be ''attributable co-extensively'' to the listing of the species. Because of the potential uncertainty about the benefits and economic costs resulting from critical habitat designations, we believe it is reasonable to estimate the upper bounds of the cost of project modifications on the basis of the benefits and economic costs of project modifications that would be required by consultation under the jeopardy standard. It is important to note that the inclusion of impacts attributable co-extensively to the listing does not convert the economic analysis into a tool to be considered in the context of a listing decision. As the court reaffirmed in the southwestern willow flycatcher decision, ''the ESA clearly bars economic considerations from having a seat at the table when the listing determination is being made.'' The other baseline, the lower boundary baseline, will be a more traditional rulemaking baseline. The economic analysis attempts to provide our best analysis of which of the effects of future section 7 consultations actually result from the regulatory action under review (*i.e.*, the critical habitat designation). These costs will in most cases be the costs of additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone, as well as costs resulting from uncertainty and perceptional impacts on markets. The final economic analysis provides a detailed study concerning the baseline and potential incremental effects of the designation of critical habitat for the silvery minnow, and we believe it is in compliance with the Tenth Circuit's decision in *New Mexico Cattle Growers Ass'n* v. *U.S. Fish and Wildlife Service,* 248 F.3d 1277.

*Issue 3: Tribal and Pueblo Concerns*

(47) *Comment:* The Service is legally mandated to have Government-to-Government consultations with affected Tribes and Pueblos. The designation will affect the trust assets of Tribes and Pueblos. Will the designation of critical habitat affect the Pueblos of Taos, San Juan, or the Jicarilla Apache Nation?

*Our Response:* In accordance with Secretarial Order 3206, ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (May 4, 1994; 59 FR 22951); Executive Order 13175; and the Department of the Interior's requirement at 512 DM 2, we recognize the need to consult with Federally recognized Indian Pueblos and Tribes on a Government-to-Government basis. Section 4(b)(2) of the Act requires us to gather information regarding the designation of critical habitat and the effects thereof from all relevant sources, including Indian Pueblos and Tribes.

We were available to confer with the affected Indian Pueblos and Tribes during the comment period for this proposed rule. Recognizing our Federal trust responsibility, we met with the following Pueblos and Tribes (some meetings were to provide technical assistance and are not considered Government-to-Government consultations): Jicarilla Apache Nation (October 22, 2001; January 9 and 25, 2002; March 7, 2002), San Juan (December 11, 2001; February 25, 2002; September 6, 2002), Isleta (July 25, 2002; August 8 20, 2002), Sandia (October 22, 2001; February 12, 2002; September 25, 2002), Santa Ana (December 11, 2001; July 9 and 10, 2002; August 2 and 6, 2002; September 13, 2002), Santo Domingo (August 8, 2002), and Taos Pueblos (April 2, 2002; September 11, 2002; October 23, 2002) to discuss how they might be affected by the designation of critical habitat or other issues related to the Act. We provided technical assistance to Santo Domingo, Santa Ana, Sandia, and Isleta Pueblos in the development of their management plans (*see* ''Relationship of Critical Habitat to Pueblo Lands under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section of this rule below).

The designation of critical habitat is not anticipated to impact Indian Trust Assets, which are legal interests in assets held in trust by the United States Government for Tribes and Pueblos. Water rights are considered an Indian Trust Asset. For an impact to occur, the designation of critical habitat would need to diminish the Tribe's access to or the value of any Indian Trust Asset. For example, the BOR recently indicated that the six middle Rio Grande Pueblos would receive prior and paramount water deliveries through November 15, 2002, and that future deliveries of prior and paramount water for the six middle Rio Grande Pueblos will also be ensured. Prior and paramount water deliveries are not dependent on, and are not expected to affect, supplemental water deliveries for the silvery minnow (BOR 2002). We also do not believe that other Tribes or Pueblos (*e.g.*, Taos and San Juan Pueblos, Jicarilla Apache Nation) outside of the critical habitat designation will be affected. We believe that the consultation history of the silvery minnow demonstrates that previous section 7 consultations have not affected or impaired Indian Pueblo

and Tribal trust resources within the area we are designating as critical habitat (*e.g., see* Service 2001b). During consultation, measures taken to avoid destruction or adverse modification of critical habitat will likely be similar if not identical to what is currently required to avoid jeopardizing the silvery minnow. Consequently, we do not believe that critical habitat will result in requirements during consultation, and do not believe critical habitat will affect Indian Trust Assets.

(48) *Comment:* The Service completely omits Pueblos from the analysis under the Regulatory Flexibility Act.

*Our Response:* We are certifying that this final rule will not have a significant effect on a substantial number of small entities, including Indian Tribes and Pueblos (*see* ''Required Determinations'' section below).

(49) *Comment:* Critical habitat will require the maintenance of river flows which will adversely affect Pueblos by limiting the amount of water available. Pueblos may have substantial unused water rights. If critical habitat limits depletions, the designation would disproportionately affect Pueblos.

*Our Response:* We do not anticipate that the designation of critical habitat will alter the administration of the supplemental water program. Thus, delivery of water to middle Rio Grande contractors and Pueblos is ensured (BOR 2001c). Environmental justice-related impacts of preferred alternatives for critical habitat designation are discussed in Chapter 4 of the EIS. Nothing in the final rule or the EIS is intended to preclude new depletions resulting from the exercise of senior Indian water rights. In addition, please see response to comment 48 for information related to this particular issue.

*Issue 4: Other Relevant Issues*

(50) *Comment:* The Service has continued to ignore the economic consequences of designating critical habitat for the silvery minnow on the Pecos River.

*Our Response:* The Pecos River is not designated as critical habitat for the silvery minnow.

(51) *Comment:* In the Economic Analysis, why is it assumed that all the water required to meet supplemental flows will all come from NM agriculture? The Rio Grande flows through three states, so why will the burden of ensuring the survival of the silvery minnow be placed upon the water users in the middle Rio Grande? Are interstate water rights transfers (*i.e.,* sale or lease) possible under existing Federal or State law?

*Our Response:* The Economic Analysis assumed that water resources in NM are limited, which is demonstrated by an active market in which water rights move between willing buyers and sellers within the confines of State and Federal regulations. From 1976 to 2000, the purchasers of water rights in the middle Rio Grande were generally municipalities (61 percent of purchasers); however, other sectors participate as buyers in this market as well. During the same time frame, the sellers of water rights in the middle Rio Grande were primarily agriculture (90 percent of sellers) reflecting the fact that the majority of the water rights (as measured by total volume of water reflected in these rights) are currently held in the agriculture sector. Given these data, it was assumed that any water provided to the silvery minnow by supplementing present water flow conditions would come from currently held irrigation water rights because these tend to have greater flexibility than water rights for municipal or commercial uses. Thus, the economic analysis focused on the area within the middle Rio Grande for providing supplemental water, and did not consider interstate transfers of water. In general, our economic analyses consider the impacts within the geographic area being proposed as critical habitat. For example, in this case the economic analysis considered the area proposed as critical habitat in the middle Rio Grande, as well as the other two areas found to be essential to the conservation of the minnow (*i.e.,* middle Pecos River and Lower Rio Grande). While interstate water rights transfers (*i.e.,* sale or lease) may be possible under existing Federal or State law, we concluded that such transfers were beyond the scope of our economic analysis.

(52) *Comment:* The Economic Analysis severely underestimates the costs associated with providing 40,000 af of supplemental water because it did not estimate transaction costs associated with the purchase or lease of water rights.

*Our Response:* Easter *et al.* (1999) found that transaction costs associated with purchase or lease of water rights must be kept low for an effective water market. For example, they estimated that transaction costs range from about $17 to $190 per af. Another example indicates that a 10 percent commission is common for completing the sale or lease of a water right in NM (Turner 2002a; *http://www.waterbank.com/Agreements/Agency%20Agreement.htm*). Based on these and other data, the final Economic Analysis estimates that the average transaction cost is likely $333 and $183 for the Rio Grande and Pecos, respectively. Consequently, the estimated transaction costs would be approximately 7 to 10 percent of the total price of an acre-foot. These estimates do not change our required determinations below.

(53) *Comment:* The Service should have used the Upper Rio Grande Water Operations Model (URGWOM) to determine the amount of supplemental water to meet the target flow of 50 cfs at the San Marcial Floodway gage. The Service did not use the best scientific and commercial data available because you failed to engage the State of New Mexico and use their expertise, data, and models.

*Our Response:* On September 5, 2001, we invited the NMISC to participate in the development of the EIS as a cooperating agency. On October 3, 2001, the NMISC accepted our invitation. On April 9, 2002, the Service requested the expert review of the preliminary predecisional draft EIS and preliminary predecisional draft economic analysis from the NMISC, as a cooperating agency. We requested the review because the NMISC has jurisdiction by law or special expertise over water resources and environmental impacts involved with the Service's action of designating critical habitat. We specifically requested that the review focus on the accuracy of information and analyses as described in the draft documents. On April 25, 2002, the NMISC requested additional information from the Service and our contractors. During the open comment period for the proposed rule, we met on July 2 and 22, 2002, with the NMISC to further coordinate the designation of critical habitat and clarify the additional information requested. Nevertheless, we could not rely on data from URGWOM to develop the final rule because the information has yet to be submitted.

A focal point of discussions with the NMISC was the use of URGWOM for estimating the amount of supplemental water needed to maintain flows in the middle Rio Grande. During these meetings and in a July 16, 2002, letter, we indicated that on the basis of discussions between our contractor and the NMISC, and according to the May 9, 2002, notes from the URGWOM Steering Committee meeting, we understood that URGWOM was still being calibrated and validated. It was also our understanding that URGWOM and the relevant input and output data have not been tested by all the cooperating agencies for the

Upper Rio Grande Water Operations Review EIS and would not be made publicly available until this occurs. As noted in the April 11, and September 12, 2002, notes from the URGWOM Steering Committee meetings: (1) The consensus of the Steering Committee members was that the latest version of URGWOM should not be released until it has been tested and is ready for public use; (2) the data and results for various model runs were not totally successful, but furthered the model debugging, testing, and evaluation; (3) the middle Rio Grande valley water depletions are modeled too high; (4) the water planning model is currently simplistic and rough; and (5) water operations modeling is still undergoing troubleshooting, repairs, and enhancements. Thus, we conclude that URGWOM is not available for use in the economic analysis.

Nevertheless, during the July 22, 2002, meeting with the NMISC, it was agreed that the NMISC would run URGWOM and provide detailed comments, data, output, and interpretation to us during the open comment period on this and other relevant analyses. We also requested that the NMISC assist us in determining the economic costs of providing water to meet Rio Grande Compact delivery obligations separate from the economic costs of leaving water in the river for the silvery minnow. The NMISC indicated in its October 2, 2002, comments on the proposed critical habitat designation that the data and analyses were nearly complete and a report interpreting the results would be submitted in November 2002. Additional comments or data were not submitted. If additional comments or data had been submitted after October 2, 2002, we would not have considered them in the development of this final rule, the economic analysis, or the EIS because the data, analyses, and report would not have been submitted during the open comment period, and other parties would not have had the full opportunity to review and comment on the material.

Section 4(b)(2) of the Act states critical habitat shall be designated on the basis of the best scientific data available. We must make this determination on the basis of the information available at this time, and we are not allowed to delay our decision until further information is submitted. Therefore, we conclude the current hydrological model used in the economic analysis is the best scientific information available at this time, as required by the Act.

(54) *Comment:* The Economic Analysis appears to underestimate the amount of supplemental water that is required to maintain flows specified by the biological opinion on the middle Rio Grande.

*Our Response:* From our experience, it is nearly impossible to guarantee continuous flow in the middle Rio Grande at all times of the year, regardless of the extremity of conditions. As a result, our analysis calculates the annual deficit of water below the required minimum flow in the 95th percentile and the 50th percentile worst-case (*e.g.,* driest) year. This calculation results in an average annual deficit of 40,427 af/year in the middle Rio Grande. This estimate of supplemental water is within the range of other estimates of supplemental water required to maintain instream flow in the middle Rio Grande. Since 1996, the BOR has leased water each year to maintain instream flow during this dry period. In 2001, 22,000 af of supplemental water, from the conservation water agreement, was released and was sufficient to meet the supplemental flow requirements outlined in the June 29, 2001, biological opinion (J. Smith, pers. comm., 2002). In addition, Balleau Groundwater, Inc. (1999) estimated that it would require 52,600 af of water released from Cochiti to maintain a flow of 200 cfs at San Acacia in an average year. Therefore, we believe our estimate of approximately 40,000 af of supplemental water is accurate.

(55) *Comment:* The Service's analyses do not take into account upstream storage that would be needed to provide for supplemental flows, nor did the Service address storage of native water when storage is restricted in upstream reservoirs (*e.g., see* Rio Grande Compact, Article VII).

*Our Response:* The hydrologic model used in the economic analysis did not attempt to model the location of water used to supplement instream flow, but rather provided the amount of supplementary water needed at the San Acacia (middle Rio Grande) and Acme (middle Pecos River) gages. We did not identify sources of supplemental water (*e.g.,* storage) within this designation, because these sources can vary annually. Moreover, the Federal agencies have discretion on selecting specific sources and storage of supplemental water (BOR 2001c; Corps 2001). The amount of supplemental flows will be dependent upon the environmental baseline of the silvery minnow, the proposed action by the Federal agency, and those discretionary actions that are part of the consultation.

(56) *Comment:* Future supplemental water will not be available in the middle Rio Grande as it was from 1996 to 2002.

*Our Response:* As with all biological opinions, if the Federal action agency, (*i.e.*, the BOR in the June 29, 2001, biological opinion) cannot meet the measures described in the biological opinion that must be undertaken, reinitiation of formal consultation is required. In the middle Rio Grande, if supplemental water is not available to meet target flows contained in a biological opinion, then reinitiation of consultation would be required. Reinitiation of consultation has no bearing on the designation of critical habitat for the silvery minnow.

(57) *Comment:* The designation will steal water from an already drought-stricken area. Critical habitat will devastate the farming culture.

*Our Response:* The maintenance of river flows has been implemented through BOR's voluntary supplemental water program. This program is being implemented within the existing water rights framework, including Federal Indian water rights, San Juan-Chama contract rights, and state law water rights administered by the State of New Mexico. Supplemental flows to avoid destruction or adverse modification of critical habitat will likely be similar if not identical to what is currently required to avoid jeopardizing the species.

During the 2000 irrigation season, most of the supplemental water used to support the silvery minnow was provided through BOR leases of San Juan-Chama Project water from the City of Albuquerque. The City in turn provided that water to the MRGCD to finish the irrigation season, while allowing native Rio Grande flows to remain in the river without diversion. Moreover, in June 2002, the City of Albuquerque signed two agreements to provide 40,000 af of water to the BOR for supplemental flows for the silvery minnow and an additional 70,000 af of water to extend the MRGCD irrigation season from June to September 2002.

The BOR supplemental water program has been implemented on a year-to-year basis since 1997. During this period, no irrigation water has been used to augment river flows without being replaced (BOR 2001c). For example, the water that was leased from San Juan-Chama contractors and released during 2000 was used by MRGCD for irrigation and was exchanged for an equivalent amount of native Rio Grande water to provide supplemental flows for the silvery minnow. We believe that these types of collaborative actions will continue and do not anticipate that the

amount of supplemental instream flow, required by past section 7 consultations (*e.g.*, Service 2001b), will increase because an area is designated as critical habitat.

(58) *Comment:* The Service should analyze the impacts on groundwater, urban development, and operation of canals and other irrigation structures.

*Our Response:* The EIS analyzes impacts on water rights and management, land ownership and use, social and economic impacts, and a variety of other environmental consequences.

(59) *Comment:* The Service should consider the positive impact of critical habitat designation in the region's economy.

*Our Response:* The potential benefits of critical habitat are described in the economic analysis and EIS.

(60) *Comment:* It is currently impossible with the natural flow regime (*i.e.,* after all managed uses of water are curtailed) to maintain the primary constituent elements related to water flow. The primary constituent element that indicates conditions ''do not increase prolonged periods of low or no flow'' presume a baseline is known.

*Our Response:* Critical habitat is designated on the basis of existing conditions within each of the river reaches. We acknowledge that some of these areas have the potential for no to low flow during certain seasons or years. This primary constituent element provides water of sufficient flows to reduce the formation of isolated pools, and is essential to the conservation of the silvery minnow because the species cannot withstand permanent drying of long stretches of river. In addition, please see response to comment 35 for information related to this particular issue.

(61) *Comment:* There is not enough information known about the silvery minnow or about the impacts of the designation to perform the required analyses.

*Our Response:* This final determination constitutes our best assessment of areas needed for the conservation of the silvery minnow. We must make this determination on the basis of the information available at this time, and we may not delay our decision until more information about the species and its habitat are available. *Southwest Center for Biological Diversity* v. *Babbitt,* 215 F.3d 58 (D.C. Cir. 2000).

(62) *Comment:* The Service concludes that low or no-flow conditions have become more prevalent in the last few decades. The hydrological data demonstrate that this is not true. These unfounded claims indicate that a thorough hydrologic analysis of the middle Rio Grande should be completed using hydrological variability techniques (*e.g.*, Richter *et al.* 1997).

*Our Response:* We have revised the ''Background'' section of this final rule. We are participating in the Upper Rio Grande Basin Water Operations Review and EIS with the Joint Lead Agencies and other cooperators, including the Corps, BOR, and the NMISC, to comprehensively review the water operations activities that are conducted under the existing authorities in the Rio Grande Basin above Fort Quitman, TX. Hydrological variability techniques (*e.g.*, Richter *et al.* 1997) can guide river managers to define and adopt interim management targets before conclusive long-term research results are available. The Federal agencies have discretion when selecting specific river management targets and activities (*e.g.,* sources and storage of supplemental water (BOR 2001c; Corps 2001)). Consequently, hydrological variability techniques could be applied to river management targets and activities at the discretion of the Federal agencies, but are beyond the scope of this designation.

(63) *Comment:* One commenter questioned why, although approximately 200,000 af of water were released in the summer of 2000 to save the silvery minnow from extinction, the species suffered one of its most significant declines during this artificially wet period. NM and other signatories of the Rio Grande Compact cannot afford this waste of water.

*Our Response:* In the spring of 2000, as a result of court-ordered mediation (*Minnow* v. *Keys,* Civ. No. 99–1230 JP/KBM–ACE), BOR, through voluntary leases and repayment agreements, and in cooperation with other entities, provided 168,000 af of water to the Rio Grande for the silvery minnow and for irrigation purposes during the year 2000. Data from silvery minnow population monitoring studies in 2001 indicated a slight increase of the population in the Angostura, Isleta, and San Acacia Reaches (Dudley and Platania 2001). Without efforts to maintain at least some flow in the Rio Grande in 2000, it is likely that the silvery minnow might have been extirpated from the middle Rio Grande (Dudley and Platania 2001). It is also important to note that, at least partially as a result of these supplemental flows, NM realized a credit of 100,000 af toward its current and future delivery obligations to TX under the Rio Grande Compact (BOR 2001c).

(64) *Comment:* Because of the silvery minnow, the Service has not allowed the BOR to maintain a channel through the delta area north of Elephant Butte Reservoir.

*Our Response:* On May 8, 2000, we received a biological assessment from BOR concerning the creation of a temporary channel through the upstream delta of Elephant Butte Reservoir. BOR proposed to implement several conservation measures-these were included and described in their biological assessment as part of the project. On August 4, 2000, we completed consultation by concurring with BOR's determination that the project ''may affect but is not likely to adversely affect'' the silvery minnow or its designated critical habitat, that it ''may affect but is not likely to adversely affect'' the southwestern willow flycatcher, and that it will have ''no effect'' on the bald eagle. During September 2000 and April 2001, BOR provided supplementary information and clarifications on the project activities. No additional effects were anticipated and it is our understanding that BOR is proceeding with the construction of the temporary channel in full compliance with its responsibilities under the Act. In a letter dated August 30, 2002, from the Service's New Mexico Ecological Services Field Office to the New Mexico Office of the State Engineer, we reiterated that environmental compliance with the Act had been achieved. In the letter, we specifically asked whether the State Engineer believed that further environmental clearances were required for the completion of the temporary channel. We did not receive a response to the August 30, 2002, letter.

(65) *Comment:* Many environmental groups are using the silvery minnow to further their agendas of stopping growth and development.

*Our Response:* The recovery of the silvery minnow follows our cooperative policy on recovery plan participation, a policy intended to involve stakeholders in recovery planning (July 1, 1994; 59 FR 34272). Numerous individuals, agencies, environmental groups, and affected parties were involved in the development of the Recovery Plan or otherwise provided assistance and review (Service 1999). We believe this stakeholder involvement will minimize the social and economic impacts that could be associated with recovery of this endangered species.

Section 4(a)(3) of the Act requires that the Secretary, to the maximum extent prudent and determinable, designate critical habitat at the time a species is

listed as endangered or threatened. As noted under the ''Background Section'' above, when the silvery minnow was listed as endangered in 1994, we found that critical habitat was not determinable. Subsequently, we were ordered to publish a final determination regarding critical habitat for the silvery minnow, *Forest Guardians* v. *Babbitt,* Civ. No. 97–0453 JC/DIS. On July 6, 1999, we published a final designation of critical habitat for the silvery minnow (64 FR 36274), pursuant to the court order.

Critical habitat will affect private, State, or Tribal activities when Federal funding, permitting, or authorization is involved. If there is Federal involvement, consultation will be completed within the statutory time frames. The process of section 7 consultation does not stop growth or development.

(66) *Comment:* Your last economic analysis found that there would be no impacts associated with the designation of critical habitat for the silvery minnow.

*Our Response:* We were required to prepare a new critical habitat designation under the court order from the United States District Court for the District of New Mexico, in *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F. Supp. 2d 1156 (D.N.M. 2000). We prepared a new economic analysis, a draft EIS, and a new proposed rule pursuant to that court order. A new economic analysis was completed to address this revised final designation, the previous economic analysis is not reflective of this designation or our current approach for analyzing economic impacts.

(67) *Comment:* The economic analysis only considered the middle Rio Grande as an entire unit and did not evaluate economic impacts to different areas within the middle Rio Grande. An economic analysis that does not take local land and water use into account does not disclose the full economic costs of the designation and is of no benefit to the Service or the public.

*Our Response:* The economic analysis includes specific analyses within the area designated as critical in the middle Rio Grande by estimating the cost of designating critical habitat in each of the five reaches. The analysis utilized all information provided by the Federal, State, local, and Tribal respondents operating in the area, including models created by and technical assistance from the New Mexico State University Agricultural Extension Service. Information concerning the local and regional economy was analyzed to conclude that there would not be significant economic impacts associated with the designation of critical habitat for the silvery minnow (*see also* the ''Economic Analysis'' section of this rule).

(68) *Comment:* The draft economic analysis uses alfalfa as the basis for calculating the cost of forgone production and secondary economic impacts. The estimated economic impacts were likely underestimated because alfalfa makes up about 56 percent of the agricultural crops in the middle Rio Grande. The costs of forgone production on the other 44 percent of agricultural crops would likely be higher, since alfalfa is a relatively low-value, high-water-consuming crop.

*Our Response:* Based on interviews with local crop scientists and because of the dominant status, annual planting cycle, and relatively high water requirements of alfalfa, the economic analysis assumes that acres retired from planting will be those devoted to the alfalfa crop. However, the economic analysis indicated that this assumption is likely to be conservative and to overstate effects on the regional economy when compared with modeling reductions in water available to other crops. A second calculation using a reduction in hay production is included in the final economic analysis to provide comparison. Modeling the same reductions in water available to the second most prevalent crop in each study area (pasture hay for the middle Rio Grande and cotton for the Pecos) produces a total value of forgone production that is 3 percent less than that produced by modeling removals from alfalfa. Given that 90 percent of the irrigated acreage in the middle Rio Grande study area and over 75 percent of the irrigated acreage in the Pecos study area are devoted to the two dominant crops, it is likely that water removed from irrigation would come from one of these two crops, validating the assumptions set forth in the economic analysis.

(69) *Comment:* The draft economic analysis does not consider that NM has had an active water market for years and many farmers have not chosen to sell their water rights. Consequently, the acquisition of water to meet supplemental flows may not be available.

*Our Response:* Under New Mexico State law, users of water must hold a water right. Such rights are treated as property rights, and are traded in a market. Since a competitive market exists for water rights in NM, it is assumed that the price of these rights represents the expected economic benefit of water made available by these rights, in its highest and best use. That is, in paying for water rights, buyers are making clear the implicit value of the water to them. The economic analysis concluded that (1) there is an active market in NM to move water to uses other than the original use; (2) there are multiple buyers and sellers of water rights; and (3) the price of water rights can be predicted from expected underlying economic factors.

Studies and historic and current data indicate that ''water flows uphill toward money'' (Brookshire *et al.* 2002; Hall 2002). In other words, water will move toward the highest valued use in accordance with the economy. For example, 90 percent of all water rights transferred (*i.e.*, leased or sold) in the middle Rio Grande from 1976 to 2000 were previously held by irrigation (Brookshire *et al.* 2002). Consequently, we believe that the voluntary acquisition of water to meet supplemental flows will be available.

(70) *Comment:* The economic analysis underestimates the farmland removed from production to provide for supplemental flows.

*Our Response:* The economic analysis used models created by the New Mexico Cooperative Extension Service and NM agricultural statistics from the New Mexico Agricultural Statistics Service to estimate costs and returns for the State's farming industry in 2001. The commenter did not provide any data for us to consider and did not explain why he or she believes our estimates to be inadequate.

(71) *Comment:* Agricultural production in the middle Rio Grande valley is on a scale that does not allow comparison to agriculture elsewhere in the United States. Consequently, the values of agriculture are as much social and cultural as they are economic. The Service should consider these values before finalizing the designation.

*Our Response:* The economic analysis estimated: (1) The opportunity cost of water needed to supplement instream flow; (2) direct, indirect, and induced economic effects resulting from the resulting changes in the use of water, including cultural and secondary impacts on water sellers and communities; and (3) costs of section 7 consultations. The EIS also analyzed the social and economic impacts, impacts on land use, and impacts on cultural resources. Please refer to the economic analysis and EIS for a complete analysis of these impacts.

(72) *Comment:* The economic analysis assumed that the market for water rights may not result in actual delivery of ''wet water'' (*i.e.*, water in the river) once the middle Rio Grande is adjudicated.

*Our Response:* Water rights in the middle Rio Grande are not adjudicated and much of the water uses are not metered (Whitney *et al.* 1996). Adjudicating water rights (*i.e.*, a judicial determination and definition of water rights within a river system that quantifies and establishes the legal right to use water) in the middle Rio Grande would, in conjunction with a metering program, allow for improved administration of water rights and improved water management (Whitney *et al.* 1996). However, an adjudication may not be completed for the middle Rio Grande in the foreseeable future.

The State Engineer of New Mexico has indicated that as water markets begin to develop in the state, there will be a natural tendency to attempt to transfer paper water rights (New Mexico Office of the State Engineer 2001). The State Engineer is charged with water rights adjudications (New Mexico Office of the State Engineer 2001). The existing adjudication system is being examined to allow the entire State to be adjudicated (New Mexico Office of the State Engineer 2001). Moreover, the State Engineer of New Mexico has three criteria that must be met in order for state law water rights to be transferred: (1) The right must be valid, with a valid priority date; (2) the water must be put to beneficial use; and (3) the transferred water right must not impair the rights of others, including compact deliveries. For these reasons, we believe that the sale or lease of water rights will result in the delivery of ''wet water.''

(73) *Comment:* The prevailing price of water rights in the middle Rio Grande will substantially increase when more than 40,000 af water rights are sold and removed from the water rights market.

*Our Response:* The price of water rights is significantly affected by the type of buyer (*e.g.*, municipal, private, Federal/State) and has increased in NM over the last several decades (Brookshire *et al.* 1999). However, water markets remain highly localized, with significantly different prices in each market. Nevertheless, the value used in the economic analysis reflects the current price of water rights resulting from the voluntary acquisition of supplemental water. We expect these types of voluntary programs to continue, and do not anticipate that the amount of supplemental water (*i.e.*, demand) in previous consultations (*e.g.*, Service 2001b) will increase because critical habitat is designated. In addition, please see response to comment 57 for information related to this particular issue.

(74) *Comment:* The economic analysis does not explain why a 20-year time period was selected.

*Our Response:* The economic analysis stated that activities occurring greater than 20 years in the future are difficult to predict, and the outcomes of such activities are even more uncertain. The 20-year time horizon was selected because population forecasts as well as local and regional planning documents use similar time horizons.

(75) *Comment:* The economic analysis does not explicitly address whether the benefits of excluding a particular reach outweigh the benefits of including the reach as critical habitat.

*Our Response:* We use the economic analysis and other relevant information to conduct analyses under section 4(b)(2) of the Act. If relevant to a particular critical habitat designation, these considerations are included in the final rule (50 CFR 424.19). For a detailed discussion, *see* the ''Exclusions Under Section 4(b)(2) of the Act'' and ''Relationship of Critical Habitat to Pueblo Lands under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' sections below.

**Summary of Changes From the Proposed Rule**

In the development of this final designation of critical habitat for the silvery minnow we made several changes to the proposed critical habitat designation based on our review of public comments received on the proposed designation, the draft economic analysis, and the draft EIS and further evaluation of lands proposed as critical habitat. As discussed in the ''Relationship of Critical Habitat to Pueblo Lands Under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section of this final rule, we evaluated the lands proposed as critical habitat for the Pueblos of Santo Domingo, Santa Ana, Sandia, and Isleta. Because each of these Pueblos submitted management plans that provide for special management considerations or protections for the silvery minnow and because of other relevant issues, (*see* ''Relationship of Critical Habitat to Pueblo Lands Under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section below), these lands were not included in the final critical habitat designation.

The downstream boundary of critical habitat differs from that described in the proposed rule. In the proposal, the boundary was Elephant Butte Reservoir Dam, with the reservoir specifically excluded by definition (June 6, 2002; 67 FR 39206). However, in this final rule, we selected the utility line crossing the Rio Grande with UTM coordinates of UTM Zone 13: 311474 E, 3719722 N, just east of the Bosque Well demarcated on USGS Paraje Well 7.5 minute quadrangle (1980). This downstream boundary of critical habitat was selected because it is a permanent identified landmark that is found on a standard topographic map. The area below this boundary (*i.e.*, from the utility line downstream to Elephant Butte Reservoir Dam) has the potential to be inundated by the reservoir and may not provide those physical or biological features essential to the conservation of the species and is therefore not designated as critical habitat.

During the open comment period, the BOR provided GIS maps that identified the utility line crossing the Rio Grande with UTM coordinates of UTM Zone 13: 311474 E, 3719722 N, just east of the Bosque Well demarcated on USGS Paraje Well 7.5 minute quadrangle (1980) (M. Porter, BOR, pers. comm., 2002). Consequently, we revised the boundary for the designation because we find that the area downstream of the utility line is not essential to the conservation of the silvery minnow and we believe that the boundary, as originally proposed, was confusing as evidenced by many commenters, including the Elephant Butte Irrigation District, the NMISC, and others.

We further reviewed existing information (Platania and Dudley 2001a) to determine if the area from the designated critical habitat boundary to the headwaters of Elephant Butte Reservoir is essential to the conservation of the silvery minnow. For example, the location for the silvery minnow spawning study (Platania and Dudley 2000, 2001a) is just downstream of the critical habitat boundary. The study location was selected to maximize the potential number of silvery minnow eggs collected by rescuing those eggs destined to drift into Elephant Butte Reservoir. Currently, if silvery minnow spawn in the area from the designated critical habitat boundary to the headwaters of Elephant Butte Reservoir, the floating eggs would enter the reservoir in just a few hours. Once the eggs and larvae enter the reservoir, they would be subjected to predation (Platania and Dudley 2001a). We find that silvery minnow eggs and larvae in this reach contribute little to the survival or recovery of the species. Consequently, the area from the designated critical habitat boundary to the headwaters of Elephant Butte Reservoir is not essential to the conservation of the silvery minnow. Because of these reasons, we also believe that the exclusion of this area

from the designated critical habitat will not lead to the extinction of the species. It should be noted that the Service, in collaboration with other State and Federal agencies, rescues silvery minnow eggs in the lower San Acacia Reach for use in captive propagation and subsequent augmentation of the silvery minnow in the middle Rio Grande.

**Exclusions Under Section 4(b)(2) of the Act**

Section 4(b)(2) of the Act requires us to base critical habitat designations on the best scientific and commercial data available, after taking into consideration the economic and any other relevant impact of specifying any particular area as critical habitat. We may exclude areas from a critical habitat designation when the benefits of exclusion outweigh the benefits of designation, provided the exclusion will not result in the extinction of the species. Our analysis of the following two areas: (1) The river reach in the middle Pecos River, NM, from Sumner Dam to Brantley Dam in De Baca, Chaves, and Eddy Counties, NM; and (2) the river reach in the lower Rio Grande in Big Bend National Park downstream of the National Park boundary to the Terrell/Val Verde County line, TX, concludes that the benefits of excluding these areas from the designation of critical habitat outweigh the benefits of including them. Therefore, we are not designating these areas as critical habitat.

*(1) Benefits of Inclusion*

The benefits of inclusion of the river reach in the middle Pecos River, NM, from Sumner Dam to Brantley Dam in De Baca, Chaves, and Eddy Counties, NM, would result from the requirement under section 7 of the Act that Federal agencies consult with us to ensure that any proposed actions do not destroy or adversely modify critical habitat. Historically, no consultations have occurred on the Pecos River for the silvery minnow since the area is not occupied by the species. However, while critical habitat designation could provide some benefit to the silvery minnow, in fact, consultations are already occurring for another listed fish with similar habitat requirements. The Pecos bluntnose shiner (*Notropis simus pecosensis*) was federally listed in 1987 and portions of the Pecos River are designated as critical habitat for the Pecos bluntnose shiner (February 20, 1987; 52 FR 5295). As stated in the ''Criteria for Identifying Critical Habitat'' section of this rule, these fish species belong to the same guild of broadcast spawners with semibuoyant eggs and also spawn during high flow events with eggs and larvae being distributed downstream (Bestgen *et al.* 1989). Therefore, flow regime operations in this reach that benefit the Pecos bluntnose shiner also provide benefits to silvery minnow habitat. We also believe that the primary constituent elements for the Pecos bluntnose shiner critical habitat are compatible with the primary constituent elements for the silvery minnow (*see* ''Criteria for Identifying Critical Habitat'' section below). Thus, we find that little additional benefit through section 7 consultation would occur as a result of the overlap between habitat suitable for the silvery minnow and the Pecos bluntnose shiner listing and critical habitat designation.

In *Sierra Club* v. *Fish and Wildlife Service,* 245 F.3d 434 (5th Cir. 2001), the Fifth Circuit Court of Appeals stated that the identification of habitat essential to the conservation of the species can provide informational benefits to the public, State and local governments, scientific organizations, and Federal agencies. The court also noted that heightened public awareness of the plight of listed species and their habitats may facilitate conservation efforts. We agree with these findings; however, we believe that there would be little additional informational benefit gained from including the middle Pecos River because the final rule identifies all areas that are essential to the conservation of the silvery minnow, regardless of whether all of these areas are included in the regulatory designation. Consequently, we believe that the informational benefits will be provided to the middle Pecos River, even though this reach is not designated as critical habitat.

The economic analysis recognizes that while consultations regarding the Pecos River will occur without a silvery minnow critical habitat designation, those consultations would not consider the silvery minnow. However, because of the similar life history requirements of these species, we do not anticipate that the outcomes of such consultations would be altered. We recognize, as does the economic analysis, that the middle Pecos River area (as described above) covers about twice the length of the area designated for the Pecos bluntnose shiner. Historically, two formal consultations and two informal consultations occurred annually for the Pecos bluntnose shiner. The economic analysis assumes that twice as many consultations would occur if this area were designated as critical habitat for the silvery minnow, since the area would be doubled in size. However, the economic analysis also recognizes that this is likely an overstatement of the actual increase in consultations because consultations frequently occur on projects located outside of Pecos bluntnose shiner critical habitat, because of the interdependent nature of the river system and the presence of the species. Consequently, we do not believe that designating critical habitat within this river reach would provide additional benefits for the silvery minnow, because currently the activities that occur outside of critical habitat designated for the Pecos bluntnose shiner are also the subject of consultation. In the absence of the silvery minnow, we find little benefit to including this river reach in the critical habitat for the silvery minnow because of the presence of the Pecos bluntnose shiner and its designated critical habitat. Current and ongoing conservation activities for the Pecos bluntnose shiner are compatible with those of the silvery minnow such that reestablishment of the silvery minnow in this stretch of river should not be precluded in the future. Thus, we determine that any additional benefit from a designation of critical habitat in this river reach does not outweigh the benefit of excluding this area, as discussed below in the ''Benefits of Exclusion'' section.

The benefits of inclusion of the river reach in the lower Rio Grande in Big Bend National Park downstream of the park boundary to the Terrell/Val Verde County line, TX, would also result from the requirement under section 7 of the Act that Federal agencies consult with us to ensure that any proposed actions do not destroy or adversely modify critical habitat. However, as indicated in the economic analysis, we anticipate very little consultation activity within this area. The economic analysis (section 6.3.3) estimates that over the next 20 years there would be a total of 12 formal consultations and 6 informal consultations if silvery minnow critical habitat were designated. The only Federal action that we are aware of within the river reach of the lower Rio Grande downstream of Big Bend National Park is the Big Bend National Park oversight and permitting authority for float trips, scientific research permits, environmental education, and law enforcement (R. Skiles, Big Bend National Park, pers. comm. 2001). Therefore, unless there are other types of Federal permitting or authorization within this area, private and State-owned lands would not be affected. Additional activities that were used to estimate the numbers of consultations

for this area include: National Park management activities (*e.g.*, pesticide application and fishing regulations), U.S. International Boundary and Water Commission channel maintenance activities, certain Service activities (*e.g.*, fire management plans, fish stocking), and the U.S. Environmental Agency (EPA) NPDES permitting for the Presidio or Lajitas wastewater treatment facility. We find sufficient regulatory and protective conservation measures in place from the consultations regarding the activities described above. We believe there would be little benefit to a designation in this reach because this area is protected and managed by the National Park Service and the number of consultations expected to occur in this area is relatively low.

As above, we believe that heightened public awareness of a listed species and its habitat may facilitate conservation efforts. Nevertheless, we believe that there would be little additional informational benefit gained from including the lower Rio Grande within designated critical habitat for the silvery minnow because we have identified in this final designation those areas that we believe are essential to the conservation of the species. For these reasons, we determine that any additional benefit of designation of critical habitat in this river reach does not outweigh the benefit of excluding this area, as discussed below.

*(2) Benefits of Exclusion*

As discussed in the ''Recovery Plan'' section of this rule, the primary goals of the silvery minnow Recovery Plan are to: (1) Stabilize and enhance populations of the silvery minnow and its habitat in the middle Rio Grande valley; and (2) reestablish the silvery minnow in at least three other areas of its historic range (Service 1999). We believe that the best way to achieve the second recovery goal will be to use the authorities under section 10(j) of the Act. Consequently, this final rule outlines our conservation strategy that we believe is consistent with the species' Recovery Plan. The conservation strategy is to reestablish the silvery minnow, under section 10(j) of the Act, within areas of its historic range, possibly including the river reach in the middle Pecos River and the river reach in the lower Rio Grande. Since the silvery minnow is extirpated from these areas and natural repopulation is not possible without human assistance, we believe a 10(j) rule is the appropriate tool to achieve this recovery objective. Nevertheless, any future recovery efforts, including reintroduction of the species to areas of its historic range, must be conducted in accordance with NEPA and the Act. An overview of the process to establish an experimental population under section 10(j) of the Act is described below.

Section 10(j) of the Act enables us to designate certain populations of federally listed species that are released into the wild as ''experimental.'' The circumstances under which this designation can be applied are the following: (1) The population is geographically separate from non-experimental populations of the same species (*e.g.*, the population is reintroduced outside the species' current range but within its probable historic range); and (2) we determine that the release will further the conservation of the species. Section 10(j) is designed to increase our flexibility in managing an experimental population by allowing us to treat the population as threatened, regardless of the species' status elsewhere in its range. Threatened status gives us more discretion in developing and implementing management programs and special regulations for a population and allows us to develop any regulations we consider necessary to provide for the conservation of a threatened species. In situations where we have experimental populations, certain section 9 prohibitions (*e.g.*, harm, harass, capture) that apply to endangered and threatened species may no longer apply, and a special rule can be developed that contains the prohibitions and exceptions necessary and appropriate to conserve that species. This flexibility allows us to manage the experimental population in a manner that will ensure that current and future land, water, or air uses and activities will not be unnecessarily restricted and the population can be managed for recovery purposes.

When we designate a population as experimental, section 10(j) of the Act requires that we determine whether that population is either essential or nonessential to the continued existence of the species, on the basis of the best available information. Nonessential experimental populations located outside National Wildlife Refuge System or National Park System lands are treated, for the purposes of section 7 of the Act, as if they are proposed for listing. Thus, for nonessential experimental populations, only two provisions of section 7 would apply outside National Wildlife Refuge System and National Park System lands: Section 7(a)(1), which requires all Federal agencies to use their authorities to conserve listed species, and section 7(a)(4), which requires Federal agencies to informally confer with us on actions that are likely to jeopardize the continued existence of a proposed species. Section 7(a)(2) of the Act, which requires Federal agencies to ensure that their activities are not likely to jeopardize the continued existence of a listed species, would not apply except on National Wildlife Refuge System and National Park System lands. Experimental populations determined to be ''essential'' to the survival of the species would remain subject to the consultation provisions of section 7(a)(2) of the Act.

In order to establish an experimental population, we must issue a proposed regulation and consider public comments on the proposed rule prior to publishing a final regulation. In addition, we must comply with NEPA. Also, our regulations require that, to the extent practicable, a regulation issued under section 10(j) of the Act represent an agreement between us, the affected State and Federal agencies, and persons holding any interest in land that may be affected by the establishment of the experimental population (*see* 50 CFR 17.81(d)).

The flexibility gained by establishment of an experimental population through section 10(j) would be of little value if a designation of critical habitat overlaps it. This is because Federal agencies would still be required to consult with us on any actions that may adversely modify critical habitat. In effect, the flexibility gained from section 10(j) would be rendered useless by the designation of critical habitat. In fact, section 10(j)(2)(C)(ii) of the Act states that critical habitat shall not be designated under the Act for any experimental population determined to be not essential to the continued existence of a species.

The second goal of the Recovery Plan is to reestablish the silvery minnow in areas of its historic range. We strongly believe that, in order to achieve recovery for the silvery minnow, we would need the flexibility provided for in section 10(j) of the Act to help ensure the success of reestablishing the minnow in the middle Pecos River and lower Rio Grande areas. Use of section 10(j) is meant to encourage local cooperation through management flexibility. Critical habitat is often viewed negatively by the public since it is not well understood and there are many misconceptions about how it affects private landowners (Patlis 2001). We believe it is important for recovery of this species that we have the support of the public when we move toward meeting the second recovery goal. It is

critical to the recovery of the silvery minnow that we reestablish the species in areas outside of its current occupied range. The current population of silvery minnow in the middle Rio Grande is in an imperiled state, making reestablishment into other portions of its historic range extremely important.

As noted above, nonessential experimental populations located within the National Park System are treated, for purposes of section 7 of the Act, as if they are listed as threatened (50 CFR 17.83(b)). Thus, a nonessential experimental population established in the river reach in the lower Rio Grande downstream of the Big Bend National Park boundary (*i.e.*, within the reach designated as a wild and scenic river) to the Terrell/Val Verde County line, TX, would be treated, for purposes of section 7, as a threatened species because this area is a component of the national wild and scenic rivers system that is administered by the Secretary of the Interior through the National Park Service and is considered part of the National Park System (16 U.S.C. 1281(c)). These lands downstream of Big Bend National Park are owned by the State of Texas (Black Gap Wildlife Management Area) and approximately 12 to 15 private landowners. The National Park Service's management authority in the wild and scenic river designation currently extends 0.25 mi from the ordinary high water mark.

For the past two years, Big Bend National Park has been working on a management plan for the ''outstanding remarkable values of the Rio Grande wild and scenic river'' (F. Deckert, Big Bend National Park, pers. comm. 2002). The development of the river management plan has involved stakeholders, including private landowners and the State of Texas. Throughout the stakeholder-based planning process, the Park has built trust among diverse and competing interests by encouraging open dialogue regarding various river management issues. If critical habitat were designated in this river reach, the introduction of additional Federal influence could jeopardize the trust and spirit of cooperation that has been established over the last several years (F. Deckert, pers. comm. 2002). The designation of critical habitat would be expected to adversely impact our, and possibly the Park's, working relationship with the State of Texas and private landowners, and we believe that Federal regulation through critical habitat designation would be viewed as an unwarranted and unwanted intrusion.

The National Park Service expects to complete and finalize its management plan and EIS in 2003. We will review the river management plan when the draft EIS is released to suggest management recommendations for this river reach that are consistent with the recovery needs of the silvery minnow. We believe this area has the greatest potential for repatriating the species within an area of its historic range and believe this river reach also has the greatest potential for developing an experimental population under section 10(j) of the Act. In order for an experimental population to be successful, the support of local stakeholders—including the National Park Service, the State of Texas, private landowners, and other potentially affected entities—is crucial. In light of this and the fact that the river management plan will soon be completed, we find that significant benefits result from excluding this river reach from designation of critical habitat.

On the middle Pecos River, we acknowledge that the NMISC has been actively acquiring and leasing water rights to meet the State's delivery obligations to TX as specified in the Pecos River Compact and pursuant to an Amended Decree entered by the U.S. Supreme Court. For example, between 1991 and 1999, $27.8 million was spent on the Pecos River water rights acquisition program. NM faced a shortfall in its Pecos River Compact delivery obligations for the year 2001 and the possibility of priority administration, in which the State Engineer would order junior water rights holders not to use water. Given this tight water situation and the Pecos River Compact delivery obligations, we believe that the flexibility of section 10(j) would be especially appropriate in the middle Pecos. Economic costs associated with endangered species management and critical habitat designation for the silvery minnow are discussed in the economic analysis. There are a variety of current and potential future costs associated with the ongoing water management and water reallocation on the middle Pecos River. The economic analysis and EIS discuss and analyze these costs in greater detail. We used the economic analysis and EIS to make our determinations on the benefits of including or excluding areas from the designation of critical habitat. Prior to making our final determination, we considered comments on the economic and other relevant impacts of all of the areas we determined to be essential for the conservation of the silvery minnow.

In summary, we believe that the benefits of excluding the middle Pecos River and lower Rio Grande outweigh the benefits of their inclusion as critical habitat. Including these areas may result in some benefit through additional consultations with Federal agencies whose activities may affect critical habitat. However, overall this benefit is minimal because of the presence of the Pecos bluntnose shiner and its critical habitat in the middle Pecos River and the minimal number of estimated future consultations that are expected to occur within Big Bend National Park and the wild and scenic river designation that extends beyond the Park's boundaries. On the other hand, an exclusion will greatly benefit the overall recovery of the minnow by allowing us to move forward using the flexibility and greater public acceptance of section 10(j) of the Act to reestablish minnows in other portions of its historic range where it no longer occurs. This is likely the most important step in reaching recovery of this species and we believe that section 10(j), as opposed to a critical habitat designation, is the best tool to achieve this objective. Thus, we believe that an exclusion of these two areas outweighs any benefits that could be realized through a designation of critical habitat and we have not included these two areas within this critical habitat designation.

The Pecos River and lower Rio Grande reaches were historically occupied but are currently unoccupied by the silvery minnow (Hubbs 1940; Trevino-Robinson 1959; Hubbs *et al.* 1977; Bestgen and Platania 1991). The silvery minnow occupies less than 5 percent of its historic range, and the likelihood of extinction from catastrophic events is high because of its limited range (Hoagstrom and Brooks 2000; Service 1999). However, if critical habitat were designated in the middle Pecos River or lower Rio Grande, the likelihood of extinction of the species from the occupied reach of the middle Rio Grande would not decrease because critical habitat designation is not a process to reestablish additional populations within areas outside of the current known distribution. We believe that the exclusion of the river reaches of the middle Pecos River and the lower Rio Grande will not lead to the extinction of the species.

**Relationship of Critical Habitat to Pueblo Lands Under Section 3(5)(A) and Exclusions Under Section 4(b)(2)**

In the proposed rule for the designation of critical habitat for the silvery minnow (June 6, 2002; 67 FR 39213), we indicated that if any management plans are submitted during the open comment period, we would

consider whether such plans provide adequate special management or protection for the species. We also indicated that we would use this information in determining which, if any, river reaches or portions of river reaches within the middle Rio Grande should not be included in the final designation of critical habitat for the silvery minnow. We based this discussion on section 3(5) of the Act, which defines critical habitat, in part, as areas within the geographical area occupied by the species ''on which are found those physical and biological features (I) essential to the conservation of the species and (II) which may require special management considerations and protection.'' We noted that ''special management considerations or protection'' is a term that originates in the definition of critical habitat and that adequate special management consideration or protection can be provided by a legally operative plan or agreement that addresses the maintenance and improvement of the primary constituent elements important to the species and manages for the long-term conservation of the species. The three criteria identified in the proposed rule for determining if a plan provides adequate special management or protection are as follows: (1) A current plan or agreement must be complete and provide sufficient conservation benefit to the species; (2) the plan or agreement must provide assurances that the conservation management strategies will be implemented; and (3) the plan or agreement must provide assurances that the conservation management strategies will be effective (*i.e.,* provide for periodic monitoring and revisions as necessary).

In a recent opinion (*Center for Biological Diversity* v. *Norton, Civ. No. 01–409 TUC DCB* D. Ariz. Jan. 13, 2003), a federal district court determined that our definition of critical habitat, as it applies to special management, is not correct. The court stated that ''whether habitat does or does not require special management is not determinative on whether the habitat is ''critical'' to a threatened or endangered species.'' Although we do not necessarily agree with the court's analysis, we nevertheless do not intend to delete areas from this final designation because additional special management is not required. We do however, as explained below, believe that the management plans submitted by the Pueblos of Santo Domingo, Santa Ana, Sandia, and Isleta during the comment period provide for special management of the silvery minnow on their lands and we have, as explained below, excluded their lands under section 4(b)(2) of the Act.

During the open comment period, we worked with the Pueblos of Santo Domingo, Santa Ana, Sandia, and Isleta to develop voluntary measures to conserve the silvery minnow on their lands. These Pueblos each completed special management plans for the silvery minnow and submitted them to us during the open comment period. Excluding the Tribal lands in this designation of critical habitat for the silvery minnow will not adversely affect the conservation and future delisting of the species. Whether or not a species has designated critical habitat, that species is protected from any actions resulting in an unlawful take, under section 9 of the Act, and from Federal actions that could jeopardize the species' continued existence. The four Pueblo plans are summarized below:

(1) Santo Domingo Tribe Rio Grande Silvery Minnow Management Plan (Santo Domingo management plan): A resolution was passed by the Santo Domingo Tribal Council for the Santo Domingo management plan to exercise the Tribe's sovereign status and provide for special management protections and conservation of the silvery minnow. The Santo Domingo management plan sets the goal of gathering and analyzing data to formulate and prioritize actions to improve the status of these lands. Additionally, the Santo Domingo Tribe will attempt to secure funding to: (1) Determine and quantify the extent of the silvery minnow population and habitat found on Santo Domingo lands; (2) develop management actions and strategies to address the threats to the species and provide protection of silvery minnow populations and habitat; (3) develop methods and protocols for gathering, storing, and monitoring data for the Rio Grande watershed; and (4) analyze, revise, and strengthen the Santo Domingo management plan to promote long-term improvement of the watershed and protect the silvery minnow and other species.

The Santo Domingo Tribe intends to coordinate with us to follow methods and protocols that were provided to the Tribe in 2001 to survey for silvery minnows or habitat, to conduct water quality sampling, to develop water quality standards, and to devise relocation or augmentation protocols (Santo Domingo 2002; Service 2001e). The Santo Domingo management plan organizes these activities into silvery minnow population and habitat monitoring, silvery minnow research, bosque (the riparian areas adjacent to the Rio Grande) restoration, and data sharing. Because Santo Domingo commits to implementing these activities, we find that the Santo Domingo management plan provides significant conservation benefit to the silvery minnow. We believe that the resolution passed by the Santo Domingo Tribal Council and the development of the Santo Domingo management plan demonstrate that the management plan will be implemented. The Santo Domingo management plan specifically provides periodic updates as appropriate, including updates based upon silvery minnow population and habitat monitoring and research.

(2) Santa Ana Management Plan: During the open comment period, the Pueblo of Santa Ana submitted comments and a draft safe harbor agreement to us. The comments and draft safe harbor agreement indicate that the Pueblo is currently enhancing, restoring, and maintaining habitat for the silvery minnow and other species. The Pueblo's current natural resource programs—along with the draft safe harbor agreement—will, along with providing other conservation benefits, serve as the foundation for managing the silvery minnow and other species within the Pueblo's lands. The Pueblo has actively coordinated with us to implement these voluntary conservation programs to augment the silvery minnow population within its lands and intends to continue its existing natural resource management programs that currently provide special management considerations or protections for the silvery minnow. These programs include ecosystem restoration, range and wildlife, water resources, GIS, and environmental education. The ecosystem restoration program concentrates on the restoration of riparian, wetland, and riverine systems by eradicating non-native plant species and restoring native wildlife habitat, including habitat for the silvery minnow. Its current scope includes developing methods and implementing bosque, wetland, and channel restoration along the Rio Grande within the boundaries of the Pueblo and in the Rio Jemez watershed. The range and wildlife program concentrates on improving the health of the Pueblo's rangeland. The water resources program is responsible for surface water and groundwater projects and programs ongoing and in development at the Pueblo. Activities currently being implemented and anticipated to continue focus on water quality standards development, technical support for water rights establishment, conserving riparian areas, improving

water quality, and reestablishing natural hydrologic processes. These natural resource management programs will collect monitoring data such as water quality information, stream geomorphologic assessments, aquatic studies, and vegetation surveys. We expect that periodic updates of information as well as water management improvements will occur because their natural resource programs incorporate monitoring and adaptive management principles.

We believe that Santa Ana Pueblo currently provides, and will continue to provide, special management for the conservation of the silvery minnow through its existing natural resource management programs. Because Santa Ana commits to implementing the activities described above, we conclude that the management of Santa Ana Pueblo lands and those described under the draft safe harbor agreement provide significant conservation benefit to the silvery minnow. We believe that the existing natural resource program and draft safe harbor agreement demonstrate that these voluntary management activities will be implemented. In fact, we have previously commented that Santa Ana's active restoration program includes many standard recommendations we make concerning fish and wildlife and their habitat, such as expansion of shallow, low-velocity habitat in the Rio Grande, creation and restoration of riparian and wetland areas, protection and enhancement of aquatic habitat, and establishment of native plant species in riparian areas cleared of non-native vegetation (Service 2001f). The Santa Ana natural resource program and draft safe harbor agreement also provide for periodic updates as appropriate.

(3) Pueblo of Sandia Bosque Management Plan (Sandia management plan): A resolution passed by the Pueblo of Sandia Tribal Council adopts the management plan. The resolution, among other things, identifies that the Sandia management plan formalizes bosque restoration activities, thus demonstrating the Pueblo's commitment to protect the bosque, including the silvery minnow. The Sandia management plan provides a conservation benefit to the silvery minnow by enhancing and restoring the species' habitat through bosque restoration efforts, water quality monitoring, fire prevention activities, wetland enhancements, and natural pond restoration. The goals of the Sandia management plan are to: (1) Create and sustain diverse habitats within the bosque; (2) reduce and eradicate invasive species; (3) plant native grasses, trees, and shrubs; (4) increase water retention and yield of the riparian area; (5) encourage the reintroduction of native species, including the silvery minnow and the Southwestern willow flycatcher; and (6) continue water quality monitoring to determine if degradation has contributed to the decline of the silvery minnow. The Pueblo also developed specific objectives to provide for special management considerations or protections of the silvery minnow, including: determining silvery minnow distribution, abundance, mesohabitat and habitat preference, and evaluating water quality impacts. Additionally, the Pueblo will prepare a feasibility study for creating silvery minnow habitat and will continue cooperative research efforts with us.

As an example of current protection, Sandia Pueblo has surface water quality standards pursuant to the Clean Water Act. To support these standards, the Pueblo has an intensive monitoring program to assess water quality compliance in relation to its established standards. In addition, the Pueblo is currently engaged with us in conducting a water quality study. The study is designed to assess water quality in relation to the silvery minnow and its habitat. The results of this study will be used to develop and promote long-term strategies that will protect and conserve the silvery minnow.

We find that the Sandia management plan is complete and provides significant conservation benefit to the silvery minnow as described above. We believe that the resolution passed by the Pueblo of Sandia Tribal Council concerning the Sandia management plan demonstrates that the management plan will be implemented. The Sandia management plan also will be periodically updated, as appropriate, on the basis of results of ongoing Federal and State agency programs and studies.

(4) The Pueblo of Isleta Riverine Management Plan: Rio Grande Silvery Minnow (Isleta management plan). A resolution passed by the Tribal Council of the Pueblo of Isleta adopts the Isleta management plan. The resolution, among other things, demonstrates the Pueblo's commitment through the Isleta management plan to protect, conserve, and promote the management of the silvery minnow and its associated habitat within the boundaries of Isleta Pueblo. Management activities covered by the Isleta Management Plan include silvery minnow population monitoring, habitat protection, and habitat restoration.

As an example of current protection, Isleta Pueblo has surface water quality standards pursuant to the Clean Water Act. The EPA has taken the surface water quality standards developed by Isleta Pueblo into consideration in the development of point source discharge permits; these standards minimize potential water quality impacts on water uses and resources, including the protection of the silvery minnow. The Pueblo regularly monitors compliance with these surface standards, and is currently engaged with us in conducting a water quality study. The study is designed to assess water quality in relation to the silvery minnow and its habitat. The results of this study will be used to develop and promote long-term strategies that will protect and conserve the silvery minnow.

The Isleta management plan sets the overall management goals of (1) determining, quantifying, and assessing silvery minnow populations within Isleta Pueblo; (2) developing and refining management actions to address potential threats to the silvery minnow; (3) prescribing measures to sustain existing silvery minnow populations and habitat and enhance numbers; and (4) promoting a comprehensive integrated resource management approach for the riverine ecosystem. These goals, conducted in cooperation with the FWS, will be accomplished by silvery minnow population and habitat assessment and monitoring, including surveys, egg sampling and collection, and silvery minnow rescues.

We find that the Isleta management plan is complete and the commitment to implement the activities described above provides significant conservation benefit to silvery minnow. We believe that the resolution passed by the Tribal Council of the Pueblo of Isleta concerning the final Isleta management plan demonstrates that the management plan will be implemented. The Isleta management plan specifically provides periodic updates as appropriate, including updates based upon silvery minnow population, habitat, and water quality monitoring and studies.

Section 4(b)(2) allows the Service to exclude areas form critical habitat designation if the benefits of such exclusion outweigh the benefits of specifying such areas as critical habitat, unless exclusion would result in the extinction of the species. If excluding an area from a critical habitat designation will provide substantial conservation benefits, and at the same time including the area fails to confer a counter-balancing positive regulatory or educational benefit to the species, then the benefits of excluding the area from critical habitat outweigh the benefits of including it.

The Service has analyzed the benefits of including the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta as part of the critical habitat designation and the benefits of excluding these areas, and determined that the benefits of exclusion outweigh those of inclusion. A major factor in the analysis described below is that, even if excluded, these river reaches owned and managed by the Pueblos will nonetheless receive special management and protection through the Pueblos management plans, which were submitted during the open comment period for the proposed rule. Under these management plans, the silvery minnow will benefit from monitoring, restoration, enhancement, and survey efforts. The Service has also determined that exclusion would not result in the extinction of the species.

*(1) Benefits of Inclusion*

There are few additional benefits of including the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta in this critical habitat designation beyond what will be achieved through the implementation of their management plans. The principal benefit of any designated critical habitat is that activities in and affecting such habitat require consultation under section 7 of the Act. Such consultation would ensure that adequate protection is provided to avoid destruction or adverse modification of critical habitat. If adequate protection can be provided in another manner, the benefits of including any area in critical habitat are minimal. The economic analysis found that the Bureau of Indian Affairs (BIA) has no consultation history for the silvery minnow (*i.e.*, no consultations have been conducted since the species was listed). However, the economic analysis found that, consultations may occur in the future for water trades or voluntary leasing that would benefit the silvery minnow. The economic analysis estimated 6 informal consultations may occur over the next 20 years, resulting from these beneficial water trades, but that no formal consultations were likely. These consultations would occur regardless of whether critical habitat is designated, because the species occupies these four areas. Section 7 consultation under the jeopardy standards will still be required for activities affecting the silvery minnow. Beyond these informal consultations, we do not expect any additional consultations.

Although we believe the likelihood of additional consultations is small, consultation requirements under section 7 of the Act would be triggered as a result of the funding or permitting processes administered by the Federal agency involved. The benefit of critical habitat designation would ensure that any actions funded by or permits given by a Federal agency would not likely destroy or adversely modify any critical habitat. Without critical habitat, projects would still trigger consultation requirements under the Act because the silvery minnow is currently present in the middle Rio Grande. Given that no consultations have occurred with the BIA or the Pueblos since the silvery minnow was listed as endangered in 1994 and the overall low likelihood of Federal projects being proposed in these areas, the Service believes there is almost no regulatory benefit of a critical habitat designation in this area. Consequently, the designation of critical habitat in these areas would provide minimal, if any, regulatory benefit to the species.

Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area, and this may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. Any information about the silvery minnow and its habitat that reaches a wide audience, including other parties engaged in conservation activities, would be considered valuable. However, the Pueblos are already working with the Service to address the habitat needs of the species. Further, these areas were included in the proposed designation, which itself has reached a wide audience, and has thus provided information to the broader public about the conservation value of these areas. Thus, the educational benefits that might follow critical habitat designation, such as providing information to the BIA , BOR, or Pueblos on areas that are important for the long-term survival and conservation of the species, have already been provided by proposing these areas as critical habitat. Alternatively, the same or greater educational benefits will be provided to these lands if they are excluded from the designation, because the management plans provide for conservation benefits above any that would be provided by designating critical habitat. For example, the educational aspects are likely greater for these areas if they are not included in the designation because the Pueblos will continue to work cooperatively toward the conservation of the silvery minnow, which will include continuing, initiating, and completing scientific studies (*see* discussion below). For these reasons, then, we believe that designation of critical habitat would have few, if any, additional benefits beyond those that will result from continued consultation under the jeopardy standard.

*(2) Benefits of Exclusion*

The benefits of excluding the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta from designated critical habitat are more significant. The proposed critical habitat designation included 29.5 mi (47.5 km) of river through these areas. We believe that not designating critical habitat on these areas would have substantial benefits including: (1) The furtherance of our Federal Trust obligations and our deference to the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta to develop and implement Tribal conservation and natural resource management plans for their lands and resources within the Rio Grande ecosystem, which includes the silvery minnow and its habitat; (2) the establishment and maintenance of effective working relationships to promote the conservation of the silvery minnow and its habitat; (3) the allowance for continued meaningful collaboration and cooperation in scientific studies to learn more about the life history and habitat requirements of the species; and (4) providing conservation benefits to the Rio Grande ecosystem and the silvery minnow and its habitat that might not otherwise occur.

As detailed above, we met with Pueblos and Tribes to discuss how each might be affected by the designation of critical habitat. During the open comment period, we established effective working relationships with the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta. As part of our relationship, we provided technical assistance to each of these four Pueblos to develop voluntary measures to conserve the silvery minnow and its habitat on their lands. These voluntary measures are contained within special management plans that each of these Pueblos submitted during the open comment period (*see* discussion above). These actions were conducted in accordance with Secretarial Order 3206, ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); 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 relevant provision of the Departmental

Manual of the Department of the Interior (512 DM 2). We believe that these Pueblos should be the governmental entities to manage and promote the conservation of the silvery minnow on their lands. During our meetings with each of these Pueblos, we recognized and endorsed their fundamental right to provide for resource management activities, including those relating to the Rio Grande ecosystem. Much of our discussions centered on providing technical assistance to the Pueblos to develop, continue, or expand natural resource programs such that the designation of critical habitat for the silvery minnow would likely be unnecessary.

We find that other conservation benefits could be provided to the Rio Grande ecosystem and the silvery minnow and its habitat by excluding the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta from the designation. For example, as part of maintaining an effective working relationship with each Pueblo, conservation benefits, including silvery minnow augmentation, population and habitat monitoring, silvery minnow research, habitat restoration, and the development of water leases may be possible. In fact, during our discussions with each of the Pueblos, we were informed that critical habitat would be viewed as an intrusion on their sovereign abilities to manage natural resources in accordance with their own policies, customs, and laws. To this end, we found that each Pueblo would prefer to work with us on a Government-to-Government basis. For these reasons, we believe that our working relationships with the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta would be maintained if they are excluded from the designation of critical for the silvery minnow. We view this as a substantial benefit.

Proactive voluntary conservation efforts are necessary to promote the recovery of the silvery minnow (Service 1999). Consideration of this issue is especially important in areas where the status of the species is uncertain or unknown. Recovery of the silvery minnow will require access to all areas of the middle Rio Grande and permission for monitoring and other efforts (*e.g.,* augmentation of the existing population, water leasing, etc). Because we have not had permission from the Pueblos within the Cochiti reach, surveys to determine the status of the silvery minnow have not been conducted since the mid-1990s (Platania 1995; Hoagstrom and Brooks 2000). Pueblo cooperation is essential to obtain permission for these monitoring activities. As described above, the Santo Domingo intends to coordinate with us to survey for silvery minnows or habitat, to conduct water quality sampling, to develop water quality standards, and to devise relocation or augmentation protocols. Santa Ana Pueblo will continue to actively coordinate with us to implement a variety of voluntary conservation programs to augment the silvery minnow population within its lands and intends to continue its existing natural resource management programs that currently provide special management considerations or protections for the silvery minnow. Sandia Pueblo intends to enhance and restore the species' habitat through bosque restoration efforts, water quality monitoring, fire prevention activities, wetland enhancements, and natural pond restoration. Finally, Isleta Pueblo intends to protect, conserve, and promote the management of the silvery minnow and its associated habitat including population monitoring, habitat protection, habitat restoration, and continued water quality standards. Consequently, we view each of the special management plans as a starting point for cooperative and productive relationships that have the potential to provide additional substantive conservation benefits to the silvery minnow and its habitat. The additional benefits would be less likely if critical habitat was designated because the Pueblos view critical habitat as an intrusion on their ability to manage their own lands and trust resources.

The special management plans and comments submitted by each of the Pueblos documents that meaningful collaborative and cooperative scientific studies will begin or continue within their lands. These commitments demonstrate the willingness of each of the Pueblos to work cooperatively with us toward landscape-scale conservation efforts that will benefit the silvery minnow. Each of the Pueblos has committed to several ongoing or future management, restoration, enhancement, and survey activities that would not occur as a result of critical habitat designation. The Pueblos of Sandia and Isleta are currently participating in a water quality study with us. Santo Domingo Pueblo indicated that, among other activities, it will attempt to secure funding to implement silvery minnow and habitat inventories, water quality sampling, and the development of water quality standards. Santa Ana indicated that water quality data, stream geomorphology assessments, and aquatic and vegetation studies will continue. Therefore, we believe that the results of these or other similar studies will be used to develop and promote long-term strategies that will protect and conserve the silvery minnow and its habitat within the Pueblo lands of Santa Domingo, Santa Ana, Sandia, and Isleta. The benefits of excluding these areas from critical habitat will encourage the continued cooperation and development of data-sharing protocols and scientific studies as part of implementing the special management plans. If these areas were designated as critical habitat, we believe it is unlikely that much of this information would be available to us.

In addition to management actions described above to address the conservation needs of the silvery minnow, we discussed with each of the Pueblos possible future amendments to the special management plans to include voluntary conservation efforts for other listed species and their habitat (*e.g.,* southwestern willow flycatcher). All of the Pueblos indicated their willingness to work cooperatively with us to benefit other listed species. However, these future voluntarily management actions will likely be contingent upon whether lands on these four Pueblos are designated as critical habitat for the silvery minnow. Thus, a benefit of excluding these lands would be future voluntary conservation efforts that would benefit other listed species.

In summary, the benefits of including the Pueblos of Santa Domingo, Santa Ana, Sandia, and Isleta in critical habitat are small, and are limited to minor educational benefits. The benefits of excluding these areas from being designated as critical habitat for silvery minnow are more significant, and include encouraging the continued development and implementation of the special management measures such as monitoring, survey, enhancement, and restoration activities that are planned for the future or are currently being implemented. These programs will allow the Pueblos to manage their natural resources to benefit the Rio Grande ecosystem and silvery minnow, without the perception of Federal Government intrusion. This philosophy is also consistent with our published policies on Native American natural resource management. The exclusion of these areas will likely also provide additional benefits to the species that would not otherwise be available to encourage and maintain cooperative working relationships. We find that the benefits of excluding these areas from critical habitat designation outweigh the benefits of including these areas.

As noted above, the Service may exclude areas from the critical habitat designation only if it is determined, ''based on the best scientific and

commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.'' Here, we have determined that exclusion of the Pueblo lands of Santo Domingo, Santa Ana, Sandia, and Isleta from the critical habitat designation will not result in the extinction of the silvery minnow. First, activities on these areas that may affect the silvery minnow will still require consultation under section 7 of the Act. Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species. Therefore, even without critical habitat designation on these lands, activities that occur on these lands cannot jeopardize the continued existence of the silvery minnow. Second, each of the Pueblos have committed to protecting and managing according to their special management plans and natural resource management objectives. In short, the Pueblos have committed to greater conservation measures on these areas than would be available through the designation of critical habitat. With these natural resource measures, we have concluded that this exclusion from critical habitat will not result in the extinction of the silvery minnow. Accordingly, we have determined that the Pueblo lands of Santa Domingo, Santa Ana, Sandia, and Isleta should be excluded under subsection 4(b)(2) of the Act because the benefits of exclusion outweigh the benefits of inclusion and will not cause the extinction of the species. For this reason, we are excluding from this critical habitat designation the Pueblo lands of Santa Domingo, Santa Ana, Sandia, and Isleta.

**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,'' as defined by the Act, means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the Act is no longer necessary.

Section 4(b)(2) of the Act requires that we base critical habitat designation on the best scientific and commercial data available, 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 exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in the extinction of the species.

Designation of critical habitat helps focus conservation activities by identifying areas that are essential to the conservation of the species and alerting the public and land management agencies to the importance of an area to conservation. Within areas currently occupied by the species, critical habitat also identifies areas that may require special management or protection. Critical habitat receives protection from destruction or adverse modification through required consultation under section 7 of the Act with regard to actions carried out, funded, or authorized by a Federal agency. Where no such Federal agency action is involved, critical habitat designation has no bearing on private landowners, State, or Tribal activities. Aside from the added protection provided under section 7, critical habitat does not provide other forms of protection to designated lands.

Designating critical habitat does not, in itself, lead to recovery of a listed species. Designation does not create a management plan, establish numerical population goals, prescribe specific management actions (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, conservation, and management plans, and through section 7 consultations and section 10 permits. Critical habitat designations do not signal that habitat outside the designation is unimportant or may not be required for recovery.

Areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1), the regulatory protections afforded by the section 7(a)(2) jeopardy standard, and the section 9 take prohibition. 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 under section 10 of the Act, or conservation planning efforts for other species if new information available to these planning efforts calls for a different outcome.

**Methods**

In determining areas that are essential to conserve the silvery minnow, we used the best scientific and commercial data available. This included data from research and survey observations published in peer-reviewed articles, recovery criteria outlined in the Recovery Plan (Service 1999), data collected from reports submitted by biologists holding section 10(a)(1)(A) recovery permits, and comments received on the previous proposed and final rule, draft economic analysis, and environmental assessment. We have emphasized areas known to be occupied by the silvery minnow and described other river reaches that were identified in the Recovery Plan which we believe are important for possible reintroduction and recovery (Service 1999).

**Primary Constituent Elements**

In accordance with section 3(5)(A)(i) 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 designations 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, within areas currently occupied by the species, may require special management considerations or protection. Those physical and biological features may include, but are not limited to, space for individual and population growth, and for normal behavior; food, water, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The various life-history stages of the silvery minnow require diverse habitats. The following discussion summarizes the biological requirements of the silvery minnow relevant to identifying the primary constituent elements of its critical habitat.

The silvery minnow historically inhabited portions of the wide, shallow rivers and larger streams of the Rio Grande basin, predominantly the Rio Grande and the Pecos River (Bestgen

and Platania 1991). Survey results indicated that adults were common in shallow and braided runs over sand substrate, and almost never occurred in habitats with bottoms of gravel or cobble, while young-of-year fish (less than 1 year old) occupied shallow, low-velocity backwaters with sand-silt substrates (Dudley and Platania 1997; Platania and Dudley 1997; Platania 1991; Remshardt *et al.* 2001). Young-of-year silvery minnows were infrequently found at the same time in the same habitat as adults. River reaches dominated by straight, narrow, incised (deep) channels with rapid flows are not typically occupied by the silvery minnow (Bestgen and Platania 1991).

The habitats most often occupied by silvery minnow were characterized by low (<20 cm) to moderate depths (31 to 40 cm), little (<10 cm/s) to moderate (11 to 30 cm/s) water velocity, and silt and sand substrata (Dudley and Platania 1997; Remshardt *et al.* 2001). It is believed that silvery minnow select debris piles, pools, and backwaters as habitat, and generally avoid main channel runs (Dudley and Platania 1997).

The silvery minnow is believed to be a generalized forager, feeding upon items suspended in the water column and items lying on the substrate (*e.g.*, plankton, algae, diatoms) (Sublette et al. 1990; Dudley and Platania 1997; Service 1999). The silvery minnow's elongated and coiled gastrointestinal tract suggests that detritus (partially decomposed plant or animal matter), including sand and silt, is scraped from the river bottom (Sublette et al. 1990). Other species of *Hybognathus* have similar food habits, consuming rich organic ooze and detritus found in silt or mud substrates (Pflieger 1997).

The silvery minnow is a pelagic spawner, with each female capable of producing an average of 3,000 semibuoyant, non-adhesive eggs during a spawning event (Platania 1995; Platania and Altenbach 1998). Collection of eggs in the middle of May, late May, early June, and late June suggest a contracted spawning period in response to a spring runoff or spike (increase in flow that occurs when winter snows melt) (Service 1999; BOR 2001a). However, the peak of egg production appears to occur in mid-May (Smith 1998, 1999). If the spring spike occurs at the wrong time or is reduced, then silvery minnow reproduction could be impacted. Similar to other species of *Hybognathus* in other drainages (Lehtinen and Layzer 1988; Taylor and Miller 1990), the silvery minnow appears capable of multiple spawns. For example, a late spawn was documented in the Isleta and San Acacia reaches on July 24, 25, and 26, 2002, following a high flow event produced by a thunderstorm (see also Dudley and Platania 2002d). This spawn was smaller than the typical spawning event in May, but a significant number of eggs was collected (N = 496) in 2 hours of effort (J. Smith, NMESFO, pers. comm. 2002). In 2002, small spawning events (a few eggs in each spawn) have been documented in all reaches except the Cochiti Reach as late as August 7 (J. Smith, NMESFO, pers. comm. 2002).

Platania (1995, 2000) found that early development and hatching of eggs is correlated with water temperature. Silvery minnow eggs raised in 30°C water hatched in about 24 hours, while eggs reared in 20°C water hatched within 50 hours. Eggs were 1.6 mm (0.06 in) in size upon fertilization, but quickly swelled to 3 mm (0.12 in). Recently hatched larval fish are about 3.7 mm (0.15 in) in standard length and grow about 0.15 mm (0.005 in) per day during the larval stages. Eggs and larvae remain in the drift for 3 to 5 days, and may be transported from 134 to 223 mi (216 to 359 km) downstream depending on river flows and habitat conditions (*e.g.*, debris piles, low velocity backwaters) (Platania and Altenbach 1998). About 3 days after hatching, the larvae begin moving to low-velocity habitats where food (mainly phytoplankton and zooplankton) is abundant and predators are scarce. Because eggs and larvae can be swept downstream, where recruitment (that portion of young-of-the-year fish added to the breeding population) of fish may be poor in the current degraded condition of the middle Rio Grande (*e.g.*, channelization, banks stabilization, levee construction, disruption of natural processes throughout the floodplain, etc.), adequate stream length appears to be an important determinant of reproductive success.

Platania (1995) indicated that the downstream transport of eggs and larvae of the silvery minnow over long distances may have been, historically, beneficial to the survival of their populations. This behavior could have promoted recolonization of reaches impacted during periods of natural drought (Platania 1995). Alternatively, in a natural functioning river system (*e.g.*, a natural, unregulated flow regime), a variety of low-velocity refugia (*e.g.*, oxbows, backwaters, etc.) would have been available for silvery minnow, and lengthy downstream drift of eggs and larvae may not have been common (J. Brooks, U.S. Fish and Wildlife Service pers. comm., 2001). Currently, the release of floating silvery minnow eggs may replenish downstream reaches, but the presence of the diversion dams (Angostura, Isleta, and San Acacia Diversion Dams) prevents recolonization of upstream habitats (Platania 1995). As upstream reaches are depleted upstream, and diversion structures prevent upstream movements, population decline of the species within river reaches may occur through loss of connectivity (*i.e.*, preventing upstream movement of fish). Silvery minnows, eggs, and larvae are also transported downstream to Elephant Butte Reservoir, where it is believed that survival of these fish is highly unlikely because of poor habitat, and, more importantly, because of predation from reservoir fishes (Service 2001b). The population center (*i.e.*, the river reach that contains the majority of adult silvery minnows) is believed to have moved farther downstream over the last several years (Dudley and Platania 2001; 2002a; 2002b). For example, in 1997, it was estimated that 70 percent of the silvery minnow population was found in the reach below San Acacia Diversion Dam (Dudley and Platania 1997). Moreover, during surveys in 1999, over 95 percent of the silvery minnows captured occurred downstream of San Acacia Diversion Dam (Dudley and Platania 1999a; Smith and Jackson 2000). Probable reasons for this distribution include: (1) The spawning of semibuoyant eggs during the spring and early summer high flows, resulting in downstream transport of eggs and larval fish; (2) diversion dams that restrict or preclude the movement of fish into upstream reaches; and (3) reduction in the amount of available habitat due to the current degraded condition of some areas within the middle Rio Grande (*e.g.*, channelization, streambed degradation, reduction in off-channel habitat, and the general narrowing and incising of the stream channel) (Platania 1998; Lagassee 1981; BOR 2001).

Most Great Plains streams are highly variable environments. Fish in these systems (*e.g.*, the Rio Grande) are subjected to extremes in water temperatures, flow regimes, and overall water quality conditions (especially the concentration of dissolved oxygen). Native fish in these streams often exhibit life history strategies and microhabitat preferences that enable them to cope with these natural conditions. For example, Matthews and Maness (1979) reported that the synergistic (combined) effects of high temperature, low oxygen, and other

stressors probably limit fishes in streams of the Great Plains.

The silvery minnow evolved in a highly variable ecosystem, and is likely more tolerant of elevated temperatures and low dissolved oxygen concentrations for short periods than other non-native species. Although little is known about the upper tolerance limits of the silvery minnow, when water quality conditions degrade, stress increases, and fish generally die (*e.g.*, see Matthews and Maness 1979; Ostrand and Wilde 2001). Generally, it is believed that during periods of low flow or no flow, Great Plains fishes seek refugia in large isolated pools, backwater areas, or adjoining tributaries (Deacon and Minckley 1974; Matthews and Maness 1979). Fish in these refugia strive to survive until suitable flow conditions return and these areas reconnect with the main river channel. This pattern of retraction and recolonization of occupied areas in response to flow and other habitat conditions is typical of fishes that endure harsh conditions of Great Plains rivers and streams (Deacon and Minckley 1974; Matthews and Maness 1979).

Localized reductions in abundance are not typically a concern where sufficient numbers of the species survive, because river reaches can be recolonized when conditions improve. However, habitat conditions such as oxbows, backwaters, or other refugia that were historically present on the Rio Grande and Pecos River and were a component of natural population fluctuations (*e.g.*, extirpation and recolonization) have been dramatically altered or lost (Bestgen and Platania 1991; Hoagstrom 2000; BOR 2001a, 2001b). Over the past several decades, the extent of areas in the Rio Grande and Pecos Rivers that have periodically lost flow has increased due to human alterations of the watersheds and stream channels and diversion of the streamflows (Service 1994).

Variation in stream flow (*i.e.*, flow regime) strongly affects some stream fish (Schlosser 1985). For example, juvenile recruitment of some stream fish is highly influenced by stable flow regimes (Schlosser 1985; Hoagstrom 2000). When sufficient flows persist and other habitat needs are met, then recruitment into the population is high. Silvery minnows and other Great Plains or desert fishes cannot currently survive when conditions lead to prolonged recurring periods of low or no flow of long stretches of river (Hubbs 1974; Hoagstrom 2000). Fish mortality likely begins from degraded water quality (*e.g.*, increasing temperatures, p.H., and decreasing dissolved oxygen) and loss of refuge habitat prior to prolonged periods of low or no flow (J. Brooks, pers. comm 2001; Ostrand and Wilde 2001). For instance, a reduction of stream flow reduces the amount of water available to protect against temperature oscillations, and high temperatures from reduced water flow frequently kill fish before prolonged periods of no flow occurs (Hubbs 1990).

It is also possible that fish may subsequently die from living under suboptimal conditions or that their spawning activities may be significantly disrupted (Hubbs 1974; Platania 1993b). Such conditions are in part responsible for the current precarious status of the silvery minnow. For example, management of water releases from reservoirs, evaporation, diversion dams, and irrigation water deliveries have resulted in dewatered habitat—causing direct mortality and isolated pools that cause silvery minnow mortality as a result of poor water quality and predation from other fish and predators. Despite efforts to manage water resources to benefit the silvery minnow, periods of intermittency have and continue to occur. Portions of the middle Rio Grande were dewatered in the period 1996 through 2001 (Service 2001b; J. Smith, pers. comm. 2001). In 1996, about 34 mi (58 km) out of the 56 mi (90 km) from the San Acacia Diversion Dam to Elephant Butte Reservoir were dewatered. In 1997, water flows ceased at the south boundary of the Bosque del Apache National Wildlife Refuge, resulting in the dewatering of 14 mi (22.5 km) of silvery minnow habitat. In 1998, the Rio Grande was discontinuous within the Bosque del Apache National Wildlife Refuge, dewatering about 20 mi (32 km) of habitat. In 1999, flows ceased about 1 mi upstream of the Bosque del Apache National Wildlife Refuge northern boundary, dewatering about 24 mi (39 km) of habitat. A similar event occurred in 2000, but not to the extent of the 1999 drying. In 2001, approximately 9 combined mi (14 km) of river dried within the Bosque del Apache National Wildlife Refuge and south of San Marcial (Smith 2001). Drying occurred during the 2002 irrigation season in the Isleta and San Acacia Reaches. Between June and August 2002, approximately 25 mi of river in the San Acacia Reach and 14 mi in the Isleta Reach dried. Because of prolonged recurring periods of low or no flow through multiple years, the status of the silvery minnow has declined to alarmingly low levels (Dudley and Platania 2001, 2002a, 2002b, 2002c, 2002d, 2002e).

The primary constituent elements identified below provide a qualitative description of those physical and biological features necessary to ensure the conservation of the silvery minnow. We acknowledge that if thresholds were established as part of a critical habitat designation, they could be revised if new data became available (50 CFR 424.12(g)); however, the process of new rulemaking can take years (*see* 50 CFR 424.17), as opposed to reinitiating and completing a formal consultation, which takes months (*see* 50 CFR 402.14). Formal consultation provides an up-to-date biological status of the species or critical habitat (*i.e.*, environmental baseline) which is used to evaluate a proposed action during formal consultations. Consequently, we believe it is more prudent to pursue the establishment of specific thresholds through formal consultation.

This final rule does not explicitly state what might be included as special management for a particular river reach within the middle Rio Grande. We anticipate that special management actions will likely be developed as part of the section 7 consultation process. Special management might entail a suite of actions including re-establishment of hydrologic connectivity within the floodplain, widening the river channel, or placement of woody debris or boulders within the river channel (J. Smith, pers. comm., 2001).

It is important to note that some areas within the middle Rio Grande critical habitat have the potential for periods of low or no flow under certain conditions (*e.g.*, *see* discussion above on middle Rio Grande). We recognize that the critical habitat designation specifically includes some areas that have lost flow periodically (MRGCD 1999; Scurlock and Johnson 2001; Scurlock 1998). It is our belief that the river reach below San Acacia Diversion Dam on the middle Rio Grande is likely to experience periods of low or no flow under certain conditions, and we are not able to predict with certainty which areas will experience these conditions. We believe this area is essential to the conservation of the silvery minnow because it likely serves as connecting corridors for fish movements between areas of sufficient flowing water (*e.g., see* Deacon and Minckley 1974; Eberle *et al.* 1993). Additionally, we believe this area is essential for the natural channel geomorphology (the topography of the river channel) to maintain or re-create habitat, such as pools, by removing or redistributing sediment during high flow events (*e.g., see* Simpson *et al.* 1982; Middle Rio Grande Biological Interagency Team 1993). Therefore, we

believe that the inclusion of an area that has the potential for periods of low or no flow as critical habitat will ensure the conservation of the silvery minnow. As such, we believe that the primary constituent elements as described in this final rule could allow for short periods of low or no flow. Because of the difficulties in describing the existing conditions of this area (*see* above) and defining the primary constituent elements to reflect such a flow regime, we solicited comments in the proposed critical habitat designation rule for information related to the designation of critical habitat in this area that may experience periods of low or no flow, and, in particular, the primary constituent elements and how they related to the existing conditions (*e.g.*, flow regime). We did not receive any additional information or comments on these areas to refine the primary constituent elements in this final designation.

Federal agencies with discretion over water management actions that affect critical habitat will be required to consider critical habitat and possibly enter into consultation under section 7 of the Act. These consultations will evaluate whether any Federal discretionary actions destroy or adversely modify critical habitat to the extent that the action appreciably diminishes the value of the critical habitat for the survival and recovery of the species. The adverse modification analysis will likely evaluate whether the adverse effect of prolonged recurring periods of low or no flow is of sufficient magnitude (*e.g.*, length of river) and duration that it would appreciably diminish the value of critical habitat for the survival and recovery of the silvery minnow. For example, the effect of prolonged periods of low or no flow on the habitat quality (*e.g.*, depth of pools, water temperature, pool size) and the extent of fish mortality is related to the duration of the event (Bestgen and Platania 1991). All of these factors will be analyzed under section 7 of the Act, if they are part of an action proposed by a Federal agency. Additionally, any Federal agency whose actions influence water quantity or quality in a way that may affect critical habitat or the silvery minnow must enter into section 7 consultation with us. Still, these consultations cannot result in biological opinions that require actions that are outside an action agency's legal authority and jurisdiction (50 CFR 402.02).

We determined the primary constituent elements of critical habitat for the silvery minnow based on studies on their habitat and population biology, including, but not limited to the following studies: Bestgen and Platania 1991; Service 1999; Dudley and Platania 1997, 2001, 2002a; Platania and Altenbach 1998; Platania 1991, 2000; Service 2001; Smith 1998, 1999; Hoagstrom 2000; Remshardt *et. al* 2001. The primary constituent elements are as follows:

1. A hydrologic regime that provides sufficient flowing water with low to moderate currents capable of forming and maintaining a diversity of aquatic habitats, such as, but not limited to the following: Backwaters (a body of water connected to the main channel, but with no appreciable flow), shallow side channels, pools (that portion of the river that is deep with relatively little velocity compared to the rest of the channel), eddies (a pool with water moving opposite to that in the river channel), and runs (flowing water in the river channel without obstructions) of varying depth and velocity—all of which are necessary for each of the particular silvery minnow life-history stages in appropriate seasons. The silvery minnow requires habitat with sufficient flows from early spring (March) to early summer (June) to trigger spawning, flows in the summer (June) and fall (October) that do not increase prolonged periods of low or no flow, and a relatively constant winter flow (November through February);

2. The presence of low-velocity habitat (including eddies created by debris piles, pools, or backwaters, or other refuge habitat (*e.g.*, connected oxbows or braided channels)) within unimpounded stretches of flowing water of sufficient length (*i.e.*, river miles) that provide a variety of habitats with a wide range of depth and velocities;

3. Substrates of predominantly sand or silt; and

4. Water of sufficient quality to maintain natural, daily, and seasonally variable water temperatures in the approximate range of greater than 1 °C (35 °F) and less than 30 °C (85 °F) and reduce degraded water quality conditions (decreased dissolved oxygen, increased pH, etc.).

We determined that these primary constituent elements of critical habitat provide for the physiological, behavioral, and ecological requirements of the silvery minnow. The first primary constituent element provides water of sufficient flows to reduce the formation of isolated pools. We conclude this element is essential to the conservation of the silvery minnow because the species cannot withstand permanent drying (loss of surface flow) of long stretches of river. Water is a necessary component for all silvery minnow life-history stages and provides for hydrologic connectivity to facilitate fish movement. The second primary constituent element provides habitat necessary for development and hatching of eggs and the survival of the silvery minnow from larvae to adult. Low-velocity habitat provides food, shelter, and sites for reproduction, which are essential for the survival and reproduction of silvery minnow. The third primary constituent element provides appropriate silt and sand substrates (Dudley and Platania 1997; Remshardt *et al.* 2001), which we and other scientists conclude are important in creating and maintaining appropriate habitat and life requisites such as food and cover. The final primary constituent element provides protection from degraded water quality conditions. We conclude that when water quality conditions degrade (*e.g.*, water temperatures are too high, pH levels are too low, and dissolved oxygen concentrations are too low), silvery minnows will likely be injured or die.

**Criteria for Identifying Critical Habitat**

The primary objective in designating critical habitat is to identify areas that are considered essential for the conservation of the species, and to highlight specific areas where management considerations should be given highest priority. In determining critical habitat for the silvery minnow, we have reviewed the overall approach to the conservation of the silvery minnow undertaken by the local, State, Tribal, and Federal agencies operating within the species' historic range since the species' listing in 1994, and the previous proposed (March 1, 1993; 58 FR 11821) and final critical habitat rules (July 6, 1999; 64 FR 36274). We have also outlined our conservation strategy to recover the species (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section above) and considered the features and steps necessary for recovery and habitat requirements described in the Recovery Plan (Service 1999). We considered information provided by our New Mexico Fishery Resources Office and other biologists, and also utilized our own expertise. We also reviewed the biological opinion issued June 29, 2001, to the BOR and the Corps for impacts to the silvery minnow from water operations in the middle Rio Grande (Service 2001b), and the biological opinion issued to the BOR for discretionary actions related to water management on the Pecos River in NM (Service 2001a). We reviewed available information that pertains to the habitat requirements of this species, including material received during the initial

public comment period on the proposed listing and designation, the information received following the provision of the draft economic analysis to the public on April 26, 1996, the comments and information provided during the 30-day comment period that opened on April 7, 1999, including the public hearing, and the comments and information received during the 60-day comment period opened on April 5, 2001, for the notice of intent to prepare an EIS and public scoping meetings held on April 17, 23, 24, and 27, 2001 (April 7, 1999; 64 FR 16890). We also considered information and comments received on the recent proposal to designate critical habitat (June 6, 2002; 67 FR 39206).

Since the listing of the silvery minnow in 1994 (July 20, 1994; 59 FR 36988), no progress has been made toward reestablishing this species within unoccupied areas (*e.g.*, river reaches on the middle Pecos, lower Rio Grande). Because the silvery minnow has been extirpated from these areas, Federal agencies have not consulted with us on how their discretionary actions may affect the silvery minnow. We conclude these areas (*e.g.*, river reaches on the middle Pecos and the lower Rio Grande) are essential to the conservation of the minnow, but we have not designated them as critical habitat (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section).

This critical habitat designation differs from the final critical habitat designation we made in 1999 (July 6, 1999; 64 FR 36274), which was subsequently set aside by court order. The differences also reflect the best scientific and commercial information analyzed in the context of the final Recovery Plan (*see* ''Recovery Plan'' discussion above) and our conservation strategy for this species. Although we could have designated two additional critical habitat units to respond to the Recovery Plan's recommendation that additional areas are required to achieve recovery (Service 1999) (*see* ''Recovery Plan'' discussion above), we believe that inclusion of these areas under a critical habitat regulation could hinder our future conservation strategy (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section above) and actually impede recovery of the silvery minnow.

Recovery requires protection and enhancement of existing populations and reestablishment of populations in suitable areas of historic range. The Recovery Plan identifies ''the necessity of reestablishing silvery minnow in portions of its historic range outside of the middle Rio Grande in New Mexico.'' The Recovery Plan identified potential areas for reestablishment of silvery minnow in certain river reaches of the Rio Grande and Pecos River. The Recovery Plan also recommended a thorough analysis of the reestablishment potential of specific river reaches within the historic range of the silvery minnow.

We have determined that one of the most important goals to be achieved toward the conservation of this species is the establishment of secure, self-reproducing populations in areas outside of the middle Rio Grande, but within the species' historic range (Service 1999). Thus, we have outlined our conservation strategy for the silvery minnow (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section above). Because the species occupies less than 5 percent of its historic range and the likelihood of extinction from a catastrophic event is greatly increased (Hoagstrom and Brooks 2000; Service 1999), we believe that additional populations should be established within certain unoccupied reaches (*i.e.*, areas outside of the current known distribution). Nevertheless, any future recovery efforts, including reintroduction of the species to areas of its historic range, must be conducted in accordance with NEPA and the Act.

The recent trend in the status of the silvery minnow has been characterized by dramatic declines in numbers and range despite the fact that this species evolved in rapidly fluctuating, harsh environments. Moreover, none of the threats affecting the silvery minnow has been eliminated since the fish was listed (July 20, 1994; 59 FR 36988), and its status continues to decline (Dudley and Platania 2001, 2002b, 2002c, 2002d, 2002e). The known silvery minnow population within the middle Rio Grande has become fragmented and isolated and is vulnerable to those natural or manmade factors that might further reduce population size (Dudley and Platania 2001, 2002a, 2002b). Because there have been low spring peak flows in the Rio Grande in some recent years (*e.g.*, 2000) and a related decrease in silvery minnow spawning success, the population size of silvery minnow continued to decline through the winter of 2002 (Dudley and Platania 2001, 2002a, 2002b, 2002c, 2002d, 2002e). We conclude that the species' vulnerability to catastrophic events, such as prolonged periods of low or no flow, has increased since the species was listed as endangered in 1994 (July 20, 1994; 59 FR 36988).

It is widely recognized that major efforts to reintroduce the silvery minnow to large reaches of its historic habitat in the Rio Grande and Pecos River will not likely occur without either natural or induced changes in the river, including changes affecting the existing fish community, habitat restoration, and coordinated water management (*e.g.*, Service 1999). Nevertheless, we conclude that conservation of the silvery minnow requires habitat conditions that will facilitate population expansion or reintroduction. As an example, we are currently involved in developing several efforts to assist in the recovery of the silvery minnow and other imperiled species (*e.g.*, Federal and non-Federal efforts to create a middle Rio Grande Endangered Species Act Collaborative Program). Any future habitat restoration efforts conducted by us or other Federal agencies within the species' historic habitat will be analyzed through NEPA and will be conducted in accordance with the pertinent sections of the Act and Federal rulemaking procedures.

As discussed above in the comments section, non-native fish species may adversely affect the silvery minnow. However, non-native fish have the potential to be removed or reduced to acceptable levels using a variety of control or management techniques. For example, the New Mexico State Game Commission recently passed a regulation limiting the species that can be used as baitfish in the Pecos River (New Mexico Department of Game and Fish 2000). As part of the Federal rulemaking process, we sought further information regarding the role of unoccupied river reaches within the historic range of the silvery minnow, including those reaches with non-native fish species (*e.g.*, plains minnow) present or those reaches that have the potential for low or no flow events. We were particularly interested in assistance in describing the existing habitat (*e.g.*, flow) conditions for the river reach below San Acacia Diversion Dam on the middle Rio Grande. However, we did not receive additional information on these areas to refine this final designation.

It is important to note that the mere presence of non-native aquatic species does not eliminate an area from being considered for designation as critical habitat. For example, the relationship between the introduction of the plains minnow and extirpation of the silvery minnow is unclear (see discussion above). Although the Recovery Plan suggested that the plains minnow would be the primary limiting factor precluding successful reestablishment of the silvery minnow to the Pecos River (Service 1999), we have little data from which to draw firm conclusions for the extirpation of the silvery minnow from the Pecos River. We recognize that any efforts to reestablish the silvery minnow

to unoccupied river reaches must fully analyze and consider a variety of habitat management techniques, including the control or management of non-native fish. Consequently, we invited comments or information relating to the status of the plains minnow in the Pecos River and this area not being proposed as critical habitat. We were especially interested in observations of related species of *Hybognathus* and any behavioral or reproductive mechanisms that might provide for ecological separation in areas where two or more species of *Hybognathus* co-occur. We did not receive any additional information concerning this aspect of the designation.

Portions of the Pecos River include designated critical habitat for the Pecos bluntnose shiner (52 FR 5295). The Pecos bluntnose shiner critical habitat includes a 64 mi (103 km) reach of the Pecos River extending from a point 10 mi (16 km) south of Fort Sumner, NM, downstream to the De Baca and Chaves County line and a 37 mi (60 km) reach from near Hagerman, NM, to near Artesia, NM (52 FR 5295). There are current protections in place for the Pecos bluntnose shiner in the river reach from Sumner to Brantley Reservoirs on the Pecos River; consequently, we believe that the designation of critical habitat would provide little additional benefit for the silvery minnow above the current jeopardy and adverse modifications standards for the Pecos bluntnose shiner (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section above).

The Pecos bluntnose shiner inhabits main-channel habitats with sandy substrates, low-velocity flows, and depths from 17 to 41 cm (7 to 16 in) (Hatch *et al.* 1985). Adult Pecos bluntnose shiners use main-channel habitats, with larger individuals found mainly in more rapidly flowing water (greater than 40 cm/sec, 1.25 ft/sec), but preferences for particular depths were not found (Hoagstrom *et al.* 1995). Young of the year use the upstream reaches between Sumner and Brantley Reservoirs, which provide shallow, low-velocity habitat. These reaches also maintain such habitat at high (bankfull) discharge, providing refugia from swift, deep water. Pecos bluntnose shiner and related mainstream cyprinids (*e.g.*, silvery minnow) are adapted to exploit features of Great Plains rivers (Hoagstrom 2000). These fish species belong to the same guild of broadcast spawners with semibuoyant eggs and also spawn during high flow events in the Pecos River, with eggs and larvae being distributed downstream to colonize new areas (Bestgen *et al.* 1989). The habitat features used by the Pecos bluntnose shiner are largely affected by ongoing Sumner Dam operations (*e.g.*, block releases). Nevertheless, any flow regime operations in this reach that benefit the Pecos bluntnose shiner would also benefit the silvery minnow. We believe they could both occupy the same river reach in the future with little to no interspecific competition, in part because these species historically coexisted (Bestgen and Platania 1991) and microhabitat partitioning has been documented for related species of southwestern fish (Matthews and Hill 1980). Therefore, we believe that the primary constituent elements for the Pecos bluntnose shiner critical habitat (*e.g.*, clean permanent water; a main river channel habitat with sandy substrate; and a low velocity flow (February 20, 1987; 52 FR 5295)) are compatible with our conservation strategy for repatriating the silvery minnow.

**Lateral Extent of Critical Habitat**

The critical habitat designation defines the lateral extent as those areas bounded by existing levees, or in areas without levees, the lateral extent of critical habitat is defined as 300 ft (91.4 m) of riparian zone adjacent to each side of the middle Rio Grande. Thus, the lateral extent of critical habitat does not include areas adjacent to the existing levees but within the 300-ft (91.4-m) lateral width outside the existing levees (*i.e.*, these areas are not designated as critical habitat, even though they may be within the 300-ft lateral width). This designation of critical habitat will not remove existing levees. We recognize that these areas can be important for the overall health of river ecosystems, but these areas have almost no potential for containing the primary constituent elements because they are separated from the river by the levees and are rarely inundated by water. Therefore, they are not included in the designation because we conclude they are not essential to the conservation of the silvery minnow. Nevertheless, these and other areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section7(a)(1) of the Act, the regulatory protections afforded by the jeopardy standard in section 7(a)(2) of the Act, and take prohibitions in section 9 of the Act.

For each river reach within the middle Rio Grande, the upstream and downstream boundaries are described below. Critical habitat includes the river channels within the identified reaches and areas within these reaches potentially inundated during high-flow events. Critical habitat includes the area of bankfull width plus 300 ft (91.4 m) on either side of the banks. The bankfull width is the width of the stream or river at bankfull stage (*i.e.*, the flow at which water begins to leave the channel and move into the floodplain (Rosgen 1996)). Bankfull stage, while a function of the size of the stream, is a fairly consistent feature related to the formation, maintenance, and dimensions of the stream channel (Rosgen 1996). This 300-ft (91.4-m) width defines the lateral extent of those areas we believe are essential to the species' conservation. Although the silvery minnow cannot be found in these areas when they are dry, these areas likely provided backwater habitat and were sometimes flooded in the past (Middle Rio Grande Biological Interagency Team 1993); therefore, they may provide habitat during high-water periods. As discussed in this section, we determined that the areas within the 300-ft (91.4-m) lateral width are essential to the conservation of the silvery minnow.

We determined the 300-ft (91.4-m) lateral extent for several reasons. First, the implementing regulations of the Act require that critical habitat be defined by reference points and lines as found on standard topographic maps of the area (50 CFR 424.12). Although we considered using the 100-year floodplain, as defined by the Federal Emergency Management Agency (FEMA), we found that it was not included on standard topographic maps, and the information was not readily available from FEMA or from the Corps for the areas we are designating. We suspect this is related to the remoteness of various river reaches. We received comments in relation to other sources of information (*e.g.*, National Wetlands Inventory maps) to refine the lateral extent of critical habitat (see comments section above). After evaluating this information, we concluded that our designation accurately delineates the boundary of critical habitat. We selected the 300-ft (91.4-m) lateral extent, rather than some other delineation, for three reasons: (1) The biological integrity and natural dynamics of the river system are maintained within this area (*i.e.*, the floodplain and its riparian vegetation provide space for natural flooding patterns and latitude for necessary natural channel adjustments to maintain appropriate channel morphology and geometry, store water for slow release to maintain base flows, provide protected side channels and other protected areas for larval and juvenile silvery minnow, allow the river to meander within its

main channel in response to large flow events, and recreate the mosaic of habitats necessary for the conservation of the silvery minnow); (2) conservation of the adjacent riparian zone also helps provide essential nutrient recharge and protection from sediment and pollutants, which contributes to successful spawning and recruitment of silvery minnows; and (3) vegetated lateral zones are widely recognized as providing a variety of aquatic habitat functions and values (*e.g.*, aquatic habitat for fish and other aquatic organisms, moderation of water temperature changes, and detritus for aquatic food webs) and help improve or maintain local water quality (March 9, 2000; 65 FR 12897; Middle Rio Grande Biological Interagency Team 1993).

This critical habitat designation takes into account the naturally dynamic nature of riverine systems and recognizes that floodplains (including riparian areas) are an integral part of the stream ecosystem. For example, riparian areas are seasonally flooded habitats (*i.e.*, wetlands) that are major contributors to a variety of vital functions within the associated stream channel (Federal Interagency Stream Restoration Working Group 1998, Brinson *et al.* 1981). They are responsible for energy and nutrient cycling, filtering runoff, absorbing and gradually releasing floodwaters, recharging groundwater, maintaining streamflows, protecting stream banks from erosion, and providing shade and cover for fish and other aquatic species. Healthy riparian areas help ensure water courses maintain the habitat components essential to aquatic species (*e.g., see* U.S.D.A. Forest Service 1979; Middle Rio Grande Biological Interagency Team 1993; Briggs 1996), including the silvery minnow. Habitat quality within the mainstem river channels in the historic range of the silvery minnow is intrinsically related to the character of the floodplain and the associated tributaries, side channels, and backwater habitats that contribute to the key habitat features (*e.g.*, substrate, water quality, and water quantity) in the middle Rio Grande (Middle Rio Grande Biological Interagency Team 1993). Among other things, the floodplain provides space for natural flooding patterns and latitude for necessary natural channel adjustments to maintain channel morphology and geometry. We believe a relatively intact riparian area, along with periodic flooding in a relatively natural pattern, is important in maintaining the stream conditions necessary for long-term conservation of the silvery minnow.

Human activities that occur outside the river channel can have a demonstrable effect on physical and biological features of aquatic habitats. However, not all of the activities that occur within a floodplain will have an adverse impact on the silvery minnow or its habitat. Thus, in determining the lateral extent of critical habitat along riverine systems, we must consider the definition of critical habitat under the Act. That is, critical habitat must be determined to be essential to a species' conservation and, within areas currently occupied by the species, must be in need of special management considerations or protection.

We do not believe that the entire floodplain is essential to the conservation of the species, and we are not proposing to designate the entire floodplain as critical habitat. However, the river channel alone is not sufficient to ensure the conservation of the silvery minnow. For the reasons discussed above, we believe that the riparian zone adjacent to the river channel provides an important function for the protection and maintenance of the primary constituent elements and is essential to the conservation of the species.

The lateral extent (width) of riparian corridors fluctuates considerably on the Rio Grande. The appropriate width for riparian protection has been the subject of several studies (Castelle *et al.* 1994). Most Federal and State agencies generally consider a zone 23 to 46 m (75.4 to 150.9 ft) wide on each side of a stream to be adequate to help improve or maintain local water quality (Natural Resource Conservation Service 1998, 2000; Lynch *et al.* 1985), although lateral widths as wide as 152 m (500 ft) have been recommended for achieving flood attenuation benefits (Corps 1999). In most instances, however, these riparian areas are primarily intended to reduce detrimental impacts to the stream (*i.e.*, protect the stream) from sources outside the river channel such as agricultural runoff. Generally, we believe a lateral distance of 300 ft (91.4 m) on each side of the stream beyond the bankfull stage to be appropriate for the protection of riparian and wetland habitat and the natural processes involved in the maintenance and improvement of water quality (*e.g.*, see Middle Rio Grande Biological Interagency Team 1993). We believe this lateral width will help ensure the protection of one or more primary constituent elements (*e.g.*, water quality) of the critical habitat. Thus, within the area designated as critical habitat in the middle Rio Grande, we conclude that the 300-ft (91.4-m) lateral width is essential to the conservation of the species.

We did not map critical habitat in sufficient detail to exclude all developed areas and other lands unlikely to contain primary constituent elements essential for silvery minnow conservation. Some developed lands within the 300-ft (91.4-m) lateral extent are not considered critical habitat because they do not contain the primary constituent elements and they are not essential to the conservation of the silvery minnow. Lands located within the exterior boundaries of the critical habitat designation, but not considered critical habitat, include: Developed flood control facilities; existing paved roads; bridges; parking lots; dikes; levees; diversion structures; railroad tracks; railroad trestles; water diversion and irrigation canals outside of natural stream channels; the low flow conveyance channel; active gravel pits; cultivated agricultural land; and residential, commercial, and industrial developments. These developed areas do not contain any of the primary constituent elements and do not provide habitat or biological features essential to the conservation of the silvery minnow. However, some activities in these areas, like activities in other areas not included within the designation (if Federally funded, authorized, or carried out), may affect the primary constituent elements of the critical habitat and, therefore, may be affected by the critical habitat designation, as discussed later in this rule.

**Reach-by-Reach Analysis**

We conducted a reach-by-reach analysis of the entire known historic range of the silvery minnow to evaluate and select river reaches that require special management or protection, or are essential to the conservation of the species. As identified in the Recovery Plan (*see* ''Recovery Plan'' section above), important factors we considered in determining whether areas were essential to the conservation of the species include presence of other members of the reproductive guild (*e.g.* pelagic spawners, species with semibuoyant eggs), habitat suitability (*e.g.*, appropriate substrate), water quality, and presence of non-natives (*e.g.*, competitors, predators, other species of *Hybognathus*). These important factors were evaluated in conjunction with the variable flow regime of each reach. Each of the river reaches, to some extent, has a varying flow regime. However, the fact that a river reach may at times experience a prolonged period of low or no flow as

a result of a varying flow regime does not preclude the area from being considered essential to the conservation of the species and, further, from being designated as critical habitat. Based on our reach-by-reach analysis, we have determined which reaches are essential for the conservation of the species.

We are designating the middle Rio Grande as critical habitat. This area contains all of the primary constituent elements during some or all of the year (see the ''Regulation Promulgation'' section of this rule for exact descriptions of boundaries of designated critical habitat). We conclude that this critical habitat can provide for the physiological, behavioral, and ecological requirements of the silvery minnow. The designated critical habitat is within the middle Rio Grande from immediately downstream of Cochiti Reservoir to the utility line crossing the Rio Grande with UTM coordinates of UTM Zone 13: 311474 E, 3719722N, just east of the Bosque Well demarcated on USGS Paraje Well 7.5 minute quadrangle (1980), including the tributary Jemez River from Jemez Canyon Dam to the upstream boundary of Santa Ana Pueblo, which is not included. The designation also defines the lateral extent (width) as those areas bounded by existing levees or, in areas without levees, 300 ft (91.4 m) of riparian zone adjacent to each side of the bankfull stage of the middle Rio Grande. We did not include the Pueblo lands of Santo Domingo, Santa Ana, Sandia, and Isleta within the middle Rio Grande. The downstream boundary of the designated critical habitat is determined to be the utility line crossing (see the ''Regulation Promulgation'' section of this rule for exact descriptions of boundaries of designated critical habitat). Although we determined that other areas are essential to the conservation of the silvery minnow (*i.e.*, the middle Pecos River from immediately downstream of Sumner Dam to Brantley Dam, NM, and the lower Rio Grande from the upstream boundary of Big Bend National Park to Terrell/Val Verde County line, TX), these areas are not designated as critical habitat. A description of each river reach within the silvery minnow's historic range is provided below. We also provide our reasons for determining whether each reach is essential to the conservation of the species and whether we are designating critical habitat for each of the identified reaches. We conclude that we can secure the long-term survival and recovery of this species with the establishment of future experimental populations under section 10(j) of the Act, along with the critical habitat in the middle Rio Grande.

The historic range of the species in the Rio Grande is from Española, NM, to the Gulf of Mexico, and in the Pecos River (a major tributary of the Rio Grande) from Santa Rosa, NM, downstream to its confluence with the Rio Grande (Pflieger 1980; Bestgen and Platania 1991). We separated the historic range of the silvery minnow into 12 river reaches: (1) Upstream of Cochiti Reservoir to the confluence of the Rio Chama and Rio Grande, NM; (2) middle Rio Grande from Cochiti Reservoir downstream to the Elephant Butte Dam, including the Jemez River from the Jemez Canyon Dam to the confluence of the Rio Grande; (3) downstream of Elephant Butte Dam to the Caballo Dam, NM; (4) downstream of Caballo Dam, New Mexico, to the American Dam, TX; (5) downstream of American Reservoir, to the upstream boundary of Big Bend National Park, TX; (6) the upstream boundary of Big Bend National Park to the southern boundary of the wild and scenic river designation at Terrell/Val Verde County line, TX; (7) the Terrell/Val Verde County line, TX, to the Amistad Dam, TX; (8) downstream of Amistad Dam to the Falcon Dam, TX; (9) downstream of the Falcon Dam to the Gulf of Mexico, TX; (10) Pecos River from Santa Rosa Reservoir to Sumner Dam, Guadalupe County, NM; (11) Sumner Dam to the Brantley Dam, NM; (12) Brantley Dam, NM, to the Red Bluff Dam, TX; and (13) Red Bluff Dam to the confluence of the Rio Grande, TX. Each of these reaches is analyzed below.

1. Upstream of Cochiti Reservoir to the confluence of the Rio Chama and Rio Grande, Rio Arriba, Sante Fe, and Sandoval Counties, NM. Currently, this reach is dominated by cool water, which is not considered suitable for the silvery minnow (Platania and Altenbach 1998). The majority of this reach is bounded by canyons, with substrate dominated by gravel, cobble, and boulder (Service 1999). The flow regime is also highly variable seasonally because of irrigation and other agricultural needs, as well as recreational and municipal uses. This river reach is highly manipulated by releases from El Vado and Abiquiu Reservoirs (J. Smith, pers. comm. 2001). Furthermore, silvery minnow populations may have been historically low for some areas of this reach, supporting only small outlier populations (Bestgen and Platania 1991). Currently, this reach is dominated by cool or cold water species, which have almost completely replaced the native fish species (Service 1999). The stream length in this reach is inadequate (*e.g.*, less than 134 to 223 mi ( 216 to 358.8 km)) to ensure the survival of downstream drift of eggs and larvae and recruitment of adults (Platania and Altenbach 1998). Further investigation may be needed in this reach to evaluate potential future recovery actions. For these reasons, we conclude that habitat for silvery minnow within this river reach is generally degraded and unsuitable, and is not essential to the conservation of the silvery minnow. Therefore, this river reach is not designated as critical habitat.

2. Middle Rio Grande from Cochiti Reservoir downstream to the Elephant Butte Dam, including the Jemez River from the Jemez Canyon Dam to the confluence of the Rio Grande, Sandoval, Bernalillo, Valencia, and Socorro Counties, NM. The middle Rio Grande is currently occupied, and the status of the silvery minnow within this segment is unstable (Bestgen and Platania 1991; Dudley and Platania 1999; Platania and Dudley 2001; 2002a, 2002b). This area currently contains the primary constituent elements (described above) during all or part of the year and is considered suitable habitat for the silvery minnow, as shown by the presence of the silvery minnow within this reach. The river reaches that are designated as critical habitat are degraded from lack of floodplain connectivity, non-native vegetation, stabilized banks (*e.g.*, jetty jacks), streambed aggradation, and decreasing channel width, increasing depths, and increasing velocities (BOR 2001a; Service 2001b). Thus, conservation of the silvery minnow requires stabilizing populations within the middle Rio Grande, including special management considerations or protections (*e.g.*, habitat management and/or restoration).

The middle Rio Grande is essential to the conservation of the silvery minnow (*see* discussion below), and therefore, except for the land of Santo Domingo, Santa Ana, Sandia, and Iselta Pueblos, we designate the following reaches as a critical habitat. This designated critical habitat does not include the ephemeral or perennial irrigation canals and ditches, including the LFCC (*i.e.*, downstream of the southern boundary of Bosque del Apache National Wildlife Refuge to the headwaters of Elephant Butte Reservoir) that are adjacent to a portion of the river reach within the middle Rio Grande because these areas do not offer suitable refugia for the silvery minnow. The river reaches in the middle Rio Grande critical habitat include (*see* ''Regulation Promulgation'' section of this rule for exact

descriptions of boundaries of designated critical habitat):

a. Jemez Canyon Reach—5 mi (8 km) of the Jemez River from the Jemez Canyon Dam to the upstream boundary of Santa Ana Pueblo, which is not included. This reach of river is manipulated by releases from Jemez Canyon Dam. Releases from this reservoir are determined by downstream needs and flood events occurring in the Jemez River. Silvery minnows historically occupied this reach of the Jemez River and have recently been collected there (Sublette *et al.* 1990; Corps 2001). The water within this reach is continuous to the confluence with the Rio Grande and currently contains the primary constituent elements (described above) during all or a part of the year. Although this reach currently provides suitable habitat for the silvery minnow, we believe that it is important to ensure that special management actions are implemented within this river reach. We also conclude that this area is essential to the conservation of the silvery minnow, because the additional loss of any habitat that is currently occupied could increase the likelihood of extinction (Hoagstrom and Brooks 2000, Service 1999). Moreover, if the species or habitat were severely impacted within this reach, the continued existence of silvery minnows in downstream reaches would be affected (*i.e.*, the extirpation of fish within this reach would create a very unstable population within the downstream reaches). Thus, we designate the upstream section of the Jemez River as critical habitat for the silvery minnow.

b. Cochiti Reservoir Dam to Angostura Diversion Dam (Cochiti Reach)—21 mi (34 km) of river immediately downstream of Cochiti Reservoir to the Angostura Diversion Dam, not including the lands of Santo Domingo Pueblo. This reach is somewhat braided and is dominated by clear water releases from Cochiti Reservoir (Richard 2001). Since Cochiti Reservoir was filled, the downstream substrate has changed from a coarse sand to a gravel/cobble/sand substrate (Hoagstrom and Brooks 2000; Baird 2001; Richard 2001). Silvery minnows were collected immediately downstream of Cochiti Dam in 1988 (Platania 1993). Although the Cochiti reach has not been monitored since the mid-1990s (Platania 1995; Hoagstrom and Brooks 2000), it is believed that silvery minnow may still be present within this reach, but reduced in abundance (*e.g.*, Dudley and Platania 2002a). For example, silvery minnows were documented near the Angostura Diversion Dam in 2001 (Platania and Dudley 2001, 2002a; Service 2001c). In this reach, water releases from Cochiti Reservoir have scoured sand from the stream channel and reduced the downstream temperatures (Bestgen and Platania 1991; Platania 1991; (July 20, 1994) 59 FR 36988; Service 1999; Hoagstrom 2000). These effects (*e.g.*, low water temperatures) may inhibit or prevent reproduction among Rio Grande Basin cyprinids (minnows) (Platania and Altenbach 1998), but it is unknown if water temperatures have affected silvery minnow reproduction within this reach. Although reservoirs can modify river flows and habitat (*e.g.*, the downstream river reaches have increased in depth and water velocity) (Hoagstrom 2000), we believe this river reach is essential to the conservation of the silvery minnow because we believe it is still occupied by the species and contributes to its survival in downstream reaches (because the eggs and larvae of the silvery minnow drift in the water column and may be transported downstream depending on river flows and habitat conditions). We reviewed aerial photographs from 1997 and other information, and have determined that the river through this reach is braided in areas and contains many side channels (*e.g.*, Richard 2001). We also spoke with the Corps and have concluded that there is a high potential to increase the amount of suitable habitat (*e.g.*, debris piles, low velocity backwaters, side channels) within the entire reach, but particularly in the proximity of the confluences of Galisteo Creek and the Rio Grande and the Sante Fe River and the Rio Grande (D. Kreiner, U.S. Army Corps of Engineers, pers. comm. 2001). Thus, we conclude special management is needed in this reach. We conclude that this area contains suitable habitat for the silvery minnow and contains the primary constituent elements (described above) during all or part of the year. Therefore, this reach is designated as critical habitat.

c. Angostura Diversion Dam to Isleta Diversion Dam (Angostura Reach)—38 mi (61 km) (of river immediately downstream of the Angostura Diversion Dam to the Isleta Diversion Dam, not including the lands of Santa Ana and Sandia Pueblos. Silvery minnows and suitable habitat are still present throughout this reach of the river, although their abundance appears to be low (Dudley and Platania 2001, 2002a, 2002b; Service 2002). This reach is relatively wide at 183 m (600 ft) and the substrate is mostly coarse sand to gravel (Baird 2001). The river bank within this reach is dominated by bank stabilization (e.g., jetty jacks), which has led to the floodplain being predominantly disconnected from the river. Bank stabilization devices and other flood control operations (e.g., channelization) have led to flows that seldom exceed channel capacity, such that the river dynamics that likely provided backwater habitat for the silvery minnow no longer function naturally. These river processes historically shaped and reshaped the river, constantly redefining the physical habitat and complexity of the river. Historical large flow events allowed the river to meander, thereby creating and maintaining the mosaic of habitats necessary for the survival of the silvery minnow and other native fish (Middle Rio Grande Biological Interagency Team 1993). We conclude that the creation and maintenance of these habitats is essential to the conservation of the silvery minnow. We believe that special management is necessary in this and other downstream reaches within the middle Rio Grande to create and maintain the habitat complexity (e.g., backwater areas, braided channels) that was historically present but may not be currently present in these river reaches. This reach currently contains the primary constituent elements (described above) during all or a part of the year. Thus, we designate this reach as critical habitat.

d. Isleta Diversion Dam to San Acacia Diversion Dam (Isleta Reach)—56 mi (90 km) of river downstream of the Isleta Diversion Dam to the San Acacia Diversion Dam, not including the lands of Isleta Pueblo. The river bank within this reach is also dominated by bank stabilization (e.g., jetty jacks), and the floodplain is predominantly disconnected from the river. The substrate is mostly sand and silt and there are many permanent islands within the river channel (J. Smith, pers. comm. 2001). This reach provides continuous water flow in most years with infrequent periods of low or no flow (Service 2001b). Nevertheless, flows vary markedly in magnitude, from high spring to low summer flows. The variable flow regime is a result of irrigation demand, irrigation returns (e.g., augmented flow), precipitation, temperature, and sediment transport. This reach also contains numerous arroyos and small tributaries that provide water and sediment during rainstorm events, which may periodically augment river flows (Service 2001b; J. Smith, pers. comm. 2001). Silvery minnows and suitable habitat are still present throughout this reach of the river; however, abundance

appears to be low (Dudley and Platania 2001, 2002a, 2002b; Service 2002). Nevertheless, we conclude that this area is essential to the conservation of the silvery minnow because the additional loss of any habitat that is currently occupied could increase the likelihood of extinction (Hoagstrom and Brooks 2000, Service 1999). Similarly, if the species or habitat were severely impacted within this reach, the continued existence of silvery minnows in downstream reaches would be affected (i.e., the extirpation of fish within this reach would create a very unstable population within the downstream reaches). This reach currently contains the primary constituent elements (described above) during all or part of the year. We believe that special management is necessary within this reach to create and maintain the habitat complexity (e.g., backwater areas, debris piles, meandering river) that was historically but may not be currently be present within this reach. Thus, we designate this reach as critical habitat.

e. San Acacia Diversion Dam to the utility line crossing the Rio Grande with UTM coordinates of UTM Zone 13: 311474 E, 3719722 N, near Elephant Butte Reservoir (San Acacia Reach)—9 mi (14.5 km) of river immediately downstream of the San Acacia Diversion Dam to the utility line crossing the Rio Grande with UTM coordinates of UTM Zone 13: 311474 E, 3719722N. The channel width within this reach varies from approximately 15 m (50 ft) to approximately 198 m (650 ft). The substrate is mostly sand and silt. The flow regime within this reach was historically, and is currently highly variable. In fact, this stretch may not have provided continuous flow in some years prior to the 1900s (MRGCD 1999; Scurlock and Johnson 2001).

Currently, the river channel has been highly modified by water depletions from agricultural and municipal use, dams and water diversion structures, bank stabilization, and the infrastructure for water delivery (e.g., irrigation ditches). These modifications have led to the loss of sediment, channel drying, separation of the river from the floodplain, and changes in river dynamics and resulting channel morphology. Consequently, this reach requires special management considerations similar to those discussed above. This reach currently contains the primary constituent elements (described above) during all or a part of the year. Although the silvery minnow continues to be widespread within this reach with higher abundance than the Angostura or Isleta reaches (Dudley and Platania 2001, 2002a, 2002b), the variable flow regime and modifications to the river have increased the potential for short- and long-term impacts not only to the silvery minnow, but also to its habitat. Thus, we determine that this area is essential to the conservation of the species and in need of special management considerations or protections; we designate this reach as critical habitat.

3. Downstream of Elephant Butte Reservoir to the Caballo Dam, Sierra County, NM. This short 16-mi (26-km) reach is highly channelized with widely variable flow regimes. Construction of Elephant Butte and Caballo Reservoirs in 1916 and 1938, respectively, severely altered the flows and habitat within this reach (Bestgen and Platania 1991). The silvery minnow has not been documented within this reach since 1944 (Service 1999). This river reach is currently highly channelized to expedite water deliveries and very few native fish remain (Propst *et al.* 1987; International Boundary and Water Commission 2001). This reach is subject to prolonged periods of low or no flow and there is no spring runoff spike (Service 1999). Altered flow regimes will continue to affect habitat quality in this reach, which does not contain suitable habitat for the silvery minnow. The stream length in this reach is inadequate (e.g., less than 134 to 223 mi (216 to 358.8 km )) to ensure the survival of downstream drift of eggs and larvae and recruitment of adults (Platania and Altenbach 1998). We conclude this area is not essential to the conservation of the species. Therefore, this river reach is not designated as critical habitat.

4. Downstream of Caballo Dam to American Reservoir Dam, Sierra and Dona Ana Counties, NM, and El Paso, County, TX. This approximately 110-mi (176-km) reach has a highly regulated flow regime from releases of water stored in Caballo Reservoir. This reach is also highly channelized with winter flows near zero in the upper portions, and does not contain suitable habitat for the silvery minnow (Service 1999; IBWC 2001a). Silvery minnows have not been reported from this reach since 1944 (Bestgen and Platania 1991, Service 1999). The reach is currently inhabited by many non-native fish species (IBWC 2001a). Due to lack of suitable habitat, and diminished and highly regulated flow (IBWC 2001a), this reach of river no longer contains suitable habitat for the silvery minnow and is not essential to the conservation of the species. Thus, this reach is not designated as critical habitat.

5. Downstream of American Reservoir to the upstream boundary of Big Bend National Park, El Paso, Hudspeth, and Presidio, Counties, TX. Portions of this reach, primarily upstream of Presido, TX, are continually dewatered, especially between Fort Quitman and Presidio (Hubbs *et al.* 1977; Department of Interior 1998). River flow is augmented downstream of Presido by waters flowing from the Rio Conchos. The near-continuous input of municipal waste has led to a deterioration of water quality, with corresponding changes to the ichthyofauna (fish species assemblage within a region) (Hubbs *et al.* 1977; Bestgen and Platania 1988; IBWC 1994; El-Hage and Moulton 1998a). Flows in this reach consist of a blend of raw river water, treated municipal waste from El Paso, TX, untreated municipal water from Juarez, Mexico, irrigation return flow, and the occasional floodwater (Texas Water Development Board 2001). Water temperature patterns can be elevated and oxygen levels decreased by the input of various pollutants (e.g., nitrogen, phosphorus) (Texas Water Development Board 2001; IBWC 2001b). Water quality is believed to improve farther downstream of the confluence of the Rio Conchos and Rio Grande. The development of agriculture and population growth in this area has resulted in a decrease of water quantity and quality, which has had a significant impact on the range and distribution of many fish species within this reach (IBWC 1994; El-Hage and Moulton 1998a). There are no current or museum records of silvery minnow from this reach (Service 1999). Because of upstream dewatering and the degraded water quality, we believe this reach of river would never provide suitable habitat for the silvery minnow. Thus, this river reach is not essential to the conservation of the silvery minnow and is not designated as critical habitat.

6. The upstream boundary of Big Bend National Park 2 mi (3.2 km) downstream of Lajitas), Brewster County, to the southern boundary of the wild and scenic river designation at Terrell/Val Verde County line, TX. This approximately 230–mi (368–km) reach of the lower Rio Grande was historically occupied but is currently unoccupied by the silvery minnow (Hubbs 1940; Trevino-Robinson 1959; Hubbs *et al.* 1977; Bestgen and Platania 1991). The continuing presence of members of the pelagic spawning guild (e.g., speckled chub and Rio Grande shiner) are evidence that the lower Rio Grande through Big Bend National Park area may support reestablishment of the

silvery minnow (Platania 1990; IBWC 1994). Moreover, water quality, compared to the reach upstream of the Park, is greatly improved in this reach by the many freshwater springs within Big Bend National Park (MacKay 1993; R. Skiles, pers. comm. 2001; IBWC 1994). This area is protected and managed by the National Park Service, and the river currently supports a relatively stable hydrologic regime (R. Skiles, pers. comm. 2001). The National Park Service's management authority over the wild and scenic river designation currently extends 0.25 mi (0.4 km) from the ordinary high water mark. Thus, the area designated as a wild and scenic river outside of Big Bend National Park is currently managed by the National Park Service under its authorities and is considered part of the National Park System.

As discussed above, we have determined that recovery of the silvery minnow requires reestablishing populations outside of the middle Rio Grande (*see* ''Recovery Plan'' section above) and should include areas within the lower Rio Grande. Because the silvery minnow has been extirpated from this reach, Federal agencies have determined that their actions will not adversely affect the silvery minnow and therefore have not consulted with us under section 7(a)(2) about their actions related to this reach. We believe it is important to ensure that the assistance of Federal agencies, the State of Texas resource agencies, and non-Federal entities in future recovery actions, such as the establishment of an experimental population, is not compromised. Although Big Bend National Park expressed support for a critical habitat designation for the silvery minnow within the National Park, it also indicated that if areas outside the National Park but within the wild and scenic river were included, their attempts at developing a river management plan could be compromised (F. Deckert, Big Bend National Park, pers. comm.).

We have determined that this reach is essential to the conservation of the silvery minnow. However, our conservation strategy for the silvery minnow is to establish populations within its historic range under section 10(j) of the Act, and all or portions of this river reach could be included in such an effort. We believe that this area will contribute to the recovery of the silvery minnow, but have not designated this river reach as critical habitat.

7. The Terrell/Val Verde County line, TX to the Amistad Dam, TX. This short reach is highly influenced by the Amistad Dam at its terminus. It is also believed that introduced fish played a role in the extirpation of silvery minnow in this reach (Bestgen and Platania 1991). Water quality conditions within this reach are generally degraded, and are also a concern for this reach, particularly during low-flow conditions (Texas Water Development Board 2001; Texas Natural Resource Conservation Commission 1996). For these reasons, we do not believe that this river reach is essential to the conservation of the silvery minnow; therefore, it is not designated as critical habitat.

8. Downstream of the Amistad Dam to the Falcon Dam, Val Verde, Kinney, Maverick, Web, Zapata, and Starr Counties, TX. This reach provides continuous base flows ranging between 500 and 3000 cfs (Service 1999), but the reach is highly urbanized and has many instream barriers (*e.g.*, earthen dams) at Maverick, Eagle Pass, and Indio that would prevent movements of silvery minnow. Water quality is also a potential concern for this reach, particularly during low-flow conditions (Texas Water Development Board 2001; Texas Natural Resource Conservation Commission 1996). This reach is heavily channelized with little to no stream braiding and inappropriate substrate (*e.g.*, cobble) in areas. There is no suitable habitat for the silvery minnow within this reach, and the species was last recorded here in the 1950s (Service 1999). The fish community within this reach is dominated by warm water non-native predators (Platania 1990; Service 1999). Because this reach does not have suitable habitat for the silvery minnow and water quality during variable flow conditions is a concern, this reach of river is not essential to the conservation of the silvery minnow and is not designated as critical habitat.

9. Downstream of Falcon Reservoir to the Gulf of Mexico, Starr, Hildago, and Cameron, Counties, TX. The silvery minnow historically occupied this reach of river (Service 1999). In fact, the type locality (the location from which the species was originally described) for the species is Brownsville, TX (Hubbs and Ortenburger 1929). However, the last collection of the silvery minnow occurred in 1961 just downstream of Falcon Reservoir (Bestgen and Platania 1991). The flow regime of this reach of the Rio Grande is highly influenced by releases from Falcon Reservoir. Most of the tributary inflow is controlled or influenced by small impoundments off the main river channel. The lower portion of this reach is often dewatered, with the river flow stopping before the confluence with the Gulf of Mexico (IBWC 2001b). The fish community in this reach of the Rio Grande has shifted significantly toward estuarine (a mixture of fresh and salt water) type species (IBWC 1994; Contreras-B. and Lozano-V.1994). There has also been a significant loss of the native fish fauna in the Mexican tributaries in the last several decades (Hubbs *et al.* 1977; Almada-Villela 1990; Platania 1990), apparently from poor water quality (*e.g.*, Texas Water Development Board 2001; Texas Natural Resource Conservation Commission 1996). Finally, invasive weeds (*e.g.*, hydrilla and hyacinth) have clogged many areas of this reach and have reduced the amount of dissolved oxygen in the water (IBWC 2001b). Because this reach does not have suitable habitat, there appears to be little benefit in trying to intensively manage the flow regime in this reach of river. For these reasons, this reach is not considered essential to the conservation of the silvery minnow and is not designated as critical habitat.

10. Pecos River from Santa Rosa Reservoir to Sumner Dam, Guadalupe County, NM. This reach is approximately 55 mi (89 km) and is typified by wide fluctuations in flow regimes from upstream releases from Santa Rosa Reservoir (Hoagstrom 2000). Within this reach there is one diversion at Puerto del Luna, NM. The silvery minnow has not been collected within this reach since 1939 (Bestgen and Platania 1991; Service 1999). The habitat in this reach is not suitable for the silvery minnow because much of the surrounding topography is composed of steep cliffs and canyons (Hoagstrom 2000). Canyon habitat does not provide suitable habitat (*e.g.*, shallow, braided, streams with sandy substrates) for the silvery minnow (Bestgen and Platania 1991; Dudley and Platania 1997; Remshardt *et al.* 2001). Because of the short length of this reach, fluctuations in the flow regime, and the absence of suitable habitat for the silvery minnow, this reach of river is not essential to the conservation of the silvery minnow and is not designated as critical habitat.

11. Middle Pecos Reach—approximately 214 mi (345 km) of river immediately downstream of Sumner Reservoir to the Brantley Reservoir Dam in De Baca, Chaves, and Eddy Counties, NM. The Pecos River was historically occupied but is currently unoccupied by the silvery minnow (Bestgen and Platania 1991). In fact, the silvery minnow was once one of the most common fish species present between Sumner and Avalon Reservoir (the area currently inundated by Brantley Reservoir) (Bestgen and Platania 1991). The Pecos River can support a relatively

stable hydrologic regime between Sumner and Brantley Reservoirs, and, until summer 2001, this stretch had maintained continuous flow for about the last 10 years (D. Coleman, pers. comm. 2001). Groundwater seepage areas and base flow supplementation from Sumner Dam bypasses can offer a degree of stability for the river flow, especially during low flow periods (Hatch *et al.* 1985; Service 2001). Still, segments of this river reach were dewatered for at least 5 days during summer 2001 (D. Coleman, pers. comm 2001). Although springs and irrigation return flows maintain water flow in the lower portions of this river reach during times when no water is being released from Sumner Dam, periods of low discharge or intermittency have the potential to impact much of the suitable habitat within portions of this reach (Service 2001).

After the construction of Sumner Dam, major channel incision (deepening) occurred during the 1949 to 1980 period, accompanied by salt cedar (*Tamarix ramosissima*) proliferation along the river banks (Hoagstrom 2000). High-velocity flows within the incised river channel can displace eggs from pelagic spawners such as the silvery minnow. This channel incision also reduced the areas of low-velocity habitat within this river reach (Hoagstrom 2000). Recently, lengthy reservoir releases such as those that occurred in 1988 (36 days) and in 1989 (56 days) have been shortened to about 10 days, which has benefitted species such as the Pecos bluntnose shiner (Service 2001). Nevertheless, historic block releases of water from Sumner Reservoir have modified river flows and habitat (*e.g.*, the downstream river reaches have increased in depth and water velocity) (Hoagstrom 2000).

The recovery of the silvery minnow requires reestablishing populations outside of the middle Rio Grande (Service 1999). We believe that reintroduction is required outside of the area presently occupied by the species (*i.e.*, the middle Rio Grande) to ensure the recovery of the silvery minnow (50 CFR 424.12(e)) (see ''Recovery Plan'' section above). We recognize that habitat within this river reach is degraded, but believe this reach within the middle Pecos River may provide one of the most promising areas for conducting recovery efforts because we believe it still contains habitat suitable for the silvery minnow (Hoagstrom 2000). The continuing presence of members of the pelagic spawning guild (*e.g.*, speckled chub, Rio Grande shiner, Pecos bluntnose shiner) is evidence that this reach of the Pecos River contains habitat suitable for the silvery minnow and may support reestablishment of the species (Hoagstrom 2000).

Federal agencies have not consulted with us on how their actions will affect the silvery minnow, because the species no longer occurs within the Pecos River (D. Coleman, pers. comm. 2001). Because habitat suitable for the silvery minnow is still present within this river reach, we find that this river reach is essential to the conservation of the species. Although we have determined that this reach is essential to the conservation of the silvery minnow, we have not designated this area as critical habitat (see ''Exclusions Under Section 4(b)(2) of the Act'' section above). Our conservation strategy is to develop, through Federal rulemaking procedures, one or more experimental populations within the historic range of the silvery minnow. We believe this river reach may provide a suitable area for an experimental population.

12. Downstream of Brantley Reservoir, Eddy County, NM to Red Bluff Reservoir, Loving and Reeves Counties, TX. This reach is short, with a highly variable flow regime that is dependent on agricultural demand. This reach is also highly segmented, with small closely placed impoundments (*e.g.*, permanent and temporary diversion dams) that pond water, impede fish movements, and would not allow for adequate stream length (*e.g.*, 134 to 223 mi (216 to 358.8 km)) to ensure the survival of downstream drift of eggs and larvae and recruitment of adults (Platania and Altenbach 1998). Additionally, agricultural and oil field pollution and Permian salts (*i.e.*, brine) are added to the river in this reach, decreasing the water quality to levels that likely would not support the silvery minnow (Campbell 1959; Larson 1994). The silvery minnow was historically uncommon within this reach; only14 specimens from two collections are known (Bestgen and Platania 1991). Due to the short length of this reach, fluctuations in the flow regime, degraded water quality, and the absence of suitable habitat for the silvery minnow, this reach is not considered essential to the conservation of the silvery minnow and is not designated as critical habitat.

13. Downstream of Red Bluff Reservoir to the confluence with the Rio Grande, Loving, Reeves, Pecos, Ward, Crane, Crockett, and Terrell Counties, TX. Historically silvery minnows occurred in this reach, though their exact distribution and abundance is unclear (Campbell 1958; Trevino-Robinson 1959; James and De La Cruz 1989; Linam and Kleinsasser 1996; Garrett 1997; Service 1999). Bestgen and Platania (1991) suggest that silvery minnows may have been uncommon within this reach because of pond habitat and high water salinity. However, this area may not have been well surveyed when the silvery minnow was still extant in the Pecos River (D. Propst, New Mexico Game and Fish, pers. comm. 2001). Sampling the middle and lower parts of this river reach has been historically difficult because of dense vegetation, steep canyon banks, and lack of public access (Campbell 1959). The upper segment of this reach can be characterized as devoid of suitable habitat, and has a highly variable flow regime from release of water from Red Bluff Reservoir for agricultural use. Indeed, many freshwater springs that historically augmented the Pecos River throughout this reach have recently diminished or gone dry (Campbell 1959; Brune 1981 cited in Hoagstrom 2000; Barker *et al.* 1994; El-Hage and Moulton 1998b). The water quality in this upper portion is also poor and dominated by high salinity (generally exceeding 5 parts per thousand) (Hiss 1970; Hubbs 1990; Linam and Kleinsasser 1996; Miyamoto *et al.* 1995; El-Hage and Moulton 1998b). Additionally, algal blooms (*Prymnesium parvum*) have essentially eliminated all the fishes throughout from Malaga, NM, to Amistad Dam, TX (James and De la Cruz 1989; Hubbs 1990; Rhodes and Hubbs 1992). The river channel is also somewhat incised and dominated by non-native vegetation in parts (Koidin 2000; Harman 1999; IBWC 2001b). Agricultural needs diminish south of Girvin, TX, and water quality conditions (*e.g.*, salinity) generally begin to improve downstream from the confluence of Independence Creek to Amistad Dam (Hubbs 1990; Linam and Kleinsasser 1996). This improvement could result from the freshwater springs within the lower 100 mi (160 km) stretch of this reach. Nevertheless, gaging records from the lower segment indicate that there is virtually no flow during drought conditions (Texas Water Development Board 2001); further, water quality (*e.g.*, total dissolved solids) at Shumla Bend, just upstream of Amistad Reservoir, would be expected to have a deleterious effect on aquatic life (IBWC 1994).

We did not include this reach because the current or potential suitability for the silvery minnow is unknown; detailed habitat studies have not been conducted in this reach. Moreover, it is believed that this area contains a network of steep canyons, with rock and coarse gravel substrate (Campbell 1959;

Texas Parks and Wildlife 1999). Canyon habitat reduces river channel width, which decreases sinuosity and meandering, and creates deep channels that do not provide suitable habitat (*e.g.*, shallow, braided streams with sandy substrates) (Bestgen and Platania 1991; Dudley and Platania 1997; Remshardt *et. al* 2001). Additionally, the presence of algal blooms will continue to affect water quality in this reach. For these reasons, we do not believe that this reach is essential to the conservation of the silvery minnow. It is unknown whether this reach contains or has the potential to develop the primary constituent elements. Although portions of this river reach may contain fresh water (*i.e.*, salinity less than 1 part per thousand), we suspect that much of this river reach may never provide suitable habitat for the silvery minnow, and it is not designated as critical habitat. On June 6, 2002, we proposed designating 212 mi of critical habitat for the silvery minnow. This final rule designates 157 mi as critical habitat for the silvery minnow.

**Land Ownership**

Except for the river reaches on Pueblos lands covered by special management plans (*see* ''Relationship of Critical Habitat to Pueblo Lands under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section), the designated critical habitat for the silvery minnow encompasses river reaches where the species has been collected in the recent past and where it is currently known to exist. Critical habitat for the silvery minnow includes both the active river channel and the area of bankfull width plus 300 feet on either side of the banks, except in areas narrowed by existing levees.

Ownership of the river channel and the lateral width along the bank is unclear in the designated critical habitat of the middle Rio Grande. However, most of the land in the middle Rio Grande valley that abuts critical habitat is within the administrative boundaries of the MRGCD. The MRGCD is a political subdivision of the State of New Mexico that provides for irrigation, flood control, and drainage of the middle Rio Grande valley in NM, from Cochiti Dam downstream 150 mi (285 km) to the northern boundary of the Bosque del Apache National Wildlife Refuge. Within these 150 mi are also the lands of the communities of Algodones, Bernalillo, Rio Rancho, Corrales, Albuquerque, Los Lunas, Belen, Socorro, and a number of smaller incorporated and unincorporated communities. Other landowners, sovereign entities, and managers include: the Pueblos of Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, and Isleta; the BOR; the Service; the U.S. Bureau of Land Management (BLM); New Mexico State Parks Division; New Mexico Department of Game and Fish; New Mexico State Lands Department; and the Corps. The Pueblo lands of Santo Domingo, Santa Ana, Sandia, and Isleta include 29.5 river mi (47.5 km), and are not included in the final designation.

**Effect of Critical Habitat Designation**

*Section 7 Consultation*

Section 7(a)(2) of the Act requires Federal agencies, including ourselves, to ensure that actions they fund, authorize, or carry out do not destroy or adversely modify critical habitat to the extent that the action appreciably diminishes the value of the critical habitat for the survival and recovery of the species. Individuals, organizations, States, Indian Pueblos and Tribes, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding.

Activities on Federal lands that may affect the silvery minnow or its critical habitat will require section 7 consultation. Actions on private, State, or Indian Pueblo and Tribal lands receiving funding or requiring a permit from a Federal agency also will be subject to the section 7 consultation process if the action may affect critical habitat. Federal actions not affecting the species or its critical habitat, as well as actions on non-Federal lands that are not federally funded or permitted, will not require section 7 consultation. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402.

Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a proposed species or to result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory.

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

Regulations at 50 CFR 402.16 also require Federal agencies to reinitiate consultation in instances where we have already reviewed an action for its effects on a listed species if critical habitat is subsequently designated. Consequently, some Federal agencies may request reinitiation of consultation or conferencing with us on actions for which formal consultation has been completed, if those actions may affect designated critical habitat or adversely modify or destroy critical habitat.

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

Section 4(b)(8) of the Act requires us to describe in any proposed or final regulation that designates critical habitat a description and evaluation of those activities involving a Federal action that may adversely modify such habitat or that may be affected by such designation. When determining whether any of these activities may adversely modify critical habitat, we will analyze the effects of the action in relation to designated critical habitat (Service and National Marine Fisheries Service 1998). Therefore, the analysis (*i.e.*, the determination whether an action destroys or adversely modifies critical habitat) conducted through consultation or conferencing should evaluate whether that loss, when added to the environmental baseline, is likely to appreciably diminish the capability of critical habitat to satisfy essential

requirements of the species. In other words, activities that may destroy or adversely modify critical habitat include those that alter the primary constituent elements (defined above) to an extent that the value of critical habitat for the silvery minnow is appreciably reduced (50 CFR 402.02).

A number of Federal agencies or departments fund, authorize, or carry out actions that may affect the silvery minnow and its designated critical habitat. We have reviewed and continue to review numerous activities proposed within the range of the silvery minnow that are currently the subject of formal or informal section 7 consultations. A wide range of Federal activities have the potential to destroy or adversely modify critical habitat of the silvery minnow. These activities may include land and water management actions of Federal agencies (*e.g.*, Corps, BOR, Service, and the Bureau of Indian Affairs) and related or similar actions of other federally regulated projects (*e.g.*, road and bridge construction activities by the Federal Highway Administration; dredge and fill projects, sand and gravel mining, and bank stabilization activities conducted or authorized by the Corps; construction, maintenance, and operation of diversion structures; management of the conveyance channel; levee and dike construction and maintenance by the BOR; and NPDES permits authorized by the EPA). These types of activities have already been examined under consultation with us upon listing the species as endangered and in our previous designation of critical habitat. We expect that the same types of activities will be reviewed in section 7 consultation now that critical habitat is again designated. However, there is some potential for an increase in the number of proposed actions we review under section 7 of the Act from actions proposed in areas that are contained within the 300-foot lateral width. We believe that we currently review most actions (*e.g.*, indirect effects) that could affect silvery minnow through section 7 that occur in this lateral width, but acknowledge that an explicit boundary could result in a slight increase in consultations.

Activities that we are likely to review under section 7 of the Act include, but are not limited to:

1. Significantly and detrimentally altering the river flow or the natural flow regime of any of the river reaches designated in the middle Rio Grande. Possible actions would include groundwater pumping, impoundment, and water diversion with a Federal nexus (*i.e.*, activities that are authorized, funded, or carried out by a Federal agency). We note that such flow reductions that result from actions affecting tributaries of the designated river reaches may also destroy or adversely modify critical habitat.

2. Significantly and detrimentally altering the characteristics of the 300-ft (91.4-m) lateral width (*e.g.*, parts of the floodplain) in the designated critical habitat of the middle Rio Grande. Possible actions would include vegetation manipulation, timber harvest, road construction and maintenance, prescribed fire, livestock grazing, off-road vehicle use, powerline or pipeline construction and repair, mining, and urban and suburban development with a Federal nexus.

3. Significantly and detrimentally altering the channel morphology (*e.g.*, depth, velocity) of any of the river reaches within the designation. Possible actions would include channelization, impoundment, road and bridge construction, deprivation of substrate source, reduction of available floodplain, removal of gravel or floodplain terrace materials, reduction in stream flow, and excessive sedimentation from mining, livestock grazing, road construction, timber harvest, off-road vehicle use, and other watershed and floodplain disturbances with a Federal nexus.

4. Significantly and detrimentally altering the water quality within the designation. Possible actions with a Federal nexus would include EPA's NPDES permitting or the release of chemical or biological pollutants into the surface water or connected groundwater at a point source or by dispersed release (non-point).

5. Introducing, spreading, or augmenting non-native aquatic species within the designation. Possible actions with a Federal nexus would include fish stocking for sport, aesthetics, biological control, or other purposes; use of live bait fish; aquaculture; construction and operation of canals; and interbasin water transfers.

Not all of the identified activities are necessarily of current concern within the middle Rio Grande. However, they do indicate the potential types of activities that will require consultation and, therefore, may be affected by the designation of critical habitat. We do not expect that the designation of critical habitat will result in a significant regulatory burden above that already in place because of the presence of the listed species. However, areas included within the 300-ft (91.4-m) lateral width of the designation that are not currently occupied by the species may result in an additional regulatory burden when there is a Federal nexus (Federal funding, authorization, or permit).

As discussed previously, Federal actions that are found likely to destroy or adversely modify critical habitat may often be modified, through development of reasonable and prudent alternatives, in ways that will remove the likelihood of destruction or adverse modification of critical habitat. Such project modifications may include such things as adjustment in timing of projects to avoid sensitive periods for the species and its habitat; replanting of riparian vegetation; minimization of work and vehicle use in the main river channel or the 300-ft (91.4-m) lateral width; restriction of riparian and upland vegetation clearing in the 300-ft (91.4-m) lateral width; fencing to exclude livestock and limit recreational use; use of alternative livestock management techniques; avoidance of pollution; minimization of ground disturbance in the 300-foot lateral width; use of alternative material sources; storage of equipment and staging of operations outside the 300-foot lateral width; use of sediment barriers; access restrictions; and use of best management practices to minimize erosion.

The silvery minnow does not need a large quantity of water to survive but it does need a sufficient amount of flowing water to reduce prolonged periods of low or no flow and minimize the formation of isolated pools. The identification of primary constituent elements for the silvery minnow is not intended to create a high-velocity, deep flowing river, with a bank-to-bank flow. The silvery minnow does not require such habitat characteristics. Instead, the silvery minnow requires habitat with sufficient flows through the irrigation season to avoid prolonged periods of low or no flow; additionally, a spike in flow in the late spring or early summer to trigger spawning, and a relatively constant winter flow are also required.

If you have questions regarding whether specific activities will likely constitute destruction or adverse modification of critical habitat, contact the Field Supervisor, New Mexico Ecological Services Field Office (*see* **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT** sections). If you would like copies of the regulations on listed wildlife or have questions about prohibitions and permits, contact the U.S. Fish and Wildlife Service, Division of Endangered Species (*see* **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT** sections).

*Economic Analysis*

Section 4(b)(2) of the Act requires that we designate critical habitat on the basis

of the best scientific and commercial information available and that we consider the economic and other relevant impacts of designating a particular area as critical habitat. We based this final rule on the best available scientific information, including the recommendations in the Recovery Plan (Service 1999). In order to make a final critical habitat designation, we furthered utilized the economic analysis and our analysis of other relevant impacts, and considered all comments and information submitted during the public hearing and comment period. No areas proposed as critical habitat were excluded or modified because of economic impacts. However, we have excluded areas from the final designation on the basis of a final determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat (*see* ''Exclusions Under Section 4(b)(2) of the Act'' section). In accordance with section 4(b)(2) of the Act, we cannot exclude areas from critical habitat when their exclusion will result in the extinction of the species. We have prepared an economic analysis that was available for public review and comment during the comment period for the proposed rule. You can request copies of the economic analysis and EIS from the New Mexico Ecological Services Field Office (*see* **ADDRESSES** section).

Section 4(b)(2) of the Act and 50 CFR 424.19 require us to consider the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. Executive Order 12866 defines ''significant regulatory action,'' in part, as a regulatory action that is likely to result in a rule that may have an annual effect on the economy of $100 million or more. The final Economic Analysis for this rule estimates that the potential economic effects could range from $1.9 to $16.2 million annually. This includes potential economic effects related to consultations, project modifications, and providing target flows, including those effects that may be attributed co-extensively with the listing of the species. Thus, we do not believe that the adverse modification prohibition (from critical habitat designation) will have significant economic effects such that it will have an annual economic effect of $100 million or more. We recognize, however, that while the impacts may not be considered ''significant'' under Executive Order 12866, there will be some economic impact within the middle Rio Grande area. Additionally, the final Economic Analysis recognizes the benefits associated with conservation of an endangered species. The economic analysis provides information on the social welfare benefits associated with maintaining instream flows in the Middle Rio Grande (e.g., ecological improvements, recreational opportunities, and protection afforded to other species). These benefits are described in detail in the final Economic Analysis. On the basis of our evaluation of lands proposed as critical habitat, we believe that the designation of the lands in this final rule as critical habitat are essential to the conservation of the silvery minnow, and these lands are currently occupied by the species. Consequently, none of the proposed lands have been excluded from the designation on the basis of potential economic impacts pursuant to section 4(b)(2) of the Act.

*American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act*

In accordance with Secretarial Order 3206, ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (May 9, 1994, 59 FR 22951); Executive Order 13175; and the Department of the Interior's requirement at 512 DM 2, we believe that, to the maximum extent possible, Indian Pueblos and Tribes should be the governmental entities to manage their lands and tribal trust resources. To this end, we support tribal measures that preclude the need for Federal conservation regulations. We provided technical assistance to Indian Pueblos and Tribes who asked for assistance in developing and expanding tribal programs for the management of healthy ecosystems so that Federal conservation regulations, such as designation of critical habitat, on tribal lands are unnecessary.

The Presidential Memorandum of April 29, 1994, also requires us to consult with the Indian Pueblos and Tribes on matters that affect them, and section 4(b)(2) of the Act requires us to gather information regarding the designation of critical habitat and the effects thereof from all relevant sources, including Indian Pueblos and Tribes. Recognizing a government-to-government relationship with Indian Pueblos and Tribes and our Federal trust responsibility, we have and will continue to consult with the Indian Pueblos and Tribes that might be affected by the designation of critical habitat.

We consulted with the affected Indian Pueblos and Tribes during the comment period for the proposed rule to gain information on: (1) Possible effects if critical habitat were designated on Tribal lands; and (2) possible effects on tribal resources resulting from the proposed designation of critical habitat on non-tribal lands. At their request, we met with each potentially affected Pueblo or Tribe to ensure that government-to-government consultation on proposed critical habitat issues occurred in a timely manner.

**Designation of Critical Habitat on Tribal Lands**

Section 3(5) of the Act defines critical habitat, in part, as areas within the geographical area occupied by the species ''on which are found those physical and biological features (I) essential to the conservation of the species and (II) which may require special management considerations and protection.'' We included lands of the Indian Pueblos of Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, and Isleta in the proposed designation of critical habitat for the silvery minnow; however, Santo Domingo, Santa Ana, Sandia, and Isleta were not included for the final designation because they submitted sufficient management plans during the open comment period, and we concluded that these river reaches did not meet the definition of critical habitat because adequate special management is being provided for the silvery minnow on these lands. The plans and our analysis of other relevant issues are summarized above under the ''Relationship of Critical Habitat to Pueblo Lands Under Section 3(5)(A) and Exclusions Under Section 4(b)(2)'' section.

**Effects on Tribal Trust Resources From Critical Habitat Designation on Non-Tribal Lands**

We do not anticipate that the proposal of critical habitat on non-tribal lands will result in any impact on tribal trust resources or the exercise of tribal rights. However, in complying with our tribal trust responsibilities, we communicated with all Indian Pueblos and Tribes potentially affected by the designation. At their request, we arranged meetings with them during the comment period on potential effects to them or their resources that may result from critical habitat designation. We sent preproposal letters and the proposed rule and associated documents to all affected Indian Pueblos, including Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, Isleta, and San Juan,

and solicited additional information from them regarding biological, cultural, social, or economic data pertinent to the proposed rule, economic analysis, or EIS. We will continue to provide assistance to and cooperate with Indian Pueblos and Tribes that potentially could be affected by this critical habitat designation at their request.

**Required Determinations**

*Regulatory Planning and Review*

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

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

Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996; 5 U.S.C. 804(2)), whenever a Federal 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 effect 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 an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act 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. We are certifying that the rule will not have a significant effect on a substantial number of small entities. The following discussion explains our rationale.

The economic analysis determined whether this critical habitat designation potentially affects a ''substantial number'' of small entities in counties supporting critical habitat areas. It also quantifies the probable number of small businesses that experience a ''significant effect.'' While SBREFA does not explicitly define either ''substantial number'' or ''significant effect,'' the Small Business Administration (SBA) and other Federal agencies have interpreted these terms to represent an impact on 20 percent or more of the small entities in any industry and an effect equal to 3 percent or more of a business' annual sales.

Based on the past consultation history for the silvery minnow, wastewater discharges from municipal treatment plants are the primary small business activities anticipated to be affected by the designation of critical habitat. To be conservative, (i.e., more likely to overstate impacts than understate them), the economic analysis assumes that a unique company will undertake each of the projected consultations in a given year, and so the number of businesses affected is equal to the total annual number of consultations (both formal and informal).

The first step was to estimate the number of small businesses affected. As shown in Exhibit 1 below, the following calculations yield this estimate:

- Estimate the number of businesses within the study area affected by section 7 implementation annually (assumed to be equal to the number of annual consultations);
- Calculate the percent of businesses in the affected industry that are likely to be small;
- Calculate the number of affected small businesses in the affected industry;
- Calculate the percent of small businesses likely to be affected by critical habitat.

EXHIBIT 1.—ESTIMATED ANNUAL NUMBER OF SMALL BUSINESSES AFFECTED BY CRITICAL HABITAT DESIGNATION: THE ''SUBSTANTIAL'' TEST

| Industry name | Sanitary services ISC [1] 4959 |
|---|---|
| Annual number of affected businesses in industry: | |
| By formal consultation | 0.13 |
| (Equal to number of annual consultations): [2] | |
| By informal consultation | 0.75 |
| Total number of all businesses in industry within study area | 6 |
| Number of small businesses in industry within study area | 6 |
| Percent of businesses that are small (Number of small businesses)/(Total Number of businesses) | 100% |
| Annual number of small businesses affected (Number of affected businesses)*(Percent of small businesses) | 0.88 |
| Annual percentage of small businesses affected (Number of small businesses affected)/(Total number of small businesses); >20 percent is substantial | 15% |

[1] ISC = Interstate Stream Commission.

[2] Note that because these values represent the probability that small businesses will be affected during a 1-year time period, calculations may result in fractions of businesses. This is an acceptable result, as these values represent the probability that small businesses will be affected.

This calculation reflects conservative assumptions and nonetheless yields an estimate that is still far less than the 20 percent threshold that would be considered ''substantial.'' As a result, this analysis concludes that a significant economic impact on a substantial number of small entities will *not* result from the designation of critical habitat for the silvery minnow. Nevertheless, an estimate of the number of small businesses that will experience effects at a significant level is provided below.

Costs of critical habitat designation to small businesses consist primarily of the cost of participating in section 7 consultations and the cost of project modifications. To calculate the likelihood that a small business will experience a significant effect from critical habitat designation for the silvery minnow, the following calculations were made:

- Calculate the per-business cost. This consists of the unit cost to a third party of participating in a section 7 consultation (formal or informal) and the unit cost of associated project modifications. To be conservative, the economic analysis uses the high-end estimate for each cost.
- Determine the amount of annual sales that a company would need to have for this per-business cost to constitute a ''significant effect.'' This is calculated by dividing the per-business cost by the 3 percent ''significance'' threshold value.
- Estimate the likelihood that small businesses in the study area will have annual sales equal to or less than the threshold amount calculated above. This is estimated using national statistics on the distribution of sales within industries.
- Based on the probability that a single business may experience significant effects, calculate the expected value of the number of businesses likely to experience a significant effect.
- Calculate the percent of businesses in the study area within the affected industry that are likely to be affected significantly.

Calculations for costs associated with designating critical habitat for the silvery minnow are provided in Exhibit 2 below.

EXHIBIT 2.—ESTIMATED ANNUAL EFFECTS ON SMALL BUSINESSES: THE ''SIGNIFICANT EFFECT'' TEST

| Industry | Sanitary Services ISC [1] 4959 | |
|---|---|---|
| | Formal consultations with project modifications | Informal consultations |
| Annual Number of Small Businesses Affected (from final Economic Analysis) | 0.13 | 0.75 |
| Per-Business Cost | $34,100 | $2,900 |
| Level of Annual Sales Below which Effects Would Be Significant (Per-Business Cost/3%) | $1,136,667 | $96,667 |
| Probability that Per-Business Cost is Greater than 3% of Sales for Small Business [2] | 48% | 3% |
| Probable Annual Number of Small Businesses Experiencing Significant Effects (Number Small Businesses)* (Probability of Significant Effect) | 0.06 | 0.02 |
| Total Annual Number of Small Businesses Bearing Significant Costs in Industry | 0.08 | |
| Total Annual Percentage of Small Businesses Bearing Significant Costs in Industry | 1.4% | |

[1] ISC = Interstate Stream Commission.

[2] This probability is calculated based on national industry statistics obtained from the *Robert Morris Associated Annual Statement of Studies: 2001–2002,* which provides data on the distribution of annual sales in an industry within the following ranges: $0–1 million, $1–3 million, $3–5 million, $5–10 million, $10–25 million, and $25+ million. This analysis uses the ranges that fall within the SBA definition of small businesses (*i.e.*, for industries in which small businesses have sales of less than $5.0 million, it uses $0–1 million, $1–3 million, and $3–5 million) to estimate a distribution of sales for small businesses. It then calculates the probability that small businesses have sales below the threshold value, using the following components: (1) All small businesses (expressed as a percentage of all small businesses) in ranges whose upper limits fall below the threshold value experience the costs as significant; (2) for the range in which the threshold value falls, the percentage of companies in the bin that fall below the threshold value is calculated as [(threshold value—range minimum)/(bin maximum—range minimum)] × percent of small businesses captured in range. This percentage is added to the percentage of small businesses captured in each of the lower ranges to reach the total probability that small businesses have sales below the threshold value. Note that in instances in which the threshold value exceeds the definition of small businesses (*i.e.*, the threshold value is $10 million and the definition of small businesses is sales less than $5.0 million), all small businesses experience the effects as significant.

Because the costs associated with designating critical habitat for the silvery minnow are likely to be significant for less than one small businesses per year (approximately 1 percent of the small businesses in the sanitary services industry) in the affected counties, the economic analysis concludes that a significant economic impact on a substantial number of small entities will *not* result from the designation of critical habitat for the silvery minnow. This would be true even if all of the effects of section 7 consultation on these activities were attributed solely to the critical habitat designation.

**Executive Order 13211**

On May 18, 2001, the President issued an Executive Order (E.O. 13211) on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We have a very good consultation history for the silvery minnow; thus, we can describe the kinds of actions that have undergone consultations. Within the critical habitat designated in the middle Rio Grande, the BLM has the highest likelihood of any Federal agency to undergo section 7 consultation for actions relating to energy supply, distribution, or use. However, since 1994, the BLM has not conducted any consultations for resource management plans that relate to energy supply, distribution, or use. We do not anticipate the development of oil and gas leases within the area we are designating as critical habitat (J. Smith,

pers. comm. 2001). Nevertheless, if we were to consult on a proposed BLM energy-related action, the outcome of that consultation likely would not differ from the BLM's policy of not allowing oil and gas development within the 100-year floodplain. For these reasons, we do not anticipate that this rule will be a significant regulatory action under Executive Order 12866, and it is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action and no Statement of Energy Effects is required.

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

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

1. On the basis of information contained in the Economic Analysis, 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 of their actions involving Federal funding or authorization must not destroy or adversely modify the critical habitat or take the species under section 9.

2. This rule will not produce a Federal mandate of $100 million or greater in any year (*i.e.,* it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act).

**Takings**

In accordance with Executive Order 12630 (''Government Actions and Interference with Constitutionally Protected Private Property Rights,'' March 18, 1988; 53 FR 8859), we have analyzed the potential takings implications of the designation of critical habitat for the silvery minnow. The takings implications assessment concludes that this final rule does not pose significant takings implications. A copy of this assessment can be obtained by contacting the New Mexico Ecological Services Field Office (*see* **ADDRESSES** section).

On the basis of the above assessment, we find that this final rule designating critical habitat for the silvery minnow does not pose significant takings implications.

**Federalism**

In accordance with Executive Order 13132, we have considered whether this rule has significant Federalism effects and have determined that a Federalism assessment is not required. In keeping with Department of the Interior policy, we requested information from and coordinated development of this final rule with appropriate resource agencies in NM and TX (*i.e.,* during the EIS scoping period and proposed rule comment period). We will continue to coordinate with the appropriate agencies.

We do not anticipate that this regulation will intrude on State policy or administration, change the role of the Federal or State government, or affect fiscal capacity. We have conducted two formal section 7 consultations with the Corps and BOR, and a non-Federal agency (MRGCD) over actions related to water operations on the middle Rio Grande (Service 2001b, 2002a). As a result, we do not believe that this designation of critical habitat will have significant Federalism effects. For example, in the recent formal section 7 consultations, the MRGCD's regulatory burden requirement was only affected to the extent that the MRGCD was acting as the United States' agent for the operation and maintenance of facilities. Federal agencies also must ensure, through section 7 consultation with us, that their activities do not destroy or adversely modify designated critical habitat. Nevertheless, we do not anticipate that the amount of supplemental instream flow, provided by past consultations (*e.g.,* Service 2001b), will increase because an area is designated as critical habitat. This rule also will not change the appropriation of water rights within the area designated as critical habitat. For these reasons, we do not anticipate that the designation of critical habitat will change State policy or administration, change the role of the Federal or State government, or affect fiscal capacity.

Within the 300-ft (91.4-m) lateral width, designation of critical habitat could trigger additional review of Federal activities under section 7 of the Act, and may result in additional requirements on Federal activities to avoid destroying or adversely modifying critical habitat. Any action that lacked Federal involvement would not be affected by the critical habitat designation. Should a Federally funded, permitted, or implemented project be proposed that may affect designated critical habitat, we will work with the Federal action agency and any applicant, through section 7 consultation, to identify ways to implement the proposed project while minimizing or avoiding any adverse effect to the species or critical habitat. In our experience, the vast majority of such projects can be successfully implemented with, at most, minor changes that avoid significant economic impacts to project proponents.

The designation may have some benefit to these governments—the areas essential to the conservation of the species would be clearly defined, and the primary constituent elements of the habitat necessary to the survival of the species would be 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 (where otherwise they would wait for case-by-case section 7 consultations to occur).

**Civil Justice Reform**

In accordance with Executive Order 12988 (February 7, 1996; 61 FR 4729), the Office of the Solicitor has determined that this rule would not unduly burden the judicial system and would meet the requirements of sections 3(a) and 3(b)(2) of the Order. We designate critical habitat in accordance with the provisions of the Act. The rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the silvery minnow.

**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 Office of Management and Budget (OMB) under 44 U.S.C. 3501 *et seq.* This rule will not impose new recordkeeping 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**

It is our position that, outside the Tenth Circuit, we do not need to prepare environmental analyses as defined by the NEPA in connection with designating critical habitat under the Endangered Species Act of 1973, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This assertion was upheld in the Ninth Circuit *Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), *cert. denied,* 116 S. Ct. 698 (1996). However, when the range of the species includes States within the Tenth Circuit, such as that of the silvery minnow, pursuant to the Tenth Circuit ruling in *Catron County Board of Commissioners* v. *U.S. Fish and Wildlife Service,* 75 F.3d 1429 (10th Cir. 1996), we will undertake a NEPA

analysis for critical habitat designation. Additionally, on November 21, 2000, the United States District Court for the District of New Mexico, in *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F. Supp. 2d 1156 (D.N.M. 2000), set aside the July 9, 1999, critical habitat designation and ordered us to issue within 120 days both an EIS and a new proposed rule designating critical habitat for the silvery minnow. We have prepared this designation and the EIS pursuant to that court order.

**Government-to-Government Relationship With Indian Pueblos and Tribes**

In accordance with the Secretarial Order 3206, ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); 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 requirement at 512 DM 2, we understand that we must conduct relations to recognized Federal Indian Pueblos and Tribes on a Government-to-Government basis. Therefore, we solicited information from the Indian Pueblos and Tribes and arranged meetings with those that requested during the comment period to discuss potential effects to them or their resources that may result from critical habitat designation.

**References Cited**

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

**Authors**

The primary authors of this notice are the New Mexico Field Office staff (*see* **ADDRESSES** section).

**List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping 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. Amend § 17.95(e) by revising critical habitat for the Rio Grande silvery minnow (*Hybognathus amarus*), to read as follows.

**§ 17.95 Critical habitat—fish and wildlife.**

* * * * *

(e) *Fishes.* * * *

**Rio Grande Silvery Minnow (*Hybognathus amarus*)**

(1) Designated critical habitat is depicted for Socorro, Valencia, Bernalillo, and Sandoval Counties, New Mexico, on the map and as described below.

(2) For each river reach, the upstream and downstream boundaries are described below. Critical habitat includes the stream channels within the identified river reaches and areas within these reaches included within the existing levees, or if no levees are present, then within a lateral distance of 300 ft (91.4 m) on each side of the river width at bankfull stage. Bankfull stage is the flow at which water begins to leave the channel and move into the floodplain. The bankfull stage is not defined by water, and can be determined by visual or physical indicators, including: The top of the highest depositional features (*e.g.*, point bars), staining of rocks, exposed root hairs, and other features.

(3) Within these areas the primary constituent elements include, but are not limited to, those habitat components that are essential for the primary biological needs of foraging, sheltering, and reproduction. These elements include the following:

(i) A hydrologic regime that provides sufficient flowing water with low to moderate currents capable of forming and maintaining a diversity of aquatic habitats, such as, but not limited to the following: Backwaters (a body of water connected to the main channel, but with no appreciable flow), shallow side channels, pools (that portion of the river that is deep with relatively little velocity compared to the rest of the channel), eddies (a pool with water moving opposite to that in the river channel), and runs (flowing water in the river channel without obstructions) of varying depth and velocity—all of which are necessary for each of the particular silvery minnow life-history stages in appropriate seasons (*e.g.*, the silvery minnow requires habitat with sufficient flows from early spring (March) to early summer (June) to trigger spawning, flows in the summer (June) and fall (October) that do not increase prolonged periods of low or no flow, and a relatively constant winter flow (November through February));

(ii) The presence of eddies created by debris piles, pools, or backwaters, or other refuge habitat (*e.g.*, connected oxbows or braided channels) within unimpounded stretches of flowing water of sufficient length (*i.e.*, river miles) that provide a variation of habitats with a wide range of depth and velocities;

(iii) Substrates of predominantly sand or silt; and

(iv) Water of sufficient quality to maintain natural, daily, and seasonally variable water temperatures in the approximate range of greater than 1 °C (35 °F) and less than 30 °C (85 °F) and reduce degraded conditions (*e.g.*, decreased dissolved oxygen, increased pH).

(4) The Pueblo lands of Santo Domingo, Santa Ana, Sandia, and Isleta are not designated.

(5) Designated critical habitat is depicted on the following map for the middle Rio Grande, which includes the area from Cochiti Reservoir downstream to the utility line crossing the Rio Grande just east of the Bosque Well as demarcated on USGS Paraje Well 7.5 minute quadrangle (1980), with the Universal Transverse Mercator (UTM) coordinates of UTM Zone 13: 311474 E, 3719722 N (as referenced with the 1927 North American Datum (NAD27)), Sandoval, Bernalillo, Valencia, and Socorro Counties, New Mexico. The designation also includes the upper section of the tributary Jemez River from Jemez Canyon Dam to the upstream boundary of Santa Ana Pueblo, Sandoval County. The river reaches in the middle Rio Grande include:

(i) Jemez Canyon Reach—1 mi (1.6 km) of the Jemez River immediately downstream of Jemez Canyon Dam to the upstream boundary Santa Ana Pueblo;

(ii) Cochiti Diversion Dam to Angostura Diversion Dam (Cochiti Reach)—21 mi (34 km) of river immediately downstream of Cochiti Reservoir to the Angostura Diversion Dam;

(iii) Angostura Diversion Dam to Isleta Diversion Dam (Angostura Reach)—38 mi (61 km) of river immediately downstream of the Angostura Diversion Dam to the Isleta Diversion Dam;

(iv) Isleta Diversion Dam to San Acacia Diversion Dam (Isleta Reach)—56 mi (90 km) of river immediately downstream of the Isleta Diversion Dam to the San Acacia Diversion Dam; and

(v) San Acacia Diversion Dam to the Elephant Butte Dam (San Acacia Reach)—92 mi (147 km) of river immediately downstream of the San

Acacia Diversion Dam to the utility line crossing the Rio Grande just east of the Bosque Well demarcated on USGS Paraje Well 7.5 minute quadrangle (1980) with UTM coordinates of UTM Zone 13: 311474 E, 3719722 N.

(vi) Map Follows:

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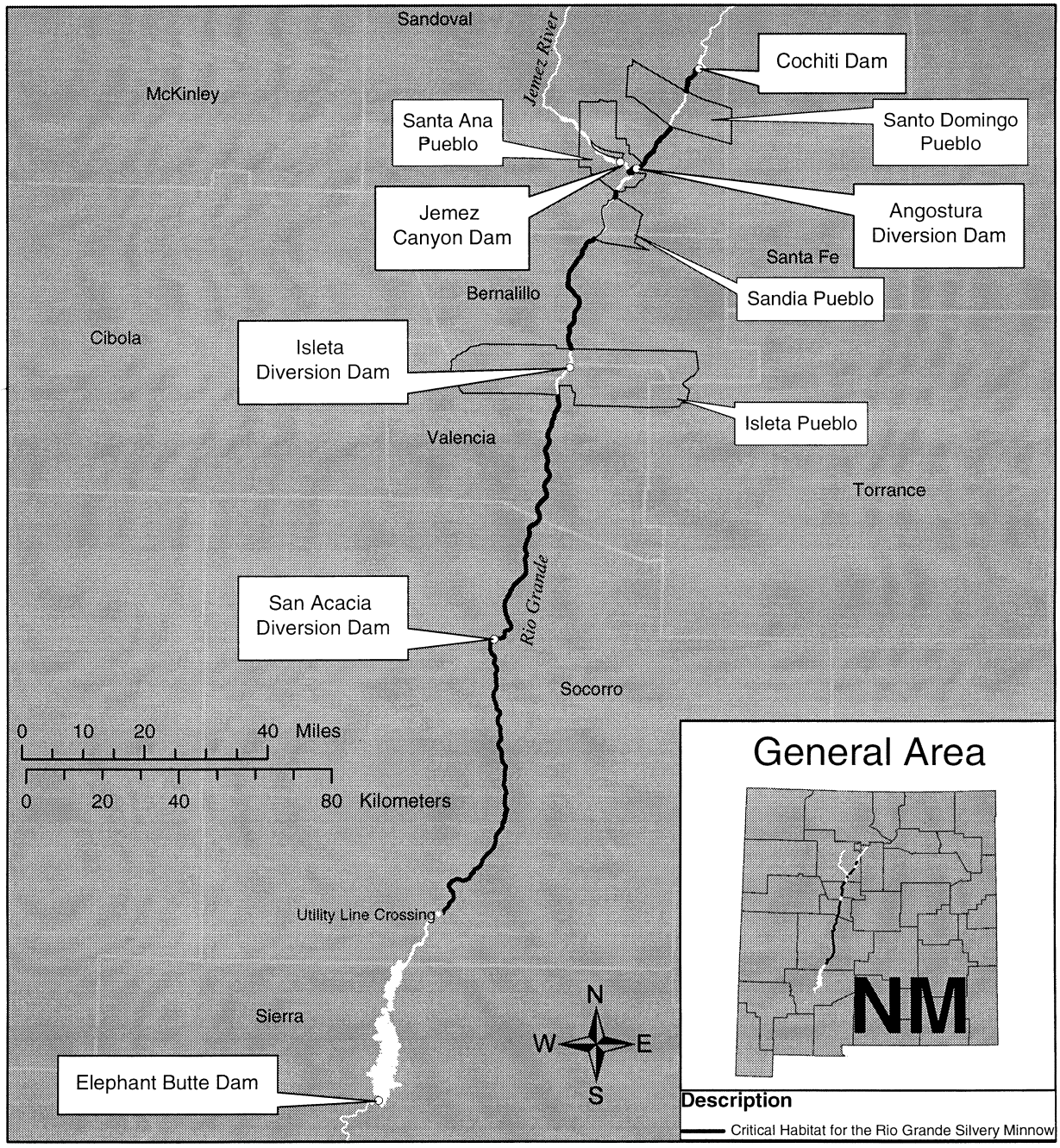
# Critical Habitat for the Rio Grande Silvery Minnow *(Hybognathus amarus)*




The Pueblo lands of Santo Domingo, Santa Ana, Sandia, and Isleta are not designated critical habitat (see 'Regulation Promulgation' section of this rule for exact descriptions of boundaries of designated critical habitat).

DISCLAIMER

This map is a graphical representation of Rio Grande Silvery Minnow critical habitat and is provided for illustrative purposes only. The map and [GIS (vector and/or raster)] files used to create this map are not the definitive source for determining critical habitat boundaries. While the Service makes every effort to represent the critical habitat shown on this map as completely and accurately as possible (given existing time, resource, data and display constraints), the USFWS gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data.

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(6) This designation does not include the ephemeral or perennial irrigation canals and ditches outside of natural stream channels, including the low flow conveyance channel that is adjacent to a portion of the river reach within the middle Rio Grande (*i.e.*, downstream of the southern boundary of Bosque del Apache National Wildlife Refuge to the Elephant Butte Dam).

(7) Lands located within the exterior boundaries of the critical habitat designation (*i.e.*, within the existing levees, or if no levees are present, then within a lateral distance of 300 ft (91.4 m) on each side of the stream width at bankfull discharge) that are not considered critical habitat and are therefore excluded by definition, include: Developed flood control facilities; existing paved roads; bridges; parking lots; dikes; levees; diversion structures; railroad tracks; railroad trestles; water diversion and irrigation canals outside of natural stream channels; the low flow conveyance channel; active gravel pits; cultivated agricultural land; and residential, commercial, and industrial developments.

* * * * *

Dated: January 31, 2003.

**Craig Manson,**

*Assistant Secretary for Fish and Wildlife and Parks.*

[FR Doc. 03–3255 Filed 2–18–03; 8:45 am]

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