Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
FLOWERING PLANTS						
*	*	*	*	*	*	*
Astragalus desereticus	Deseret milk-vetch	U.S.A. (UT)	T	668	NA	NA
*	*	*	*	*	*	*

Dated: September 30, 1999.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 99–27187 Filed 10–19–99; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AE 86

Endangered and Threatened Wildlife and Plants; Final Rule To List the Devils River Minnow as Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, determine the Devils River minnow (*Dionda diaboli*) to be a threatened species under the authority of the Endangered Species Act of 1973, as amended (Act). The Devils River minnow is a small fish with a known distribution limited to three locations in Val Verde and Kinney counties, Texas, and one drainage in Coahuila, Mexico. The species' range is significantly reduced and fragmented due to habitat loss from dam construction, spring dewatering, and other stream modifications. The numbers of Devils River minnows collected during fish surveys over the past 25 years have declined; once one of the most abundant fish in the Devils River, the minnow has now become one of the least abundant. The species' decline in abundance in the Devils River may be attributed to the effects of both habitat modification and possibly predation by smallmouth bass (*Micropterus dolomieu*), an introduced game fish.

We originally proposed to list the Devils River minnow as endangered. However, since publication of the proposed rule, a Conservation Agreement (Agreement) for the species has been signed and specific milestones for conservation actions have been agreed to by us, the Texas Parks and Wildlife Department (TPWD), and the City of Del Rio. We determine that the actions already accomplished under this Agreement, have reduced the imminence of the threats to the species sufficiently to justify a threatened designation. This action will implement Federal protection provided by the Act for the Devils River minnow. We determine that designation of critical habitat for the Devils River minnow is not prudent.

EFFECTIVE DATES: The effective date of this rule is November 19, 1999.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Austin Ecological Services Field Office, 10711 Burnet Road, Suite 200, Austin, Texas, 78758.

FOR FURTHER INFORMATION CONTACT: Nathan Allan, Fish and Wildlife Biologist, at the above address, telephone 512/490–0057, or facsimile 512/490–0974.

SUPPLEMENTARY INFORMATION:

Background

The Devils River minnow (*Dionda diaboli* Hubbs and Brown) is classified in the Cyprinidae (minnow) family. It was first collected from Las Moras Creek, near Brackettville, Texas, on April 14, 1951. The species was described by Hubbs and Brown (1956) from specimens collected in the Devils River at Baker's Crossing (southern-most bridge crossing of State Highway 163) in 1951. The species occurs with similar minnows, such as the closely related manantial roundnose minnow (*Dionda argentosa*) and is also related to the more common roundnose minnow (*Dionda episcopa*). Devils River minnow is recognized as a distinct species by the American Fisheries Society (Robins *et al.* 1991) based on morphological characteristics (Hubbs and Brown 1956), genetic markers (Mayden *et al.* 1992), and chromosome differences (Gold *et al.* 1992).

The Devils River minnow is a small fish, with adults reaching sizes of 25–53 millimeters (mm) (1.0–2.1 inches (in.)) standard length. The fish has a wedge-shaped caudal (near the tail) spot and pronounced lateral stripe with double dashes extending through the eye to the snout but not reaching the lower lip. The species has a narrow head with prominent dark markings on scale pockets above the lateral line that produce a cross-hatched appearance when viewed from the top (Hubbs and Brown 1956).

Little information is available on life history characteristics, feeding patterns, or reproductive behaviors of this species. However, based on their extended intestinal tract, species of the genus *Dionda* are considered to feed primarily on algae. Since *Dionda episcopa*, a closely related species, are broadcast spawners with nonadhesive eggs that sink to the substrate (Johnston and Page 1992), we believe Devils River minnows are as well.

General habitat associations for Devils River minnow have been described as channels of fast-flowing, spring-fed waters over gravel substrates (Harrell 1978). Although the species is closely associated with spring systems, it most often occurs where spring flow enters a stream, rather than in the spring outflow itself (Hubbs and Garrett 1990). The species is adapted to the hydrologic variations inherent in desert river systems (Harrell 1978), which are characterized by extended droughts and extreme flash floods (USGS 1989).

The Devils River minnow is part of a unique fish fauna in west Texas streams where a mixture of fishes occur, including Mexican peripherals, local endemics, and widespread North American fishes (Hubbs 1957). About half of the native fishes of the Chihuahuan Desert of Mexico and Texas are considered by Hubbs as threatened (1990) and at least four species have been documented to be extinct (Miller *et al.* 1989), primarily due to habitat destruction and introduced species.

The Devils River minnow is native to tributary streams of the Rio Grande in Val Verde and Kinney counties, Texas, and Coahuila, Mexico. The known historical range of the species is based on collections from the 1950's and 1970's and includes the Devils River from Beaver Lake downstream to near its confluence with the Rio Grande; San Felipe Creek from the springs in the headwaters to springs in Del Rio; Sycamore Creek; Las Moras Creek near

Brackettville; Rio San Carlos, Mexico; and the Rio Salado Drainage, Mexico (Brown 1955; Hubbs and Brown 1956; Robinson 1959; Harrell 1978; Smith and Miller 1986; Garrett *et al.,* 1992). Despite numerous collection efforts, the species has never been reported from the mainstem Rio Grande, the Rio Conchos drainage, or tributary streams other than those listed above. The range of the species prior to 1951 is unknown.

A comprehensive assessment of the distribution of Devils River minnow in Texas was described by Garrett *et al.* (1992). This study documented the presence of the species in 1989 at two sites on the Devils River (Baker's Crossing and Dolan Springs), two sites on San Felipe Creek, and one site on Sycamore Creek. None were collected in samples from Las Moras Creek.

Garrett *et al.* (1992) found that Devils River minnow was very rare throughout its range in 1989 compared to past collections. At 24 sampling locations within the historical range, a total of only 7 individuals were collected from 5 sites. In addition to declines in the Devils River minnow populations, Garrett *et al.* (1992) also observed a general shift in community structure toward fishes that tend to occupy quiet water or pool habitat, conditions that are often limited in flowing spring runs. The authors hypothesized that this shift was the result of reduced stream flows from drought, exacerbated by human modification of stream habitats, especially in Sycamore and Las Moras creeks.

The most recent information from collections in 1997 and 1998 confirm the existence of Devils River minnow in only three locations in Texas—two sites in small streams tributary to the Devils River (Phillips Creek and Dolan Creek) and one site in San Felipe Creek in Del Rio.

We are unaware of any published information on the status of the Devils River minnow in Mexico. A review of museum records indicates that the species may now occur in only one locality in Mexico. Populations there appear to be very depressed (S. Contreras-Balderas, University of Nuevo Leon, *in litt.* 1997) and face significant threats from industrial and agricultural development (Contreras and Lozano 1994).

The region of Texas where the Devils River minnow occurs is semi-arid, receiving an average of about 46 centimeters (cm) (18 in.) of rainfall annually. Spring-fed streams of west Texas flow southerly through rocky, limestone soils and shrubby vegetation characteristic of the more arid western reaches of the Hill Country. The aquifer that sustains spring flows within the range of the Devils River minnow is the Edwards-Trinity (Plateau) Aquifer. This major aquifer produces the largest number of springs in Texas (Brune 1975). The contributing and recharge area for springs on the Devils River and San Felipe Creek is suspected to include a large area as far north as Sheffield in Pecos County and Eldorado in Schleicher County, although the subsurface hydrogeomorphology (underground water characteristics) of the region is not well-defined (Brune 1981). The flow from springs fluctuates considerably, depending on the amount of rainfall, recharge, and water in storage in the aquifer. Conservation of the quality and quantity of this groundwater supply is essential for the continued existence of the Devils River minnow.

Areas where the Devils River minnow occurs are mostly in private ownership. Exceptions include the Devils River State Natural Area located north of Dolan Falls and managed by the TPWD (Baxter 1993), and land adjoining portions of San Felipe Creek owned by the City of Del Rio (population of about 38,000). One important private holding is the Dolan Falls Preserve, in the middle portion of the Devils River, owned by The Nature Conservancy (Baxter 1993). Primary land uses within the watersheds supporting Devils River minnow are cattle, sheep, and goat ranching. Generally, these areas are very remote with little human development beyond that necessary to support ranching operations.

The Devils River minnow is currently listed as a threatened species by the State of Texas, the Texas Organization for Endangered Species (Hubbs *et al.* 1991), and the Endangered Species Committee of the American Fisheries Society (Williams *et al.* 1989). The Devils River minnow is listed as an endangered species in Mexico (NOM–ECOL–059).

The Agreement for Devils River minnow was signed by the Service, the TPWD (in cooperation with local landowners), and the City of Del Rio on September 2, 1998, to expedite conservation measures needed to ensure the continued existence of the species. Preliminary drafts of the Agreement were made available to local landowners for comment and a draft version was also distributed at a public hearing on the proposal to list the species. The Agreement includes a Conservation Strategy (Strategy) to describe the specific procedures required for conservation of the Devils River minnow. We carefully considered the implementation to date of the conservation actions as described in the Strategy and the effects of that implementation on removing threats to the species when making the final listing determination for the Devils River minnow. Following is a discussion of the conservation actions and implementation that have occurred to date.

The ten conservation actions that are included in the Strategy and their implementation status are:

(1) Determine the current status of the Devils River minnow and monitor changes. This action was initiated in November 1997, (prior to signing the Agreement) with sampling in the mainstem Devils River and San Felipe Creek in Del Rio and continued with collections from Philips Creek and Dolan Creek in May, 1998.

(2) Maintain genetically representative, captive populations of Devils River minnow at two fish hatchery facilities for reintroduction, and as insurance against extinction. This action has been initiated by the TPWD by holding a small number of individuals of Devils River minnow at a hatchery since November 1997. Those individuals produced an unassisted reproductive effort in March 1999, in an artificial stream, indicating that captive propagation is likely readily accomplished. We agreed to assist in this action by providing an additional location to develop captive propagation techniques for the species. We have secured funding for our San Marcos National Fish Hatchery and Technology Center to initiate this action in the very near future.

(3) Reintroduce Devils River minnows, reared in captive populations, in order to reestablish populations in nature. This action has not yet been implemented and depends on a number of other actions being completed before reintroductions can be initiated.

(4) Continue and enhance protection of the San Felipe Creek watershed. This action by the City of Del Rio to protect San Felipe Creek has not yet been implemented. The City has committed to a concept of conservation of the natural environment in any future development plans within the riparian zone of the creek (Beth Eby, City Manager, City of Del Rio, *in litt.* 1997). This action will be an ongoing effort by the City for protection of this population of Devils River minnow.

(5) Provide technical assistance to landowners on riparian protection and management. Not yet initiated.

(6) Review live bait harvest and selling practices in the Devils River area to develop methods and take appropriate actions (for example,

regulation, education) to prevent the further establishment of exotic aquatic species within the historical range of Devils River minnow. Not yet initiated.

(7) Document the abundance and ranges of exotic fish in the Devils River, and San Felipe, Las Moras, and Sycamore creeks. Not yet initiated.

(8) Obtain and analyze changes in flow data for the Devils River, and San Felipe, Las Moras, and Sycamore creeks. Not yet initiated.

(9) With progeny of the captive population, use a simulated environment to determine ecological and life history requirements of the Devils River minnow. The TPWD has initiated this action through the purchase and construction of the facilities necessary to do experiments on the ecology of the species. Preliminary experiments have been initiated.

(10) Determine predator/prey interactions between smallmouth bass and the Devils River minnow through field studies. This action will depend in part on the completion of a current study by Texas A&M University and implementation of laboratory experiments discussed in action number 9, above.

In February 1999, we requested confirmation from the TPWD and the City of Del Rio of their commitment to implementation of the Agreement, and clarified some specific milestones for accomplishing the goals of the Agreement. The TPWD and the City concurred in writing to implement key components of the Agreement within the next 2 years. The milestones agreed to by the three parties include:

(1) Have healthy, genetically representative captive stocks of Devils River minnow in at least two facilities. Each facility should maintain two separate stocks, one from the Devils River and one from San Felipe Creek.

(2) Conduct the first annual population monitoring for the Devils River minnow throughout its historical range in the U.S.

(3) Conduct the first annual monitoring for the Devils River minnow throughout its historical range and potential habitats in Mexico.

(4) Conduct the second annual population monitoring for the Devils River minnow throughout its historical range in the U.S.

(5) Improve the status of the Devils River minnow in San Felipe Creek at Del Rio and restore Devils River minnow populations in the headwater springs area. This will be indicated by maintaining stable population sizes of Devils River minnow at Del Rio and restoring population sizes at least equal to those historically in the headwater springs. In addition, implementation of conservation measures in San Felipe Creek in Del Rio (such as a finalized policy by the City of Del Rio for preservation of the San Felipe Creek watershed, development of a San Felipe Creek floodplain restoration plan, completion of a water conservation plan, and completion of a management plan for the golf course) will be completed to reduce threats to the species there.

(6) Improve the status of the Devils River minnow in the Devils River. This will be accomplished by establishing additional locations of Devils River minnow, with population sizes at least equal to historical levels (such as similar to those found by H.L. Harrell in the 1970's). This will include further threat assessment and addressing potential limiting factors in this system, particularly the effects of smallmouth bass and changes in stream flows.

We concur with many of the public comments that supported this cooperative approach. This listing does not preclude continuation of cooperative efforts between parties to the Agreement or continuing efforts to implement the Conservation Strategy. As stated in the introduction of the Agreement, we believe that full implementation of the Strategy may ultimately reduce the threats to the Devils River minnow and allow a future review of the species' status. This could result in a future delisting if threats are removed and the status of the species significantly improves such that recovery has occurred.

Previous Federal Action

On August 15, 1978, we published a proposed rule (43 FR 36117) to list the Devils River minnow as a threatened species and to designate its critical habitat. On March 6, 1979, we published a notice (44 FR 12382) to withdraw the critical habitat portion of the proposal to meet the new critical habitat requirements set forth in the Endangered Species Act Amendments of 1978 (Public Law 95–632, 92 Stat. 3751). We reproposed the designation of critical habitat for the Devils River minnow on May 16, 1980 (45 FR 32348). A notice of public hearing was published on July 9, 1980 (45 FR 46141), and the public hearing was held on July 23, 1980, in Del Rio, Texas. The 1978 amendments to the Act also required that all proposals over two years old be withdrawn. We withdrew the listing and critical habitat proposals on September 30, 1980 (45 FR 64853), because the 2-year time limit on the proposed listing had expired.

We included the Devils River minnow as a category 2 candidate species in notices of review published December 30, 1982 (47 FR 38454), September 18, 1985 (50 FR 37958), and January 6, 1989 (54 FR 554). Category 2 taxa were those that we believed may be eligible for threatened or endangered status, but for which the available biological information in our possession was insufficient to support listing the species. However, new information obtained in 1989 (and later published as Garrett *et al.* 1992) provided a basis for including the Devils River minnow as a category 1 candidate in notices of review published November 21, 1991 (56 FR 58804), and November 15, 1994 (59 FR 58982). Category 1 taxa were those for which we had substantial biological information on hand to support proposing to list the species as threatened or endangered.

As announced in a notice published in the February 28, 1996, **Federal Register** (61 FR 7596), the designation of multiple categories of candidates was discontinued, and only species for which we have sufficient information to support listing are now recognized as candidates. The Devils River minnow remained a candidate species in notices of review published February 28, 1996 (61 FR 7596), and September 19, 1997 (62 FR 49398).

On March 27, 1998, we published a proposed rule to list the Devils River minnow as endangered and invited public comment (63 FR 14885). On May 14, 1998, we published a notice of public hearing on the proposal (63 FR 26764), and a public hearing was subsequently held in Del Rio, Texas, on May 28, 1998. On October 13, 1998, we published a notice reopening the comment period on the proposed rule for an additional 30 days and announcing the availability of new information and the Conservation Agreement (63 FR 54660).

The processing of this final rule conforms with our current listing priority guidance published in the **Federal Register** on May 8, 1998 (63 FR 25503). The guidance calls for giving highest priority to handling emergency situations (Tier 1) and second highest priority to resolving the listing status of outstanding proposed listings, resolving the conservation status of candidate species, processing petitions, and delisting or reclassifications (Tier 2). The guidance assigns the lowest priority (Tier 3) to processing proposed or final designations of critical habitat. Processing of this final rule is a Tier 2 action.

Summary of Comments and Recommendations

In the March 27, 1998, proposed rule (63 FR 14885), the May 14, 1998, public hearing notice (63 FR 26764), and the October 13, 1998, notice reopening the comment period (63 FR 54660), we requested all interested parties to submit factual reports or information that might contribute to the development of a final rule. The original public comment period extended 120 days from the date of the proposal and closed on July 27, 1998. The comment period was reopened for an additional 30 days on October 13, 1998, and closed on November 12, 1998. The second comment period was reopened to accept comments on the proposal after the original comment period closed. Updated information on the distribution and abundance of the species was provided by the TPWD (G. Graham, TPWD, *in litt.* 1998). In addition, a Conservation Agreement for the Devils River minnow among us, the TPWD, and the City of Del Rio was signed on September 2, 1998.

We contacted numerous Federal and State agencies, county and municipal governments, scientific organizations, and private individuals to request comments on the proposal. Newspaper notices inviting public comment and announcing the public hearing were published between May 3 and May 12, 1998, in the *Sanderson Times, Del Rio News Herald, Odessa American, San Angelo Standard Times, Midland Reporter-Telegram, Devils River News,* and the *Ozona Stockman.*

The public hearing was held in Del Rio on May 28, 1998. About 50 people attended, and 18 made oral statements. We also received 13 written comments from the public and agency officials during both comment periods. Four of the oral comments at the public hearing were the same or similar to written comments submitted by the same parties. One person submitted two comment letters. Therefore, comments were received from 26 separate commenters on the proposal.

The following summary addresses the written and oral comments received. These comments comprise a range of issues regarding the proposal. Because multiple respondents offered similar comments in some cases, those comments were combined. Of those commenters stating a position, 11 clearly indicated opposition to the listing and another 8 implied that they were opposed. Seven commenters did not clearly state a position. Ten commenters expressed support for the Conservation Agreement. The comments and our responses are as follows:

Comment 1: There is a need for more information on the Devils River minnow before a decision is made. The distribution and abundance of the fish is likely larger than reported in the proposal, both in the U.S. and Mexico.

Service Response: We agree that more can be learned about the Devils River minnow and its conservation with additional research. The Conservation Agreement has additional research and monitoring as key components for benefitting the species (see the ''Background'' section of this final rule). However, we must base the listing decision on the best information available at this time. With the current data, we conclude that the fish has declined over a significant portion of its range. Therefore, based on the best available information, threatened status for the Devils River minnow is warranted.

Comment 2: Numerous commenters requested that we accept the Conservation Agreement among the Fish and Wildlife Service, TPWD, and the City of Del Rio in lieu of listing the minnow. Many believed this is a better approach to management of the Devils River minnow.

Service Response: We agree that cooperative, voluntary efforts to conserve this species that remove or reduce threats that preclude the need to list would be preferable to Federal listing. However, full implementation of the conservation strategy activities that the agreement calls for has not occurred. We signed the Conservation Agreement so that conservation efforts could be quickly put in place to reduce the risks to the species' survival. We have considered the extent to which the conservation actions outlined in the Conservation Agreement have been implemented and are likely to reduce threats to the species, particularly in the near-term, in making this listing determination. We strongly support the efforts of State and local agencies taking active roles in the conservation of the Devils River minnow, and we believe the Agreement and actions outlined in it have the potential to benefit the species. The actions already accomplished in the Conservation Agreement, as well as the agreed-upon schedule for implementing the remaining actions, were considered in the decision to list as threatened. We believe that the conservation agreement is an important conservation tool. Even though full implementation has not occurred and we determined that threats to the species still exist such that listing is still warranted, the Conservation Agreement will be useful in facilitating and expediting the recovery of the Devils River minnow.

Comment 3: Some commenters requested the listing decision be delayed to allow the Conservation Agreement time to be implemented.

Service Response: We are required by section 4 of the Act to publish a final decision within one year of a proposed rule. We took into account those actions of the Conservation Agreement that have been implemented to date and the benefits expected from actions that will be implemented in the near future. We determined that, within the statutory time frames mandated by the Act, listing the Devils River minnow as threatened at this time is the best course of action.

Comment 4: Several commenters stated a strong desire to not incur additional Federal regulations over land and water use that would limit private property rights.

Service Response: We do not foresee substantial impacts on private property rights through the Devils River minnow. In the ''Available Conservation Measures'' section of this final rule, we have outlined some private activities that likely will and likely will not result in take of the species under the prohibitions of section 9 of the Act. We are interested in working with landowners to develop cooperative solutions to species conservation that avoid or minimize the need for regulatory burdens on landowners.

Comment 5: Local and state governmental agencies could manage the Devils River minnow better than the Federal government.

Service Response: Listing the species by the Federal government does not preclude State and local management of the species. On the contrary, we encourage State and local involvement in recovery of endangered species. We believe that local actions are crucial to long-term conservation of this species. We believe a cooperative approach by all parties will provide an even greater benefit to the species, and we offer any support where possible and needed.

Comment 6: No significant groundwater pumping has occurred in the watershed since the 1960's.

Service Response: We took this comment into consideration in this final rule (see discussion in the ''Summary of Factors Affecting the Species'' section) and have modified the discussion of this topic. Because of the lack of information on groundwater withdrawals, we do not have substantial information showing the level of pumping in and around the Devils River watershed. This prevents any correlation of streamflow with groundwater withdrawals. However,

sources such as Dietz (1955) and Brune (1981) claim that groundwater withdrawals have affected stream flows. We believe there is a potential that groundwater pumping could adversely affect habitat of the Devils River minnow.

Comment 7: There have not been any changes in stream flows in the Devils River, and no data exist that suggest otherwise. In addition, there has never been permanent stream flow in the reach from Beaver Lake to Pecan Springs.

Service Response: The information used in evaluating historical stream flow on the Devils River is from gage records collected by the International Boundary and Water Commission at the gage near Del Rio (1900–1957), the gage at Pafford Crossing (1960–1997), and the gage near Juno (1925–1973). We did not locate any specific studies or analysis of hydrology on the Devils River.

We reevaluated all existing and new information concerning the presence of permanent flow between Pecan Springs and Beaver Lake on the Devils River. The ''Summary of Factors Affecting the Species'' section of this rule reflects the available information. One task included in the Conservation Agreement is an analysis of the hydrology of the Devils River and other streams supporting Devils River minnow to determine if stream flows have declined over time.

Comment 8: No changes in grazing practices have occurred in recent times. Instead, the land is actually in better condition today than in previous times and the only changes have been an increase in the amount of cedar and mesquite.

Service Response: We took this comment into consideration in this final rule (see discussion in the ''Summary of Factors Affecting the Species'' section) and have modified the discussion of this topic. The proposed rule did not state that land use practices, such as grazing, were known to be a major threat to the Devils River minnow. Instead we cited Brune's (1981) statement that some land use practices, such as overgrazing, that result in the loss of native rangeland grasses on the watershed, could lead to increased runoff and decreased groundwater recharge.

We do not have specific evidence that land use practices are a significant reason for the current decline in the species' distribution and abundance. However, Brune (1981) stated that if upland areas are poorly managed, one long-term effect is an increased rate of rainfall runoff and decreased rates of recharge to the groundwater.

Comment 9: One commenter stated that there have never been any Devils River minnows collected from Beaver Lake or anywhere upstream of Pecan Springs.

Service Response: In September 1973, and March 1974, H. Harrell collected Devils River minnow in Beaver Lake. Voucher specimens are deposited in the Strecker Museum, Baylor University. The 1973 sample contains 14 specimens and the 1974 sample contains 13 specimens of Devils River minnow.

Comment 10: The actual abundance of Devils River minnow is higher than reported in the proposed rule. The recent collections of Devils River minnow from Phillips Creek and Dolan Creek show they are plentiful.

Service Response: The new information on the presence of the Devils River minnow in Phillips and Dolan creeks is included in this final rule. The number of fish in Phillips Creek taken in May 1998, indicated a good population at this site at the time the collections were made. The collections at Dolan Creek are important because the only other collection of the species from this site was one specimen in 1989 (Garrett *et al.* 1992). The two locations in the Devils River drainage are less than 20 river-km (13 river-mi) apart and are not sufficient to alleviate the concern for the status of the species in the Devils River or other portions of its range. The most recent information can only confirm three locations of the species throughout its historical range in the U.S. (these two in the Devils River and one at Del Rio in San Felipe Creek). Although population numbers are important, the determination to list a species is based on the five factors outlined in section 4 of the Act and summarized in this final rule under the ''Summary of Factors Affecting the Species'' section.

Comment 11: Devils River minnows are rare in the Devils River because of the introduction of smallmouth bass by TPWD.

Service Response: We agree that predation by smallmouth bass could be a significant factor in the decline of Devils River minnow in the Devils River. Identification of the significance of this threat is one of the actions included in the Conservation Agreement (Conservation Action #8).

Comment 12: It is illogical to expect the Devils River minnow population in the Devils River to be reestablished to 1950-levels under today's vastly changed circumstances, such as Amistad Dam.

Service Response: Destruction of the species' habitat, such as what resulted from Amistad Dam, is one of the five factors we are required to consider (See the ''Summary of Factors Affecting the Species'' section below) when deciding if a species is threatened or endangered. However, when planning recovery, we do not expect to restore populations of Devils River minnow to historical locations because some habitat changes are not reversible. We do believe the Devils River minnow can be protected from extinction through conservation of the remaining ecosystems upon which the species depends. The past habitat destruction only serves to heighten the need for protection and enhancement of suitable habitats remaining for the Devils River minnow.

Comment 13: The Natural Resources Conservation Service (NRCS) requested we remove their agency from the list of Federal agencies that may have actions that require consultation under section 7 of the Act. The NRCS indicated that none of their programs adversely affected the minnow, but served to benefit the minnow by improving habitat.

Service Response: We support the NRCS in assisting landowners with ranching practices that may benefit Devils River minnow habitat. However, we left the NRCS as a potential agency for consultations because the Act mandates that any Federal action that may affect a listed species, even if that effect is beneficial, requires consultation with us under section 7 of the Act. We included language in this final rule (see Available Conservation Measures, below) to explain the requirements of Federal agencies under section 7(a)(1) of the Act.

Comment 14: The proposed rule does not indicate the Devils River minnow is bred or hunted for commercial purposes, or that it moves in interstate commerce. Therefore, the Service lacks authority under the Act pursuant to the Commerce Clause of Article 1, section 8 of the United States Constitution to regulate the Devils River minnow.

Service Response: A recent decision in the United States Court of Appeals for the District of Columbia Circuit *(National Association of Homebuilders* v. *Babbitt,* 130 F. 3d 1041, D.C. Cir. 1997) makes it clear in its application of the test used in the United States Supreme Court case, *United States* v. *Lopez,* 514 U.S. 549 (1995), that regulation of species limited to one State under the Act is within Congress' commerce clause power. On June 22, 1998, the Supreme Court declined to accept an appeal of this case (118 S. Ct. 2340 1998). Therefore, our application of the Act to Devils River minnow, a fish endemic to only two counties in the State of Texas, is constitutional. We

have authority under the Act to list the Devils River minnow as threatened and direct its conservation and eventual recovery.

In addition to the reasons supporting the constitutionality of the Act itself that were discussed in *National Association of Homebuilders* v. *Babbitt,* the past, current, and potentially future use of Devils River minnow habitat for agriculture and livestock production, residential development and roads and highways are activities that affect interstate commerce. The specimens of this species in museums around the country directly traveled via the channels of interstate commerce, as well as the scientists and others who have traveled interstate to study or observe the species. Finally, international commerce between the U.S. and Mexico, where the species also occurs, may impact Devils River minnow habitat and is also under the authority of Federal regulation.

Comment 15: The Service is intentionally making untrue, nonscientific statements to serve a political agenda to list the Devils River minnow.

Service Response: In both the proposed rule and this final rule we conducted an objective evaluation of the scientific evidence available to reach a decision on whether the Devils River minnow warrants listing under the Act. Where additional information was submitted to us, we have considered that new information as well. The information upon which this decision is based has been peer reviewed by independent experts outside the Service, as required by our 1994 Peer Review Policy (see discussion below).

Peer Review

Service policy (59 FR 34270; July 1, 1994) requires that we solicit review of listing actions from a minimum of three independent experts. We sent copies of the proposed rule, supporting primary literature, and other information to five independent specialists who have extensive knowledge in the biology and ecology of Devils River minnow or other native fishes. Four of these specialists are currently employed at universities conducting research on fishes and one reviewer is a retired fishery biologist from a state agency, currently serving as Executive Secretary of a scientific society specializing in native fishes of the southwestern U.S. Four peer reviewers responded to our request.

All four reviewers indicated the proposal was consistent with the information available in the scientific literature. Three of the reviewers indicated that the proposal to list the Devils River minnow was clearly supported by the scientific literature, emphasizing that the factors cited in the proposal were real threats to the continued existence of the species. One reviewer pointed out the lack of intensive surveys to determine the exact status of the species as a weakness in the available information. However, we believe that sufficient surveys have been conducted to demonstrate a significant range reduction for the Devils River minnow.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, we determine that the Devils River minnow should be classified as a threatened species. Procedures found at section 4(a)(1) of the Act (16 U.S.C. 1531 *et seq.*) and regulations implementing the listing provisions of the Act (50 CFR part 424) 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). These factors and their application to the Devils River minnow (*Dionda diaboli*) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Devils River

The Devils River is the largest segment of the historical documented range of the Devils River minnow. The Devils River from Beaver Lake to its confluence with the Rio Grande is about 127 river-km (79 river-mi) long. At least one-quarter of the total length of the Devils River, from Big Satan Canyon to the Rio Grande, has been permanently lost as potential habitat due to inundation behind Amistad Dam.

One of the most significant losses of Devils River minnow habitat occurred in the lower portion of the Devils River with the impoundment of Amistad Reservoir in 1968. The river downstream of Big Satan Canyon is often inundated by Amistad Reservoir and the river can be affected farther upstream when the reservoir level is high. Backwaters from Amistad Dam have inundated the natural stream habitats, transforming the area from a river to a lake environment. The area is no longer suitable for most native fishes, including Devils River minnow.

Before construction of Amistad Dam, two smaller dams (Devils Lake and Wall Lake) were built in about the 1920's in the lower portion of the stream. However, Devils River minnows were collected in 1953 and 1954 in the spring run habitat that remained. Amistad Reservoir, however, inundated these springs, eliminating the natural environment and suitable habitat for native fish. Also, the construction of the dam created a physical barrier to fish movement that permanently separated the Devils River population of the species from others, such as the population in San Felipe Creek.

Habitat for the species may be affected by inconsistent spring flows in the upstream portion of the Devils River, especially between Pecan Springs and Beaver Lake (about 26 km, 16 mi). The only discharge records in this portion of the river are from a gage near Juno, located downstream of Pecan Springs (International Boundary and Water Commission, unpublished data, *in litt.*, 1997) that was discontinued in 1973 and has no records from 1949 to 1963. The available data from this gage show an average base flow (based on the monthly median discharge) in the range of about 1,982 to 2,832 liters per second (lps) (70 to 100 cubic feet per second (cfs)) from 1925 to 1949 and a range of about 991 to 1982 lps (35 to 70 cfs) from 1963 to 1973.

We based our assessment of the uppermost portion of the river on published observational data. One of the earliest descriptions of the Devils River is from Taylor (1904) who stated the river ''rises'' at Pecan Springs. It is unclear from this account whether there was any flow upstream of this spring system. However, Brune (1975 and 1981) clearly states that the river once flowed from Beaver Lake, as did other springs downstream from Beaver Lake such as Juno, Headwater, Stein, and San Pedro springs, but has dried in recent times. Brune (1975 and 1981) supports this by—(1) referencing an observation from 1916 that described the Beaver Lake area as a beautiful stream; (2) providing flow data from Beaver Lake in 1925 at 45 lps (1.59 cfs) and in 1939 at 0.38 lps (0.01 cfs); and, (3) recording no surface flow from these springs in 1971 and 1976.

Harrell (1978) collected Devils River minnow from the Beaver Lake area in 1973 and 1974 (specimens in Strecker Museum, Baylor University). This indicates that there was sufficient surface flow in the area during those years to support populations of the fish. However, Harrell (1978) states that during the study period in 1974–75, Pecan Springs was the uppermost flowing surface water connected to the river. Harrell (1978) further states that the upper portion of the Devils River (Beaver Lake to Baker's Crossing) has intermittent flow characterized by

numerous rapids (citing Belisle and Josselet 1975).

The available information indicates that the flow of the Devils River upstream of Pecan Springs is intermittent and is connected to downstream surface flows only during wetter climatic conditions. The Devils River minnow has been documented in these areas in the past and, therefore, this reach is considered potential habitat for the species. This habitat is likely also naturally intermittent and may not have been continuously occupied by the fish during recent time.

Observations in 1954 and 1955 suggested a significant increase in irrigation farming from groundwater wells in the area of Juno and the headwaters of the Devils River (Dietz 1955). The result reported by Dietz (1955) was the lowering of the groundwater to a level causing the Devils River to cease flowing for a number of miles below Baker's Crossing. The upper portion of the Devils River is likely the most susceptible to declines in groundwater levels.

Brune (1981) states that agricultural land use practices (specifically the decline of grasses from livestock grazing) both within and north of the watershed of the Devils River may affect aquifer levels and account for a lack of permanent flows from the northern-most springs. Brune (1981) explains that the natural layer of organic mulch that formerly functioned as a topsoil capable of absorbing rainfall has been lost and replaced with barer soils that enhance runoff and limit recharge.

Another cumulative factor may be the expansion of Ashe juniper (*Juniperus ashei*) and Redberry juniper (*Juniperus pinchotti*), both commonly referred to as cedar. These two species have become abundant on the rangeland watersheds of the Devils River due to a number of natural and human factors (Smiens *et al.* 1997). The overabundance of juniper has been cited as a factor that could affect rangeland hydrology (Thurow and Hester 1997). However, definitive data are not available to show that removal of juniper will produce increased groundwater levels in Texas. Studies of juniper removal in other states have not resulted in significant yields to groundwater or stream flows (Thurow and Hester 1997).

Any decline of permanent discharge from springs is a significant threat to Devils River minnow in the Devils River. This threat can be the result of drought and/or human activities that withdraw groundwater or significantly reduce recharge. The downstream portion of the Devils River below Baker's Crossing continues to flow naturally and has been referred to as one of the most pristine rivers in Texas. Because of groundwater reservoirs that support the remaining spring systems, the river maintains a substantial perennial flow in the range of 200 to 400 cfs at the inflow to Amistad Reservoir (unpublished data, International Boundary and Water Commission, *in litt.* 1997).

When spring flows become seasonally intermittent, fish populations are unable to use the stream to fulfill their life history requirements. Declines in base flow of streams also affect fish populations by reducing the total available habitat and thereby intensifying competitive and predatory interactions. For Devils River minnow, decreased stream flows could lead to a population decline due to exclusion from preferred habitats and increased mortality from predation.

The eighth action listed in the Conservation Strategy of the Agreement requires the analysis of past changes in flows throughout the range of the Devils River minnow. These studies will determine the potential effects of flows on habitat for Devils River minnow.

Using relative abundance as an indicator, the Devils River minnow has decreased in abundance in the Devils River over time. The Devils River minnow was the fifth most abundant species of 18 species collected in 1953 at Baker's Crossing (Brown 1955); the sixth most abundant of 23 species in the river in 1974 (Harrell 1978); and one of the least abundant of 16 species in 1989 (Garrett *et al.* 1992). Recent information from Cantu and Winemiller (1997) indicates that the species was still present in the Devils River at the confluence with Dolan Falls in 1994, but only in low numbers (thirteenth most abundant of 27 species). The four collections by Cantu and Winemiller (1997) were extensive surveys over 1 year at the one site near Dolan Falls. Even with this increased effort, only 28 individuals of Devils River minnow, out of 4,470 total fish, were documented. No voucher specimens were maintained to verify these collections.

The decline in abundance within the Devils River can best be documented from collections at the site at Baker's Crossing. Over 60 individuals were collected there in 1953, only one was collected in 1989, and none were collected in 1997.

No Devils River minnow were collected in November 1997, by the TPWD from several locations on the Devils River from Pecan Springs downstream to Finegan Springs, just above Dolan Falls (Gary Garrett, TPWD, *in litt.* 1997). New information received after the proposed rule from additional surveys in 1998 found populations of Devils River minnow in Phillips Creek and Dolan Creek (Gary Graham, TPWD, *in litt.* 1998). Phillips Creek is a very small intermittent tributary to the Devils River that enters from the east, south of Baker's Crossing. No previous collections are recorded from Phillips Creek. Sampling in May 1998, resulted in the collection of about 142 individuals, or about 10 percent of the fishes collected, and was fourth most abundant of the eleven species collected. Despite numerous collection efforts in Dolan Creek, only one individual had previously been collected in this tributary to the Devils River. Sampling in May 1998, resulted in the collection of about 12 individuals.

The Conservation Agreement and subsequent commitments were designed to monitor and improve populations of Devils River minnow in the Devils River. By September 2000, we will establish more (than the two currently known) locations of Devils River minnow in the Devils River with population sizes at least equal to historical levels (such as that found by H.L. Harrell in the 1970's). Threats will be assessed and potential limiting factors in this system addressed, particularly the effects of smallmouth bass and changes in stream flows.

San Felipe Creek

San Felipe Creek constitutes the second largest segment of remaining habitat for Devils River minnow in Texas. Brune (1981) lists San Felipe Springs (including ten separate spring sources) as one of the four largest springs in Texas. Devils River minnow previously occurred in two areas on this stream. The upper area is associated with a series of springs, Head and Lowe springs, several miles upstream of the City of Del Rio, and the lower area is associated with two large springs in Del Rio.

In 1979, Devils River minnow made up about 2 percent of all collections (total of 3,458 fish), and was the seventh most abundant of 16 species in the upper portion of San Felipe Creek. In 1989, no Devils River minnow were collected from this site (Garrett *et al.* 1992). No known collections have been made in this area since 1989. This area of San Felipe Creek (upstream of Del Rio) is privately owned and no information is available to discern why the populations of Devils River minnow in this area have significantly declined. Garrett *et al.* (1992) stated that reduced flow from these springs may have contributed to the reduction in

abundance of Devils River minnow. Any further declines in spring flows due to increased withdrawals could negatively affect the Devils River minnow population in this location.

At San Felipe Springs in the City of Del Rio the fish was very rare (less than 1 percent of 1,651 fish collected, and the tenth most abundant of 12 species collected) in 1989 (Garrett *et al.* 1992). Data from 1997 suggest that the Devils River minnow is common in the San Felipe Springs and the urban section of the creek (about 50 individuals were collected for captive study) (Gary Garrett, TPWD, *in litt.* 1997).

The San Felipe Springs are located within the City of Del Rio and may be threatened with future habitat changes from continued urban development. Brune (1981) shows data supporting that the springs have increased their flow since the filling of Amistad Reservoir. The Reservoir is thought to increase flows from San Felipe Springs because the pool elevation of the reservoir is often higher than that of the spring outlet. This situation places hydrostatic pressure on San Felipe Springs through inundated spring openings within the reservoir (Brune 1981). According to Brune (1981), before the reservoir filled, the springs flowed about 2000 lps (about 70 cfs). Since the reservoir filled, flows at the springs have averaged 135 to 150 cfs (unpublished data from International Boundary and Water Commission, *in litt.* 1997). Both of these flow averages are after withdrawals of water by the City of Del Rio for municipal use.

The City of Del Rio draws water directly from San Felipe Springs, which are the sole source of the City's municipal water supply as well as for Laughlin Air Force Base. During 1995 and 1996 the average water use by the City varied seasonally from about 8 to 19 million gallons per day (about 12 to 29 cfs). The expected population growth of Del Rio is projected to be low, 0.5 to 1 percent annually (B. Eby, City of Del Rio, pers. comm., 1997). The City is currently planning to upgrade their water treatment facility and provide a maximum of 20 million gallons per day (about 31 cfs) for municipal use (U.S. Environmental Protection Agency, Finding of No Significant Impact, *in litt.* 1998; O.J. Valdez, Malcom Pirnie, Inc., pers. comm., 1999). This new treatment plant and associated facilities will provide some water conservation because the existing system of water distribution and storage leaks significantly. With additional water conservation measures in place to reduce per capita water use, the City could decrease its water consumption from San Felipe Creek in the future.

Water quality and contamination are inherent threats to the population in San Felipe Creek because of the urban setting. Recent studies by the Texas Natural Resource Conservation Commission (TNRCC; 1994) found elevated levels of nitrates, phosphates and orthophosphate in San Felipe Creek, indicating potential water quality problems. Land uses in the immediate area of the springs, such as runoff from the municipal golf course, may be contributing to these conditions. Other threats from catastrophic events such as contaminant spills could adversely affect the species.

The stream channel of San Felipe Creek in Del Rio has been modified to a limited extent for bank stabilization and public access. In some areas these actions may have limited the available habitat for Devils River minnow.

Based on the current abundance of the Devils River minnow in San Felipe Creek, it appears that existing practices that could impact the aquatic habitat are not yet serious enough to significantly reduce the local population. Aquatic habitat conservation measures (such as water use conservation and water quality protection) in this section of San Felipe Creek could help ensure survival of the species there.

In August 1998, San Felipe Creek experienced a very large flood, with flows estimated at over 100,000 cfs. This was the largest estimated peak flow on record (previous high was about 69,500 cfs). Although the Devils River minnow is adapted to withstand floods (Harrell 1978), the effects of this event are unknown as no collections have been made since the flood.

As part of the Conservation Agreement, by September 2000, we agreed to improve the status of the Devils River minnow in San Felipe Creek by maintaining stable populations at Del Rio and restoring Devils River minnow in the headwater springs area at levels at least equal to historical population sizes. In addition, a finalized policy by the City of Del Rio for preservation of the San Felipe Creek watershed, development of a San Felipe Creek floodplain restoration plan (as response to the flood of August 1998), completion of a water conservation plan, and completion of a management plan for the golf course will reduce threats to the species.

Other actions that may aid in conserving the Devils River minnow include reducing per capita water consumption, seeking alternative sources of water, preserving water quality, educating the public on the importance of the creek, and limiting population density adjacent to the creek. In addition, the City has agreed to consider the needs of the Devils River minnow and its habitat in the reconstruction of those portions of the creek that were damaged in the August 1998 flooding. These actions together will provide an opportunity to protect the existing populations and expand the available habitat for Devils River minnow in San Felipe Creek.

Sycamore Creek

Sycamore Creek constitutes a relatively small portion of the range of the species. There is only one published account of Devils River minnow in this stream from one site, at the State Highway 277 crossing near the Rio Grande River (Garrett *et al.* 1992). Harrell (1980) references the species' occurrence there from an unpublished collection in the early 1970's (H. Harrell, pers. comm. 1997). Garrett *et al.* (1992) found only one individual of Devils River minnow at this location.

Sycamore Creek is an ungaged stream, and there is little information available on habitat conditions. However, the Devils River minnow in this stream is evidently very rare and faces increased risk of extirpation because of the apparent small population size. Devils River minnow in Sycamore Creek likely face potential threats from drought and habitat modification (Garrett *et al.*, 1992). The Conservation Agreement is intended to restore Devils River minnow to Sycamore Creek and/or Las Moras Creek by September 2000. This effort will necessitate further assessment of limiting factors, threat abatement, and landowner cooperation.

Las Moras Creek

Las Moras Creek represents the eastern extent of the range of the species. Although the populations there may have been restricted to the spring area in Brackettville, the number of fish in historical collections was relatively large (54 individuals were collected in 1953) (Hubbs and Brown 1956). The natural spring system in Brackettville that supports Las Moras Creek is the location of the earliest collection of Devils River minnow. The species has not been collected from these springs since the 1950's and is believed to be extirpated from that stream, based on several sampling efforts in the late 1970's and 1980's (Smith and Miller 1986; Hubbs *et al.* 1991; Garrett *et al.* 1992).

Habitat for the Devils River minnow was lost when the spring was altered by damming the outflow and removing streambank vegetation to create a recreational swimming pool. Garrett *et al.* (1992) reported that the creek

smelled of chlorine, indicating that the swimming pool may be maintained with chlorination (a toxin to fish). Garrett *et al.* (1992) also indicate that spring flow has been drastically reduced by drought and diversion of water for human consumption. The springs apparently ceased flowing in the 1960's and again in the 1980's (Garrett *et al.* 1992). This combination of habitat loss and alteration and the resulting water quality problems appears to be the most likely cause for the apparent extirpation of the species from Las Moras Creek. The Conservation Agreement is intended to restore Devils River minnow to Las Moras Creek and/or Sycamore Creek by September 2000. This effort will necessitate further assessment of limiting factors, threat abatement, and landowner cooperation.

Mexico

The only known historical locations of the Devils River minnow in Mexico are in the Rio San Carlos and three upper streams of the Rio Salado drainage. The Rio San Carlos is a small tributary of the Rio Grande located 27 km (17 mi) south of Ciudad Acuna. Only a few individuals have been collected from this location, once in 1968 (University of Michigan Museum specimens, unpublished data, 1997) and again in 1974. The species has not been collected from this site since 1974 and its status there is unknown (S. Contreras-Balderas, University of Nuevo Leon, *in litt.* 1997).

The population of Devils River minnow in the Rio Salado drainage of northern Mexico represents a critical portion of the southern-most extent of the range. The Rio Salado is a tributary of the Rio Grande and is geographically distinct from the tributaries where the fish occurs in Texas. Collections of the species are limited to the Rio Sabinas, Rio San Juan, and Rio Alamo from about 8 km (5 mi) northwest of Muzquiz to about 12 km (7 mi) west of Nueva Rosita (S. Contreras-Balderas, University of Nuevo Leon, *in litt.* 1997). Therefore, the known range of the species in the Rio Salado is about 30 km (20 mi). The most recent collections of Devils River minnow (31 individuals) from this area were in 1994 (S. Contreras-Balderas, University of Nuevo Leon, *in litt.* 1997).

The Conservation Agreement includes the survey of Mexican streams that could potentially contain populations of Devils River minnow by September 2000. The likely condition of aquatic habitats in the Rio Salado Drainage in Mexico is extremely poor. Contreras and Lozano (1994) report that aquatic ecosystems in this region of Mexico face significant threats due to groundwater and surface water withdrawals, as well as air and water pollution. Watersheds in northern Mexico have been heavily impacted by land uses and industrial development (S. Contreras-Balderas, University of Nuevo Leon, *in litt.* 1997). The Rio Sabinas, in particular, has been noted for decreasing flows; and spring systems within Coahuila have been extensively exploited (Contreras and Lozano 1994). Contreras-Balderas (1987) considered the Devils River minnow in danger of extinction, and the species is currently listed by the Mexican government as endangered.

Range-Wide

Habitat loss and modification throughout a significant portion of the range of the Devils River minnow has resulted in both the fragmentation and contraction of the range of the species. The previous occurrences of known localities of Devils River minnow in Texas can be grouped into nine geographic areas, primarily associated with spring systems—five areas in the Devils River (lower Devils River, Dolan Falls, Baker's Crossing, Pecan Springs, Juno to Beaver Lake); two areas in San Felipe Creek (headwater springs and Del Rio); one area in Sycamore Creek; and one area in Las Moras Creek.

Of these nine areas, the best available information confirms the existence of Devils River minnow in only Phillips Creek downstream from Baker's Crossing, Dolan Creek (about 20 km away from Phillips Creek), and San Felipe Creek in Del Rio. The known existence of only three localities, with one in an urban setting, makes the status of the species in the U.S. tenuous. However, actions in the Conservation Agreement implemented to date, plus future actions to be implemented according to an agreed-upon schedule, leads us to determine that threatened status is appropriate. Although detailed information is limited regarding the status of the species in Mexico, its legal status and degradation of aquatic habitats indicate it is endangered with extinction in that country.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization is not considered a significant threat to the Devils River minnow. However, there is a potential for impacts should this species be harvested as a baitfish (either commercially or non-commercially).

C. Disease or Predation

The Devils River minnow may be affected by the presence of introduced fishes within its range. Of special concern is the threat of predation by smallmouth bass, a game fish introduced to Amistad Reservoir in about 1975. The smallmouth bass is native to eastern North America but has been widely introduced as a sport fish to reservoirs and streams outside its natural range. It is believed smallmouth bass gained access to the upper portions of the Devils River (upstream of Dolan Falls) in the early to mid-1980's (Gary Garrett, TPWD, pers. comm. 1997). This species is now the dominant predator in the fish community of the Devils River. The TPWD is currently managing the Devils River as a trophy smallmouth bass fishery with size and catch limits.

The Devils River minnow evolved in the presence of native fishes that consume other fishes, such as channel catfish (*Ictalurus punctatus*) and largemouth bass (*Micropterus salmoides*). The Devils River minnow has adapted to persist with these species. However, smallmouth bass are not native, are aggressive predators, and are known to impact other native fish communities (Taylor *et al.* 1984, Moyle 1994). The Devils River minnow is within the size class of small fishes that are susceptible to predation by smallmouth bass. The scarcity of Devils River minnow in the Devils River (where smallmouth bass are prominent) and the abundance of Devils River minnow in San Felipe Creek (where smallmouth bass are not known to occur) provides circumstantial evidence of the likely impacts of this introduced predator. In addition, the small creeks where the Devils River minnow were recently found (Phillips and Dolan creeks) are also not known to contain smallmouth bass. The establishment of smallmouth bass in San Felipe, Phillips, or Dolan creeks is another potential threat to Devils River minnow in those locations.

The tenth action in the Conservation Strategy includes a determination of the interactions between smallmouth bass and Devils River minnow. If results indicate that smallmouth bass are likely having negative effects on Devils River minnow populations, actions such as localized smallmouth bass removal efforts in conjunction with reintroductions of Devils River minnow will be considered. Long-term management of smallmouth bass in the Devils River will be addressed through regulations on catch and size limits to reduce abundance and modify population structures.

D. The Inadequacy of Existing Regulatory Mechanisms

The Devils River minnow is listed as a threatened species by the State of

Texas. This provides some protection from collecting, as a permit is required to collect listed species in Texas. However, there are no State or local regulations to protect habitat for the conservation of the species. In addition, no regulations exist to prevent unintentional releases of exotic species by the baitfish industry and anglers.

Limited State regulations administered by the TNRCC serve to protect in-stream flows for surface water rights and water quality for wildlife and human uses. However, these regulations were not designed to conserve habitat for native fishes and currently no minimum in-stream flows are required on streams where Devils River minnow occur.

Surface water rights along the Rio Grande in Texas and its U.S. tributaries are administered by the State of Texas. Groundwater withdrawals that could be affecting stream flows within the range of the Devils River minnow are unregulated. Texas courts have held that, with few exceptions, landowners have the right to take all the water that can be captured under their land (rule of capture). Therefore, there is little opportunity to protect groundwater reserves within existing regulations.

State Water Quality Standards, though primarily concerned with protecting human health, may provide some protection to the Devils River minnow and its habitat. However, the sensitivity of Devils River minnow to any contaminants or water quality changes is unknown and could require more stringent standards than used for human health. The classification of the Devils River and San Felipe Creek under the Texas Surface Water Quality Standards requires maintenance of existing water quality. Sycamore and Las Moras creeks are not classified under these standards.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Habitat loss throughout the range of the Devils River minnow has reduced the number of known locations to as few as three. The Devils River minnow is currently known to be common in only two locations, Phillips Creek and San Felipe Creek in Del Rio. However, actions identified in the Conservation Agreement that have been implemented to date have reduced the threat of extinction of the Devils River minnow.

If Devils River minnow still occurs in other locations (such as Sycamore Creek, headwaters of San Felipe Creek, and the Devils River), the number of fish may be too small to constitute viable populations (Caughley and Gunn 1996). Small populations can lead to genetic erosion through inbreeding and are vulnerable to loss from random natural events, including population fluctuations (Meffe 1986). The Conservation Agreement is intended to improve population levels and distribution of Devils River minnow throughout its range to reduce these threats.

The construction of Amistad Dam has separated the two primary populations of Devils River minnow in Texas (Devils River and San Felipe Creek). This population fragmentation could have significant conservation implications (Gilpin 1987). Determining and monitoring the genetic structure of the different Devils River minnow populations will be needed to ensure the necessary genetic variation within and among populations is not lost (Meffe 1986; Minckley *et al.* 1991).

Recent collections in 1997 from San Felipe Creek revealed for the first time the presence of armored catfish (*Hypostomus* sp.) (Gary Garrett, TPWD, *in litt.* 1997). This fish is an exotic species that has established a breeding population in the San Antonio River, Texas, and was cited as potentially competing with other *Dionda* species due to its food habitats (Hubbs *et al.* 1978). Although *Dionda* species are common in spring runs in Central Texas, they are now absent from these habitats in the San Antonio River, implying the potential displacement by the armored catfish (R.J. Edwards, University of Texas-Pan American, *in litt.* 1998). This could be a threat to Devils River minnow populations in San Felipe Creek.

The future release (intentional or unintentional) of other fishes into areas inhabited by Devils River minnow is another potential threat. Live bait fish are commonly discarded into nearby waters by anglers, resulting in introductions of non-native species. This situation has occurred in many streams in the southwestern U.S. with considerable impacts to the native fish community (Moyle 1994). In addition, exotic fishes from aquariums could be introduced into local waters. Currently, only a small number of introduced fishes occur within the range of the Devils River minnow, but the potential for unintentional introductions is high because of the number of anglers on the Devils River and the urban setting of San Felipe Creek. Threats to the populations of Devils River minnow from possible introduction and establishment of non-native fishes include diseases, parasites, competition for food and space, predation, and hybridization. The Conservation Agreement has provisions for assessment and monitoring of exotic fishes throughout the range of the Devils River minnow.

The overall decline in abundance of Devils River minnow could be the result of several cumulative factors. For example, subtle changes in stream flows could produce small shifts in habitat use that make the species more vulnerable to competition and predation by native predators and non-native smallmouth bass. In addition, long-term drought could have an effect on the habitat of the species, particularly when combined with impacts of human water use. This species has adapted to historical natural climatic variations (such as large floods and prolonged droughts). However, in conjunction with other threats to the species (primarily existing habitat loss and exotic predators), a drought could significantly increase the threat of extinction. The use of water supplies for human needs (municipal or agricultural) serves to worsen the effects of drought on the natural environment.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this final rule. Therefore, based on this evaluation, the most appropriate action is to list the Devils River minnow as threatened. The species currently inhabits a very limited range and the best scientific information available indicates a significant decline in range and abundance of the species.

Some new information was received since the proposal that suggested habitat loss in the upper reaches of the Devils River may be less severe than originally thought. This is because we originally characterized the habitat as historically a continuous flowing stream, when this upper reach may always have been intermittent; therefore, the habitat may have never been more than marginal. In addition, the discovery of two additional localities of Devils River minnow in tributaries to the Devils River provided information that populations are extant in the Devils River drainage. New information was also provided showing the presence of an additional exotic species in San Felipe Creek that presents a threat not mentioned in the proposed rule.

The Conservation Agreement involving us, the TPWD, and the City of Del Rio provides commitments to work toward the recovery of the species through implementing the 10 actions described in the Conservation Strategy (see ''Background'' section of this rule). In addition, we have received confirmation from both TPWD and the City of Del Rio of their commitment to implement certain key actions of the

Agreement within the first two years of its signing. However, we can still only confirm three localities where the species remains in the U.S.; habitat loss has been considerable in the Devils River due to Amistad Dam and in Las Moras Creek; and the Conservation Agreement has not yet been fully implemented.

An endangered species is defined under the Act as one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. We have carefully examined the best scientific and commercial information available, and determine that threatened status is appropriate for the Devils River minnow.

Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) The specific areas within the geographical 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 geographical 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 in section 3(3) of the Act means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)) state that designation of critical habitat is not prudent when one or both of the following situations exist—(1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. We find that the designation of critical habitat for the Devils River minnow is not prudent due to lack of benefit.

The section 7 prohibitions against adverse modification of critical habitat apply to Federal actions only (see the ''Available Conservation Measures'' section of this rule). The watersheds in the U.S. in which the Devils River minnow occurs are almost entirely in private ownership, and no significant Federal actions affecting the species' habitat are likely to occur in the area. Therefore, the designation of critical habitat would provide little, if any, benefit to the species through section 7 of the Act.

In addition, any Federal action that would cause adverse modification of critical habitat for the Devils River minnow likely would also cause jeopardy for areas where the species is known to occur. Under section 7, actions funded, authorized, and carried out by Federal agencies may not jeopardize the continued existence of a species or result in the destruction or adverse modification of critical habitat. To ''jeopardize the continued existence'' of a species is defined as an action that appreciably reduces the likelihood of its survival and recovery (50 CFR part 402). ''Destruction or adverse modification of critical habitat'' is defined as an appreciable reduction in the value of critical habitat for the survival and recovery of a species. Common to both definitions is an appreciable detrimental effect to both the survival and recovery of a listed species. In biological terms and in consultation practice, the jeopardy standard and the adverse modification standard are virtually identical for areas occupied by the species.

For any listed species, an analysis to determine jeopardy under section 7(a)(2) would consider impacts to the species resulting from impacts to habitat. Therefore, an analysis to determine jeopardy would include an analysis closely parallel to an analysis to determine adverse modification of critical habitat. A Federal action that would adversely modify the species' habitat would also jeopardize the species (and vice versa). Specifically for the Devils River minnow, any modification to suitable habitat within the species' range also will substantially affect the species. Actions that may affect the habitat of the Devils River minnow include, but are not limited to—(1) Reduction of water flows from springs or streams, (2) Degradation of water quality, (3) Alteration of shallow, fast-flowing stream areas downstream from the outflow of springs, and (4) Construction of structures that interfere with instream movement of fishes. Given the imperiled status and narrow range of the Devils River minnow, it is likely that any Federal action that would destroy or adversely modify the species' critical habitat would also jeopardize its continued existence.

Apart from section 7, the Act provides no additional protection to lands designated as critical habitat. Designating critical habitat does not create a park or preserve, and does not require or create a management plan for the areas where the species occurs; does not establish numerical population goals or prescribe specific management actions (inside or outside of critical habitat); and does not have a direct effect on areas not designated as critical habitat. A designation of critical habitat that includes private lands would only affect actions where a Federal nexus (such as Federal funding, authorization, or permit) is present and would not confer any substantial conservation benefit beyond that already provided through section 7 consultation.

Because the Devils River minnow is predominantly found in streams flowing through private lands, the cooperation of private landowners is imperative to conserve the Devils River minnow. Designation of critical habitat on private lands could result in a detriment to the species. The regulatory effect of critical habitat designation is often misunderstood by private landowners, particularly those whose property boundaries are included within a general description of critical habitat for a species. In the past, landowners have mistakenly believed that critical habitat designation would prevent development and impose restrictions on the use of their private property. In some cases, landowners have believed that critical habitat designation is an attempt by the government to confiscate their private property. This misconception was evident from public comments received in 1980 on the proposed designation of critical habitat for the Devils River minnow. Several citizens indicated they strongly believed that by designating critical habitat, the Federal government would have the right to trespass on private property, control private land management actions, and even take ownership of private land for the species. As a result of this misunderstanding, fear of critical habitat designation has sometimes reduced private landowner cooperation in efforts to conserve species listed in Texas. For example, fear resulting from talk of possible designation of critical habitat for the golden-cheeked warbler (*Dendroica chrysoparia*) reduced private landowner cooperation in the management of the species. In addition, in the past landowners have specifically denied access to study sites for Devils River minnow (Hubbs and Garrett 1990, Garrett et al. 1992) due to fears of regulation.

Critical habitat designation can sometimes serve to highlight areas that may be in need of special management considerations or protection. However, in the case of the Devils River minnow the TPWD and local landowners are already aware of the areas in need of special management considerations or protection. Because this species was previously proposed for listing in 1978, and critical habitat proposed in 1980 (due to amendements to the Act both proposals were withdrawn on September 30, 1980 (45 FR 64853)), the public has been aware of the distribution of the species and need for conservation for over 20 years. Prior to and following publication of the 1998 proposed rule to list the Devils River minnow (critical habitat was not prudent in the 1998 proposal (63 FR 14885)), we initiated an extensive public outreach effort to inform and educate the general public and interested parties within the range of the species. We sent out press releases to local newspapers, contacted elected officials, Federal, State, and county agencies, and interested parties, including private landowners. A public hearing was held in 1998, with over 40 people from the local public in attendance. The hearing included the sharing of information on areas important to the species. In addition, over the last two years, TPWD has participated in at least three meetings with affected private landowners (more than 30 individuals in attendance at each meeting) to inform them of the need for conservation of the species, as part of the development of the Conservation Agreement with the State and the City of Del Rio.

We have evaluated the potential notification and education benefit offered by critical habitat designation and find that, for the Devils River minnow, there would be no additional benefit over the outreach associated with the proposal, current outreach for this final rule and interagency coordination processes currently in place. Notification and education can be conducted more effectively by working directly with landowners and communities through the recovery implementation process and, where a Federal nexus exists, through section 7 consultation and coordination. Critical habitat designation for the Devils River minnow would provide no additional notification or education benefit.

In summary, we have determined that the designation of critical habitat for the Devils River minnow would not be beneficial to the species. For the Devils River minnow, the section 7 consultation process will produce a jeopardy analysis similar to an adverse modification analysis for critical habitat. We have already provided private landowners and State and Federal agencies with up-to-date information on important areas for the Devils River minnow and we plan to continue to do so. Finally, even if designation of critical habitat for the Devils River minnow would provide some small, incremental benefit to the species, that benefit is outweighed by the possible reduction in landowner cooperation that would facilitate the management and recovery of this species. Based on this analysis, we conclude that designation of critical habitat for the Devils River minnow is not prudent.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing these interagency cooperation provisions of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat, if any has been designated. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Although few Federal agency actions are anticipated, examples of those that may require consultation as described in the preceding paragraph include U.S. Army Corps of Engineers review and approval of activities such as the construction of roads, bridges, and dredging projects subject to section 404 of the Clean Water Act (33 U.S.C. 1344 *et seq.*) and section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401 *et seq.*) and U.S. Environmental Protection Agency authorization of discharges under the National Pollutant Discharge Elimination System. Other Federal agencies whose actions could require consultation include the Department of Defense, NRCS, the Federal Highways Administration, and the Department of Housing and Urban Development.

In addition, section 7(a)(1) of the Act requires all Federal agencies to review the programs they administer and use these programs in furtherance of the purposes of the Act. All Federal agencies, in consultation with the Service, are to carry out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of the Act.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. The prohibitions, codified at 50 CFR 17.31, in part, make it illegal for any person subject to the jurisdiction of the U.S. to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving threatened wildlife under certain circumstances. Regulations governing permits are described in 50 CFR 17.22, 17.23, and 17.32. Such permits are available for scientific purposes, for the enhancement or propagation or survival of the species, or for incidental take in connection with otherwise lawful activities. For threatened species, there are also permits for zoological exhibition, educational purposes, or special purposes consistent with the purposes of the Act. Information collections associated with these permits are approved under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and assigned Office of Management and Budget clearance number 1018–0094. For additional information concerning these permits and associated requirements, see 50 CFR 17.32.

It is our policy (59 FR 34272) to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed and ongoing activities within a species' range. We

believe that, based on the best available information, the following actions will not likely result in a violation of section 9:

(1) Normal livestock grazing and other standard ranching practices, such as improving rangeland native grass cover, that do not destroy or degrade Devils River minnow habitat;

(2) Riparian restoration activities that improve the ecological health of native riparian zones along streams and springs, as long as construction activities do not impair Devils River minnow habitat;

(3) Recreational activities such as swimming, canoeing, and fishing, as long as non-native fish or other exotic organisms are not used as bait and released to the stream, and the activities are conducted in such a way as to not damage habitat or negatively affect water quality; and

(4) Actions that may affect Devils River minnow and are authorized, funded or carried out by a Federal agency when the action is conducted in accordance with an incidental take statement issued by us pursuant to section 7 of the Act.

Activities we believe could potentially harm the Devils River minnow and result in ''take'' include, but are not limited to:

(1) Unauthorized collecting or handling of the species;

(2) Any activities that may result in destruction or significant alteration of habitat occupied by Devils River minnow including, but not limited to, the discharge of fill material, the diversion or alteration of spring and stream flows or withdrawal of groundwater to the point at which Devils River minnow are harmed, and the alteration of the physical channels within the spring runs and stream segments occupied by the species;

(3) Discharge or dumping of pollutants such as chemicals, silt, household or industrial waste, or other material into the springs or streams occupied by Devils River minnow or into areas that provide access to the aquifer and where such discharge or dumping could affect water quality in spring outflows;

(4) Herbicide, pesticide, or fertilizer application in or near the springs and/or stream segments containing the species;

(5) Introduction of certain non-native species (fish, plants, and other) into occupied habitat of the Devils River minnow or areas connected to these habitats; and

(6) Actions that may affect Devils River minnow and are authorized, funded or carried out by a Federal agency when the action is not conducted in accordance with an incidental take statement issued by us pursuant to section 7 of the Act.

In the descriptions of activities above, a violation of section 9 would occur if those activities occur to an extent that would result in ''take'' of Devils River minnow. Not all of the activities mentioned above will result in violation of section 9 of the Act; only those activities that result in ''take'' of Devils River minnow would be considered violations of section 9. We recognize that a wide variety of activities would not harm the species, even if undertaken in the vicinity of the species' habitat. Questions regarding whether specific activities would likely constitute a violation of section 9 should be directed to the Field Supervisor, Austin Ecological Services Field Office (see **ADDRESSES** section). Requests for copies of the regulations regarding listed wildlife and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Region 2, Division of Endangered Species, P.O. Box 1306, Albuquerque, New Mexico 87103–1306 (telephone 505–248–6920; facsimile 505–248–6788).

National Environmental Policy Act

We have determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining our reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 CFR 49244).

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Austin Ecological Services Field Office (see **ADDRESSES** section).

Author: The primary author of this final rule is Nathan Allan, Fish and Wildlife Service (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, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended 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 section 17.11(h) by adding the following, in alphabetical order under ''FISHES'' to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
FISHES							
*	*	*	*	*	*	*	
Minnow, Devils River	*Dionda diaboli*	U.S.A. (TX), Mexico	Entire	T	669	NA	NA
*	*	*	*	*	*	*	

Dated: September 30, 1999.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 99–27188 Filed 10–19–99; 8:45 am]

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