FINAL ENVIRONMENTAL ASSESSMENT

DESIGNATION OF CRITICAL HABITAT
FOR TOPEKA SHINER
(*Notropis topeka*)

Prepared by
U.S. Fish and Wildlife Service
Kansas Ecological Services Field Office
Manhattan, Kansas

June 2004

TABLE OF CONTENTS

1.0 PURPOSE FOR THE PROPOSED ACTION

The purpose of the proposed action is to designate critical habitat for the Topeka shiner (*Notropis topeka*) by utilizing provisions of the Endangered Species Act of 1973, as amended (Act). The purpose of the Act is to conserve the ecosystems upon which endangered and threatened species depend. Critical habitat designation identifies areas essential to the survival and recovery of the Topeka shiner, and describes physical and biological features within critical habitat that require special management considerations to achieve conservation of the species.

2.0 NEED FOR THE ACTION

The need for this action is to comply with section 4 of the Act, which requires that critical habitat be designated for endangered and threatened species unless such designation is not prudent. We, the Fish and Wildlife Service, published the final rule (63 FR 69008) on December 15, 1998, listing the species, range-wide (Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota), as endangered.

The final listing rule for the Topeka shiner indicated that designation of critical habitat was not prudent. A series of court decisions, concerning species other than Topeka shiner, have overturned several of our determinations that designation of critical habitat would not be prudent (for example, Natural Resources Defense Council v. U.S. Department of the Interior 113 F. 3d 1121 (9th Cir. 1997); Conservation Council for Hawaii v. Babbitt, 2 F. Supp. 2d 1280 (D. Hawaii 1998)). In an April 4, 2001, court settlement (concerning Topeka shiner) resulting from the suit Biodiversity Legal Foundation, et al. v. Ralph Morgenweck, et al., C00-D-1180, we agreed that designation of critical habitat is prudent, and subsequently agreed to propose designated critical habitat for the Topeka shiner by August 13, 2002, and to finalize designated critical habitat by August 13, 2003.

On August 21, 2002, we published a proposal to designate critical habitat for Topeka shiners in Iowa, Kansas, Minnesota, Nebraska, and South Dakota (67 FR 54262), and to exclude areas of habitat in Missouri by authority of section 3(5)(A) of the Act.

In a separate court ruling on January 13, 2003 (Center for Biological Diversity v. Norton, Civ. No. 01-409 TUC DCB, D. Ariz., Jan. 13, 2003), pertaining to designation of critical habitat for the Mexican spotted owl, a Federal District Court disagreed with our application of the definition of critical habitat as it pertains to section 3(5)(A) of the Act. The court's interpretation of the definition of critical habitat as it pertains to section 3(5)(A) of the Act requires us to reconsider our proposed exclusions for shiner habitat under the authority of section 4(b)2 of the Act.

In April 2003, we ceased work on the Topeka shiner final designation of critical habitat due to budgetary constraints. We have since submitted a motion to the court requesting an extension of the deadline for submission of the final rule to the Federal Register by

July 17, 2004.

When the range of a species includes States within the Tenth Circuit, pursuant to the Tenth Circuit ruling in Catron County Board of Commissioners v. U.S. Fish and Wildlife Service, 75 F .3d 1429 (10th Cir. 1996), we will complete a NEPA analysis on critical habitat designations. The range of the Topeka shiner includes the State of Kansas, which is within the Tenth Circuit.

Critical habitat is one of several provisions of the Act that aid in protecting the habitat of listed species until populations have recovered and threats have been minimized so that the species can be removed from the list of threatened and endangered species. Critical habitat designation is intended to assist in achieving long-term protection and recovery of Topeka shiner and the ecosystems upon which they depend. Section 7(a)(2) of the Act requires consultation for Federal actions that may affect critical habitat to avoid destruction or adverse modification of this habitat. Further explanation of critical habitat and its implementation is provided below.

2.1 Background

The Topeka shiner is a small, stout minnow, not exceeding 75 millimeters (3 inches) in total length. The head is short with a small, moderately oblique mouth. The eye diameter is equal to or slightly longer than the snout. The dorsal fin is large, with the height more than one half the predorsal length of the fish, originating over the leading edge of the pectoral fins. Dorsal and pelvic fins each contain eight rays. The anal and pectoral fins contain 7 and 13 rays respectively, and there are 32 to 37 lateral line scales. Dorsally the body is olive-green, with a distinct dark stripe preceding the dorsal fin. A dusky stripe is exhibited along the entire longitudinal length of the lateral line. The scales above this line are darkly outlined with pigment, appearing cross-hatched. Below the lateral line the body lacks pigment, appearing silvery-white. A distinct chevron-like spot exists at the base of the caudal fin (Cross 1967; Pflieger 1975; U.S. Fish and Wildlife Service 1993).

The Topeka shiner was first described by C. H. Gilbert in 1884, using specimens captured from Shunganunga Creek, Shawnee County, Kansas (Gilbert 1884), a tributary to the Kansas River. The Topeka shiner is 1 of 83 species within the genus *Notropis* (Robins et al. 1991), all in North America. The genus is further within the family *Cyprinidae*, or minnow family.

The Topeka shiner is characteristic of small to mid-size prairie streams with relatively high water quality and cool to moderate temperatures. Many of these streams exhibit perennial flow; however, some become intermittent during summer or periods of prolonged drought. At times when surface flows cease, pool levels and moderate water temperatures are maintained by percolation through the streambed or groundwater seepage. The predominant substrate types within these streams are gravel, cobble, and sand; however, bedrock and clay hardpan overlain by a layer of silt are not uncommon

(Minckley and Cross 1959).

Recently, in northern portions of the species' range, the Topeka shiner has been found to exist at some stream sites with degraded water quality and habitat quality, characterized by moderately high turbidity and thick deposits of fine sediments, respectively (Hatch, University of Minnesota, pers. comm. 2000; Berry, South Dakota State University, pers. comm. 2000). Available information is insufficient to determine whether the species utilizes these sites year-round, seasonally, or if individuals are moving through these areas in an attempt to disperse from core habitat areas.

In the late 1990s, the Topeka shiner was discovered to inhabit a number of off-channel sites in Minnesota and Iowa, primarily cut-off channels and oxbows that are seasonally flooded (Hatch, pers. comm. 1999; Menzel, Iowa State University, pers. comm. 1999). It is speculated that a common factor between these off-channel sites is a connection with the water table, enabling water quality, particularly temperature and dissolved oxygen concentrations, to stay within the tolerance levels of the species during hot, dry periods. It also is suggested that the ground water contact prevents total freeze-out of these pools during winter.

Topeka shiners most often occur in pool and run areas of streams, seldom being found in riffles. They are most often pelagic (living in open water) in nature, occurring in mid-water and surface areas, and are primarily considered a schooling fish. Occasionally individuals of this species have been found in larger streams, downstream of known populations, presumably as waifs (individual fish that move downstream or away from established populations and habitat) (Cross 1967; Pflieger 1975; Tabor, U.S. Fish and Wildlife Service, pers. comm. 2000).

Historically, the Topeka shiner was widespread and abundant throughout small to mid-size streams of the central prairie regions of the United States. The Topeka shiner's historic range includes portions of Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota. Stream basins within the range historically occupied by Topeka shiner include the Des Moines, Raccoon, Boone, Missouri, Big Sioux, Cedar, Shell Rock, Rock, and Iowa basins in Iowa; the Arkansas, Kansas, Big Blue, Saline, Solomon, Republican, Smoky Hill, Wakarusa, Cottonwood, Nemaha, and Blue basins in Kansas; the Des Moines, Cedar, Big Sioux, and Rock basins in Minnesota; the Missouri, Grand, Lamine, Chariton, Des Moines, Loutre, Middle, Hundred and Two, and Blue basins in Missouri; the Big Blue, Elkhorn, Missouri, and Loup basins in Nebraska; and the Big Sioux, Vermillion, and James basins in South Dakota.

The known geographic range (watersheds where the species was known to occur) of the Topeka shiner has been reduced by approximately 90 percent. The number of historically known collection sites (documented in the literature or by museum specimens) of Topeka shiner has been reduced by approximately 70 percent, with approximately 50 percent of this decline occurring within the last 40-50 years. The species now primarily exists in isolated population complexes (adjoining stream segments) and individual isolated

stream reaches.

Topeka shiners present range includes portions of the following counties and States--Calhoun, Carroll, Dallas, Greene, Hamilton, Lyon, Osceola, Sac, Webster, and Wright Counties, Iowa; Butler, Chase, Dickinson, Geary, Greenwood, Marion, Marshall, Morris, Pottawatomie, Riley, Shawnee, Wabaunsee, and Wallace Counties, Kansas; Lincoln, Murray, Nobles, Pipestone, and Rock Counties, Minnesota; Cooper, Daviess, Harrison, and Moniteau Counties, Missouri; Madison County, Nebraska; Aurora, Beadle, Brookings, Clay, Davison, Deuel, Hamlin, Hanson, Hutchinson, Lincoln, McCook, Miner, Minnehaha, Moody, Turner Counties, South Dakota.

The Topeka shiner is impacted by habitat destruction, degradation, modification, and fragmentation resulting from siltation, reduced water quality, tributary impoundment, stream channelization, in-stream gravel mining, and changes in stream hydrology. The species also can be impacted by introduced predaceous fishes. Additional information on the biology and status of the Topeka shiner can be found in the December 15, 1998, final listing determination (63 FR 69008).

In 1999, we formed the Topeka Shiner Recovery Team. At the time of the publication of the proposed designation of critical habitat, a technical draft recovery plan for the Topeka Shiner (Technical Draft) had been completed and was undergoing regional review (U.S. Fish and Wildlife Service 2002). The proposed critical habitat designation was partially based on recovery criteria identified in this technical draft, and on other scientific and commercial data available at the time the proposal was prepared. An "official" draft recovery plan will be finalized in the near future, dependent on budgetary and workload constraints, and a public comment period opened for review of the draft.

2.2 Endangered Species Act

2.2.1 Critical Habitat

Critical habitat is defined in section 3(5)(A) 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. The term "conservation" as defined in section 3(3) of the Act, means "to use and the use of all methods and procedures which are necessary to bring an endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary" (i.e., the species is recovered and removed from the list of endangered and threatened species).

Section 4(b)(2) of the Act requires that we base critical habitat designation on the best scientific and commercial data available, taking into consideration the economic impact,

and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation if we determine that the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in the extinction of the species. Within the geographic area occupied by the species, we will designate only areas currently known to be "essential to the conservation of the species." Critical habitat should already have the features and habitat characteristics that are necessary to sustain the species. We will not speculate about what areas might be found to be essential if better information were available, or what areas may become essential over time. If information available at the time of designation does not show an area provides essential support for a species at any phase of its life cycle, then the area should not be included in the critical habitat designation. Within the geographic area occupied by the species, we will not designate areas that do not now have the primary constituent elements, as defined at 50 CFR 424.12(b), that provide essential life cycle needs of the species.

Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize designation of critical habitat may not include all habitat eventually determined as necessary to recover the species. For these reasons, areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1) and the regulatory protections afforded by section 7(a)(2) jeopardy standard and the section 9 take prohibition, as determined on the basis of the best available information at the time of the action. We specifically anticipate that federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available to planning efforts calls for a different outcome.

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12 in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider physical and biological features (primary constituent elements) that are essential to the conservation of the species, and that may require special management considerations or protection. These include, but are not limited to--(1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing (or development) of offspring; and (5) habitats protected from disturbance or that are representative of the historic geographical and ecological distributions of a species.

2.2.2 Section 7 Consultation

Section 7(a)(2) of the Act requires every Federal agency, in consultation with and with the assistance of the Secretary, to insure that any action it authorizes, funds, or carries out

is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In fulfilling these requirements, each agency is to use the best scientific and commercial data available. This section of the Act sets out the consultation process, which is further implemented by regulation (50 CFR 402).

Each Federal agency is to review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If the action may affect a listed species or critical habitat, consultation with the Service is needed.

Informal consultation is an optional process that includes all discussions and correspondence between the Service and a Federal agency or designated non-Federal representative, designed to assist the Federal agency in determining whether formal consultation or a conference is required. If during consultation it is determined by the Federal agency, with the written concurrence of the Service, that the action is not likely to adversely affect listed species or critical habitat, the consultation process is terminated, and no further action is necessary. During informal consultation, the Service may suggest modifications to the action that the Federal agency and any applicant could implement to avoid the likelihood of adverse effects to listed species or critical habitat.

If the proposed action is likely to adversely affect a listed species or designated critical habitat, formal consultation with the Service is required. Formal consultation is a process between the Service and a Federal agency or applicant that--(1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion and incidental take statement by the Service.

With the request to initiate formal consultation, the Federal agency is to include--(1) a description of the proposed action, (2) a description of the area that may be affected, (3) a description of any listed species or critical habitat that may be affected, (4) a description of the manner in which the listed species or critical habitat may be affected and an analysis of cumulative effects, (5) relevant reports including any environmental impact statement, environmental assessment, or biological assessment, and (6) any other relevant and available information.

Formal consultation concludes 90 days after its initiation. Within 45 days after concluding formal consultation, the Service is to deliver a biological opinion to the Federal agency and any applicant. The biological opinion will include the Service's opinion on whether the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. If the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the biological opinion will include a reasonable and prudent alternative, if any exist. A reasonable and prudent alternative is a recommended alternative action that can be implemented consistent with the scope of

the Federal agency's legal authority and jurisdiction, that is economically and technologically feasible, and that would avoid the likelihood of jeopardizing the continued existence of the listed species or the destruction or adverse modification of designated critical habitat.

Additionally, in those cases where the Service concludes that an action (or the implementation of any reasonable and prudent alternatives) and the resultant incidental take of listed species will not violate section 7(a)(2), the Service will provide with the biological opinion a statement concerning incidental take that--(1) specifies the impact of the take on the species, (2) specifies the reasonable and prudent measures to minimize the impact, (3) sets forth terms and conditions that must be complied with by the Federal agency or any applicant to implement the reasonable and prudent measures, and (4) specifies procedures to handle any individuals actually taken. Reasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the actions and may involve only minor changes. Any taking covered in the incidental take statement and in compliance with the terms and conditions of the statement is not prohibited taking under the Act and no other authorization or permit under the Act is required.

2.2.3 Technical Assistance

Although it is not defined in the regulations, technical assistance includes those parts of the informal consultation that provide information to agencies, applicants, and/or consultants, but specifically stops short of concurrence on "may effect" determinations. The term is used to differentiate "informal" consultation (where a concurrence with an agency, applicant, or consultant on "may effect" is provided) and the provision of information. This differentiation is primarily made for record-keeping purposes.

A telephoned or written inquiry about the presence or absence of listed and/or proposed species in a project area usually initiates informal consultation and frequently generates technical assistance. Service biologists may respond in different ways:

1. If species are not likely to be present, the consultation requirement is met and the Service may advise the agency, applicant or consultant.

2. If historical records or habitat similarities suggest the species may be in the area, then some survey work may be recommended to make a more precise determination.

3. If the species is definitely in the project area, but the Service determines it will not be adversely affected, the Service may notify the agency of that finding.

Technical assistance from the Service may take a variety of forms. It can include information on candidate species as well as names of contacts having information on State listed species. The Service may provide correspondence to State agencies or other Service offices to alert them to a project.

As a part of technical assistance, the Service may recommend:

1. That the action agency conduct additional studies on the species' distribution in the area affect by the action, or

2. That the action agency monitor impacts of the action on aspects of the species' life cycle. Monitoring may be recommended when incidental take is not anticipated but might possibly occur, thus triggering the need for project changes or formal consultation.

2.2.4 Section 9 Prohibitions

Section 9 of the Act prohibits "take" of endangered species of fish and wildlife. The Service has issued regulations (50 CFR 17.31) that generally apply to threatened wildlife the take prohibitions that section 9 of the Act establishes with respect to endangered wildlife. Take is defined in section 3 of the Act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). Incidental take is the take of listed fish and wildlife species that results form, but is not the purpose of, carrying out an otherwise lawful activity conducted by a Federal agency or applicant (50 CFR 402.02).

2.2.5 Section 10 Permits/Habitat Conservation Plans

Under section 10(a)(1)(B) of the Act, permits can be issued for any taking otherwise prohibited under section 9 if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. The applicant for the permit must submit a "habitat conservation plan" that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. When processing a section 10(a)(1)(B) permit application, the Service must complete an intra-Service consultation under section 7 of the Act to ensure the issuance of the permit is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat.

3.0 DESCRIPTION OF ALTERNATIVES

The Service considered five alternatives, including the No Action Alternative. The Action Alternatives are all based on some measure of critical habitat designation, in accordance with the court settlement. The Action Alternatives vary by the extent of geographic range presently occupied, and the areas proposed for critical habitat

designation. In addition, we considered two potential alternatives without thoroughly examining the impacts of their implementation.

3.1 Alternatives Considered But Not Fully Evaluated

3.1.1 First Alternative Considered But Not Fully Evaluated

We considered an alternative designating the entire historical range of the Topeka shiner, which would include all areas where Topeka shiners have been known to occur, past and present. Historical reports are limited and it may be impossible to identify all formerly occupied streams within the historic geographic range of the Topeka shiner. Current habitat conditions across the historic range are likely altered compared to historic conditions, rendering certain sites unsuitable for use by Topeka shiner. In addition to the difficulty of determining all historic sites used by Topeka shiner, additional sites not considered to be essential to this species' survival or recovery would be included in this alternative. All areas known to have held Topeka shiners in the past, including areas with currently marginal or poor habitat quality, would be included. As uch, much of the historical range does not meet part (I) of the definition of critical habitat stated above; therefore, we are not designating those areas as critical habitat. As a result, this alternative was removed from further consideration.

3.1.2 Second Alternative Considered But Not Fully Evaluated

We also considered a second alternative which included designating critical habitat as identified in our proposed alternative plus areas of unoccupied, historic habitat suitable for reintroduction.

During the preparation of the technical draft, the Recovery Team determined that the recovery criteria should require reestablishment of populations within some areas of the unoccupied historic range of the species, if suitable habitat was located and available. Due to the lack of specific information on habitat conditions in the unoccupied historic range, the recovery team believed that it would be prudent to develop interim recovery criteria until information and data on the habitat conditions in the unoccupied historic range becomes available. These interim criteria could then be later adjusted, reflecting the new information on potential reintroduction sites, resulting in final recovery criteria. The technical draft recommends identification and ranking of habitat with reintroduction potential during the first three years of recovery implementation. The technical draft also makes provisions for eliminating the recovery criteria for reintroduction in areas where no suitable habitat with reintroduction potential exists. At this time, information on specific stream sites within the unoccupied historic range with reintroduction potential does not exist.

Since this specific information is lacking to determine habitat suitable for species reintroduction, proposing critical habitat in these areas would result in designations that do not meet part (I) of the definition of critical habitat. Proposal in these areas would not

conform to the requirements of the Act; therefore, this alternative was removed from further consideration.

3.2 Alternatives Considered

Each Action Alternative includes designation of critical habitat in areas believed to contain the physical and biological features upon which the Topeka shiner depends. The Act refers to these essential habitat features as "primary constituent elements." Primary constituent elements are the habitat features that provide for the physiological, behavioral, and ecological requirements essential for the conservation of the species are described at 50 CFR 424.12, and include, but are not limited to, the following: space for individual and population growth, and for normal behavior; food, water, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing of offspring; and habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of the species.

We determined the primary constituent elements for the Topeka shiner from research and survey observations published in peer reviewed articles and unpublished articles; data from stream surveys conducted across the species range; and the Draft Recovery Plan. We also solicited information from knowledgeable biologists and reviewed the available information pertaining to habitat requirements of the species.

The primary constituent elements for the Topeka shiner include:

1. Streams most often with permanent flow, but that can become intermittent during dry periods;

2. Side channel pools and oxbows either seasonally connected to a stream or maintained by groundwater inputs, at a surface elevation equal to or lower than the bank-full discharge stream elevation. [The bank-full discharge is the flow at which water begins leaving the channel and flowing into the flood-plain; this level is generally attained every 1 to 2 years. Bank-full discharge, while a function of the size of the stream, is a fairly constant feature related to the formation, maintenance, and dimensions of the stream channel (Rosgen 1996; Leopold et al. 1992)];

3. Streams and side channel pools with water quality necessary for unimpaired behavior, growth, and viability of all life stages. The water quality components can vary seasonally and include--temperature (1 to 30°C), total suspended solids (0 to 2,000 ppm), conductivity (100 to 800 mhos), dissolved oxygen (4 ppm or greater), pH (7.0 to 9.0), and other chemical characteristics;

4. Living and spawning areas for adult Topeka shiner with pools or runs with water velocities less than 0.5 meters/second (approx. 20 inches/second) and depths ranging from 0.1-2.0 meters (approx. 4-80 inches);

5. Living areas for juvenile Topeka shiner with water velocities less than 0.5 meters/second (approx. 20 inches/second) with depths less than 0.25 meters (approx. 10 inches) and moderate amounts of instream aquatic cover, such as woody debris, overhanging terrestrial vegetation, and aquatic plants;

6. Sand, gravel, cobble, and silt substrates with amounts of fine sediment and substrate embeddedness that allows for nest building and maintenance of nests and eggs by native *Lepomis* sunfishes (green sunfish, orangespotted sunfish, longear sunfish) and Topeka shiner as necessary for reproduction, normal behavior, growth, and viability of all life stages;

7. An adequate terrestrial, semiaquatic, and aquatic invertebrate food base that allows for unimpaired growth, reproduction, and survival of all life stages;

8. A hydrologic regime capable of forming, maintaining, or restoring the flow periodicity, channel morphology, fish community composition, and habitat components described in the other primary constituent elements; and

9. Few or no nonnative predatory or competitive nonnative species present.

Because Topeka shiners evolved in dynamic and complex systems, and because they are dependent on them for their continued survival and eventual recovery, our proposed critical habitat boundaries incorporate natural processes inherent in the system and include sites that although might not exhibit all appropriate habitat components in all years, have a documented history of such components. For example, in dry years, low order, headwater streams may lack flow or be completely dry making them unsuitable for Topeka shiner; conversely, in wet years, there may be abundant stream flow in the same streams allowing for suitable habitat to extend farther upstream.

3.2.1 Alternative A - No Action

Pursuant to NEPA and its implementing regulations (40 CFR 1502.14), we are required to consider the No Action Alternative. The No Action Alternative would basically maintain the status quo and there would be no designation of critical habitat. This alternative serves to delineate the existing environment and conditions that result from the listing of the species, without designation of critical habitat. Since the listing of the species as endangered, the Topeka shiner has been protected under section 7 of the Act by prohibiting Federal agencies from implementing actions that would jeopardize the continued existence of the species. This protection under the Act is considered the baseline against which we evaluate the action alternatives described below. In addition, the No Action Alternative would ignore the legal requirement to designate critical habitat, where prudent, and would be non-responsive to the court settlement to designate critical habitat.

3.3 Action Alternatives

CHANGES IN PROPOSED ACTION ALTERNATIVE

In our February 26, 2004, Draft Environmental Assessment for designation of critical habitat for Topeka shiner we chose Alternative C as our proposed alternative. Alternative C supported the designation of critical habitat in the states of Iowa, Kansas, Minnesota, Nebraska, and South Dakota, as identified in our August 21, 2002 proposed rule (67 FR 54262). It also supported an exclusion from designation for habitat with the required primary constituent elements on the Fort Riley Military Installation in Kansas, under the authority of section 4(a)(3) of the Act. Exclusion of all proposed critical habitat in the State of Missouri, as described in our March 17, 2004 reopened proposal (69 FR 12619), was also supported by Alternative C. The exclusion of Missouri habitat fell under the authority of section 4(b)(2) of the Act.

Since the publication of the Draft Environmental Assessment, we have reconsidered our proposed alternative. The final rule reflects several changes to designation of critical habitat based on the acquisition of additional information, review of public comments, the Draft Economic Analysis, and further evaluation of conservation, recovery, and/or regulatory actions and authorities by the states of Kansas and South Dakota. Our final action alternative is now determined to be Alternative E. Alternative E mirrors Alternative C with the additional exclusion of proposed critical habitat in Kansas and South Dakota. Our rationale and supportive information for this decision is included in the discussion of Alternative E following in this document.

3.3.1 Alternative B

This alternative action would designate critical habitat as described in the proposed rule in the Federal Register on August 21, 2002 (67 FR 54262). This alternative proposes the designation of 186 stream segments in the States of Iowa (25), Kansas (63), Minnesota (57), Nebraska (1), and South Dakota (40). These segments represent a total of 3,765 kilometers (2,340 miles) of streams in these States. The proposal also calls for the exclusion of Topeka shiner habitat in the State of Missouri and on the Fort Riley Military Installation, Kansas, from designation as critical habitat under the authority of 3(5)(A) of the Act.

A subsequent opinion from the U.S. District Court for the District of Arizona (Center for Biological Diversity v. Norton, Civ. No. 01-409 TUC DCB, D. Ariz., Jan. 13, 2003) found that the use of section 3(5)(A) invalid for critical habitat exclusions. We are now reevaluating the proposed designation to determine if areas should be excluded under the authority of 4(b)(2) of the Act. Therefore, we reject this alternative.

3.3.2 Alternative C

Alternative C (our previously proposed alternative) would designate the geographic areas proposed as critical habitat in the proposed rule in the Federal Register on August 21, 2002 (67 FR 54262), which included 186 stream segments in the States of Iowa (25), Kansas (63), Minnesota (57), Nebraska (1), and South Dakota (40). These segments represent a total of 3,765 kilometers (2,340 miles) of streams in these States. When we reopened the comment period on the proposed rule in 2004, we proposed additional Topeka shiner habitat, including an additional 24-kilometer (15-mile) stream reach in the State of South Dakota, and 12 stream segments in the State of Missouri representing 148 kilometers (92 miles) of stream. Four stream reaches with the necessary elements of critical habitat (not proposed) on Fort Riley would be excluded under the 2003 amendments to section 4(a)(3) pertaining to military lands. The reopened proposal brings the total proposed designated critical habitat for Topeka shiner to 199 stream segments, 25 in the State of Iowa, 63 in Kansas, 57 in Minnesota, 12 in Missouri, 1 in Nebraska, and 41 in South Dakota. These segments represent a total of 3,937 kilometers (2,447 miles) of streams proposed for designation as critical habitat for Topeka shiner. Our reopened proposal, and Alternative C, also recommends the exclusion of critical habitat from designation in the State of Missouri under the authority of section 4(b)(2) of the Act.

Proposed Critical Habitat as Identified in August 21, 2002, Proposed Rule

IOWA

Historically, the Topeka shiner was known to occur in 24 counties in Iowa. Occupied watersheds included the Des Moines, Raccoon, Boone, Missouri, Big Sioux, Cedar, Shell Rock, Rock, and Iowa River basins. Topeka shiner is currently known from portions of the North Raccoon, Boone, and Rock River Watersheds.

Our August 21, 2002, proposed rule included the proposed designation of 225 miles of streams as critical habitat in 11 Iowa counties, encompassing portions of the North Raccoon, Boone, and Rock River Watersheds. We are limiting our proposal to streams and/or side-channel or off-channel pools in or near areas where the species is known to occur and habitat conditions are known. Many of the streams and floodplains within the native range of the Topeka shiner in Iowa have been severely altered and lack the primary constituent elements of critical habitat. There also are areas within the historic range in Iowa that have not been adequately surveyed for the presence of the species and habitat conditions. While it is possible that some unknown populations or habitats could be found in these areas with further survey efforts, we do not, at this time, have the required information necessary to propose them for designation.

KANSAS

Historically, the Topeka shiner was known from the Arkansas, Kansas, Big Blue, Saline,

Solomon, Republican, Smoky Hill, Wakarusa, Cottonwood, Nemaha, and Blue basins in Kansas. Capture records for the species exist from 28 counties. Presently, the species occurs in the Kansas, Big Blue, Smoky Hill, and Cottonwood basins in Kansas.

Our August 21, 2002, proposed rule included the proposed designation of 587 miles of streams as critical habitat in 13 Kansas counties, encompassing portions of the Kansas, Big Blue, Smoky Hill, and Cottonwood River basins. We are limiting our proposal to streams in or near areas where the species is known to occur and habitat conditions are known. Many of the streams in the western portion of the historic range for Topeka shiner in Kansas have been dewatered due to conversion from prairie to cropland and from groundwater pumping. In other areas of the State, other impacts have degraded and eliminated habitat, including--channelization, damming, sedimentation, eutrophication, and urbanization.

Our August 21, 2002, proposed rule did not propose designation of critical habitat on the Fort Riley Military Installation, Kansas, and also proposed excluding Fort Riley from designation. That exclusion was based upon our interpretation, at that time, of the definition of critical habitat found in section 3(5)(A) of the Act. A subsequent opinion from the U.S. District Court for the District of Arizona (Center for Biological Diversity v. Norton, Civ. No. 01-409 TUC DCB, D. Ariz., Jan. 13, 2003) found that such an interpretation of the definition of critical habitat was invalid. Therefore, we are presently unable to exclude designated critical habitat on Fort Riley based on section 3(5)(A), however we now propose to exclude critical habitat on Ft. Riley under section 4(a)(3) of the Act.

MINNESOTA

Historically, the Topeka shiner was known to occur in seven counties in Minnesota. Occupied watersheds included the Des Moines, Cedar, Big Sioux, and Rock River basins. Topeka shiner is currently known from portions of the Big Sioux and Rock Watersheds.

Our August 21, 2002, proposed rule included the proposed designation of 605 miles of streams as critical habitat in five Minnesota counties, encompassing portions of the Big Sioux and Rock River Watersheds. We are limiting our proposal to streams and/or side-channel or off-channel pools in or near areas where the species is known to occur and habitat conditions are known. Many of the streams in the Cedar and Des Moines Watersheds in Minnesota have been extensively channelized and do not provide the necessary primary constituent elements of critical habitat necessary for designation.

MISSOURI

Our August 21, 2002, proposed rule did not propose designation of critical habitat in Missouri, but proposed the exclusion of critical habitat in Missouri under section 3(5)(A). A subsequent opinion from the U.S. District Court for the District of Arizona (Center for Biological Diversity v. Norton, Civ. No. 01-409 TUC DCB, D. Ariz., Jan. 13, 2003)

questioned the use of section 3(5)(A). Therefore, this alternative proposes to exclude designated critical habitat in Missouri based on section 4(b)(2) of the Act.

NEBRASKA

Historically, the Topeka shiner was known from the Big Blue, Elkhorn, Missouri, and Loup River basins in Nebraska. Capture records for the species exist from seven counties. Presently, the species is only known from Taylor Creek in the Elkhorn Watershed in Nebraska. While it is possible that some isolated streams in the historic range in Nebraska may still have remnant populations, we, at this time, do not have the necessary data or information (on either location or habitat) to include them in the proposal. Our August 21, 2002, proposed rule included the proposed designation of a 6-mile portion of Taylor Creek in Madison County.

SOUTH DAKOTA

Historically, the Topeka shiner was known from the Big Sioux, Vermillion, and James River basins in South Dakota. Presently, the species continues to occur in these basins.

Our August 21, 2002, proposed rule included the proposed designation of 917 miles of streams as critical habitat in 15 South Dakota counties, encompassing portions of the Big Sioux, Vermillion, and James River basins. We are limiting our proposal to streams (and/or side-channel or off-channel pools in the Big Sioux River basin) in or near areas where the species is known to occur and habitat conditions are known. In portions of the Topeka shiner's South Dakota range, channelization, damming, sedimentation, and eutrophication have degraded and eliminated habitat.

Additional Proposals for Designation of Critical Habitat Identified in 2004

MISSOURI

Historically, the Topeka shiner was known from the Missouri, Grand, Lamine, Chariton, Des Moines, Loutre, Middle, Hundred and Two, and Blue River Watersheds in Missouri. Capture records for the species exist from 20 counties. Presently, the species occurs in the Grand and Missouri River basins in Missouri.

In our reopened proposal, we proposed designation of 92 miles of streams as critical habitat in five Missouri counties, encompassing portions of the Grand and Missouri River basins. We are limiting our proposal to streams in or near areas where the species is known to occur and habitat conditions are known. Many of the streams in other portions of the historic range for Topeka shiner in Missouri have been severely altered by channelization, damming, sedimentation, eutrophication, and urbanization. Alternate C recommends the exclusion of the 92 stream miles proposed for designation as critical habitat in the State of Missouri under the authority of section 4(b)(2) of the Act.

FORT RILEY, KANSAS

The Fort Riley Military Installation, located in Riley and Geary Counties, Kansas, is primarily an infantry and tank training facility. Fort Riley lies within the Flint Hills Region of Kansas and has several low order streams that drain to the Kansas River. The Topeka shiner occurs on Fort Riley in Sevenmile Creek, and in Wildcat Creek and its tributaries Wind Creek and Little Arkansas Creek.

The fiscal year 2004 Defense authorization bill amended section 4(a)(3) of the Act to allow the Secretary of the Department of the Interior to exempt defense sites from critical habitat designations if an adequate natural resources plan is in place. The law says the Interior Secretary "shall not designate as critical habitat any lands or other geographical areas owned or controlled
by the Department of Defense . . . that are subject to an integrated natural resources management plan . . . if the secretary determines in writing that such a plan provides a benefit to the species for which critical habitat is proposed for designation." Alternative C bases Ft. Riley's proposed exclusion on the authority of section 4(a)(3) of the Act.

Additional Proposed Critical Habitat in South Dakota

In our original proposal to designate critical habitat for Topeka shiner we proposed the designation of 40 stream segments in South Dakota totaling 1,475 kilometers (917 miles) of stream channel. In the Big Sioux River basin of South Dakota and Minnesota we also proposed off-channel/side-channel pool habitat for designation. Off-channel and side-channel habitat, as well as main channel habitat, also was proposed for this additional stream. Since publication of the proposal, we received information on additional Topeka shiner habitat in South Dakota. In examining this information, we concluded that habitat within Stray Horse Creek, Hamlin County, South Dakota, contains the necessary elements for proposal as critical habitat.

The stream segments proposed for designation as critical habitat in this alternative constitutes our best assessment of areas needed for the conservation of Topeka shiner and is based on the best scientific and commercial information available. The proposed areas are essential to the conservation of the species because they either currently support populations of Topeka shiner, or because they currently have, or have the potential for developing, the necessary requirements for survival, growth, and reproduction of the species. All of the proposed areas require special management consideration and protection to ensure their contribution to the species' recovery.

Important considerations in selection of areas proposed in the proposed rule include factors specific to each geographic area, watershed, and stream segment, such as stream size and length, connectivity, and habitat diversity, as well as range-wide recovery considerations, such as genetic diversity and representation of major portions of the species' historical range. The proposed critical habitat reflects the need for habitat complexes and individual stream reaches of sufficient size to provide habitat for Topeka

shiner populations large enough to be self-sustaining over time, despite fluctuations in local conditions.

3.3.3 Alternative D

This alternative would designate critical habitat as described in the proposed rule, which included 186 stream segments in the States of Iowa (25), Kansas (63), Minnesota (57), Nebraska (1), and South Dakota (40). These segments represent a total of 3,765 kilometers (2,340 miles) of streams in these States. When we reopened the comment period in 2004, we proposed designation of additional Topeka shiner habitat, including an additional 24-kilometer (15-mile) stream reach in the State of South Dakota, and 12 stream segments in the State of Missouri representing 148 kilometers (92 miles) of stream. Four stream reaches (not proposed) on Fort Riley would be excluded under the 2003 amendments to section 4(a)(3) pertaining to military lands. The reopened proposal brings the total of proposed designated critical habitat for Topeka shiner to 199 stream segments, 25 in the State of Iowa, 63 in Kansas, 57 in Minnesota, 12 in Missouri, 1 in Nebraska, and 41 in South Dakota. These segments represent a total of 3,937 kilometers (2,447 miles) of streams proposed for designation as critical habitat for Topeka shiner. However, under this alternative, we would designate all proposed critical habitat, allowing no exclusions, except for Ft. Riley, where no critical habitat is proposed. Under 4(a)(3), proposal of critical habitat on military lands is not required for exclusion.

3.3.4 Alternative E

Alternative E (selected alternative) designates 83 stream segments of critical habitat in the states of Iowa (25), Minnesota (57), and Nebraska (1), as described in our final rule. It excludes Topeka shiner habitat on Ft. Riley, Kansas, under the authority of section 4(a)(3) of the Act; and the areas of critical habitat proposed in the states of Missouri, Kansas, and South Dakota under authority of section 4(b)(2) of the Act.

DESIGNATED CRITICAL HABITAT AS IDENTIFIED IN THE FINAL RULE

IOWA

Historically, the Topeka shiner was known to occur in 24 counties in Iowa. Historically occupied watersheds included the Des Moines, Raccoon, Boone, Missouri, Big Sioux, Cedar, Shell Rock, Rock, and Iowa River basins. Topeka shiner is currently known from portions of the North Raccoon, Boone, and Rock River Watersheds.

We are designating 225 miles of stream, as proposed in our August 21, 2002 proposed rule, as critical habitat in 11 Iowa counties, encompassing portions of the North Raccoon, Boone, and Rock River Watersheds. We are limiting our designation to streams and/or side-channel or off-channel pools in or near areas where the species is known to occur and habitat conditions are known. Many of the streams and floodplains within the native range of the Topeka shiner in Iowa have been severely altered and lack the primary

constituent elements of critical habitat. There also are areas within the historic range in Iowa that have not been adequately surveyed for the presence of the species and habitat conditions. While it is possible that some unknown populations or habitats could be found in these areas with further survey efforts, we do not, at this time, have the required information necessary to propose them for designation.

MINNESOTA

Historically, the Topeka shiner was known to occur in seven counties in Minnesota. Occupied watersheds included the Des Moines, Cedar, Big Sioux, and Rock River basins. Topeka shiner is currently known from portions of the Big Sioux and Rock Watersheds.

We are designating 605 miles of stream, as proposed in our August 21, 2002 proposed rule, as critical habitat in five Minnesota counties, encompassing portions of the Big Sioux and Rock River Watersheds. We are limiting our proposal to streams and/or side-channel or off-channel pools in or near areas where the species is known to occur and habitat conditions are known. Many of the streams in the Cedar and Des Moines Watersheds in Minnesota have been extensively channelized and do not provide the necessary primary constituent elements of critical habitat necessary for designation.

NEBRASKA

Historically, the Topeka shiner was known from the Big Blue, Elkhorn, Missouri, and Loup River basins in Nebraska. Capture records for the species exist from seven counties. Presently, the species is only known from Taylor Creek in the Elkhorn Watershed in Nebraska. While it is possible that some isolated streams in the historic range in Nebraska may still have remnant populations, we, at this time, do not have the necessary data or information (on either location or habitat) to include them in the proposal. We are designating a 6-mile portion of Taylor Creek in Madison County as critical habitat.

EXCLUSIONS FROM DESIGNATION OF CRITICAL HABITAT

FORT RILEY, KANSAS

The Fort Riley Military Installation, located in Riley and Geary Counties, Kansas, is primarily an infantry and tank training facility. Fort Riley lies within the Flint Hills Region of Kansas and has several low order streams that drain to the Kansas River. The Topeka shiner occurs on Fort Riley in Sevenmile Creek, and in Wildcat Creek and its tributaries Wind Creek and Little Arkansas Creek.

The fiscal year 2004 Defense authorization bill amended section 4(a)(3) of the Act to allow the Secretary of the Department of the Interior to exempt defense sites from critical habitat designations if an adequate natural resources plan is in place. The law says the

Interior Secretary "shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense . . . that are subject to an integrated natural resources management plan . . . if the secretary determines in writing that such a plan provides a benefit to the species for which critical habitat is proposed for designation."

The Sikes Act Improvement Act of 1997 requires each military installation that includes land and water suitable for the conservation and management of natural resources to complete, an Integrated Natural Resource Management Plan (INRMP). An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found there. Each INRMP includes an assessment of the ecological needs on the installation, including needs to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. The Service consults with the military on the development and implementation of INRMPs for installations with listed species.

The Topeka shiner has been a focal species for planning and conservation efforts on Fort Riley since the early 1990s, with numerous stream surveys occurring since that time to the present. Development of management guidelines for the species was initialized in 1994. The first Endangered Species Management Plan for Topeka Shiner on Fort Riley was formalized in 1997. This management plan was revised and incorporated into Fort Riley's INRMP 2001-2005, which was formalized July 30, 2001 (Keating, Fort Riley Natural Resources Division, pers. comm. 2002). This management plan outlines and describes--conservation goals; management prescriptions and actions; a monitoring plan; estimates of time, cost, and personnel needed; a checklist of tasks; and an annual report (Department of the Army 2001).

The primary benefit of designating critical habitat is to identify lands essential to the conservation of the species which critical habitat, would require consultation with the Service to ensure activities would not adversely modify critical habitat. As previously discussed, Fort Riley has a completed final INRMP that provides for sufficient conservation management and protection for the Topeka shiner. Moreover, this INRMP has already undergone section 7 consultation with the Service prior to its final approval. Further, activities authorized, funded, or carried out by the military or Federal agencies in these areas that may affect the Topeka shiner will still require consultation under section 7 of the Act, based on the requirement that Federal agencies ensure that such activities not jeopardize the continued existence of listed species. This requirement applies even without critical habitat designation on these lands. Thus, the Service believes designation of Fort Riley as critical habitat will not appreciably benefit the Topeka shiner beyond protection already afforded the species under the Act and the approved INRMP.

Based on section 4(a)(3) of the Act and the consideration of the information described above, we believe that the benefits of excluding areas of Topeka shiner habitat on Fort Riley from designation exceed the benefits of including these areas as designated critical

habitat. Exclusion of these lands will not result in the extinction of the Topeka shiner. There are no areas proposed for designation as critical habitat for Topeka shiner on Ft. Riley.

APPLICATION OF SECTION 3(5)(A) OF THE ACT

Kansas

We have evaluated the Recovery Plan for the Topeka Shiner in Kansas (Kansas Plan), developed by the Kansas Department of Wildlife and Parks (KDWP); the protections afforded the species and its habitat under the Kansas Nongame and Endangered Species Conservation Act of 1975 (Kansas Act); and the associated Topeka shiner conservation actions that have been completed, ongoing, or planned in Kansas against the three criteria to determine whether lands require "special management considerations or protections." The Kansas Plan and Kansas Act clearly provide conservation benefits to the species. The Kansas Plan and Kansas Act provide assurances that conservation efforts will be implemented because KDWP has authority to implement the Kansas Plan and Kansas Act, has demonstrated a history of funding and staffing the Kansas Act, has funded and staffed conservation activities for Topeka shiner in the past, and has completed or begun work on many significant elements of the Kansas Plan. The Kansas Plan and efforts of KDWP will be effective because they include biological goals, restoration objectives, and monitoring consistent with a Service agency-technical draft recovery plan. The regulatory purview provided by the Kansas Act, and the essential elements of the Kansas Plan, provide for special management of the Topeka shiner under the definition of critical habitat in section 3(5)(A) of the Act.

We previously proposed 63 stream segments encompassing 945 km (587 mi) of stream in the State of Kansas as Federal critical habitat for Topeka shiner. We determined that adequate special management and protection is provided by State-designated critical habitat and a legally-operative plan that addresses the maintenance and improvement of essential habitat elements and that provides for the long-term conservation of the species. We further determined that State critical habitat in combination with a plan is adequate when it meets the three criteria listed in a previous paragraph of this preamble.

In Kansas, the Topeka shiner historically occurred in small, headwater streams throughout much of the State, including the Kansas, Big Blue, Smoky Hill, Saline, Republican, Arkansas, and Cottonwood Rivers watersheds. The Topeka shiner has been a focal species for planning and conservation efforts in the State since the early 1990s. In December 1999, the KDWP listed the Topeka shiner as a threatened species under the Kansas Act, and designated State critical habitat for the species as required by the Kansas Act. Shortly afterwards KDWP formed the Topeka Shiner Advisory Committee, a 12-member group with representatives from academia, watershed districts, State and local agencies, and private interest groups, to work with KDWP to provide input into the recovery planning effort and disseminate information to the public and private landowners on a local scale. The Recovery Plan for the Topeka Shiner in Kansas is

expected to be finalized by the KDWP in 2004 and will designate more habitat in the State for the Topeka shiner than we proposed.

The objectives of the Kansas Plan are to: (1) stabilize, protect, and enhance existing populations of Topeka shiner and its habitat in Kansas; (2) identify unoccupied areas of historic habitat capable of supporting, or capable of being restored to support the species, and reintroduce populations to these areas; (3) downlist (to Species In Need of Conservation status) and delist the species as identified by State recovery criteria. The Kansas Plan identifies four separate and distinct recovery units based on watershed boundaries, genetic variability between units, and degree of geographic isolation. Each recovery unit supports known populations and contains habitat features that provide the physiological, behavioral, and ecological requirements essential for the species.

The recovery criteria established in the Kansas Plan for downlisting are: (1) all naturally-occurring populations within the Kansas, Big Blue, and Cottonwood recovery units are determined to be stable or increasing for 10 years; (2) a minimum of eight reintroduction efforts have been implemented and monitored for 3 years in the above recovery units; and (3) the natural population in the Upper Smoky Hill recovery unit is stable or increasing for 10 years, and a minimum of two reintroductions in that recovery unit has occurred and been monitored for 3 years. The delisting criterion is considered met when all populations (natural and introduced) are determined stable or increasing for a period of 10 years. Provisions for statistically sound, long-term monitoring of Topeka shiner populations in Kansas are included in the Kansas Plan.

The Kansas Plan contains a narrative outline, which briefly describes each recovery action needed for the recovery of the Topeka shiner in Kansas. The KDWP also provides an implementation schedule for these actions. Of the 29 tasks listed in the schedule, 13 are ongoing. There are presently three Service-sponsored (section 6 funding) research efforts involving Topeka shiners funded in the State. The KDWP are partners, along with the Service and three different watershed districts, in three individual conservation agreements for the Topeka shiner.

The Kansas Act protects State and federally listed species in Kansas. The Kansas Act was implemented to protect State-listed species classified as threatened, endangered, or "species in need of conservation" within Kansas. The Kansas Act places the responsibility for identifying and undertaking appropriate conservation measures for State threatened and endangered species directly upon KDWP through Kansas Administrative Regulations. The KDWP also must undertake efforts to conserve listed species and pursue increasing their populations and improving their habitats to the point that they are no longer listed under the Kansas Act.

Kansas Administrative Regulations require the KDWP to issue special action permits for activities that affect species listed as threatened or endangered, where an action is defined as "an activity resulting in the physical alteration of a listed species' critical habitat, physical disturbance of a listed species, or destruction of individuals of a listed species."

These activities must be publicly funded, State or federally assisted, or require a permit from another State or Federal government agency to be included as activities that fall under KDWP's regulatory purview where action permits could be required. Critical habitat as defined under the Kansas Act is--(1) specific areas documented as currently providing essential physical and biological features and supporting a self-sustaining population of a listed species; or (2) specific areas not documented as currently supporting a listed species, but determined essential for the listed species by the Secretary (of KDWP). Operationally, documentation relies on occurrence records of the species or identification of the essential habitat requirements as obtained through field assessment and scientific studies conducted by KDWP, State universities, and other qualified individuals or organizations. State critical habitat is designated by the KDWP.

The KDWP's Environmental Services Section (ESS) is responsible for reviewing proposed activities that fall under KDWP's regulatory purview. The ESS personnel conduct environmental reviews of these projects including potential effects to threatened and endangered species and State-designated critical habitats. The ESS personnel issue action permits for activities that will affect listed species or their critical habitats. Special conditions are incorporated into the action permits to help offset negative effects to listed species or critical habitats. Permit conditions can limit where and when (e.g., spawning date restrictions) construction activities occur and require restoration, creation, and perpetual protection of existing habitats. The KDWP can refuse to issue an action permit for activities that affect listed species and critical habitats if these activities cannot be adequately mitigated to offset the negative effects to a listed species and its critical habitats.

Each calendar year, ESS personnel conduct environmental reviews for approximately 750 new proposed activities that fall under KDWP's regulatory purview. Since the Topeka shiner was listed by the State of Kansas on November 11, 1999, through December 31, 2003, ESS staff have conducted environmental reviews for 2,814 new proposed activities, of which 59 included the Topeka shiner. Of the 59 projects, 5 required action permits be issued by KDWP.

The KDWP presently has 68 stream segments designated as State critical habitat for the Topeka shiner, representing over 1,046 km (650 mi) of stream. The Service previously proposed 63 stream segments representing 945 km (587 mi) of stream as Federal critical habitat.

Topeka shiner habitat in Kansas does not meet the definition of critical habitat as outlined in section 3(5)(A) of the Act because there is adequate special management or protection. Consequently, we are not including these areas in this critical habitat designation.

Missouri

We proposed not to include stream segments in the State of Missouri in proposed critical habitat, based on our interpretation of section 3(5)(A) of the Act (67 FR 54261). We

have evaluated the Action Plan for the Topeka Shiner in Missouri (Action Plan) and associated Topeka shiner conservation actions that have been completed, are ongoing, or are planned in Missouri, against the three criteria to determine whether lands require "special management considerations or protections." The Action Plan clearly provides conservation benefits to the species; the Action Plan provides assurances that conservation efforts will be implemented because MDC has authority to implement the plan, has put in place the funding and staffing necessary to implement the Plan, and has completed or begun work on many significant elements of the Plan; and the Action Plan and efforts of MDC will be effective because they include biological goals, restoration objectives, and monitoring consistent with a Service preliminary draft recovery plan. The Missouri Action Plan provides for special management of the Topeka shiner under the definition of critical habitat in section 3(5)(A) of the Act.

In Missouri, the Topeka shiner historically occurred in small, headwater streams in northern portions of the State, within the Missouri/Grand River Watershed. The Topeka shiner has been a focal species for planning and conservation efforts in the State since the mid-1990s. In 1995, the MDC established a 5-member Topeka Shiner Working Group, and a 16-member Advisory Group to direct, implement, and facilitate Topeka shiner recovery actions in Missouri. In 1996, the MDC, with approval of the Conservation Commission of Missouri (Conservation Commission), listed the Topeka shiner as an endangered species under the State's Wildlife Code (Conservation Commission 2001).

In 1999, the Conservation Commission established the Private Lands Services Division within the MDC. Eighty-three MDC staff were redirected to private land conservation throughout the State, including a minimum of 16 Private Lands Service personnel with responsibility for the counties with Topeka shiner habitat. Duties of personnel within this division include the facilitation of conservation efforts on private property throughout Missouri for all federally listed species, including the Topeka shiner. Additionally, there are at least 86 fisheries, forestry, natural history, protection, and wildlife staff delivering services to private landowners as a routine aspect of their job within the Missouri/Grand River Watershed.

In January 1999, the MDC adopted and approved an Action Plan for the Topeka shiner in Missouri (MDC 1999). The Action Plan identifies comprehensive conservation measures and programs necessary to achieve recovery of the Topeka shiner in Missouri. Implementation of recovery efforts for the Topeka shiner in Missouri, as outlined in the Action Plan, is ongoing. The current status of recovery tasks outlined in the Action Plan is described in Table 1 below:

Table 1. Status of Tasks in the Action Plan for the Topeka Shiner in Missouri.

ITEM	STATUS
Establishment of the Missouri Topeka Shiner Working Group.	Complete & Ongoing
Development & ongoing implementation of the Action Plan.	Complete (1999) & Ongoing
Establishment of permanent sampling sites & standardized monitoring of Missouri's Topeka shiner populations & completion of recent Statewide survey for the species.	Annual Monitoring - Ongoing/Initiated (began in 2000) Statewide Surveying-Complete & Ongoing
Initiation of artificial propagation of Topeka shiners, including the development & refinement of captive rearing techniques.	Complete & Ongoing
Completion of genetic analysis of different populations of Topeka shiners in Missouri.	Complete
Incorporation of Topeka shiner recovery & conservation efforts in State strategic planning documents on several different levels.	Complete & Ongoing
Development & dissemination of public outreach & education materials throughout Missouri & elsewhere.	Complete & Ongoing
Completion & dissemination of several ecological & life history studies involving Topeka shiner.	Ongoing/Initiated
Securing matching funds from the Service to conduct surveys & ecological studies, & for various habitat restoration & enhancement activities.	Complete & Ongoing
Revision of the Action Plan that will include actions not yet completed since 1999 & those uncompleted actions identified in the Service's preliminary draft recovery plan.	Planned
Implementation of a landowner incentive program & completion of a study on the potential impacts of Confined Animal Feeding Operations within the Moniteau Creek Watershed.	Completed (Confined Animal Feeding Operations study) Ongoing/Initiated (landowner incentive program)
Development of 10-year fish monitoring plans for Moniteau, Bonne Femme, & Sugar Creek Watersheds.	Complete--Plan developed with initial sampling conducted in 2000 & annual sampling since
Development & implementation of Sugar Creek subbasin management plan.	Complete & Ongoing
Development & implementation of a Three Creeks Conservation Area management plan.	Complete & Ongoing
Protection & management of Bonne Femme Creek by establishing these watersheds as Missouri Department of Natural Resources' Non-point Source Pollution Special Area Land Treatment watersheds.	Complete & Ongoing
Reestablishment or restoration of riparian corridors through tree plantings, natural regeneration, fencing to restrict livestock use of stream banks, creation of alternative livestock watering sources, establishment of warm season grass buffer strips, stream bank stabilization activities, & actions outlined in grazing plan developed for private landowners within the Bonne Femme, Moniteau, & Sugar Creek Watersheds.	Initiated/Ongoing

Assurances that the Action Plan will be implemented and conservation of the Topeka shiner will be achieved in Missouri are demonstrated by the following actions. Between January 1999 and December 31, 2003, at least $351,100 was spent on recovery actions for the Topeka shiner in Missouri, and that total is likely to increase to at least $600,000 within the next 10 years. Eighty percent (i.e., 12 of 15) of the priority 1 tasks (i.e., those actions deemed necessary to prevent extinction of the species) identified and outlined in the implementation schedule of a Service preliminary draft recovery plan have either been completed or are currently being implemented (this includes 20 percent of tasks that are 100 percent completed, 47 percent of tasks that are 50 percent or greater completed, and 33 percent of tasks that are 25 percent or less completed) by the MDC in cooperation with us, the Topeka Shiner Recovery Team, and other Federal, State, and private entities.

The Private Land Services Division within MDC greatly facilitates the implementation of recovery actions on private property where the species currently exists or where the species may be reintroduced. The planned expansion of our Partners for Fish and Wildlife Program within Topeka shiner-occupied habitat will benefit an additional 10 to 15 landowners at an estimated cost of $100,000 within the next 5 years (Kelly Srigley Werner, Missouri Private Lands Coordinator, pers. comm.). The MDC Fisheries and Natural History Division staffs have committed to help coordinate and implement Topeka shiner recovery efforts between the MDC and Federal, State, and private entities, and MDC's Topeka Shiner Recovery Coordinator. The MDC is actively participating in the Topeka Shiner Recovery Team. The MDC's revisions to the Action Plan, scheduled for completion in 2004, will focus on incorporating any of the recovery actions outlined in a Service preliminary draft recovery plan that are currently not addressed. The scientific soundness of the MDC's Action Plan was further validated by the Recovery Team when the Action Plan's monitoring protocol and recommendations for reducing and eliminating threats to the Topeka shiner were incorporated, in part, into a Service preliminary draft recovery plan. In addition, the MDC, in implementing the Action Plan, has established cooperative working relationships with private landowners. These relationships have allowed for the implementation of conservation programs for the benefit of the Topeka shiner.

Topeka shiner habitat in Missouri does not meet the definition of critical habitat as outlined in section 3(5)(A) of the Act because there is adequate special management or protection. Consequently, we are not including these areas in this critical habitat designation.

South Dakota

We have evaluated the Topeka Shiner Management Plan for the State of South Dakota (SD Plan) and associated Topeka shiner conservation actions that have been completed, are ongoing, or are planned in South Dakota, against the three criteria to determine whether lands require "special management considerations or protections." The SD Plan provides conservation benefits to the species. It provides assurances that conservation efforts will be implemented because the State of South Dakota has authority to

implement the plan, has put in place the funding and staffing necessary to implement the Plan, and has completed or begun work on many significant elements of the Plan. It will be effective because the SD Plan and other efforts by the State of South Dakota include biological goals, restoration objectives, and monitoring consistent with a Service preliminary draft recovery plan. The SD Plan and other cooperative efforts in South Dakota provide for special management of the Topeka shiner under the definition of critical habitat in section 3(5)(A) of the Act.

In our August 21, 2002, proposed rule we identified 40 stream segments for designation in South Dakota. We proposed one additional segment in our revision to the proposal published March 17, 2004 (69 FR 12619). Before the original proposal was published, the South Dakota Department of Game, Fish, and Parks (SDDGFP) requested that we consider a State-wide exclusion from designation based on the authority given the Service under section 3(5)(A) and/or 4(b)(2) of the Act.

Prior to the 2002 proposal to designate critical habitat, SDDGFP and the South Dakota Department of Agriculture, the South Dakota Department of Environment and Natural Resources (SDDENR), and the SDDOT, developed of the Topeka Shiner Management Plan for the State of South Dakota (SD Plan). The development of the SD Plan was a cooperative effort that also involved Federal agencies, private individuals, agricultural groups, and academia. The SD Plan was completed and signed in June 2003 by the four State agencies with management responsibilities for actions that can influence Topeka shiner streams. This commitment by the lead regulatory and management agencies within State government to the SD Plan is a unique approach to cooperative Topeka shiner conservation within the range of this species.

The goals of the SD Plan are to--(1) maintain habitat integrity in Topeka shiner streams; and (2) establish a point based management goal for the State of South Dakota in contribution toward national recovery efforts. The SD Plan states specific objectives to meet the plan goals, including: (1) management actions that address stream hydrology, geomorphology, and water quality; (2) establishment of a monitoring and assessment protocol to evaluate South Dakota's point-based recovery goal; and (3) development of public outreach and education strategies to inform all entities involved about Topeka shiner management in South Dakota.

The SD Plan provides conservation benefits to the species by implementation of on the ground actions undertaken through partnership efforts and conservation strategies. The SD Plan provides assurances that conservation efforts will be implemented because the State of South Dakota has authority to implement the plan and has put in place the funding and staffing necessary to implement the Plan. In addition, there is a long history of implementation of strategies in the SD Plan that have had positive effects on Topeka shiners. The SD Plan, and efforts by the State of South Dakota, have been and will continue to be effective because they address the threats to the species in South Dakota and include biological goals, restoration objectives, and monitoring consistent with, or

superior to, a Service preliminary draft recovery plan that has been developed (U.S. Fish and Wildlife Service 2002).

Implementation of recovery efforts for the Topeka shiner in South Dakota, are planned or ongoing. The current status of tasks in the SD Plan is described in Table 2 below:

Table 2. Status of Tasks in the Topeka Shiner Management Plan for the State of South Dakota

ACTION ITEM	STATUS
Establish the South Dakota Topeka shiner working group.	Complete and Ongoing
Develop and implement the State Plan.	Complete (2003) and Ongoing
Conduct surveys to determine extent of Topeka shiner range in South Dakota.	Complete and Ongoing
Design long term monitoring and assessment plan.	Complete
Develop an education and outreach program to provide information on the Topeka shiner and watershed health.	Ongoing
Develop and maintain a Topeka shiner website for information on this species.	Complete and Ongoing
Complete genetic analyses of different Topeka shiner populations in South Dakota.	Complete
Incorporation of Topeka shiner recovery and conservation efforts in State strategic planning documents on different levels.	Ongoing
Secure matching funds from the Service and others to conduct surveys and ecological studies and for various habitat restoration and enhancement activities.	Complete and ongoing
Conduct research in relationship to stream hydrology and Topeka shiner habitat.	Ongoing
Provide technical and financial assistance to landowners interested in creating or restoring wetland areas.	Complete and Ongoing
Provide landowner incentives to increase native vegetative cover.	Complete and Ongoing
Work with government agencies to develop best management practices that minimize erosion.	Complete and Ongoing
Provide financial and technical assistance to landowners to reestablish native vegetation along riparian zones.	Complete and Ongoing
Provide technical and financial assistance to landowners and other agencies interested in restoring habitat in degraded stream reaches.	Complete and Ongoing
Review projects that may adversely alter Topeka shiner streams.	Complete and Ongoing
Continue working with the Service to provide information and assistance on section 7 consultation issues.	Ongoing
Continue working with section 6 funds to further identify and Topeka shiner areas and strategy for long-term conservation.	Ongoing
Provide technical assistance to urban, residential and development planners to improve water quality from water discharge systems	Complete and Ongoing
Work with Natural Resource Conservation Service to have Topeka shiner streams get higher priority for EQIP and WHIP funding.	Complete and Ongoing
Provide incentives for landowners to establish riparian buffers or filter strips along agricultural fields with high runoff potential.	Complete and Ongoing
Continue technical assistance for permitting and designing confined animal feeding operations.	Ongoing
Continue routine inspections of sewage treatment facilities to ensure compliance with water quality standards.	Ongoing

Assurances that the SD Plan will be implemented and conservation of the Topeka shiner will be achieved in South Dakota are demonstrated by the following actions:

Between January 1999 and December 31, 2003, at least $700,000 was expended on recovery actions and habitat improvement for the Topeka shiner by the State of South Dakota, and that total is likely to increase to at least $3 million over the next 10 years (Dowd Stukel and Shearer, SDDGFP, pers. comm. 2004; Graves, SDDOT, pers. comm. 2004; SDDENR website 2004). All of the tasks identified in the SD Plan that have definite end points have been completed. Remaining tasks, such as project reviews to minimize adverse impacts to Topeka shiners, implementation of projects to enhance Topeka shiner streams, and Topeka shiner surveys will be ongoing.

Overall, 86 percent (i.e., 12 of 14) of the priority 1 tasks (i.e., those actions deemed necessary to prevent extinction of the species) identified and outlined in the implementation schedule of a Service preliminary draft recovery plan have either been completed or are currently being implemented. Of two remaining priority 1 tasks, one involves "determining impacts of sedimentation on habitat quality." South Dakota recognizes that sedimentation may impair habitat for Topeka shiner and has instituted aggressive provisions to minimize erosion from activities they may undertake or permit. One example is the development of stringent erosion control measures and spawning season restrictions that the SDDOT includes for all projects crossing Topeka shiner streams.

The other priority 1 task involved evaluation of piscivorous fish within Topeka shiner habitat. This task was included in the rangewide draft Recovery Plan because some fish, particularly largemouth bass, have been documented to be damaging to Topeka shiner populations. The information for South Dakota does not show much overlap between Topeka shiner populations and largemouth bass. Therefore, while this is an important issue in parts of the Topeka shiner range, it is not believed to be problematic in South Dakota.

In addition to two Topeka shiner studies initiated by SDDOT through the SDSU Coop Unit, SDDOT has committed to extensive management practices to minimize adverse effects of road and highway stream crossing projects on Topeka shiner streams. These provisions are among the most rigorous in the species' range. SDDOT has also conducted a programmatic formal section 7 consultation with the Service for construction projects that involve all SDDOT road crossings of Topeka shiner streams.

SDDGFP and SDDENR also routinely review projects to ensure impacts to Topeka shiners and its habitat are minimized. In South Dakota, SDDENR has assumed the section 401 water quality program from EPA and issues certification for all section 404 permits authorized by the U.S. Army Corps of Engineers. This State program ensures discharges are do not compromise water quality in the receiving water bodies.

The SDDGFP has been an active partner in cooperation with us, the Topeka Shiner Recovery Team, and other Federal, State, and private entities. The SD Plan greatly facilitates the

implementation of recovery actions on private property where the species currently exists or where potential habitat for the species exists.

The SDDGFP Habitat Program recently developed a series of implementation guidelines for wetland projects proposed within Topeka shiner watersheds. The guidelines provide field staff with an early screening process to identify any potential conflict habitat projects may create in Topeka shiner streams. This screen also allows selection of management tools that can provide specific benefits to water quality.

The SDDGFP staff has committed to help coordinate and implement Topeka shiner recovery efforts between the State of South Dakota and Federal, State, and private entities. The SDDGFP is actively participating in the Topeka Shiner Recovery Team. In addition, the SDDGFP and other State signatory agencies, have established cooperative working relationships with private landowners. These relationships have allowed for the implementation of conservation programs for the benefit of the Topeka shiner.

The SDDENR also has upgraded numerous reaches of Topeka shiner streams to a fisheries classification for Clean Water Act purposes (Snyder, SDDENR, pers. comm. 2004). This includes all areas proposed for critical habitat designations in South Dakota. This is important, since some areas where Topeka shiners have been found in recent years have been on streams or portions of streams that are intermittent and were previously not classified as a fishery water body. With SDDENR reclassification of these streams to a fishery, the full suite of water quality standards apply to that water body when evaluating a National Pollution Discharge Elimination System permit. A fishery classification to a stream is an important upgrade that the State has undertaken as part of their Triennial Review Process of water quality standards.

The State of South Dakota developed a general permit in 1998 to address animal waste resulting from concentrated animal feeding operations (CAFOs). Since development of this permit, the State has regulated 64 CAFOs in the Topeka shiner range in South Dakota. There are an additional 55 CAFOs in the Topeka shiner range going through the permitting system to be authorized under the general permit. This can include existing operations being brought into compliance as well as new or expanded facilities. This important regulatory measure requires strict adherence to provisions of the general permit that allows no discharge of animal waste to streams or rivers from livestock waste management facilities. This regulatory requirement has resulted in significant upgrades to animal waste disposal systems in the range of the Topeka shiner. Significant partnerships between landowners and programs such as the Environmental Quality Incentive Program (EQIP) funds have resulted and are being used to bring existing CAFOs into compliance.

South Dakota has worked with agencies to prioritize expenditures of funds towards actions that would benefit Topeka shiner. For example, through efforts by the resource agencies, the NRCS has modified their ranking criteria such that projects funded by the Environmental Quality Incentives Program (EQIP) and the Wildlife Habitat Incentives Program (WHIP) receive

additional points, and thus higher ranking, if benefits to Topeka shiners will result from a proposed project. The SDDENR through their implementation of the 319 program, in concert the Environmental Agency Program, provides incentives to undertake actions that benefit water quality of Topeka shiner streams. SDDGFP and others have cooperated to attain federal grants that prioritize Topeka shiner watersheds with projects that benefit water quality and stream hydrology. Designation of critical habitat would not be expected to appreciably enhance the prioritization efforts that have already occurred and those that are ongoing.

The State also believes that the SD Plan will lay the groundwork for a future Habitat Conservation Plan (HCP), which may facilitate consultation procedures currently required under section 7 of the Act. The SD Plan is recognized to be an important component of a future HCP that may be developed by the State and provides an indication of South Dakota's ongoing efforts to develop an HCP for Topeka shiners.

Topeka shiner habitat in South Dakota does not meet the definition of critical habitat as outlined in section 3(5)(A) of the Act because there is adequate special management or protection. Consequently, we are not including these areas in this critical habitat designation.

EXCLUSIONS UNDER SECTION 4(B)(2) OF THE ACT

The economic analysis, along with the analysis of other relevant beneficial and detrimental impacts, serve as the basis of our analysis under section 4(b)(2) and our determination of exclusions from critical habitat. In our evaluation of potential critical habitat sites, we conducted an analysis of the economic impacts and other relevant impacts of designating critical habitat. Economic factors included--(1) costs to us and Federal action agencies from increased workload to conduct consultations under section 7 of the Act and technical assistance associated with critical habitat; (2) costs of modifying projects, activities, or land uses resulting from consultations involving critical habitat; (3) costs of delays from increased consultations involving critical habitat; (4) costs of reduced property values or income resulting from increased regulation of critical habitat designation; (5) potential offsetting economic benefits associated with critical habitat, including educational benefits (Industrial Economics, Inc. 2004).

Other relevant impacts included--(1) the willingness of landowners and land managers to work with natural resource agencies and participate in voluntary conservation activities that directly benefit the Topeka shiner and other threatened or endangered species, including such cooperative partnerships as Safe Harbor Agreements; (2) the implementation of various cooperative conservation measures agreed to through various State and local partnerships, such as those outlined in the Action Plan or through similar collaborative efforts; (3) management or regulatory flexibility, such as the establishment of nonessential experimental populations under section 10(j) of the Act, to recover Topeka shiners through reintroductions; and (4) opportunities and interest of landowners to participate in various incentive and assistance programs offered by the Service and other Federal, State, and local agencies that restore habitats and improve water quality in watersheds containing Topeka shiners.

This final rule contains our analysis of economic factors and other relevant impacts of designating critical habitat, and our consideration of comments received during the public comment periods. As a result, we have identified certain areas that are excluded from the final critical habitat designation.

Kansas

In our March 17, 2004, Federal Register notice (69 FR 12619), we notified the public that we were considering excluding the previously proposed stream segments in Kansas from designation as critical habitat for Topeka shiner under section 4(b)(2) of the Act. In our evaluation of potential critical habitat sites in Kansas, we conducted an analysis of the economic impacts and other relevant impacts of designating critical habitat. We provide the following 4(b)(2) analysis of the benefits of inclusion and the benefits of exclusion in assessing this exclusion of critical habitat in Kansas.

(1) Benefits of Inclusion

Federal actions that adversely affect critical habitat must undergo consultation under section 7 of the Act. Consultations on Federal actions involving critical habitat ensure that habitat needed for the survival and recovery of a species is not destroyed or adversely modified, in addition to the jeopardy standard applied to all listed species.

(2) Benefits of Exclusion

The benefits of excluding Kansas from designated critical habitat include--maintenance of effective working partnerships to promote the conservation of the Topeka shiner and its habitat; establishment of new partnerships; providing benefits from the Kansas Plan to the Topeka shiner and its habitat which exceed those that would be provided by the designation of critical habitat; avoiding added administrative costs to the Service, Federal agencies, and applicants; and future regulatory flexibility for the Service and landowners by maintaining the ability to reintroduce the Topeka shiner to formerly occupied streams in Kansas by experimental populations under section 10(j) of the Act.

Recovery of listed species is often achieved through partnerships and voluntary actions. Through previous conservation actions (e.g., conservation agreements with watershed districts), the KDWP has gained the cooperation of some local governmental entities and landowners and has been successful in developing voluntary conservation partnerships. Cooperators, with the assistance of KDWP, are implementing conservation measures for the Topeka shiner and its habitat in accordance with management objectives outlined in the Kansas Plan. These actions range from allowing access to private lands for surveys and site visits to rehabilitation of habitat and implementation of measures to control erosion and sedimentation. The partners have committed to conservation measures benefiting the Topeka shiner that are greater than the benefits of designating critical habitat. It is likely that many current and potential partners will not assume the cost and work associated with implementing voluntary management and

protection if critical habitat is designated regardless of their desire to contribute to the conservation of the species. The KDWP advised us that the support of voluntary conservation actions of private landowners that benefit Topeka shiner recovery in the State could be impacted to some degree if critical habitat was designated under Federal law.

The Economic Analysis of Critical Habitat Designation for the Topeka Shiner determine that the total potential economic costs for Kansas range from $2.3 million to $5.1 million over 10 years (Industrial Economics, Inc. 2004).

In summary, we view the continued application of the regulatory authority of State-designated critical habitat, the implementation of the Kansas Plan, and the cooperative conservation partnerships with landowners to be essential for the conservation of the Topeka shiner in Kansas. We believe that the benefits of including Federal critical habitat in Kansas are small due to KDWP's regulatory purview over State critical habitat and the ongoing implementation of conservation actions, as identified in the Kansas Plan. We believe the benefits of excluding Kansas areas from critical habitat greatly exceed the limited benefits of including them. Furthermore, we believe that exclusion from critical habitat in this State will not result in the extinction of the Topeka shiner. In accordance with section 4(b)(2) of the Act, we believe that the benefits of excluding critical habitat in Kansas outweigh the benefits of designating critical habitat, and exclude areas in Kansas containing primary constituent elements from the critical habitat designation.

Missouri

In our March 17, 2004, Federal Register notice (69 FR 12619), as a consequence of the court's decision in Center for Biological Diversity v. Norton, we described the previously-excluded segments in Missouri and clarified the basis for proposing to exclude these areas from the critical habitat designation for Topeka shiner under section 4(b)(2) of the Act. In our evaluation of potential critical habitat sites in Missouri, we conducted an analysis of the economic impacts and other relevant impacts of designating critical habitat. We provide the following 4(b)(2) analysis of the benefits of inclusion and the benefits of exclusion in assessing this exclusion of critical habitat in Missouri.

(1) Benefits of Inclusion

Federal actions that adversely affect critical habitat must undergo consultation under section 7 of the Act. Consultations on Federal actions involving critical habitat ensure that habitat needed for the survival and recovery of a species is not destroyed or adversely modified, in addition to the jeopardy standard applied to all listed species.

(2) Benefits of Exclusion

The benefits of excluding Missouri from designated critical habitat include--maintenance of effective working partnerships to promote the conservation of the Topeka shiner and its habitat; establishment of new partnerships; providing benefits from the Action Plan to the Topeka shiner

and its habitat which exceed those that would be provided by the designation of critical habitat; avoiding added administrative costs to the Service, Federal agencies, and applicants; and future regulatory flexibility for the Service and landowners by maintaining the ability to reintroduce the Topeka shiner to formerly occupied streams in Missouri as experimental populations under section 10(j) of the Act.

Recovery of listed species is often achieved through partnerships and voluntary actions. Through the Action Plan, the MDC has gained the cooperation of landowners and has been successful in developing voluntary conservation partnerships with these landowners. Cooperators, with the assistance of MDC, are implementing conservation measures for the Topeka shiner and its habitat in accordance with management objectives outlined in the Action Plan. These actions range from allowing access to private lands for surveys and site visits to rehabilitation of habitat and implementation of measures to control erosion and sedimentation. The partners have committed to conservation measures benefiting the Topeka shiner that are greater than the benefits of designating critical habitat. It is likely that many current and potential partners will not assume the cost and work associated with implementing voluntary management and protection if critical habitat is designated regardless of their desire to contribute to the conservation of the species. The MDC advised us that the support of voluntary conservation actions of private landowners that benefit Topeka shiner recovery in the State could be withdrawn if critical habitat was designated.

The Final Economic Analysis of Critical Habitat Designation for the Topeka Shiner determines that Bonne Femme and Moniteau Creeks in Missouri are potentially the most costly units of critical habitat based on costs per river mile (Industrial Economics, Inc. 2004). Together, these two units would cost an estimated $6.3 million over a ten year period based on the expectation that approximately 500 section 7 consultations would result from Topeka shiner listing and critical habitat in these units (Industrial Economics, Inc. 2004). An additional $0.9 million in section 7 costs associated with listing and critical habitat in the Sugar Creek Watershed, Missouri, would be expected over the same period (Industrial Economics, Inc. 2004).

In summary, we view the continued implementation of the Action Plan and the associated cooperative conservation partnerships with landowners to be essential for the conservation of the Topeka shiner in Missouri. We believe that the benefits of including critical habitat in Missouri would be only small additions to the currently ongoing successful conservation actions, as identified in the Action Plan, through multiple partnerships. We believe the benefits of excluding Missouri areas from critical habitat greatly exceed the limited benefits of including them. Furthermore, we believe that exclusion from critical habitat in this State will not result in the extinction of the Topeka shiner. In accordance with section 4(b)(2) of the Act, we believe that the benefits of excluding critical habitat in Missouri outweigh the benefits of designating critical habitat, and exclude areas in Missouri containing primary constituent elements from the critical habitat designation.

South Dakota

In our evaluation of potential critical habitat sites in South Dakota, we conducted an analysis of the economic impacts and other relevant impacts of designating critical habitat. We provide the following 4(b)(2) analysis of the benefits of inclusion and the benefits of exclusion in assessing this exclusion of critical habitat in South Dakota.

(1) Benefits of Inclusion

Federal actions that adversely affect critical habitat must undergo consultation under section 7 of the Act. Consultations on Federal actions involving critical habitat ensure that habitat needed for the survival and recovery of a species is not destroyed or adversely modified, in addition to the jeopardy standard applied to all listed species.

(2) Benefits of Exclusion

The benefits of excluding South Dakota from designated critical habitat include continued participation of State agencies to neutralize threats to Topeka shiner, maintenance of effective working partnerships to promote the conservation of the Topeka shiner and its habitat; establishment of new partnerships; providing benefits from the SD Plan to the Topeka shiner and its habitat which exceed those that would be provided by the designation of critical habitat; and avoiding added administrative costs to the Service, Federal agencies, and permit applicants.

Recovery of listed species that occur primarily on or adjacent to private lands is often best achieved through partnerships, voluntary actions, and incentives. Through the SD Plan, the State of South Dakota has gained the cooperation of landowners and has been successful in developing voluntary conservation partnerships with these landowners. Cooperators, with the assistance of partners identified in the SD Plan, are implementing conservation measures for the Topeka shiner and its habitat in accordance with management objectives outlined in the SD Plan. The State of South Dakota advises us that the support of voluntary conservation actions of private landowners that benefit Topeka shiner recovery in the State could be withdrawn if critical habitat was designated. The SDDGFP anticipates a negative effect to Topeka shiners from a critical habitat designation, which is expected to undermine the extensive beneficial partnerships that have been developed. The broad engagement of the many diverse groups and individuals that developed the SD Plan lends strength to both the SD Plan as well as our belief that its partnership and cooperative concepts have conservation value. The monitoring plan that the SD Plan has undertaken will provide annual data to track the status of the species. Section 4(a)(3)(B) allows us to revisit critical habitat designations. If the SD Plan has deficiencies that result in population declines, we retain the ability to designate CH in the State at a later date.

The Economic Analysis of Critical Habitat Designation for the Topeka Shiner determines that the total potential economic costs for South Dakota range from $8.6 million to $25.3 million over 10 years (Industrial Economics, Inc. 2004). On a cost per unit basis, after the Raccoon River Watershed in Iowa, the next five potentially most costly units of proposed designation occur in South Dakota (Big Sioux River (11 percent), Lower Big Sioux River, Vermillion River, Lower James River, and Upper James River watersheds, each accounting for 9 percent of total costs) (Industrial Economics, Inc. 2004).

In summary, we view the continued implementation of the SD Plan with its threat abatement and cooperative conservation partnerships with landowners to be essential for the conservation of the Topeka shiner in South Dakota. We believe that the benefits of including critical habitat in South Dakota are negligible compared to benefits of the conservation actions identified in the SD Plan. Finally, we believe that exclusion from critical habitat in South Dakota will not result in the extinction of the Topeka shiner nor adversely impact the species. In accordance with section 4(b)(2) of the Act, we believe that the benefits of excluding critical habitat in South Dakota outweigh the benefits of designating critical habitat in the State, and exclude areas in South Dakota containing primary constituent elements from the critical habitat designation.

3.4 Table 1. Summary of Actions by Alternative

ACTION	ALTERNATIVES[1]			
	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E (SELECTED ALTERNATIVE)
1. Designated Sites of Critical Habitat:				
Iowa	362 km (225 mi) of stream (25 stream segments) in the North Raccoon, Boone, and Rock River Watersheds	362 km (225 mi) of stream (25 stream segments) in the North Raccoon, Boone, and Rock River Watersheds	362 km (225 mi) of stream (25 stream segments) in the North Raccoon, Boone, and Rock River Watersheds	362 km (225 mi) of stream (25 stream segments) in the North Raccoon, Boone, and Rock River Watersheds
Kansas	945 km (587 mi) of stream (63 stream segments) in the Kansas, Big Blue, Smoky Hill, and Cottonwood River Watersheds, with exclusion of Fort Riley under section 3(5)(A) of the Act	945 km (587 mi) of stream (63 stream segments) proposed in the Kansas, Big Blue, Smoky Hill, and Cottonwood River Watersheds; and exclusion of Fort Riley (no habitat proposed) under section 4(a)(3) of the Act as amended in 2003	945 km (587 mi) of stream (63 stream segments) proposed in the Kansas, Big Blue, Smoky Hill, and Cottonwood River Watersheds,; and exclusion of Fort Riley (no habitat proposed) under section 4(a)(3) of the Act as amended in 2003	945 km (587 mi) of stream (63 stream segments) proposed in the Kansas, Big Blue, Smoky Hill, and Cottonwood River Watersheds, and subsequent exclusion of all proposed habitat under section 4(B)(2) of the Act; and exclusion of Fort Riley (no habitat proposed) under section 4(a)(3) of the Act as amended in 2003
Minnesota	974 km (605 mi) of stream (57 stream segments) in the Rock and Big Sioux River Watersheds	974 km (605 mi) of stream (57 stream segments) in the Rock and Big Sioux River Watersheds	974 km (605 mi) of stream (57 stream segments) in the Rock and Big Sioux River Watersheds	974 km (605 mi) of stream (57 stream segments) in the Rock and Big Sioux River Watersheds
Missouri	State-wide exclusion under section 3(5)(A) of the Act	148 km (92 mi) of stream (12 stream segments) proposed in the Grand and Missouri River Watersheds, and subsequent exclusion of all proposed habitat under section 4(B)(2) of the Act	148 km (92 mi) of stream (12 stream segments) proposed in the Grand and Missouri River Watersheds	148 km (92 mi) of stream (12 stream segments) proposed in the Grand and Missouri River Watersheds, and subsequent exclusion of all proposed habitat under section 4(B)(2) of the Act
Nebraska	10 km (6 mi) of stream (1 stream segment) in the Elkhorn River Watershed	10 km (6 mi) of stream (1 stream segment) in the Elkhorn River Watershed	10 km (6 mi) of stream (1 stream segment) in the Elkhorn River Watershed	10 km (6 mi) of stream (1 stream segment) in the Elkhorn River Watershed
South Dakota	1,476 km (917 mi) of stream (40 stream segments) in the Big Sioux, Vermillion, and James River Watersheds	1,500 km (932 mi) of stream (41 stream segments) in the Big Sioux, Vermillion, and James River Watersheds	1,500 km (932 mi) of stream (41 stream segments) in the Big Sioux, Vermillion, and James River Watersheds	1,500 km (932 mi) of stream (41 stream segments) in the Big Sioux, Vermillion, and James River Watersheds, and subsequent exclusion of all proposed habitat under section 4(B)(2) of the Act
Total Stream Mileage	3,765 km (2,340 mi)	3,937 km (2,447 mi) proposed, with 3,789 km (2,355 mi) finalized as critical habitat	3,937 km (2,447 mi)	1,356 km (836 mi) finalized as critical habitat
Total Stream Segments	186 segments	199 segments proposed, with 187 finalized as critical habitat	199 segments	83 finalized as critical habitat

[1] Does not include the No Action Alternative, since no areas would be designated as critical habitat. All actions are zero for this alternative.

4.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The geographic area for Alternative B includes 186 stream segments of proposed critical habitat found along 3,765 kilometers (2,340 miles) of streams in Iowa, Kansas, Minnesota, Nebraska, and South Dakota on Federal, State, and private lands. The geographic area for Alternative C includes 199 stream segments of proposed critical habitat found along 3,937 kilometers (2,447 miles) of streams in Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota on Federal, State, and private lands; and, 187 stream segments representing 3,789 kilometers (2,355 miles) of critical habitat finalized in Iowa, Kansas, Minnesota, Nebraska, and South Dakota on Federal, State, and private lands. Alternative D includes all areas proposed in Alternative C being finalized as critical habitat, representing 199 stream segments found along 3,937 kilometers (2,447 miles) of streams in Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota on Federal, State, and private lands. Alternative E (selected alternative) includes 199 stream segments of proposed critical habitat found along 3,937 kilometers (2,447 miles) of streams in Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota on Federal, State, and private lands; and, 83 stream segments representing 1,356 kilometers (836 miles) of critical habitat finalized in Iowa, Minnesota, and Nebraska on Federal, State, and private lands.

4.1 Physical Environment

Areas proposed as critical habitat in Alternative C generally occur within the native tallgrass prairie and mixed grass prairie regions of Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota.

Portions of the following river basins are included in the Proposed Action: In Iowa, the Des Moines, North Raccoon, and Rock; in Kansas, the Kansas, Big Blue, Smoky Hill, and Cottonwood; in Minnesota, the Big Sioux and Rock; in Missouri, Moniteau and Bonne Femme Creeks and the Grand River; in Nebraska, the Elkhorn; and in South Dakota, the Big Sioux, Vermillion, and James. All of the preceding watersheds drain into the greater Missouri River basin, with the exceptions of the Des Moines and North Raccoon Rivers in Iowa, which drain to the Mississippi River, and the Cottonwood River in Kansas, which drains to the Neosho (Grand) River and subsequently to the Arkansas River in Oklahoma.

The landscapes within these watersheds are predominantly a mosaic of cropland, native prairies comprised of warm season grasses, and pastureland of native and introduced grasses. Some forested areas exist within the areas of the proposal, mainly as floodplain and riparian forest and as woody encroachment into prairie and pasture areas. There also are small, localized areas within the proposal in or near small to moderately sized rural communities.

Counties within the physical environment of the Proposed Action are--in Iowa, Calhoun, Carroll, Dallas, Greene, Hamilton, Lyon, Osceola, Sac, Webster, and Wright Counties; in Kansas, Butler, Chase, Dickinson, Geary, Greenwood, Marion, Marshall, Morris, Pottawatomie, Riley, Shawnee, Wabaunsee, and Wallace Counties; in Minnesota, Lincoln, Murray, Nobles, Pipestone, and Rock Counties; in Missouri, Boone, Cooper, Daviess, Harrison, and Moniteau Counties; in Nebraska, Madison County; and in South Dakota, Aurora, Beadle, Brookings, Clay, Davison, Deuel,

Hamlin, Hanson, Hutchinson, Lincoln, McCook, Miner, Minnehaha, Moody, Turner.

4.2 Fish and Wildlife

Two federally listed endangered species could occasionally use habitat within the overall range of the Proposed Action, including the Interior least tern (*Sterna antillarum*) and whooping crane (*Grus americana*). Three federally listed threatened species, bald eagle (*Halieatus leucopcephalus*), Neosho madtom (*Noturus placidus*), and piping plover (*Charadrius melodus*) could additionally be found within the Proposed Action area.

In Kansas, the State-listed (as threatened) blackside darter (*Percina maculata*) is found within portions of the Proposed Action area.

In addition, many species of birds, waterfowl, fishes, mammals, amphibians, and reptiles also use habitat within the Proposed Action area.

4.3 Human Environment

A wide diversity of human activities and land uses occur throughout or adjacent to the areas proposed for designation as critical habitat in Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota. Uses and activities include farming and ranching, water quality activities including municipal water supply, transportation infrastructure including road and bridge construction and maintenance, utility infrastructure, dam construction and rehabilitation, streambank stabilization and channelization, and a variety of conservation and recreational activities. Private, State, and Federal lands are included in the proposed action.

The designation of critical habitat directly affects only Federal Agencies. The Act requires Federal Agencies to ensure that actions they fund, authorize, or carry out do not destroy or adversely modify critical habitat to the extent that the action appreciably diminishes the value of the critical habitat for the survival and recovery of the species. Individuals, organizations, States, local and Tribal governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding (for example, 404 permits from the U.S. Army Corps of Engineers, dam licensing or relicensing by the Federal Energy and Regulatory Commission, or funding of activities by the Natural Resource Conservation Service).

4.4 Tribal Lands

There are two Tribes which may have privately owned trust lands located within or near the geographic range of the Proposed Action. They are the Sisseton-Wahpeton Sioux Tribe and the Flandreau Santee Sioux Tribe. We have identified no tribal lands that will be designated as proposed critical habitat.

5.0 ENVIRONMENTAL CONSEQUENCES

This section reviews the expected environmental consequences of designating critical habitat for the Topeka shiner under each of the Action Alternatives and the environmental consequences of the No Action Alternative. The impacts of critical habitat designation involve evaluating the "without critical habitat" baseline versus the "with critical habitat" scenario. Impacts of a designation equal the difference, or the increment, between the two scenarios. Measured differences between the baseline and the scenario in which critical habitat is designated may include, but are not limited to, changes in land use, environmental quality, property values, or time and effort expended on consultations and other activities by Federal landowners, Federal action agencies, and in some instances, State and local governments and private third parties. These incremental changes may be either positive or negative.

In accordance with section 7(a)(2) of the Act, Federal agencies are required to review actions they authorize, fund, or carry out to determine the effects of proposed actions on federally listed species. If the Federal agency determines that its action may adversely affect a listed species, it must enter into formal consultation with the Service. This consultation results in a biological opinion issued by the Service as to whether the proposed action is likely to jeopardize the continued existence of the species, which is prohibited under the Act.

A similar process would be required if critical habitat is designated. While reviewing their actions to determine the effect on the listed species, Federal agencies also would review their action for the effects on critical habitat and would enter into section 7 consultations with us on actions they determine may affect critical habitat. If the proposed action was determined to be likely to adversely affect the species or the critical habitat, the consultation would result in a biological opinion as to whether the proposed action is likely to destroy or adversely modify designated critical habitat, which also is prohibited under the Act.

Activities that would destroy or adversely modify critical habitat are defined as those actions that "appreciably diminish the value of critical habitat for both the survival and recovery" of the species (50 CFR 401.02). Activities that would jeopardize the continued existence of a species are defined as those actions that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery" of the listed species (50 CFR 402.02). Given the similarity of these definitions, activities that would likely destroy or adversely modify critical habitat would almost always result in jeopardy to the species. This is particularly true in cases, such as Topeka shiner, where no unoccupied habitat is proposed for designation as critical habitat.

Federal agencies have been required to ensure that their actions do not jeopardize the continued existence of the Topeka shiner since its listing in 1998. In Fiscal Years 1999 through 2003, we conducted three (both in Kansas) formal section 7 consultations with other Federal agencies to ensure that their actions were not likely to jeopardize the continued existence of the Topeka shiner. The prohibition against adverse modification of critical habitat is not expected to impose any additional restrictions to those that currently exist in areas with the species. However, we do realize that some Federal agencies have not fully recognized their responsibilities under the Act

and may not have been initiating section 7 consultation and may now recognize their need to do so.

It is difficult to differentiate between consultations that result from the listing of the Topeka shiner (i.e., jeopardy to the species) and consultations that result from the presence of critical habitat (i.e., destruction or adverse modification of critical habitat). The Economic Analysis (Industrial Economics, Inc. 2003) quantifies the potential impacts associated with all future section 7 in or near proposed critical habitats. As a result, the analysis results in an over-estimation of the impacts of the proposed critical habitat, in that it likely overstates the impacts of regulatory activity attributable to critical habitat designation. The following discussion will disclose the potential impacts associated with all future section 7 in or near critical habitat, and also will describe how much of this cost is attributable to critical habitat designation.

Individuals, organizations, States, local and Tribal governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding (e.g., 404 permits from the U.S. Army Corps of Engineers, dam licensing or relicensing by the FERC, or funding of activities by the Natural Resource Conservation Service).

Potential environmental consequences that may result from implementation of the No Action and Action Alternatives are discussed below. All impacts are expected to be indirect, as critical habitat designation does not in itself directly result in any alteration of the environment.

As required by NEPA, this document is in part intended to disclose the programmatic goals and objectives of the Act. The goals and objectives of the Act are to conserve threatened and endangered species and the ecosystems upon which they depend, and to carry out applicable treaties and conventions.

5.1 Physical Environment

None of the alternatives will impact the physical environment.

5.2 Fish, Wildlife, and Plants

5.2.1 Topeka Shiner

The No Action Alternative would have no impacts on the Topeka shiner because the protections resulting from its listing in 1998 and the associated requirements of section 7 of the Act are already in place and protections associated with a critical habitat designation would be duplicative.

All Action Alternatives would have similar effects on the Topeka shiner, in that there may be minimal additional impacts beyond those already considered in section 7 consultation since the 1998 listing. However, these additional impacts would be slightly increased under Alternative

D, as it also would designate critical habitat in the State of Missouri. Benefits to the Topeka shiner that may accrue from designation of critical habitat, under any of the Action Alternatives, would be the requirement under section 7 of the Act that Federal agencies review their actions to assess their effects on critical habitat. Designation of critical habitat also may provide some benefits by alerting Federal agencies to situations when section 7 consultation is required. Another potential benefit is that critical habitat may help to focus Federal, State, and private conservation and management efforts by identifying the areas of most importance to a species. Critical habitat also allows for long-term project planning, in relation to species conservation.

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

5.2.2 Other Fish, Wildlife and Plant Species

The No Action Alternative would have no significant impacts on fish, wildlife or plants beyond those protections already in place as a result of listing of the Topeka shiner in 1998 and associated requirements of section 7 of the Act.

All Action Alternatives would have similar effects on fish, wildlife, and plants, in that there may be minimal additional impacts beyond those already considered in section 7 consultation since the 1998 listing. However, these additional impacts would be most widespread under Alternative D, as it would designate the most critical habitat over the widest area. The objective of designating critical habitat is to protect features essential to the conservation of the species for which the habitat is designated.

Fish, wildlife, and plants may indirectly benefit as a result of ecosystem protections provided through conservation of the Topeka shiner and the associated requirements of section 7(a)(2) of the Act. As a result of critical habitat designation, Federal agencies may be able to prioritize landowner incentive programs such as the Wildlife Habitat Incentives Program or Environmental Quality Incentives Program enrollment, riparian easements, and private landowner agreements that benefit the Topeka shiner, as well as other fish, wildlife, and plant species. Critical habitat designation also may assist States in prioritizing their conservation and land-managing programs.

5.3 Human Environment

As discussed above, individuals, organizations, States, local governments, and other non-Federal entities are only affected by the designation of critical habitat if their actions occur on Federal lands, require a Federal permit, license, or authorization, or involve Federal funding. Since 1998, Federal agencies have been required to consider the effects of their actions on Topeka shiner and consult with the Service as appropriate. While a similar process is required for critical habitat, analysis of effects to critical habitat is not expected to cause large increases in the

number or complexity of consultations. This is true partially because no unoccupied habitat has been proposed for designation as critical habitat. However, we realize that some Federal agencies have not fully recognized their responsibilities under the Act and may not have been initiating section 7 consultation. Those agencies may now recognize their need to do so, resulting in a small increase in consultations.

We recognize a perception may exist within some segments of the public that any of the action alternatives designating critical habitat will severely limit property rights; however, critical habitat designation has no effect on private actions on private land that do not involve Federal approval or action. We recognize that there are private actions on private lands that involve Federal actions; however, there should already be section 7 consultations taking place in these situations.

Differentiating between consultations that result from the listing of the Topeka shiner and consultations that result from the presence of critical habitat is difficult. Therefore, the following discussion will disclose the potential impacts associated with all future section 7 consultation in or near critical habitat units, as provided in the Economic Analysis and will describe how much of this cost is likely attributable to critical habitat designation (Industrial Economics, Incorporated 2003). Unless otherwise cited, the following information is taken from the Economic Analysis of Critical Habitat Designation for the Topeka Shiner (Economic Analysis) (Industrial Economics, Incorporated 2004). The section 7 costs related below also include associated technical assistance costs.

5.4 Farming and Ranching

The No Action Alternative would have no impacts on agricultural activities, including farming and grazing, beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For Alternatives B, C, D and E, agricultural activities will be affected by critical habitat only minimally, because they typically do not involve a Federal nexus, as most are not authorized, permitted, or funded by a Federal agency. However, there are some Federal agricultural programs that may create a Federal nexus with agricultural activity in critical habitat areas. These programs include--(1) agricultural operation improvements funded through programs of the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS), and (2) conservation activities, such as riparian improvement projects, funded by FSA and/or NRCS through programs such as the Environmental Quality Incentives Program (EQIP). Impacts to agricultural activities result from administrative costs associated with the consultation process, costs of project delays, and costs of project modifications to protect habitat. However, there is a great deal of uncertainty regarding the nature and cost of project modifications that may be requested by the Service in consultations on federally funded operational improvement and conservation activities. For Alternative B and C, maximum total section 7 consultation costs associated with agricultural activities affecting proposed critical habitat for Topeka shiner are estimated at $9.87 million over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, total costs would increase

$1.94 million over Alternatives B and C due to the additional critical habitat designated in Missouri. Under Alternative E, maximum section 7 consultation costs for these activities are estimated to be $1.74 million over the next 10 years.

As discussed previously, only a small portion of the total future section 7 consultation cost results from designation of critical habitat. This is particularly true of agricultural activities, since these types of activities do not typically result in "adverse modification" of critical habitat. Adverse modification is defined as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

5.5 Transportation

The No Action Alternative would have no impacts on transportation, including road and bridge construction and maintenance, beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For all action alternatives, there is the potential for a significant number of road and bridge construction and maintenance activities within critical habitat over the next 10 years. The projects may include construction and maintenance of Federal, State, county, township, and private roads and bridges. The typical Federal connections for these activities are either funding from the Federal Highway Administration or a section 404 permit under the Clean Water Act from the Corps of Engineers for projects involving placement of fill material into a water of the United States.

Impacts to road and bridge construction and maintenance activities result from administrative costs associated with the consultation process, costs of project delays, and costs of project modifications to protect habitat. For Alternative B and C, maximum total section 7 consultation costs associated with road and bridge construction and maintenance activities affecting proposed critical habitat for Topeka shiner are estimated at $20.85 million over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, total costs would increase $1.77 million over Alternatives B and C due to the additional critical habitat designated in Missouri. Under Alternative E, maximum section 7 consultation costs for these activities are estimated to be $8.25 million over the next 10 years.

Only a small portion of the future total section 7 consultation cost results from designation of critical habitat. This is especially true of road and bridge construction and maintenance activities, since these types of activities are typically of limited scope and duration. Road and bridge construction can be designed to minimize habitat disturbance, maintain habitat connectivity, and provide for free movement through the area. Maintenance activities alone are likely to have only minimal impacts to habitat.

It may be perceived that designation of critical habitat, as prescribed in the Action Alternatives, limit timeframes and thus increase the number of construction and maintenance delays for on the

ground construction and maintenance activities for roads and bridges. This is an inaccurate perception, because prescribed timeframes are the purview of already existing section 7 requirements.

5.6 Utilities

The No Action Alternative would have no impacts on utilities beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For all action alternatives, utility projects anticipated for proposed critical habitat include sewer pipelines, water transmission mains, petroleum and natural gas pipelines, fiber optic cable installation, and other services related to development. Impacts to utility projects result from administrative costs associated with the consultation process, costs of project delays, and costs of project modifications to protect habitat. For Alternative B and C, maximum total section 7 consultation costs associated with utility activities affecting proposed critical habitat for Topeka shiner are estimated at $473,000 over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, total costs would increase $1.83 million due to the additional critical habitat designated in Missouri. Under Alternative E, there are no estimated section 7 consultation costs for these activities. These costs would be borne by the Service, Federal action agencies, and third parties, such as interstate pipeline companies.

Utility projects are typically of limited scope and associated disturbance is of a temporary nature. These projects can be designed to minimize habitat disturbance and, with appropriate habitat reclamation after project completion, the projects will maintain habitat connectivity and provide free movement through the area. Maintenance activities are likely to have only minimal impacts to habitat. Therefore, only a very small portion of the future total section 7 consultation costs result from critical habitat designation.

5.7 Bank Stabilization and Channelization

The No Action Alternative would have no impacts on bank stabilization beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For all action alternatives, bank stabilization projects anticipated for proposed critical habitat may include projects implemented to stabilize streambanks, alignment and channelization for flood management and agricultural land protection. Impacts to bank stabilization projects result from administrative costs associated with the consultation process, costs of project delays, and costs of project modifications to protect habitat. For Alternative B and C, maximum total section 7 consultation costs associated with bank stabilization and channelization activities affecting proposed critical habitat for Topeka shiner are estimated at $586,000 over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, total costs would increase $984,000 due to the additional critical habitat designated in Missouri. Under Alternative E, maximum section 7 consultation costs for these activities are estimated to be $96,000 over the next 10 years. These costs would be borne by the Service, Federal action agencies, and third parties.

Only a small portion of the future total section 7 consultation cost associated with bank stabilization projects results from designation of critical habitat. Bank stabilization projects are typically designed in a manner that minimizes habitat disturbance, maintains habitat connectivity, and provides for free movement through the area.

5.8 Recreation and Conservation

The No Action Alternative would have no impacts on recreation and conservation actions beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For all action alternatives, recreation and conservation projects anticipated for proposed critical habitat may include recreation management on Federal lands and conservation projects funded through the Service and other Federal agencies, including the development of conservation and species management plans.

Impacts to recreation and conservation projects result from administrative costs associated with the consultation process. For Alternative B and C, maximum total section 7 consultation costs associated with recreation and conservation activities affecting proposed critical habitat for Topeka shiner are estimated at $1.87 million over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, total costs would increase $125,000 due to the additional critical habitat designated in Missouri. Under Alternative E, maximum section 7 consultation costs for these activities are estimated to be $973,000 over the next 10 years. These costs would be borne by the Service, Federal action agencies, and third parties. Only a portion of the future total section 7 consultation cost associated with recreation and conservation projects results from designation of critical habitat.

5.9 Dam Construction and Rehabilitation

The No Action Alternative would have no impacts on dam construction and rehabilitation beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For all action alternatives, dam construction and rehabilitation projects anticipated for proposed critical habitat may include projects implemented to prevent or reduce flooding for community and agricultural land protection.

Impacts to these projects result from administrative costs associated with the consultation process, costs of project delays, and costs of project modifications to protect habitat. For Alternative B and C, maximum total section 7 consultation costs associated with dam related activities affecting proposed critical habitat for Topeka shiner are estimated at $1.82 million over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, no cost increases are predicted. Under Alternative E, maximum section 7 consultation costs for these activities are estimated to be $17,000 over the next 10 years.

5.10 Water Quality Activities

The No Action Alternative would have no impacts on water quality activities beyond those already resulting from the 1998 listing of the Topeka shiner and the associated requirements of section 7 of the Act.

For all action alternatives, water quality activities anticipated for proposed critical habitat may include section 401 water quality certification and NPDES permits for municipalities and confined animal feeding operations.

Impacts to these water quality activities result from administrative costs associated with the consultation process, costs of project delays, and costs of project modifications to protect habitat. For Alternative B and C, maximum total section 7 consultation costs associated with water quality activities affecting proposed critical habitat for Topeka shiner are estimated at $3.34 million over the next 10 years. These costs would be borne by the Service, Federal action agencies, and private landowners. For Alternative D, total costs would increase $25,000 due to the additional critical habitat designated in Missouri. Under Alternative E, there are no predicted costs for consultation. These costs would be borne by the Service, Federal action agencies, and third parties. Only a small portion of the future total section 7 consultation cost associated with water quality activities results from designation of critical habitat.

5.11 Archeological and Cultural Resources

The No Action Alternative would have no impacts on archaeological and cultural areas beyond those already resulting from the 1998 listing of Topeka shiner and the associated requirements of section 7 of the Act. All of the action alternatives would have similar effects on archeological and cultural sites, in that there are not likely to be any additional impacts beyond what we have already considered in section 7 consultation since the 1998 listing. While designation of critical habitat is expected to have no direct impacts on these resources, an indirect beneficial effect may be the potential increased protection of these sites and resources within critical habitat if a Federal action is proposed.

5.12 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (1994), directs Federal Agencies to incorporate environmental justice in their decision making process. Federal Agencies are directed to identify and address as appropriate, any disproportionately high and adverse environmental effects of their programs, policies, and activities on minority or low-income populations. This assessment has not identified any adverse or beneficial effects unique to minority or low-income human populations in the affected areas.

5.13 Cumulative Impact

Designation of critical habitat for the Topeka shiner will add minimal incremental impacts when added to other past, present, and reasonably foreseeable future actions.

We expect the impacts to be relatively small because in addition to the Topeka shiner, several listed and candidate species also may occur in the area. These include the interior least tern, bald eagle, and Neosho madtom. Federal Agencies are required to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of the listed species, or destroy or adversely modify designated critical habitat in accordance with section 7(a)(2) of the Act.

Activities that adversely modify critical habitat are defined as those actions that "appreciably diminish the value of critical habitat for both the survival and recovery" of the species (50 CFR 401.02). Activities that jeopardize a species are defined as those actions that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery" of the listed species (50 CFR 402.02). According to these definitions, activities that destroy or adversely modify critical habitat would almost always jeopardize the species. Therefore, designation of critical habitat has rarely resulted in greater protection than that afforded under section 7 by the listing of a species. Section 7 consultations apply only to actions with Federal involvement (i.e., activities authorized, funded, or conducted by Federal agencies), and do not impact activities strictly under State or private authority. In practice, the designation of critical habitat for the Topeka shiner will likely provide little additional benefits to the species because there are functioning program activities already

alerting Federal agencies and the public of endangered species concerns. However, we recognize that Federal agencies may not carry out their section 7 responsibilities in all cases.

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

5.14 Table 2. Summary of Environmental Consequences by Alternative

IMPACTS	ALTERNATIVES				
	ALTERNATIVE A NO ACTION	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E (SELECTED ALTERNATIVE)
Topeka Shiner	No change to existing situation.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.
Fish, Wildlife, and Plants	No change to existing situation.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.
Agriculture and Ranching	No change to existing situation.	Total section 7 consultation costs -$9.87 million	Total section 7 consultation costs-$9.87 million	Total section 7 consultation costs-$11.81 million	Total section 7 consultation costs-$1.74 million
Transportation	No change to existing situation.	Total section 7 consultation costs -$20.85 million	Total section 7 consultation costs-$20.85 million	Total section 7 consultation costs-$22.62 million	Total section 7 consultation costs-$8.25 million
Utilities	No change to existing situation.	Total section 7 consultation costs -$473,000	Total section 7 consultation costs-$473,000	Total section 7 consultation costs-$2.30 million	No predicted section 7 consultation costs
Streambank Stabilization and Channelization	No change to existing situation.	Total section 7 consultation costs -$586,000	Total section 7 consultation costs-$586,000	Total section 7 consultation costs - $1.57 million	Total section 7 consultation costs-$96,000

IMPACTS	ALTERNATIVES				
	ALTERNATIVE A NO ACTION	**ALTERNATIVE B**	**ALTERNATIVE C**	**ALTERNATIVE D**	**ALTERNATIVE E (SELECTED ALTERNATIVE)**
Topeka Shiner	No change to existing situation.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, designation of critical habitat can help focus conservation activities for listed species.
Fish, Wildlife, and Plants	No change to existing situation.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.	May be minimal beneficial impacts beyond those associated with the 1998 listing. For example, Federal Agencies may be able to prioritize landowner incentive programs such as Conservation Reserve Program enrollment, grassland easements, and private landowner agreements that benefit more species.
Recreation and Conservation	No change to existing situation.	Total section 7 consultation costs -$1.87 million	Total section 7 consultation costs-$1.87 million	Total section 7 consultation costs - $2.00 million	Total section 7 consultation costs-$973,000
Dam Construction and Rehabilitation	No change to existing situation.	Total section 7 consultation costs -$1.82 million	Total section 7 consultation costs-$1.82 million	Total section 7 consultation costs - $1.82 million	Total section 7 consultation costs-$17,000
Water Quality	No change to existing situation.	Total section 7 consultation costs -$3.34 million	Total section 7 consultation costs-$3.34 million	Total section 7 consultation costs - $3.40 million	No predicted section 7 consultation costs
Archaeological and Cultural	No change to existing situation.	No likely additional impacts beyond those associated with the 1998 listing.	No likely additional impacts beyond those associated with the 1998 listing.	No likely additional impacts beyond those associated with the 1998 listing.	No likely additional impacts beyond those associated with the 1998 listing.
Environmental Justice	No change to existing situation.	No impacts.	No impacts.	No impacts.	No impacts.

6.0 COUNCIL ON ENVIRONMENTAL QUALITY ANALYSIS OF SIGNIFICANCE

Under CEQ 40 CFR Part 1508.27, the determination of "significantly" requires consideration of both context and intensity.

6.1 Context

Based upon our responses from agencies and the public any effects, although long-term, will not be national, only regional and mostly local in context; and any that occur are expected to be small.

6.2 Intensity

Intensity is defined by CEQ as referring to the severity of impact. The following 10 points identified by CEQ were considered in evaluating intensity:

1. We foresee minimal additional negative impacts beyond what we have already considered in section 7 consultation since the 1998 listing. There may be perceived negative impacts, but we are carrying out a public outreach program that should address and minimize most of those misconceptions. There may be some beneficial impacts to the environment.

2. This designation will not have a discernable impact on human safety.

3. Although several areas designated as critical habitat are in proximity to historic and cultural sites, parklands, farmland, wetlands, and ecologically critical areas, minimal adverse impacts will occur to these areas; in fact, the ecologically critical areas are expected to only benefit from some of the perceptions attached to this designation.

4. There is a perception by some segments of the public that critical habitat designation will severely limit property rights; however, critical habitat designation has no effect on private actions on private land that do not involve Federal approval or action. Therefore, we conclude that this misconception will be clarified by the Final Rule and will result in this designation not being highly controversial.

5. The Service has designated critical habitat for other species in the recent past and we are familiar with the associated effects. Therefore, we anticipate minimal effects to the human environment and we are certain this action does not involve any unique or unknown risks.

6. This designation of critical habitat is not expected to set any precedents for future actions with significant effects or represent a decision in principle about a future consideration because critical habitat has been designated before for other species, as required by law.

7. This designation of critical habitat will be additive (cumulative) to critical habitat that has been, and will be, designated for other species. However, it is the Service's conclusion that the beneficial and adverse impacts of any and all critical habitat designations are small and, therefore, insignificant due to the existing impacts, both beneficial and adverse, already resulting from the listing of the species involved.

8. This designation will have minimal adverse effects to National Register of Historic Places or other cultural sites.

9. Most impacts from this designation of critical habitat will be beneficial to endangered and threatened species, particularly the Topeka shiner. Designation of critical habitat can help focus conservation activities for listed species by identifying areas essential to conserve the species. Designation of critical habitat also alerts the public, as well as land-managing agencies, to the importance of these areas. These benefits are minimal, as most occurred at the time of listing.

10. This designation of critical habitat will not violate any Federal, State, or local laws or requirements imposed for the protection of the environment.

7.0 CONTACTS AND COORDINATION WITH OTHERS

We have coordinated with the States of Iowa, Kansas, Minnesota, Missouri, Nebraska, and South Dakota, Tribes, Federal Agencies, and other Interested Parties through letters, post cards, formal and informal presentations, and telephone calls. Each Service Field Office contacted their State's respective governor, congressional delegation, fish and wildlife agency, counties, and interest groups. Contacts included: Iowa Department of Natural Resources, Kansas Department of Wildlife and Parks, Minnesota Department of Natural Resources, Missouri Department of Conservation, Nebraska Game and Parks Commission, South Dakota Department of Game Fish and Parks, Natural Resources Conservation Service, National Park Service, U.S. Geological Survey, Bureau of Indian Affairs, U.S. Army Corps of Engineers, U.S. Forest Service, The Nature Conservancy, State Farm Bureaus, State Livestock Associations, drainage districts, conservation districts, water development districts, and watershed districts. The Service's South Dakota Field Office contacted the Sisseton-Wahpeton Sioux Tribe and the Flandreau Santee Sioux Tribe.

7.1 Copy Recipients or Contacts

The following is a list of individuals, organizations, and public agencies contacted concerning development of this Environmental Assessment and the proposed rule to designate critical habitat for the Topeka shiner. Each of these individuals also will be notified of the publication of the final rule:

Federal Agencies

- Department of Defense
  - Fort Riley Military Installation, Kansas
  - U.S. Army Corps of Engineers
    - Omaha District
    - St. Paul District
    - Kansas City District
- Department of the Interior
  - Bureau of Indian Affairs
  - Fish and Wildlife Service
    - Big Stone National Wildlife Refuge
    - Private Lands Coordinator
      - Iowa, Kansas, Minnesota, Missouri, Nebraska, South Dakota
    - Law Enforcement Division
      - Iowa, Kansas, Minnesota, Missouri, Nebraska, South Dakota
    - Great Plains FWMAO, Pierre, South Dakota
    - Windom Wetland Management District, Minnesota
  - National Park Service
    - Pipestone National Monument
    - Tallgrass Prairie National Preserve
  - U.S. Geological Survey
    - Kansas State Cooperative Fish and Wildlife Research Unit
    - Minnesota Cooperative Fish and Wildlife Research Unit
    - South Dakota State Cooperative Fish and Wildlife Research Unit
- Department of Agriculture
  - Natural Resources Conservation Service
    - Iowa State Office
    - Kansas State Office
    - Minnesota State Office
    - Missouri State Office
    - Nebraska State Office
    - South Dakota State Office
  - Farm Service Agency
  - Animal and Plant Health Inspection Service
- Department of Transportation
  - Federal Highway Administration
- Federal Emergency Management Agency
- U.S. Environmental Protection Agency

Federal Congressional Delegation

- Iowa
  - Office of Senator Chuck Grassley
  - Office of Senator Tom Harkin
  - Office of Representative James A. Leach
  - Office of Representative Jim Nussle

Office of Representative Leonard L. Boswell
Office of Representative Tom Latham

Kansas
Office of Senator Sam Brownback
Office of Senator Pat Roberts
Office of Representative Jerry Moran
Office of Representative Jim Ryun
Office of Representative Dennis Moore
Office of Representative Todd Tiahrt

Minnesota
Office of Senator Mark Dayton
Office of Senator Norm Coleman
Office of Representative Gil Gutknecht
Office of Representative Collin C. Peterson

Missouri
Office of Senator Christopher Bond
Office of Senator James Talent
Office of Representative Ike Skelton
Office of Representative Samuel Graves

Nebraska
Office of Senator Chuck Hagel
Office of Senator Ben Nelson
Office of Representative Doug Bereuter
Office of Representative Lee Terry
Office of Representative Tom Osborne

South Dakota
Office of Senator Tom Daschle
Office of Senator Tim Johnson
Office of Representative William Janklow

Tribes
Sisseton-Wahpeton Sioux
Flandreau Santee Sioux
Cheyenne River Sioux
Standing Rock Sioux
Yankton Sioux

State Agencies
Iowa Department of Natural Resources
Kansas Biological Survey
Kansas Department of Agriculture
Kansas Department of Transportation
Kansas Department of Health and Environment
Kansas Parks and Wildlife
Kansas Water Office

Minnesota Board of Soil and Water Resources
Minnesota Department of Natural Resources
Minnesota Department of Agriculture
Minnesota Department of Transportation
Minnesota Pollution control Agency
Nebraska Department of Environmental Quality
Nebraska Department of Natural Resources
Nebraska Department of Roads
Nebraska Federal Highway Administration
Nebraska Game and Parks Commission
South Dakota Department of Game, Fish, and Parks
South Dakota Department of Agriculture
South Dakota Department of Environment and Natural Resources
South Dakota Department of Military and Veterans Affairs
South Dakota Governors Office of Economic Development
South Dakota Department of Transportation

Governors

Iowa - Tom Vilsack
Kansas - Kathleen Sebelius
Minnesota - Tim Pawlenty
Missouri - Bob Holden
Nebraska - Mike Johanns
South Dakota - Mike Rounds

State Legislative Members

Minnesota

Senator LeRoy A. Stumpf
Representative Maxine Penas

South Dakota

Senators

Kenneth Albers, Don Brosz, Arnold Brown, Rebecca Cradduck, Dennis Daugard, Elmer Diedtrich, Larry Diedtrich, Paul Dennert, Barbara Everist, Brock Greenfield, Robert Duxbury, Gil Koetzle, Garry Moore, Jonh McIntyre, David Munson, Ed Olson, J.E. Putnam, John Reedy, Dan Sutton, Kermit Staggers, Paul Symens, Ron Volesky

Representatives

Gene Abdallah, Tim Begalka, Richard Brown, Michael Broderick, Jr., Quinten Burg, Judy Clark, Kay Davis, Burt Eliot, Charles Flowers, Larry Frost, Art Fryslie, Margaret Gillespie, Mary Glenski, Tom Hanson, Gary Hanson, Phillis Heineman, Don Hennies, Jim Holbeck, Jim Hundstad, Dale Hargens, Jean Hunhoff, Mike Jaspers, Al Koistinen, Clair Konold, Clarence Kooistra, Frank Kloucek, Gerald Lange, Mat McCaulley, Matthew Michels, Casey Murschel, B.J. Nesselhuf, Mel Olsen, Jim Peterson, Bill Peterson, Carol Pitts, Mitch Richter, Lou Sebert, David Sigdestad, Dale Slaughter, Orville Smidt, Burdette Solum, Duane Sutton, Bill Van Gerpen, Hal Wick

County Commissioners

- Iowa
  - County Commissioners from the following counties: Calhoun, Carroll, Dallas, Greene, Hamilton, Lyon, Osceola, Sac, Webster, and Wright
- Kansas
  - County Commissioners from the following counties: Butler, Chase, Dickinson, Geary, Greenwood, Marion, Marshall, Morris, Pottawatomie, Riley, Shawnee, Wabaunsee, Wallace
- Missouri
  - County Commissioners from the following counties: Boone, Cooper, Daviess, Grundy, Harrison, and Moniteau
- Minnesota
  - County Commissioners from the following counties: Lincoln, Murray, Nobles, Pipestone and Rock
- Nebraska
  - County Commissioners from the following county: Madison
- South Dakota
  - County Commissioners from the following counties: Aurora, Beadle, Brookings, Brown, Clark, Codington, Clay, Davison, Deuel, Grant, Hamlin, Hanson, Hutchinson, Jerrauld, Kingbury, Lake, Lincoln, McCook, Miner, Minnehaha, Moody, Sanborn, Spink, Turner, Union, Yankton

Private Groups

- American Farm Bureau
  - Iowa Farm Bureau
  - Kansas Farm Bureau
  - Minnesota Farm Bureau
  - Missouri Farm Bureau
  - Nebraska Farm Bureau
  - South Dakota Farm Bureau
- American Fisheries Society
  - Kansas Chapter
  - South Dakota Chapter
- American Rivers, South Dakota Field Office
- East Dakota Water Development District
- Iowa Drainage District Association
- James River Water Development District
- Kansas Livestock Association
- Lake Campbell/Battle Creek Watershed Project
- Lake Pelican Water Project District
- Lake Kampeska Watershed Project
- National Audubon Society
  - Minnesota Audubon Council
- The Nature Conservancy
  - Minnesota Chapter
- Nebraska Cattlemen Association

Nebraska Farm Bureau
Pelican Lake Association, South Dakota
Sierra Club
  Ozark Chapter
  North Star Chapter
South Dakota Farm Bureau
Swan Lake Improvement Association, South Dakota
The Wildlife Federation
  Kansas Chapter
The Wildlife Society
  Kansas Chapter
  South Dakota Chapter
Vermillion Basin Water District

8.0 LIST OF CONTRIBUTORS

Phil Delphey, Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Minneapolis, Minnesota

Natalie Gates, Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Pierre, South Dakota

Paul McKenzie, Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Columbia, Missouri

Jody Millar, Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Rock Island, Illinois

Vernon Tabor, Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Manhattan, Kansas

9.0 REFERENCES CITED

Cross, F.B. 1967. Handbook of fishes of Kansas. University of Kansas, Museum of Natural History. Miscellaneous Publication Number 45. 357pp.

Gilbert, C.H. 1884. Notes on fishes of Kansas. Bulletin of Washburn College, Laboratory of Natural History 1(1):10-16.

Industrial Economics, Inc. 2003. Draft economic analysis for critical habitat designation for Topeka shiner.

Leopold, L.B., M.G. Wolman, and J.P. Miller. 1992. Fluvial processes in geomorphology. Dover Publications, Inc. Minneola, New York. 522pp.

Minckley, W.L. and F.B. Cross. 1959. Distribution, habitat, and abundance of the Topeka shiner *Notropis topeka* (Gilbert) in Kansas. American Midland Naturalist 61(1):210-217.

Missouri Department of Conservation. 1999. An action plan for the Topeka shiner (*Notropis topeka)* in Missouri. 40pp.

Pflieger, W.L. 1975. The fishes of Missouri. Missouri Department of Conservation. 343pp.

Robins, C.R., R.M. Bailey, C.E. Bond, J.R. Brooker, E.A. Lachner, R.N. Lea and W.B. Scott. 1991. Common and scientific names of fishes from the United States and Canada. American Fisheries Society, Special Publication 20. 183pp.

Rosgen, D. 1996. Applied river morphology. Printed Media Companies, Minneapolis, Minnesota. 400pp.

U.S. Fish and Wildlife Service. 1993. Status report on Topeka shiner (*Notropis topeka*). Kansas Field Office, Region 6, Manhattan, Kansas. 22pp.

U.S. Fish and Wildlife Service. 1998. Final rule to list the Topeka shiner as endangered. Federal Register 63(240):69008-69021.

U.S. Fish and Wildlife Service. 2002. Agency/technical draft Topeka shiner recovery plan. Kansas Field Office, Region 6, Manhattan, Kansas. 70pp.

10.0 APPENDIX

10.1 Legal Descriptions of Designated Critical Habitat for Topeka Shiner from Alternative E (selected alternative)

[Topeka Shiner Map 1: North Raccoon River Watershed - Calhoun, Carroll, Dallas, Greene, Sac and Webster Counties, Iowa.]

North Raccoon River Complex

1a. Indian Creek from its confluence with the North Raccoon River (T87N, R35W, Sec. 24), upstream through T87N, R35W, Sec. 29.

1b. Tributary to Indian Creek (Ditch 57), from their confluence (T87N, R35W, Sec. 23), upstream to the confluence with the outlet creek from Black Hawk Lake (T86N, R36W, Sec. 1).

1c. Outlet Creek from Black Hawk Lake from its confluence with Ditch 57 (T86N, R36W,

Sec. 1), upstream to lake outlet (T87N, R35W, Sec. 35).

2a. Camp Creek from its confluence with the North Raccoon River (T86N, R34W, Sec. 7), upstream through T87N, R34W, Sec. 8.

2b. West Fork Camp Creek from its confluence with Camp Creek (T87N, R34W, Sec. 8), upstream through T88N, R34W, Sec. 32.

3. Prairie Creek from its confluence with the North Raccoon River (T86N, R34W, Sec. 16), upstream through T87N, R34W, Sec. 35.

4. Lake Creek from its confluence with the North Raccoon River (T86N, R34W, Sec. 23), upstream through T87N, R33W, Sec. 25.

5. Purgatory Creek from its confluence with the North Raccoon River (T84N, R33W, Sec. 11), upstream through T86N, R32W, Sec. 17.

6a. Cedar Creek from its confluence with the North Raccoon River (T85N, R32W, Sec. 33), upstream to the confluence of West Cedar Creek and East Cedar Creek (T87N, R31W, Sec. 31).

6b. West Cedar Creek from its confluence with East Cedar Creek (T87N, R31W, Sec. 31), upstream through T87N, R31W, Sec. 18.

6c. East Cedar Creek from its confluence with West Cedar Creek (T87N, R31W, Sec. 31), upstream through T87N, R31W, Sec. 9.

7. Short Creek from its confluence with the North Raccoon River (T84N, R31W, Sec. 33), upstream through T84N, R31W, Sec. 28.

8. Hardin Creek from its confluence with the North Raccoon River (T83N, R30W, Sec. 23), upstream through T85N, R31W, Sec. 27.

9a. Buttrick Creek from its confluence with the North Raccoon River (T83N, R30W, Sec. 26), upstream to the confluence of West Buttrick Creek and East Buttrick Creek (T84N, R30W, Sec. 25).

9b. West Buttrick Creek, from its confluence with East Buttrick Creek (T84N, R30W, Sec. 25), upstream through T86N, R30W, Sec. 3.

9c. East Buttrick Creek, from its confluence with West Buttrick Creek (T84N, R30W, Sec. 25), upstream through T85N, R29W, Sec. 20.

10a. Elm Branch from its confluence with the North Raccoon River (T81N, R28W, Sec. 28), upstream to its confluence with Swan Lake Branch T81N, R28W, Sec. 28.

10b. Swan Lake Branch from its confluence with Elm Branch (T81N, R28W, Sec. 28), upstream through T80N, R28W, Sec. 4.

11. Off-channel and side-channel pools (that meet the previously described criteria) adjacent to the North Raccoon River from U.S. Highway 6 (T79N, R27W, Sec. 32), upstream to U.S. Highway 20 (T88N, R36W, Sec. 24).

[Topeka Shiner Map 2: Boone River Watershed - Wright and Hamilton Counties, Iowa.]

12. Eagle Creek from its confluence with the Boone River (T89N, R25W, Sec. 6), upstream through T91N, R25W, Sec. 30.

<u>Ditch 3 and Ditch 19 Complex</u>

13a. Ditch 3 from its confluence with the Boone River (T91N, R26W, Sec. 32), upstream through T91N, R26W, Sec. 30.

13b. Ditch 19 from its confluence with Ditch 3 (T91N, R26W, Sec. 31), upstream through

T91N, R26W, Sec. 31.

[Topeka Shiner Map 3: Rock River Watershed - Lyon and Osceola Counties, Iowa.]

Rock River Complex

14. Rock River from its confluence with Kanaranzi Creek (T100N, R45W, Sec. 28), upstream to the Iowa/Minnesota State border (T100N, R45W, Sec. 8).

15. Kanaranzi Creek from its confluence with the Rock River (T100N, R45W, Sec. 28), upstream to the Iowa/Minnesota State border (T100N, R45W, Sec. 11).

Little Rock River Complex

16. Little Rock River from State Highway 9 (T100N, R43W, Sec. 34), upstream to the Iowa/Minnesota State border (T100N, R42W, Sec. 7).

[Topeka Shiner Map 4: Big Sioux River Watershed - Lincoln, Pipestone and Rock, Counties, Minnesota; and Rock River Watershed - Murray, Nobles, Pipestone and Rock Counties, Minnesota.]

Medary Creek Complex

1a. Medary Creek from the MN/SD State border (T109N, R47W, Sec. 13), upstream through T110N, R46W, Sec. 21.

1b. Unnamed tributary to Medary Creek, from their confluence (T109N, R46W, Sec. 18), upstream through T110N, R46W, Sec. 30.

Flandreau Creek Complex

2a. Flandreau Creek from the Minnesota/South Dakota State border (T107N, R47W, Sec. 13), upstream through (T109N, R45W, Sec. 31).

2b. Unnamed tributary to Flandreau Creek, from their confluence (T108N, R46W, Sec. 11), upstream through T108N, R45W, Sec. 6.

2c. East Branch Flandreau Creek from its confluence with Flandreau Creek (T108N, R46W, Sec. 14), upstream through T108N, R45W, Sec. 4.

2d. Willow Creek from its confluence with Flandreau Creek (T107N, R46W, Sec. 6), upstream through T109N, R46W, Sec. 3.

Split Rock/Pipestone/Beaver Creek Complex

3a. Pipestone Creek from the Minnesota/South Dakota State border (T106N, R47W, Sec. 23), upstream through T106N, R46W, Sec. 1.

3b. Unnamed tributary to Pipestone Creek, from their confluence (T106N, R47W, Sec. 24), upstream through T106N, R46W, Sec. 19.

3c. Unnamed tributary to Pipestone Creek, from the Minnesota/South Dakota State border (T105N, R47W, Sec. 2), upstream through T105N, R46W, Sec. 1.

3d. North Branch Pipestone Creek from its confluence with Pipestone Creek (T107N, R46W, Sec. 5), upstream through T108N, R45W, Sec. 23.

3e. Unnamed tributary to North Branch Pipestone Creek, from their confluence (T108N, R45W, Sec. 22), upstream through T108N, R45W, Sec. 15.

3f. Split Rock Creek from the Minnesota/South Dakota State border (T103N, R47W, Sec. 2), upstream to Split Rock Lake Outlet (T105N, R46W, Sec. 20).

3g. Unnamed tributary to Split Rock Creek from the Minnesota/South Dakota State border (T103N, R47W, Sec. 23), upstream through T103N, R46W, Sec. 29.

3h. Unnamed tributary to Split Rock Creek, from their confluence (T103N, R47W, Sec. 2), upstream through T103N, R46W, Sec. 8.

3i. Unnamed tributary to Split Rock Creek, from their confluence (T104N, R47W, Sec. 25), upstream through T104N, R46W, Sec. 19.

3j. Pipestone Creek from its confluence with Split Rock Creek (T104N, R47W, Sec. 23), upstream to the Minnesota/South Dakota State border (T104N, R47W, Sec. 23).

3k. Unnamed tributary to Split Rock Creek, from their confluence (T104N, R46W, Sec. 6), upstream through T105N, R46W, Sec. 36.

3l. Split Rock Creek from the headwater of Split Rock Lake (T105N, R46W, Sec. 15), upstream through T106N, R46W, Sec. 35.

3m. Unnamed tributary to Split Rock Creek, from their confluence (T105N, R46W, Sec. 3), upstream through T105N, R46W, Sec. 2.

3n. Beaver Creek from the Minnesota/South Dakota State border (T102N, R47W, Sec. 35), upstream through T104N, R45W, Sec. 20.

3o. Springwater Creek from its confluence with Beaver Creek (T102N, R47W, Sec. 35), upstream through T102N, R46W, Sec. 6.

3p. Little Beaver Creek from its confluence with Beaver Creek (T102N, R46W, Sec. 12), upstream through T103N, R45W, Sec. 9.

3q. Unnamed tributary to Beaver Creek, from their confluence (T102N, R46W, Sec. 1), upstream through T103N, R46W, Sec. 35.

3r. Unnamed tributary to Beaver Creek, from their confluence (T103N, R45W, Sec. 18), upstream through T104N, R46W, Sec. 36.

<u>Rock River Complex</u>

4a. Rock River from the Minnesota/Iowa State border (T101N, R45W, Sec. 36), upstream through T107N, R44W, Sec. 7.

4b. Kanaranzi Creek from the Minnesota/Iowa State border (T101N, R44W, Sec. 33), upstream through T103N, R42W, Sec. 7).

4c. Norwegian Creek from its confluence with Kanaranzi Creek (T101N, R44W, Sec. 25), upstream through T101N, R43W, Sec. 21.

4d. Unnamed tributary to Norwegian Creek, from their confluence (T101N, R44W, Sec. 20), upstream through T101N, R44W, Sec. 16.

4e. East Branch Kanaranzi Creek from its confluence with Kanaranzi Creek (T102N, R42W, Sec. 5), upstream through T102N, R41W, Sec. 5.

4f. Unnamed tributary to East Branch Kanaranzi Creek, from their confluence (T102N, R42W, Sec. 9), upstream through T102N, R42W, Sec. 22.

4g. Unnamed tributary to East Branch Kanaranzi Creek, from their confluence (T102N, R42W, Sec. 5), upstream through T102N, R42W, Sec. 5.

4h. Unnamed tributary to Kanaranzi Creek, from their confluence (T102N, R43W, Sec. 31), upstream through T102N, R43W, Sec. 27.

4i. Ash Creek from its confluence with the Rock River (T101N, R45W, Sec. 24), upstream

through T101N, R45W, Sec. 14.

4j. Elk Creek from its confluence with the Rock River (T102N, R45W, Sec. 36), upstream through T103N, R43W, Sec. 22.

4k. Unnamed tributary to Elk Creek, from their confluence (T102N, R44W, Sec. 1), upstream through T102N, R43W, Sec. 6.

4l. Champepadan Creek from its confluence with the Rock River (T103N, R44W, Sec. 29), upstream through T104N, R43W, Sec. 14.

4m. Unnamed tributary to Champepadan Creek, from their confluence (T104N, R43W, Sec. 14), upstream through T104N, R43W, Sec. 13.

4n. Unnamed tributary to Champepadan Creek, from their confluence (T103N, R44W, Sec. 23), upstream through T103N, R44W, Sec. 24.

4o. Unnamed tributary to Champepadan Creek, from their confluence (T103N, R44W, Sec. 23), upstream through T103N, R44W, Sec. 12.

4p. Unnamed tributary to the Rock River, from their confluence (T103N, R44W, Sec. 8), upstream through T104N, R44W, Sec. 26.

4q. Mound Creek from its confluence with the Rock River (T103N, R44W, Sec. 30), upstream through T104N, R45W, Sec. 35).

4r. Unnamed tributary to the Rock River, from their confluence (T103N, R44W, Sec. 7), upstream through T104N, R45W, Sec. 23.

4s. Unnamed tributary to the Rock River, from their confluence (T104N, R44W, Sec. 28), upstream through T104N, R44W, Sec. 11.

4t. Unnamed tributary to the Rock River, from their confluence (T104N, R44W, Sec. 16), upstream through T104N, R44W, Sec. 10.

4u. Poplar Creek from its confluence with the Rock River (T104N, R44W, Sec. 5), upstream through T105N, R45W, Sec. 32.

4v. Unnamed tributary to Poplar Creek, from their confluence (T105N, R45W, Sec. 27, upstream through T105N, R45W, Sec. 9.

4w. Chanarambie Creek from its confluence with the Rock River (T105N, R44W, Sec. 33), upstream through (T105N, R42W, Sec. 8).

4x. North Branch Chanarambie Creek from its confluence with Chanarambie Creek (T105N, R43W, Sec. 8), upstream through T106N, R43W, Sec. 18.

4y. Unnamed tributary to the Rock River, from their confluence (T105N, R44W, Sec. 8), upstream through T106N, R45W, Sec. 36.

4z. Unnamed tributary to the Rock River, from their confluence (T106N, R44W, Sec. 33), upstream through T106N, R44W, Sec. 23.

4aa. East Branch Rock River from its confluence with the Rock River (T106N, R44W, Sec. 18), upstream through T107N, R44W, Sec. 27.

4bb. Unnamed tributary to East Branch Rock River, from their confluence (T107N, R44W, Sec. 34), upstream through T107N, R44W, Sec. 35.

Little Rock River Complex

5a. Little Rock River from the Minnesota/Iowa State border (T101N, R42W, Sec. 35), upstream through T102N, R41W, Sec. 27.

5b. Little Rock Creek from its confluence with the Little Rock River (T101N, R42W, Sec. 26), upstream through T102N, R42W, Sec. 34.

Mud Creek Complex

6a. Mud Creek from the Minnesota/Iowa State border (T102N, R46W, Sec. 34), upstream thru T101N, R46W, Sec. 11.

6b. Unnamed tributary to Mud Creek, from their confluence (T101N, R46W, Sec. 22), upstream through T101N, R46W, Sec. 24.

6c. Unnamed tributary to Mud Creek, from their confluence (T101N, R46W, Sec. 10), upstream through T101N, R46W, Sec. 1.

[Topeka Shiner Map 5: Elkhorn River Watershed - Madison County, Nebraska.]

1. Taylor Creek from its confluence with Union Creek (T22N, R1W, Sec. 32), upstream through T22N, R2W, Sec. 22.

10.2 Legal Descriptions from the August 21, 2002 Proposed Rule

[Topeka Shiner Map 1: North Raccoon River Watershed - Calhoun, Carroll, Dallas, Greene, Sac and Webster Counties, Iowa.]

North Raccoon River Complex

1a. Indian Creek from its confluence with the North Raccoon River (T87N, R35W, Sec. 24), upstream through T87N, R35W, Sec. 29.

1b. Tributary to Indian Creek (Ditch 57), from their confluence (T87N, R35W, Sec. 23), upstream to the confluence with the outlet creek from Black Hawk Lake (T86N, R36W, Sec. 1).

1c. Outlet Creek from Black Hawk Lake from its confluence with Ditch 57 (T86N, R36W, Sec. 1), upstream to lake outlet (T87N, R35W, Sec. 35).

2a. Camp Creek from its confluence with the North Raccoon River (T86N, R34W, Sec. 7), upstream through T87N, R34W, Sec. 8.

2b. West Fork Camp Creek from its confluence with Camp Creek (T87N, R34W, Sec. 8), upstream through T88N, R34W, Sec. 32.

3. Prairie Creek from its confluence with the North Raccoon River (T86N, R34W, Sec. 16), upstream through T87N, R34W, Sec. 35.

4. Lake Creek from its confluence with the North Raccoon River (T86N, R34W, Sec. 23), upstream through T87N, R33W, Sec. 25.

5. Purgatory Creek from its confluence with the North Raccoon River (T84N, R33W, Sec. 11), upstream through T86N, R32W, Sec. 17.

6a. Cedar Creek from its confluence with the North Raccoon River (T85N, R32W, Sec. 33), upstream to the confluence of West Cedar Creek and East Cedar Creek (T87N, R31W, Sec. 31).

6b. West Cedar Creek from its confluence with East Cedar Creek (T87N, R31W, Sec. 31), upstream through T87N, R31W, Sec. 18.

6c. East Cedar Creek from its confluence with West Cedar Creek (T87N, R31W, Sec. 31), upstream through T87N, R31W, Sec. 9.

7. Short Creek from its confluence with the North Raccoon River (T84N, R31W, Sec. 33), upstream through T84N, R31W, Sec. 28.

8. Hardin Creek from its confluence with the North Raccoon River (T83N, R30W, Sec. 23),

upstream through T85N, R31W, Sec. 27.

9a. Buttrick Creek from its confluence with the North Raccoon River (T83N, R30W, Sec. 26), upstream to the confluence of West Buttrick Creek and East Buttrick Creek (T84N, R30W, Sec. 25).

9b. West Buttrick Creek, from its confluence with East Buttrick Creek (T84N, R30W, Sec. 25), upstream through T86N, R30W, Sec. 3.

9c. East Buttrick Creek, from its confluence with West Buttrick Creek (T84N, R30W, Sec. 25), upstream through T85N, R29W, Sec. 20.

10a. Elm Branch from its confluence with the North Raccoon River (T81N, R28W, Sec. 28), upstream to its confluence with Swan Lake Branch T81N, R28W, Sec. 28.

10b. Swan Lake Branch from its confluence with Elm Branch (T81N, R28W, Sec. 28), upstream through T80N, R28W, Sec. 4.

11. Off-channel and side-channel pools (that meet the previously described criteria) adjacent to the North Raccoon River from U.S. Highway 6 (T79N, R27W, Sec. 32), upstream to U.S. Highway 20 (T88N, R36W, Sec. 24).

[Topeka Shiner Map 2: Boone River Watershed - Wright and Hamilton Counties, Iowa.]

12. Eagle Creek from its confluence with the Boone River (T89N, R25W, Sec. 6), upstream through T91N, R25W, Sec. 30.

Ditch 3 and Ditch 19 Complex

13a. Ditch 3 from its confluence with the Boone River (T91N, R26W, Sec. 32), upstream through T91N, R26W, Sec. 30.

13b. Ditch 19 from its confluence with Ditch 3 (T91N, R26W, Sec. 31), upstream through T91N, R26W, Sec. 31.

[Topeka Shiner Map 3: Rock River Watershed - Lyon and Osceola Counties, Iowa.]

Rock River Complex

14. Rock River from its confluence with Kanaranzi Creek (T100N, R45W, Sec. 28), upstream to the Iowa/Minnesota State border (T100N, R45W, Sec. 8).

15. Kanaranzi Creek from its confluence with the Rock River (T100N, R45W, Sec. 28), upstream to the Iowa/Minnesota State border (T100N, R45W, Sec. 11).

Little Rock River Complex

16. Little Rock River from State Highway 9 (T100N, R43W, Sec. 34), upstream to the Iowa/Minnesota State border (T100N, R42W, Sec. 7).

[Topeka Shiner Map 4: Cottonwood River Watershed - Butler, Chase, Greenwood, Marion, and Morris Counties, Kansas.]

Fox Creek Complex

1a. Fox Creek from U.S. Highway 50 (T19S, R8E, Sec. 17), upstream through T18S, R8E, Sec. 29.

1b. Unnamed tributary to Fox Creek, from their confluence (T18S, R8E, Sec. 32), upstream through T18S, R8E, Sec. 31.

1c. Unnamed tributary to Fox Creek, from their confluence (T18S, R8E, Sec. 29), upstream through T18S, R8E, Sec. 19.

Diamond Creek Complex

2a. Diamond Creek from U.S. Highway 50 (T19S, R7E, Sec. 14), upstream to its confluence with Sixmile Creek (T17S, R6E, Sec. 21).

2b. Gannon Creek from its confluence with Diamond Creek (T19S, R7E, Sec. 10), upstream through T18S, R7E, Sec. 24; and an unnamed tributary to Gannon Creek, from their confluence (T18S, R7E, Sec. 34), upstream through T18S, R7E, Sec. 14.

2c. Mulvane Creek from its confluence with Diamond Creek (T18S, R7E, Sec. 33), upstream through T18S, R7E, Sec. 16.

2d. Schaffer Creek from its confluence with Diamond Creek (T18S, R7E, Sec. 17), upstream through T17S, R7E, Sec. 33; an unnamed tributary stream from its confluence with Schaffer Creek (T18S, R7E, Sec. 5), upstream through T17S, R7E, Sec. 32; an unnamed tributary stream from its confluence with Schaffer Creek (T18S, R7E, Sec. 5), upstream through T18S, R7E, Sec. 3; an unnamed tributary stream from its confluence with Schaffer Creek (T18S, R7E, Sec. 8), upstream through T18S, R7E, Sec. 4; and an unnamed tributary stream from its confluence with Schaffer Creek (T18S, R7E, Sec. 8), upstream through T18S, R7E, Sec. 8.

2e. Dodds Creek from its confluence with Diamond Creek (T17S, R6E, Sec. 26), upstream through T17S, R6E, Sec. 1.

2f. Sixmile Creek from its confluence with Diamond Creek (T17S, R6E, Sec. 22), upstream to its confluence with Mulberry Creek (T17S, R6E, Sec. 21).

2g. Mulberry Creek from its confluence with Sixmile Creek (T17S, R6E, Sec. 21), upstream throughT17S, R6E, Sec. 30; and an unnamed tributary to Mulberry Creek from their confluence (T17S, R6E, Sec. 30), upstream through T17S, R6E, Sec. 30.

2h. Unnamed tributary to the Cottonwood River from their confluence (T19S, R7E, Sec. 12), upstream through T18S, R8E, Sec. 30.

Middle Creek Complex

3a. Middle Creek from U.S. Highway 50 (T19S, R7E, Sec. 22), upstream to its confluence with Stribby Creek (T19S, R6E, Sec. 8).

3b. Collett Creek from its confluence with Middle Creek (T19S, R7E, Sec. 18), upstream through T18S, R6E, Sec. 26).

3c. Unnamed tributary to Middle Creek, from their confluence (T19S, R6E, Sec. 10), upstream through T18S, R6E, Sec. 33); and an unnamed tributary to the first tributary, from their confluence, upstream through T18S, R6E, Sec. 34.

South Fork of the Cottonwood River (South Fork) Complex

4a. South Fork from its confluence with the Cottonwood River (T19S, R8E, Sec. 25), upstream through T23S, R8E, Sec. 21.

4b. Sharpes Creek from its confluence with the South Fork (T20S, R8E, Sec. 34), upstream through T21S, R8E, Sec. 36.

4c. Rock Creek from its confluence with the South Fork (T20S, R8E, Sec. 33), upstream

through T21S, R7E, Sec. 14.

4d. Den Creek from its confluence with Rock Creek (T20S, R8E, Sec. 31), upstream through T20S, R8E, Sec. 30.

4e. Crocker Creek from its confluence with the South Fork (T21S, R8E, Sec. 31), upstream through T22S, R7E, Sec. 1.

4f. Unnamed tributary to Crocker Creek from their confluence (T21S, R8E, Sec. 31), upstream through T21S, R8E, Sec. 31.

4g. Mercer Creek from its confluence with the South Fork (T22S, R8E, Sec. 8), upstream through T22S, R8E, Sec. 31.

4h. Jack Creek from its confluence with Mercer Creek (T22S, R8E, Sec. 18), upstream through T22S, R7E, Sec. 14.

4i. Unnamed tributary to Mercer Creek, from their confluence (T22S, R8E, Sec. 19), upstream through T22S, R7E, Sec. 26.

4j. Unnamed tributary to Mercer Creek, from their confluence (T22S, R8E, Sec. 19), upstream through T22S, R8E, Sec. 31.

4k. Thurman Creek from its confluence with the South Fork (T22S, R8E, Sec. 29), upstream through T23S, R9E, Sec. 17.

4l. Unnamed tributary to Thurman Creek, from their confluence (T23S, R8E, Sec. 1), upstream through T22S, R9E, Sec. 31.

4m. Little Cedar Creek from its confluence with the South Fork (T22S, R8E, Sec. 8), upstream through T22S, R8E, Sec. 25.

4n. Shaw Creek from its confluence with Little Cedar Creek (T22S, R8E, Sec. 16), upstream through T22S, R8E, Sec. 14.

4o. Bloody Creek from its confluence with the Cottonwood River (T19S, R9E, Sec. 29), upstream through T20S, R9E, Sec. 34.

5. Mud Creek from the south section line of T19S, R3E, Sec. 13, upstream through T18S, R3E, Sec. 28.

[Topeka Shiner Map 5: Kansas River Watershed - Dickinson, Geary, Riley, Shawnee and Wabaunsee Counties, Kansas.]

<u>Mill Creek Complex</u>

6a. Mill Creek from Kansas Highway 30 (T11S, R12E, Sec. 26), upstream to the confluence of West Branch Mill Creek and South Branch Mill Creek (T12S, R10E, Sec. 15).

6b. Mulberry Creek from its confluence with Mill Creek (T11S, R11E, Sec. 25), upstream through T11S, R11E, Sec. 10.

6c. Spring Creek from its confluence with Mill Creek (T11S, R11E, Sec. 28), upstream through T11S, R11E, Sec. 21.

6d. Kuenzli Creek from its confluence with Mill Creek (T11S, R11E, Sec. 33), upstream through T12S, R11E, Sec. 21.

6e. Paw Paw Creek from its confluence with Mill Creek (T11S, R11E, Sec. 31), upstream through T11S, R10E, Sec. 13.

6f. Pretty Creek from its confluence with Mill Creek (T11S, R10E, Sec. 36), upstream to Kansas Highway 99 (T11S, R10E, Sec. 22).

6g. Hendricks Creek from its confluence with Mill Creek (T12S, R10E, Sec. 2), upstream through T11S, R10E, Sec. 31.

6h. West Branch Mill Creek from its confluence with South Branch Mill Creek (T12S, R10E, Sec. 15), upstream through T13S, R9E, Sec. 20.

6i. Loire Creek from its confluence with West Branch Mill Creek (T12S, R10E, Sec. 29), upstream through T12S, R9E, Sec. 11.

6j. Illinois Creek from its confluence with West Branch Mill Creek (T12S, R10E, Sec. 30), upstream through T13S, R9E, Sec. 11.

6k. Spring Creek from its confluence with West Branch Mill Creek (T12S, R10E, Sec. 30), upstream through T12S, R9E, Sec. 21.

6l. South Branch Mill Creek from its confluence with West Branch Mill Creek (T12S, R10E, Sec. 15), upstream to Kansas Highway 4/99 (T13S, R10E, Sec. 26).

6m. East Branch Mill Creek from its confluence with South Branch Mill Creek (T12S, R10E, Sec. 35), upstream through T13S, R11E, Sec. 22.

6n. Nehring Creek from its confluence with East Branch Mill Creek (T13S, R10E, Sec. 1), upstream through T13S, R11E, Sec. 15.

7. Mission Creek from Interstate Highway 70 (T11S, R14E, Sec. 33), upstream to the confluence of North Branch Mission Creek and South Branch Mission Creek (T13S, R12E, Sec. 1).

Deep Creek Complex

8a. Deep Creek from Kansas Highway 18 (T10S, R9E, Sec. 26), upstream to Interstate Highway 70 (T11S, R8E, Sec. 26).

8b. School Creek from its confluence with Deep Creek (T11S, R9E, Sec. 6), upstream through T11S, R8E, Sec. 2.

Wildcat Creek Complex

9a. Wildcat Creek from Kansas Highway 18/Fort Riley Boulevard (T10S, R7E, Sec. 24), upstream to the Fort Riley boundary near Keats, Kansas (T10S, R6E, Sec. 1).

9b. Wildcat Creek from the Fort Riley boundary near Riley, Kansas (T9S, R5E, Sec. 12), upstream to U.S. Highway 77 (T9S, R5E, Sec. 3).

Clarks Creek Complex

10a. Clarks Creek from its confluence with Humboldt Creek (T11S, R6E, Sec. 35), upstream to its confluence with Thomas Creek (T12S, R6E, Sec. 34).

10b. Thomas Creek from its confluence with Clarks Creek (T12S, R6E, Sec. 34), upstream through T13S, R6E, Sec. 34.

10c. Davis Creek from its confluence with Thomas Creek (T13S, R6E, Sec. 2), upstream through T13S, R7E, Sec. 31.

10d. Dry Creek from its confluence with Clarks Creek (T12S, R6E, Sec. 23), upstream through T13S, R7E, Sec. 22.

10e. West Branch Dry Creek from its confluence with Dry Creek (T13S, R7E, Sec. 16), upstream through T13S, R7E, Sec. 21.

Lyon Creek Complex

11a. Lyon Creek from U.S. Highway 77 (T13S, R5E, Sec. 3), upstream to the confluence with West Branch Lyon Creek (T15S, R4E, Sec. 2).

11b. Rock Springs Creek from its confluence with Lyon Creek (T13S, R5E, Sec. 3), upstream through T14S, R5E, Sec. 5.

11c. Carry Creek from its confluence with Lyon Creek (T13S, R5E, Sec. 31), upstream through T15S, R3E, Sec. 10.

11d. Unnamed tributary to Carry Creek from their confluence (T14S, R4E, Sec. 19), upstream through T14S, R3E, Sec. 24.

11e. West Branch Lyon Creek from its confluence with Lyon Creek (T15S, R4E, Sec. 2), upstream through T15S, R3E, Sec. 25.

[Topeka Shiner Map 6: Big Blue River Watershed - Marshall, Pottawatomie and Riley Counties, Kansas.]

12. Walnut Creek from the east section line of T7S, R6E, Sec. 19, upstream through T8S, R5E, Sec. 1.

13. Clear Fork Creek from its confluence with Jim Creek (T5S, R9E, Sec. 17), upstream through T6S, R10E, Sec. 18.

14. North Elm Creek from its confluence with the Big Blue River (T1S, R7E, Sec. 11), upstream through T1S, R8E, Sec. 21.

[Topeka Shiner Map 7: Smoky Hill River Watershed - Wallace County, Kansas.]

15. Willow Creek from its confluence with the Smoky Hill River (T13S, R41W, Sec. 17), upstream through T13S, R42W, Sec. 3.

[Topeka Shiner Map 8: Big Sioux River Watershed - Lincoln, Pipestone and Rock, Counties, Minnesota; and Rock River Watershed - Murray, Nobles, Pipestone and Rock Counties, Minnesota.]

Medary Creek Complex

1a. Medary Creek from the MN/SD State border (T109N, R47W, Sec. 13), upstream through T110N, R46W, Sec. 21.

1b. Unnamed tributary to Medary Creek, from their confluence (T109N, R46W, Sec. 18), upstream through T110N, R46W, Sec. 30.

Flandreau Creek Complex

2a. Flandreau Creek from the Minnesota/South Dakota State border (T107N, R47W, Sec. 13), upstream through (T109N, R45W, Sec. 31).

2b. Unnamed tributary to Flandreau Creek, from their confluence (T108N, R46W, Sec. 11), upstream through T108N, R45W, Sec. 6.

2c. East Branch Flandreau Creek from its confluence with Flandreau Creek (T108N, R46W, Sec. 14), upstream through T108N, R45W, Sec. 4.

2d. Willow Creek from its confluence with Flandreau Creek (T107N, R46W, Sec. 6), upstream through T109N, R46W, Sec. 3.

Split Rock/Pipestone/Beaver Creek Complex

3a. Pipestone Creek from the Minnesota/South Dakota State border (T106N, R47W, Sec. 23), upstream through T106N, R46W, Sec. 1.

3b. Unnamed tributary to Pipestone Creek, from their confluence (T106N, R47W, Sec. 24), upstream through T106N, R46W, Sec. 19.

3c. Unnamed tributary to Pipestone Creek, from the Minnesota/South Dakota State border (T105N, R47W, Sec. 2), upstream through T105N, R46W, Sec. 1.

3d. North Branch Pipestone Creek from its confluence with Pipestone Creek (T107N, R46W, Sec. 5), upstream through T108N, R45W, Sec. 23.

3e. Unnamed tributary to North Branch Pipestone Creek, from their confluence (T108N, R45W, Sec. 22), upstream through T108N, R45W, Sec. 15.

3f. Split Rock Creek from the Minnesota/South Dakota State border (T103N, R47W, Sec. 2), upstream to Split Rock Lake Outlet (T105N, R46W, Sec. 20).

3g. Unnamed tributary to Split Rock Creek from the Minnesota/South Dakota State border (T103N, R47W, Sec. 23), upstream through T103N, R46W, Sec. 29.

3h. Unnamed tributary to Split Rock Creek, from their confluence (T103N, R47W, Sec. 2), upstream through T103N, R46W, Sec. 8.

3i. Unnamed tributary to Split Rock Creek, from their confluence (T104N, R47W, Sec. 25), upstream through T104N, R46W, Sec. 19.

3j. Pipestone Creek from its confluence with Split Rock Creek (T104N, R47W, Sec. 23), upstream to the Minnesota/South Dakota State border (T104N, R47W, Sec. 23).

3k. Unnamed tributary to Split Rock Creek, from their confluence (T104N, R46W, Sec. 6), upstream through T105N, R46W, Sec. 36.

3l. Split Rock Creek from the headwater of Split Rock Lake (T105N, R46W, Sec. 15), upstream through T106N, R46W, Sec. 35.

3m. Unnamed tributary to Split Rock Creek, from their confluence (T105N, R46W, Sec. 3), upstream through T105N, R46W, Sec. 2.

3n. Beaver Creek from the Minnesota/South Dakota State border (T102N, R47W, Sec. 35), upstream through T104N, R45W, Sec. 20.

3o. Springwater Creek from its confluence with Beaver Creek (T102N, R47W, Sec. 35), upstream through T102N, R46W, Sec. 6.

3p. Little Beaver Creek from its confluence with Beaver Creek (T102N, R46W, Sec. 12), upstream through T103N, R45W, Sec. 9.

3q. Unnamed tributary to Beaver Creek, from their confluence (T102N, R46W, Sec. 1), upstream through T103N, R46W, Sec. 35.

3r. Unnamed tributary to Beaver Creek, from their confluence (T103N, R45W, Sec. 18), upstream through T104N, R46W, Sec. 36.

Rock River Complex

4a. Rock River from the Minnesota/Iowa State border (T101N, R45W, Sec. 36), upstream through T107N, R44W, Sec. 7.

4b. Kanaranzi Creek from the Minnesota/Iowa State border (T101N, R44W, Sec. 33), upstream through T103N, R42W, Sec. 7).

4c. Norwegian Creek from its confluence with Kanaranzi Creek (T101N, R44W, Sec. 25), upstream through T101N, R43W, Sec. 21.

4d. Unnamed tributary to Norwegian Creek, from their confluence (T101N, R44W, Sec. 20), upstream through T101N, R44W, Sec. 16.

4e. East Branch Kanaranzi Creek from its confluence with Kanaranzi Creek (T102N, R42W, Sec. 5), upstream through T102N, R41W, Sec. 5.

4f. Unnamed tributary to East Branch Kanaranzi Creek, from their confluence (T102N, R42W, Sec. 9), upstream through T102N, R42W, Sec. 22.

4g. Unnamed tributary to East Branch Kanaranzi Creek, from their confluence (T102N, R42W, Sec. 5), upstream through T102N, R42W, Sec. 5.

4h. Unnamed tributary to Kanaranzi Creek, from their confluence (T102N, R43W, Sec. 31), upstream through T102N, R43W, Sec. 27.

4i. Ash Creek from its confluence with the Rock River (T101N, R45W, Sec. 24), upstream through T101N, R45W, Sec. 14.

4j. Elk Creek from its confluence with the Rock River (T102N, R45W, Sec. 36), upstream through T103N, R43W, Sec. 22.

4k. Unnamed tributary to Elk Creek, from their confluence (T102N, R44W, Sec. 1), upstream through T102N, R43W, Sec. 6.

4l. Champepadan Creek from its confluence with the Rock River (T103N, R44W, Sec. 29), upstream through T104N, R43W, Sec. 14.

4m. Unnamed tributary to Champepadan Creek, from their confluence (T104N, R43W, Sec. 14), upstream through T104N, R43W, Sec. 13.

4n. Unnamed tributary to Champepadan Creek, from their confluence (T103N, R44W, Sec. 23), upstream through T103N, R44W, Sec. 24.

4o. Unnamed tributary to Champepadan Creek, from their confluence (T103N, R44W, Sec. 23), upstream through T103N, R44W, Sec. 12.

4p. Unnamed tributary to the Rock River, from their confluence (T103N, R44W, Sec. 8), upstream through T104N, R44W, Sec. 26.

4q. Mound Creek from its confluence with the Rock River (T103N, R44W, Sec. 30), upstream through T104N, R45W, Sec. 35).

4r. Unnamed tributary to the Rock River, from their confluence (T103N, R44W, Sec. 7), upstream through T104N, R45W, Sec. 23.

4s. Unnamed tributary to the Rock River, from their confluence (T104N, R44W, Sec. 28), upstream through T104N, R44W, Sec. 11.

4t. Unnamed tributary to the Rock River, from their confluence (T104N, R44W, Sec. 16), upstream through T104N, R44W, Sec. 10.

4u. Poplar Creek from its confluence with the Rock River (T104N, R44W, Sec. 5), upstream through T105N, R45W, Sec. 32.

4v. Unnamed tributary to Poplar Creek, from their confluence (T105N, R45W, Sec. 27, upstream through T105N, R45W, Sec. 9.

4w. Chanarambie Creek from its confluence with the Rock River (T105N, R44W, Sec. 33), upstream through (T105N, R42W, Sec. 8).

4x. North Branch Chanarambie Creek from its confluence with Chanarambie Creek (T105N, R43W, Sec. 8), upstream through T106N, R43W, Sec. 18.

4y. Unnamed tributary to the Rock River, from their confluence (T105N, R44W, Sec. 8), upstream through T106N, R45W, Sec. 36.

4z. Unnamed tributary to the Rock River, from their confluence (T106N, R44W, Sec. 33),

upstream through T106N, R44W, Sec. 23.

4aa. East Branch Rock River from its confluence with the Rock River (T106N, R44W, Sec. 18), upstream through T107N, R44W, Sec. 27.

4bb. Unnamed tributary to East Branch Rock River, from their confluence (T107N, R44W, Sec. 34), upstream through T107N, R44W, Sec. 35.

Little Rock River Complex

5a. Little Rock River from the Minnesota/Iowa State border (T101N, R42W, Sec. 35), upstream through T102N, R41W, Sec. 27.

5b. Little Rock Creek from its confluence with the Little Rock River (T101N, R42W, Sec. 26), upstream through T102N, R42W, Sec. 34.

Mud Creek Complex

6a. Mud Creek from the Minnesota/Iowa State border (T102N, R46W, Sec. 34), upstream thru T101N, R46W, Sec. 11.

6b. Unnamed tributary to Mud Creek, from their confluence (T101N, R46W, Sec. 22), upstream through T101N, R46W, Sec. 24.

6c. Unnamed tributary to Mud Creek, from their confluence (T101N, R46W, Sec. 10), upstream through T101N, R46W, Sec. 1.

[Topeka Shiner Map 9: Elkhorn River Watershed - Madison County, Nebraska.]

1. Taylor Creek from its confluence with Union Creek (T22N, R1W, Sec. 32), upstream through T22N, R2W, Sec. 22.

[Topeka Shiner Map 10: Upper Big Sioux River Watershed - Brookings, Deuel, Hamlin, and Moody Counties, South Dakota.]

1. Hidewood Creek from its confluence with the Big Sioux River (T113N, R51W, Sec. 15), upstream to State Highway 15 (T115N, R49W, Sec. 35).

2. Peg Munky Run from State Highway 28 (T113N, R50W, Sec. 20), upstream through T113N, R50W, Sec. 24 (near Interstate Highway 29).

Sixmile Creek Complex

3a. Sixmile Creek from T110N, R50W, Sec. 33, upstream through T112N, R48W, Sec. 19.

3b. Unnamed tributary to Sixmile Creek, from their confluence (T112N, R48W, Sec. 31), upstream through T112N, R48W, Sec. 33.

Medary Creek Complex

4a. Medary Creek from its confluence with the Big Sioux River (T108N, R49W, Sec. 6), upstream to the SD/MN State border (T109N, R47W, Sec. 15).

4b. Deer Creek from its confluence with Medary Creek (T109N, R49W, Sec. 16), upstream through T111N, R47W, Sec. 30.

4c. Unnamed tributary to Deer Creek, from their confluence (T111N, R48W, Sec. 35), upstream through T111N, R48W, Sec. 11.

[Topeka Shiner Map 11: Lower Big Sioux River Watershed - Brookings, Minnehaha, and

Moody Counties, South Dakota.]

5. Spring Creek from its confluence with the Big Sioux River (T107N, R48W, Sec. 5), upstream to the South Dakota/Minnesota State border (T109N, R47W, Sec. 34).

Flandreau Creek Complex

6. Flandreau Creek from its confluence with the Big Sioux River (T107N, R48W, Sec. 23), upstream to the South Dakota/Minnesota State border (T107N, R47W, Sec. 15).

7. Brookfield Creek from its confluence with the Big Sioux River (T105N, R49W, Sec. 24), upstream through T106N, R48W, Sec. 28.

8. Slip-Up Creek from it confluence with the Big Sioux River (T102N, R49W, Sec. 36), upstream through T103N, R48W, Sec. 6.

Split Rock/Pipestone/Beaver Creek Complex

9a. Split Rock Creek from its confluence with the Big Sioux River (T101N, R48W, Sec. 16), upstream to the South Dakota/Minnesota State border (T103N, R47W, Sec. 3).

9b. Pipestone Creek from the South Dakota/Minnesota State border (T104N, R47W, Sec. 22), upstream to the SD/MN State border (T106N, R47W, Sec. 22).

9c. Unnamed tributary to Pipestone Creek, from their confluence (T105N, R47W, Sec. 9), upstream to the South Dakota/Minnesota State border (T105N, R47W, Sec. 3).

9d. Unnamed tributary to Split Rock Creek, from their confluence (T103N, R47W, Sec. 17), upstream to the South Dakota/Minnesota State border (T103N, R47W, Sec. 22).

9e. West Pipestone Creek from its confluence with Split Rock Creek (T102N, R48W, Sec. 11), upstream through T104N, R48W, Sec. 3.

9f. Beaver Creek from its confluence with Split Rock Creek (T101N, R48W, Sec. 10), upstream to the South Dakota/Minnesota State border (T102N, R47W, Sec. 34).

9g. Fourmile Creek from its confluence with Beaver Creek (T101N, R48W, Sec. 13), upstream to the South Dakota/Minnesota State border (T101N, R47W, Sec. 15).

[Topeka Shiner Map 12: Vermillion River Watershed - Clay, Lincoln, McCook, Miner and Turner Counties, South Dakota.]

Vermillion River Complex

10a. Vermillion River from the southeast corner of T94N, R52W, Sec. 14, upstream to the confluence of West Fork Vermillion River and East Fork Vermillion River (T99N, R53W, Sec. 14).

10b. East Fork Vermillion River, from its confluence with the West Fork Vermillion River (T99N, R53W, Sec. 14), upstream to East Vermillion Lake Dam (T102N, R53W, Sec. 34).

10c. West Fork Vermillion River, from its confluence with the East Fork Vermillion River (T99N, R53W, Sec. 14), upstream through T105N, R56W, Sec. 1.

10d. Silver Lake Creek from its confluence with the West Fork Vermillion River (T100N, R55W, Sec. 10), upstream to the Silver Lake outlet (T100N, R55W, Sec. 30).

10e. Camp Creek from its confluence with the Vermillion River (T99N, R52W, Sec. 32), upstream through T99N, R52W, Sec. 7.

10f. Turkey Ridge Creek from its confluence with the Vermillion River (T96N, R52W, Sec. 28), upstream through T98N, R54W, Sec. 31.

10g. Long Creek from its confluence with the Vermillion River (T97N, R51W, Sec. 31), upstream through T99N, R52W, Sec. 3.

10h. Saddle Creek from its confluence with Long Creek (T97N, R51W, Sec. 20), upstream through T97N, R50W, Sec. 18.

10i. Blind Creek from its confluence with the Vermillion River (T95N, R52W, Sec. 11), upstream through T96N, R51W, Sec. 26.

[Topeka Shiner Map 13: Lower James River Watershed - Aurora, Davison, Hanson, Hutchinson and Miner Counties, South Dakota.]

Lonetree Creek Complex

11a. Lonetree Creek from its confluence with the James River (T97N, R58W, Sec. 14), upstream to its confluence with South Branch Lonetree Creek (T97N, R58W, Sec. 10).

11b. South Branch Lonetree Creek from its confluence with Lonetree Creek (T97N, R58W, Sec. 10), upstream through T97N, R59W, Sec. 23.

Dry Creek Complex

12a. Dry Creek from its confluence with the James River (T99N, R59W, Sec. 11), upstream through T98N, R59W, Sec. 9.

12b. North Branch Dry Creek from its confluence with Dry Creek (T99N, R59W, Sec. 28), upstream through T99N, R61W, Sec. 27.

13. Wolf Creek from its confluence with the James River (T99N, R57W, Sec. 31), upstream through T99N, R57W, Sec. 4.

14. Twelvemile Creek from its confluence with the James River (T99N, R59W, Sec. 3), upstream through T101N, R61W, Sec. 23.

15. Enemy Creek from its confluence with the James River (T102N, R59W, Sec. 15), upstream through T102N, R61W, Sec.19.

16. Rock Creek from its confluence with the James River (T103N, R60W, Sec. 13), upstream through T106N, R57W, Sec. 34.

Firesteel Creek Complex

17a. Firesteel Creek from the east section line of T104N, R61W, Sec. 36, upstream to the confluence with West Branch Firesteel Creek (T104N, R62W, Sec. 30).

17b. West Branch Firesteel Creek from its confluence with Firesteel Creek (T104N, R62W, Sec. 30), upstream to Wilmarth Lake outlet (T105N, R64W, Sec. 31).

[Topeka Shiner Map 14: Upper James River Watershed - Beadle County, South Dakota.]

Pearl Creek Complex

18a. Pearl Creek from its confluence with the James River (T109N, R61W, Sec. 15), upstream through T112N, R59W, Sec. 16.

18b. Middle Pearl Creek from its confluence with Pearl Creek (T109N, R60W, Sec. 4), upstream through T110N, R59W, Sec. 14.

19. Shue Creek from its confluence with the James River (T111N, R61W, Sec. 11), upstream to Staum Dam (T113N, R59W, Sec. 14).

10.3 Legal Descriptions of Additional Proposed Critical Habitat from the March 17, 2004 Reopened Proposal

[Additional Topeka Shiner Map 15: Sugar Creek Complex, Grand River Watershed - Harrison and Daviess Counties, Missouri.]

Sugar Creek Complex - Missouri

1a. Sugar Creek from its confluence with Tombstone Creek (T62N, R26W, Sec. 25), upstream through T64N, R27W, Sec. 35.

1b. Unnamed tributary to Sugar Creek from its confluence with Sugar Creek (T62N, R26W, Sec. 8), upstream through T62N, R27W, Sec. 14.

1c. Tombstone Creek from its confluence with Sugar Creek (T62N, R26W, Sec. 25), upstream through T62N, R26W, Sec. 29.

[Additional Topeka Shiner Map 16: Moniteau Creek Complex, Missouri River Watershed - Cooper and Moniteau Counties, Missouri.]

Moniteau Creek Complex - Missouri

2a. Moniteau Creek from its confluence with Pisgah Creek (T46N, R15W, Sec. 19), upstream through T45N, R17W, Sec. 17.

2b. Pisgah Creek from its confluence with Moniteau Creek (T46N, R15W, Sec. 19), upstream through T47N, R16W, Sec. 36.

2c. Smiley Creek from its confluence with Moniteau Creek (T46N, R17W, Sec. 24), upstream through T46N, R17W, Sec. 36.

2d. Unnamed tributary to Moniteau Creek from its confluence with Moniteau Creek (T46N, R17W, Sec. 21), upstream through T46N, R17W, Sec. 19.

[Additional Topeka Shiner Map 17: Bonne Femme Creek Complex, Missouri River Watershed - Boone County, Missouri.]

Bonne Femme Creek Complex - Missouri

3a. Bonne Femme Creek from its confluence with Turkey Creek (T47N, R12W, Sec. 20), upstream through T47N, R12W, Sec. 12.

3b. Turkey Creek from its confluence with Bonne Femme Creek (T47N, R12W, Sec. 20), upstream to U.S. Highway 63 (T47N, R12W, Sec. 15).

3c. Bass Creek from its confluence with Turkey Creek (T47N, R12W, Sec. 20), upstream through T47N, R12W, Sec. 35.

3d. Unnamed tributary to Bass Creek from its confluence with Bass Creek (T47N, R12W, Sec. 27), upstream through T46N, R12W, Sec. 4.

3e. Unnamed tributary to Bass Creek from its confluence with Bass Creek (T47N, R12W, Sec. 27), upstream through T46N, R12W, Sec. 3.

[Additional Topeka Shiner Map 10a: Upper Big Sioux River Watershed - Hamlin County, South

Dakota.]

Stray Horse Creek - Hamlin County, South Dakota

20. Stray Horse Creek from its confluence with the Big Sioux River (T114N, R51W, Sec. 7), upstream through T115N, R51W, Sec. 3.

10.4 Maps of Designated Critical Habitat from Alternative E (selected alternative)

10.5 Maps of Proposed Critical Habitat from the August 21, 2002 Proposed Rule

10.6 Maps of Proposed Critical Habitat from the March 17, 2004 Reopened Proposal