

Executive Summary: Iowa NRCS and USFWS Programmatic Consultation Biological Assessment (BA)

The Endangered Species Act directs Federal agencies to insure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or designated or proposed critical habitat. The purposes of the Iowa NRCS and USFWS Biological Assessment (BA) are twofold: 1) it describes a jointly developed programmatic process for conducting section 7 consultations for Iowa Natural Resources Conservation Service (NRCS) actions over the next 5 years and, 2) it details the potential effects to federally threatened or endangered species from these NRCS actions.

This BA assesses the effects to federally listed species in Iowa due to the implementation of all NRCS projects under all NRCS administered programs and those projects developed through conservation assistance (excluding CRP) over the next 5 years. The BA covers all Iowa counties and assesses the effects of NRCS actions by 1) condensing all conservation practices into six specific disturbance categories (earth disturbance, woody plant manipulation, aquatic habitat manipulation, pesticide/herbicide application, herbaceous plant manipulation, water quality impacts) and 2) determined whether each of the disturbance categories would have an effect on one or more of the 13 federally listed species occurring in Iowa.

Programmatic consultation will follow a two-phase approach that leads NRCS field office staff through a decision making process. NRCS staffs will start this consultation procedure early in the planning process. NRCS staffs will complete the Step-1 Baseline Assessment to determine whether disturbance categories have the potential to affect a federally listed species. Disturbance categories to be implemented on active cropland that will have no impact on adjacent habitat will receive no effect determinations. If at the conclusion of Step 1, staffs come to a *no affect* determination, documentation of findings on the IA-CPA-15 Conservation Assistance Notes and the NRCS-CPA-52 Environmental Evaluation will be completed. No further consultation will be required.

When the results of the Step-1 Baseline Assessment, are something other than "*no affect*" NRCS staff will proceed to the applicable Step-2 Species Disturbance Assessment(s). Best management practices (BMPs) have been integrated into the Step-2 Species Disturbance Assessments and are designed to avoid direct take of listed species. If staff evaluates alternatives, integrate the necessary BMPs, and are able to avoid all adverse effects to listed species, they will document the "*not likely to adversely affect*" (NLAA) determination in the IA-CPA-15 Conservation Assistance Notes and NRCS-CPA-52 Environmental Evaluation, after which no further consultation will be required.

After completing the Step-2, if projects are determined "*likely to adversely affect*" (LAA) a protected species, the NRCS State Office Biologist will initiate formal consultation with the USFWS through written correspondence.

The NRCS State Office Biologist will also initiate formal consultation with the USFWS if, (1) any action is modified in a way that causes an unavoidable adverse effect on a protected species that was not previously considered in the BA, (2) new information on project monitoring reveals effects of the action may affect listed species in a way not previously considered, or (3) a new species is listed or critical habitat is designated that may be affected by the action.

This process will result in T&E evaluation and compliance consistency with the Endangered Species Act and improves efficiencies by standardizing the process and streamlining informal consultations in what is Step 2 of the Programmatic Consultation, thus affording better protection to T&E species. With the USFWS providing concurrence with this Programmatic Consultation, Iowa NRCS will save an estimated 1 hr. of review time for every practice implemented, 40+ hours of staff time, and 1-4 weeks of consultation time delay per project where T&E species may have been impacted by planned conservation practices.

United States Department of Agriculture



Natural Resources Conservation Service
210 Walnut Street, Room 693
Des Moines, IA 50309-2180

March 7, 2011

Mr. Richard Nelson
United States Fish and Wildlife Service
1511 47th Avenue
Moline, IL 61256

Dear Mr. Nelson:

Enclosed you will find a Biological Assessment (BA) for a Programmatic Consultation Between the United States Fish and Wildlife Service (USFWS) and the United States Department of Agriculture Natural Resources Conservation Service (NRCS) in Iowa. The purposes of this Biological Assessment (BA) are twofold. One, it describes an NRCS and USFWS jointly developed programmatic process for conducting ESA Section 7 informal consultations for NRCS actions carried out in Iowa over the next five years according to Endangered Species Act of 1973 Section 7(a) (2). Two, it details the potential effects to federally threatened or endangered species from these NRCS actions.

This BA pertains to projects for which NRCS is the lead federal agency and where technical and/or financial assistance is implemented through USDA conservation programs in Iowa. This BA assesses the effects to federally listed species in Iowa due to implementation of NRCS projects under all NRCS Administered Farm Bill Programs and those projects developed through conservation assistance (excluding CRP).

The program action area is the state of Iowa with all counties included. Typical projects are implemented on single properties with a landowner or operator, although in some instances the BA will allow staff to assess effects of projects that are larger in scope. While there is no reliable predictor as to the scope or number of future NRCS projects, all project components in NRCS programs are required to conform to specific Conservation Practice Standards that serve as the foundation of this programmatic consultation process. The Endangered Species Act (ESA) programmatic consultation outlined in this BA follows a two-phase approach that will lead NRCS field office staff through a decision making process. This process will result in staff making *no affect*, *may affect*, *not likely to adversely affect*, and *likely to adversely affect* determinations in a consistent manner throughout Iowa. How, or whether, to proceed with consultation once an affect determination has been made is also summarized in the BA.

With this correspondence, the NRCS in Iowa is requesting USFWS concurrence with the informal programmatic consultation process as outlined in this Biological Assessment. As of the date USFWS provides NRCS with written concurrence with this BA, all new projects as well as those that have not yet received Section 7 clearances will be subject to the process outlined in this biological assessment. Projects that received Section 7 clearance prior to this date will proceed according to the clearance provided prior to USFWS concurrence with this biological assessment.

Sincerely,

Richard Sims
State Conservationist

Enclosures

USDA:NRCS:tlk: TR

S:\Service_Center\NRCS\190_ECS_Ecological_Sciences\John\Fish and Wildlife Svc BA 030711.docx

Helping People Help the Land

An Equal Opportunity Provider and Employer



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Rock Island Field Office
1511 47th Avenue
Moline, Illinois 61265
Phone: (309) 757-5800 Fax: (309) 757-5807

IN REPLY REFER
TO:
FWS/RIFO

April 21, 2011

Mr. Richard Sims
State Conservationist
Natural Resources Conservation Service
210 Walnut Street, Room 693
Des Moines, Iowa 50309-2180

Dear Mr. Sims:

This is in response to your letter dated March 7, 2011, and attached Biological Assessment (BA) on a process for conducting Section 7 consultations on all Natural Resources Conservation Service (NRCS) projects in Iowa over the next five years. The programmatic approach was developed jointly by the NRCS and the U.S. Fish and Wildlife Service (Service) and covers all federally threatened and endangered species in Iowa. You requested our concurrence on the programmatic consultation process outlined in the BA and the determinations made for each listed species in Iowa.

Consultation Background

In 2007 the NRCS and Service held a nationwide workshop to facilitate coordination between the agencies and introduce ways to streamline Section 7 consultations. Prompted by that meeting, staff from the Iowa NRCS and the Service's Rock Island Ecological Services Field Office started to discuss ways to streamline consultations in Iowa. It was decided that a programmatic Section 7 consultation would be developed on all projects implemented under the NRCS administered farm bill programs and any projects developed through NRCS technical assistance. While there is no way to determine exactly how many projects NRCS will fund or provide technical assistance on in any given year, all project components in NRCS programs are required to conform to specific Conservation Practice Standards. The BA assesses the effects of the program's actions by first condensing the conservation practices into six specific disturbance categories that may occur during the implementation of the NRCS Practice Standards. It was then determined for each of the listed species whether each of the disturbance categories would have an effect. Best management practices (BMP) were developed for each species where a "may affect" determination was caused by any of the six disturbance categories.

Programmatic Consultation Process

The programmatic consultation process outlined in the BA follows a two-phase approach that will lead NRCS field office staff through a decision-making process and end in a “no effect,” “not likely to adversely affect,” or “likely to adversely affect” determination for each project. In the first step of the process, NRCS field staff will access the Iowa NRCS Endangered Species Act Section 7 Consultation Database and complete the Step-1 Baseline Assessment to determine whether disturbance categories may affect a listed species. This assessment includes defining the action area, identifying potential species and habitat that may be affected, and considering project alternatives. If it is found during the Step-1 Assessment that there is no habitat for listed species and the project will have no effect, staff are directed to document their findings. For projects where species may be affected, staff are to proceed through Step-2 Species Disturbance Assessments. The BMPs and avoidance measures developed by NRCS and the Service have been integrated into these assessments. As field staff go through the assessment, they are able to integrate BMPs into their project and avoid effects. If through this process, staff determine a project is not likely to adversely affect listed species, they are required to document the determination. If a project does not fall within the scope of the BA, or staff are unable to implement BMPs into the project, an individual consultation with the Service is required.

Indiana Bat Specific Effects Analysis

Although it is generally possible to avoid direct take of Indiana bats by implementing program BMPs, and by removing potential roosting trees in the winter months when bats are not utilizing them, removal of summer habitat may still cause adverse effects. The NRCS has developed a database to track the amount of suitable Indiana bat habitat removed from any Public Land Survey System (PLSS) section as part of consultation process. We have determined that for any given PLSS section, a maximum of 5% of the available habitat may be removed during the five years of this program consultation without adversely affecting the Indiana bat, provided that all other BMPs and avoidance measures within the Step-2 Assessments for woody habitat removal are met. All projects that require woodland habitat removal proposed after this 5% is reached will require individual consultations with the Service.

Species Determinations

According to the BA, the NRCS projects outlined in this programmatic consultation are not likely to adversely affect the following species, provided that all BMPs in Step-2 Species Disturbance Assessments are integrated into NRCS project designs: northern monkshood (*Aconitum noveboracense*), Mead’s milkweed (*Asclepias meadii*), eastern prairie fringed orchid (*Platanthera leucophaea*), western prairie fringed orchid (*Platanthera praeclara*), prairie bush clover (*Lespedeza leptostachya*), Topeka shiner (*Notropis topeka*), pallid sturgeon (*Scaphirhynchus alba*), piping plover (*Charadrius melodus*), least tern (*Sterna antillarum*), Indiana bat (*Myotis sodalis*), and Iowa Pleistocene snail (*Discus macclintocki*).

The Service suggests the following minor corrections to the BA Step-2 decision trees. The Service considers the Indiana bat maternity period to run from April 15 – September 15 so we

suggest that the dates in the assessment be changed to September 16 – April 14 if it is describing the “non-maternity” time or April 15 – September 15 if referring to the maternity period. In the section of Step-2 decision tree specific to forestry plans (Woody Plant Manipulation: Forestry), we recommend that numbers 5 and 6 of the guidelines be combined into one statement so that “Female Indiana bats prefer large diameter trees with loose or flaking bark, usually with some sun exposure for maternity colony trees” is the introductory sentence for the whole paragraph instead of having it as a separate number.

Based on the information in the BA and provided the above changes are made, we concur that implementation of the NRCS Section 7 consultation process for all projects in Iowa for the next five years, as outlined in the BA, is not likely to adversely affect the northern monkshood, Mead’s milkweed, eastern prairie fringed orchid, western prairie fringed orchid, prairie bush clover, Topeka shiner, pallid sturgeon, piping plover, least tern, Indiana bat, or Iowa Pleistocene snail.

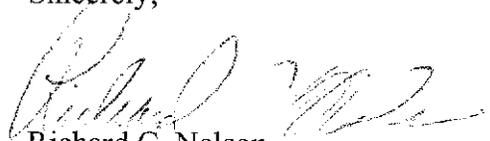
The Service commends NRCS biologists Jennifer Anderson-Cruz and Mark Lindflott for their foresight and hard work on this consultation. The process has allowed the two agencies to work closely together and develop a strategy that will not only streamline the consultation process but encourage NRCS field staff to integrate species specific BMPs into their projects and benefit the listed species in Iowa.

This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. If project plans change or portions of the proposed project were not evaluated, it is our recommendation that the changes be submitted for our review.

The above comments are provided in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq).

If you have any questions about our comments or recommendations, please contact Kristen Lundh of my staff at (309) 793-5800, extension 215.

Sincerely,



Richard C. Nelson
Field Supervisor

cc: USFWS R3 ES (Miller, Szymanski)
IADRN (Howell)
NRCS (Ander-Cruz, Lindflott)

BIOLOGICAL ASSESSMENT

For all Federally Threatened and Endangered Species in
Iowa



Programmatic Consultation

Between

The United States Fish and Wildlife Service and the
United States Department of Agriculture Natural Resources Conservation Service
in Iowa

CONTENTS

1. Introduction	5
Purpose of the Biological Assessment	5
Background	5
2. BIOLOGICAL ASSESSMENT	6
Program Descriptions	6
Summary of NRCS Programs in Iowa	6
NRCS Administered Farmbill Programs:.....	7
Proposed Action and Program Implementation.....	10
Species/Critical Habitat Considered.....	14
Species List and Life History	14
Determination of Effects	30
Effects to Threatened and Endangered Species	30
Effects Summary	37
3. LITERATURE CITED.....	39
4. LIST OF PREPARERS	42
5. APPENDICES.....	43
Appendix A. Example NRCS Conservation Practice Standard.....	44
Appendix B. NRCS Conservation Practice Standards and project categories that may occur (Y) during implementation of the standard.....	48
Appendix C. Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation Database	54
Appendix C.1. Iowa NRCS Endangered Species Act Section Seven Programmatic Consultation Database Main switchboard.	54
Appendix C.2. Step-1 Programmatic Consultation Baseline Assessment	55
Appendix C3. Step-1 Indiana Bat (<i>Myotis sodalis</i>) Habitat Assessment.	57
Appendix C4. Step-1 Topeka Shiner (<i>Notropis topeka</i>) Habitat Assessment.	58

Appendix C.5. Example Endangered Species Act species report from the Programmatic Consultation Database. This is a state-wide report; listed species reports can also be generated by county.....	59
Appendix C.6. Map of State and Federally listed species records in Iowa as of April 2, 2010.	65
Appendix D. Programmatic Consultation Step-2 Species Disturbance Category Assessments.	66
Appendix D.1. Programmatic Consultation Step-2 Indiana Bat Disturbance Category Assessments.	67
Appendix D.2. Programmatic Consultation Step-2 Topeka Shiner Disturbance Category Assessments.	72
Appendix D.3. Programmatic Consultation Step-2 Northern Monkshood Disturbance Category Assessments.	79
Appendix D.4. Programmatic Consultation Step-2 Iowa Pleistocene Snail Disturbance Category Assessments.	82
Appendix D.5. Programmatic Consultation Step-2 Piping Plover Disturbance Category Assessments.	85
Appendix D.6. Programmatic Consultation Step-2 Least Tern Disturbance Category Assessments.	89
Appendix D.7. Programmatic Consultation Step-2 Eastern Prairie Fringed Orchid, Western Prairie Fringed Orchid, Meads Milkweed, and Prairie Bush Clover Disturbance Category Assessments.	93
Appendix D.8. Programmatic Consultation Step-2 Higgin’s Eye Pearly Mussel Disturbance Category Assessments.....	97
Appendix D.9. Programmatic Consultation Step-2 Pallid Sturgeon Disturbance Category Assessments.	98
Appendix D.10. Programmatic Consultation Step-2 Bald Eagle Disturbance Category Assessments.	99
Appendix E. List of federally listed species, their status, and suitable habitat by Iowa county.	103
Appendix F. State of Iowa Natural Resource Commission [571] Chapter 77 Endangered and Threatened Plant and Animal Species.	122

Table 1. Federally Threatened and Endangered Species of Iowa. 11
Table 2. Project categories that may occur during the implementation of NRCS practice standards..... 12
Table 3. Potential for species impacts by disturbance category..... 13
Table 4. Determination of effects for each species by action. 38

INTRODUCTION

Purpose of the Biological Assessment

The Endangered Species Act of 1973 (ESA) mandates all Federal departments and agencies to conserve federally listed species and to utilize their authorities in furtherance of the purposes of the ESA. The ESA provides specific mechanisms to achieve its purposes and Section 7 is one of those mechanisms.

Section 7 requires Federal agencies to develop a conservation program for listed species (i.e., Section 7(a) (1)) and that they avoid actions that will further harm species and their critical habitat (i.e., Section 7(a) (2)). The section 7 programmatic consultation process described here applies to the second requirement - Section 7(a) (2). Section 7(a) (2) directs all Federal agencies to insure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or designated or proposed critical habitat (collectively, referred to as protected resources). The implementing regulations, 50 CFR 402, specify how Federal agencies are to fulfill their section 7 consultation requirements.

The purposes of this Biological Assessment (BA) are twofold. One, it describes a jointly developed programmatic process for conducting section 7 consultations for Natural Resources Conservation Service (NRCS) actions carried-out in Iowa over the next 5 years. Two, it details the potential effects to federally threatened or endangered species from these NRCS actions.

Background

In June, 2007, a joint workshop was held in Nebraska City, NE to facilitate coordination between the NRCS and USFWS and introduce ideas on streamlining endangered species consultations. Iowa NRCS and USFWS staff determined a programmatic Section 7 consultation would be effective in streamlining the numerous individual informal consultations conducted every year. Several meetings were held between NRCS state biologists and a USFWS Rock Island Field Office biologist to develop the scope of the consultation and the means for evaluating effects of the program actions. In September, 2008, a working group session was held that included NRCS and USFWS staff from Iowa, as well as Washington Office staff from both agencies. The consultation to that date was discussed and some of the decision trees (later referred to as Species Disturbance Assessments) were developed at this meeting, which consist of questions relating to potential effects of various categories of conservation activities on protected resources in order to make an effect determination. The resulting BA and establishment of the informal consultation process are the culmination of this work and the close collaboration of the agencies.

BIOLOGICAL ASSESSMENT

Program Descriptions

This BA pertains to projects for which NRCS is the lead federal agency and where technical and/or financial assistance are implemented through USDA conservation programs in Iowa. Locally-based NRCS staffs work directly with farmers, ranchers, and others, to provide technical and financial conservation assistance. NRCS' guiding principles are service, partnership, and technical excellence. NRCS helps landowners develop conservation plans and provides advice on the design, layout, construction, management, operation, maintenance, and evaluation of recommended, voluntary conservation practices. NRCS activities include farmland protection, upstream flood prevention, emergency watershed protection, urban conservation, and local community projects designed to improve social, economic, and environmental conditions. NRCS also conducts soil surveys; conservation needs assessments, and the National Resources Inventory to provide a basis for resource conservation planning activities and to provide an accurate assessment of the condition of the Nation's private lands.

Summary of NRCS Programs in Iowa

NRCS has six mission goals: high quality, productive soils; clean and abundant water; healthy plant and animal communities; clean air; an adequate energy supply; and working farms and ranchlands. To achieve these goals, the Agency implements the following strategies:

- Cooperative conservation: seeking and promoting cooperative efforts to achieve conservation goals.
- Watershed approach: providing information and assistance to encourage and enable locally-led, watershed-scale conservation.
- Market-based approach: facilitating the growth of market-based opportunities that encourage the private sector to invest in conservation on private lands.

NRCS Administered Farmbill Programs:

Conservation Stewardship Program

The Conservation Security/Stewardship Program (CSP) is a voluntary program that provides financial and technical assistance for the conservation, protection, and improvement of soil, water, and related resources on Tribal and private lands. The program provides payments to producers who have historically practiced good stewardship on their agricultural lands, and incentives for those who want to do more.

<i>YEAR</i>	<i>NO. OF CONTRACTS</i>	<i>ACRES ENROLLED</i>	<i>FUNDING LEVEL</i>
2008	137	76,000	\$1,200,000
Through 2007	2,338	900,000	\$22,000,000 (FY08 Payments)

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program that promotes agricultural production and environmental quality as compatible National goals. Through EQIP, farmers and ranchers may receive financial and technical assistance to install or implement structural and management conservation practices on eligible agricultural land.

<i>YEAR</i>	<i>NO. OF CONTRACTS</i>	<i>ACRES ENROLLED</i>	<i>FUNDING LEVEL</i>
2008	2,425	178,000	\$31,000,000
2007	1,480	125,000	\$21,000,000
2006	1,500	163,000	\$20,000,000

Agricultural Water Enhancement Program

Agricultural Water Enhancement Program (AWEP): The Agricultural Water Enhancement Program (AWEP) is a voluntary conservation initiative that enables the use of the Environmental Quality Incentives Program (EQIP) along with resources of eligible partners to provide financial and technical assistance to owners and operators of agricultural lands. Under AWEP, the Natural Resources Conservation Service (NRCS) enters into partnership agreements with eligible entities that want to promote ground and surface water conservation or improve water quality on agricultural lands. The Secretary of Agriculture has delegated the authority for AWEP to the NRCS Chief.

Farmland Protection Program

The Farmland Protection Program (FPP) is a voluntary program that helps farmers and ranchers keep their land in agriculture. The program provides matching funds to State, Tribal, or local governments and nongovernmental organizations with existing farmland protection programs to purchase conservation easements or other interests in land.

Wetlands Reserve Program

The Wetlands Reserve Program (WRP) is a voluntary program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private land in an environmentally beneficial and cost effective manner. The program provides an opportunity for landowners to receive financial incentives to restore wetlands in exchange for retiring marginal land from agriculture.

Note: the following table includes all easement and restoration costs and 10 year WRP restoration agreements.

<i>YEAR</i>	<i>NO. OF CONTRACTS</i>	<i>ACRES ENROLLED</i>	<i>FUNDING LEVEL</i>
2009	31	3,225	\$11,456,000
2008	41	2,900	\$8,750,000
2007	28	2,845	\$7,211,283
2006	27	2,821	\$8,398,745
2005	33	4,178	\$10,473,822
2004	56	6,113	\$14,113,616
2003	46	5,620	\$12,829,728
2002	47	5,839	\$11,141,148
2001	29	3,872	\$7,818,575
2000	33	4,462	\$7,695,180

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program that encourages the creation of high quality wildlife habitat that supports wildlife populations of National, State, Tribal, and local significance. Through WHIP, NRCS provides technical and financial assistance to landowners and others to develop upland, wetland, riparian, and aquatic habitat areas on their property.

<i>YEAR</i>	<i>NO. OF CONTRACTS</i>	<i>ACRES ENROLLED</i>	<i>FUNDING LEVEL</i>
2008	206	8,648	\$1,414,700
2007	38	1,794	\$337,700
2006	100	4,000	\$63,300

Healthy Forests Reserve Program

The Healthy Forests Reserve Program (HFRP) is a voluntary program established for the purpose of restoring and enhancing forest ecosystems to: 1) promote the recovery of threatened and endangered species, 2) improve biodiversity; and 3) enhance carbon sequestration. This program is currently not funded, but may become active in the future.

Emergency Watershed Protection Program

Emergency Watershed Protection Program: Section 382 of the Federal Agriculture Improvement and Reform Act of 1996, Public Law 104-127, amended the Emergency Watershed Program (EWP) to provide for the purchase of floodplain easements as an emergency measure. Since 1996, NRCS has purchased floodplain easements on lands that qualify for EWP assistance. Floodplain easements restore, protect, maintain, and enhance the functions of the floodplain; conserve natural values including fish and wildlife habitat, water quality, flood water retention, ground water recharge, and open space; reduce long-term federal disaster assistance; and safeguard lives and property from floods, drought, and the products of erosion. In addition, NRCS may use EWP funds to repair infrastructure damaged due to flooding.

Funding for EWP-Flood Plain Protection Easements

<i>YEAR</i>	<i>NO. OF CONTRACTS</i>	<i>ACRES ENROLLED</i>	<i>FUNDING LEVEL</i>
2009/2010	152	17,730	\$66,744,281
2001	31	4,599	\$6,132,237
2000	17	2,518	\$2,998,292

Grassland Reserve Program:

The Grassland Reserve Program (GRP) is a voluntary program that helps landowners and operators restore and protect grassland, including rangeland, pastureland, shrubland, and certain other lands, while maintaining the areas as grazing lands. The program emphasizes support for working grazing operations; enhancement of plant and animal biodiversity; and protection of grassland and land containing shrubs and forbs under threat of conversion to cropping, urban development, and other activities that threaten grassland resources.

Conservation Reserve Program:

The Conservation Reserve Program (CRP) provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws, and encourages environmental enhancement. The program is funded through the Commodity Credit Corporation (CCC). CRP is administered by the Farm Service Agency, with NRCS providing technical land eligibility determinations, conservation planning and practice implementation. NRCS conducts environmental evaluations for this program with FSA responsible for all consultation associated with the CRP program per Memorandum of Agreement between the NRCS, FSA, and the CCC for Implementation of the Conservation Reserve Program (CRP) effective June 11th, 2009- September 31st, 2012.

Proposed Action and Program Implementation

This BA assesses the effects to federally listed species in Iowa (Table 1) from implementation of NRCS projects under all NRCS Administered Farm Bill Programs and those projects developed through Conservation Assistance (excluding CRP) over the next 5 years. The program action area is the state of Iowa with all counties included. Typical projects are implemented on single properties with a landowner or operator. While there is no reliable predictor as to the scope or number of such future projects; all project components in NRCS programs are required to conform to specific Conservation Practice Standards (for an example NRCS Conservation Practice Standard see Appendix A; for a complete list of Iowa NRCS Conservation Practice Standards see Appendix B). This BA assesses the effects of the program actions by first condensing the conservation practices into 6 specific disturbance categories (Table 2) that may occur during the implementation of NRCS practice standards. It was then determined whether each of the disturbance categories would have an effect on each of federally listed species occurring in Iowa (Table 3).

In cooperation with the USFWS, species specific best management practices (BMPs) were developed for disturbance categories that may affect listed species. Undertakings involving projects determined to have *no effect* on listed species do not require Section 7 consultation and will not be discussed further in this BA.

Endangered Species Act (ESA) Consultation for the implementation of this programmatic consultation will follow a two phase approach that will lead NRCS field office staff through a decision making process. NRCS staff are directed to access the Iowa Natural Resources Conservation Service Endangered Species Act Section Seven Consultation Database (Appendix C) early in the conservation and project planning process. NRCS staff are to complete the Step-1 Baseline Assessment (Appendix C.2) to determine whether disturbance categories have the potential to affect a federally listed species (Appendix C.5). This includes defining the project area, identifying potential species and habitat that may be affected, and considering alternatives to disturbance categories that have the potential to affect a listed species. For the purposes of this consultation, disturbance categories to be implemented on active cropland that will have no impact on adjacent habitat will receive no effect determinations. If at the conclusion of this process, staff come to a *no effect* determination, staff are to document this determination in the conservation assistance notes, attach the completed Step-1 Baseline Assessment to the NRCS-CPA-52 Environmental Evaluation form, and no further consultation will be required.

Table 1. Federally Threatened and Endangered Species of Iowa.

<i>SPECIES</i>	<i>COMMON NAME</i>	<i>STATUS</i>
<i>Aconitum noveboracense</i>	Northern Monkshood	Threatened
<i>Asclepias meadii</i>	Mead's Milkweed	Threatened
<i>Charadrius melodus</i>	Piping Plover	Endangered
<i>Discus macclintocki</i>	Iowa Pleistocene Snail	Endangered
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Federally protected under the Bald and Golden Eagle Protection Act.
<i>Lampsilis higginsii</i>	Higgin's Eye Pearly Mussel	Endangered
<i>Lespedeza leptostachya</i>	Prairie Bush-clover	Threatened
<i>Myotis sodalis</i>	Indiana Bat	Endangered
<i>Notropis topeka</i>	Topeka Shiner	Endangered
<i>Platanthera leucophaea</i>	Eastern Prairie Fringed Orchid	Threatened
<i>Platanthera praeclara</i>	Western Prairie Fringed Orchid	Threatened
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	Endangered
<i>Sterna antillarum</i>	Least Tern	Endangered

For a project where species may be affected based on the results of the Step-1 Baseline Assessment, NRCS staff are to proceed to the applicable Step-2 Species Disturbance Assessment(s) (Appendix D). The Disturbance Assessments for each species have been developed using the process outlined on the Region 3 USFWS Section 7 Technical Assistance Step by Step Instructions website

(<http://www.fws.gov/midwest/endangered/section7/s7process/7a2process.html>). Best management practices (BMPs) have been integrated into the Step-2 Species Disturbance Assessments and are designed to avoid direct take of listed species and result in a *may affect, not likely to adversely affect determination* (NLAA) when implemented as part of the project. If staff integrate the necessary BMPs into the project and are able to avoid all adverse effects to listed species, they will note that the a project is NLAA in the IA-CPA-15 Conservation Assistance Notes and complete the NRCS-CPA-52 Environmental Evaluation and attach the completed Step-1 Baseline Assessment and Step-2 Species Disturbance Assessment(s) to document this determination and consultation will be concluded.

Table 2. Disturbance categories that may occur during the implementation of NRCS practice standards.

<i>DISTURBANCE CATEGORY</i>	<i>DEFINITION</i>
Earth Disturbance	Construction of structures, surface clearing, disking, chiseling, plowing, road building, excavating, quarrying, deleveling, filling, etc.
Woody Plant Manipulation	Tree clearing, logging, thinning, prescribed burning, etc.
Aquatic Habitat Manipulation	Levees, dams, water control structures, impoundments, drainage, filling, outletting, channelization, dredging, crossings, etc., that affects streams, rivers, or wetlands.
Pesticide/Herbicide Application	Application of pesticides or herbicides to aquatic and upland environments (direct or through drift).
Herbaceous Plant Manipulation	Haying, mowing, grazing, prescribed burning, seeding, interseeding, etc.
Water Quality Impacts	Erosion, compaction, nutrient, organic and chemical inputs, sedimentation, change in water temperature, pH, fertility, etc.

For projects that do not result in a *no effect* (NE) or a *may affect, not likely to adversely affect* (NLAA) determination after completing the Step-2 Species Disturbance Assessment(s), but instead are determined *likely to adversely affect* (LAA) a listed species, the NRCS State Office Biologist will initiate formal consultation with the USFWS through written correspondence. The NRCS State Office Biologist will also initiate formal consultation with the USFWS if (1) any action is modified in a way that causes an unavoidable adverse effect on a listed species that was not previously considered in the BA; (2) new information on project monitoring reveals effects of the action may affect listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action. NRCS must obtain written consent from the client and/or landowner prior to required consultation, conference, or other contact with entities outside of NRCS that may require the release of personally identifiable information about the NRCS client and/or landowner. If consent is not given, NRCS shall not pursue outside contact and must cease to provide technical and financial assistance for the

action, or portion of the action, affecting the species or their habitat. NRCS will inform the individual of potential ESA implications and their responsibilities under Section 10 of the ESA and the possible need to obtain a Habitat Conservation Plan and incidental take permit. NRCS may proceed with assistance if the client/landowner obtains a permit to lawfully implement actions under Section 10 of the Endangered Species Act. A copy of the permit shall be included in the NRCS case file prior to resuming assistance.

Table 3. Potential for species impacts by disturbance category.

<i>SCIENTIFIC NAME</i>	<i>COMMON NAME</i>	<i>STATUS</i>	<i>EARTH DISTURBANCE</i>	<i>WOODY PLANT MANIPULATION</i>	<i>AQUATIC HABITAT MANIPULATION</i>	<i>PESTICIDE/HERBICIDE APPLICATION</i>	<i>HERBACEOUS PLANT MANIPULATION</i>	<i>WATER QUALITY IMPACTS</i>
<i>Aconitum noveboracense</i>	Northern Monkshood	T	MA	MA	NE	MA	MA	NE
<i>Asclepias meadii</i>	Mead's Milkweed	T	MA	MA	MA	MA	MA	NE
<i>Charadrius melodus</i>	Piping Plover	E	MA	MA	MA	MA	MA	NE
<i>Discus macclintocki</i>	Iowa Pleistocene Snail	E	MA	MA	NE	MA	MA	NE
<i>Haliaeetus leucocephalus</i>	Bald Eagle	O*	MA	MA	MA	MA	MA	NE
<i>Lampsilis higginsii</i>	Higgin's Eye Pearly Mussel	E	MA	MA	MA	MA	MA	MA
<i>Lespedeza leptostachya</i>	Prairie Bush-clover	T	MA	MA	MA	MA	MA	NE
<i>Myotis sodalist</i>	Indiana Bat	E	NE	MA	NE	MA	NE	NE
<i>Notropis Topeka</i>	Topeka Shiner	E	MA	MA	MA	MA	MA	MA
<i>Platanthera leucophaea</i>	E. Prairie Fringed Orchid	T	MA	MA	MA	MA	MA	NE
<i>Platanthera praeclara</i>	W. Prairie Fringed Orchid	T	MA	MA	MA	MA	MA	NE
<i>Scaphirhynchus alba</i>	Pallid Sturgeon	E	MA	MA	MA	MA	MA	MA
<i>Sterna antillarum</i>	Least Tern	E	MA	MA	MA	MA	MA	NE

Status: E – Endangered, T - Threatened, O* - No longer protected under the ESA, but is federally protected under the Bald and Golden Eagle Protection Act.
MA (May Affect) – Disturbance category is considered to have an effect on the species.
NE (No Effect) – Disturbance category will have No Effect on the species. Undertakings involving project categories listed as having no effect on listed species will not require Section 7 consultation.

Species/Critical Habitat Considered

Species List and Life History

There are 12 species listed as federally threatened or endangered in Iowa (Table 1). Because NRCS projects occur in all counties throughout the state, all listed species were evaluated in this BA. County lists of federally protected species occurring in Iowa were acquired from the Service's website (http://www.fws.gov/midwest/endangered/section7/sppranges/iowa_cty.html) and can be found in Appendix E. A list of State protected species occurring in Iowa can be found in Appendix F.

Indiana Bat (Myotis sodalis)

The Indiana Bat was listed as an endangered species on March 11, 1967 (USDOJ, FWS, 1967). Critical habitat was designated on September 24, 1976 (USDOJ, FWS, 1976).

The Indiana Bat is a medium-sized bat in the genus *Myotis*, closely resembling the little brown bat (*M. lucifugus*) but differing in coloration. Its fur is a dull grayish chestnut rather than bronze, with the basal portion of the hairs on the back a dull lead color. This bat's under parts are pinkish to cinnamon, and its hind feet are smaller and more delicate than in *M. lucifugus*. The calcar (heel of the foot) is strongly keeled.

The Indiana Bat is a migratory endangered species that has been found in 27 states throughout much of the eastern United States. The Indiana Bat occurs in the Midwest and eastern United States from the western edge of the Ozark region in Oklahoma, to southern Wisconsin, east to Vermont, and as far south as northern Florida.

During the summer, Indiana Bats roost in dead or decaying trees and forage for insects primarily in riparian and upland forest. Indiana Bats feed exclusively on flying insects. Both aquatic and terrestrial insects are consumed including moths, caddisflies, mosquitoes, midges, bees, wasps, flying ants, beetles, leafhoppers, treehoppers, and stoneflies. Diet varies seasonally and variation is observed among bats of different ages, sexes, and reproductive-status.

Females arrive in their summer habitat in early spring. During this period a number of roosts may be used temporarily, until a roost with larger numbers of bats is established. The most important characteristics of roost trees are structural including, exfoliating bark with space for bats to roost between the bark and the bole of the tree; to a limited extent, tree cavities and crevices also are used for roosting. Indiana Bats prefer large trees in large, densely wooded areas, but may occur in woodlands with open canopies and within fragmented landscapes. The tree species most frequently used by maternity colonies are elm, oak,

beechn, hickory, maple, ash, sassafras, birch, sycamore, locust, aspen, cottonwood, pine, and hemlock (Cope et al. 1974, Humphrey et al. 1977, Garner and Gardner 1992, Britzke et al. 2003, Britzke et al. 2006), especially those with exfoliating bark. The mean DBH (diameter at breast height) of roost trees used by adult females and/or juveniles was 4 1.7 cm (Illinois Natural History Survey, 1996). Trees in excess of 16 inch DBH with exfoliating bark are considered optimal for maternity colony roost sites, but trees in excess of 9 inch DBH appear to provide suitable maternity roosting habitat (Romme et al. 1995). Females and juveniles forage in the airspace near the foliage of riparian and floodplain trees. Creeks are apparently not used if riparian trees have been removed (Humphrey et al. 1977).

Male Indiana Bats may be found throughout the entire range of species. Males appear to roost singly or in small groups, except during brief summer visits to hibernacula. Males usually roost in caves but have been observed roosting in trees as small as 3 inch DBH (Luensmann 2005). Males forage over floodplain ridges and hillside forests. Foraging areas average 11.2 acres per animal in midsummer (Humphrey et al. 1977).

During winter, Indiana Bats are restricted to suitable hibernacula (mostly caves and a few abandoned mines). The main hibernation sites for this species are located in southern Indiana, Kentucky, and Missouri. Indiana Bats winter in caves or mines that satisfy their highly specific needs for cold (but not freezing) temperatures during hibernation. The fact that Indiana Bats congregate at just a few known caves suggests that a very limited number of caves meet t requirements. Eleven caves and two mines in six states (Illinois, Indiana, Kentucky, Missouri, Tennessee and West Virginia, were listed as critical habitat in 1976 (USDOL, FWS, 1976).

This bat has a definite breeding period that usually occurs during the first 10 days of October. Mating takes place at night on the ceilings of large rooms near cave entrances. Limited mating may also occur in the spring before the hibernating colonies disperse. Generally, Indiana Bats hibernate from October to April, depending upon local environmental conditions. They hibernate in large, dense clusters of approximately 300 bats per square foot. Limited observations indicate that birth and development occur in very small, widely scattered colonies consisting of 25 or so females and their young (maternity groups). Birth usually takes place during June with each female bearing a single offspring. About 25 to 37 days are required for development to the flying stage and the beginning of independent feeding.

The decline in Indiana Bat populations is attributed to commercialization of roosting caves, wanton destruction by vandals, disturbances caused by increased numbers of spelunkers and bat banding programs, use of bats as laboratory experimental animals, and possibly insecticide poisoning. Some winter hibernacula have been rendered unsuitable as a result of blocking or impeding air flow into the caves and thereby changing the cave's climate. Maternal colonies are threatened by extensive timber harvest, storm damage, and development. In addition, Indiana Bats may be negatively affected by pesticide use and poor water quality which may affect bat food resources.

According to the USFWS, potential habitat for the Indiana Bat occurs in all counties along and south of Interstate 80. There are known occurrences in the following counties: Appanoose, Clarke, Davis,

Decatur, Des Moines, Henry, Jasper, Jefferson, Keokuk, Lee, Louisa, Lucas, Madison, Mahaska, Marion, Monroe, Muscatine, Poweshiek, Ringgold, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne.

Potential Counties along and south of Interstate 80:

Adair, Adams, Audubon, Cass, Dallas, Scott, Johnson, Mills, Montgomery, Page, Polk, Pottawattamie, Fremont, Guthrie, Cedar.

Topeka Shiner (Notropis Topeka)

The U.S. Fish and Wildlife Service determines the Topeka shiner (*Notropis topeka*) to be an endangered species under the authority of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et seq.).

The Topeka shiner is a small fish presently known from small tributary streams in the Kansas and Cottonwood river basins in Kansas; the Missouri, Grand, Lamine, Chariton, and Des Moines river basins in Missouri; the North Raccoon and Rock river basins in Iowa; the James, Big Sioux and Vermillion river watersheds in South Dakota; and, the Rock and Big Sioux river watersheds in Minnesota. The Topeka shiner is threatened by habitat destruction, degradation, modification, and fragmentation resulting from siltation (the buildup of silt), reduced water quality, tributary impoundment, stream channelization, and stream dewatering. The species also is impacted by introduced predaceous fishes.

The Topeka shiner is a small, stout minnow, not exceeding 75 millimeters (mm) (3 inches) in total length. The head is short with a small, moderately oblique (slanted or sloping) mouth. The eye diameter is equal to or slightly longer than the snout. The dorsal (back) fin is large, with the height more than one-half the predorsal length of the fish, originating over the leading edge of the pectoral (chest) fins. Dorsal and pelvic fins each contain 8 rays (boney spines supporting the membrane of a fin). 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 crosshatched. Below the lateral line the body lacks pigment, appearing silvery-white. A distinct chevron-like spot exists at the base of the caudal (tail) fin (Cross 1967; Pflieger 1975; Service 1993).

The Topeka shiner is characteristic of small, low order (headwater), prairie streams with good water quality and cool temperatures. These streams generally exhibit perennial (year round) flow; however, some approach intermittency (periodic flow) during summer. At times when surface flow ceases, pool levels and cool water temperatures are maintained by percolation (seepage) through the streambed, spring flow and/or groundwater seepage. The predominant substrate (surface) types within these streams are clean gravel, cobble and sand. However, bedrock and clay hardpan (layer of hard soil) overlain by a thin layer of silt are not uncommon (Minckley and Cross 1959). Topeka shiners most often occur in pool and

run areas of streams, seldom being found in riffles (choppy water). They are 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 (strays) (Cross 1967; Pflieger 1975; Tabor in litt. 1992a).

Data regarding the food habits and reproduction of Topeka shiners are limited and detailed reports have not been published. However, Pflieger (Missouri Department of Conservation, in litt. 1992) reports the species as a nektonic (swimming independently of currents) insectivore (insect eater). In a graduate research report, Kerns (University of Kansas, in litt. 1983) states that the species is primarily a diurnal (daytime) feeder on insects, with chironomids (midges), other dipterans (true flies), and ephemopterans (mayflies), making up the bulk of the diet. However, the microcrustaceans, cladocera, and copepoda (zooplanktons) also contribute significantly to the species' diet.

The Topeka shiner is reported to spawn in pool habitats, over green sunfish (*Lepomis cyanellus*) and orange-spotted sunfish (*Lepomis humilis*) nests, from late May through July in Missouri and Kansas (Pflieger 1975; Kerns in litt. 1983). Males of the species are reported to establish small territories near these nests. Pflieger (in litt. 1992) states that the Topeka shiner is an obligate (essential) spawner on silt-free sunfish nests, while Cross (University of Kansas, pers. comm. 1992) states that it is unlikely that the species is solely reproductively dependent on sunfish, and suggests that the species also utilizes other silt-free substrates as spawning sites. Data concerning exact spawning behavior, larval stages, and subsequent development is lacking.

Maximum known longevity for the Topeka shiner is 3 years, however; only a very small percentage of each year class attains the third summer. Young of-the-year attain total lengths of 20 mm to 40 mm (.78 to 1.6 in), age 1 fish 35 mm to 55 mm (1.4 to 2.2 in), and age 2 fish 47 mm to 65 mm (1.8 to 2.5 in) (Cross and Collins 1975; Pflieger 1975).

Historically, the Topeka shiner was widespread and abundant throughout low order tributary 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 shiners 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, and Blue basins in Kansas; the Des Moines, Cedar, 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 lower Loup basins in Nebraska; and the Big Sioux, Vermillion, and James basins in South Dakota.

The number of known Topeka shiner populations has been reduced by approximately 80 percent, with approximately 50 percent of this decline occurring within the last 25 years. The species now primarily exists as isolated and fragmented populations. In Iowa, 24 locales within 4 drainages were sampled in 1994 at or near sites from which the species was reported extant during surveys conducted between 1975 and 1985. The Topeka shiner was captured at 3 of 24 sites, with these 3 captures occurring in the North

Raccoon River basin (Tabor, U.S. Fish and Wildlife Service, in litt. 1994). Menzel (in litt. 1996) reports 6 collections of the species in 1994 and 1995, also from the same drainage. In 1997, surveys in Iowa found the species at 1 site in the North Raccoon basin, and at a new locality in the Little Rock drainage in Osceola County. Less than 5 individual Topeka shiners were identified in 1997. In Iowa, the species was extirpated from all Missouri River tributaries except the Rock River watershed prior to 1945. It also was eliminated from the Cedar and Shell Rock River watersheds prior to 1945. Since 1945, the Topeka shiner has subsequently been extirpated from the Boone, Iowa, and Des Moines drainages, with the exception of the North Raccoon River watershed (Harlan and Speaker 1951; Harlan and Speaker 1987; Menzel, Iowa State University, in litt. 1980; Dowell, University of Northern Iowa, in litt. 1980; Tabor in litt. 1994).

According to the USFWS, the Topeka shiner occurs in the following Iowa counties: Buena Vista, Calhoun, Carroll, Dallas, Greene, Hamilton, Humboldt, Kossuth, Lyon, Osceola, Sac, Webster, and Wright.

Designated Critical Habitat for the Topeka (U.S. Department of Interior 2004):

Raccoon River Watershed

North Raccoon River Complex - In this unit there are 19 stream segments within portions of the following tributaries and their qualifying, adjacent off-channel habitat — Indian Creek, Ditch 57, and Outlet Creek; Camp Creek and West Fork Camp Creek; Prairie Creek; Lake Creek; Purgatory Creek; Cedar Creek, West Cedar Creek, and East Cedar Creek; Short Creek; Hardin Creek; Buttrick Creek, West Buttrick Creek, and East Buttrick Creek; and Elm Branch and Swan Lake Branch. Additionally, qualifying off-channel pool habitat on the main stem of the North Raccoon River.

Boone River Watershed

Eagle Creek - the lower reach and qualifying off-channel habitat.

Ditch 3 and Ditch 19 - 2 stream segments and qualifying off-channel habitat - Ditch 3 extends from its confluence with the Boone River, upstream to the Humboldt County line. Ditch 19 also extends upstream from its confluence with Ditch 3 to the Humboldt County line.

Rock River Watershed

Rock River Complex – 2 stream segments and qualifying off-channel habitat. The Rock River from its confluence with Kanaranzi Creek upstream to the border with Minnesota, and Kanaranzi Creek from the confluence with the Rock River upstream to the Minnesota border.

Little Rock River Complex

Little Rock River - from near the town of Little Rock, Iowa, upstream to the Minnesota border, including qualifying, adjacent off-channel pool habitat.

Pallid Sturgeon (Scaphirhynchus albus)

The Pallid Sturgeon was listed as an endangered species on September 6, 1990 (USDOJ, FWS, 1990).

The Pallid Sturgeon is a large fish known only to occur in the Missouri River, the Mississippi River downstream from its junction with the Missouri River, downstream of the Missouri, and the lower Yellowstone River. It has a flattened, shovel-shaped snout; long, slender, and completely armored caudal peduncle; and lacks a spiracle. It is one of the largest fish found in the Missouri-Mississippi River drainage with specimens approaching 39 kilograms (85 pounds).

Habitats include large, turbid, free-flowing rivers with rocky or sandy substrate where the fish are adapted to bottom-dwelling areas of swift-flowing water. Pallid Sturgeon in habitat areas where the water temperature ranges from 0 degrees C to 30 degrees C (32 degrees F – 86 degrees F), which is the range of water temperature on the Missouri and Mississippi Rivers. They are most frequently caught over a sand bottom, which is the predominate bottom substrate on the rivers within the species' range.

Little is known about the reproduction or the spawning habits of the Pallid Sturgeon. Even basic parameters such as spawning locations, substrate preference, water temperature, or time of year have not been documented. All larval *Scaphirhynchus spp.* that have been collected have been classified as shovelnose sturgeon because of the rarity of Pallid Sturgeon. Because of the similarity of the species, spawning reportedly occurs between June and August.

Food habits of the Pallid Sturgeon are also poorly understood. Stomach and intestine contents of specimens caught in the Mississippi River and the Kansas River have included insect larvae and fragments, minnows, and other small fish.

The range of the Pallid Sturgeon is primarily the Missouri River and Mississippi River downstream of the junction with the Missouri River. Sightings have been recorded from the mouth of the Mississippi River to the mouth of the Missouri River, to Fort Benton, Montana. The total length of the species range is about 5,656 kilometers (3,515 miles) of river. States within this range are Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas, Missouri, Illinois, Kentucky, Tennessee, Arkansas, Mississippi and Louisiana (FWS, 1993). Pallid Sturgeon remains one of the rarest, but widely distributed fish of the Missouri and Mississippi River Basins.

Threats to the continued existence of the Pallid Sturgeon include destruction and alteration of habitats by human modification of the river system which causes a decline in reproduction, growth, and survival. The short-term recovery objective is to prevent species extinction by establishing three captive broodstock populations in separate hatcheries that are initially composed of five to seven wild adult males and five to seven females (FWS, 1993).

According to the USFWS, the Pallid Sturgeon occurs in the following Iowa counties: Fremont, Harrison, Mills, Monona, Pottawattamie, and Woodbury

Iowa Pleistocene Snail (Discus macclintocki)

Status: The Iowa Pleistocene snail was listed as endangered on July 3, 1978 (USDOJ, FWS, 1978).

The Iowa Pleistocene snail is a small terrestrial snail about a 114-inch in diameter. Their shells are brown or greenish white.

The snails live in the leaf litter of special cool and moist hillsides called algific talus slopes. Cool air and water, from underground ice, flow out of cracks in the slopes keeping the ground temperatures below 50⁰F in summer and above 14⁰F in winter.

Iowa Pleistocene snails breed from late March to August. Two to six eggs are laid among the leaf litter and hatch in about 28 days. The snail's life span is about five to seven years.

The snails eat fallen leaves of birch, maple and dogwoods.

These snails have only been found at about 30 sites in Iowa and Illinois. Fossilized shells indicate they were once much more widespread during cooler glacial periods. Presently, the snail is found in only about 22 (updated to 37 talus slopes in Henry County, 2003) small areas in northeast Iowa and northwest Illinois, and 50% of the individuals are in 4 colonies (NatureServe, 2005). Only about 40,000 individuals remain and this density varies from year to year. Iowa Pleistocene Snail fossil occurrences have been documented for northeast Iowa, northwest Illinois, southeast Minnesota, and southwest Wisconsin (Henry, 2003, as cited in NatureServe, 2005).

The major long-term cause of snail population decline is climate change. The most immediate habitat threats are from logging, quarrying, road building, sinkhole filling and contamination, human foot traffic, livestock grazing and trampling, and misapplication of pesticides.

According to the USFWS, the Iowa Pleistocene snail occurs in the following Iowa counties: Clayton, Clinton, Dubuque, Fayette, and Jackson

Eastern & Western Prairie Fringed Orchids (Platanthera leucophaea and P. praeclara)

Status: The eastern and Western Prairie Fringed Orchids were listed as threatened on September 28, 1989 (USDOJ, FWS, 1989).

The prairie fringed orchids are perennial herbs that regenerate from a fusiform tuber rootstock. The tubers are dormant during the winter and thus adapted to dormant season prairie fires. Fires and high precipitation appear to promote flowering. Leaves usually emerge in May; flowering begins by late June and early July. The white flowers are fragrant after sunset and adapted to pollination by night flying hawkmoths. Species that have been observed or collected include *Xylophanes tersa*, *Eumorphia achernan*, *Sphinx eremitis*, and *Manduca sexta* (The Nature Conservancy, 1995). Hawkmoths overwinter as pupae and adults emerge and fly between late June and July. They ingest a high volume of nectar from long nectar spurs at which time the pollen adheres to the moths' proboscis. Pollination is required for seed production. Capsules dry and adhisce by September and the dust-like seed are blown by the wind (The Nature Conservancy, 1995). Seedling establishment depends upon development of the fruiting body with a favorable soil inhabiting fungus (mycorrhizae).

These orchids require full sun and usually inhabit tall grass calcareous silt loam or subirrigated sand prairies. It also occupys calcareous wetlands, including open portions of fens, sedge meadows, marshes, and bogs. The Eastern Prairie Fringed Orchid occurs primarily east of the Mississippi River, whereas the Western Prairie Fringed Orchid mostly occurs west of the Mississippi River.

Threats to the orchids come from conversion of most of its habitat to cropland, collection, intensive hay mowing that prevents the life cycle from being completed, drainage of wetlands, and fire protection that affects succession (USDOJ, FWS, 1989). Destruction of the orchids comes from cattle and deer grazing, rodents that eat the plant at or below the ground, and the presence of stemborers or cutleaf worms. Invasion of the orchid's habitat by the exotic weed purple loosestrife and reeds canarygrass presents another threat (The Nature Conservancy,

1995). Additional threats would be those associated with any direct threats to the hawkmoth, which pollinates the orchids. This may include the use of insecticides, or any adverse impacts to hawkmoth habitats (USDOJ, FWS, 1989).

According to the USFWS, the Eastern Prairie Fringed Orchid occurs in the following Iowa counties:

Decatur, Jackson, Johnson, Jones

According to the USFWS, there are known occurrences for the Western Prairie Fringed Orchid in the following Iowa counties: Adair, Bremer, Buena Vista, Cherokee, Clay, Crawford, Fayette, Guthrie, Howard, Kossuth, Mills, Pocahontas, Polk, and Taylor

According to the USFWS, potential habitat for the Western Prairie Fringed Orchid occurs statewide in the following counties:

Adams, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Buchanan, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Chickasaw, Clarke, Clayton, Clinton, Dallas, Davis, Decatur, Delaware, Des Moines, Dickinson, Dubuque, Emmet, Floyd, Franklin, Fremont, Greene, Grundy, Hamilton, Hancock, Hardin, Harrison, Henry, Humboldt, Ida, Iowa, Jackson, Jasper, Jefferson, Johnson, Jones, Keokuk, Lee, Linn, Louisa, Lucas, Lyon, Madison, Mahaska, Marion, Marshall, Mitchell, Monona, Monroe, Montgomery, Muscatine, O'Brien, Osceola, Page, Palo Alto, Plymouth, Pottawattamie, Poweshiek, Ringgold, Sac, Scott, Shelby, Sioux, Story, Tama, Union, Van Buren, Wapello, Warren, Washington, Wayne, Webster, Winnebago, Winneshiek, Woodbury, Worth, Wright.

Prairie Bush Clover (Lespedeza leptostachya)

Status: The prairie bush-clover was listed as threatened on January 9, 1987 (USDOJ, FWS, 1987).

The prairie bush-clover is a perennial herb with slender stems up to 1 m tall and with 3-parted compound leaves. It produces creamy-white to pink flowers arranged on slender terminal spikes. Open flowers are showy, but the plants often produce smaller, self-pollinating flowers that never fully open. It blooms mainly in mid July (NatureServe, 2005).

This plant is threatened by loss of habitat due to agriculture and urbanization, and may be threatened by plant succession, lack of natural disturbance (which prevents shrub invasion) at individual sites and slow germination and seedling establishment rates (NatureServe, 2005).

According to the USFWS there are known occurrences of Prairie Bush Clover in the following Iowa counties: Buena Vista, Butler, Clarke, Clay, Delaware, Dickinson, Emmet, Howard, Kossuth, Lucas, O'Brien, Osceola, Story, Warren, and Winneshiek

According to the USFWS, potential habitat for the Western Prairie Fringed Orchid occurs statewide in the following counties: Adair, Adams, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Bremer, Buchanan, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clayton, Clinton, Crawford, Dallas, Davis, Decatur, Des Moines, Dubuque, Fayette, Floyd, Franklin, Fremont, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Harrison, Henry, Humboldt, Ida, Iowa, Jackson, Jasper,

Jefferson, Johnson, Jones, Keokuk, Lee, Linn, Louisa, Lyon, Madison, Mahaska, Marion, Marshall, Mills, Mitchell, Monona, Monroe, Montgomery, Muscatine, Page, Palo Alto, Plymouth, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Sac, Scott, Shelby, Sioux, Tama, Taylor, Union, Van Buren, Wapello, Washington, Wayne, Webster, Winnebago, Woodbury, Worth, Wright.

Northern Monkshood (Aconitum noveboracense)

The northern monkshood was listed as threatened on April 26, 1978 (USDOJ, FWS, 1978).

The northern monkshood is a perennial and reproduces both from seed and small tubers. It is noted for its very distinctive, blue hood-shaped flowers. The flowers bloom between June and September and are pollinated when bumblebees pry open the blossom to collect nectar and pollen.

Northern monkshood has only been found in Iowa, Wisconsin, Ohio, and New York. It is typically found on shaded to partially shaded cliffs, algific talus slopes, or on cool, stream side sites.

Threats to the northern wild monkshood include contamination and filling of sinkholes, grazing and trampling by livestock, human foot traffic, logging maintenance of highways and power lines, and road building (FWS, 1994). The small number of slope cliff habitats with the appropriate microclimate, and a low rate of germination, especially in the Ohio populations, is probably the main factors limiting the species' distribution (NatureServe, 2003).

According to the USFWS, the northern monkshood occurs in the following Iowa counties: Allamakee, Clayton, Delaware, Dubuque, Hardin, and Jackson

Mead's Milkweed (Asclepias meadii)

Mead's Milkweed was listed as a threatened species on September 1, 1988 (USDOJ, FWS, 1988).

Mead's Milkweed is a polycarpic perennial (Chaplin et al. 1990) and requires five to eight years to reach maturity from seed (Betz and Hohn 1978). Plants appear to be long-lived and may live for more than a century.

Mead's Milkweed is currently known to persist in 171 sites in 34 counties in Kansas, Iowa, and southern Illinois. Populations no longer occur in Wisconsin and Indiana. Seventy-five percent of the Mead's

Milkweed populations are in the Osage Plains Physiographic region in Kansas and Missouri; and the Glaciated Physiographic Region of Kansas. The remaining populations occur in the Shawnee Hills of Illinois; the Southern Iowa Drift Plain in Iowa; the Glaciated Plains, Ozark Border, Ozark Springfield Plateau, and the Ozark-St. Francois Mountains of Missouri; and the Glaciated Physiographic Region of Kansas. (USDOI, FWS, 2003)

The plant occurs primarily in tallgrass prairie with a late successional bunch-grass structure, but also occurs in hay meadows and in thin soil glades or barrens. It is essentially restricted to sites that have never been plowed and only lightly grazed. In Kansas, most populations average around 20 plants, although some have over 100 plants per population (USDOI, FWS, 2003).

Seasonal growth usually starts mid-to-late April with flowers being produced in late May and early June. Fruit pods appear by late June and reach maturity by late August or early September. The hairy seeds in the pods reach maturity by mid-October. Betz and Hohn (1978) reported *Asclepias meadii* had the lowest number of flowers per plant from 2,800 observations of 18 Midwestern milkweed species.

Pollen is shed by pollinaria (Bookman, 1981) which are disseminated by insects (Chaplin et al., 1990). Relatively few insects have been observed on Mead's Milkweed plants (Betz 1989). Common inhabitants of the foliage include the milkweed bug (*Oncopeltus fasciatus*), the lesser milkweed bug (*Lygaeus kalmii*) and the caterpillar of the monarch butterfly (*Danaus plexippus*). Other insects associated with Mead's Milkweed include the cerambycid milkweed beetle (*Tetraopes fenioratus*), common milkweed beetle (*T. tetraopltthalanius*) and milkweed weevils (*Rhyssernatus annectens* and *R. lineaticollis*). Potential pollinators include bumblebees (*Bombus affinis* and *B. griseocollis*) and digger bees (*Anthoplzora racri*) (Betz, 1989).

Mead's Milkweed is threatened by a number of factors including loss of habitat due to urbanization and agricultural land conversion, loss of pollinators (Betz 1975), pesticide application or drift from adjacent land, and a lack of adequate prairie management.

Loss of habitat and modification appears to be the primary cause of decline within Mead's Milkweed (Chaplin et al. 1990). Numerous historic sites have been destroyed through plowing and land conversion throughout its range (Freeman 1988, Durz and Bowles 1981). Insufficient or inappropriate prairie management may lead to a gradual depletion of Mead's Milkweed plants through invasion of woody plants.

According to the USFWS, Mead's Milkweed occurs in the following Iowa counties: Adair, Clarke, Decatur, Ringgold, and Warren

Higgins Eye Pearlymussel (Lampsilis higginsii)

The Higgins' eye pearly mussel was listed as endangered on June 14, 1976 (USDOJ, FWS, 1976).

Freshwater mussels that are protected by the Endangered Species Act are found in riverine habitat that provides an adequate supply of food and oxygen. While there may be some variation in preferred habitat between species, the habitat is generally a firm substrate with some degree of continuous water flow. Mussels rarely move unless forced by environmental conditions. All mussels are filter feeders that extract detritus, bacteria, and small planktonic organisms from the water. This is accomplished by drawing water through the incurrent siphon, filtering out food organisms, extracting oxygen as water passes the gills, and passing the waste laden water out the excurrent siphon.

The reproductive cycle for nearly all the Iowa native mussels is basically the same. Sperm shed by males is drawn into the incurrent siphon of females. The females' eggs are held and fertilized in the water tubes of the gills where they develop into a larval form called glochidia. Glochidia lack the internal organs of the adult mussel, are not capable of swimming or crawling, and for most mussels, must parasitize a host fish for successful development. Glochidia are ejected by the female mussel into the water column where they come into contact with the host species within a few days or die. The glochidia remain on the host until they metamorphose into juveniles and drop to the substrate where they rarely move. The glochidial stage lacks any form of protection and is very susceptible to environmental degradation.

The major threats to the mussels are habitat modification, sedimentation, and water quality degradation. Habitat modification through the placement of impoundments into waterways has had a significant adverse impact on the mussels. Impoundments isolate some mussel populations from others, which reduces genetic variability; impoundments also reduce the availability of host fish; and they reduce stream flow and the sediment removing action of the stream. Other activities, such as channelization, channel clearing, and gravel mining contribute to the deterioration of the mussels' habitat by increasing sedimentation. Other activities that can increase the sedimentation in the mussel's habitat are siccicultural practices, farming, and poor land use practices. The increase in sedimentation can suffocate the mussels as they draw their nutrients from the water.

Water quality and degradation from point, such as industrial waste discharge, and non-point sources, such as agricultural run-off, further contribute to the deterioration of habitat. These sources may not only directly affect the mussels themselves but could impact the host fish that are essential to the reproduction of the mussels. Mussels and fish are inextricably linked ecologically.

Another threat identified in some of the river systems where the mussels occur is the presence of the exotic Asian clam (*Corbicula fluminea*) and zebra mussel (*Dreissena polymorpha*). The Asian clam may affect the native mussels through competition for space and nutrients. In some areas, the substrate has been changed from fairly homogenous silty sand or sand to one with a gravel-like composition comprised of huge numbers of live and dead Asian clam shells (USDOJ, FWS, 1993).

The Higgins eye pearly mussel inhabits major rivers and tributaries in depths up to 15 feet. It has been found on mud-gravel bottoms in areas of swift current. This mussel is considered a large river species occupying stable substrates that vary from sand to boulders, but not firmly packed clay, flocculent silt, organic material, bedrock, concrete or unstable sand (NatureServe, 2005). They are usually found in mussel beds that contain at least 15 other species at densities greater than 0.01 individual/square meter (NatureServe, 2005).

Scattered populations survive in the Mississippi River system in Wisconsin, Illinois, and Iowa. The historic distribution prior to 1965 was documented as the main stem of the Mississippi River from just north of St. Louis, Missouri, to just south of St. Paul, Minnesota; in the Illinois, Sangamon, and Rock Rivers in Illinois; in the Iowa, Cedar, and Wapsipinicon Rivers in Iowa; in the Wisconsin and St. Croix Rivers in Wisconsin; and, in the Minnesota River in Minnesota (NatureServe, 2005). A Higgins eye pearly mussel repatriation program has introduced this species to segments of the Wapsipinicon, Iowa and Cedar Rivers.

According to USFWS, the Higgins eye pearly mussel occurs in the following Iowa counties: Allamakee, Clayton, Clinton, Des Moines, Dubuque, Jackson, Louisa, Muscatine, Linn, Jones, and Scott

While there is no designated critical habitat, the Higgins eye Recovery Team has designated habitats *essential* to the recovery of the species. These areas include the following Iowa counties; Allamakee County, Iowa (river miles 655.8-658.4R); Harper's Slough area, Allamakee County, Iowa (river mile 639-641.4R); Marquette-McGregor area, Clayton County, Iowa (river mile 634-636); McMillan Island area, Clayton County, Iowa (river mile 616.4-619.1R).

Piping Plover (Charadrius melodus)

The Piping Plover has been determined to be an endangered species in Illinois, Indiana, Michigan, Minnesota, New York, Ohio, and Pennsylvania, and a threatened species except in states listed above (USDOJ, FWS, 1985). Final critical habitat was designated on May 7, 2001 (USDOJ, FWS, 2001). Notice of availability of the final recovery plan was made on September 16, 2003 (USDOJ, FWS, 2003).

The Piping Plover is a shorebird characterized by a dark (black in males, brown in females) forecrown and breast band during the breeding season. Adults in winter lack the dark forecrown and the breast band is reduced to lateral gray patches which blend in with the rest of the pale grayish-brown plumage. The wings of males are 115 to 127 mm; females 110 to 122 mm. The average adult weight is 52.7 grams.

Birds arrive in nesting areas around late March and spread out over nesting beaches. These areas occur along the barren shorelines of lakes and rivers. Territories are well spaced and breeding birds usually will not allow other birds within 100 feet of their nest. Nests are on the sand and lined with fragments of sea shells where available. Eggs are laid at daily intervals and the usual clutch is 4 eggs (sometimes 3, rarely 2). Both sexes incubate the eggs and incubation lasts from 27 to 31 days. Young birds leave the nest a few hours after hatching and are able to fly at 30 to 35 days of age. Brooding by adults may occur until the young are about 20 days old, and injury-feigning behavior toward intruders is common.

The food preferences are not well studied but are known to include aquatic worms, fly larvae, beetles, crustaceans, and mollusks. The birds tend to forage singly, although they may arrive and depart feeding areas in flocks.

Piping Plovers are associated with sandy flats and river banks. Grassless sandy areas are generally preferred for breeding habitat over grassy areas, though openings in grassy dunes as small as 200-300 feet long may be used. The interior population favors open shorelines of shallow lakes, especially salt-encrusted shorelines of gravel, sand, or pebbly mud.

Habitat alteration and destruction are the primary causes for the decline of the Piping Plover. Loss of sandy beaches and lakeshores due to recreational, residential, and commercial development has reduced available habitat for this species. Human disturbance of nests and nesting birds has been an increasing problem for this species. The change in land use at these locations has also resulted in greater losses from pets and other predators.

According to the USFWS, the Piping Plover occurs in the following Iowa counties: Pottawattamie and Woodbury

Least Tern (Sterna antillarum) Interior Population

The interior population of the Least Tern has been determined to be endangered (USDOJ, FWS, 1985). A recovery plan for this species was completed in 1990 (FWS, 1990).

The Least Tern is one of the smaller terns, with adults measuring 8 ½ to 10 inches (215 to 250 mm.) long, and having a wing length of 6 ½ to 9 inches (166 to 176 mm.) for males and slightly smaller for females. Adult plumage is predominately white, with the back upper surface of the wings gray, and the cap and outer primaries black. The immature plumage is similar, but the crown is gray and there is more blackish in the wings and primaries. Juvenile plumage is similar to immature, but somewhat duller. The iris is brown and the feet yellowish (adults and juveniles) or blackish (immature). The bill is light in juveniles and blackish in immature.

This species is highly adapted to life on the wing and though a water bird, it seldom swims. It generally forages while in flight, snatching fish, crustaceans, and insects from the surface.

Annual migration occurs, and the tern breeds from California, South Dakota, Maine, and southward to Mexico and the Caribbean. Interior terns spend 4-5 months at the breeding site, beginning late April to early June (FWS, 1990). Nesting colonies are generally on the ground on sites that are sandy and relatively free of vegetation. Eggs are laid in a shallow scrape starting in late May and average two (range 1 to 3). Although nests are generally on sandbars, or on beaches and spits in coastal areas, alkali flats have been used as nest sites in New Mexico. Both parents incubate the eggs. The chicks hatch in 20 to 22 days and remain in the nest for about one week. Although the young are capable of flight within 3 weeks of hatching, the parents continue to feed them until migration. Least Terns will re-nest until late July if clutches or broods are lost. The breeding season is usually complete by late August.

The Least Tern exhibits a localized pattern on distribution and its breeding biology centers around three ecological factors: (1) The presence of bare or nearly bare alluvial islands or sandbars; (2) The existence of favorable water levels during the nesting season; and (3) The availability of food. Although most nesting takes place in rivers, it also nests on barren flats of saline lakes and ponds such as on the Salt Plains National Wildlife Refuge in Alfalfa County, Oklahoma.

Channelization, irrigation, and the construction of reservoirs and pools have contributed to the elimination of much of the tern's natural nesting habitat in the major river systems of the Midwest. Recreational activities along rivers can disturb nesting sites and has been shown to reduce reproductive success. Water pollution from pesticides and irrigation runoff can also contribute to reproductive failure. Access of predators to nesting sites resulting from control of water flow is also known to contribute to losses.

According to the USFWS, the Least Tern occurs in the following Iowa counties: Pottawattamie, Woodbury, and Polk

Bald Eagle (Haliaeetus leucocephalus)

Status: the Bald Eagle was reclassified from endangered to threatened in all of the lower 48 states on July 12, 1995 (USDOJ, FWS, 1995). On July 6, 1999, the Bald Eagle was proposed to be delisted and recovered (USDOJ, FWS, 1999). On August 9, 2007, the eagle was removed from the endangered species list. Bald Eagles remained protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

The Bald Eagle is one of the largest eagles with adults measuring 30 – 35 inches (76 to 89 cm.) long from bill to tip of tail, 7 feet (2 m.) in wingspan, and weighing from 8 to 13 pounds (3.6 to 6 kg.). Males are slightly smaller than females. Adult Bald Eagles have white head and tail feathers, brown wings and

body, and bright yellow beak, feet and eyes. Immature Bald Eagles are brown all over. Wings are long and broad, adapted for soaring. Bald Eagles live from 20 to 30 years in the wild but may live in excess of 50 years in captivity.

Bald Eagles generally mate for life unless one mate dies and the survivor finds another mate. Females breed for the first time when about 4 years old. Nests (called eyries or aeries) are built in the tops of large trees near water or, depending on the terrain, may be built on rock outcroppings when suitable trees are unavailable. Old eyries may be as much as 10 feet (3 m.) across and 20 feet (6 m.) deep, and new ones may be about 3 feet (1 m.) across and 18 inches (112 m.) deep. During the breeding season pairs may defend a territory of up to 40 square miles (100 square km.), but have been known to nest within 1 mile (1.6 km.) of another pair. Eyries are frequently used each year and are built of sticks and fresh green leaves. Generally, two eggs are laid each year although sometimes three are laid. Northern Bald Eagles lay eggs in March. The eggs are incubated for 35 to 45 days, with the female staying in the nest most of that time. The male sits occasionally and brings food to the female while she sits on the nest. Both guard the nest and bring food to the young. Eggs hatch 2 to 3 days apart, and competition from the older eaglet for food and the tendency of the older eaglet to attack and kill the smaller one usually results in the survival of only one eaglet. Feathers begin to grow when about 4 weeks old and young birds are brown in color and may be mistaken for golden eagles when they begin to fly. Immature birds then remain in the company of their parent for another 6 to 8 weeks.

Bald Eagles hunt and nest in locations near water. The primary food is fish which is generally snatched from lakes or rivers while flying just above the surface or by plunging in for an instant. The eagles cannot swim and become in danger of drowning if completely soaked. They often locate food and fish by following other fish-eating birds and may take fish away from smaller birds of prey, especially osprey. Bald Eagles occasionally catch waterfowl by hovering over them and forcing them to dive until they become exhausted. Food is supplemented by catching rodents or small birds, depending on the locale.

The eagles have very keen eyesight, but they usually fly low to hunt. Bald Eagles are relatively shy and prefer to live in regions which are relatively unpopulated by man. Nesting Bald Eagles are associated almost exclusively with lakes, rivers, or sea coasts. Fish are the major item in their diet.

The historic breeding range included at least 45 of the contiguous states. As of the early 1990s, populations in many areas had rebounded to the levels that occurred before DDT use was banned in the United States. In the lower 48 states, the breeding population has doubled every 6-7 years since the late 1970s.

Despite its rapid recovery, this species is still subject to threats from environmental contaminants, excessive disturbance from human activities, and loss of habitat associated with urbanization. The protection afforded this species by government regulations and the gradual elimination of DDT and related compounds from the natural environment continue to support growth of breeding populations in the lower 48 states.

There are known occurrences in the program counties of: Adair, Adams, Allamakee, Appanoose, Benton, Black Hawk, Bremer, Buchanan, Buena Vista, Boone, Butler, Calhoun, Carroll, Cass, Cherokee, Chickasaw, Clay, Clayton, Clinton, Dallas, Decatur, Delaware, Des Moines, Dickinson, Dubuque, Fayette, Floyd, Franklin, Fremont, Guthrie, Hamilton, Hardin, Henry, Howard, Humboldt, Iowa, Jackson, Jasper, Jefferson, Johnson, Jones, Keokuk, Kossuth, Linn, Louisa, Lucas, Lyon, Mahaska, Marion, Marshall, Mills, Mitchell, Monona, Muscatine, Palo Alto, Plymouth, Polk, Poweshiek, Ringgold, Sac, Shelby, Scott, Sioux, Story, Tama, Taylor, Van Buren, Warren, Washington, Wayne, Webster, Winneshiek, Woodbury, and Worth

According to the USFWS, the potential Bald Eagle habitat occurs statewide.

Determination of Effects

The majority of Iowa NRCS projects occur within crop fields that do not provide suitable habitat for federally listed plant or animal species. Such projects are typically short-term and will involve activities typical of farming operations. Project areas falling entirely within active cropland without affecting adjacent or offsite potential habitat will be considered to have *no effect* on Federally listed species and will not require consultation with the Service.

Terrestrial and aquatic habitats may be affected to varying degrees by activities under each of the six disturbance categories. Negative impacts may include soil compaction, damage or removal of overstory and understory vegetation, destabilization of soils and slopes, and decreases water quality resulting from sedimentation and erosion. Terrestrial habitat impacts will be restricted to the local areas in and around project sites. Aquatic habitat impacts may be local, around project sites, but may also occur to some extent downstream of project sites. In most instances, impacts are expected to be temporary.

The overall cumulative impacts of NRCS programs will be positive as their intent is to improve water quality, provide wildlife habitat, or reduce soil erosion. The beneficial impacts to fish, wildlife, and plant species associated with NRCS conservation practices include, but are not limited to the following: reduced loadings of nutrients, pesticides, and sediments; reduced runoff, improved water quality, wetland and stream habitat for aquatic species, expanded habitat areas for wildlife, and enhanced biodiversity of plants and animals.

Effects to Threatened and Endangered Species

Specific effects from the six disturbance categories (Table 3) have been evaluated for each species through coordination with the USFWS. Disturbance Category Assessments have been developed for each species that may be affected and are specific to the particular disturbance category (Appendix D). For

instance, the category of “woody plant manipulation” may affect the Indiana Bat summer maternity roost habitat, so these possible effects were evaluated by the NRCS-USFWS working group and a set of guidelines were identified to avoid take. These were then incorporated into the Step-2 Species Disturbance Assessments that will be used by field office staff to conduct informal consultations on projects.

Indiana Bat

Two of the project categories may affect the Indiana Bat; woody plant manipulation and pesticide/herbicide application. The cutting or burning of trees and the subsequent removal of habitat, including primary and secondary roost trees, may directly and indirectly affect Indiana Bats. Woody plant manipulation during the summer when bats are active in Iowa may result in direct adverse effects. Removing primary or secondary roost trees is likely to cause mortality. Removal of non-habitat trees that surround roost trees may also adversely affect roosting bats if the removal appreciably changes the character of the available Indiana Bat summer habitat. For example if forest structure is drastically changed around a roost tree, decreasing foraging habitat or habitat connectivity, the functionality and value of the habitat, including the maternity roost, may be diminished.

Removal of roost trees outside of the maternity period when bats are not active in Iowa may also result in adverse affects. Long distance migration and pregnancy following a 6 to 7 month hibernation period likely exacts an energetic toll. Therefore, any additional energy demands from searching for new roost trees could potentially result in slower prenatal development or abortion, delayed parturition, slower postnatal development, delayed weaning and volancy, and increased juvenile predation risk. For both females and males, the effects from removal of roost trees may include increased energetic demands, exposure to inter and intra-specific competition, and exposure to predation while searching for new roosting and foraging areas. Destruction of multiple roost trees in a small area can greatly increase the thermoregulatory costs for individuals returning to familiar sites and could potentially disrupt the social bonds of a colony (Kurta and Murray 2002). Removal of trees from riparian areas may reduce the viability of foraging habitat. The likely behavioral response of bats returning after the roost trees are removed will be to disperse to adjacent upland suitable habitat. If other bat species are found within an action area, the removal of roost trees may cause increased interspecific competition.

For a project to fall within the bounds of this programmatic consultation, the maximum amount of woodland habitat removal allowed for any individual PLSS map section will be 5% of the available Indiana Bat summer habitat within that section. All woodland habitat removal proposed after this level is reached will require individual consultation. Within the Indiana Bat counties (see Appendix E), the NLCD Deciduous Forest, NLCD Mixed Forest, and NLCD Woody Wetlands land cover classes of the *USDA, National Agricultural Statistics Service, 2009 Iowa Cropland Data Layer* (56-m grid) were used to determine the baseline acres of available Indiana Bat summer habitat in each PLSS map section. NRCS staff will be required to enter the acres of suitable woodland habitat removed under NLAA determinations by PLSS map section into a tracking database, which will keep a running tally of disturbed suitable habitat acres. In addition, the amount of Indiana Bat Habitat available will be calculated annually from the NASS Iowa Cropland Data layer. When/if cumulative woodland habitat removal reaches or exceeds 5% of the 2009 NASS baseline habitat threshold for the PLSS map section, staff will be alerted

that their project and future projects that include woodland habitat removal within that section are no longer covered by this BA and will require individual consultation with the Service.

Specific BMPs and guidance for avoiding take have been incorporated into the Indiana Bat Disturbance Assessments (Appendix D.1). If necessary, clearing of potential Indiana Bat habitat will be conducted between September 16th and April 14th in order to avoid direct take of Indiana Bats. If necessary, burning within suitable Indiana Bat habitat will also be restricted to this timeframe. To ensure there is adequate habitat available and to reduce stress to bats returning to summer habitat, habitat removal is restricted to 5 acres or less, and cannot be more than 5% of the total available habitat within the PLSS map section of the project area. We have determined that all projects that comply with the guidance in the Indiana Bat Disturbance Assessment are *may affect, not likely adversely affect* (NLAA) Indiana Bats. If a project includes tree clearing in excess of 5 acres and/or if > 5% of the available Indiana Bat habitat has been removed in the PLSS map section where the project will occur, an individual consultation will be required. Individual consultations will also be required if the project is part of a larger multistage action such as a watershed project or silt control structure associated with a lake project.

There are more specific guidelines that pertain to three forestry related conservation practices (Forest Stand Improvement 666, Restoration and Management of Declining Habitats 643, and Prescribed Burning 338). Iowa DNR State Foresters provide technical assistance to NRCS and routinely develop forest plans for program projects. NRCS projects that include these three forestry conservation practices must follow these guidelines as well as the practice specifications in order for the project to avoid adverse affects to Indiana Bat and be determined NLAA. The guidelines have been written to allow foresters flexibility in prescribing site forestry measures while still avoiding adverse affects. As stated for non-forestry related project categories, there will be no felling of trees in Indiana Bat habitat between April 15th and September 15th.

Pesticide and herbicide application conducted during the non-maternity period from September 16th – April 14th will have no effect on Indiana Bats. Application during the maternity period that will not disturb roosting bats or their food resources are *may affect, not likely to adversely affect* (NLAA). Application that may result in disturbance to Indiana Bats or their food resources will require individual consultations.

Topeka Shiner

Project categories that may affect the Topeka shiner include; earth disturbance, woody plant manipulation, herbaceous plant manipulation, aquatic habitat manipulation, pesticide/herbicide application, and water quality impacts.

The Topeka shiner characteristically inhabits prairie streams with good water quality and cool to moderate temperatures. In Iowa, Topeka shiners have been found in pools and runs, in off-channel areas such as oxbows, but are seldom found in riffles, channelized streams, or drainage ditches.

Proposed projects that may affect suitable habitat within the floodplain of occupied streams or within designated critical habitat or associated floodplain habitat will require individual consultation.

NRCS conservation practices implemented in occupied streams (according to the USFWS Occupied Streams List) that affect water quality, cause barriers to movement, increase or decrease stream flow, or destroy habitat may directly or indirectly affect Topeka shiners. Increased sedimentation, especially during spawning events, may cause the suffocation of incubating eggs, the blockage of larval gills, and the sedimentation of spawning areas. Specific BMPs (Appendix D.2.2.) and guidance have been integrated into the Step-2 Topeka shiner Disturbance Assessments designed to avoid take (Appendix D.2). These BMPs include the placement of devices above and below the work area to trap, filter, and hold sediment during the construction process, revegetation of all construction areas, and other measures to control sediment. All woody or herbaceous plant clearing within 30 feet of occupied streams must comply with guidelines designed to avoid adverse impacts. We have determined that projects that incorporate all BMPs and avoidance measures in the Topeka Shiner Disturbance Assessments are *may affect, not likely to adversely affect* (NLAA) Topeka shiners.

Pesticide and herbicide application that may result in disturbance to Topeka shiners or their food resources will require individual consultations. Also, projects that cause barriers to movement, cause modification to off-channel habitat, will change the quantity or quality of the channel flow, or that require the dewatering of the stream channel, will require individual consultation.

Northern Monkshood

The northern monkshood is typically found on shaded to partially shaded cliffs, algific slopes, or on cool stream bank areas. Actions involving earth disturbance, woody plant manipulation, herbaceous plant manipulation, and pesticide/herbicide application may affect the northern monkshood. Northern monkshood is susceptible to direct effects from activities such as logging, grazing, and human foot traffic. Algific slopes can also be adversely affected by the filling of associated sinkholes.

Although the we have found that actions involving earth disturbance, woody plant manipulation, pesticide/herbicide application, and herbaceous plant manipulation *may affect* Northern Monkshood habitat, few NRCS conservation practices will be implemented on algific slopes. We have determined that any practice implemented outside a 150-foot buffer around algific slopes or their associated sinkholes will have *no effect* (Appendix D.3). Projects implemented within 150 feet may affect and will have to go through individual consultation if there is a potential for increased sediment, debris, etc. transported onto the slope or into an associated sinkhole. If the project will result in use exclusion from potential Northern Monkshood habitat, as with a fencing project, the project *may affect* but will be considered *wholly beneficial*. Any project that includes the use of pesticides or herbicides that may be applied directly to an algific slope or have the potential to drift onto an algific slope or over an associated sinkhole will require individual consultation.

Iowa Pleistocene Snail

The Pleistocene snail is known to occur only in the leaf litter of algific talus slopes. Although we have found that actions involving earth disturbance, woody plant manipulation, pesticide/herbicide application, and herbaceous plant manipulation may affect Pleistocene snail habitat, few NRCS conservation practices will be implemented on algific slopes. Pleistocene snails are very susceptible to direct effects from activities such as timber management, grazing and even human foot traffic. Algific slopes may also be adversely affected by the filling of associated sinkholes. In order to avoid adverse affects to these delicate habitats, a 150-foot buffer for sinkholes and algific slopes has been included in the Pleistocene snail Disturbance Assessments. We have determined that any practice implemented outside a 150-foot buffer around algific slopes or their associated sinkholes will have *no effect* (Appendix D.4). Projects implemented within 150 feet may affect and will have to go through individual consultation if there is potential for increased sediment, debris, etc. transported onto the slope or into an associated sinkhole. If the project will result in use exclusion from potential Pleistocene snail habitat, as with a fencing project, the project *may affect* but will be considered *wholly beneficial*. Any project that includes the use of pesticides or herbicides that may be applied directly to an algific slope or have the potential to drift onto an algific slope or over an associated sinkhole will require individual consultation.

Piping Plover

Piping Plovers nest along the barren shorelines and sandbars of large lakes and rivers. Major threats to this species include habitat destruction and alteration. Recreational, residential, and commercial development has reduced available habitat and has caused an increase in nest predation. NRCS will not be implementing conservation practices in beach habitat along shorelines or sandbars of large rivers or lakes. However, NRCS projects could cause disturbance near nesting areas during the Piping Plover breeding season. Disturbance of Piping Plover colonies can result in temporary abandonment of nests, exposing adults to aerial predation and eggs and chicks to predation and inclement environmental conditions. A 660 foot buffer around breeding areas will be maintained when nesting Piping Plovers are present. During the breeding season of April 10 – August 15, no program activities, including survey, may occur within the 660 foot buffer area of an active Piping Plover breeding site. With the implementation of these protection measures, NRCS has determined that the conservation practices implemented near Piping Plover habitat are *may affect, not likely to adversely affect* (NLAA), and all others will have *no effect* to the Piping Plover (Appendix D.5).

Least Tern

Least Terns nest in similar habitat as the Piping Plover, along the barren shorelines and sandbars of large lakes and rivers. Major threats to this species include habitat destruction and alteration from recreational, residential, and commercial development. NRCS will not be implementing conservation practices in beach habitat along shorelines or sandbars of large rivers or lakes. However, NRCS projects could cause disturbance near nesting areas during the Least Tern breeding season. Disturbance of Least Tern colonies can result in temporary abandonment of nests, exposing adults to aerial predation and eggs and chicks to predation and inclement environmental conditions. A 660 foot buffer around Least Tern breeding areas will be maintained when nesting terns are present. During the breeding season of May 1 – August 15, no

program activities, including survey, may occur within the 660 foot buffer area of an active Least Tern breeding site. With the implementation of these protection measures, NRCS has determined that the conservation practices implemented near Least Tern habitat are *may affect, not likely to adversely affect* (NLAA), and all others will have *no effect* to the Least Tern (Appendix D.6).

Prairie Bush Clover, Mead's Milkweed, and the Eastern and Western Prairie Fringed Orchids

The Prairie Bush Clover, Mead's Milkweed, and the Eastern and Western Prairie Fringed Orchids are all found in remnant prairie. Because a common subset of actions could potentially affect all four plants, we will describe the potential effects together. Disturbance categories that may affect these plants include woody plant manipulation, herbaceous plant manipulation, herbicide/pesticide application, and earth disturbance. Most of the guidance developed for these plants is designed to reduce disturbance of prairie sites during the active growing season. Although disturbances such as removal of invasive plants and prescribed fire are very important for the management of remnant prairies, when conducted during the active growing season they may cause take of federal trust species. Specific dates are given to avoid program activities for each plant, and other avoidance measures are included in the respective Step-2 Species Disturbance Assessments. BMPs such as placement of silt fences or maintaining a vegetative buffer between earth disturbance activities and remnant prairies are designed to keep runoff from entering adjacent areas with listed plants. When all BMPs and avoidance measures are included in a project, we have determined that woody plant manipulation, herbaceous plant manipulation, earth disturbance, and herbicide/pesticide application on sites housing these listed plants are *may affect, not likely to adversely affect* (NLAA) (Appendix D.7). Any earth disturbance within a remnant prairie that contains listed plants will require individual consultation.

The Eastern and Western Prairie Fringed Orchids are found in wet prairies; therefore aquatic habitat manipulation may affect these species. Conservation practices that change the hydrology (increase or decrease) of a remnant prairie may affect any of the plant species if conditions are made inhospitable to the plant. Projects requiring aquatic habitat manipulation will require individual consultation unless they can be designed to completely avoid altering the hydrology of remnant prairie habitat.

Higgins Eye Pearlymussel

Extant populations of the Higgins Eye Pearlymussel are found in the Mississippi and populations have been reintroduced to the Wapsipinicon River. Efforts have been made to reintroduce the Higgins eye to some of its historical range, which also includes the Cedar and Iowa Rivers. Disturbance categories that may affect the Higgins Eye Pearlymussel include woody plant manipulation, herbaceous plant manipulation, herbicide/pesticide application, earth disturbance, aquatic habitat manipulation, and water quality impacts. Although most NRCS conservation practices will not directly affect the channel of these larger rivers, there may be projects that may affect the Higgins eye or its host fish. However, due to the significant baseline turbidity within these river systems, we believe that potential adverse effects from the implementation of NRCS practices would be insignificant or discountable. Many NRCS stream-related projects consist of the installment of practices such as vegetative buffer strips or stream bank stabilization that have beneficial effects by way of stabilizing streams and reducing the amount of sediment delivered

to the stream. Therefore, we have determined that the vast majority of conservation actions will have *no effect* on the Higgins Eye Pearlymussel. Those projects that may temporarily increase sedimentation into one of these waterways during construction are *May affect, not likely to adversely affect* (NLAA) (Appendix D.8).

Pallid Sturgeon

Within the project action area, the Pallid Sturgeon is only known to occur in the Missouri River. Major threats to this species include destruction and alteration of habitat including, earth disturbance, aquatic habitat manipulation, and water quality impacts. Although most NRCS conservation practices will not directly affect the channel of these larger rivers, there may be adverse affects to Pallid Sturgeon from actions implemented upstream of occupied habitat. However, due to the significant baseline turbidity within these river systems and the sturgeon's adaptation to these conditions, we believe that potential adverse effects from NRCS practices would be insignificant or discountable. Therefore, we have determined that the vast majority of conservation actions will have *no affect* on the Pallid Sturgeon, and those projects that may increase sedimentation into one of these waterways are *may affect, not likely to adversely affect* (Appendix D.9).

Bald Eagle

Although the Bald Eagle is no longer listed as Federally threatened under the Endangered Species Act, they continue to be protected through the Bald and Golden Eagle Protection Act. Actions involving earth disturbance, woody plant manipulation, aquatic habitat manipulation, pesticide/herbicide application, or herbaceous plant manipulation may affect Bald Eagles.

Bald Eagles practice nest site fidelity and will continue to return to a nest site year after year. Care must be taken for projects close to known or suspected Bald Eagle nests because disturbance of nesting eagles may cause nest abandonment; therefore, disturbances that can be seen or heard by nesting eagles may have an adverse effect. Conservation measures that require the use of heavy equipment or noisy equipment such as chainsaws may be especially harmful. As a protection measure, a buffer of 660 feet will be maintained between NRCS project sites and actively nesting Bald Eagles between January 15th and July 31st.

Clear cutting or removal of overstory trees within 330 feet of an eagle nest may increase disturbance by eliminating the buffer effect of surrounding forest. Also, removal of large diameter trees will reduce alternate nest sites. Therefore, removal of trees ≥ 12 inches DHB or prescribed burns within 330 feet of a Bald Eagle nest shall not occur at any time of year to comply with this BA.

If the above measures (Appendix D.10) cannot be followed, project proponents will be required to contact the NRCS State Biologist for further project development.

Effects Summary

Based on our assessment of the impacts associated with each of the six disturbance categories, we have determined that implementation of NRCS programs for the next 5 years will have *no effect* or are *may affect, not likely to adversely affect* (Table 4.) if NRCS staff follow the informal consultation process as outlined in this BA.

For projects that do not result in a *no effect* or a *may affect, not likely to adversely affect* determination after completing the Step-2 Species Disturbance Assessments, but instead are determined *likely to adversely affect* a protected species, the NRCS State Biologist will initiate formal consultation with the USFWS through written correspondence. The NRCS State Biologist will also initiate formal consultation with the USFWS if (1) any action is modified in a way that causes an effect on a federal trust species that was not previously considered in the BA; (2) new information on project monitoring reveals effects of the action that may affect federal trust species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action.

NRCS must obtain written consent from the client and the landowner prior to required consultation, conference, or other contact with entities outside of NRCS that may require the release of personally identifiable information about an NRCS client or landowner. If consent is not given, NRCS shall not pursue outside contact and must cease to provide technical and financial assistance for the action, or portion of the action, affecting the species or their habitat. NRCS will inform the individual of potential ESA implications and their responsibilities under Section 10 of the ESA and the possible need to obtain a Habitat Conservation Plan and incidental take permit. NRCS may proceed with assistance if the client/landowner obtains a permit to lawfully implement actions under Section 10 of the Endangered Species Act. A copy of the permit shall be included in the NRCS case file prior to resuming assistance.

Table 4. Determination of effects for each species by disturbance category following the process and procedures outlined in this Biological Assessment.

<i>COMMON NAME</i>	<i>EARTH DISTURBANCE</i>	<i>WOODY PLANT MANIPULATION</i>	<i>AQUATIC HABITAT MANIPULATION</i>	<i>PESTICIDE/HERBICIDE APPLICATION</i>	<i>HERBACEOUS PLANT MANIPULATION</i>	<i>WATER QUALITY IMPACTS</i>
Indiana Bat	NE	NLAA	NE	NLAA	NE	NE
Bald Eagle	N/A	N/A	N/A	N/A	N/A	N/A
Iowa Pleistocene Snail	NLAA	NLAA	NE	NLAA	NLAA	NE
Western Prairie Fringed Orchid	NLAA	NE	NLAA	NLAA	NLAA	NLAA
Prairie Bush-clover	NLAA	NLAA	NE	NLAA	NLAA	NE
Northern Monkshood	NLAA	NE	NE	NLAA	NLAA	NE
Mead's Milkweed	NLAA	NLAA	NE	NLAA	NLAA	NE
Eastern Prairie Fringed Orchid	NLAA	NLAA	NLAA	NLAA	NLAA	NLAA
Higgin's Eye Pearly Mussel	NLAA	NLAA	NLAA	NLAA	NLAA	NLAA
Topeka Shiner	NLAA	NLAA	NLAA	NLAA	NLAA	NLAA
Pallid Sturgeon	NLAA	NE	NLAA	NE	NE	NLAA
Piping Plover	NLAA	NLAA	NLAA	NLAA	NLAA	NE
Least Tern	NLAA	NLAA	NLAA	NLAA	NLAA	NE
NE = No Effect						
NLAA = May affect, not likely to adversely affect						

LITERATURE CITED

Betz, R.F. 1989. Ecology of Mead's Milkweed (*Asclepias meadii* Torrey). Pp. 187- 191 in T.B. Gragg and J. Stubbendieck, eds., Proc. of Eleventh North Amer. Prairie Conf., Lincoln, NE.

Betz, R.F. and J.E. Hohn. 1978. Status report of *Asclepias meadii*. U.S. Fish and Wildlife Service, Denver. 9pp.

Bookman, S. S. 1981. The floral morphology of *Asclepias speciosa* (Asclepiadaceae) in relation to pollination and a clarification of the terminology of the genus. American Journal of Botany 68:675-679.

Chaplin, S., R. Betz, C. Freeman, D. Roosa and T. Toney. 1990. Recovery plan for Mead's Milkweed (*Asclepias meadii* Tom.). Technical Draft. U.S. Fish and Wildlife Service, Twin Cities, MN. 30pp.

Fish and Wildlife Service. 1994. Northern monkshood fact sheet. Update 1994. Available: <http://midwest.fws.gov/Endangered/plants/monkshoo.html>. (Access: October 23, 2003).

Fish and Wildlife Service. 1999. Indiana Bat (*Myotis sodalis*) revised recovery plan. Ft. Snelling, MN. 61 pp.

Freeman, C.C. 1988. ESIS workbook for *Asclepias meadii*. U.S. Fish and Wildlife Service.

Humphrey, S. R., A. R. Richter and J. B. Cope. 1977. Summer Habitat and Ecology of the Endangered Indiana Bat, *Myotis sodalis*. Journal of Mammalogy 58: 334-346.

Illinois Natural History Survey. 1996. Indiana Bats in Illinois. <http://www.inl1s.uiuc.edu/lc11fl~ublsurve~reposlmar-apr96/bats.html> last accessed November 30, 2004

Kurta, A, S. W. Murray, and D. H. Miller. 2002. Roost selection and movements across the summer landscape. Pages 118- 129 in The Indiana Bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Kurz, D.R. and M.L. Bowles. 1981. Status report of *Asclepias meadii*. Illinois Dept. of Conservation, Springfield. 8pp.

Luensmann, Peggy S. 2005. *Myotis sodalis*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2010, April 2].

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: April 2, 2010).

The Nature Conservancy, 1995. The Nature Conservancy's element stewardship abstract for *Platanthera leucophaea*, prairie fringed orchid, *Platanthera praeclara*, western white-fringed orchid. Available: <http://www.ncrs.fs.fed.us/gla/tesweb/ESA/esaplle.htm>. (Access: February 12, 2003).

U.S. Fish and Wildlife Service. 1990. Interior population of the Least Tern, *Sterna antillarum*, recovery plan. U.S. Fish Wildl. Serv., Washington, D.C.

U.S. Fish and Wildlife Service. 1993. Pallid Sturgeon Recovery Plan. U.S. Fish and Wildlife Service, Bismarck, North Dakota. 55 pp.

United States Department of Interior 2003. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Approved recovery plan for the Great Lakes Piping Plover (*Charadrius melodus*). Federal Register, Vol. 68, p. 54241, September 16, 2003.

United States Department of Interior. 1988. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Determination of threatened status for *Asclepias meadii* (Mead's Milkweed). Federal Register, Vol. 53, p. 33996, September 1, 1988).

United States Department of Interior. 1990. Fish and Wildlife Service. Endangered and threatened wildlife and plants: Determination of Endangered Status for the Pallid Sturgeon. Federal Register Vol. 55, p. 36641, September, 6, 1990.

United States Department of Interior. 2003. Fish and Wildlife Service. Mead's Milkweed (*Asclepias meadii*) Recovery Plan.

United States Department of Interior. Fish and Wildlife Service. Endangered and threatened wildlife and plants; Final Designation of Critical Habitat for the Topeka Shiner; Final Rule. Federal Register, Vol. 69, p. 44736, July 27, 2004

United States Department of Interior. Fish and Wildlife Service. Endangered and threatened wildlife and plants; determination of threatened status for the eastern and Western Prairie Fringed Orchids. Federal Register, Vol. 54, p. 39857, September 28, 1989.

United States Department of Interior. 1967. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Endangered species list -1967. Federal Register, Vol. 32, p. 400 1, March 11, 1967.

United States Department of Interior. 1976. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Determination of critical Habitat for the American crocodile, California condor, Indiana Bat, and Florida manatee. Federal Register, Vol. 41, p. 41914, September 24, 1976.

United States Department of Interior. 1985. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Interior population of Least Tern determined to be endangered. Federal Register, Vol. 50 p. 21784, May 28, 1985.

United States Department of the Interior, 1976. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Endangered status for 159 taxa of animals. Federal Register, Vol. 41, p. 24062, June 14, 1976.

United States Department of the Interior, 1978. Fish and Wildlife Service. Final Determination that Seven Eastern U.S. Land Snails are Endangered or Threatened Species. Federal Register, Vol. 43, p.28932, July 3, 1978.

United States Department of the Interior, 1978. Fish and Wildlife Service. Endangered and threatened wildlife and plants; determination that 11 plant taxa are endangered species and 2 plant taxa are threatened species. Federal Register, Vol. 43, p. 17910, April 26, 1978.

United States Department of the Interior, 1987. Fish and Wildlife Service. Endangered and threatened wildlife and plants; Determination of Threatened Status for *Lespedeza leptostachya* (Prairie Bush-clover). Federal Register, Vol. 52, p. 78 1, January 9, 1987.

United States Department of the Interior. 1995. Fish and Wildlife Service Endangered and threatened wildlife and plants. Final rule to reclassify the Bald Eagle from endangered to threatened in all of the lower 48 states. Federal Register, Vol. 60, p. 6000, July 12, 1995.

United States Department of the Interior. 1985. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Determination of endangered and threatened status for Piping Plover. Federal Register, Vol. 50, p. 50726, December 11, 1985.

United States Department of the Interior. 1992. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Final determination of critical habitat for the Great Lakes breeding population of the Piping Plover. Federal Register, Vol. 66, p. 22938, May 7, 2001.

United States Department of the Interior. 1999. Fish and Wildlife Service. Endangered and threatened wildlife and plants. Proposed rule to remove the Bald Eagle in the lower 48 States from the list of endangered and threatened wildlife. Federal Register, Vol. 64, p. 36454, July 6, 1999.

LIST OF PREPARERS

<i>Name</i>	<i>Job Title</i>	<i>Years in Position</i>	<i>Degree(s)</i>	<i>Major(s)</i>	<i>Prior Experience</i>	<i>Years of Prior Experience</i>
Jennifer Anderson-Cruz	Biologist	9	BS	Environmental Science	Naturalist – Putnam Museum	2
			MS	Biology	Watershed Coordinator - Muscatine County Soil and Water Conservation District	2
			PhD	Ecology & Evolutionary Biology in progress	Naturalist – Scott County Conservation Board	1
Mark Lindflott	Biologist	25	BS	Animal Ecology	District Conservationist – Natural Resources Conservation Service	2
					Soil Conservationist – Natural Resources Conservation Service	2
Kristen Lundh	Biologist	7	BA	Biological Pre-medical Illustration	Johnston County Soil and Water Conservation District	2
			BA	Environmental Studies	Naturalist - Johnston County Conservation Board	2
			MS	Biology in progress	Fish and Wildlife Information Specialist - Iowa Department of Natural Resources	3

APPENDICES

Appendix A. Example NRCS Conservation Practice Standard.

658 - 1

NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE STANDARD

WETLAND CREATION

(Ac.)

CODE 658

DEFINITION

The creation of a wetland on a site that was historically non-wetland.

PURPOSE

To create wetland functions and values.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to sites where no natural wetland occurred historically and which contain soils that are not hydric.

This practice does not apply to:

- Constructed Wetland (656), intended to treat point and non-point sources of water pollution
- Wetland Restoration (657), intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to approximate original wetland conditions
- Wetland Enhancement (659), intended to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond original conditions

CRITERIA

General Criteria Applicable to all Purposes

The soil, hydrology, and vegetative characteristics existing on the site and the contributing watershed shall be documented before the wetland is created.

The purpose, goals, and objectives of the creation shall be clearly defined, including the soils, hydrology, and vegetation criteria that are to be met and are appropriate for the site and the project purposes.

Upon completion, the site shall meet the appropriate wetland criteria and provide wetland functions and values as defined in the project's objectives.

Establish vegetative buffers around the created wetlands to reduce the movement of sediment and soluble and sediment-attached substances carried by runoff. Use Filter Strip (393) to determine the minimum width of the vegetative buffer.

Sites suspected of containing hazardous waste shall be tested to identify appropriate remedial measures. Sites containing hazardous material shall be cleaned prior to the installation of this practice.

The water quality of the drainage area shall be suitable for the intended use of the wetland.

Avoid disturbance to ground nesting species during the primary nesting season.

Invasive species, federal/state listed noxious plant species, and nuisance species (e.g.: those whose presence or overpopulation jeopardize the practice) shall be controlled on the site. This includes, but is not limited to, the manipulation of water levels or topography to control unwanted vegetation. The establishment and/or use of non-native plant species shall be discouraged.

Criteria for Soils

Created wetlands shall be located in landscape positions and soil types capable of supporting the wetland functions and values.

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service State Office or visit the [electronic Field Office Technical Guide](#).

NRCS, IA
March 2008

Criteria for Hydrology

The site shall be designed to create hydrologic conditions (including the timing of inflow and outflow, duration, and frequency) that provide the desired wetland functions and values. An adequate source of water must be available to meet design needs. Water rights shall be assured prior to creation.

Structures to control the water level shall be installed, as needed, for the establishment of desired hydrologic conditions for management of vegetation and for optimum wildlife and fish use. These structures shall meet the requirements of Structure for Water Control (587). Water levels required and the timing of changes shall be specified. Refer to Iowa Biology Technical Note 20.

If appropriate to the planned functions and values of the wetland, micro- and macro-topography shall be created to achieve hydrologic diversity and enhance the desired effect.

Engineering structures constructed for wetland creation shall approximate or mimic existing natural topography and micro- and macrotopography.

The work associated with the wetland shall not adversely affect adjacent properties or other water users, the capacity of drainage systems on other properties, or back surface water onto an adjoining property unless agreed to by signed easement, permit, or other legal document.

Any existing surface or subsurface drainage systems that would affect or be affected by the wetland shall be located and measures taken to determine the extent of those systems. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

Refer to Wetland Restoration (657) for design criteria for subsurface drain plugging or removal, shallow water excavation, wetland dikes, and water control structures.

Criteria for Vegetation

Adequate substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design. Loosening of compacted soils, addition of organic matter, or other soil preparation activities shall be accomplished

where necessary to establish desired vegetation.

Establish hydrophytic vegetation typical for the wetland type(s) being established. Preference shall be given to native wetland plants with localized genetic material.

Vegetative establishment shall address species, functional, and structural diversity.

The minimum number of native species to be established shall be based upon the types of vegetative communities present and the vegetation type planned. To achieve habitat diversity and minimize the adverse effects of climate, disease, and other limiting factors, several species adapted to the site will be established.

Where known nutrient and pesticide contamination exists, the species selected will be tolerant of these conditions.

Seeding rates shall be based upon percentage of pure live seed tested within 6 months of planting.

Applicable guidelines for hydrophytic vegetation establishment can be found in Iowa Biology Technical Note 9, Iowa Biology Job Sheet 3, Conservation Cover (327), Tree/Shrub Establishment (612), Restoration and Management of Declining Habitats (643), Wetland Wildlife Habitat Management (644), and NEH, Part 650, Chapter 13.

If uplands are planned as part of a wetland creation then native seedlings shall be used for these areas as well. Refer to Conservation Cover (327) for herbaceous restorations or Tree/Shrub Establishment (612) and Upland Wildlife Habitat Management (645) if trees and/or shrubs are desired.

CONSIDERATIONS

Consider adding 1 to 2 dead snags, tree stumps, or logs per acre to provide structure and cover for wildlife. As an additional carbon source for food chain support, detrital material can be spread throughout the basin.

Consider existing wetland and floodplain functions and/or values that may be adversely impacted.

Consider effect that wetland creation will have on disease vectors such as mosquitoes.

**NRCS, IA
March 2008**

Consider effect of volumes and rates of runoff, infiltration, evaporation, and transpiration on the water budget.

Consider effects on downstream flows or aquifers that would affect other water uses or users.

Consider the effect of water control structures on the ability of fish or other aquatic species to move in and out of the wetland.

Consider timing of water control to mimic the natural hydrologic regime of a natural wetland in the area, further enhancing the habitat for aquatic species.

Consider linking wetlands by corridors of vegetation or habitat wherever appropriate to enhance the wetland's use and colonization by the native flora and fauna.

Consider effects on temperature of water resources to prevent undesired effects on aquatic and wildlife communities.

Soil disturbance associated with the installation of this practice may increase the potential for invasion by unwanted species.

Consider establishing herbaceous vegetation by a variety of methods over the entire site or a portion of the site, and at densities and appropriate depths.

Consider microtopography and hydroperiod when determining which species to plant.

Consider controlling water levels to prevent oxidation of organic soils and inundated organic matter and materials.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other documentation.

The following list of Construction Specifications is intended as a guide to selecting the appropriate specifications for each specific project. The list includes most, but may not contain all, of the specifications needed for a specific project:

IA-1	Site Preparation
IA-3	Structure Removal
IA-5	Pollution Control

IA-6	Seeding and Mulching for Protective Cover
IA-9	Drainage Tile Investigation and Removal
IA-11	Removal of Water
IA-21	Excavation
IA-23	Earthfill
IA-26	Topsoiling
IA-27	Diversions
IA-45	Plastic (PVC, PE) Pipe
IA-46	Tile Drains for Land Drainage
IA-51	Corrugated Metal Pipe
IA-52	Steel Pipe Conduits
IA-61	Loose Rock Riprap
IA-81	Metal Fabrication and Installation
IA-83	Timber Fabrication and Installation
IA-95	Geotextile

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan will be prepared for each wetland site. Specified actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance). The following activities shall be addressed in the plan:

- Timing and level setting of water control structures required for establishment of desired hydrologic conditions or for management of vegetation and for optimal wildlife use. Refer to Iowa Biology Technical Note 20
- Inspection schedule of dikes and structures for damage assessment
- Depth of sediment accumulation allowed before removal is required
- Management needed to maintain vegetation, including control of unwanted vegetation in and around the wetland area
- Acceptable uses and timing (e.g.: grazing and haying)

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides, and other chemicals shall assure that the intended purpose of the wetland restoration shall not be compromised.

Biological control of undesirable plant species and pests (e.g.: using predator or parasitic species) shall be implemented where available and feasible.

NRCS, IA
March 2008

REFERENCES

Restoring Prairie Wetlands: An Ecological Approach, Iowa State University Press

Delineating Hydric Soils. in Wetland Soils – Genesis, Hydrology, Landscapes and Classification, Hurt, G.W. and V.W. Carlisle

Habitat Management Guidelines for Amphibians and Reptiles of the Midwest, Partners in Amphibian & Reptile Conservation

Functional Requirements and Design Parameters for Restocking Coarse Woody Features in Restored Wetlands, ASAE Meeting Presentation, Paper No. 012059

Aquic Conditions and Hydric Soils: The Problem Soils, Soil Science Society of America, Special Publication Number 50

USDA-NRCS, Creation of Waterfowl Nesting Islands, Iowa Biology Technical Note 19

USDA-NRCS, Wetland Vegetation and Water Management Considerations, Iowa Biology Technical Note 20

USDA-NRCS, Shallow Water Excavation for Wildlife, Iowa Biology Technical Note 24

USDA-NRCS, Field Indicators of Hydric Soils in the U.S., Version 5.0, in cooperation with the National Technical Committee for Hydric Soils

USDA-NRCS, National Engineering Handbook (NEH), Part 650, Engineering Field Handbook (EFH), Chapter 13

USDA-NRCS, Wetland Restoration, Enhancement, and Management, Wetland Science Institute

Appendix B. NRCS Conservation Practice Standards and project categories that may occur (Y) during implementation of the standard.

<i>CODE</i>	<i>PRACTICE STANDARD NAME</i>	<i>NATIONAL PRACTICE STANDARD NARRATIVE</i>	<i>EARTH DISTURBANCE</i>	<i>WOODY PLANT MANIPULATION</i>	<i>AQUATIC HABITAT MANIPULATION</i>	<i>PESTICIDE HERBICIDE APPLICATION</i>	<i>HERBACEOUS PLANT MANIPULATION</i>	<i>WATER QUALITY IMPACTS</i>
310	Bedding (Ac.)	Form the soil surface into a series of broad parallel ridges and channels to improve surface drainage.	Y					
313	Waste Storage Facility (No.)	Install a facility to store liquid and/or solid waste on a temporary basis.	Y	Y			Y	Y
314	Brush Management	Remove, reduce or manipulate brush species to achieve the desired plant community.		Y		Y	Y	
316	Animal Mortality Facility (No.)	Install an on-farm facility for the treatment or disposal of livestock and poultry carcasses.	Y	Y			Y	
317	Composting Facility	Construct a facility for biological stabilization of organic waste material.	Y	Y			Y	
326	Clearing and Snagging (Ft.)	Remove snags, drifts and other obstructions to improve channel flow capacity.		Y	Y		Y	Y
327	Conservation Cover	Establish perennial vegetative cover on land temporarily removed from agricultural production.				Y	Y	
328	Conservation Crop Rotation	Grow crops in a planned rotation for biodiversity and to provide adequate amounts of organic material for erosion reduction, nutrient balance and sustained soil organic matter.						
329	Residue and Tillage Management, No-Till and Strip Till (Ac.)	Manage organic residue so maximum amounts are left on the soil surface on a year-round basis. Plant crops in narrow slots or narrow tilled strips in previously untilled soil.						
330	Contour Farming (Ac.)	Perform tillage and planting operations on the contour to increase water infiltration and reduce concentrated water flow.						
332	Contour Buffer Strips (Ac.)	Strips of perennial grass alternated with wider cultivated strips that are farmed on the contour.						
338	Prescribed Burning (Ac.)	Apply controlled fire to predetermined area.		Y			Y	
340	Cover Crop (Ac.)	Close-growing grasses, legumes, or small grain will be grown for seasonal protection, soil improvement and nutrient management.				Y		
342	Critical Area Planting (Ac.)	Vegetation will be established on severely eroding areas or other areas requiring extraordinary means to establish vegetation.				Y		
344	Residue Management, Seasonal	Manage amount, orientation and distribution of organic residue to maximize soil protection until						

		immediately prior to planting the following crop.						
345	Residue and Tillage Management, Mulch Till (Ac.)	Manage amount, orientation and distribution of organic residue so maximum amounts are left on the soil surface by using mulch tillage techniques and implements such as chisels, sweeps and harrows.						
346	Residue and Tillage Management, Ridge Till (Ac.)	Manage amount, orientation and distribution of organic residue on the soil surface year-round. Crops are planted on pre-formed ridges alternated with furrows protected by crop residue.						
348	Dam, Diversion	Install a structure to divert water from a waterway or stream into another water system.	Y	Y	Y		Y	Y
349	Dam, Multiple Purpose	No national standard	Y	Y	Y		Y	Y
350	Sediment Basin (No.)	Construct a basin to collect and store debris or sediment.	Y	Y	Y		Y	Y
356	Dike (Ft.)	Construct an embankment to protect land against overflow and/or regulate water.	Y	Y	Y		Y	Y
359	Waste Treatment Lagoon	Install a lagoon designed to treat organic waste biologically.	Y	Y			Y	Y
360	Closure of Waste Impoundments (No.)	The closure of waste impoundments (treatment lagoons and waste storage ponds) that are no longer used for their intended purpose in an environmentally safe manner.						
362	Diversion (Ft.)	Construct a channel across the slope with an embankment on the lower side to divert water from its natural flow.	Y	Y	Y		Y	Y
365	Digester – Ambient Temperature (No.)	An unheated waste treatment impoundment.						
366	Temperature (No.)	A managed temperature waste treatment facility.						
367	Waste Facility Cover (No.)	A fabricated rigid, semi-rigid, or flexible membrane over a waste treatment or storage facility.						
378	Pond (No.)	Construct a water impoundment to provide water.	Y	Y	Y		Y	Y
380	Windbreak/Shelterbelt Establishment (Ft.)	Plant single or multiple rows of trees or shrubs.					Y	Y
382	Fence (Ft.)	Construct a fence for use as a barrier to wildlife, livestock, or people.						
386	Field Border (Ft.)	Establish a strip of perennial vegetation at the field edge(s).					Y	
391	Riparian Forest Buffer (Ac.)	Create or maintain an area of grass, trees and/or shrubs adjacent to water bodies					Y	
393	Filter Strip (Ac.)	Establish a strip of perennial vegetation for trapping sediment and other pollutants from runoff or waste water.					Y	
395	Stream Habitat Improvement and Management (Ac.)	Improve the stream channel to create or enhance fish habitat.	Y	Y	Y	Y	Y	Y
399	Fish Pond Management (No.)	Improve or maintain fish production by creating a favorable habitat for desired species.	Y		Y	Y	Y	Y
402	Dam, Floodwater Retarding	Install a dam for temporary water storage and controlled release.	Y	Y	Y		Y	Y

410	Grade Stabilization Structure (No.)	Install a structure to control the grade and head cutting.	Y	Y	Y		Y	Y
412	Grassed Waterway (Ac.)	Shape a natural or constructed channel and establish adapted vegetation for the stable conveyance of runoff water.	Y		Y	Y	Y	Y
422	Hedgerow Planting (Ft.)	Establish a living fence of trees or shrubs.				Y		
442	Irrigation System, Sprinkler	Install a sprinkler irrigation system to efficiently apply irrigation water without waste or erosion.						Y
460	Land Clearing (Ac.)	Remove trees, stumps and other vegetation from wooded area as required by the conservation plan.	Y	Y	Y	Y	Y	
462	Precision Land Forming (Ac.)	Reshape surface of the land to planned grades.	Y		Y		Y	
464	Irrigation Land Leveling	Reshape the field to planned grades to improve water application efficiency, reduce erosion, and provide adequate surface drainage.	Y					
466	Land Smoothing (Ac.)	Remove irregularities on the land surface that interfere with application of planned conservation practices.	Y					
468	Lined Waterway or Outlet (Ft.)	Construct a waterway or outlet and line with erosion resistant materials such as concrete or stone to provide safe disposal of runoff water.	Y	Y	Y		Y	
472	Use Exclusion (Ac.)	Install barriers to exclude animals, people, and vehicles to protect the natural resources.						
484	Mulching (Ac.)	Apply and anchor plant residues or other suitable material to the soil surface to conserve moisture, prevent compaction, reduce runoff, control weeds and help establish a living cover of plants.						
500	Obstruction Removal (Ac.)	Safely remove and dispose of unwanted obstructions and other material to facilitate application of conservation practices or planned land use.	Y	Y	Y		Y	Y
511	Forage Harvest Management	Cutting and removal of forages from the field as hay, greenchop, or ensilage.					Y	
512	Pasture and Hay Planting (Ac.)	Establish forage species for grazing or mechanical harvest.	Y	Y		Y	Y	
516	Pipeline (Ft.)	Install a pipeline to convey water from supply source to points of use.	Y	Y	Y		Y	
533	Pumping Plant for Water Control (No.)	Install a pumping facility to transfer water for a need(s).	Y	Y	Y		Y	Y
554	Drainage Water Management (Ac.)	Control the removal of surface or subsurface runoff by installing water control structures.	Y	Y	Y		Y	Y
555	Rock Barrier (Ft.)	Construct a rock retaining wall across the slope to form and support a bench terrace that will control water and reduce erosion.	Y					
558	Roof Runoff Management (No.)	Construct a facility to collect, control and dispose of runoff water from roofs.						
560	Access Road (Ft.)	Build a designated route or constructed travelway to be used by vehicles necessary for management of the operation.	Y	Y	Y		Y	
561	Heavy Use Area Protection (Ac.)	Protect heavily used areas by providing soil protection with vegetation, surfacing material or	Y		Y		Y	

		mechanical structures.						
566	Recreation Land Grading and Shaping (Ac.)	Altering the surface of the land to meet the requirements of recreation facilities.	Y	Y	Y		Y	
568	Recreation Trail and Walkway (Ft.)	Develop a pathway for pedestrian, equestrian, and/or cycle travel to provide recreation travel routes.	Y	Y	Y		Y	
574	Spring Development (No.)	Improve springs and seeps by excavating, cleaning, capping, or providing collection and storage facilities.	Y					Y
578	Stream Crossing (No.)	Trail or travel way constructed across a stream for livestock, people, or equipment	Y	Y	Y		Y	Y
580	Streambank and Shoreline Protection (Ft.)	Use vegetation and/or structures to stabilize and protect banks or streams, lakes, estuaries, or excavated channels against scour and erosion.	Y	Y	Y		Y	Y
582	Open Channel (Ft.)	Construct or improve channel to provide the required discharge capacity for flood prevention, drainage, or other authorized water management activities.	Y	Y	Y		Y	Y
584	Channel Stabilization (Ft.)	Stabilize the channel of the stream with suitable structures.	Y	Y	Y		Y	Y
585	Stripcropping (Ac.)	Grow crops in contour strips so that a protective strip of grass or close growing crop is alternated with a strip providing less soil protection.						
587	Structure for Water Control (No.)	Install a structure to control direction, rate and/or level of water in the system.	Y	Y	Y		Y	Y
590	Nutrient Management (Ac.)	Manage the amount, form, placement and timing of plant nutrient application.						
591	Treatment of Agricultural Waste (Au.)	A crop by-product conveyance system using structures, conduits, or equipment.						
595	Pest Management (Ac.)	Manage infestations of weeds, insects and disease to reduce adverse AFFECTs on plant growth, crop production and material resources.		Y		Y	Y	
600	Terrace (Ft.)	Install terrace(s) at design heights, grades and intervals.	Y	Y			Y	
606	Subsurface Drain (Ft.)	Install a subsurface pipe or conduit to collect and/or convey drainage water.	Y					Y
607	Surface Drainage, Field Ditch (Ft.)	Install a graded ditch to collect and convey excess water to a safe outlet.	Y					Y
608	Surface Drainage, Main or Lateral (Ft.)	Construct an open drainage ditch to safely dispose of water collected by drainage field ditches or subsurface drains.	Y					Y
612	Tree/Shrub Establishment (Ac.)	Establish woody plants for the planned purpose.				Y	Y	
614	Watering Facility (No.)	Install a water drinking facility for livestock and/or wildlife.	Y	Y	Y		Y	
620	Underground Outlet (Ft.)	Install a subsurface pipe to collect and safely convey surface water to a suitable outlet.	Y					
629	Waste Treatment (No.)	The mechanical, chemical, or biological treatment of agricultural waste.						
633	Waste Utilization (No.)	Use organic waste material in an environmentally	Y					

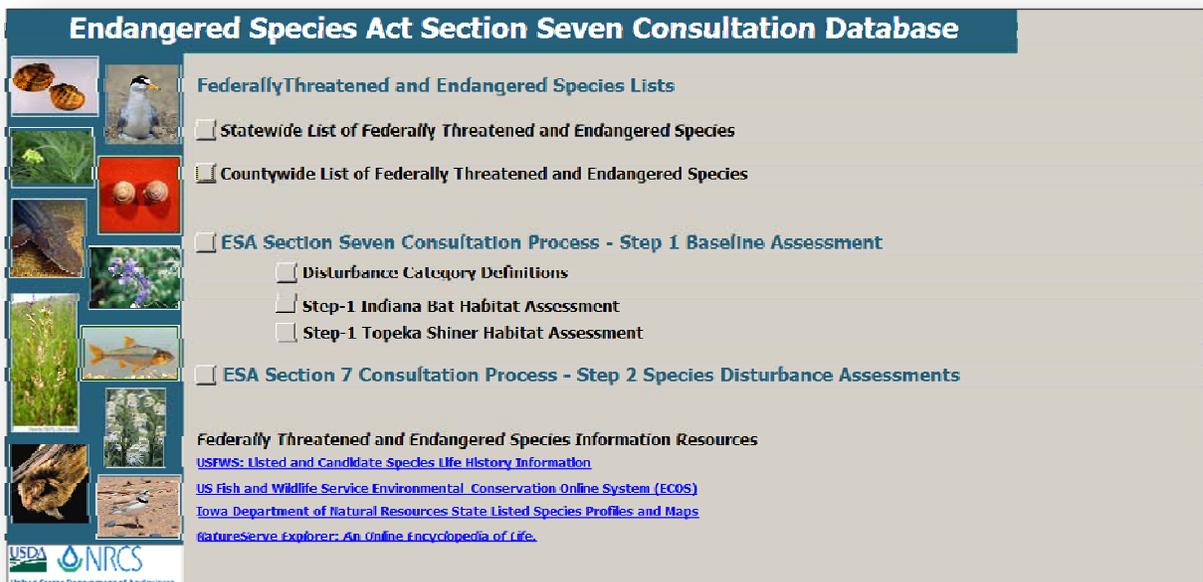
	& Ac.)	safe manner to enrich soil fertility.						
634	Manure Transfer	A conveyance system for manure using structure, conduits, or equipment.	Y	Y			Y	
635	Wastewater Treatment Strip (Ac.)	Establish a strip or area of herbaceous vegetation as a treatment component of an agricultural waste management system.						Y
638	Water and Sediment Control Basin (No.)	Install a structure(s) across the slope to trap sediment and detain water for safe release.	Y	Y	Y		Y	Y
642	Water Well (No.)	Install a well.	Y					Y
643	Restoration and Management of Declining Habitats	Restore and conserve rare or declining native vegetated communities and associated wildlife species.		Y		Y	Y	
644	Wetland Wildlife Habitat Management (Ac.)	Retain, create, or manage wetland habitat for water fowl, fur bearers, or other wildlife.		Y	Y	Y	Y	
645	Upland Wildlife Habitat Management	Create, maintain or enhance area(s) to provide upland wildlife food and cover.		Y		Y	Y	
647	Early Successional Habitat Development/Mgt. (Ac.)	Manage early plant succession to benefit desired wildlife or natural communities.	Y	Y		Y	Y	
657	Wetland Restoration (Ac.)	Construct or restore the necessary facilities to provide the biological benefits of a wetland.	Y	Y	Y	Y	Y	
658	Wetland Creation (Ac.)	A wetland that has been created at a location which historically was not a wetland or is a wetland that will be converted to a wetland with different hydrology, vegetation type, or function than occurred naturally on the site.	Y	Y	Y	Y	Y	
659	Wetland Enhancement (Ac.)	The modification or rehabilitation of an existing or degraded wetland, where specific functions and/or values are modified for the purpose of meeting specific project objectives.	Y	Y	Y	Y	Y	
666	Forest Stand Improvement	Manipulate species composition, stand structure, and stocking by cutting or killing selected trees and understory vegetation.	Y	Y	Y	Y	Y	Y
980	Tile Intake Replacement (Interim)	No national standard						
981	Wellhead Protection (Interim)	No national standard	Y				Y	
5211	Pond Sealing or Lining, Flexible Membrane (No.)	Install a fixed lining of flexible impervious material such as plastic, rubber or similar material to reduce seepage to an acceptable level.	Y		Y			
5212	Pond Sealing or Lining, Soil Dispersant (No.)	Apply sealing chemicals to reduce seepage to an acceptable level.	Y		Y			
5213	Pond Sealing or Lining, Bentonite Sealant (No.)	Apply lining of bentonite clay or similar material to reduce seepage losses in pond to an acceptable level.	Y		Y			
5281	Prescribed Grazing (Ac.)	Grazing will be managed according to a schedule that meets the needs of the soil, water, air, plant and animal resources and the objectives of the resource manager.		Y		Y	Y	
5893	Cross Wind Trip Strips	Establish perennial plants in two or more strips						

	(Ac.)	across the prevailing wind direction to trap windblown sediment.						
528	Prescribed Grazing	Managing the harvest of vegetation with grazing and/or browsing animals.		Y			Y	Y

Appendix C. Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation Database

The Iowa NRCS Endangered Species Act Section Seven Consultation Database will be the primary tool used by Iowa NRCS staff to comply with the BA and complete informal consultations. The database consists of a user-friendly main switchboard (menu) that guides staff through the consultation process outlined in this document. The following figures provide examples of objects contained within the database.

Appendix C.1. Iowa NRCS Endangered Species Act Section Seven Programmatic Consultation Database Main switchboard.



Appendix C.2. Step-1 Programmatic Consultation Baseline Assessment

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-1 Baseline Assessment

1. Access the Iowa NRCS Endangered Species Act (ESA) Section Seven Consultation Database and generate a report of federally protected species for the respective county. Become familiar with the life history requirements and habitat needs of each species in the report by reviewing US Fish & Wildlife Service Species Factsheets (<http://www.fws.gov/midwest/endangered/section7/s7process/lifehistory.html>) and other reputable references.
2. Define the project area and delineate its boundaries on a conservation plan map. The project area includes areas that will be disturbed/impacted including, but not limited to, ingress and egress routes, areas of fill or borrow, areas used for the storage of equipment and materials. Save an electronic copy of this map in the Toolkit Conservation Plan Folder and proceed to question 3.
3. Does the project area fall entirely within current cropland where there will be no affect to suitable habitat (onsite or offsite) and no affect to Topoka Shiner Designated Critical Habitat (refer to database for maps)? Potential affects may include, but are not limited to, alteration of hydrology, sedimentation, pesticide application over sinkholes, etc.
 - Yes: Use the Conservation Assistance Notes (IA-CPA-15) to record the *no affect* findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Step-1 Baseline Assessment to document this ESA and NEPA activity.
 - No: Proceed to question 4.
4. Referring to the County Species Report, will the project implement a disturbance that may affect a federally protected species or its habitat and require you to proceed through the Step-1 Baseline Assessment?
 - Yes: Proceed to question 5. If there's potential to effect the Indiana Bat or Topoka Shiner, the Step-1 Habitat Assessment must be completed for the species prior to proceeding with this Baseline Assessment.
 - No: Use the Conservation Assistance Notes (IA-CPA-15) to record the *no affect or may affect, not likely to adversely affect* findings provided in the County Species Report. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Step-1 Baseline Assessment to document this ESA and NEPA activity.
5. Referencing the information gathered in Steps 1-4, are there federally protected species or suitable habitat located within the project area or are there Least Tern, Piping Plover, or Bald Eagle nesting sites within 660 feet of the project area?
 - If species or suitable habitat is not present, conclude "*species and critical habitat not present*". No further consultation is required.
 - Use the Conservation Assistance Notes (IA-CPA-15) to record the *no effect* findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Step 1 Baseline Assessment to document this ESA and NEPA activity.
 - If a species is present in the project area, conclude "*species is present*" and proceed to question 6.
 - If suitable habitat is present, and no US Fish & Wildlife Service approved data indicate species or critical habitat is absent, conclude, "*species or critical habitat may be present*" and proceed to question 6.
6. Is there an appropriate alternative action(s) that would have no affect on the species or suitable habitat?
 - Yes - alternative action(s) to be implemented complete a Step-1 Baseline Assessment for the alternative action to document this ESA and NEPA activity.
 - No - alternative actions not implemented: List species and disturbance categories to be assessed on page 2 and proceed to the Step-2 Species Disturbance Assessments as instructed in the County Species Report.

Appendix C3. Step-1 Indiana Bat (*Myotis sodalis*) Habitat Assessment.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

STEP-1 INDIANA BAT (*Myotis sodalis*) HABITAT ASSESSMENT

Before you can determine if your project may affect Indiana bat, you will need to determine if your project contains suitable habitat. Follow the steps will allow planners to make this determination.

1. Are there forested areas ($\geq 35\%$ canopy cover) that include deciduous trees present in the project area (Figure 1)?
 - Yes – proceed to question 2.
 - No – Suitable habitat not present - Use the Conservation Assistance Notes (IA-CPA-15) to record the *no effect* findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Indiana Habitat Assessment to document this ESA and NEPA activity.

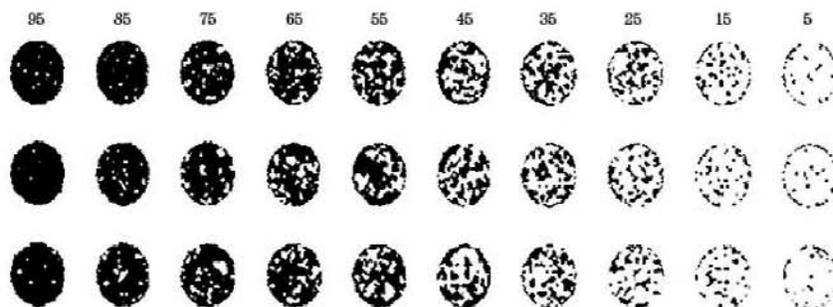
2. Is there a source of permanent water (a stream, farm pond, wetland, etc.) within a ½ mile radius of the project site?
 - Yes - proceed to question 3.
 - No - Suitable habitat not present - Use the Conservation Assistance Notes (IA-CPA-15) to record the *no effect* findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Indiana Bat Habitat Assessment to document this ESA and NEPA activity.

3. A field visit conducted by a qualified individual (Area Biologist or Technician, or others who have been trained), is required to determine if suitable Indiana bat habitat trees are present. Suitable habitat trees are shagbark and shellbark hickory, live or dead, or dead deciduous trees with slabs or plates of loose or peeling bark on the trunks or limbs, or dead snags with deep cracks or splits. Note the results of this field visit in the Conservation Assistance Notes (IA-CPA-15) in the case file to ensure there is proper documentation in case of a complaint. Are there suitable habitat trees within the project area?
 - Yes – proceed to question 4.
 - No – Suitable habitat not present. Use the Conservation Assistance Notes (IA-CPA-15) to record the *no effect* findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Indiana Bat Habitat Assessment to document this ESA and NEPA activity.

4. Is the forested area (as defined in questions 1-3) greater than or equal to 10 acres in total size?
 - Yes – Suitable habitat present. Attach this habitat assessment to, and proceed with, the Step-1 Baseline Assessment.
 - No - proceed to question 5.

5. Is the forested area within ¼ mile of another forested area ≥ 10 acres in size (not isolated)?
 - Yes – Suitable habitat present. Attach this habitat assessment to, and proceed with, the Step-1 Baseline Assessment.
 - No – Suitable habitat not present - Use the Conservation Assistance Notes (IA-CPA-15) to record the *no effect* findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach this completed Indiana Bat Habitat Assessment to document this ESA and NEPA activity.

Figure 1. Percent canopy cover guide. Numbers above the ovals refer to the percent black (= shade/cover). (USDA Forest Service FIA Manual, <http://www.fia.fs.fed.us/library/>).



Appendix C4. Step-1 Topeka Shiner (*Notropis topeka*) Habitat Assessment.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

STEP-1 TOPEKA SHINER (*Notropis topeka*) HABITAT ASSESSMENT

TOPEKA SHINER (*Notropis topeka*)

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

To view copies of the maps and lists referenced below, visit the Topeka Shiner profile on the Step-2 Species Disturbance Assessment page of the Endangered Species Act Section 7 Consultation Database.

1. Upon review of the USFWS' *General Locations of Designated Critical habitat for the Topeka Shiner* Maps 1-3 (see database), does the project area include a designated Critical habitat Stream Segment?
 - Yes – May Affect, Contact NRCS State Office Biologist.
 - No – go to 2

2. Does the project area include a USFWS identified *Topeka Shiner Occupied Stream* (see database)?
 - Yes – Go to 3.
 - No – Suitable Topeka Shiner habitat is not present. Use the Conservation Assistance Notes (IA-CPA-15) to record this no effect finding and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this ESA and NEPA activity.

3. Does the project area include off-channel wetland habitat that is seasonally or permanently connected to the stream?
 - Yes – May Affect, Contact NRCS State Office Biologist.
 - No – Suitable Topeka Shiner habitat is present, continue with the Step-1 Baseline Assessment.

Appendix C.5. Example Endangered Species Act species report from the Programmatic Consultation Database. This is a state-wide report; listed species reports can also be generated by county.

Federally Protected Species Report State of Iowa List

Scientific Name	<i>Aconitum noveboracense</i>
Common Name	Northern Monkshood
Status	Threatened
Habitat	
<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Scientific Name	<i>Asclepias meadii</i>
Common Name	Mead's Milkweed
Status	Threatened
Habitat	Virgin prairies
<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Scientific Name *Charadrius melodus*
Common Name Piping Plover
Status Endangered
Habitat

Disturbance Category:

- Earth Disturbance
- Woody Plant Manipulation
- Aquatic Habitat Manipulation
- Pesticide/herbicide Application
- Herbaceous Plant Manipulation
- Water Quality Impacts

Affect Determination

Potential to Affect - Proceed to Step 1 Baseline Assessment
Potential to Affect - Proceed to Step 1 Baseline Assessment
Potential to Affect - Proceed to Step 1 Baseline Assessment
Potential to Affect - Proceed to Step 1 Baseline Assessment
Potential to Affect - Proceed to Step 1 Baseline Assessment
No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name *Discus macclintocki*
Common Name Iowa Pleistocene Snail
Status Endangered
Habitat North-facing algalic talus slopes of the driftless area

Disturbance Category:

- Earth Disturbance
- Woody Plant Manipulation
- Aquatic Habitat Manipulation

- Pesticide/herbicide Application
- Herbaceous Plant Manipulation
- Water Quality Impacts

Affect Determination

Potential to Affect - Proceed to Step 1 Baseline Assessment
Potential to Affect - Proceed to Step 1 Baseline Assessment
No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.
Potential to Affect - Proceed to Step 1 Baseline Assessment
Potential to Affect - Proceed to Step 1 Baseline Assessment
No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name	<i>Haliaeetus leucocephalus</i>
Common Name	Bald Eagle
Status	Protected under the Bald and Golden Eagle Protection Act
Habitat	

<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name	<i>Lampsilis higginsii</i>
Common Name	Higgin's Eye Pearlymussel
Status	Endangered
Habitat	Mississippi River

<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Woody Plant Manipulation	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Aquatic Habitat Manipulation	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Pesticide/herbicide Application	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Herbaceous Plant Manipulation	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Water Quality Impacts	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

Scientific Name	<i>Lespedeza leptostachya</i>
Common Name	Prairie Bush-clover
Status	Threatened
Habitat	Dry to mesic prairies with gravelly soil
<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name	<i>Myotis sodalis</i>
Common Name	Indiana Bat
Status	Endangered
Habitat	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name *Notropis topeka*
Common Name Topoka Shiner
Status Endangered
Habitat Prairie streams and rivers

Disturbance Category: Affect Determination

<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	Potential to Affect - Proceed to Step 1 Baseline Assessment

Scientific Name *Platanthera leucophaea*
Common Name Eastern Prairie Fringed Orchid
Status Threatened
Habitat Mesic to wet prairies

Disturbance Category: Affect Determination

<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name *Platanthera praeclara*
Common Name Western Prairie Fringed Orchid
Status Threatened
Habitat Wet prairies and sedge meadows

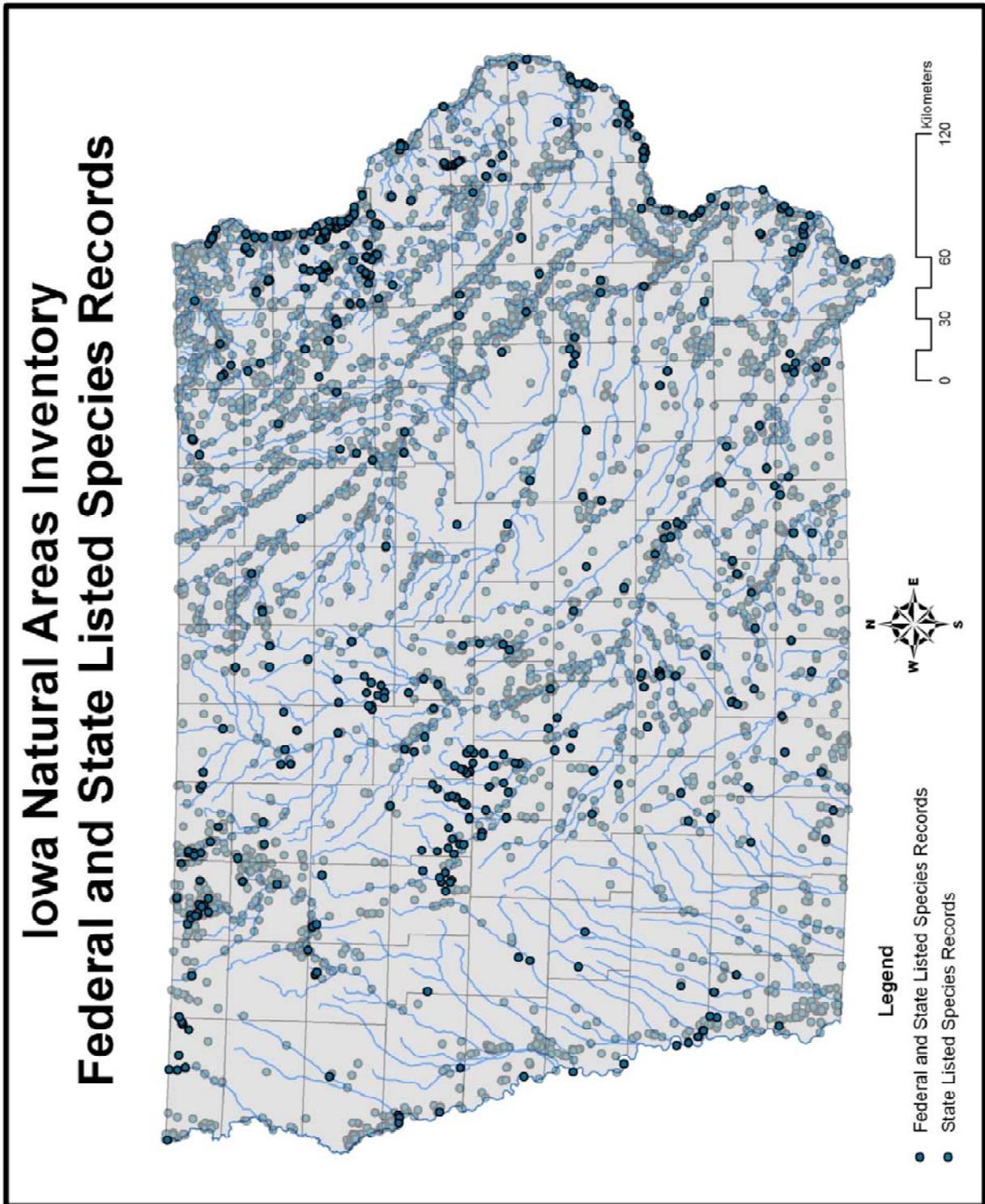
Disturbance Category: Affect Determination

<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination of the determination.

Scientific Name	<i>Scaphirhynchus albus</i>
Common Name	Pallid Sturgeon
Status	Endangered
Habitat	Large rivers
<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Woody Plant Manipulation	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Aquatic Habitat Manipulation	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Pesticide/herbicide Application	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Herbaceous Plant Manipulation	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.
<input type="checkbox"/> Water Quality Impacts	May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

Scientific Name	<i>Sterna antillarum</i>
Common Name	Least Tern
Status	Endangered
Habitat	are alluvial and dredged spoil islands
<u>Disturbance Category:</u>	<u>Affect Determination</u>
<input type="checkbox"/> Earth Disturbance	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Woody Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Aquatic Habitat Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Pesticide/herbicide Application	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Herbaceous Plant Manipulation	Potential to Affect - Proceed to Step 1 Baseline Assessment
<input type="checkbox"/> Water Quality Impacts	No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Appendix C.6. Map of State and Federally listed species records in Iowa as of April 2, 2010.



Appendix D. Programmatic Consultation Step-2 Species Disturbance Category Assessments.

INDIANA BAT (*Myotis sodalis*)

**SUITABLE INDIANA BAT HABITAT ASSESSMENT TECH NOTE MUST BE COMPLETED
AS PART OF STEP 1 TO CONTINUE TO STEP 2 DISTURBANCE CATEGORY
ASSESSMENTS**

EARTH DISTURBANCE:

No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

WOODY PLANT MANIPULATION:

The following guidance is for all conservation practices that require woody plant manipulations except: 666 Forest Stand Improvement, 338 Prescribed Burning, and 643 Restoration and Management of Declining Habitats. For these conservation practices, go to the Forestry Disturbance Category Assessments (standards 666 and 643), or the Woodland Prescribed Burn Disturbance Category Assessments (standard 338).

**SUITABLE INDIANA BAT HABITAT ASSESSMENT TECH NOTE MUST BE COMPLETED
AS PART OF STEP 1 TO CONTINUE TO STEP 2 DISTURBANCE CATEGORY
ASSESSMENTS**

1. Has $\geq 5\%$ of the baseline Indiana Bat habitat been removed in the section where the project is located, or, will the project result in NRCS exceeding this threshold (refer to Iowa NRCS Indiana Bat Tree Removal Database)?
 - Yes – Woody plant manipulation within this section no longer falls under the programmatic consultation, contact the State Biologist
 - No – go to 2
2. Is this a larger project that will require one or several tree clearings within a 2-mile radius (PL566, 319, etc.) that will cumulatively impact $\geq 5\%$ of the available suitable habitat?
 - Yes - May affect, contact the State Biologist
 - No – go to 3
3. Will the project require ≤ 5 acres of tree clearing, not exceeding 5% of the available Indiana bat habitat, within the section of the project site?
 - Yes – Go to 4
 - No (tree clearing ≥ 5 acres or $\geq 5\%$ of available habitat) – May affect, contact the State Biologist for individual consultation.

4. Will tree clearing will be conducted between September 15th and April 15th?
- Yes – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Indiana Bat Technical Note, the Step 1 Baseline Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May affect, likely to adversely affect, contact the State Biologist.

WOODY PLANT MANIPULATION: FORESTRY

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer’s case file.

All forest stand improvement plans written for NRCS programs that adhere to the following guidelines will be considered NLAA. If these guidelines cannot be implemented, individual consultation is required and foresters should contact the Service’s Rock Island Field Office to determine how to best avoid adverse affects to Indiana bats while still developing forest management plans that meet the needs of the landowner.

FOREST MANAGEMENT CUTTING TECHNIQUES AND THEIR DEFINITION

Clearcut — Removal of all trees in a stand or management unit.

Shelterwood cut — Removal of trees in a stand or management unit, but leaving enough trees for the regenerating age class; trees may be cut in groups, strips, or in a uniform manner to reduce competition for regeneration.

Seed-tree cut — Removing all trees except for a small number of widely distributed trees for seed production; in some instances, seed trees are removed after regeneration is established.

Single-tree selection cut — Individual trees of all size classes removed more or less uniformly throughout the stand to increase growth of remaining trees and provide space for regeneration.

Group selection cut — Small groups of trees removed for regeneration of new age classes; width of cut rarely exceeds twice the height of the mature trees.

1. There will be no felling of trees that may provide Indiana bat habitat during the maternity colony period April 15th – September 15th. Suitable habitat trees are shagbark and shellbark hickory, live or

dead, or dead deciduous trees with slabs or plates of loose or peeling bark on the trunks or limbs, or dead snags with deep cracks or splits.

2. If implementing shelterwood, seed-tree, single-tree selection, group-selection, or clearcut harvests, keep clearing to 10% or ≤ 10 acres (whichever is less) of the available habitat within the landowners control. The goal is to not reduce the total available habitat by more than 10% or appreciably change the character of the available Indiana bat habitat.
3. Retain snags that may provide Indiana bat habitat at a rate of 7 per acre if present at that rate. If necessary, snags that have no remaining bark and no visible cracks or splits may be removed at any time. Snags that may provide suitable Indiana bat habitat and that pose a serious risk to human safety may be removed outside the maternity colony period, or foresters should contact the USFWS Rock Island Field Office for additional guidance. Planners are encouraged to girdle live trees rather than remove them to create additional habitat. Trees may be girdled at any time of year.

4. Indiana bats utilize stream corridors for travel and foraging. Data has shown that closed canopy ($> 80\%$ cover) corridors are preferred. Forestry practices within Stream Management Areas (SMAs) should be limited to those that will not create large openings or decrease canopy cover to the point of appreciably changing the character of the riparian area, making it less desirable to Indiana bats and other wildlife. Therefore, forestry practices within an SMA should be limited, retaining at least 80% of the available canopy. Special emphasis should be made on retaining existing tree cover over the stream

channel. The following SMA size is from the Iowa Department of Natural Resources.

<u>Stream width</u>	<u>SMA width</u>
< 20 feet	50 feet per side
20 – 40 feet	75 feet per side
> 40 feet	150 feet per side

5. Female Indiana bats prefer large diameter trees with loose or flaking bark, usually with some sun exposure, for maternity colony trees. Bats show site fidelity, returning to an area year after year with females utilizing a primary roost tree and several secondary roosts. Forestry plans within bat habitat should be written to maintain existing characteristics and preserve long term potential for colony maintenance in the area/stand, not necessarily to maintain homogeneous distribution of structurally suitable trees throughout the area/stand. Large dead or dying trees that have suitable bark structure for Indiana bat maternity colonies should be retained whenever possible. Planners should seek to maintain a supply of suitable roost trees over the long term, averaging at least 9 potential habitat trees per acre instead of removing them. Planners are encouraged to girdle large-diameter undesirable trees (> 20 DBH) rather than remove them.
6. Restoration of savanna habitat that does not conform to the guidance above will require individual consultation.

Will these BMPs be implemented?

- Yes – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Indiana Bat Technical Note, the Step 1 Baseline Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.
- No – May effect, Contact State Office Biologist.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Disturbance Category Assessment

WOODY PLANT MANIPULATION: PRESCRIBED BURN

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will prescribed burning occur in woodlands between April 15th and September 15th?
 - Yes – May effect, Contact State Office Biologist.
 - No – go to 2
2. Will snags and potential Indiana bat roost trees > 9 inches DBH that could be killed as a result of fire from prescribed burns be protected?
 - Yes – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Indiana Bat Technical Note, the Step 1 Baseline Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May effect, Contact State Office Biologist.

AQUATIC HABITAT MANIPULATION:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

PESTICIDE/HERBICIDE APPLICATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted between April 15th and September 15th?
 - Yes –go to 2
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Indiana Bat Technical Note, the Step 1 Baseline Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Is the pesticide/herbicide toxic to the Indiana Bat or its important food resources?
 - Yes- May affect, (contact State Biologist)
 - No – go to step 3

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Disturbance Category Assessment

3. Will herbicide/pesticide be applied in a manner that will disturb the Indiana Bat, its habitat or important food resources?
- Yes – May affect (contact State Biologist)
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Indiana Bat Technical Note, the Step 1 Baseline Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.

HERBACEOUS PLANT MANIPULATION:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Disturbance Category Assessment

Appendix D.2. Programmatic Consultation Step-2 Topeka Shiner Disturbance Category Assessments.

TOPEKA SHINER (*Notropis topeka*)

EARTH DISTURBANCE:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will earth disturbance occur outside of riparian wetland habitat and not result in contaminant (sediment, debris, etc.) transport to the stream or riparian wetland habitat? (see Step 2 Aquatic Habitat Manipulation disturbance assessment for within-channel disturbances)
 - Yes – No effect to the Topeka shiner - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity
 - No – go to 2
2. Will all equipment and materials be kept out of the stream and BMPs (see Topeka Shiner BMP Assessment) be implemented and maintained?
 - Yes – May affect, not likely to adversely affect Topeka shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment, the Topeka Shiner BMP Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May affect contact State Biologist

WOODY PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will tree clearing occur within 30 feet of top of bank?
 - Yes - go to 2.
 - No – No affect to the Topeka Shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Disturbance Category Assessment

2. Will stumps be left in place and slash removed without further earth disturbance?
 - Yes – May affect, not likely to adversely affect Topeka Shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No - go to 3
3. Will tree removal result in sediment, debris, etc., transport to the stream?
 - Yes – go to 4.
 - No – May affect, not likely to adversely affect Topeka Shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
4. Will BMPs be implemented?
 - Yes – May affect, not likely to adversely affect Topeka Shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May affect, contact NRCS State Biologist

AQUATIC HABITAT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

- If channel (streambank/stream) modification will occur, go to 1.**
 - If modification will occur to improve or restore riparian wetland habitat or restore stream connectivity to an oxbow or other off channel habitat, may affect, contact the State Biologist.**
1. Will the project be conducted between July 16 and May 14?
 - Yes – go to 2.
 - No – May affect, contact the State Biologist.
 2. Will the project require the dewatering of the stream channel or riparian wetland habitat?
 - Yes – contact the State Biologist.
 - No – Go to 3.
 3. Will the action create or remove a fish barrier (i.e., will connectivity of fish habitat be affected)? Fish barriers may include incorrectly installed culverts, stream crossings, dams, etc.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Disturbance Category Assessment

- Yes (barrier removed) beneficial effect go to 4
 - Yes (create) - may affect – contact State Biologist
 - No - go to 4
4. Will the flow, quantity, or timing of water change?
- Yes - May affect, contact State Biologist
 - No – go to 5
5. Is sedimentation possible?
- Yes – go to 6
 - No – May affect, not likely to adversely affect the Topeka shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the NLAA and NLACH findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
6. Will BMPs be implemented (see Topeka shiner BMP Assessment)?
- Yes - May affect, not likely to adversely affect the Topeka shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the NLAA and NLACH findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May affect contact State Biologist

PESTICIDE/HERBICIDE APPLICATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Is the pesticide/herbicide toxic to the Topeka shiner or its important food resources?
- Yes- May affect, contact NRCS State Biologist
 - No – go to step 2
 - Not Sure – May affect, contact NRCS State Biologist
2. Will herbicide/pesticide be applied in a manner that will disturb the Topeka shiner, its habitat or important food resources (crushing, compaction, etc.)?
- Yes – May affect, contact NRCS State Biologist
 - No – May affect, not likely to adversely affect the Topeka Shiner - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Best Management Practice (BMP) Assessment

HERBACEOUS PLANT MANIPULATION: GRAZING

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will grazing be conducted according to a current NRCS prescribed grazing plan?
 - Yes – go to 2
 - No – May affect , contact State Biologist
2. Will a minimum of 6”- 8” of stubble height be present prior to the area being grazed?
 - Yes – Go to 3
 - No – May Affect, contact State Biologist
3. Will a minimum of 4”- 6” stubble height be maintained while the site is being grazed?
 - Yes – go to 4
 - No – May affect, contact State Biologist
4. Will livestock have access to a USFWS Topeka Shiner Occupied Stream (see USFWS Topeka Shiner Occupied Streams List)?
 - Yes – go to 5
 - No – May affect, not likely to adversely affect Topeka Shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
5. Is stream access temporary?
 - Yes – go to 7
 - No – Go to 6
6. Will the stream be fenced to provide a minimum 30’ grazing buffer?
 - Yes – go to 7
 - No – May Affect, contact the NRCS State Biologist
7. Is temporary access to stream controlled/secured to reduce bank and channel habitat disturbance?
 - Yes - May affect, not likely to adversely affect Topeka Shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May Affect, contact the NRCS State Biologist

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Best Management Practice (BMP) Assessment

HERBACEOUS PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will manipulation of non-woody, herbaceous plant material (haying, burning, herbicide burn down, etc.) occur within 30 feet of the streams top of bank or within 30 feet of riparian wetland habitat?
 - Yes - go to 2
 - No - No affect to the Topeka shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this ESA and NEPA activity.
2. Will non-woody, herbaceous plant manipulation affect stream or riparian wetland habitat conditions (i.e. increase sedimentation, nutrients, run-off, etc.) in the short-term?
 - Yes – go to 3
 - No – go to 4
3. Yes - Will BMPs be implemented and maintained (see Topeka Shiner BMP Assessment)?
 - Yes – go to 4
 - No – May affect contact State Biologist
4. Will non-woody, herbaceous plant manipulation affect stream or riparian wetland habitat conditions (i.e. increase sedimentation, nutrients, run-off, etc.) in the long-term?
 - Yes – may affect, contact NRCS State Biologist
 - No - May affect, not likely to adversely affect the Topeka shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment, the Topeka Shiner BMP Assessment, and this Step 2 Disturbance Category Assessment to document this ESA and NEPA activity.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Best Management Practice (BMP) Assessment

WATER QUALITY IMPACTS:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project increase the short-term input of sediment, nutrients, or chemicals to the stream or riparian wetland habitat?
 - Yes - go to 2
 - No - go to 3
2. Will BMPs be implemented and maintained (see Topeka Shiner BMP Assessment)?
 - Yes - go to 3
 - No – May affect, contact the NRCS State Biologist
3. Will the project increase the long-term input of sediment, nutrients, or chemicals to the stream or riparian wetland habitat?
 - Yes – May affect, contact the NRCS State Biologist
 - No – go to 4
4. Will the flow, quantity, or timing of water change?
 - Yes – May affect, contact the NRCS State Biologist.
 - No - May affect, not likely to adversely affect the Topeka shiner. Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also, complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment, the Topeka Shiner BMP Assessment, and this Step 2 Disturbance Category Assessment to document this NEPA activity.

Iowa NRCS Endangered Species Act Section 7 Programmatic Consultation

Step-2 Best Management Practice (BMP) Assessment

Appendix D.2.2. Programmatic Consultation Step-2 Topeka Shiner best management practices.

TOPEKA SHINER, (*Notropis Topeka*) Best Management Practices (BMPs)

BEST MANANGEMETN PRACTICES (BMP):

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. All temporary storage facilities for petroleum products, other fuels, and chemicals shall be located and protected to prevent accidental spills from entering the stream channel or its tributaries within the project area. In the event of an accidental spill, please follow established reporting procedures, and, in addition, please contact our office immediately.
2. Temporary stream crossings should not contain fine sediment particles that may enter the stream channel and impair water quality. In addition, temporary stream crossings should be removed immediately after use, and the area of impact should be restored to pre-construction conditions.
3. There shall be no deposition of cement sweepings, washings, treatment chemicals, or grouting and bonding material into the stream proper or into any location where such pollutants can be washed into the stream by runoff water.
4. Close attention is warranted for the placement and maintenance of temporary erosion and sediment control measures to minimize unnecessary sediment loading into the stream. Appropriate temporary erosion control measures and/or temporary grass seeding should be in place within one week of land disturbance at the project site. In addition to standard procedures, the applicant will place two silt fences downstream of any in-channel activities. Unlike traditional placement of silt fences, the Service requests that a set of two 3/4 length silt fences be used. The first fence should be placed extending from one bank 3/4 the way across the channel to the other bank, leaving a small area of unrestricted flow. The second fence should be placed, approximately 5 feet up or downstream, in the same fashion with the fence beginning on the opposite bank and extending 3/4 the way back across the channel. Placement of two silt fences in this manner should allow for the safe escape of fish and would act as a trap for sediments that are suspended during construction activities. We also recommend that, where applicable, hay bale ditch checks be placed along with any other applicable erosion control measures deemed necessary to control erosion into the stream.
5. All areas denuded of vegetation as a result of the permitted action, including all borrow areas that drain into the stream, shall be reseeded within one month following completion of construction.
6. Sand or gravel for use in mixing concrete and/or blacktop should not be taken from the project site.

Will these BMPs be implemented?

- Yes – Continue to the applicable Step-2 Disturbance Assessments to make an affect determination.
- No – Continue to the applicable Step-2 Disturbance Assessments to make an affect determination.

Appendix D.3. Programmatic Consultation Step-2 Northern Monkshood Disturbance Category Assessments.

NORTHERN MONKSHOOD (*Aconitum noveboracense*)

Assessment: The majority of project sites will not occur in areas of cold air vents or algific slopes, in which case NRCS has determined that program activities will have no effect on the northern monkshood. If, in the rare case a project is planned in an area containing cold air vents or algific slopes, NRCS personnel will contact USFWS for a site-specific consultation to determine the project impacts on this species and to develop a plan that will enable the program to complete essential program tasks while protecting the northern monkshood.

ALGIFIC SLOPES

In the summer, air is drawn down through sinkholes, flows over frozen groundwater and is released out vents on hill slopes. Summer temperatures on the slopes range from just above freezing to 55° D. In winter, air is drawn into the vents, and the groundwater again freezes. This process results in cooler than average temperatures around vents that support rare relict plants and animals more common in Iowa during the Pleistocene age.

EARTH DISTURBANCE:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Is the project located within 150 feet of an algific slope or sinkhole?
 - Yes – May affect - go to 2
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will project activities result in the use of large equipment or result in potential sediment, debris, etc., transport to a sinkhole or algific slope?
 - Yes – May affect, likely to adversely affect (contact state biologist).
 - No – Go to 3
3. Will the project result in use exclusion from the sinkhole or algific slope?
 - Yes — May affect, not likely to adversely affect, wholly beneficial effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May affect, likely to adversely affect (contact State Biologist)

WOODY PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project include woody plant manipulation within 150 feet of an algific slope or sinkhole?
 - Yes – May affect (contact State Biologist)
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

AQUATIC HABITAT MANIPULATION:

No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

PESTICIDE/HERBICIDE APPLICATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project have the potential for broadcast applying pesticides or herbicides over an algific slope or drifting onto an algific slope or to a sinkhole that may provide connectivity to an algific slope?
 - Yes – May affect, (contact State Biologist)
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

HERBACEOUS PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project include herbaceous plant manipulation within 150 feet of an algific slope or sinkhole?
 - Yes – May affect (contact State Biologist)
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Appendix D.4. Programmatic Consultation Step-2 Iowa Pleistocene Snail Disturbance Category Assessments.

IOWA PLEISTOCENE SNAIL (*Discus macclintocki*)

Assessment: The majority of project sites will not occur in areas of cold air vents or algific slopes, in which case NRCS has determined that program activities will have no effect on the northern monkshood. If, in the rare case a project is planned in an area containing cold air vents or algific slopes, NRCS personnel will contact USFWS for a site-specific consultation to determine the project impacts on this species and to develop a plan that will enable the program to complete essential program tasks while protecting the Iowa Pleistocene Snail.

ALGIFIC SLOPES

In the summer, air is drawn down through sinkholes, flows over frozen groundwater and is released out vents on hill slopes. Summer temperatures on the slopes range from just above freezing to 55° D. In winter, air is drawn into the vents, and the groundwater again freezes. This process results in cooler than average temperatures around vents that support rare relict plants and animals more common in Iowa during the Pleistocene age.

EARTH DISTURBANCE:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Is the project located within 150 feet of an algific slope or sinkhole?
 - Yes – May affect - go to 2
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will project activities result in the use of large equipment or result in potential sediment, debris, etc., transport to a sinkhole or algific slope
 - Yes – May affect, likely to adversely affect (contact state biologist).
 - No – Go to 3
3. Will the project result in use exclusion from the sinkhole or algific slope?
 - Yes – May affect, not likely to adversely affect, wholly beneficial effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

- No – May affect, likely to adversely affect (contact State Biologist)

WOODY PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project include woody plant manipulation within 150 feet of an algific slope or sinkhole?
 - Yes – May affect (contact State Biologist)
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

AQUATIC HABITAT MANIPULATION:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

PESTICIDE/HERBICIDE APPLICATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project have the potential for broadcast applying pesticides or herbicides over an algific slope or drifting onto an algific slope or to a sinkhole that may provide connectivity to an algific slope?
 - Yes – May affect, (contact State Biologist)
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

HERBACEOUS PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project include herbaceous plant manipulation within 150 feet of an algific slope or sinkhole?
 - Yes – May affect (contact State Biologist)
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

Appendix D.5. Programmatic Consultation Step-2 Piping Plover Disturbance Category Assessments.

PIPING PLOVER (*Charadrius melodus*)

A 660-foot buffer around breeding areas will be maintained when nesting piping plovers are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of April 10th – August 15th.

EARTH DISTURBANCE:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted between April 10 and August 15?
 - Yes – May affect - go to 2
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted within 660-feet of occupied piping plover habitat?
 - Yes – May affect, contact the State Biologist
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WOODY PLANT MANIPULATION:

A 660-foot buffer around breeding areas will be maintained when nesting piping plovers are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of April 10 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted between April 10 and August 15?
 - Yes – May affect - go to 2

- No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted within 660-feet of occupied piping plover habitat?
- Yes – May affect, contact the State Biologist
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

AQUATIC HABITAT MANIPULATION:

A 660-foot buffer around breeding areas will be maintained when nesting piping plovers are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of April 10 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted between April 10 and August 15?
- Yes – May affect - go to 2
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted within 660-feet of occupied piping plover habitat?
- Yes – May affect, contact the State Biologist
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

PESTICIDE/HERBICIDE APPLICATION:

A 660-foot buffer around breeding areas will be maintained when nesting piping plovers are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of April 10 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted between April 10 and August 15?
 - Yes – May affect - go to 2
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted within 660-feet of occupied piping plover habitat?
 - Yes – May affect, contact the State Biologist
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

HERBACEOUS PLANT MANIPULATION:

A 660-foot buffer around breeding areas will be maintained when nesting piping plovers are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of April 10 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted within 660-feet of occupied piping plover habitat?
 - Yes – May affect, contact the State Biologist
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted between April 10 and August 15?

- Yes – May affect (Contact State Biologist)
- No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Appendix D.6. Programmatic Consultation Step-2 Least Tern Disturbance Category Assessments.

LEAST TERN (*Sterna antillarum*) Interior Population

A 660-foot buffer around breeding areas will be maintained when nesting Least Terns are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of May 1 – August 15.

EARTH DISTURBANCE:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted within 660-feet of occupied Least Tern habitat?
 - Yes – go to 2.
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted between May 1 and August 15?
 - Yes – May affect (Contact State Biologist)
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WOODY PLANT MANIPULATION:

A 660-foot buffer around breeding areas will be maintained when nesting Least Terns are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of May 1 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted within 660-feet of occupied Least Tern habitat?
 - Yes – go to 2.

- No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted between May 1 and August 15?
- Yes – May affect (Contact State Biologist)
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

AQUATIC HABITAT MANIPULATION:

A 660-foot buffer around breeding areas will be maintained when nesting Least Terns are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of May 1st – August 15th.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted within 660-feet of occupied Least Tern habitat?
- Yes – go to 2.
 - No – *No effect* - No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted between May 1 and August 15?
- Yes – May affect (Contact State Biologist)
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

PESTICIDE/HERBICIDE APPLICATION:

A 660-foot buffer around breeding areas will be maintained when nesting Least Terns are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of May 1 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted within 660-feet of occupied Least Tern habitat?
 - Yes – go to 2.
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted between May 1 and August 15?
 - Yes – May affect (Contact State Biologist)
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

HERBACEOUS PLANT MANIPULATION:

A 660-foot buffer around breeding areas will be maintained when nesting Least Terns are present. No program activities, including survey, may occur within the 660-foot buffer area of an active breeding site during the breeding season of May 1 – August 15.

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project be conducted within 660-feet of occupied Least Tern habitat?
 - Yes – go to 2.
 - No – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will the project be conducted between May 1 and August 15?

- Yes – May affect (Contact State Biologist)
- No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Appendix D.7. Programmatic Consultation Step-2 Eastern Prairie Fringed Orchid, Western Prairie Fringed Orchid, Meads Milkweed, and Prairie Bush Clover Disturbance Category Assessments.

EASTERN PRAIRIE FRINGED ORCHID (*Platanthera leucophaea*)

WESTERN PRAIRIE FRINGED ORCHID (*Platanthera praeclara*)

MEADS MILKWEED (*Asclepias meadii*)

PRAIRIE BUSH CLOVER (*Lespedeza leptostachya*)

These Disturbance Category Assessments will be used when the presence of at least one of these plants has been recorded within a site or in circumstances where it is assumed these plants are present. If potential habitat for one of these plants is located within an action area, but no surveys have been conducted, presence or absence must be established by an expert, and the State Biologist should be contacted.

EARTH DISTURBANCE:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the earth disturbance be conducted outside of the prairie area?
 - Yes – go to step 2
 - No (earth disturbance is proposed within prairie) – Likely to adversely affect, contact the State Biologist.

2. Will soil retention methods such as silt fences or a vegetative buffer be used to keep all sediment from the worksite from eroding into the prairie?
 - Yes – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – May affect, contact the State Biologist

WOODY PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will woody plants be removed only with small handheld equipment (loppers, chainsaws, saws, etc.)?
 - Yes – go to step 3
 - No – go to step 2
2. Will woody plants be removed using large equipment (mowing, tree shears, etc.) between November 1 and March 31?
 - Yes – go to step 3
 - No (Large equipment will be used on sight between April 1 and October 31)– Likely to adversely affect, contact the State Biologist
3. Will slash be disposed of offsite or in small carefully placed wildlife brush piles?
 - Yes – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No – go to step 4
4. Will woody plants be controlled through the use of prescribed fire between November 1 and March 31, or will slash piles be burnt between November 1 and March 31?
 - Yes – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - No (Prescribed burning or burning of on-sight slash piles will be between April 1 and October 31) - Likely to adversely affect, contact State Biologist.

AQUATIC HABITAT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will the project affect prairie hydrology either by increasing or decreasing the input or output of water from prairie habitat?
 - Yes – May affect, contact the State Biologist.
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

HERBACEOUS PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Does the project include mowing, haying, grazing, or burning between April 1 and October 31?
 - Yes – May affect contact the State Biologist for further consultation.
 - No (all herbaceous plant manipulations will be conducted between November 1 and March 31) – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

PESTICIDE/HERBICIDE APPLICATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

1. Will herbicide/pesticide be applied as a spot treatment that will have no impact (direct or through drift) on the target plant species or important pollinator species?
 - Yes – No effect - Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

- No – for herbicide applications go to step 2, for pesticide applications go to step 3
- 2. Is the herbicide toxic to the target plant species?
 - Yes – May affect, likely to adversely affect contact State Biologist
 - No – go to step 4
- 3. Is the pesticide toxic to important pollinator species of the target plant species?
 - Yes- May affect, likely to adversely affect contact the State Biologist
 - No – go to step 4
- 4. Will herbicide/pesticide be applied in a manner that will disturb the target plant or important pollinator species (crushing, compaction, etc.)?
 - Yes – May affect, likely to adversely affect
 - No – May Affect, not likely to adversely affect if applied according to label instructions Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Appendix D.8. Programmatic Consultation Step-2 Higgin's Eye Pearly Mussel Disturbance Category Assessments.

HIGGIN'S EYE PEARLY MUSSEL (*Lampsilis higginsii*)

EARTH DISTURBANCE:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

WOODY PLANT MANIPULATION:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

AQUATIC HABITAT MANIPULATION:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

PESTICIDE/HERBICIDE APPLICATION:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

HERBACEOUS PLANT MANIPULATION:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

WATER QUALITY IMPACTS:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

Appendix D.9. Programmatic Consultation Step-2 Pallid Sturgeon Disturbance Category Assessments.

PALLID STURGEON (*Scaphirhynchus albus*)

EARTH DISTURBANCE:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

WOODY PLANT MANIPULATION:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

AQUATIC HABITAT MANIPULATION:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

PESTICIDE/HERBICIDE APPLICATION:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

HERBACEOUS PLANT MANIPULATION:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

WATER QUALITY IMPACTS:

- May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the May affect, not likely to adversely affect findings and attach this report to provide documentation of the determination.

Appendix D.10. Programmatic Consultation Step-2 Bald Eagle Disturbance Category Assessments.

BALD EAGLE (*Haliaeetus leucocephalus*)

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

EARTH DISTURBANCE:

The GIS layer titled "bald_eagle_nests_year.shp" is available in each NRCS Field Office's f:\geodata\wildlife directory. This GIS layer can be added to ArcMap GIS projects to determine whether there are *known* Bald eagle nests near project areas. Please contact the GIS section in the NRCS State Office if you have questions concerning the data or map. These maps will be updated annually as Iowa Department of Natural Resources (IDNR) obtains new information on nest site locations. If a *potential* nest is located within the project area, all project activities shall stop until an NRCS, IDNR, or other professional Biologist can evaluate the nest to determine whether it is an eagle nest.

1. Is there a Bald Eagle nest within 660-feet of the project area?
 - Yes, go to 2.
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will activities occur during the nesting season of January 15th – July 31st?
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - Yes, may affect (contact State Biologist)

WOODY PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

The GIS layer titled "bald_eagle_nests_year.shp" is available in each NRCS Field Office's f:\geodata\wildlife directory. This GIS layer can be added to ArcMap GIS projects to determine whether there are *known* Bald eagle nests near project areas. Please contact the GIS section in the NRCS State Office if you have questions concerning the data or map. These maps will be updated annually as Iowa Department of Natural Resources (IDNR) obtains new information on nest site locations. If a *potential* nest is located within the project area, all project activities shall stop until an NRCS, IDNR, or other professional Biologist can evaluate the nest to determine whether it is an eagle nest.

1. Is there a Bald Eagle nest within 660-feet of the project area?
 - Yes, go to 2.
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will activities occur during the nesting season of January 15th – July 31st?
 - Yes, may affect (contact State Biologist)
 - No, go to 3.
3. Will clearcuts, shelterwood cuts, seed-tree cuts, or **removal of any tree \geq 12 inches DBH** occur within 330-feet of the nest?
 - No – May affect, not likely to adversely affect - Use the Conservation Assistance Notes (IA-CPA-15) to record the May affect, not likely to adversely affect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - Yes, may affect (contact State Biologist)

AQUATIC HABITAT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

The GIS layer titled "bald_eagle_nests_year.shp" is available in each NRCS Field Office's f:\geodata\wildlife directory. This GIS layer can be added to ArcMap GIS projects to determine whether there are *known* Bald eagle nests near project areas. Please contact the GIS section in the NRCS State Office if you have questions concerning the data or map. These maps will be updated annually as Iowa Department of Natural Resources (IDNR) obtains new information on nest site locations. If a *potential* nest is located within the project area, all project activities shall stop until an NRCS, IDNR, or other professional Biologist can evaluate the nest to determine whether it is an eagle nest.

1. Is there a Bald Eagle nest within 660-feet of the project area?
 - Yes, go to 2.
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will activities occur during the nesting season of January 15th – July 31st?
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - Yes, may affect (contact State Biologist)

HERBACEOUS PLANT MANIPULATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

The GIS layer titled "bald_eagle_nests_year.shp" is available in each NRCS Field Office's f:\geodata\wildlife directory. This GIS layer can be added to ArcMap GIS projects to determine whether there are *known* Bald eagle nests near project areas. Please contact the GIS section in the NRCS State Office if you have questions concerning the data or map. These maps will be updated annually as Iowa Department of Natural Resources (IDNR) obtains new information on nest site locations. If a *potential* nest is located within the project area, all project activities shall stop until an NRCS, IDNR, or other professional Biologist can evaluate the nest to determine whether it is an eagle nest.

1. Is there a Bald Eagle nest within 660-feet of the project area?
 - Yes, go to 2.
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will activities occur during the nesting season of January 15th – July 31st?
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - Yes, may affect (contact State Biologist)

PESTICIDE/HERBICIDE APPLICATION:

If at any time a customer refuses to follow NRCS procedures as outlined in this programmatic consultation, NRCS stops all financial and technical assistance. Full documentation of this situation and the decision shall be placed in the Conservation Assistance Notes (IA-CPA-15) in the producer's case file.

PESTICIDE/HERBICIDE APPLICATION:

The GIS layer titled "bald_eagle_nests_year.shp" is available in each NRCS Field Office's f:\geodata\wildlife directory. This GIS layer can be added to ArcMap GIS projects to determine whether there are *known* Bald eagle nests near project areas. Please contact the GIS section in the NRCS State Office if you have questions concerning the data or map. These maps will be updated annually as Iowa Department of Natural Resources (IDNR) obtains new information on nest site locations. If a *potential* nest is located within the project area, all project activities shall stop until an NRCS, IDNR, or other professional Biologist can evaluate the nest to determine whether it is an eagle nest.

1. Is there a Bald Eagle nest within 660-feet of the project area?
 - Yes, go to 2.
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
2. Will activities occur during the nesting season of January 15th – July 31st?
 - No - No effect- Use the Conservation Assistance Notes (IA-CPA-15) to record the no effect findings and provide documentation for the record. Also complete the appropriate section of the Environmental Evaluation Worksheet (NRCS-CPA-52) and attach the completed Step 1 Baseline Assessment and this Step 2 Disturbance Category Assessment to document this NEPA activity.
 - Yes, may affect (contact State Biologist)

WATER QUALITY IMPACTS:

- No effect - Use the Conservation Assistance Notes (IA-CPA-15) and Environmental Evaluation Worksheet (NRCS-CPA-52) to record the no effect findings and attach this report to provide documentation of the determination.

Appendix E. List of federally listed species, their status, and suitable habitat by Iowa county.

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Adair	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Adair	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Adair	Mead's Milkweed	<i>Asclepias meadii</i>	Threatened	Virgin prairies
Adair	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Adair	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Adams	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Adams	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Adams	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Adams	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Allamakee	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Allamakee	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Allamakee	Northern monkshood	<i>Aconitum noveboracense</i>	Threatened	
Allamakee	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Allamakee	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Allamakee	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Appanoose	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Appanoose	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Appanoose	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Appanoose	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Audubon	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Audubon	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Audubon	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
Benton	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Benton	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Benton	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Black Hawk	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Black Hawk	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Black Hawk	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Boone	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Boone	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Boone	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Bremer	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Bremer	Eastern Massasauga	<i>Sistrurus c. catenatus</i>	Candidate	
Bremer	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Bremer	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Buchanan	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Buchanan	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Buchanan	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Buena Vista	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Buena Vista	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Buena Vista	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Buena Vista	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Butler	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Butler	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Butler	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Calhoun	Bald Eagle	<i>Haliaeetus</i>		

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
		<i>leucocephalus</i>		
Calhoun	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Calhoun	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Calhoun	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Carroll	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Carroll	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Carroll	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Carroll	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Cass	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Cass	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Cass	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Cass	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Cedar	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Cedar	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Cedar	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Cedar	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Cerro Gordo	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Cerro Gordo	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Cerro Gordo	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Cherokee	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Cherokee	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Cherokee	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Chickasaw	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Chickasaw	Prairie Bush	<i>Lespedeza</i>	Threatened	Dry to mesic prairies with gravelly soil

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
	Clover	<i>leptostachya</i>		
Chickasaw	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Clarke	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Clarke	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Clarke	Mead's Milkweed	<i>Asclepias meadii</i>	Threatened	Virgin prairies
Clarke	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Clarke	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Clarke	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Clay	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Clay	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Clay	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Clayton	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Clayton	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Clayton	Iowa Pleistocene snail	<i>Discus macclintocki</i>	Endangered	North-facing algific talus slopes of the Driftless area
Clayton	Northern monkshood	<i>Aconitum noveboracense</i>	Threatened	
Clayton	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Clayton	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Clayton	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Clayton	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Clinton	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Clinton	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Clinton	Iowa Pleistocene snail	<i>Discus macclintocki</i>	Endangered	North-facing algific talus slopes of the Driftless area
Clinton	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Clinton	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Crawford	Bald Eagle	<i>Haliaeetus</i>		

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
		<i>leucocephalus</i>		
Crawford	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Crawford	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Dallas	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Dallas	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Dallas	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Dallas	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Dallas	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Davis	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Davis	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Davis	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Davis	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Decatur	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Decatur	Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	Threatened	Mesic to wet prairies
Decatur	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Decatur	Mead's Milkweed	<i>Asclepias meadii</i>	Threatened	Virgin prairies
Decatur	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Decatur	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Delaware	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Delaware	Northern monkshood	<i>Aconitum noveboracense</i>	Threatened	
Delaware	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Delaware	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Des Moines	Bald Eagle	<i>Haliaeetus leucocephalus</i>		

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
Des Moines	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Des Moines	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Des Moines	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Des Moines	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Des Moines	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Des Moines	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Dickinson	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Dickinson	Dakota skipper	<i>Hesperia dacotae</i>	Candidate	Prairies
Dickinson	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Dickinson	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Dickinson	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Dubuque	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Dubuque	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Dubuque	Iowa Pleistocene snail	<i>Discus macclintocki</i>	Endangered	North-facing algific talus slopes of the Driftless area
Dubuque	Northern monkshood	<i>Aconitum noveboracense</i>	Threatened	
Dubuque	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Dubuque	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Dubuque	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Emmet	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Emmet	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Emmet	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Fayette	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Fayette	Iowa Pleistocene snail	<i>Discus macclintocki</i>	Endangered	North-facing algific talus slopes of the Driftless area
Fayette	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
Fayette	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Floyd	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Floyd	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Floyd	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Franklin	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Franklin	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Franklin	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Fremont	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Fremont	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Fremont	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers
Fremont	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Fremont	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Greene	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Greene	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Greene	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Greene	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Grundy	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Grundy	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Grundy	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Guthrie	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Guthrie	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Guthrie	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Guthrie	Western Prairie	<i>Platanthera</i>	Threatened	Wet prairies and sedge meadows

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
	Fringed Orchid	<i>praeclara</i>		
Hamilton	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Hamilton	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Hamilton	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Hamilton	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Hancock	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Hancock	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Hancock	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Hardin	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Hardin	Northern monkshood	<i>Aconitum noveboracense</i>	Threatened	
Hardin	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Hardin	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Harrison	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Harrison	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers
Harrison	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Harrison	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Henry	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Henry	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Henry	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Henry	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Howard	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Howard	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Howard	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Humboldt	Bald Eagle	<i>Haliaeetus</i>		

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
		<i>leucocephalus</i>		
Humboldt	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Humboldt	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Humboldt	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Ida	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Ida	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Ida	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Iowa	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Iowa	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Iowa	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Iowa	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Jackson	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Jackson	Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	Threatened	Mesic to wet prairies
Jackson	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Jackson	Iowa Pleistocene snail	<i>Discus macclintocki</i>	Endangered	North-facing algific talus slopes of the Driftless area
Jackson	Northern monkshood	<i>Aconitum noveboracense</i>	Threatened	
Jackson	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Jackson	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Jackson	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Jasper	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Jasper	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Jasper	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Jasper	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Jefferson	Bald Eagle	<i>Haliaeetus</i>		

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
		<i>leucocephalus</i>		
Jefferson	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Jefferson	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Jefferson	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Johnson	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Johnson	Eastern massasauga	<i>Sistrurus c. catenatus</i>	Candidate	
Johnson	Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	Threatened	Mesic to wet prairies
Johnson	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Johnson	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Johnson	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Johnson	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Jones	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Jones	Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	Threatened	Mesic to wet prairies
Jones	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Wapsipinicon River
Jones	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Jones	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Keokuk	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Keokuk	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Keokuk	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Keokuk	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Kossuth	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Kossuth	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Kossuth	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Kossuth	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Lee	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Lee	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Lee	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Lee	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Lee	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Lee	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Linn	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Linn	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Wapsipinicon River
Linn	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Linn	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Louisa	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Louisa	Eastern massasauga	<i>Sistrurus c. catenatus</i>	Candidate	
Louisa	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Louisa	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Louisa	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Louisa	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Louisa	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Louisa	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Lucas	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Lucas	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Lucas	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Lucas	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Lucas	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Lyon	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Lyon	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Lyon	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Lyon	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Madison	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Madison	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Madison	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Madison	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Mahaska	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Mahaska	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Mahaska	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Mahaska	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Marion	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Marion	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Marion	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Marion	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Marshall	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Marshall	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Marshall	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Mills	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Mills	Eastern massasauga	<i>Sistrurus c. catenatus</i>	Candidate	

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Mills	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Mills	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers
Mills	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Mills	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Mitchell	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Mitchell	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Mitchell	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Monona	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Monona	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers
Monona	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Monona	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Monroe	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Monroe	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Monroe	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Monroe	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Montgomery	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Montgomery	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Montgomery	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Montgomery	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Muscatine	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Muscatine	Eastern massasauga	<i>Sistrurus c. catenatus</i>	Candidate	
Muscatine	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Muscatine	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Muscatine	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Muscatine	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Muscatine	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Muscatine	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Obrien	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
O'Brien	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
O'Brien	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Osceola	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Osceola	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Osceola	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Osceola	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Page	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Page	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Page	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Page	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Palo Alto	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Palo Alto	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Palo Alto	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Plymouth	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Plymouth	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Plymouth	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Pocahontas	Bald Eagle	<i>Haliaeetus leucocephalus</i>		

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Pocahontas	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Pocahontas	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Polk	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Polk	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Polk	Least Tern	<i>Sterna antillarum</i>	Endangered	Bare alluvial and dredged spoil islands
Polk	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Polk	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Polk	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Pottawattamie	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Pottawattamie	Eastern massasauga	<i>Sistrurus c. catenatus</i>	Candidate	
Pottawattamie	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Pottawattamie	Least Tern	<i>Sterna antillarum</i>	Endangered	Bare alluvial and dredged spoil islands
Pottawattamie	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers
Pottawattamie	Piping Plover	<i>Charadrius melodus</i>	Endangered	
Pottawattamie	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Pottawattamie	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Poweshiek	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Poweshiek	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Poweshiek	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Poweshiek	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Ringgold	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Ringgold	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Ringgold	Mead's Milkweed	<i>Asclepias meadii</i>	Threatened	Virgin prairies
Ringgold	Prairie Bush	<i>Lespedeza</i>	Threatened	Dry to mesic prairies with gravelly soil

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
	Clover	<i>leptostachya</i>		
Ringgold	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Sac	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Sac	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Sac	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Sac	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Scott	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Scott	Eastern Massasauga	<i>Sistrurus c. catenatus</i>	Candidate	
Scott	Higgins Eye Pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Mississippi River
Scott	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Scott	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Scott	Sheepnose mussel	<i>Plethobasus cyphus</i>	Candidate	Rivers
Scott	Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Candidate	Rivers
Scott	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Shelby	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Shelby	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Shelby	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Sioux	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Sioux	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Sioux	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
State-wide	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bald and Golden Eagle Protection Act	
Story	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Story	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Story	Western Prairie	<i>Platanthera</i>	Threatened	Wet prairies and sedge meadows

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
	Fringed Orchid	<i>praeclara</i>		
Tama	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Tama	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Tama	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Taylor	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Taylor	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Taylor	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Taylor	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Union	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Union	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Union	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Union	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Van Buren	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Van Buren	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Van Buren	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Van Buren	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Wapello	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Wapello	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Wapello	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Wapello	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Warren	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Warren	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian

COUNTY	COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT
				woods; upland forests (foraging)
Warren	Mead's Milkweed	<i>Asclepias meadii</i>	Threatened	Virgin prairies
Warren	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Warren	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Washington	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Washington	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Washington	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Washington	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Wayne	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Wayne	Indiana Bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Wayne	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Wayne	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Webster	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Webster	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Webster	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Webster	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Winnebago	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Winnebago	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Winnebago	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Winneshiek	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Winneshiek	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Winneshiek	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Woodbury	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Woodbury	Least Tern	<i>Sterna antillarum</i>	Endangered	Bare alluvial and dredged spoil islands

<i>COUNTY</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>STATUS</i>	<i>HABITAT</i>
Woodbury	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Large rivers
Woodbury	Piping Plover	<i>Charadrius melodus</i>	Endangered	
Woodbury	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Woodbury	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Worth	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Worth	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Worth	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
Wright	Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Wright	Prairie Bush Clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
Wright	Topeka shiner	<i>Notropis topeka</i>	Endangered	Prairie streams and rivers
Wright	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows

Appendix F. State of Iowa Natural Resource Commission [571] Chapter 77 Endangered and Threatened Plant and Animal Species.

IAC 9/9/09

Natural Resource Commission[571]

Ch 77, p.1

CHAPTER 77 ENDANGERED AND THREATENED PLANT AND ANIMAL SPECIES [Prior to 12/31/86, Conservation Commission[290], Ch 19]

571—77.1(481B) Definitions. As used in this rule:

“Endangered species” means any species of fish, plant life, or wildlife which is in danger of extinction throughout all or a significant part of its range.

“Special concern species” means any species about which problems of status or distribution are suspected, but not documented, and for which no special protection is afforded under this rule.

“Threatened species” means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

571—77.2(481B) Endangered, threatened, and special concern animals. The natural resource commission, in consultation with scientists with specialized knowledge and experience, has determined the following animal species to be endangered, threatened or of special concern in Iowa:

77.2(1) Endangered animal species:

Mammals

Indiana Bat	<i>Myotis sodalis</i>
Plains Pocket Mouse	<i>Perognathus flavescens</i>
Red-backed Vole	<i>Clethrionomys gapperi</i>
Spotted Skunk	<i>Spilogale putorius</i>

Birds

Red-shouldered Hawk	<i>Buteo lineatus</i>
Northern Harrier	<i>Circus cyaneus</i>
Piping Plover	<i>Charadrius melodus</i>
Common Barn Owl	<i>Tyto alba</i>
Least Tern	<i>Sterna antillarum</i>
King Rail	<i>Rallus elegans</i>
Short-eared Owl	<i>Asio flammeus</i>

Fish

Lake Sturgeon	<i>Acipenser fulvescens</i>
Pallid Sturgeon	<i>Scaphirhynchus albus</i>
Pugnose Shiner	<i>Notropis anogenus</i>
Weed Shiner	<i>Notropis texanus</i>
Pearl Dace	<i>Scotilus margarita</i>
Freckled Madtom	<i>Noturus nocturnus</i>
Bluntnose Darter	<i>Etheostoma chlorosomum</i>
Least Darter	<i>Etheostoma microperca</i>

Reptiles

Yellow Mud Turtle	<i>Kinostemon flavescens</i>
Wood Turtle	<i>Clemmys insculpta</i>
Great Plains Skink	<i>Eumeces obsoletus</i>
Copperbelly Water Snake	<i>Nerodia erythrogaster neglecta</i>

Western Hognose Snake	Heterodon nasicus
Copperhead	Agkistrodon contortrix
Prairie Rattlesnake	Crotalus viridis
Massasauga Rattlesnake	Sistrurus catenatus

Amphibians

Blue-spotted Salamander	Ambystoma laterale
Crawfish Frog	Rana areolata

Butterflies

Dakota Skipper	Hesperia dactotae
Ringlet	Coenonympha tullia

Land Snails

Iowa Pleistocene Snail	Discus macclintocki
Minnesota Pleistocene Ambersnail	Novisuccinea new species A
Iowa Pleistocene Ambersnail	Novisuccinea new species B
Frigid Ambersnail	Catinella gelida
Briarton Pleistocene Vertigo	Vertigo briarensis
Bluff Vertigo	Vertigo meramecensis
Iowa Pleistocene Vertigo	Vertigo new species

Fresh Water Mussels

Spectacle Case	Cumberlandia monodonta
Slippershell	Alasmodonta viridis
Buckhorn	Tritogonia verrucosa
Ozark Pigtoe	Fusconia ozarkensis
Bullhead	Plethobasus cyphyus
Ohio River Pigtoe	Pleurobema sintoxia
Slough Sandshell	Lampsilis teres teres
Yellow Sandshell	Lampsilis teres anodontoides
Higgin's-eye Pearly Mussel	Lampsilis higginsii

77.2(2) Threatened animal species:

Mammals

Least Shrew	Cryptotis parva
Southern Bog Lemming	Synaptomys cooperi

Birds

Long-eared Owl	Asio otus
Henslow's Sparrow	Ammodramus henslowii

Fish

Chestnut Lamprey	<i>Ichthyomyzon castaneus</i>
American Brook Lamprey	<i>Lampetra appendix</i>
Grass Pickerel	<i>Esox americanus</i>
Blacknose Shiner	<i>Notropis heterolepis</i>
Topoka Shiner	<i>Notropis topoka</i>
Western Sand Darter	<i>Ammocrypta clara</i>
Black Redhorse	<i>Moxostoma duquesnei</i>
Burbot	<i>Lota lota</i>
Orangethroat Darter	<i>Etheostoma spectabile</i>

Reptiles

Slender Glass Lizard	<i>Ophisaurus attenuatus</i>
Common Musk Turtle	<i>Sternotherus odoratus</i>
Blanding's Turtle	<i>Emydoidea blandingii</i>
Ornate Box Turtle	<i>Terrapene ornata</i>
Diamondback Water Snake	<i>Nerodia rhombifera</i>
Western Worm Snake	<i>Carphophis amoenus vermis</i>
Speckled Kingsnake	<i>Lampropeltis getulus</i>

Amphibians

Mudpuppy	<i>Necturus maculosus</i>
Central Newt	<i>Notophthalmus viridescens</i>

Butterflies

Poweshiek Skipperling	<i>Oarisma poweshiek</i>
Byssus Skipper	<i>Problema byssus</i>
Mulberry Wing	<i>Paras massasoil</i>
Silvery Blue	<i>Glaucopsyche lygdamus</i>
Baltimore	<i>Euphydryas phaeton</i>

Snails

Midwest Pleistocene Vertigo	<i>Vertigo hubrichti</i>
Occult Vertigo	<i>Vertigo occulta</i>

Fresh Water Mussels

Cylinder	<i>Anodontoidea ferrussacianus</i>
Strange Floater	<i>Strophitus undulatus</i>
Creek Heelsplitter	<i>Lastnigona compressa</i>
Purple Pimpleback	<i>Cyclonaias tuberculata</i>
Butterfly	<i>Ellipsaria lineolata</i>
Ellipse	<i>Venusiaconcha ellipsiformis</i>

77.2(3) *Special concern animal species:*

Mammals

Southern Flying Squirrel *Glaucomys volans*

Birds

Forster's Tern *Sterna forsteri*
 Black Tern *Chlidonias niger*
 Peregrine Falcon *Falco peregrinus*
 Bald Eagle *Haliaeetus leucocephalus*

Fish

Pugnose Minnow *Notropis emiliae*
 Pirale Perch *Aphredoderus sayanus*

Reptiles

Smooth Green Snake *Ophiodrys vernalis*
 Bullsake *Pituophis catenifer sayi*

Butterflies

Dreamy Duskywing *Erynnis icelus*
 Sleepy Duskywing *Erynnis brizo*
 Columbine Duskywing *Erynnis lucilius*
 Wild Indigo Duskywing *Erynnis baptisiae*
 Ottoo Skipper *Hesperia ottoe*
 Leonardus Skipper *Hesperia l. leonardus*
 Pawnee Skipper *Hesperia leonardus pawnee*
 Beardgrass Skipper *Atrytone arogos*
 Zabulon Skipper *Poanes zabulon*
 Broad-winged Skipper *Poanes viator*
 Sedge Skipper *Euphyes dion*
 Two-spotted Skipper *Euphyes bimacula*
 Dusted Skipper *Atrytonopsis hianna*
 Salt-and-pepper Skipper *Amblyscirtes hegon*
 Pipevine Swallowtail *Battus philenor*
 Zebra Swallowtail *Eurytides marcellus*
 Olympia White *Euclyloe olympia*
 Purplish Copper *Lycena helloides*
 Acadian Hairstreak *Satyrrium acadienm*
 Edward's Hairstreak *Satyrrium edwardsii*
 Hickory Hairstreak *Satyrrium caryaevorum*
 Striped Hairstreak *Satyrrium liparops*
 Swamp Metalmark *Calcepholis murica*
 Regal Fritillary *Speyeria idalia*
 Baltimore *Euphydryas phaeton ozarkae*

571—77.3(481B) Endangered, threatened, and special concern plants. The natural resource commission, in consultation with scientists with special knowledge and experience, determined the following plant species to be endangered, threatened, or of special concern in Iowa.

77.3(1) Endangered plant species:

COMMON NAME	SCIENTIFIC NAME
Pale false foxglove	<i>Agalinis skinneriana</i>
Blue giant-hyssop	<i>Agastache foeniculum</i>
Bearberry	<i>Arctostaphylos uva-ursi</i>
Black chokeberry	<i>Aronia melanocarpa</i>
Eared milkweed	<i>Asclepias engelmanniana</i>
Mead's milkweed	<i>Asclepias meadii</i>
Narrow-leaved milkweed	<i>Asclepias stenophylla</i>
Ricebutton aster	<i>Aster dumosus</i>
Large-leaved aster	<i>Aster macrophyllus</i>
Schreber's aster	<i>Aster schreberi</i>
Fern-leaved false foxglove	<i>Aureolaria pedicularia</i>
Matricary grape fern	<i>Botrychium matricariifolium</i>
Poppy mallow	<i>Callirhoe triangulata</i>
Cordroot sedge	<i>Carex chordonhiza</i>
Large-bracted corydalis	<i>Corydalis curvisiliqua</i>
Silky prairie-clover	<i>Dalea villosa</i>
Swamp-loosestrife	<i>Decodon verticillatus</i>
Northern panic-grass	<i>Dichanthelium boreale</i>
Roundleaved sundew	<i>Drosera rotundifolia</i>
False mermaid	<i>Floerkea proserpinacoides</i>
Bog bedstraw	<i>Galium labradoricum</i>
Povertygrass	<i>Hudsonia tomentosa</i>
Northern St. Johnswort	<i>Hypericum boreale</i>
Pinweed	<i>Hypericum gentianoides</i>
Winterberry	<i>Ilex verticillata</i>
Black-based quillwort	<i>Isoetes melanopoda</i>
Water-willow	<i>Justicia americana</i>
Dwarf dandelion	<i>Krigia virginica</i>
Cleft conochea	<i>Leucospora multifida</i>
Whiskbroom parsley	<i>Lomatium foeniculaceum</i>
Running clubmoss	<i>Lycopodium clavatum</i>
Bog clubmoss	<i>Lycopodium inundatum</i>
Annual skeletonweed	<i>Lygodesmia rostrata</i>
Water marigold	<i>Megalodonta beckii</i>
Northern lungwort	<i>Mertensia paniculata</i>
Bigroot pricklypear	<i>Opuntia macrorhiza</i>
Clustered brodiaea	<i>Orobanche fasciculata</i>
Ricegrass	<i>Oryzopsis pungens</i>
Cinnamon fern	<i>Osmunda cinnamomea</i>
Purple cliffbrake	<i>Pellaea atropurpurea</i>

Arrow arum	Peltandra virginica
Pale green orchid	Platanthera flava
Eastern prairie fringed orchid	Platanthera leucophaea
Clammyweed	Polansia jamesii
Crossleaf milkwort	Polygala cruciata
Purple milkwort	Polygala polygama
Jointweed	Polygonella articulata
Douglas' knotweed	Polygonum douglasii
Three-toothed cinquefoil	Potentilla tridentata
Canada plum	Prunus nigra
Frenchgrass	Psoralea onobrychis
Pink shinleaf	Pyrola asarifolia
Prickly rose	Rosa acicularis
Meadow spikemoss	Sclaginella colipes
Rough-leaved goldenrod	Solidago patula
Bog goldenrod	Solidago uliginosa
Yellow-lipped ladies-tresses	Spiranthes lucida
Pickering morning-glory	Stylisma pickeringii
Rough-seeded fameflower	Talinum rugospermum
Waxy meadowrue	Thalictrum revolutum
Long beechfern	Thelypteris phegopteris
Large-leaved violet	Viola incognita
Rusty woodsia	Woodsia ilvensis
Yellow-eyed grass	Xyris torta

77.3(2) Threatened plant species:

Northern wild monkshood	Aconitum noveboracense
Round-stemmed false foxglove	Agalinus gatlingerii
Nodding wild onion	Allium cernuum
Fragrant false indigo	Amorpha nana
Virginia snakeroot	Aristolochia serpentaria
Woolly milkweed	Asclepias lanuginosa
Showy milkweed	Asclepias speciosa
Forked aster	Aster furcatus
Rush aster	Aster junciformis
Flax-leaved aster	Aster linariifolius
Water parsnip	Berula erecta
Kittentails	Besseyia bullii
Bog birch	Betula pumila
Pagoda plant	Blephilia ciliata
Leathery grapefern	Botrychium multifidum
Little grapefern	Botrychium simplex
Sweet Indian-plantain	Cacalia suaveolens
Poppy mallow	Callirhoe alcaeoides
Pipsissewa	Chimaphila umbellata

Golden saxifrage	<i>Chrysosplenium iowense</i>
Dayflower	<i>Commelina erecta</i>
Spotted coralroot	<i>Corallorhiza maculata</i>
Bunchberry	<i>Cornus canadensis</i>
Golden corydalis	<i>Corydalis aurea</i>
Pink corydalis	<i>Corydalis sempervirens</i>
Showy lady's-slipper	<i>Cypripedium reginae</i>
Slim-leaved panic-grass	<i>Dichanthelium linearifolium</i>
Jeweled shooting star	<i>Dodecatheon amethystinum</i>
Glandular wood fern	<i>Dryopteris intermedia</i>
Marginal shield fern	<i>Dryopteris marginalis</i>
Woodland horsetail	<i>Equisetum sylvaticum</i>
Slender cottongrass	<i>Eriophorum gracile</i>
Yellow trout lily	<i>Erythronium americanum</i>
Queen of the prairie	<i>Filipendula rubra</i>
Blue ash	<i>Fraxinus quadrangulata</i>
Black huckleberry	<i>Gaylussacia baccata</i>
Oak fern	<i>Gymnocarpium dryopteris</i>
Green violet	<i>Hybanthus coneolor</i>
Twinleaf	<i>Jeffersonia diphylla</i>
Creeping juniper	<i>Juniperus horizontalis</i>
Intermediate pinweed	<i>Lechea intermedia</i>
Hairy pinweed	<i>Lechea villosa</i>
Prairie bush clover	<i>Lespedeza leptostachya</i>
Twinflower	<i>Linnaca borealis</i>
Western parsley	<i>Lomatium orientale</i>
Wild lupine	<i>Lupinus perennis</i>
Tree clubmoss	<i>Lycopodium dendroideum</i>
Rock clubmoss	<i>Lycopodium porophyllum</i>
Hairy watercress	<i>Marsilea vestita</i>
Bog buckbean	<i>Menyanthes trifoliata</i>
Winged monkeyflower	<i>Mimulus alatus</i>
Yellow monkeyflower	<i>Mimulus glabratus</i>
Partridge berry	<i>Mitchella repens</i>
Pinesap	<i>Monotropa hypopithys</i>
Small sundrops	<i>Oenothera perennis</i>
Little pricklypear	<i>Opuntia fragilis</i>
Royal fern	<i>Osmunda regalis</i>
Philadelphia panic-grass	<i>Panicum philadelphicum</i>
Slender beardtongue	<i>Penstemon gracilis</i>
Hooker's orchid	<i>Platanthera hookeri</i>
Northern bog orchid	<i>Platanthera hyperborea</i>
Western prairie fringed orchid	<i>Platanthera praecelara</i>
Purple fringed orchid	<i>Platanthera psychodes</i>
Pink milkwort	<i>Polygala incarnata</i>

Silverweed	Potentilla anserina
Shrubby cinquefoil	Potentilla fruticosa
Pennsylvania cinquefoil	Potentilla pennsylvanica
One-sided shinleaf	Pyrola secunda
Meadow beauty	Rhexia virginica
Beaked rush	Rhynchospora capillacea
Northern currant	Ribes hudsonianum
Shining willow	Salix lucida
Bog willow	Salix pedicellaris
Low nutrush	Scleria verticillata
Buffaloberry	Shepherdia argentea
Scarlet globe-mallow	Sphaeralcea coccinea
Slender ladies-tresses	Spiranthes lacera
Oval ladies-tresses	Spiranthes ovalis
Hooded ladies-tresses	Spiranthes romanzoffiana
Spring ladies-tresses	Spiranthes vernalis
Rosy twisted-stalk	Streptopus roseus
Tameflower	Talium parviflorum
Large arrowgrass	Triglochin maritimum
Small arrowgrass	Triglochin palustre
Low sweet blueberry	Vaccinium angustifolium
Velvetleaf blueberry	Vaccinium myrtilloides
False hellebore	Veratrum woodii
Kidney-leaved violet	Viola renifolia
Oregon woodsia	Woodsia oregana

77.3(3) Special concern plant species:

Balsam fir	Abies balsamea
Three-seeded mercury	Acalypha gracilens
Three-seeded mercury	Acalypha ostryifolia
Mountain maple	Acer spicatum
Moschatel	Adoxa moschatellina
Water plantain	Alisma gramineum
Wild onion	Allium nutabile
Amaranth	Amaranthus arcticola
Lanceleaf ragweed	Ambrosia bidentata
Saskatoon serviceberry	Amelanchier alnifolia
Low serviceberry	Amelanchier sanguinea
Raccoon grape	Ampelopsis cordata
Pearly everlasting	Anaphalis margaritacea
Sand bluestem	Andropogon hallii
Broomsedge	Andropogon virginicus
Purple angelica	Angelica atropurpurea
Purple rockcress	Arabis divaricata
Green rockcress	Arabis missouriensis

Lakecress	<i>Armoracia lacustris</i>
Fringed sagewort	<i>Artemisia frigida</i>
Common mugwort	<i>Artemisia vulgaris</i>
Pawpaw	<i>Asimina triloba</i>
Curved aster	<i>Aster falcatus</i>
Hairy aster	<i>Aster pubentior</i>
Prairie aster	<i>Aster turbinellus</i>
Standing milkvetch	<i>Astragalus adsurgens</i>
Bent milkvetch	<i>Astragalus distortus</i>
Missouri milkvetch	<i>Astragalus missouriensis</i>
Blue wild indigo	<i>Baptisia australis</i>
Yellow wild indigo	<i>Baptisia tinctoria</i>
Prairie moonwort	<i>Botrychium campestre</i>
Watershield	<i>Brasenia schreberi</i>
Buffalograss	<i>Buchloe dactyloides</i>
Poppy mallow	<i>Callirhoe papaver</i>
Water-starwort	<i>Callitriche heterophylla</i>
Grass pink	<i>Calopogon tuberosus</i>
Low bindweed	<i>Calystegia spithamea</i>
Clustered sedge	<i>Carex aggregata</i>
Back's sedge	<i>Carex backii</i>
Bush's sedge	<i>Carex bushii</i>
Carey's sedge	<i>Carex careyana</i>
Flowerhead sedge	<i>Carex cephalantha</i>
Field sedge	<i>Carex conoidea</i>
Crawe's sedge	<i>Carex crawei</i>
Fringed sedge	<i>Carex crinita</i>
Double sedge	<i>Carex diandra</i>
Douglas' sedge	<i>Carex douglasii</i>
Dry sedge	<i>Carex foena</i>
Thin sedge	<i>Carex gracilescens</i>
Delicate sedge	<i>Carex leptalea</i>
Mud sedge	<i>Carex limosa</i>
Hoplike sedge	<i>Carex lupuliformis</i>
Yellow sedge	<i>Carex lurida</i>
Intermediate sedge	<i>Carex media</i>
Backward sedge	<i>Carex retroflexa</i>
Richardson's sedge	<i>Carex richardsonii</i>
Rocky Mountain sedge	<i>Carex saximontana</i>
Sterile sedge	<i>Carex sterilis</i>
Soft sedge	<i>Carex tenera</i>
Deep green sedge	<i>Carex tonsa</i>
Tuckerman's sedge	<i>Carex tuckermanii</i>
Umbrella sedge	<i>Carex umbellata</i>
Wild oats	<i>Chasmanthium latifolium</i>

Pink turtlehead	<i>Chelone obliqua</i>
Fogg's goosefoot	<i>Chenopodium foggii</i>
Missouri goosefoot	<i>Chenopodium missouriensis</i>
Coast blite	<i>Chenopodium rubrum</i>
Bugbane	<i>Cimicifuga racemosa</i>
Hill's thistle	<i>Cirsium hillii</i>
Swamp thistle	<i>Cirsium muticum</i>
Wavy-leaved thistle	<i>Cirsium undulatum</i>
Western clematis	<i>Clematis occidentalis</i>
Blue-eyed Mary	<i>Collinsia verna</i>
Cancer-root	<i>Conopholis americana</i>
Fireberry hawthorn	<i>Crataegus chrysoarpa</i>
Red hawthorn	<i>Crataegus coccinea</i>
Two-fruited hawthorn	<i>Crataegus disperma</i>
Hawthorn	<i>Crataegus pruinosa</i>
Hawksbeard	<i>Crepis runcinata</i>
Prairie tea	<i>Croton monanthogynus</i>
Crotonopsis	<i>Crotonopsis elliptica</i>
Waxweed	<i>Cuphea viscosissima</i>
Dodder	<i>Cuscuta indecora</i>
Small white lady's-slipper	<i>Cypripedium candidum</i>
Carolina larkspur	<i>Delphinium carolinianum</i>
Sessile-leaved tick trefoil	<i>Desmodium sessilifolium</i>
Fingergrass	<i>Digitalis filiformis</i>
Buttonweed	<i>Diodia teres</i>
Purple coneflower	<i>Echinacea purpurea</i>
Waterwort	<i>Elatine triandra</i>
Purple spikerush	<i>Eleocharis atropurpurea</i>
Green spikerush	<i>Eleocharis olivacea</i>
Oval spikerush	<i>Eleocharis ovata</i>
Dwarf spikerush	<i>Eleocharis parvula</i>
Few-flowered spikerush	<i>Eleocharis pauciflora</i>
Wolf's spikerush	<i>Eleocharis wolffii</i>
Interrupted wildrye	<i>Elymus interruptus</i>
Dwarf scouring rush	<i>Equisetum scirpoides</i>
Ponygrass	<i>Fragrostis reptans</i>
Tall cottongrass	<i>Eriophorum angustifolium</i>
Tawny cottongrass	<i>Eriophorum virginicum</i>
Upland boneset	<i>Eupatorium sessilifolium</i>
Spurge	<i>Euphorbia commutata</i>
Missouri spurge	<i>Euphorbia missurica</i>
Slender fimbriistylis	<i>Fimbristylis autumnalis</i>
Umbrella grass	<i>Fuirena simplex</i>
Rough bedstraw	<i>Galium asprellum</i>
Small fringed gentian	<i>Gentianopsis procera</i>

Northern cranesbill	<i>Geranium bicknellii</i>
Spring avens	<i>Geum vernum</i>
Early cudweed	<i>Grnaphalium purpureum</i>
Limestone oak fern	<i>Gymnocarpium robertianum</i>
Bitterweed	<i>Helenium amarum</i>
Mud plantain	<i>Heteranthera limosa</i>
Water stargrass	<i>Heteranthera reniformis</i>
Hairy goldenaster	<i>Heterotheca villosa</i>
Common mare's-tail	<i>Hippuris vulgaris</i>
Canadian St. Johnswort	<i>Hypericum canadense</i>
Drummond St. Johnswort	<i>Hypericum drummondii</i>
White morning glory	<i>Ipomoea lacunosa</i>
Sumpweed	<i>Iva annua</i>
Alpine rush	<i>Juncus alpinus</i>
Toad rush	<i>Juncus bufonius</i>
Soft rush	<i>Juncus effusus</i>
Green rush	<i>Juncus greenii</i>
Edged rush	<i>Juncus marginatus</i>
Vasey's rush	<i>Juncus vaseyi</i>
Potato dandelion	<i>Krigia dandelion</i>
Pinweed	<i>Lechea racemulosa</i>
Duckweed	<i>Lemna perpusilla</i>
Creeping bush clover	<i>Lespedeza repens</i>
Silvery bladder-pod	<i>Lesquerella ludoviciana</i>
Wild flax	<i>Linum medium</i>
Brook lobelia	<i>Lobelia kalmii</i>
False loosestrife	<i>Ludwigia peploides</i>
Crowfoot clubmoss	<i>Lycopodium digitatum</i>
Adler's-mouth orchid	<i>Malaxis unifolia</i>
Globe mallow	<i>Malvastrum hispidum</i>
Two-flowered melic-grass	<i>Melica mutica</i>
Ten-petaled blazingstar	<i>Mentzelia decapetala</i>
Millet grass	<i>Milium effusum</i>
Rock sandwort	<i>Minuartia michauxii</i>
Naked mitrewert	<i>Mitella nuda</i>
Scratchgrass	<i>Muhlenbergia asperifolia</i>
Water milfoil	<i>Myriophyllum heterophyllum</i>
Rough water milfoil	<i>Myriophyllum pinnatum</i>
Water milfoil	<i>Myriophyllum verticillatum</i>
Glade mallow	<i>Napaea dioica</i>
Showy evening primrose	<i>Oenothera speciosa</i>
Northern adders-tongue fern	<i>Ophioglossum vulgatum</i>
Louisiana broomrape	<i>Orobanche ludoviciana</i>
Mountain ricegrass	<i>Oryzopsis asperifolia</i>
Gattinger's panic-grass	<i>Panicum gattingeri</i>

White beardtongue	<i>Penstemon albidus</i>
Cobaea penstemon	<i>Penstemon cobaea</i>
Tube penstemon	<i>Penstemon tubiflorus</i>
Cleft phlox	<i>Phlox bifida</i>
Annual ground cherry	<i>Physalis pubescens</i>
Heart-leaved plantain	<i>Plantago cordata</i>
Wood orchid	<i>Platanthera clavellata</i>
Green fringed orchid	<i>Platanthera lacera</i>
Plains bluegrass	<i>Poa arida</i>
Chapman's bluegrass	<i>Poa chapmaniana</i>
Weak bluegrass	<i>Poa languida</i>
Bog bluegrass	<i>Poa paludigena</i>
Meadow bluegrass	<i>Poa wolfii</i>
Hairy Solomon's-seal	<i>Polygonatum pubescens</i>
Large-leaved pondweed	<i>Potamogeton amplifolius</i>
Ribbonleaf pondweed	<i>Potamogeton epiphydus</i>
White-stemmed pondweed	<i>Potamogeton praelongus</i>
Spiralled pondweed	<i>Potamogeton spirillus</i>
Tussock pondweed	<i>Potamogeton strictifolius</i>
Vasey's pondweed	<i>Potamogeton vaseyi</i>
Bird's-eye primrose	<i>Primula mistassinica</i>
Prionopsis	<i>Prionopsis ciliata</i>
Mermaid weed	<i>Proserpinaca palustris</i>
Dwarf cherry	<i>Prunus besseyi</i>
Hortulan plum	<i>Prunus hortulana</i>
Sand cherry	<i>Prunus pumila</i>
Lemon scurfpea	<i>Psoralea lanceolata</i>
Crowfoot	<i>Ranunculus circinatus</i>
Gmelin's crowfoot	<i>Ranunculus gmelinii</i>
Buckthorn	<i>Rhamnus alniifolia</i>
Dwarf sumac	<i>Rhus copallina</i>
Northern gooseberry	<i>Ribes hirtellum</i>
Yellow cress	<i>Rorippa simulata</i>
Swamp rose	<i>Rosa palustris</i>
Tooth-cup	<i>Rotala ramosior</i>
Dewberry	<i>Rubus hispidus</i>
Western dock	<i>Rumex occidentalis</i>
Widgeon grass	<i>Ruppia maritima</i>
Prairie rose gentian	<i>Sabatia campestris</i>
Sage willow	<i>Salix candida</i>
Sassafras	<i>Sassafras albidum</i>
Tumblegrass	<i>Schedonardus paniculatus</i>
Seheuchzeria	<i>Seheuchzeria palustris</i>
Sensitive uniur	<i>Schrankia nuttallii</i>
Hall's bulrush	<i>Scirpus hallii</i>

Prairie bulrush	Scirpus maritimus
Pedicelled bulrush	Scirpus pedicellatus
Smith's bulrush	Scirpus smithii
Torrey's bulrush	Scirpus torreyi
Veiny skullean	Scutellaria nervosa
Wild stonecrop	Sedum ternatum
Rock spikemoss	Selaginella rupestris
Butterweed	Senecio glabellus
False golden ragwort	Senecio pseud aureus
Knotweed bristlegrass	Setaria geniculata
Virginia rockcress	Sibara virginica
Prairie dock	Silphium terebinthinaceum
Burreed	Sparganium angustifolium
Great plains ladies-tresses	Spiranthes magnicamporum
Clandestine dropseed	Sporobolus clandestinus
Rough hedge-nettle	Stachys aspera
Needle-and-thread	Stipa comata
White coralberry	Symphoricarpos albus
Fared false foxglove	Tomanthera auriculata
Spiderwort	Tradescantia virginiana
Humped bladderwort	Utricularia gibba
Flat-leaved bladderwort	Utricularia intermedia
Small bladderwort	Utricularia minor
Valerian	Valeriana edulis
American brooklime	Veronica americana
Marsh speedwell	Veronica scutellata
Maple-leaved arrowwood	Viburnum acerifolium
Black arrowwood	Viburnum molle
Black haw	Viburnum prunifolium
Spurred violet	Viola adunca
Lance-leaved violet	Viola lanceolata
Macloskey's violet	Viola macloskeyi
Pale violet	Viola striata
Summer grape	Vitis aestivalis
Frost grape	Vitis vulpina

571—77.4(481B) Exemptions. Notwithstanding the foregoing list and the prohibitions in Iowa Code chapter 481B, a person may import, export, possess, transport, purchase, barter, buy, sell, offer to sell, hold for processing or process a species of animal or plant which is listed as endangered or threatened on the state list or as listed in the Code of Federal Regulations, Title 50, part 17, as amended to December 30, 1991, according to the following rules:

77.4(1) Trophics lawfully taken by persons licensed to hunt or fish (not including trapping or commercial harvest licenses) in another state, country or territory may be brought into this state and possessed, held for processing and processed but may not be sold or offered for sale.

77.4(2) Furs or skins of wildlife species appearing on the state list of endangered and threatened species which were lawfully taken or purchased in another state, country or territory may be imported,

exported, purchased, possessed, bartered, offered for sale, sold, held for processing, or processed in this state if they are tagged or permanently marked by the state, country, or territory of origin.

77.4(3) Species of live animals appearing on the state list of endangered and threatened species may be imported, exported, possessed, purchased, bartered, offered for sale, or sold under the terms of a scientific collecting permit or educational project permit issued pursuant to Iowa Code section 481A.6 and administrative rules adopted by the department.

77.4(4) Plants, seeds, roots, and other parts of plants which appear on the state list of endangered and threatened plants which were lawfully taken or purchased in another state, country or territory may be imported, exported, purchased, possessed, offered for sale or sold in this state.

77.4(5) A part or product of a species of fish or wildlife appearing on the state list of endangered or threatened species which enters the state from another state or from a point outside the territorial limits of the United States may enter, be transported, exported, possessed, sold, offered for sale, held for processing or processed in accordance with the terms of a permit issued by the agency of jurisdiction in the state of origin or, if entering from outside the United States, a federal permit issued by the United States government. If proper documentation is available, a person may buy or offer to buy a part or product of a species of fish or wildlife appearing on the state or federal lists as long as it is imported from a legal source outside this state and proper documentation is provided.

77.4(6) If a person possesses a species of fish or wildlife or a part, product or offspring of such a species, proper documentation such as receipt of purchase and the permit from the state of origin or the U.S. government must be presented upon request of any conservation officer. Failure to produce such documentation is a violation of this chapter and will constitute grounds for forfeiture to the Iowa DNR.

77.4(7) A species of plant, fish or wildlife appearing on the state list of endangered and threatened species may be collected, held, salvaged and possessed under the terms of a scientific collecting permit issued pursuant to Iowa Code section 481A.6 and administrative rules adopted by the department.

77.4(8) Drainage district repairs and improvements to existing open ditch facilities are excluded from the department's protection efforts for the Topeka shiner. This includes facilities of levee and drainage districts established and maintained under Iowa Code chapter 468. This exclusion does not apply to new channelization, deepening, or leveeing of existing streams and rivers with permanent flow or existing streams with off-channel water areas capable of supporting fish.

77.4(9) The department may enter into an agreement with a private landowner for habitat improvements that benefit endangered and threatened species while limiting the potential impacts to the landowner arising when a covered species becomes more numerous due to the voluntary improvements to the habitat. If any covered species becomes more numerous as a result of the landowner's voluntary actions, a private landowner who commits to implement voluntary conservation measures for a listed species will not be required to implement additional measures, and additional land, water, or resource use restrictions will not be imposed.

a. The department will provide participating landowners with technical assistance to develop landowner incentive program agreements. Each agreement shall include the following:

1. Landowner's name.
2. Legal description of the property covered by the agreement.
3. Length of agreement period.
4. Species covered by the agreement.
5. Baseline conditions: the estimated number of listed species and the size and condition of habitat for each species covered.
6. Conservation measures to be implemented and implementation schedule.
7. Financial commitment of the department and the landowner.
8. Measures to determine if the agreement has been fulfilled.
9. Any property use restrictions.
10. Terms for the termination of the agreement prior to its scheduled expiration.

b. The landowner, through normal lawful activities, may return the property to the baseline or a mutually agreed-upon condition above the baseline at any time after expiration of the landowner incentive program agreement.

This rule is intended to implement Iowa Code chapter 481B.

[Filed 8/31/77, Notice 7/27/77—published 9/21/77, effective 10/26/77]

[Filed 11/2/84, Notice 8/1/84—published 11/21/84, effective 1/1/85]

[Filed without Notice 12/12/86—published 12/31/86, effective 2/4/87]

[Filed 11/10/88, Notice 8/24/88—published 11/30/88, effective 1/4/89]

[Filed 2/11/94, Notice 10/27/93—published 3/2/94, effective 4/6/94]

[Filed 12/10/99, Notice 6/2/99—published 12/29/99, effective 2/2/00]

[Filed 12/19/01, Notice 10/31/01—published 1/9/02, effective 2/13/02]

[Filed 11/19/03, Notice 9/3/03—published 12/10/03, effective 1/14/04]

[Filed 5/20/04, Notice 3/31/04—published 6/9/04, effective 7/14/04]

[Filed ARC 8105B (Notice ARC 7856B, IAB 6/17/09), IAB 9/9/09, effective 10/14/09]