STATEMENT OF NEED AND REASONABLENESS

In the Matter of
Proposed Amendment of Minnesota Rules, Chapter 6134:
Endangered and Threatened Species

STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND WILDLIFE

December 4, 1995

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General Statement

Introduction

Minnesota's List of Endangered, Threatened, and Special Concern Species was created in 1984 and has remain unchanged since. The List, created under Minnesota's Endangered and Threatened Species Statute, draws attention to species that are at greatest risk of extinction within the state; special regulations are applied to those listed as endangered or threatened. By alerting resource managers and the public to species in jeopardy, activities can be reviewed and prioritized to help preserve the diversity and abundance of Minnesota's flora and fauna. Because of the importance of this List in influencing resource use and management activities in Minnesota, it is critical that it reflect the most current information regarding the distribution, abundance, and security of species within the state. In this document, the Department of Natural Resources (DNR) describes and explains the changes it proposes to make to the status of 299 mammals, birds, reptiles and amphibians, fishes, mollusks, jumping spiders, butterflies and moths, caddisflies, tiger beetles, leafhoppers, dragonflies, vascular plants, lichens, and fungi.

History of Minnesota's Endangered and Threatened Species Statute

Minnesota law pertaining to endangered species dates back to Laws of Minnesota 1971, Ch. 825, which listed several animal species as endangered, and granted authority to the DNR's commissioner to add or delete animals by rule. Laws of Minnesota 1974, Ch. 465 added a threatened category to the statute and dropped the listing of specific species in statute. Laws of Minnesota 1981, Ch. 285 added the special concern category to the statute, and added plants to the statute's protection. The statute, entitled *Protection of Threatened and Endangered Species* was codified into its current form (Minn. Stat., sec. 84.0895) in 1986 (Laws of Minnesota 1986, Ch. 386, art. 4, s. 9), and has not been amended since then. Responsibility for administration of this statute is delegated by the DNR commissioner to the DNR's Section of Wildlife.

Content of Minnesota's Endangered and Threatened Species Statute and Associated Rule

Minnesota's Endangered and Threatened Species Statute provides protection to species at risk of extinction within Minnesota, and reflects the Legislature's intent that the DNR manage these species in such a way as to prevent their extinction and restore their viability within the bounds of the state, and thus maintain all elements of the state's native flora and fauna. The statute identifies those activities from which an endangered species is protected ("... a person may not take, import, transport, or sell any portion of an endangered species...") (Minn. Stat., sec. 84.0895, subd. 1), specifies that violation of this prohibition is a misdemeanor (Minn. Stat., sec. 84.0895, subd. 9), and authorizes peace officers or conservation officers to enforce the statute (Minn. Stat., secs. 84.0894 and 84.0895, subd. 6). It authorizes the DNR commissioner to conduct studies to support species conservation (Minn. Stat., sec. 84.0895, subd. 4), to develop programs, orders, and rules to recover species from threatened or endangered status (Minn. Stat., sec. 84.0895, subd. 5), and to designate species as endangered, threatened, or of special concern (Minn. Stat., sec. 84.0895, subd. 3, see below). While the statute provides protection from prohibited acts to all endangered or threatened species, species of special concern receive no such protection.

The statute also provides exemptions from its stated prohibitions for: 1) plants on land classified for property tax purposes as class 2a or 2b agricultural land, or on ditches and roadways; 2) noxious weeds designated as such under statute or weeds otherwise designated as troublesome by the Department of Agriculture; 3) noxious weed control; 4) the application of pesticides or other agricultural chemicals on land adjacent to class 3 or 3b agricultural land; and 5) the accidental taking of endangered and threatened plants where the existence of the plant is not known at the time of the taking (Minn. Stat., sec. 84.0895, subd. 2). It also provides for the capture or destruction of a protected species, without permit, to avoid an immediate and demonstrable threat to human life or property (Minn. Stat., sec. 84.0895, subd. 7(c)).

Further, the statute authorizes the DNR commissioner to issue permits allowing the prohibited acts if: 1) the act is for purposes of zoological, educational, or scientific study; 2) the act enhances the propagation or survival of the affected species; 3) the act prevents injury to persons or property (provided that all alternatives, including live trapping and transplantation, have been evaluated and rejected); or 4) the social and economic benefits of the act outweigh the harm caused by it (Minn. Stat., sec. 84.0895, subd. 7). The statute also authorizes the DNR commissioner to prescribe conditions to propagate a species or subspecies (Minn. Stat., sec. 84.0895, subd. 7(b)), and allows the commissioner to issue permits for forest management (Minn. Stat., sec. 84.0895, subd. 7(d)). Finally, the statute specifies that it does not apply retroactively to, or prohibit importation into the state of species (or their parts) that are legally acquired from elsewhere (Minn. Stat., sec. 84.0895, subd. 8).

Rules governing permits for the taking, possession, and disposition of endangered species were first promulgated in 1974 (Commissioners Order No. 1901; July 31, 1974). These were substantially expanded in 1985, and extended protection and permit requirements to threatened species as well (Commissioners Order No. 2204; May 30, 1985). The provisions of Commissioners Order No. 2204 were codified into rule in 1993 (18 S.R. 83; July 12, 1993), and are found at Minn. Rules, parts 6212.1800-2300. The permit scheme, including the application process, appropriate applicants, limits on possession of specimens or their offspring, reporting, and expiration or cancellation of permits is detailed in Minn. Rules, part 6212.1800. Permitting for the rehabilitation of living specimens, possession of previously acquired specimens or specimens acquired as a result of emergency taking, and other activities otherwise prohibited is detailed in Minn. Rules, parts 6212.1900-.2300. Note that Minn. Rules, parts 6212.1800-.2300 are not the subject of this rulemaking.

History of Minnesota's List of Endangered, Threatened, and Special Concern Species

The authority to designate state endangered animals by rulemaking was first given to the DNR commissioner in Laws of Minnesota 1971, Ch. 825, but this authority was never exercised. However, this law listed several species as endangered, and provided that an "endangered" designation by the Secretary of the Interior (pursuant to federal endangered species law) would be prima facie evidence for a state designation by the commissioner. The category of threatened animals was added to the authority to designate species in Laws of Minnesota 1974, Ch. 465. The 1974 amendment reaffirmed the DNR commissioner's authority to designate state endangered and threatened animals, and dropped the statutory list of species created in 1971, but provided that "...until the commissioner adopts such a regulation, those species designated as endangered by Section 4(c)(3) of the Endangered Species Act of 1973 (Public Law 93-205) at the time of enactment thereof shall be considered endangered within the meaning of this section."

The special concern category was added to the statute in 1981, as was the application of all three categories to plants (Laws of Minnesota 1981, Ch. 285). The 1981 amendment once again directed the DNR commissioner to promulgate by rule a state List, required the convening of a voluntary Technical Advisory Committee to assist in developing the List, and specified that the List be promulgated by January 1, 1984. The 1981 amendment also provided that this committee would terminate upon adoption of the resulting rule, but in no event later than January 1, 1984. As a

result, the advisory committee provision is not a part of the current statute. Minnesota's List of Endangered, Threatened, and Special Concern Species was adopted on March 5, 1984. This List is currently codified as Minn. Rules, Ch. 6134 ("*Department of Natural Resources, Endangered and Threatened Species*"). Promulgation of this List subsequently resulted in the legislature deleting the language incorporating the federal list into Minnesota law (Laws of Minnesota 1986, Ch. 386).

The 1981 amendment also added the requirement that "The commissioner shall reevaluate the designated species list every three years after it is first adopted and make appropriate changes." (Minn. Stat., sec. 84.0895, subd. 3(c)) In 1987, the DNR published a notice in the State Register stating (in part) that Athe 1984 list remains an accurate statement of the status of Minnesota's native fauna and flora and therefore the current list will remain in effect through 1990." (12 S.R. 1266, December 21, 1987) The current process of revising Minnesota's List of Endangered, Threatened, and Special Concern Species began in late 1990.

Revision of Minnesota's List of Endangered, Threatened, and Special Concern Species

The staff of the DNR's Section of Wildlife began the current process of revising Minnesota's List of Endangered, Threatened, and Special Concern Species by reviewing available scientific literature for new insights into the evaluation of a species' vulnerability to extinction. This is a rapidly developing field, and a large amount of peer-reviewed literature had been published on the subject since 1983. The staff also contacted colleagues in other states to evaluate the range of public and group processes that might be employed in revising the List. Through discussions with DNR staff experienced in process design and rulemaking, the list revision process began to take final form in early 1992. Design of the list revision process was not completed until June, 1993 (Appendix A).

The next step in the list revision process began in July, 1993 with the formation of seven review teams of technical experts to ensure that the highest-quality assistance would be available to DNR staff in evaluating the available information and in developing proposed revisions to the lists of mammals, birds, reptiles and amphibians, fishes, mollusks, butterflies and moths, and vascular plants. Membership in these teams drew widely from the state's scientific and resource management community (Appendix B). Unlike the Technical Committee that was appointed in 1981 as required by statute, these review teams assisted the DNR staff without compensation, included individuals from both within and outside the DNR, and operated in a consultative capacity only.

In addition to the seven relatively well-studied groups of species listed above, seven other groups of species for which recent information was available (jumping spiders, caddisflies, tiger beetles, leafhoppers, dragonflies, lichens, and fungi) were also considered in the list revision. In these cases, however, only one technical expert per group was available to provide consultation to DNR staff, and so no review teams were formed.

During this period, the DNR also solicited recommendations for changes to the List from persons within and outside the DNR. A Recommendation Form (Appendix C) was developed for this purpose, and in November, 1993 was mailed to 546 individuals and organizations thought to be possible sources of biological information on the distribution, abundance, and security of the state's plant and animals species. This mailing list was compiled from various in-house mailing lists developed over many years to contact individuals and organizations within Minnesota regarding research grants, research publications, and requests for information.

Simultaneous with the mailing of the Recommendation Form, the DNR published a Notice of Solicitation of Outside Information or Opinions regarding the list revision on December 13, 1993 (18 S.R. 1479). This Notice was also mailed to all persons and organizations who are registered with the DNR for the purpose of receiving notices of rulemaking proceedings. In response to these requests, 91 persons submitted 382 written recommendations regarding the

status of 221 species. The majority of these submissions were clearly responses to the mailing, since most used the Recommendation Form to provide their comments. Responses to the Recommendation Form mailing and the Notice of Solicitation were used to identify species needing evaluation by DNR staff for a possible change in designation.

The review teams met between July, 1993 and June, 1994, and evaluated the status of a total of 528 (16.5%) of Minnesota's approximately 3,200 species (Appendix D). These 528 species included the 287 species currently designated as endangered, threatened, or of special concern, the 221 species recommended for consideration by the public, and a number of species recommended for consideration by review team members or other DNR staff. The list revision coordinator (Richard Baker, DNR Section of Wildlife) participated in and chaired each of these teams (or met one-on-one with the sole technical expert) to insure consistency in the species evaluation process. For each team (or for one-on-one meetings), the evaluation process involved reviewing all available information and recommendations prior to the meeting, focusing discussion by assessing the species' vulnerability to each of ten extinction factors described on the Recommendation Form (Appendix C), and utilizing professional judgment to evaluate whether or not the species met the statutory definitions of "endangered," "threatened," or "of special concern" (Minn. Stat., sec. 84.0895, subd. 3).

The standard for species designation is provided by Minn. Stat., sec. 84.0895, subds. 3(a) and 3(b):

> "Subd. 3. Designation. (a) The commissioner shall adopt rules under chapter 14, to designate species of wild animal or plant as:
> (1) endangered, if the species is threatened with extinction throughout all or a significant portion of its range;
> (2) threatened, if the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range; or
> (3) species of special concern, if although the species is not endangered or threatened, it is extremely uncommon in this state, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations.
> (b) The range of the species in this state is a factor in determining its status as endangered, threatened, or of special concern. A designation by the secretary of the interior that a species is threatened or endangered is a prima facie showing under this section."

In applying this statutory standard, two assumptions were made to reinforce the Legislature's intent that the DNR prevent the extinction and restore the viability of species within the bounds of the state, and thus maintain all elements of the state's native flora and fauna.

1) The phrase "species of wild animal or plant" refers only to species that are believed to reproduce within the state at present, and thus only these species are considered to be eligible for designation as endangered, threatened, or of special concern. Given the limited financial resources of the DNR for use in funding research and management of listed species, this assumption allows the DNR to focus on those species for which there is some evidence of the potential for population viability and species recovery. Without this assumption, the species evaluation process would have had to consider any accidental or vagrant species that has been observed, however infrequently, in the state.

2) The use of the word "range" within the phrase "all or a significant portion of its range" refers to a species' range within this state, given that the state's jurisdiction is limited to the territory within the state's boundaries. This interpretation is supported by the sentence "The range of the species in this state is a factor in determining its status as endangered, threatened or of special concern." (Minn. Stat., sec. 84.0895, subd. 3(b)). In keeping with this statutory language, whether a species is more or less common outside the state than it is within the state was considered to be of only minor significance in the species evaluation process. Thus, whether Minnesota's population of a species was peripheral, central, or otherwise related to the species' continental range was also considered to be of only minor significance in the species evaluation process. In fact, due to Minnesota's location at the intersection of three major continental biomes (prairie, boreal forest, deciduous forest), the vast majority of the state's species are at the periphery of their range, but this may or may not affect whether a species is at risk of extinction in the state.

At the completion of the DNR's consultation with the review team and individual experts, the review teams were disbanded. DNR staff then began developing proposed changes to Minn. Rules, Ch. 6134, and devoted several months to revising these proposals. Following the finalization of proposed revisions by the DNR, comments on these proposals were solicited through a mailing sent to 696 individuals and organizations within and outside the DNR in November, 1994. This mailing list was a combination of the November, 1993 mailing list, additional persons from whom recommendations, comments, or inquiries had been received, and others identified as possibly interested in the list revision process. In response to this request, 104 persons submitted 318 written comments regarding proposed revisions to the status of 145 species.

Due to changes in Minn. Stat., Ch. 14 (*Administrative Procedures Act*), the DNR published a second Notice of Solicitation of Outside Information or Opinions regarding the list revision on July 10, 1995 (20 S.R. 48). This Notice explained that responses submitted to the December, 1993 Notice would remain a part of the rulemaking record. As before, this Notice was also mailed to all persons and organizations who are registered with the DNR for the purpose of receiving notices of rulemaking proceedings. No comments were received by the DNR in response to this Notice.

Following the DNR's evaluation of written comments received in response to the November, 1994 mailing, 36 amendments were made to the proposed revisions, and a final set of 299 proposed revisions to the state List was finalized in November, 1995. It is this set of proposed revisions to the List that constitute the proposed amendment to Minn. Rules, Ch. 6134 presented in this Statement of Need and Reasonableness.

Statutory Authority

Minn. Stat., sec. 84.0895, subd. 3(a), authorizes and mandates the Commissioner of Natural Resources to adopt rules under Minn. Stat., Ch. 14 to designate species of wild animals or plants as endangered, threatened, or of special concern.

Small Business Considerations

Minn. Stat., sec. 14.115, requires state agencies to consider the effect on small businesses when they adopt rules. The proposed amendments to Minn. Rules, Ch. 6134 will have impact only on small businesses engaging in the prohibited acts of taking, import, transport, sale, purchase, disposal, or possession of any portion of an endangered or threatened species. Such businesses may be asked to enter into consultation with the DNR to modify their activities to avoid the taking of an endangered or threatened species, may be required to apply for a permit to continue these activities, and may be prohibited from conducting these activities. The possibility of such impacts was published previously in the Notice of Solicitation of Outside Information or Opinions dated July 10, 1995 (20 S.R. 48).

Small businesses that may be affected by the proposed rule may include the following:

* taxidermists, craftspersons, and others who may use protected species or their parts in their activities,

* pet dealers who may engage in the collection and/or sale of protected species (e.g., timber rattlesnake, *Crotalus horridus*) within the state,

* aquaculturists who may raise paddlefish, *Polyodon spathula*, for commercial sale within the state,

* commercial freshwater mussel harvesters who may operate within the range of threatened or endangered mussels and use methods that tend to take these species.

The following factors considerably reduce the impact of the proposed rule on small businesses:

* There are no prohibitions pertaining to special concern species in the Endangered and Threatened Species Act, or in the applicable rules (Minn. Rules, parts 6212.1800-.2300).

* The Endangered and Threatened Species Act only prohibits acts which affect individuals of species listed as endangered or threatened, and does not protect the habitat of those protected species.

* Substantial exemptions are provided in the Endangered and Threatened Species Act (Minn. Stat., sec. 84.0895, subd. 7), including exemptions from prohibited acts for otherwise protected plants that exist on agricultural land or adjacent land.

* The commissioner has broad authority to issue permits allowing acts otherwise prohibited (Minn. Stat., sec. 84.0895, subd. 7; Minn. Rules, parts 6212.1800-.2300).

A species is designated as endangered or threatened, and thus receives protection from prohibited acts, only if information is available to support the conclusion that the species' status meets the statutory definition of one of these designations. The DNR has been cautious and conservative in assigning these designations to species. Further, the DNR has considered specific methods for reducing the impact of the proposed rule on small businesses, and has reached the following conclusions:

a. Less stringent requirements. Compliance requirements (i.e., prohibitions and enforcement) related to the amended rule are written into statute and Minn. Rules, parts 6212.1800-.2300, and are not affected by this rulemaking. The statute provides for flexibility in enforcement of the statute through the exemptions and authorized permitting included therein, and in Minn. Rules, parts 6212.1800-.2300. There are no reporting requirements within the proposed rule.

b. Less stringent schedules. There are no schedules or deadlines for compliance or reporting requirements within the proposed rule.

c. Consolidation or simplification of requirements. Compliance requirements (i.e., prohibitions and enforcement) related to the amended rule are written into statute (Minn. Stat., sec. 84.0895, subd. 1) and Minn. Rules, parts 6212.1800-.2300, and are not affected by this rulemaking. The statute provides for flexibility in enforcement of the statute through the exemptions and authorized permitting included therein and in Minn. Rules, parts 6212.1800-.2300. There are no reporting requirements within the proposed rule.

d. Performance standards. There are no performance standards, design standards, or operational standards within the proposed rule.

e. Exemption. Exemptions related to the proposed rule are written into statute and are not affected by this rulemaking. However, the statute (Minn. Stat., sec. 84.0895, subds. 2, 5, and 7) and associated rule (Minn. Rules, parts 6212.1800-.2300) provide for a wide variety of exemptions and for permitting, any of which may provide remedies to the possible impacts identified above for any particular business activity. This would be handled on a case-by-case basis through the permitting process.

Departmental Charges Imposed by the Rules

Minn. Stat., sec. 16A.1285, does not apply because the proposed rule does not establish or adjust charges for goods and services, licenses, or regulation.

Fiscal Impact

Minn. Stat., sec. 14.11, subd. 1, does not apply because adoption of the proposed rules will not result in additional spending by local public bodies in excess of $100,000 per year for the first two years following adoption of the proposed rules.

Agricultural Land Impact

Neither Minn. Stat., sec. 14.11, subd. 2 (1994) nor sec. 14.111 (1995) apply because adoption of this proposed rule will not have an impact on agricultural land or farming operations. Note the following:

* There are no prohibitions pertaining to special concern species in the Endangered and Threatened Species Act, or in the applicable rules (Minn. Rules, parts 6212.1800-.2300).

* The Endangered and Threatened Species Act only prohibits acts which affect individuals of species listed as endangered or threatened, and does not protect the habitat of those protected species.

* Substantial exemptions are provided in the Endangered and Threatened Species Act (Minn. Stat., sec. 84.0895, subd. 7), including exemptions from prohibited acts for otherwise protected plants that exist on agricultural land or adjacent land.

* The commissioner has broad authority to issue permits allowing acts otherwise prohibited (Minn. Stat., sec. 84.0895, subd. 7; Minn. Rules, parts 6212.1800-.2300).

Witnesses

If these rules go to public hearing, the witnesses listed below may testify on behalf of the DNR, as necessary, in support of the need for and reasonableness of the rules. If these witnesses are needed to testify, they will be available to answer questions about the development and the content of the rules. The witnesses for the Department of Natural Resources include:

Richard Baker, Zoologist
William Berg, Zoologist
Robert Dana, Entomologist
Michael Davis, Zoologist
Michael DonCarlos, Zoologist
Henry Drewes, Zoologist
Bonita Eliason, Zoologist
Carol Hall, Zoologist
Steven Hirsch, Zoologist
Gerda Nordquist, Zoologist
Lee Pfannmuller, Zoologist
Nancy Sather, Botanist
Welby Smith, Botanist
Minnesota Department of Natural Resources
500 Lafayette Rd.
St. Paul, MN 55155-4007
612-296-3344

Any other employee of the Minnesota Department of Natural Resources.

Elmer Birney, Zoologist, University of Minnesota
Donald Christian, Zoologist, University of Minnesota
Todd Fuller, Zoologist, University of Massachusetts
Janet Green, Zoologist, Duluth, Minnesota
Jay Hatch, Zoologist, University of Minnesota
Ralph Holzenthal, Entomologist, University of Minnesota

Daniel Keyler, Zoologist, Hennepin County Medical Center
David McLaughlin, Botanist, University of Minnesota
David Mech, Zoologist, U.S. Fish and Wildlife Service
Wayne Ostlie, Zoologist, The Nature Conservancy, Minnesota
William Paul, Zoologist, U.S. Dept. of Agriculture
James Underhill, Zoologist, University of Minnesota
Clifford Wetmore, Botanist, University of Minnesota

Rule-By-Rule Analysis

Changes in Minn. Rules, Ch. 6134 are necessary because the DNR is required by law to periodically assess the status of all species of wild animals and plants in the state, and to adjust that status to insure the continued presence of those species within the state. The need and reasonableness of each proposed change in status of a species is set forth in the Species Status Sheets that follow. Each Species Status Sheet identifies the species the status of which is proposed to change, the current and proposed status, and the basis for the proposed status. Selected references are also provided. The Species Status Sheets are organized by taxonomic group in the order they occur within the parts and subparts of Minn. Rules, Ch. 6134 (mammals, birds, reptiles and amphibians, fishes, mollusks, jumping spiders, butterflies and moths, caddisflies, tiger beetles, leafhoppers, dragonflies, vascular plants, lichens, and fungi). Within each taxonomic group, however, the Species Status Sheets are organized alphabetically by scientific name (rather than by proposed status) to facilitate the location of the status sheet for a particular species. A summary list of these species, and the page on which each taxonomic group begins, precedes the Species Status Sheets.

To avoid any ambiguity regarding the particular taxonomic entity to which a status is being applied, each subpart in the proposed rule either identifies an authoritative reference which can be consulted, or provides the name of the author responsible for the scientific name of each species. Because species taxonomy is a dynamic science that regularly applies new insights into the relationships among species, the scientific names of 41 currently-listed species are being changed in this proposed amendment to Minn. Rules, Ch. 6134. A change in the scientific name of a taxon may reflect either a combining of two previously-recognized taxonomic entities into one taxon, the splitting of a single previously-recognized taxonomic entity into two or more taxa, or the reorganization of the relationships among taxa with no combining or splitting involved. In each case included in this amendment, the DNR has sought to reflect the most recent and most sophisticated understanding of these relationships in the scientific names used.

In the ten cases where both a change in status and a change in scientific name is applied to one species, both the old name (as currently included in Minn. Rules, Ch. 6134) and the new name is provided on the Species Status Sheet. In these cases, the Species Status Sheet can be found alphabetically by the "old" scientific name (that which is currently in Minn. Rules, Ch. 6134). A list of those 31 species for which a change in scientific name is not accompanied by a change in status (and thus no Species Status Sheet is provided) follows.

CHANGES IN SCIENTIFIC NAMES
NOT ACCOMPANIED BY A PROPOSED CHANGE IN STATUS

Old Name	New Name	Status
	Birds	
Ammospiza caudacutus	*Ammodramus caudacutus*	SC
	Reptiles and Amphibians	
Emydoidea blandingi	*Emydoidea blandingii*	T
Pituophis melanoleucus	*Pituophis catenifer*	SC
	Fishes	
Hybopsis x-punctata	*Erimystax x-punctata*	SC
	Butterflies and Moths	
Hesperia assiniboia	*Hesperia comma assiniboia*	E
Oarisma powesheik	*Oarisma poweshiek*	SC
	Vascular Plants	
Antennaria aprica	*Antennaria parvifolia*	SC
Arenaria macrophylla	*Moeringia macrophylla*	T
Arenaria dawsonensis	*Minuartia dawsonensis*	SC
Aristida longiseta	*Aristida purpurea* var. *longiseta*	SC
Arnica chionopappa	*Arnica lonchophylla*	T
Baptisia leucophaea	*Baptisia bracteata* var. *leucophaea*	SC
Cacalia tuberosa	*Arnoglossum plantagineum*	T
Carex scirpiformis	*Carex scirpoidea*	SC
Eleocharis pauciflora	*Eleocharis quinqueflora*	SC
Empetrum atropurpureum	*Empetrum eamesii*	E
Gerardia auriculata	*Agalinis auriculata*	E
Haplopappus spinulosus	*Machaeranthera pinnatifida*	SC
Lycopodium porophilum	*Huperzia porophila*	T
Lygodesmia rostrata	*Shinnersoseris rostrata*	T
Nymphaea tetragona	*Nymphaea leibergii*	T
Opuntia humifusa	*Opuntia macrorhiza*	SC
Osmorhiza chilensis	*Osmorhiza berteroi*	E
Panax quinquefolium	*Panax quinquefolius*	SC
Platanthera leucophaea	*Platanthera praeclara*	E
Polystichum braunii var. *purshii*	*Polystichum braunii*	E
Saxafraga aizoon var. *neogaea*	*Saxafraga paniculata*	T
Saxafraga cernua var. *latibracteata*	*Saxafraga cernua*	E
Sedum rosea var. *leedyi*	*Sedum integrifolium* ssp. *leedyi*	E
Vaccinium uliginosum var. *alpinum*	*Vaccinium uliginosum*	T
Valeriana edulis ssp. ciliata	*Valeriana edulis* var. *ciliata*	T

SUMMARY OF SPECIES FOR WHICH A CHANGE IN STATUS IS PROPOSED AND A STATUS SHEET IS PROVIDED

Notations Used
E - Endangered
T - Threatened
SC - Special Concern
N - No Status
N (X) - No Status, and probably extirpated from Minnesota
* - Change in scientific name accompanies change in status

Common Name	Scientific Name	Current Status	Proposed Status
MAMMALS - PAGE 18			
Gray Wolf	*Canis lupus*	T	SC
Wolverine	*Gulo gulo*	SC	N (X)
Marten	*Martes americana*	SC	N
Rock Vole	*Microtus chrotorrhinus*	SC	N
Least Weasel	*Mustela nivalis*	N	SC
Mule Deer	*Odocoileus hemionus*	SC	N (X)
Plains Pocket Mouse	*Perognathus flavescens*	N	SC
Caribou	*Rangifer tarandus*	SC	N (X)
Smokey Shrew	*Sorex fumeus*	N	SC
Eastern Spotted Skunk	*Spilogale putorius*	SC	T
BIRDS - PAGE 29			
Henslow's Sparrow	*Ammodramus henslowii*	SC	E
Upland Sandpiper	*Bartramia longicauda*	SC	N
American Bittern	*Botaurus lentiginosus*	SC	N
Trumpeter Swan	*Cygnus buccinator*	N (X)	T
Cerulean Warbler	*Dendroica cerulea*	N	SC
Acadian Flycatcher	*Empidonax virescens*	N	SC
Peregrine Falcon	*Falco peregrinus*	E	T
Sandhill Crane	*Grus canadensis*	SC	N
* Bald Eagle	*Haliaetus leucocephalus*	T	SC
Franklin's Gull	*Larus pipixcan*	N	SC
Osprey	*Pandion haliaetus*	SC	N
Wilson's Phalarope	*Phalaropus tricolor*	SC	T
Horned Grebe	*Podiceps auritus*	SC	T
King Rail	*Rallus elegans*	SC	E
Common Tern	*Sterna hirundo*	SC	T
Hooded Warbler	*Wilsonia citrina*	N	SC

Common Name	Scientific Name	Current Status	Proposed Status
REPTILES AND AMPHIBIANS - PAGE 46			
Northern Cricket Frog	*Acris crepitans*	SC	E
Smooth Softshell	*Apalone mutica*	N	SC
Timber Rattlesnake	*Crotalus horridus*	SC	T
Fox Snake	*Elaphe vulpina*	SC	N
Five-lined Skink	*Eumeces fasciatus*	E	SC
Four-toed Salamander	*Hemidactylium scutatum*	N	SC
Eastern Hognose Snake	*Heterodon platyrhinos*	SC	N
Milk Snake	*Lampropeltis triangulum*	SC	N
Bullfrog	*Rana catesbeiana*	SC	N
Pickerel Frog	*Rana palustris*	SC	N
Massasauga	*Sistrurus catenatus*	SC	E
FISHES - PAGE 58			
Skipjack Herring	*Alosa chrysochloris*	N	SC
Pirate Perch	*Aphredoderus sayanus*	N	SC
Kiyi	*Coregonus kiyi*	N	SC
Shortjaw Cisco	*Coregonus zenithicus*	N	SC
Bluntnose Darter	*Etheostoma chlorosomum*	SC	N (X)
Least Darter	*Etheostoma microperca*	N	SC
Northern Brook Lamprey	*Ichthyomyzon fossor*	N	SC
Southern Brook Lamprey	*Ichthyomyzon gagei*	N	SC
Blue Catfish	*Ictalurus furcatus*	SC	N
Black Buffalo	*Ictiobus niger*	N	SC
American Brook Lamprey	*Lampetra appendix*	SC	N
Black Redhorse	*Moxostoma duquesnei*	SC	N
Pugnose Shiner	*Notropis anogenus*	N	SC
Pugnose Minnow	*Notropis emilae*	SC	N
Ozark Minnow	*Notropis nubilus*	N	SC
Gilt Darter	*Percina evides*	N	SC
Paddlefish	*Polyodon spathula*	SC	T
Shovelnose Sturgeon	*Scaphirhynchus platorynchus*	SC	N
MOLLUSKS - PAGE 77			
Mucket	*Actinonaias ligamentina*	N	T
Elktoe	*Alasmidonta marginata*	N	T
Rock Pocketbook	*Arcidens confragosus*	N	E
Spectaclecase	*Cumberlandia monodonta*	N	T
Purple Wartyback	*Cyclonaias tuberculata*	N	T
Butterfly	*Ellipsaria lineolata*	N	T
Elephant-Ear	*Elliptio crassidens*	SC	E
Spike	*Elliptio dilatata*	N	SC
Snuffbox	*Epioblasma triquetra*	N	T
Ebonyshell	*Fusconaia ebena*	SC	E
Yellow Sandshell	*Lampsilis teres*	N	E
Creek Heelsplitter	*Lasmigona compressa*	N	SC
Fluted Shell	*Lasmigona costata*	N	SC
Black Sandshell	*Ligumia recta*	N	SC
Washboard	*Megalonaias nervosa*	N	T
Minnesota Pleistocene Ambersnail	*Novasuccinea* n. sp. Minnesota A	N	T

Common Name	Scientific Name	Current Status	Proposed Status
MOLLUSKS (cont.)			
Iowa Pleistocene Ambersnail	*Novasuccinea* n. sp. Minnesota B	N	E
Hickorynut	*Obovaria olivaria*	N	SC
Sheepnose	*Plethobasus cyphyus*	N	E
Round Pigtoe	*Pleurobema coccinium*	N	T
Fat Pocketbook	*Proptera capax*	E	N (X)
Winged Mapleleaf	*Quadrula fragosa*	N	E
Monkeyface	*Quadrula metanevra*	N	T
Wartyback	*Quadrula nodulata*	N	E
Salamander	*Simpsonaias ambigua*	N	T
Pistolgrip	*Tritigonia verrucosa*	N	T
Ellipse	*Venustaconcha ellipsiformis*	N	T
Midwest Pleistocene Vertigo	*Vertigo hubrichti hubrichti*	N	E
Variable Pleistocene Vertigo	*Vertigo hubrichti variabilis*	N	T
Bluff Vertigo	*Vertigo meramecensis*	N	T
JUMPING SPIDERS - PAGE 108			
A Species of Jumping Spider	*Habronattus texanus*	N	SC
A Species of Jumping Spider	*Marpissa grata*	N	SC
A Species of Jumping Spider	*Metaphidippus arizonensis*	N	SC
A Species of Jumping Spider	*Paradamoetas fontana*	N	SC
A Species of Jumping Spider	*Phidippus apacheanus*	N	SC
A Species of Jumping Spider	*Phidippus pius*	N	SC
A Species of Jumping Spider	*Sassacus papenhoei*	N	SC
A Species of Jumping Spider	*Tutelina formicaria*	N	SC
BUTTERFLIES AND MOTHS - PAGE 117			
Arogos Skipper	*Atrytone arogos*	N	SC
Freija Fritillary	*Clossiana freija*	SC	N
Frigga Fritillary	*Clossiana frigga saga*	SC	N
Dorcas Copper	*Epidemia dorcas dorcas*	SC	N
Bog Copper	*Epidemia epixanthe michiganensis*	SC	N
Red-disked Alpine	*Erebia discoidalis discoidalis*	SC	N
Persius Dusky Wing	*Erynnis persius*	N	E
Leonardus Skipper	*Hesperia leonardus*	N	SC
Nabokov's Blue	*Lycaeides idas nabokovi*	N	SC
* Karner Blue	*Lycaeides samuelis*	T	E
Garita Skipper	*Oarisma garita*	N	T
Jutta Arctic	*Oeneis jutta ascerta*	SC	N
Bog Fritillary	*Proclossiana eunomia dawsoni*	SC	N
Grizzled Skipper	*Pyrgus centaureae freija*	N	SC
Phlox Moth	*Schinia indiana*	N	SC
Regal Fritillary	*Speyeria idalia*	N	SC

Common Name	Scientific Name	Current Status	Proposed Status
CADDISFLIES - PAGE 134			
A Species of Caddisfly	*Agapetus tomus*	N	SC
A Species of Caddisfly	*Asynarchus rossi*	N	SC
A Species of Caddisfly	*Ceraclea brevis*	N	SC
A Species of Caddisfly	*Ceraclea vertreesi*	N	SC
Headwaters Chilostigman	*Chilostigma itascae*	N	E
A Species of Caddisfly	*Hydroptila metoeca*	N	SC
A Species of Caddisfly	*Hydroptila novicola*	N	SC
A Species of Caddisfly	*Hydroptila tortosa*	N	SC
A Species of Caddisfly	*Oxyethira ecornuta*	N	SC
A Species of Caddisfly	*Oxyethira itascae*	N	SC
A Species of Caddisfly	*Polycentropus milaca*	N	SC
A Species of Caddisfly	*Protoptila talola*	N	SC
A Species of Caddisfly	*Setodes guttatus*	N	SC
TIGER BEETLES - PAGE 148			
A Species of Tiger Beetle	*Cicindela denikei*	N	T
A Species of Tiger Beetle	*Cicindela fulgida fulgida*	N	E
A Species of Tiger Beetle	*Cicindela fulgida westbournei*	N	T
A Species of Tiger Beetle	*Cicindela hirticollis rhodensis*	N	SC
A Species of Tiger Beetle	*Cicindela lepida*	N	T
A Species of Tiger Beetle	*Cicindela limbata nympha*	N	E
A Species of Tiger Beetle	*Cicindela macra macra*	N	SC
A Species of Tiger Beetle	*Cicindela patruela patruela*	N	SC
A Species of Tiger Beetle	*Cicindela splendida cyanocephalata*	N	SC
LEAFHOPPERS - PAGE 158			
Red-Tailed Prairie Leafhopper	*Aflexia rubranura*	N	SC
DRAGONFLIES - PAGE 160			
Extra-striped Snaketail	*Ophiogomphus anomalis*	N	SC
St. Croix Snaketail	*Ophiogomphus susbehcha*	N	SC
VASCULAR PLANTS - PAGE 163			
Siberian Yarrow	*Achillea sibirica*	N	T
Wild Chives	*Allium schoenoprasum* var. *sibiricum*	SC	T
* Northern Androsace	*Androsace septentrionalis* ssp. *pulverulenta*	T	SC
Dragon's-Mouth	*Arethusa bulbosa*	SC	N
Ebony Spleenwort	*Asplenium platyneuron*	N	SC
Short's Aster	*Aster shortii*	N	T
Alpine Milk Vetch	*Astragalus alpinus*	N	E
Cooper’s Milk Vetch	*Astragalus neglectus*	SC	N
* Narrow-Leaved Spleenwort	*Athyrium pycnocarpon*	SC	T
Large False Foxglove	*Aureolaria pedicularia*	N	T
Wild False Indigo	*Baptisia alba*	N	SC

VASCULAR PLANTS (cont.)

Common Name	Scientific Name	Current Status	Proposed Status
Virginia Bartonia	*Bartonia virginica*	N	E
Kitten-Tails	*Besseya bullii*	E	T
Prairie Moonwort	*Botrychium campestre*	N	SC
Frenchman's Bluff Moonwort	*Botrychium gallicomontanum*	N	E
Lance-leaved Moonwort	*Botrychium lanceolatum*	N	T
Moonwort	*Botrychium lunaria*	SC	T
Mingan Moonwort	*Botrychium minganense*	N	SC
Blunt-lobed Grape Fern	*Botrychium oneidense*	N	E
Pale Moonwort	*Botrychium pallidum*	N	E
Ternate Grape Fern	*Botrychium rugulosum*	N	T
Least Moonwort	*Botrychium simplex*	N	SC
Marsh Reedgrass	*Calamagrostis lacustrus*	N	SC
Plains Reedgrass	*Calamagrostis montanensis*	N	SC
Purple Reedgrass	*Calamagrostis purpurascens*	N	SC
Water-Starwort	*Callitriche heterophylla*	N	SC
Floating Marsh-Marigold	*Caltha natans*	N	E
Carey's Sedge	*Carex careyana*	N	T
Raven's Foot Sedge	*Carex crus-corvi*	N	SC
Fescue Sedge	*Carex festucacea*	N	T
Yellow Sedge	*Carex flava*	N	SC
A Species of Sedge	*Carex formosa*	N	E
Garber's Sedge	*Carex garberi*	N	T
Hall's Sedge	*Carex hallii*	T	SC
A Species of Sedge	*Carex jamesii*	N	T
Mount Katahdin Sedge	*Carex katahdinensis*	N	T
Smooth-Sheathed Sedge	*Carex laevivaginata*	N	T
Spreading Sedge	*Carex laxiculmis*	SC	T
Michaux's Sedge	*Carex michauxiana*	N (PT)	SC
Pale Sedge	*Carex pallescens*	N	E
Plantain-Leaved Sedge	*Carex plantaginea*	N (PT)	E
Prairie Sedge	*Carex praticola*	T	SC
Species of Sedge	*Carex supina* var. *spaniocarpa*	N	SC
Cat-Tail Sedge	*Carex typhina*	N	SC
Dry Sedge	*Carex xerantica*	N	SC
Northern Painted-Cup	*Castilleja septentrionalis*	N	E
Buttonbush	*Cephalanthus occidentalis*	SC	N
Nuttall's Ground-Rose	*Chamaerhodos nuttallii*	SC	N
Missouri Spurge	*Chamaesyce missurica*	N (PT)	SC
Hairy Lip-Fern	*Cheilanthes lanosa*	N	E
Pigmyweed	*Crassula aquatica*	N	T
Douglas Thorn-Apple	*Crataegus douglasii*	N	T
Wild Parsley	*Cymopterus acaulis*	N	SC
Short-Pointed Umbrella-Sedge	*Cyperus acuminatus*	SC	T
Ram's-Head Lady's-Slipper	*Cypripedium arietinum*	E	T
White Prairie-Clover	*Dalea candida* var. *oligophylla*	N	SC
A Species of Tick-Trefoil	*Desmodium cuspidatum* var. *longifolium*	N	SC
Illinois Tick-Trefoil	*Desmodium illinoense*	T	N
Stemless Tick-Trefoil	*Desmodium nudiflorum*	N	SC
American Beakgrain	*Diarrhena americana* var. *obovata*	N	SC
Shooting Star	*Dodecatheon meadia*	SC	E
English Sundew	*Drosera anglica*	T	SC
Linear-Leaved Sundew	*Drosera linearis*	T	SC
Walter's Barnyard Grass	*Echinochloa walteri*	SC	N
Neat Spike-Rush	*Eleocharis nitida*	N	T

VASCULAR PLANTS (cont.)

Common Name	Scientific Name	Current Status	Proposed Status
A Species of Spike-Rush	*Eleocharis parvula*	N (PT)	SC
Black Crowberry	*Empetrum nigrum*	N	E
Upland Boneset	*Eupatorium sessilifolium*	N (PT)	T
Autumn Fimbristylis	*Fimbristylis autumnalis*	N	SC
Hairy Fimbristylis	*Fimbristylis puberula* var. *interior*	N	E
False Mermaid	*Floerkea proserpinacoides*	SC	T
Blanket-Flower	*Gaillardia aristata*	N	SC
Northern Comandra	*Geocaulon lividum*	SC	N
* Round-Stemmed False Foxglove	*Gerardia gattingeri*	T	E
Sea Milkwort	*Glaux maritima*	SC	E
Oat-Grass	*Helictotrichon hookeri*	N	SC
Mud Plantain	*Heteranthera limosa*	N (PT)	T
Beach-Heather	*Hudsonia tomentosa*	N	SC
Purple Rocket	*Iodanthus pinnatifidus*	N	E
Twinleaf	*Jeffersonia diphylla*	T	SC
Butternut	*Juglans cinerea*	N	SC
Marginated Rush	*Juncus marginatus*	N (PT)	SC
Creeping Juniper	*Juniperus horizontalis*	N	SC
Narrow-Leaved Pinweed	*Lechea tenuifolia*	N	E
Prairie Bush Clover	*Lespedeza leptostachya*	E	T
Auricled Twayblade	*Listera auriculata*	N	E
Broad-Lipped Twayblade	*Listera convallarioides*	N	SC
* American Shore-Plantain	*Littorella americana*	E	SC
Small-Flowered Woodrush	*Luzula parviflora* ssp. *melanocarpa*	N (PT)	SC
Whorled Loosestrife	*Lysimachia quadrifolia*	N	SC
White Malaxis	*Malaxis monophyllos* var. *brachypoda*	N	SC
* Ball Cactus	*Mamillaria vivipara*	T	E
Hairy Water Clover	*Marsilea vestita*	N	E
One Flowered Muhly	*Muhlenbergia uniflora*	N (PT)	SC
Mousetail	*Myosurus minimus*	SC	N
Slender Naiad	*Najas gracillima*	N	SC
Sea Naiad	*Najas marina*	N	SC
Glade Mallow	*Napaea dioica*	E	T
Blunt-Fruited Sweet Cicely	*Osmorhiza depauperata*	N (PT)	SC
A Species of Locoweed	*Oxytropis viscida*	N	E
Canadian Forked Chickweed	*Paronychia canadensis*	N	T
Forked Chickweed	*Paronychia fastigiata*	SC	E
Purple Cliff-Brake	*Pellaea atropurpurea*	T	SC
Wild Heliotrope	*Phacelia franklinii*	N (PT)	SC
Bog Bluegrass	*Poa paludigena*	E	T
Western Jacob's-Ladder	*Polemonium occidentale* ssp. *lacustre*	N	E
Halberd-Leaved Tearthumb	*Polygonum arifolium*	SC	N
Carey's Smartweed	*Polygonum careyi*	N	SC
Christmas Fern	*Polystichum acrostichoides*	SC	T
Prairie-Parsley	*Polytaenia nuttallii*	N	SC
A Species of Pondweed	*Potamogeton bicupulatus*	N	E
Diverse-Leaved Pondweed	*Potamogeton diversifolius*	N	E
One-Sided Pondweed	*Potamogeton lateralis*	E	N
Sheathed Pondweed	*Potamogeton vaginatus*	N	SC
Great White Lettuce	*Prenanthes crepidinea*	N	SC
Slender-Leaved Scurf Pea	*Psoralidium tenuiflora*	N	E
Small Shinleaf	*Pyrola minor*	N	SC
Sessile-Flowered Cress	*Rorippa sessiliflora*	N	SC
Tooth-Cup	*Rotala ramosior*	N	T

Common Name	Scientific Name	Current Status	Proposed Status
VASCULAR PLANTS (cont.)			
Wild Petunia	*Ruellia humilis*	E	N (X)
Ditch-Grass	*Ruppia maritima*	N	SC
A Species of Willow	*Salix maccalliana*	N	SC
Satiny Willow	*Salix pellita*	N	SC
Canadian Black Snakeroot	*Sanicula canadensis*	SC	N
Clinton's Bulrush	*Scirpus clintonii*	N	SC
* Ovate-Leaved Skullcap	*Scutellaria ovata* var. *versicolor*	SC	T
Northern Spikemoss	*Selaginella selaginoides*	N	E
Gray Ragwort	*Senecio canus*	N	E
Unsightly Grounsel	*Senecio indecorus*	N	SC
Drummond's Campion	*Silene drummondii*	N	SC
Snowy Campion	*Silene nivea*	N	T
Clustered Bur Reed	*Sparganium glomeratum*	E	SC
Alkali Cord-Grass	*Spartina gracilis*	SC	N
Awlwort	*Subularia aquatica*	E	T
* Golden Saxifrage	*Sullivantia renifolia*	E	T
* Broad Beech Fern	*Thelypteris hexagonoptera*	SC	T
False Asphodel	*Tofieldia glutinosa*	SC	N
Torrey's Manna-Grass	*Torreyochloa pallida*	N	SC
Ohio Spiderwort	*Tradescantia ohiensis*	SC	N
Marsh Arrow-Grass	*Triglochin palustris*	SC	N
Acrid Fleabane	*Trimorpha acris* var. *asteroides*	N	SC
A Species of Fleabane	*Trimorpha lonchophylla*	N	SC
Humped Bladderwort	*Utricularia gibba*	SC	N
Purple Bladderwort	*Utricularia purpurea*	N	SC
A Species of Bladderwort	*Utricularia resupinata*	N	SC
Lance-Leaved Violet	*Viola lanceolata*	SC	T
New England Violet	*Viola novae-anglia*	SC	N
Yellow Prairie Violet	*Viola nuttallii*	SC	T
Silverleaf Grape	*Vitis aestivalis*	N	SC
Alpine Woodsia	*Woodsia alpina*	N	SC
Twisted Yellow-Eyed Grass	*Xyris torta*	T	E
LICHENS - PAGE 315			
A Species of Lichen	*Anaptychia setifera*	N	SC
A Species of Lichen	*Caloplaca parvula*	N	E
A Species of Lichen	*Cetraria oakesiana*	SC	T
A Species of Lichen	*Coccocarpia palmicola*	SC	T
A Species of Lichen	*Lobaria quercizans*	T	SC
A Species of Lichen	*Parmelia stuppea*	SC	T
A Species of Lichen	*Peltigera venosa*	N	SC
A Species of Lichen	*Umbilicaria torrefacta*	SC	E
FUNGI - PAGE 324			
A Species of Fungus	*Fuscoboletinus weaverae*	N	E
A Species of Fungus	*Laccaria trullisata*	N	SC
A Species of Fungus	*Lactarius fuliginellus*	N	SC
A Species of Fungus	*Lysurus cruciatus*	N	SC
A Species of Fungus	*Psathyrella cystidiosa*	N	E
A Species of Fungus	*Psathyrella rhodospora*	N	E

MAMMALS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Canis lupus*

COMMON NAME: Gray Wolf

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Gray Wolf has been on the federal list of endangered and threatened species since 1967, and became fully protected under the federal Endangered Species Act in 1974. Its initial federal designation was as Endangered, but the Minnesota population was down-listed to threatened in 1978. In 1974, the Gray Wolf became one of the first species on Minnesota's list of endangered and threatened species by virtue of its federal designation. This resulted from language in the state law stating that until a state endangered species list was created by rule, federally endangered species would also be considered endangered under state law. The promulgation of the state's list of endangered, threatened, and special concern species in 1984 eliminated this requirement. However, the Gray Wolf's threatened state designation was retained due to concern that without continued protection, sustained recovery from its formerly threatened status was uncertain.

Minnesota's Gray Wolf population has grown from a low of 450-700 in the early 1950's to about 2,000 in 1995. In the early 1950's, Minnesota's primary Gray Wolf range was a 12,000 square mile area mostly within about 60 miles of the Canadian border. Today, its range has expanded to an area of at least 30,000 square miles extending into western Minnesota and just north of the Twin Cities (Fuller et.al. 1992, W. Berg pers. comm., W. Paul pers. comm.). This increase in both population size and distribution has continued since 1984, despite the concerns cited above. While it is unlikely that the Gray Wolf will ever recolonize its entire former range in Minnesota, it has colonized areas once thought incapable of supporting wolves (W. Berg pers. comm.). Thus, the Gray Wolf has demonstrated an ability to adapt to human presence.

In much of northern Minnesota, Gray Wolf density is now approximately one per 10 square miles, which is at or near carrying capacity for the species (Fuller 1989). While prey species in Minnesota before European settlement (e.g., moose, bison, caribou, elk) supported lower Gray Wolf densities across more of the state, it's principal modern prey (deer) is so abundant that northern Minnesota's Gray Wolf population is now likely above the pre-settlement population level. This is true even in the face of a federal depredations control program that killed an average of 91 (54-172) Gray Wolves between 1989 and 1994, and continued reports of occasional Gray Wolf deaths due to road-kills and poaching. The Gray Wolf population in Minnesota now has recovered from its formerly threatened status. While it continues to be protected by the federal endangered species statute, and remain a protected wild animal under state law (Minn. Stat., sec. 97A.015, subd.39), reclassification of the Gray Wolf to Special Concern status at the state level is necessary and reasonable at this time.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Gulo gulo*

COMMON NAME: Wolverine

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None, and probably extirpated from Minnesota

BASIS FOR PROPOSED MINNESOTA STATUS: Wolverines were documented as present in pre-settlement Minnesota, and probably were widely distributed throughout the boreal forest, although fur harvest records from the 19th century suggest that the species was always rare in the state (Novak et.al. 1987). The last documented occurrence of a Wolverine in Minnesota was in Itasca County in 1899.

Uncertainty about the Wolverine's status as a regular, reproducing species in Minnesota led to its designation as a species of Special Concern in 1984 (Coffin and Pfannmuller 1988). However, a continued absence of confirmed observations, particularly that of reproductive females or young, indicates that if the Wolverine occurs in the state at all today, it is likely to be only as an occasional wanderer from the north. Since all evidence suggests that there has not been a breeding population of wolverines in Minnesota for 95 years, it is reasonable that the species be removed from Special Concern status and considered extirpated from the state until such time as reproduction within Minnesota is confirmed. The wolverine is a protected small game species under Minn. Stat., 97A.015, subd. 45, and there is no legal provision for an open season. Consequently, any future migrants into the state will be fully protected under Minnesota law.

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Wilson, D.E. 1982. Wolverine. *in* Wild mammals of North America, J.A. Chapman and G.A. Feldhamer, eds. Johns Hopkins Univ. Press, Baltimore. 1147pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Martes americana*

COMMON NAME: Marten

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: Prior to European settlement, Marten were abundant in northern Minnesota, but the species' population was greatly reduced by extensive logging of mature forests and unregulated trapping for furs. Following closing of the marten season in 1929 and the gradual maturing of second growth forests, the species again became more common in the state. The Marten was designated as a species of Special Concern in 1984 to reflect concern for its severe historical decline and slow subsequent recovery in the early part of this century, as well as for the continuing fragmentation of its preferred habitat, large tracts of old forest (Coffin and Pfannmuller 1988).

In 1985, Marten trapping was legalized and approximately 1,500 are now taken annually (Dexter 1995). The species' current distribution, which has expanded to eastern Roseau County in the west and to central Itasca County in the south, and its current population of approximately 9,000 individuals (Dexter 1995), indicate that contrary to earlier impressions, in Minnesota the Marten can flourish in mixed age forests wherever their principal prey, the red-backed vole (*Clethrionomys gapperi*), occurs (Berg and Kuehn 1994). Special concern status is no longer needed for this species.

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SPECIES STATUS SHEET'

SCIENTIFIC NAME: *Microtus chrotorrhinus*

COMMON NAME: Rock Vole

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Rock Vole was designated as a species of Special Concern in 1984 due to uncertainty about the stability and viability of its populations in Minnesota (Coffin and Pfannmuller 1988). However, recent research and field surveys in Minnesota have resulted in Rock Vole specimens being collected from numerous locations in Cook, Lake, and St. Louis Counties. There are now nearly 100 sites at which the species is known to occur (Jannett 1990, 1994, pers. comm.). Year-to-year persistence of Rock Voles at particular sites has been high, suggesting that these local populations are reasonably stable. Although earlier efforts to retrap Rock Voles at the original locality at Burnside Lake, St. Louis County were unsuccessful, more recent studies have documented their presence at several localities in this vicinity (D. Christian, pers. comm.). The species' preferred habitat of rocks or boulders have been found to be more common in northeastern Minnesota than was once thought. In addition, rock voles have now been captured in areas lacking these structural features (Jannett 1990, 1994). Since recent data demonstrates that the species is widespread and relatively secure throughout northeastern Minnesota, Special Concern status is no longer necessary.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Mustela nivalis*

COMMON NAME: Least Weasel

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Mustela nivalis* is a widespread, circumboreal species that occurs from Kansas northward (Sheffield and King 1994), probably including all of Minnesota (Hazard 1982). This small weasel is known to be a cryptic inhabitant of a variety of grassland and lowland habitats, where it feeds primarily on small rodents, especially voles (Jones and Birney 1988). Although the species historically has been judged secure in Minnesota, there have been few specimens encountered in the state during the past three decades. For example, review of the Least Weasel collection in the Bell Museum of Natural History indicates that the species was collected regularly by earlier field investigators, especially during the 1920s, and through the 1940s. A few specimens of this species were cataloged during the 1950s, but none has been added to the collection since 1967 (E. Birney pers. comm.). Nordquist and Birney (1988) assumed that insufficient trapping in key habitats accounted for this hiatus. However, extensive survey work has been conducted during recent years in many apparently suitable areas and habitats by mammalogists from the Bell Museum, the University of Minnesota, Duluth (D. Christian pers. comm.), and the Minnesota DNR (G. Nordquist pers. comm.). While competition with its similar sized and much more common congener, *Mustela erminea*, (see Powell and Zielinski 1983) might be a contributing factor in this observed decline, Special Concern status is needed and reasonable until more data are available on the abundance of this species.

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Sheffield, S.R., and C.M. King. 1994. Mustela nivalis. Mammalian Species 454:1-10.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Odocoileus hemionus*

COMMON NAME: Mule Deer

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None, and probably extirpated from the state.

BASIS FOR PROPOSED MINNESOTA STATUS: The Mule Deer is common to abundant throughout its continental range, which extends from the west coast of the United States east to the Dakotas. In this century, however, Mule Deer have entered Minnesota only as transient individuals. Although uncertainty regarding the reproductive status of these animals led to the Mule Deer's designation as a species of Special Concern in 1984 (Coffin and Pfannmuller 1988), all records of these wanderers are of males, and no reproduction has been documented. Until such time as reproduction is verified within Minnesota, it is reasonable that the Mule Deer be considered extirpated and removed from Special Concern status.

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Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Perognathus flavescens*

COMMON NAME: Plains Pocket Mouse

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Plains Pocket Mouse reaches its eastern and northern distributional limit in Minnesota. Within the state, it has been taken as far north as Polk County and as far east as Dakota County. However, throughout its range, it is not widespread and appears to occur in discrete, isolated populations where appropriate habitat conditions are present. In this region, the plains pocket mouse appears to have narrow habitat requirements. Hibbard and Beer (1960) found this species only in open, well-drained areas, typically on sandy soils and sparse prairie habitat. The 18 currently known locations from ten counties further supports this species strong association with light, sandy soils and sparse, open vegetation.

Best recent evidence suggests that the Plains Pocket Mouse has experienced a loss of critical habitat and population declines over the past 40 years. Bailey (1922) reported them as "fairly common in the dune-sand region" of Sherburne County. Hibbard and Beer (1960) took 32 individuals and dug up 22 food caches from two fields in northern Sherburne County. Fourteen were taken from Rosemount in Dakota County. Based on the findings at that time, Gunderson and Beer (1953) felt that the Plains Pocket Mouse was probably more widespread than records indicated. However, recent survey efforts to document this species have had little success. Targeted searches during the past seven years (Birney and Nordquist 1991; Bruns Stockrahm 1991; Minnesota County Biological Survey 1990-1995; F. Jannett and D. Oehleshlager, Science Museum of Minnesota, pers. comm.) have found this species to be absent from historical locations throughout Minnesota and when found, only a few individuals were obtained. Despite a new occurrence of this species at the Twin Cities Army Ammunition Plant in Ramsey County (Jannett 1995), the population at Bunker Hills in Anoka County has been destroyed and any remaining individuals in this area are in extreme peril due to the rapid rate of development in this county. Thus, it is necessary and reasonable to designate the Plains Pocket Mouse as a species of Special Concern at this time.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rangifer tarandus*

COMMON NAME: Caribou

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None, and probably extirpated from Minnesota

BASIS FOR PROPOSED MINNESOTA STATUS: Caribou were probably common in pre-settlement northern Minnesota, but were considered extirpated from the state by 1946. Since that time, the only verified observation of Caribou in Minnesota was of two animals, probably transients from Canada, sighted in the Hovland area in 1980 and 1981. The species was designated as Special Concern in 1984 to leave open the possibility that these and other observations represented a permanent reproductive population in the state (Coffin and Pfannmuller 1988). However, all evidence now suggests that there has not been a breeding population of Caribou in Minnesota for 50+ years, and it is reasonable that the species be considered extirpated. The Caribou is a protected big game species under state law (Minn. Stat., sec. 97A.015, subd. 3), and there is no legal provision for an open season. Consequently, any future migrants into the state will be fully protected under Minnesota law.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sorex fumeus*

COMMON NAME: Smokey Shrew

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Sorex fumeus* first was reported from Minnesota in 1994 (Jannett and Oehlenschlager 1994) on the basis of six specimens captured at five localities within the Superior National Forest, Cook County, in 1991 and 1992. No specific localities were reported, but the greatest distance between the five sites was said to be 37.6 km. Habitats at all sites were associated with glacial boulder streams, one in a clear-cut area dominated by blueberry (*Vaccinium*) and the others in previously logged areas with some second-growth trees, including black spruce (*Picea*), fir (*Abies*), paper birch (*Betula*), and aspen (*Populus*) with a forb layer of aster (*Aster*) and bunchberry (*Cornus*) overlying abundant mosses and lichens. The nearest previously known locality of record for this species was in the Thunder Bay District of Ontario, Canada (van Zyll de Jong, 1983). Timm (1975) and Christian and Daniels (1985) conducted extensive studies of small mammals in Cook County but failed to detect the presence of this Appalachian shrew in Minnesota. De Vos (1964) considered the Smoky Shrew a species that was extending its distribution westward in the Great Lakes Region, but it is unknown if the specimens reported represent a recent invasion of the species from the east or if it long has occupied the region in low, but previously undetected numbers. The species clearly is at the western margin of its distributional range in Minnesota, and must be considered uncommon based on the many years of study in the region without previous detection. The habitat described is not uncommon in the region, however, so if it is a recent arrival it might be expected to appear in trapping samples much more frequently in the future. Until more field data are gathered on this species, it is necessary and reasonable to designate it as a species of Special Concern.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Spilogale putorius*

COMMON NAME: Eastern Spotted Skunk

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Although the Spotted Skunk was first observed in southeastern Minnesota in 1914 (Hazard 1982), the species appears to have been abundant in the state by the 1940's. The reported trapping harvest in Minnesota peaked at 19,400 animals in 1946, and has since declined precipitously both within the state and throughout the species' range (Novak 1987). Reasons for this apparent population collapse are unclear, but may be the result of disease (rabies) or changes in agricultural practices that have reduced the species' access to den sites and to prey such as small farm animals and rodents attracted to grain stores.

When the Spotted Skunk was assigned to Special Concern status in 1984, there was little known of its modern distribution or abundance beyond the documented decline in trapping records (Coffin and Pfannmuller 1988). In 1993, however, an intensive effort to locate individuals of the species in Minnesota documented only four animals (Wires and Baker 1994). The documented decline in trapping harvest, and the failure of this recent effort to locate even a single substantial population of the species suggests that the current Minnesota distribution is, at best, in the form of a few small, isolated populations. Such populations are vulnerable to extinction at even low trapping harvest rates. Because the Spotted Skunk is not protected under other Minnesota statutes, the species can be taken year-round in unlimited numbers. Threatened status will reflect the strong evidence that the Spotted Skunk may be quickly disappearing from Minnesota, and will provide any remnant Spotted Skunks in the state with protection from harvest. In light of the above, it is necessary and reasonable to designate the Spotted Skunk as a Threatened species at this time.

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BIRDS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ammodramus henslowii*

COMMON NAME: Henslow's Sparrow

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Since the Henslow's Sparrow was officially classified as state special concern in 1984, the demise of its population has continued at both the national and state level. The species was once broadly distributed across the northcentral and northeastern United States. Data derived from the U.S. Fish and Wildlife Service Breeding Bird Survey show that the U.S. population declined over 68% between the years 1966 and 1991 (Herkert 1994).

In Minnesota, the Henslow's Sparrow was formerly a widespread, although relatively uncommon and local, summer resident throughout the southern half of the state, where its habitat was grasslands and overgrown fields with standing dead vegetation and a matted grass or litter layer. Loss of habitat throughout its range from urban development and intensive agriculture is widely recognized as the factor responsible for the observed declines. At the time of its listing in 1984, the species was only consistently found breeding in Winona county at O.L. Kipp State Park. In the last 20 years there has been only one other confirmed nesting, in Hennepin county (Fall and Eliason 1982). However, inferred nesting and summer observations have been reported from at least 22 counties in northwestern, west-central, central and southeastern Minnesota. Sightings have rarely been reported from the same site more than once.

A habitat evaluation in 1988 and 1989 of 23 sites where Henslow's Sparrows have been sighted in recent years revealed that one third of the sampled sites had been rendered unsuitable for the species by urban development or agriculture use (Hansen 1994). Even more alarming has been the apparent extirpation of the population at O.L. Kipp State Park. Between the years 1987 and 1989, when the population was intensively studied as part of an M.S. thesis, the number of breeding territories fluctuated between eight and 12 (Hanson 1994). Numbers appeared to have declined in 1990 and 1991, when nesting was last reported. In 1992, there were no Henslow's Sparrows observed on the site, followed by between one and three apparently non-breeding birds observed between 1993 and the present. Based on the hypothesis that the decline was related to changes in the vegetation on the site, management actions are now underway to attempt to restore the previous conditions. This information supports the need for, and reasonableness of designating Henslow's Sparrow an Endangered species.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Bartramia longicauda*

COMMON NAME: Upland Sandpiper

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The breeding range of the Upland Sandpiper extends from northwestern Alaska to the Atlantic coast, as far south as Oklahoma, Illinois and West Virginia. In Minnesota, the species utilizes a variety of grassland habitats consisting of both tame and native grasses, but favors a landscape that is physically similar to a short grass prairie.

The Upland Sandpiper was designated as Special Concern in 1984 in recognition of the extensive conversion of its prefered habitat that had occurred in the state since European settlement, as well as the decimation of its populations from market hunting in the late 19th century. Although some data suggested a possible increase in the northern Great Plains, there were few data available in 1984 about population levels in the state, and there was evidence that habitat conversion was still continuing (Coffin and Pfannmuller 1988).

New data as well as recent analyses of older data have improved the understanding of the status of the Upland sandpiper in Minnesota. Surveys targeting grassland habitats favored by this species conducted as part of the Minnesota County Biological Survey have documented 141 new locations in 18 counties between 1987 and 1994, for a total of 388 locations in the Natural Heritage Information System. An analysis of 479 breeding bird survey (BBS) routes from 1965-1979 across the U.S. showed an increase in both the Central and Eastern regions with stable populations in the Western region (Robbins et al. 1986). Based on the variety of grasslands utilized, the large number of new records resulting from targeted surveys, and the lack of data indicating any recent declines in Minnesota or the Midwest, Special Concern status for the species is no longer needed.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botaurus lentiginosus*

COMMON NAME: American Bittern

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The secretive, reclusive habits of the American Bittern have made determining its population status difficult. It was classified as a species of Special Concern in 1984 based on its absence from many sites that appeared to offer an abundance of its preferred habitat, which is large, shallow cattail, bulrush, or sedge marshes. A request for reports of sightings from DNR personnel was issued by the Nongame Wildlife Program in northeastern Minnesota in 1991. In response, over 200 reports of sightings were received between 1991 and 1994. In addition, in 1994, observers participating in ruffed grouse drumming counts were asked to listen for and record the locations of American Bitterns calling. The ruffed grouse survey is conducted on 119 10-mi routes in 40 counties in the forested part of the state. The observer stops every mile along the route, listens, and records birds heard. In 1994, 215 American Bitterns were reported from 51 routes throughout the northern part of the state. This indicates a substantial and well-distributed population in the northern part of the state. However, no bitterns were reported on the eight routes that are located in the southeastern part of the state, where resource managers and bird watchers have reported the population to be low, probably due to habitat loss and degradation. Similar patterns observed throughout its range in North America led Gibbs et.al. (1992) to speculate that the species may be adapted primarily to northern climates and wetlands, and that its sparse distribution in the U.S. reflects a "northward retreat" of the species from the southern edge of its breeding range. Canadian populations appear secure at present.

The information gathered over the last few years shows that the American Bittern is well-distributed in suitable habitat throughout a large part of Minnesota, and suggests that Special Concern status on a statewide basis is no longer necessary for this species. On-going wetland restoration activities in the southern part of the state may eventually benefit the species in this portion of the former range.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cygnus buccinator*

COMMON NAME: Trumpeter Swan

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The Trumpeter Swan was a widespread but uncommon breeder throughout the prairies and parkland regions of the state up to the early 1800's, gradually decreasing due to over-hunting as settlements advanced. Breeding habitat included a wide variety of freshwater marshes, ponds, lakes and occasionally rivers. The species was considered extirpated in 1984 because the last state breeding record for a wild population was about 1885 (Coffin and Pfannmuller 1988).

Captive breeding of Trumpeter Swans was initiated by Hennepin Parks in 1969. Implementation of a restoration plan for the species in Minnesota was initiated in 1982 through a collaborative effort of the following partners: the Minnesota DNR Nongame Wildlife Program, Hennepin Parks, the Minnesota Zoological Garden, Dellwood Wildlife Foundation, Brookfield Zoo, the U.S.F.W.S., the White Earth Band of the Chippewa, and the Trumpeter Swan Society. The initial objective of the plan was to establish a breeding population of 15 pairs of swans in Minnesota. These efforts have resulted in 100 free-flying birds in east-central Minnesota, and 200 free-flying birds in the northwestern part of the state. In 1994, there were 17 nesting pairs in east-central Minnesota, and 13 nesting pairs in the northwest. These birds have exhibited migratory behavior, wintering in scattered locations as far south as Kansas, Missouri, and Oklahoma.

The state's initial Trumpeter Swan reintroduction goals have been met, but long-term viability of the population is still unknown. At this point, the Minnesota population can reasonably be designated as Threatened. Continued threats to the Trumpeter Swan population in Minnesota include lead poisoning from eating lead shot found in bottom sediments of wetlands, illegal shooting, collisions with powerlines and loss or degradation of wetland habitat. Success of the reintroduction to date provides a basis for cautious optimism that with continued management and public education, Minnesota may again support a stable population of this species.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Dendroica cerulea*

COMMON NAME: Cerulean Warbler

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Cerulean Warblers inhabit mature, mesic deciduous forests with large trees, and a closed, or semi-closed canopy. This canopy-dwelling species is associated with mature floodplain forests, as well as upland forest types. In many portions of its range, including Minnesota, mature forests are giving way to urban and agricultural development or are being subjected to even-age management regimes that preclude the growth of large, old canopy trees. Field studies have further demonstrated the strong preference of the species for large, unfragmented forest tracts (Robbins et al. 1992). The preferred habitat on the wintering grounds at high elevations in Peru is threatened with conversion to other land uses.

Roberts (1932) considered the Cerulean Warbler a rare summer resident that was extending its range northward in the early 1900's by way of the Mississippi River. Currently, the Cerulean Warbler breeds locally along the Mississippi, lower Minnesota, and St. Croix Rivers. In 1993, Minnesota County Biological Survey staff searched 38 sites with apparently suitable habitat in Houston and Winona counties. Singing male Cerulean Warblers were observed at 13 of these sites. However, the recently completed Generic Environmental Impact Statement on Timber Harvesting and Forest Management in Minnesota predicts a greater than 25% decline in Cerulean Warbler populations statewide under medium and high timber harvest levels, (Minn. EQB 1992). According to this study, the predicted decline will likely be due to loss of contiguous, mature, deciduous forest in the southern portion of Minnesota.

Nationwide, USFWS Breeding Bird Survey (BBS) data has revealed a decline of 3.4% per year between 1966 and 1987. This is the largest decline among the warblers, and only five other passerine birds have exhibited greater declines. During this period, no state or region reported population increases, although in many states numbers are too low to be effectively monitored by BBS. Coincident with the concern for its population status nationwide, concerns related to changes in Minnesota forests suggest that its designation as a species of Special Concern in Minnesota is reasonable at this time.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Empidonax virescens*

COMMON NAME: Acadian Flycatcher

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Acadian Flycatcher is a bird of the eastern deciduous forest, and prefers the open structure of mature forests, often near small streams, where it forages by flying out from perches under a closed canopy to capture insects. It also tends to be area-sensitive, usually being found in the northeastern U.S. in woodlands larger than 100 acres in size (Brauning 1992, Peterjohn and Rice 1991).

In Minnesota, the Acadian Flycatcher has always been rare. It was first discovered breeding in Beaver Creek Valley State Park, Houston County in 1967, where it has occurred regularly ever since (Janssen 1987). Breeding has also been documented as far north as Scott County (Fall 1987) and Ramsey County (Bardon 1993). As part of survey work done in connection with the Minnesota County Biological Survey in 1993, 38 sites with potentially suitable habitat were surveyed in Houston and Winona Counties, and singing males were observed on eight of these sites. Singing males have been regularly encountered in a wider area around the Twin Cities metropolitan area, and occasionally elsewhere in the state, but breeding has not been documented at these locations.

Because of the rarity of its preferred habitat of large blocks of mature deciduous forest, and its irregular breeding occurrence in Minnesota, it is reasonable and necessary to designate the Acadian Flycatcher as a species of Special Concern. This status will highlight the need to monitor its occurrence at known sites, and to seek a better understanding of its current distribution and abundance in the state.

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Janssen, R.B. 1987. Birds in Minnesota, pp. 201-202. University of Minnesota Press.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Falco peregrinus*

COMMON NAME: Peregrine Falcon

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The Peregrine Falcon formerly nested on bluffs along the Mississippi River and its tributaries south of Red Wing and into Iowa (perhaps 20 pairs), along the St. Croix River (a few pairs), on cliffs along the North Shore (perhaps half a dozen pairs), and in the Boundary Water Canoe Area (a few pairs). Extirpated by pesticide poisoning, the falcon last nested along the Mississippi River in 1962. A substantial reintroduction effort began in 1982, after several earlier attempts had failed. The success of this effort was highly uncertain in 1984 when the species was designated as endangered (Coffin and Pfannmuller 1988)

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The reintroduction goal of 40 territorial pairs in the Midwest was surpassed in 1993, and the rearing and releasing of Peregrine Falcons produced in captivity has essentially been completed (Redig and Tordoff 1994). In 1994 there were 17 territorial pairs in Minnesota, of which 13 pairs successfully fledged 36-37 young. The rate of population growth is expected to decline in the next three to four years, eventually leveling off to a stable population.

The Peregrine Falcon reintroduction program has been very successful in establishing birds in various urban and suburban settings and in several historical aeries along the North Shore, and no more releases are planned. Continued threats to the population include accidental death, disease, environmental pollutants, predation (particularly by Great Horned Owls), and potential loss or disturbance of natural cliff nesting sites. The Minnesota Peregrine Falcon population has reached the point where Endangered status is no longer necessary. However, long term viability is still uncertain, and the continued protection and careful monitoring associated with Threatened status is reasonable to ensure the recovery of the species in Minnesota.

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U.S.F.W.S. 1979. Eastern Peregrine Falcon recovery plan. Washington, D.C.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Grus canadensis*

COMMON NAME: Sandhill Crane

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: Minnesota's breeding Sandhill Cranes belong to an eastern population of the subspecies *Grus canadensis tabida*, or the Greater Sandhill Crane, which is distributed from southern Manitoba to Michigan. According to Roberts (1932) the species was formerly a common summer resident, breeding throughout the state. Hunting pressure and habitat alteration had significantly reduced Sandhill Crane populations by the 1930's, so that they nested locally in only a few places. By the time the first state list was created in 1984, protection efforts had resulted in population increases in portions of the former range. The species was designated as Special Concern because of perceived threats to its breeding habitat, which is large blocks of shallow wetlands, as well as concerns about its sensitivity to human disturbance (Coffin and Pfannmuller 1988). For at least the last several decades, cranes have had a disjunct distribution in Minnesota, with the largest numbers found in the extreme northwestern counties of the state, and a smaller population in east-central Minnesota. Recent observations indicate that crane numbers in Minnesota are increasing, and at the same time their distribution is expanding. Breeding cranes in Todd, Cass and Crow Wing counties may bridge the apparent gap in their distribution. In 1991, the mid-continent population of Sandhill Cranes was estimated at greater than 560,000 with a 20-year increasing trend (Sharp and Vogel 1992)

The size and quality of available wetland habitat continue to be an important limiting factor for the Sandhill Crane, but recent strengthening of wetland regulations may result in less conversion of such areas. Many breeding areas are located on public lands that are managed for the benefit of wetland species, e.g. Agassiz, Sherburne and Rice Lake National Wildlife Refuges; and Carlos Avery, Mille Lacs, Kunkel, Kimberly, Grayling, Thief Lake and Roseau River Wildlife Management Area. For these reasons, the Special Concern designation is no longer necessary.

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SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Haliaetus leucocephalus*

NEW SCIENTIFIC NAME: *Haliaeetus leucocephalus*

COMMON NAME: Bald Eagle

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The designation of the Bald Eagle as Threatened in Minnesota in 1984 recognized the perilous decline in its abundance due to organochlorine-based pesticide poisoning that occurred in the first half of the 20th century. When DDT was banned in 1972, the Minnesota population had declined, but not to the point of being endangered. In 1983, the Northern States Bald Eagle Recovery Plan set a goal of 300 occupied breeding areas in Minnesota by the year 2000 (USFWS 1983). This goal was surpassed in 1987 when 350 occupied breeding areas were documented through aerial surveys. The numbers of occupied breeding areas have continued to increase each year, with 615 occupied in 1994 (Nelson 1994). The range of Bald Eagles in the state has also continued to expand. In 1994, 49 counties had occupied breeding areas, and Bald Eagles are once more occupying parts of their historical range along rivers and lakes in southern and western Minnesota that had been vacant for decades, including along the Mississippi River in the Twin Cities metropolitan area. Although there was some evidence of declines in productivity on the Chippewa National Forest in 1991-1992, perhaps due to density dependent factors, this trend was reversed again in 1993 and 1994, when productivity increased (Nelson 1994).

Due to the increase in both the breeding range and the numbers of breeding pairs of the Bald Eagle in Minnesota, Threatened status is no longer needed, and Special Concern status is reasonable. At present, the Bald Eagle is protected under the federal Endangered Species Act, as well as the Bald Eagle Act. As migratory birds, individuals and active nests are also protected by the federal Migratory Bird Treaty Act. There is increasing evidence that at least some individual Bald Eagles are relatively tolerant of human disturbance, allowing them to nest successfully in areas with higher levels of human activity. The success of the recovery does not eliminate all concerns about future environmental contaminants, habitat deterioration, or human harassment that could negatively affect Bald Eagles. Eagle populations should continue to be monitored to document the location and productivity of breeding pairs. Continued population increases, range expansions, and evidence of tolerance to human disturbance may lead to de-listing in the future.

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Vickery, H. 1995. Back from the brink. Endangered Species Bulletin, Vol.XX, No. 4, p. 15. U.S.F.W.S., Ann Arbor, Michigan.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Larus pipixcan*

COMMON NAME: Franklin's Gull

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Franklin's Gull is largely a bird of the Great Plains, where in nests in bullrush or cattail marshes. The species depends on extensive prairie marshes for breeding, where it nests over water on floating vegetation or on muskrat houses. Large colonies may switch locations between years in response to changing water levels. Historically in Minnesota, this strongly colonial species has nested at only 10 locations with number's as high as 100,000 active nests at Heron Lake in the late 1930's.

Recent surveys in Minnesota indicate that the Franklin's Gull now nests only at Agassiz National Wildlife Refuge and Thief Lake Wildlife Management Area in northwestern Minnesota and at Heron Lake in Jackson County, with Lake Osakis utilized only occasionally. Although a recent analysis of U.S.F.W.S. breeding bird survey (BBS) data suggests a population decline rangewide between 1968 and 1991 (Knopf 1994), the adequacy of BBS methodology for tracking this species has been questioned (Burger 1994). In Minnesota, survey data indicate large variations in colony size between years. For example, at Agassiz NWR in Marshall County, where a nesting colony has been present since at least 1939, colony size has varied between 10,000 and 40,000 nesting pairs since 1970, with the nesting population in 1994 the highest ever reported (40,000). At Heron Lake in Jackson Co. no pairs nested in 1994 because of a water level drawdown; however, up to 50,000 pairs have nested at Heron Lake in recent years (Burger 1994).

The Franklin’s Gull will desert colonies readily, and is susceptible to human disturbance early in the breeding cycle, and to fluctuating water levels at any time. Special Concern status is necessary due to the limited number of active breeding colonies in the state, and the vulnerability of these colonies to negative impacts from water level fluctuations, human disturbances, and disease.

SELECTED REFERENCES:

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Knopf, F.L. 1994. Avian assemblages on altered grasslands. Stud. Avian Biol. 15:1-3.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Pandion haliaetus*

COMMON NAME: Osprey

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: Ospreys nest at the top of large living or dead trees and also on top of utility poles and other structures near lakes, large rivers, and coastal bays. In presettlement times the Osprey bred throughout the wooded part of Minnesota, including along the bigger rivers in the prairie region (Roberts 1932). Habitat conversion for agriculture as well as shooting led to a reduction in Osprey populations after European settlement in the southern part of the state. Numbers were then drastically reduced during the 1950's and 1960's primarily from the increased accumulation of DDT in fish, the exclusive prey item of this species. During the 1970's, with the beginning of the elimination of DDT from the environment, the population showed signs of recovery. However, in light of the documented population decline and the absence of current data on population size, range, or reproductive success, the species was designated Special Concern in 1984 (Coffin and Pfannmuller 1988).

Monitoring of Osprey breeding areas has been done by the Minnesota DNR and the USFS, but precise counts are not available because not all breeding areas have been surveyed each year, and not all nests are readily detected. Examination of data collected over the last several decades indicates an increasing trend in both range and population size. For example, in DNR Region 3 in the central part of the state, 38 breeding areas were known to exist in 1984, and aerial surveys documented that 25 of them were occupied (the status of 11 areas was unknown). In the same region in 1994, 197 breeding areas were known to exist; occupancy was documented for 95 of them, and the status of 63 was unknown. Even assuming all unknowns were occupied in 1984, and unoccupied in 1994, this conservative interpretation of the numbers indicates a nearly three-fold increase in this region over the last 10 years. In the Midwest as a whole, the number of nesting pairs increased 12% between 1988 and 1992 (Frenzel 1993).

In areas of suitable habitat and adequate fish supplies, Ospreys are often tolerant of human development activities. Reintroduction efforts were undertaken in the Twin Cities metropolitan area beginning in 1984. In 1994, seven known nesting attempts in five counties in the Twin Cities metropolitan area produced 18 young. A total of 68 wild-fledged young have been produced in the area since 1988. Twenty-nine Minnesota counties had nesting Ospreys in 1994. Ospreys are again being seen along the rivers and large lakes in the southeastern metropolitan corridor from Sherburne to Olmsted Counties, and have nested in Winona County since 1990. Because of the expansion in population size and extent, and the apparent tolerance of human disturbance, it is reasonable to remove this species from Special Concern status.

SELECTED REFERENCES:

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Frenzel, L.D. 1993. Bald eagle and osprey nesting and seasonal occurrences in the Midwest states: a 1992 update. Abstract of paper presented at the 55th Midwest Fish and Wildlife Conference, St. Louis.

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Spitzer, P.R. 1989. Osprey. *in* Proceedings of the Northeast raptor management symposium and workshop, pp. 22-29.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Phalaropus tricolor*

COMMON NAME: Wilson's Phalarope

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Prior to 1900, Roberts (1932) characterized the Wilson's Phalarope as abundant in the state, with "every large slough or shallow lake harboring many pairs in the nesting season" and hundreds of nesting pairs on Heron Lake in Jackson County. A dramatic decline in nesting in the state took place at the turn of the century, and although some recovery was noted by the 1920's, the species never recovered its 19th century population levels. Since the 1970's, the Wilson's Phalarope has been most often observed in the western and northwestern counties of the state, but nesting has been verified at very few sites. For example, in the 10-year period from 1975 to 1984 breeding activity was reported at only seven locations, three of these in Polk Co. (Coffin and Pfannmuller 1988). For these reasons the species was designated as Special Concern in 1984.

During the period 1987 to 1994, more intensive searches for nesting pairs of the Wilson's Phalarope were made in connection with the Minnesota County Biological Survey throughout the counties containing the most remaining habitat for the species. As a result, 28 new observations of the species were made in nine counties during the breeding season. In Polk and Mahnomen counties in 1995, 33 sites with potentially suitable habitat were surveyed, and only two Wilson's Phalaropes were observed.

The habitat preferred by the species is shallow prairie sloughs adjacent to wet meadow areas. Such areas are especially vulnerable to drainage or degradation from agricultural activities. This fact, in addition to the small numbers of birds discovered by survey work in suitable habitat in the western and northwestern parts of the state are the basis for reaching the conclusion that Special Concern status is no longer reasonable, and that it is necessary to reclassify the species to Threatened status. If observed trends cannot be reversed, the species may become Endangered in the future.

SELECTED REFERENCES:

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Podiceps auritus*

COMMON NAME: Horned Grebe

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Horned Grebes bred throughout the state in the early 1900s, and were considered regular and abundant in the northern counties (Roberts 1932). By 1984, the breeding records were restricted to only three northwestern counties (Roseau, Marshall and Pennington), where the species was consistently reported from only two sites, Roseau River WMA and Agassiz NWR. This apparent drastic reduction in numbers led to its designation as Special Concern in 1984 (Coffin and Pfannmuller 1988).

Marshes and lakes are the Horned Grebe's preferred habitat. On large water bodies (over 10 ha), it prefers to use bays and inlets which provide protection from wind and wave action since its nest is built over water. In a North Dakota study, 80% of ponds used by Horned Grebes were less than 2 ha in size, and all had 40-60% open water (Faaborg 1976). Nests are constructed in shallow water, usually within the emergent vegetation. In 1991, 76 wetlands judged to be suitable habitat were identified for survey in 6 counties in northwestern MN (Kittson, Roseau, Marshall, Pennington, Red Lake and Polk) through examination of National Wetlands Inventory maps and conversations with natural resource managers (Boe 1991). A survey of these wetlands located only one individual bird, at Roseau River WMA, and no evidence of breeding. The lack of breeding birds in the last known area where the species was known to consistently have bred in the past suggests that Special Concern status is no longer a reasonable designation for this species, and that reclassification to Threatened status is necessary.

SELECTED REFERENCES:

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Faaborg, J. J. 1976. Habitat selection and territorial behavior of the small grebes of North Dakota. Wilson Bull. 88:390-399.

Roberts, T.S. 1932. The birds of Minnesota. University of Minnesota Press, Minneapolis. 821 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rallus elegans*

COMMON NAME: King Rail

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Roberts (1932) considered the King Rail to be a regular breeder in the southern half of Minnesota (north to Hennepin County) and common at Heron Lake in Jackson Co.. For the period 1940 to 1970, the King Rail declined significantly across its range in southern Minnesota, with reported evidence of nesting in only 15 southern Minnesota counties (Green and Janssen 1975). Between 1970 and 1980, the species was reported from only four locations in two counties. In response to this evidence of declining populations, the species was designated as Special Concern in Minnesota in 1984 (Coffin and Pfannmuller 1988). The species' decline continued until 1983, when the last observation of positive breeding was made in Stearns County. Meanley (1992) reports severe declines throughout the northern part of the species continental range. The reason for the decline is unknown. The King Rail is known to nest in a wide variety of shallow fresh water marshes. Its habitat requirements have been compared to those of the muskrat. Although there has been a decrease in the number and quality of these wetlands within the species' former range in Minnesota, previously occupied sites that still appear suitable are now unoccupied. The species very presence in the state is now in question; Endangered designation is necessary.

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Meanley, B. 1992. King Rail (*Rallus elegans*) *in* The Birds of North America, No. 3 (A. Poole, P. Stettenheim, and F. Gill, eds.) Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

Roberts, T.S. 1932. The birds of Minnesota. University of Minnesota Press, Minneapolis. 821 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sterna hirundo*

COMMON NAME: Common Tern

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Common Terns nest on isolated, sparsely vegetated islands in large lakes. Plagued by competition with exploding ring-billed gull populations for nesting habitat, changing water levels, avian and mammalian predation, and human disturbance at their nesting colonies, Common Tern populations throughout the Great Lakes states have been experiencing problems for years. In 1984, the species was known to nest at only 4 locations in Minnesota: Duluth Harbor, Mille Lacs Lake, Leech Lake, and Lake of the Woods. The best studied colony, which was in the Duluth harbor, had been shown to fluctuate unpredictably in size and reproductive success. In view of the limited number of colonies and the many threats to successful reproduction, the species was designated as Special Concern in 1984 (Coffin and Pfannmuller 1988).

Since 1984, a concerted effort has been made to monitor colony size and reproductive success in Minnesota. In addition, intensive management efforts have been undertaken at all 4 main colonies to control predation and competition, and enhance nesting habitat. Despite aggressive and labor-intensive management, Minnesota's adult population of Common Terns, which in 1900 numbered over 2000 pairs, has declined, and continues to fluctuate, making determination of trends difficult. From 880 nesting pairs in 1984, the population fell to a low of 450 in 1992 and back up to 840 in 1994. There is no obvious permanent solution to the threats of predation and competition. It is unclear whether even with the current level of management, population size can be maintained. In addition, the intensive management of the last decade has resulted in no increase in the number of breeding colonies; the small number of sites makes the species population in Minnesota vulnerable to devastation from catastrophic events. For these reasons, Special Concern status is no longer reasonable for the species, and designation as a Threatened species is now necessary.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Wilsonia citrina*

COMMON NAME: Hooded Warbler

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Hooded Warbler has been observed as a migrant in Minnesota with increasing frequency since it was first reported in the state in 1942. There is one known nesting site of the species in the state, in Murphy-Hanrehan Regional Park Reserve, which straddles the Dakota-Scott County line. First discovered in 1984, this population has been estimated as 2-6 territorial males in every subsequent breeding season (Fall 1985, 1989, pers comm). Persistently singing males have been reported from single sites in Carver and Winona Counties, as well as two other sites Dakota and Scott Counties, but nesting has not been documented on these sites. The Minnesota breeding location is on the far northwestern edge of its distribution, disjunct from other populations to the east and south. The closest known population outside of Minnesota is the Baraboo Hills, Sauk County, Wisconsin, about 200 miles southeast of the Minnesota site.

The Hooded Warbler prefers mature deciduous forests of greater than 15 ha in size with a dense understory of shrubs that is often created by gaps in the canopy (Evans Ogden and Skutchbury 1994). This type of habitat is quite fragmented in the state, with few large expanses remaining. In the northeastern U.S., the species can be found breeding in selectively logged habitat, as long as the shrub component is present. The species routinely experiences nest parasitization by Brown-headed Cowbirds throughout it range at frequencies up to 75%, and there is some evidence that it is preferentially chosen over other species (Evans Ogden and Skutchbury 1994). Cowbird parasitism rates of all forest songbird species tend to increase with forest fragmentation.

Although the Minnesota breeding site is in a park, recreational use of the park is increasing. Because of the single known breeding site and the scarcity of suitable habitat for successful reproduction, Special Concern status is reasonable for this species.

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AMPHIBIANS AND REPTILES

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Acris crepitans*

COMMON NAME: Northern Cricket Frog

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Cricket Frog was originally known from the southeast and southwest corners of Minnesota (Oldfield and Moriarty 1994), and historic observations exist from between 1930 and 1970. However, few Cricket Frogs have been reported since 1980 despite intensive surveys in 1991, 1993, and 1995 (Whitford 1991, Van Gorp and VanDeWalle 1995). Reductions in Cricket Frog populations have been reported in Wisconsin (Vogt 1981) and northern Iowa (Van Gorp pers. comm.). Recent catastrophic events, including droughts and floods during the past decade, may have reduced or eliminated Minnesota's already depressed Cricket Frog populations. According to Burkett (1984), the average life expectancy for Cricket Frogs in Kansas was 4 months, with only 5% of the population surviving through the winter. Burkett found that a complete population turnover occurs in approximately 16 months, resulting in a breeding population represented primarily by only one age class. Consequently, the species is dependant on consistently high juvenile production to overcome the high juvenile mortality, limiting its ability to recover from catastrophic events. This poor population resilience combined with the lack of recent records indicates that Endangered status is now needed and reasonable.

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Oldfield, B. and J. J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

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Vogt, R. C. 1981. Natural history of amphibians and reptiles of Wisconsin. Milwaukee Public Museum, Milwaukee, WI. 205 pp.

Whitford, P. C. 1991. Blanchard's Cricket frog survey of southeastern Minnesota, 1990/1991. Report submitted to MN DNR Nongame Wildlife Program.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Apalone mutica*

COMMON NAME: Smooth Softshell

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Smooth Softshell turtle is a species of large rivers of the central United States. In Minnesota, recent records of this species are limited to the St. Croix River and the Mississippi River below the Twin Cities, although historically, it also inhabited the Minnesota River (Oldfield and Moriarty 1994). In recent years, records of Smooth Softshell turtles have declined in a number of states, including Minnesota. The species' ability to extract oxygen from water (Cahn 1937) may make it particularly vulnerable to water pollution. In addition, the sandy beaches utilized as nesting habitat by this species are often impacted by humans who picnic or fish from these same areas. Debris often left by humans can attracts predators, such as raccoons and skunks, which in turn can reduce nesting success of the Smooth Softshell turtle. Finally, the market for commercially harvested softshell turtles has experienced a rapid growth in recent years. In light of these factors, Special Concern status is now necessary and reasonable.

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Carr, A.F. 1952. Handbook of turtles. Comstock Press, Ithaca, N.Y. 542 pp.

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Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

Vogt, R.C. 1981. Natural history of amphibians and reptiles of Wisconsin. Milwaukee Public Museum, Milwaukee, WI. 205 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Crotalus horridus*

COMMON NAME: Timber Rattlesnake

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: In Minnesota, the habitat of the Timber Rattlesnake is the forested hillsides, southerly-facing rock outcrops, and bluff prairies of the Mississippi River valley. It winters in ancestral communal dens occupying crevices and fissures in limestone bluffs and outcrops (Oldfield and Moriarty 1994). Specimens have been collected from eight of Minnesota's southeastern counties (Houston, Fillmore, Winona, Olmsted, Wabasha, Goodhue, Dakota, Washington), although it is unlikely that it occurs in the last two counties today. Although the Timber Rattlesnake is relatively long-lived, with an average life-span of 25 years in the wild, it only produces an average of seven young every three to four years (Ernst and Barbour 1989). As with most species of wildlife, juvenile mortality is high in this species, and may be particularly high in Minnesota's long winters and temperature extremes (Oldfield and Moriarty 1994). Feared for its venomous bite, this is actually a secretive and shy species which attempts to escape intrusion before rattling its tail to warn of its presence, and will strike only as a last resort. In Minnesota during the past 14 years, only three Timber Rattlesnake bites have occurred in the wild, and no snakebite deaths have occurred in the state since 1868 (D. Keyler pers. comm.). Nonetheless, fear of this species led to the creation of a bounty in the state, which was repealed in 1989. Bounty records for Houston County indicate a marked decline in that county's Timber Rattlesnake population, with nearly 5,000 bounties paid in 1970, but only 191 paid in 1987. However, collection of the species by snake-hunters for the pet trade and for sale of snake parts continues to be active within the state.

In addition to human persecution, habitat loss is a principal factor threatening the continued survival of the Timber Rattlesnake in Minnesota. Residential development, grazing, road building, and other human activities potentially threaten virtually all known Timber Rattlesnake sites in the state, and the species is gone from many once-occupied sites. Few sizable dens have been documented in recent years, and recent surveys have found many once-occupied or high quality sites to be now uninhabited, or to have only very small populations of the species (Keyler and Oldfield 1992, C. Hall pers. comm.). Brown (1993) suggests that, given the low reproductive potential of the species, a local population must consist of at least 30-40 snakes to remain viable. There may be fewer than 100 locations where the Timber Rattlesnake survives in Minnesota, and the vast majority of these probably support non-reproductive populations, or populations below this threshold of viability. Only on a few parcels of state land is conservation of the species at all likely without additional legal protection. While Special Concern status was believed to be sufficient in 1984, it is no longer adequate, and Threatened status is now necessary and reasonable for the Timber Rattlesnake.

SELECTED REFERENCES:

Brown, W.S. 1993. Biology, Status, and Management of the Timber Rattlesnake (*Crotalus horridus*): A Guide for Conservation. SSAR Herpetological Circular No. 22. 78pp.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Ernst, C.H. and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason Univ. Press, Fairfax, Virginia. 282 pp.

Keyler, D.E. and B. L. Oldfield. 1992. Timber Rattlesnake *Crotalus horridus* field survey on southeastern Minnesota state lands (1990-1991). Unpublished report submitted to the Minnesota Department of Natural Resources, Nongame Wildlife Program. 31pp.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press. 237pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Elaphe vulpina*

COMMON NAME: Fox Snake

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Fox Snake is well distributed throughout south central Minnesota, and is regularly encountered there (C. Hall pers. comm.). This forest species appears tolerant of the timber harvest and forest fragmentation that currently exist within its range. When the Fox Snake was designated as a species of Special Concern in 1984, it was believed to be vulnerable to considerable collecting pressure for the pet trade due to its large size (Coffin and Pfannmuller 1988). However, the proliferation of captive breeding by snake fanciers has all but eliminated this pressure, and the species' status is now believed to be secure in Minnesota (J. Moriarty pers. comm.). For this reason, Special Concern status is no longer necessary.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

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Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eumeces fasciatus*

COMMON NAME: Five-lined Skink

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This small, secretive species lives in rocky, forested terrain unsuitable for agricultural development. The Five-lined Skink was designated as an Endangered species in 1984 due to its very limited distribution within the state. At that time, it was known from only five widely scattered and disjunct locations. During the past ten years, however, extensive field work has determined it is more widely distributed than originally suspected, and populations have been documented at several new locations and in one additional Minnesota county. Lacking commercial pressure, there is very little threat to the Five-line Skink in Minnesota at this time. Consequently, Endangered status is no longer necessary, and Special Concern status is now reasonable and sufficient.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Lang, J.W. 1982. Distribution and abundance of the five-lined skink ,*Eumeces fasciatus*, in Minnesota. Unpubl. report to the Minnesota DNR, Nongame Wildlife Program. 109pp.

Moriarty, J.J. 1984. A survey of amphibians and reptiles in southeastern Minnesota. Unpubl. report to the Minnesota DNR, Nongame Wildlife Program. 19pp.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hemidactylium scutatum*

COMMON NAME: Four-toed Salamander

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was first discovered in 1994 in Itasca County, which remains its only known location in Minnesota (Dorff 1995). Adults of this species generally inhabit forests associated with sphagnum bogs, spring-fed creeks, or sphagnum-dominated depressions. They obtain shelter in the forest floor under leaf litter, bark, rotting logs, rocks, and moss. Females lay eggs on the periphery of sphagnum bogs or mossy stream-side pools where hatchlings wriggle into the water after emerging. Throughout its range, this species occurs in small, isolated colonies which are vulnerable to catastrophic events. Information is needed on the distribution, abundance, and ecology of this species in Minnesota to assess its status. Until this is accomplished, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

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Dorff, C.J. 1995. Geographic distribution. *Hemidactylium scutatum*. Herpetol. Rev. 26(3).

Hunter, M.L., J. Albright and J. Arbuckle (editors). 1992. The Amphibians and reptiles of Maine. Maine Agr. Exp. Sta. Bulletin 838, ME. 188 pp.

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Vogt, R.C. 1981. Natural history of amphibians and reptiles of Wisconsin. Milwaukee Public Museum, Wis. 205 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Heterodon platirhinos*

COMMON NAME: Eastern Hognose Snake

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Eastern hognose snake is well distributed throughout eastern, central, and southeastern Minnesota, where it is often associated with deciduous woodlands and forest edges in sandy areas (C. Hall pers. comm.). When this species was designated as Special Concern in 1984, it was believed to be vulnerable to considerable collecting pressure for the pet trade due to its large size (Coffin and Pfannmuller 1988). However, due to its narrow dietary requirements (toads are its primary prey), this species has remained less attractive to collectors and snake fanciers than had been feared, and the species' status is now believed to be secure in Minnesota (J. Moriarty pers. comm.). For this reason, Special Concern status is no longer necessary.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Conant, R. and J. T. Collins. 1991. A field guide to reptiles and amphibians of eastern and central North America. 450 pp.

Ernst, C.H. and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason Univ. Press, Fairfax, Virginia. 282 pp.

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Platt, D.R. 1969. Natural history of the hognose snakes *Heterodon platyrhinos* and *Heterodon nasicus*. Univ. of Kansas Publs., Museum of Natural History 18(4):253-420.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lampropeltis triangulum*

COMMON NAME: Milk Snake

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Milk Snake is often found in rocky, hilly habitat that is unsuitable for agriculture, and frequently turns up in small towns and around farm buildings. This small secretive snake has been documented in over 20 counties of southern Minnesota and their populations appear to be substantial and stable (C. Hall pers. comm.). When this species was designated as Special Concern in 1984, it was believed to be vulnerable to considerable collecting pressure for the pet trade due to its large size (Coffin and Pfannmuller 1988). However, the proliferation of captive breeding by snake fanciers has all but eliminated this pressure, and the species' status is now believed to be secure in Minnesota (J. Moriarty pers. comm.). For this reason, Special Concern status is no longer necessary.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Conant, R. and J. T. Collins. 1991. A field guide to reptiles and amphibians of eastern and central North America. 450 pp.

Ernst, C.H. and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason Univ. Press, Fairfax, Virginia. 282 pp.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rana catesbeiana*

COMMON NAME: Bullfrog

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The natural distribution of the Bullfrog is limited to the Mississippi River backwaters of Winona and Houston Counties. It was designated as a species of Special Concern in 1984 due to concern about its vulnerability to collecting for bait and food. However, introduced populations are now known from five additional counties in south and central Minnesota, and harvesting is regulated by the DNR through the use of seasons and bag limits. The known populations appear healthy, and additional introduced populations are likely to be discovered. For these reasons, Special Concern status is no longer necessary for this species.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rana palustris*

COMMON NAME: Pickerel Frog

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: Pickerel Frogs occur in the cold streams and forested ravines in at least six counties of southeastern Minnesota. Due to concern about its limited distribution and vulnerability to human disturbance, it was designated as a species of Special Concern in 1984. Recent surveys have shown that healthy populations are present where suitable habitat remains. During surveys in 1993, Pickerel Frogs were located in forested streams, drainage ditches along forested roads, pastures, bluff prairies, and mowed trails along wooded streams (C. Hall pers. comm.). In Wisconsin, Johnson (1994) found that in addition to utilizing undisturbed forested streams, Pickerel Frogs inhabit streams in pastures, recreational lands, and rural residential areas. This species is not used by the bait or pet trade and currently has no known threats. Consequently, Special Concern status is no longer needed.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Johnson, M. J. 1984. The distribution and habitat of the Pickerel frog in Wisconsin. M. S. Thesis Univ. of WI Stevens Point. Stevens Point, Wisconsin. 68 pp.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

Vogt, R. C. 1981. Natural history of amphibians and reptiles of Wisconsin. Milwaukee Public Museum, Wis. 205 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sistrurus catenatus*

COMMON NAME: Massasauga

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Massasaugas are extremely rare in Minnesota, with only two or three reliable sightings from the Mississippi River bottomlands of Houston and Wabasha counties reported in the past 20 years. Surprisingly, populations remain extant on the Wisconsin side of the river (Hay et.al. 1993). When this species was designated as Special Concern in 1984, there were inadequate data to accurately assess its status. While substantial efforts to document this species in Minnesota are underway, as yet they have provided no additional records (MCBS 1994). This species appears to be declining throughout its range due to human persecution and habitat destruction, and seven states and one province have listed this species as endangered or threatened (Johnson and Menzies 1993). In Minnesota, Massasaugas are threatened with extremely low populations, limited suitable habitat, and vulnerability to persecution. This species may already be extirpated in the state, but until exhaustive surveys are completed, Endangered status is necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Ernst, C.H. and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason Univ. Press, Fairfax, Virginia. 282 pp.

Hay, R., D. Nedrelo and D. Kopitzke. 1993. Status survey for the Massasauga rattlesnake *(Sistrurus c. catenatus)* in Wisconsin 1993. Final report from Wisconsin DNR to the U. S. Fish and Wildlife Service. 48 pp.

Johnson, B. And V. Menzies, Eds. 1993. International symposium and workshop on the conservation of the eastern massasauga rattlesnake, *Sistrurus catenatus catenatus*. Metro Toronto Zoo, Canada 141 pp.

Minnesota County Biological Survey. 1994. Results of surveys for Eastern Massasaugas *(Sistrurus catenatus catenatus)* in Houston, Winona, and Wabasha counties, Minnesota, 1993. Final report from Minnesota DNR to the U. S. Fish and Wildlife Service. 23 pp.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians and reptiles native to Minnesota. University of Minnesota Press, Minneapolis, MN. 237 pp.

Vogt, R.C. 1981. Natural history of amphibians and reptiles of Wisconsin. Milwaukee Public Museum, Wis. 205 pp.

FISHES

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Alosa chrysochloris* (Rafinesque)

COMMON NAME: Skipjack Herring

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: In the early part of this century, and especially prior to the construction of the dam at Keokuk, Iowa (Coker 1930), Skipjack Herring were abundant in the Mississippi River as far north as Minneapolis and in the St. Croix River as far north as Taylors Falls. They were also present in the Minnesota River and common in Big Stone Lake (Eddy and Underhill 1974). In the 1910s, both adult and young-of-the-year of this species were common in Lake Pepin, indicating successful reproduction in Minnesota waters. Thaddeus Surber continued to find Skipjack Herring into the early 1920s in Big Stone Lake, but subsequent to a few collections from the lower St. Croix River and Lake Pepin in 1928, no verified specimens were found in either Minnesota or Wisconsin waters for nearly 60 years. Greene (1935) reported it "very much less common if not extinct"; Eddy and Underhill (1974) considered it "practically extinct"; Moyle (1975) suggested that it was "rare or extirpated"; and Becker (1983) considered it "largely gone from the upper Mississippi River." All of the aforementioned authors pointed to the interference of navigational locks and dams with this species' pre-spawning migration as the most likely cause of its decline in the upper Mississippi River.

In 1986 and again in 1993, Skipjack Herring were collected in Lake Pepin for the first time since 1928 (Bell Museum of Natural History, Fish Collection Database). Water levels in the Mississippi River were exceptionally high in both of these years, which may have contributed to the ability of the species to negotiate the dams and reach Lake Pepin. Spawning appears to have been successful in both years. Although the former Minnesota distribution of this species represented its northern range limit, it is clear that skipjack once flourished here, at least under the conditions that existed early in the century. Still, it may be that the species makes only infrequent forays into this area when water conditions are right. Until a clearer understanding of the species' ecological requirements is obtained, Special Concern status is reasonable.

SELECTED REFERENCES:

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Coker, R.E. 1930. Studies of the common fishes of the Mississippi River at Keokuk. Bulletin of the United States Bureau of Fisheries 45: 141-225.

Eddy, S. and J.C. Underhill. 1974. Northern fishes, with special reference to the Upper Mississippi Valley. 3rd Edition. University of Minnesota Press, Minneapolis. 414 pp.

Greene, C.W. 1935. The distribution of Wisconsin fishes. Wisconsin Conservation Commission. 235 pp.

Moyle, J. B. 1975. The uncommon ones. Minnesota Department of Natural Resources. 32 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Aphredodoerus sayanus* (Gilliams)

COMMON NAME: Pirate Perch

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Pirate Perch is a southern species that reaches its northern most distribution in the southeastern portion of the state (Eddy and Underhill 1974, Becker 1983). It is known from only six sites in Minnesota, all of which are in or near backwaters of the Mississippi River south of Wabasha (Bell Museum of Natural History, Fish Collection Database, Schmidt 1991). Pirate Perch were first reported from Minnesota in the Winona area of the Mississippi River by Cox (1897), who considered them rare. Over 100 years of subsequent sampling has added little to this impression of the species' abundance and distribution in the state. Since the Pirate Perch has survived in Minnesota throughout this century, it is unlikely that present activities will cause its immediate extirpation. Nevertheless, because the state's population is disjunct from those to the south, the prospects for recolonization are poor should we lose this population to a catastrophic event. Therefore, because this species is uncommon in Minnesota, is on the northern edge of its range, occurs only in a very small area of a highly impacted ecosystem (the Mississippi River), and is disjunct from its potential recolonizing stock, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

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Cox, U.O. 1897. A preliminary report on the fishes of Minnesota. Zoological Series III. Geological and Natural History Survey of Minnesota. St. Paul. 93 pp.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Coregonus kiyi* (Koelz)

COMMON NAME: Kiyi

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Kiyi is a deepwater coregonid native to Lakes Ontario, Huron, Michigan, and Superior, where it is found in waters from 30 - 150 meters in depth. Becker (1983) reports that the Kiyi is believed to be extirpated from Lakes Huron and Ontario and is presently endangered in Lake Michigan. This species remains common in the Minnesota waters of Lake Superior (Minnesota DNR unpubl. data), where a moderate commercial fishery for deepwater coregonids remains active; however, harvest data are not reported with any accuracy at the species level (S. Geving pers. comm.). There is also some uncertainty regarding population levels due to the difficulty of distinguishing closely related species with certainty.

Lake Superior represents the center of abundance for this species in North America (Becker 1983, Lee et.al. 1980). Kiyi are currently designated a species of special concern in Wisconsin and are being considered for listing at the national level. Because Minnesota represents the center of abundance for this species in North America, it is reasonable that it be designated as a species of Special Concern.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer, Jr., eds. 1980. Atlas of North American Freshwater Fishes. North Carolina State Museum of Natural History, Raleigh. 854pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Coregonus zenithicus* (Jordan & Evermann)

COMMON NAME: Shortjaw Cisco

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Shortjaw Cisco is a deepwater coregonine native to Lakes Huron, Michigan, and Superior, where it is found in waters 20 - 150 meters in depth. An extant population is known to occur in Lake Nipigon, Ontario, and collections have also been made in Saganaga and Gunflint Lakes, Minnesota (Shields 1993). Becker (1983) reported that this species has been seriously depleted in Lakes Huron and Michigan, and may be extirpated. It is still common in Lake Superior, although data from Wisconsin (Parsons et al. 1975) suggest that current populations are at much lower than historical levels. Lake Superior still supports a moderate commercial fishery for deepwater coregonids; however harvest data are not reported with any accuracy at the species level. There is also some uncertainty associated with the taxonomic identity of this species.

Lake Superior represents the center of abundance for this species in North America (Becker 1983, Lee 1980). Because of this fact, and because the potential exists for inland populations to be adversely affected by the introduction of smelt (*Osmerus mordax*), it is reasonable that the Shortjaw Cisco be designated as a species of Special Concern.

SELECTED REFERENCES:

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Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer, Jr., eds. 1980. Atlas of North American Freshwater Fishes. North Carolina State Museum of Natural History, Raleigh. 854pp.

Parsons, J.W., T. Todd, and L. Emery. 1975. The status of some endemic fishes of the Great Lakes based upon changes in abundance. USFWS Great Lakes Fish Lab., Ann Arbor.

Shields, B.A. 1993. Genetic identification and life histories of three populations of cisco in Lake Saganaga, Cook County, Minnesota. Unpubl. progress report to the Minnesota DNR, Nongame Wildlife Program. 3pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Etheostoma chlorosomum* (Hay)

COMMON NAME: Bluntnose Darter

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None, and probably extirpated in Minnesota

BASIS FOR PROPOSED MINNESOTA STATUS: The Bluntnose Darter occurs in quiet waters, sluggish streams where the bottom is sand and organic debris, and in the sloughs and backwaters of larger rivers. The only validated specimens of Bluntnose Darter from Minnesota are two collected in 1944 from isolated ponds of the Mississippi River at the Iowa border (Becker 1983). Additional specimens were reported to be taken in 1945 from Pine Creek and the Root River in Houston County, but they cannot be verified. When it was designated as a species of Special Concern in 1984, it was hoped that further investigations would identify extant populations of the species in Minnesota (Coffin and Pfannmuller 1988). Over the past ten years, however, several extensive surveys have failed to find this species in Minnesota waters (Schmidt 1991). The closest, most recent single specimen was collected in 1976 from Island 192 in the Mississippi River, about 65 miles south of the Minnesota border (J. Hatch pers. comm.). The species probably never was common in Minnesota, and given the lack of recent records in spite of ongoing collection in apparently suitable habitat, Special Concern status is no longer reasonable, and it should now be considered extirpated in Minnesota.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Etheostoma microperca* Jordan & Gilbert

COMMON NAME: Least Darter

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Least Darter is the smallest fish species native to Minnesota and is restricted to areas of dense vegetation and sluggish water movement in clear streams and lakes, usually associated with springs or spring seeps (Becker 1983). It is known from 34 sites across the southern two-thirds of the state, but most of its populations occur in the west-central portion of Minnesota in the Otter Tail River drainage, and in the Crow Wing River and Pine River drainages of the Upper Mississippi River (Bell Museum of Natural History, Fish Collection Database). These populations represent the northwestern limit of the species' range and, along with other scattered state populations, are disjunct from those of the Ozark and eastern Great Lakes regions (Becker 1983). In addition to being a major center of abundance for the species, the Otter Tail River supports a population that exhibits life history characteristics substantially different from those that occur near the center of the species' range (Johnson and Hatch 1991). For these reasons, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Bell Museum of Natural History, James Ford. Fish Collection Database, Version 1.0. Ecology Building, University of Minnesota, St. Paul.

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Johnson, J.D. and J.T. Hatch. 1991. Life history of the Least Darter *Etheostoma microperca* at the northwestern limits of its range. Am. Midl. Nat. 125:87-103.

Lutterbie, G.W. 1976. The darters (Pisces: Percidae: Etheostomatinae) of Wisconsin. M.S. Thesis, Univ. Wisc., Stevens Point. 307pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ichthyomyzon fossor* Reighard & Cummins

COMMON NAME: Northern Brook Lamprey

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Northern Brook Lamprey was first collected in Minnesota in 1936, but that specimen was misidentified. Thus, it was not recognized to occur in Minnesota waters until 1986, when it was collected from the Blackhoof River in Carlton County and the Zumbro River in Olmsted County. Since that time it has been taken from a total of 13 sites in four watersheds in Carlton, Koochiching, St. Louis and Olmsted counties (Bell Museum of Natural History, Fish Collection Database). Further sampling may reveal additional populations in northcentral and northwestern Minnesota, since there is a seemingly disjunct population in extreme southeastern Manitoba. These populations represent the northwestern periphery of the species' range.

The Northern Brook Lamprey spends three to six years as an ammocoete (larval form) partially buried in organically enriched sandy substrate, after which it metamorphs to a non-feeding adult that spawns and dies (Hubbs 1925). Thus, for this species to complete its life cycle, it must find quiet waters of moderately warm, medium-sized, low-gradient streams that also have nearby higher-gradient reaches containing sand and gravel riffles or runs that can be used for spawning (Trautman 1981). During the spring spawning season, at least, these riffles must remain free of sediment. Because most of our populations are in streams that drain lands where logging and peat extraction activities can be high, they are at some risk of threat from reduced water quality. The Blackhoof River population may also be adversely affected by lampricide treatments, since this stream is periodically treated for parasitic lampreys (last in 1988) and the Northern Brook Lamprey does succumb to such treatments (Purvis 1970). For these reasons, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Bell Museum of Natural History, James Ford. Fish Collection Database, Version 1.0. Ecology Building, University of Minnesota, St. Paul.

Cochran, P.A., and T.C. Pettinelli. 1985. Northern and southern brook lampreys (*Ichthyomyzon fossor* and *I. gagei*) in Minnesota. Unpubl. report to the Minnesota DNR, Nongame Wildlife Program. 15pp.

Hubbs, C.L. 1925. The life-cycle and growth of lampreys. Papers of the Michigan Academy of Science, Arts and Letters 4(1924):587-603.

Hubbs, C.L. and M.B. Trautman. 1937. A revision of the lamprey genus Ichthyomyzon. University of Michigan Museum of Zoology Miscellaneous Publications No. 35:1-109.

Purvis, H.A. 1970. Growth, age at metamorphosis, and sex ratio of northern brook lamprey in a tributary of southern Lake Superior. Copeia 1970:326-332.

Trautman, M.B. 1981. The fishes of Ohio. Ohio State University Press, Columbus. 782 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ichthyomyzon gagei* Hubbs & Trautman

COMMON NAME: Southern Brook Lamprey

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was unknown from Minnesota waters until 1985, when it was taken from a small tributary of the St. Croix River. It has since been collected at 13 sites in six different St. Croix River tributaries, all in Pine County (Bell Museum of Natural History, Fish Collection Database). This St. Croix River population is over 900 km away from the next northernmost Southern Brook Lamprey population (Cochran 1987). Although Cochran favors the hypothesis that the St. Croix population is a relictual population (i.e., left over from when the contiguous range included Minnesota), he recognizes the possibility that it may represent an independently evolved satellite species of the chestnut lamprey (*Ichthyomyzon castaneus*). In either case, he concludes, the St. Croix population is evolutionarily unique and should be protected. As a nonparasitic species, the Southern Brook Lamprey follows a life cycle very similar to that of the northern brook lamprey (Hubbs 1925). Adults are found only in very clear streams of swift, permanent flow where they utilize clean sand and gravel riffles as spawning sites (Cochran 1987; Robison and Buchanan 1988). On the other hand, the ammocoetes (larval forms) of this species require nearby, lower gradient stream segments with organically enriched, sandy substrates. There they remain partially buried while feeding and developing over a period of three to six years. Within the Mississippi River drainage of Minnesota, such conditions are found only in tributaries of the St. Croix River. Minnesota's Southern Brook Lamprey population appears healthy, but because it has a very limited range, is distantly disjunct from the contiguous southern populations, represents either a recent new species or a relict of the southern populations, and is vulnerable to habitat degradation, Special Concern status is needed and reasonable at this time.

SELECTED REFERENCES:

Bell Museum of Natural History, James Ford. Fish Collection Database, Version 1.0. Ecology Building, University of Minnesota, St. Paul.

Cochran, P.A. 1987. The southern brook lamprey (*Ichthyomyzon gagei*) in the St. Croix River drainage of Wisconsin and Minnesota. Copeia 1987:443-446.

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Hubbs, C.L. 1925. The life-cycle and growth of lampreys. Papers of the Michigan Academy of Science, Arts and Letters 4(1924):587-603.

Robison, H.W. and T.M. Buchanan. 1988. Fishes of Arkansas. University of Arkansas Press, Fayetteville. 536 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ictalurus furcatus* (Le Sueur)

COMMON NAME: Blue Catfish

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Blue Catfish is the largest member of the catfish family . It is widely distributed throughout the Mississippi River drainage of North America, inhabiting larger streams and tributaries. Dams constructed along the Mississippi River after 1900 may have severely restricted Blue Catfish migrations and impacted key riverine habitats. There are several reported collections of this species from Minnesota waters (Cox 1897, Eddy and Surber 1943); however, specimens are not available to voucher these reports. There have been no reported catches from the sport fishery, commercial landings, or standard surveys since Eddy and Surber published their work in 1943. Lake St. Croix was stocked with 6,335 yearling Blue Catfish in 1977, presumably in an attempt to establish this species in Minnesota. Two of these fish were captured in assessment nets the following year in Lake Pepin, but none have been seen since. Becker (1983) reported that historical accounts of Blue Catfish from Wisconsin waters were sketchy and likely represented mis-identified channel catfish which, after attaining sexual maturity, often loose their spots and appear slate-grey to blue in appearance.

Although the Blue Catfish was listed as a Special Concern species in 1984 to reflect uncertainty about its current status, there are no verifiable records of this species from the state (Coffin and Pfannmuller 1988). It now appears likely that the species was never native to Minnesota. Consequently, it is reasonable to remove the Blue Catfish from Special Concern status.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

Cox, U.O. 1897. A preliminary report on the fishes of Minnesota. Zoological Series III. Geological and Natural History Survey of Minnesota. St. Paul. 93 pp.

Eddy, S., and T. Surber. 1943. Northern Fishes. Univ. of Minnesota Press, Minneapolis. 267pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ictiobus niger* (Rafinesque)

COMMON NAME: Black Buffalo

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Black Buffalo is a large river species that frequents main channels and prefers swift water (Becker 1983). Although the Black Buffalo was known historically from the upper Mississippi River as far north as Lake Pepin (Phillips and Underhill 1971, Becker 1983), there were no known verified records from Minnesota waters before 1983, perhaps because the importance of any observations was not realized. Since 1983, however, several specimens of Black Buffalo have been taken from Minnesota and Wisconsin waters of pools 4, 7, and 8 in the Mississippi River (Pitlo et al. 1995), and one specimen was caught at the mouth of the Cottonwood River (Bell Museum of Natural History, Fish Collection Database). These records, along with 12 historic Wisconsin records in the Mississippi River from Lake Pepin through Pool 9 (Becker 1983), clearly establish the Black Buffalo as part of Minnesota's native fauna. Further, this species' habitat is one that can be heavily impacted by navigation maintenance and control activities on the Mississippi River. Because the Black Buffalo is rare and occupies a habitat that is vulnerable to degradation, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Bell Museum of Natural History, James Ford. Fish Collection Database, Version 1.0. Ecology Building, University of Minnesota, St. Paul.

Phillips, G L. and J.C. Underhill. 1971. Distribution and variation of the Catostomidae in Minnesota. Occasional Papers of the Minnesota Museum of Natural History No. 10 45 pp.

Pitlo, J. Jr., A. Van Vooren, and J. Rasmussen. 1995. Distribution and relative abundance of Upper Mississippi River fishes. Upper Mississippi River Conservation Committee, Rock Island, IL. 20 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lampetra appendix* (DeKay)

COMMON NAME: American Brook Lamprey

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The American Brook Lamprey was designated as a species of Special Concern in 1984 due to its documented extirpation from the Credit River near Savage, Minnesota between 1940 and 1950 (Coffin and Pfannmuller 1988). At the time, other records of this species' distribution were restricted to a few sites in the Cannon, Zumbro and Root River drainages, and one site in Valley Creek, a tributary of the St. Croix River (Bell Museum of Natural History, Fish Collection Database). Although the species still appears to be absent from the Credit River, it has been found recently in Eagle Creek, another Minnesota River tributary two miles west of the Credit River. The specimen collected was an advanced ammocoete (larval form), indicating that the species had reproduced in the area within the past few years (K. Schmidt pers. comm.). The American Brook Lamprey is distributed over a wider area of Minnesota than was previously thought, and its populations appear to be reproducing well. It is now known to occur at a total of 23 sites in the Cannon, Zumbro, Whitewater and Root River drainages. In addition, it has been found at three sites in the Upper Iowa River drainage in Mower County, and recently have been confirmed as still occurring in Valley Creek. Although isolated populations, such as the one in Eagle Creek, could be adversely affected in the near future, the probability that all or even a significant portion of Minnesota populations would be threatened with extirpation is low. Therefore, it seems reasonable to remove this species from Special Concern status.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Bell Museum of Natural History, James Ford. Fish Collection Database, Version 1.0. Ecology Building, University of Minnesota, St. Paul.

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Gage, S.H. 1928. The lampreys of New York State: life history and economics. Pp. 158-191 *in* A biological survey of the Oswego River system. Supplement to the 17th Annual Report of the New York State Conservation Department (1927).

Hubbs, C.L. 1925. The life-cycle and growth of lampreys. Papers of the Michigan Academy of Science, Arts and Letters 4(1924):587-603.

Mundahl, N.D. 1994. Distribution of fish species within ten watersheds in southeastern Minnesota. Unpubl. Report to the Minnesota DNR, Natural Heritage and Nongame Research Program. 40pp.

Mundahl, N.D. 1995. Abundance and habitat preferences of American Brook Lamprey in Minnesota. Unpubl. Progress Report to the Minnesota DNR, Natural Heritage and Nongame Research Program. 3pp.

Smith, A.J., J.H. Howell and G.W. Piavis. 1968. Comparative embryology of five species of lampreys of the upper Great Lakes. Copeia 1967:461-469.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Moxostoma duquesnei* (Le Sueur)

COMMON NAME: Black Redhorse

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Black Redhorse is an inhabitant of small to medium-sized streams of clear water and gravel substrate. It was designated as a species of Special Concern in 1984 to reflect concern about its limited distribution within Minnesota. At the time, it was known to occur at only six sites in the Zumbro and Root River drainages (Coffin and Pfannmuller 1988). Specimens have been taken at 18 additional sites since then (J. Hatch pers. comm., K. Schmidt 1993). The species has likely always been rare in Minnesota, since the state's populations represent the northern range limit of a basically southern species (Lee 1980). However, it is now known to be much more widely distributed than was previously believed, and Special Concern status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis. 473 pp.

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Pflieger, W. L. 1975. The fishes of Missouri. Missouri Dept. Cons. 343pp.

Schmidt, K.P. 1993. Stream survey results for the gravel chub (*Erimystax x-punctatus*) and black redhorse (*Moxostoma duquesnei*) in southeastern Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 9pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Notropis anogenus* Forbes

COMMON NAME: Pugnose Shiner

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Pugnose Shiner is a species of the weedy shorelines of lakes and warmwater streams. Throughout its range, the Pugnose Shiner is known to be generally rare, and often absent in apparently suitable habitat (Lee et.al. 1980). Becker (1983) states that the species "appears to be in serious trouble over its range." In Minnesota, collections of the Pugnose Shiner are known from 42 sites across the central portion of the state. It is difficult to know if populations have declined in recent years, since collections of more than ten individuals have always been rare. Surveys in the past 25 years have discovered six new site-records but have duplicated prior records at only two sites (J. Hatch pers. comm.). Removal of littoral vegetation from lakes and an increase in turbidity in lakes and streams have been linked to this species' demise in other states, and both these phenomena have occurred at many of the historic Minnesota sites. It appears that Minnesota remains the center of abundance for this species, and additional losses of our populations would have significant impact on the global security of the species. Consequently, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer, Jr., eds. 1980. Atlas of North American Freshwater Fishes. North Carolina State Museum of Natural History, Raleigh. 854pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Notropis emilae* (Hay)

COMMON NAME: Pugnose Minnow

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Pugnose Minnow is a species of weedy, clear, slow waters adjacent to large rivers, and reaches it northern-most distribution in Minnesota. In this state, it is known from the lower Mississippi River drainage, principally in the pools and backwaters of the Mississippi River itself, and from three sites in the Root and Zumbro rivers (Bell Museum of Natural History, Fish Collection Database). Although it was designated as a species of Special Concern in 1984 to reflect its unknown, and possibly rare abundance (Coffin and Pfannmuller 1988), recent surveys have shown it to be common to abundant in many backwaters areas from Dakota County to Houston County (J. Hatch pers. comm.). The species becomes progressively more common to the south in the Mississippi River. Survey work has also documented that populations in Minnesota have recovered well from the floods of 1993 (J. Underhill pers. comm.). Given that the Pugnose Minnow is well distributed in good numbers in the state, and has demonstrated a resiliency to periodic catastrophe, Special Concern status is no longer necessary for this species.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Notropis nubilus* (Forbes)

COMMON NAME: Ozark Minnow

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Throughout their range, the Ozark Minnow is found only in clear, small- to medium-sized streams of permanent flow usually in areas of slow current near gravel and pebble riffles. Within Minnesota, the species is known from about 35 sites in the Zumbro River drainage, one site in the Root River, and 17 sites in the Cedar River drainage of Mower County (Bell Museum of Natural History, Fish Collection Database). Although the populations in the Zumbro and Cedar drainages appear to be fairly large and stable (10's to 100's of specimens consistently found over a period of 40 years), they are isolated from one another and from other populations in Wisconsin and Iowa by virtue of unsuitable intervening habitat. The recently-documented local extinction of several populations to the south of Minnesota raise concern regarding the resilience of this species. With only two well-established populations in the state and little likelihood of recolonization if either population were decimated by catastrophe, Special Concern status is needed and reasonable for the Ozark Minnow at this time.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Bell Museum of Natural History, James Ford. Fish Collection Database, Version 1.0. Ecology Building, University of Minnesota, St. Paul.

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Schmidt, K.P. 1991. Stream survey results for the slender madtom (*Noturus exilis*), crystal darter (*Etheostoma chlorosomum*), and bluntnose darter (*Etheostoma chlorosomum*) in southeastern Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 11pp.

Schmidt, K.P. 1993. Stream survey results for the gravel chub (*Erimystax x-punctatus*) and black redhorse (*Moxostoma duquesnei*) in southeastern Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 9pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Percina evides* (Jordan & Copeland)

COMMON NAME: Gilt Darter

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: In Minnesota, the Gilt Darter only occurs in the St. Croix River drainage in cobble to boulder runs and riffles of moderate to strong current (Hatch 1985). The species appears not to tolerate siltation and requires strong, year-around flow and clean gravel/cobble substrate for spawning. In Minnesota, this combination of characteristics appears to occur only in the St. Croix River and in several of its tributaries (Snake, Kettle, and Sunrise). Although Gilt Darter populations in the St. Croix River drainage are large, their limited distribution makes them vulnerable to decline and possibly extirpation through catastrophic events. The next nearest stable population is in the lower Black River of Wisconsin, but the Mississippi River does not offer an avenue for recolonization. The Minnesota-Wisconsin St. Croix population is disjunct from those of the Ozarks and the Tennessee uplands and likely represents at least a separate subspecies. Elsewhere in North America, the Gilt Darter has greatly declined or become extirpated. For these reasons, Special Concern status is deemed needed and reasonable at this time.

SELECTED REFERENCES:

Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Hatch, J.T. 1985. Distribution, habitat, and status of the gilt darter (*Percina evides*) in Minnesota. J. Minn. Acad. Sci. 51(2):11-16.

Schmidt, K.P. 1991. Stream survey results for the slender madtom (*Noturus exilis*), crystal darter (*Etheostoma chlorosomum*), and bluntnose darter (*Etheostoma chlorosomum*) in southeastern Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 11pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polyodon spathula* (Walbaum)

COMMON NAME: Paddlefish

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The Paddlefish is native to the Mississippi River basin, where it requires large expanses of free flowing river in which to complete its life history cycle. Spawning occurs in the spring over clean, silt-free gravel bars inundated by elevated spring flows. Paddlefish need waters rich in microscopic life - zooplankton, on which to feed (Becker 1983). The Paddlefish is one of very few true large river species found in Minnesota.

Throughout most of the range of the Paddlefish, the species has experienced a decline in the abundance and distribution (Becker 1983). When the Paddlefish was designated as a species of Special Concern in 1984, concern was expressed about the species' demonstrated decline in numbers and distribution within the state (Coffin and Pfannmuller 1988). In Minnesota, Paddlefish once ranged up the Minnesota River to Mankato, up the Mississippi River to St. Anthony Falls, and in the St.Croix River up to Taylors Falls (Cox 1897). Following a dramatic decline in this century, the state's populations appear to now be stabilizing, but remains limited to two small populations in Lake St.Croix and Lake Pepin (Lee et.al. 1980, Dept. of Interior 1992, J. Lyons pers. comm., T. Schlagenhaft pers. comm.). While paddlefish numbers below Lock and Dam No. 3 in Red Wing are believed to be higher than in upstream waters, they are still considered rare in occurrence (Thiel 1994). Recent discussions with commercial fishermen suggest that abundance and distribution in Minnesota may be somewhat greater than believed (Schmidt 1995), but in the absence of verifiable documentation, the accuracy (re. date, location, and number of individuals observed) of these reports is difficult to assess. Nonetheless, these reports provide valuable information that will guide further investigations into the species' current distribution and abundance.

Declines in Minnesota's Paddlefish population are probably the result of the loss of important habitat, alterations to natural river flow regimes, and the construction of navigation dams on the Mississippi River that limit or eliminate migration. There is also concern about reports of a substantial proportion of Paddlefish in the Mississippi River having scars resulting from encounters with boat propellers (H. Ramer pers. comm.). Given the strong evidence of long term declines in Paddlefish abundance and distribution, and the continued deterioration of habitat in the Upper Mississippi River, it is necessary and reasonable to designate the Paddlefish as a Threatened species until such time as their security from continued decline is ensured through habitat restoration, and is demonstrated through scientific investigation and population monitoring using appropriate sampling gear.

SELECTED REFERENCES:

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Schmidt, K. 1995. The distribution and status of paddlefish (*Polyodon spathula*) in Minnesota. Unpubl. Report. 22pp.

Thiel, P. 1994. Relative importance of Polandar Lake as paddlefish habitat. Unpubl. project status report. USFWS, Winona Fisheries Resource Office, Winona, Minn.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Scaphirhynchus platorhynchus* (Rafinesque)

COMMON NAME: Shovelnose Sturgeon

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Shovelnose Sturgeon is found in larger rivers and tributaries of the Mississippi River basin, where it inhabits strong currents in channels, with sand and gravel bottoms, or may be found in association with soft substrates near the upstream ends of silt beds, provided there is good current (Lee 1980, Becker 1983). In Minnesota, it is present in the Mississippi River north to St. Anthony Falls, the St. Croix River north to Taylors Falls, and the Minnesota River north to Minnesota Falls. Collections have also been reported from the Blue Earth and Cottonwood rivers which are major tributaries to the Minnesota River. Bellig (1987) described the distribution and abundance of Shovelnose Sturgeon in the Minnesota River as common.

Helms (1974) believes that shovelnose sturgeon populations are undoubtedly much lower today than when the Mississippi River was a natural, unimpounded water course. He cites habitat destruction related to the construction of navigation dams, channel dredging and flood control as factors contributing to their decline. Helms also believes that at the present time in the upper Mississippi, Shovelnose Sturgeon populations have probably attained some level of equilibrium with their environment. This assessment would seem to collaborate with observations made from Minnesota. For these reasons, it is no longer necessary or reasonable to designate the Shovelnose Sturgeon as a species of Special Concern.

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Becker, G.C. 1983. The fishes of Wisconsin. University of Wisconsin Press, Madison. 1052 pp.

Bellig, R.A. 1987. Distribution and habitat selection of the shovelnose sturgeon (*Scaphirhynchus platorynchus*) in the Minnesota River. Unpubl. Report to the Minnesota DNR. 18pp.

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MOLLUSKS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Actinonaias ligamentina* (Lamarck)

COMMON NAME: Mucket

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was once extremely important in the pearl button industry. Dawley (1947) reported that this species occurred in "all parts of the Mississippi drainage and in the Hudson Bay drainage, widely distributed in medium sized and large rivers, but not present in large numbers". It's widespread historical occurrence is supported by the distribution of dead shells found in recent surveys (Bright et al. 1988, 1990, Davis 1988). The Mucket is now common only in the St. Croix River and some of its tributaries (Doolittle 1987, Hornbach et.al. 1995). It apparently no longer occurs in the Minnesota (Bright 1990), or the Red River drainage (Cvancara 1970), and occurs in very low numbers in the Mississippi (M. Davis pers. comm.), Zumbro (Bright et.al. 1988), and Cannon Rivers (Davis 1988).

The designation of the Mucket as Threatened is needed and reasonable because it is now found alive in only a small number of drainages, making it vulnerable to catastrophic events. In addition, continued persistence of the Mucket in Minnesota is threatened by the hydrologic alteration of streams and their watersheds, the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, non-point and point source water and sediment pollution, and by the impending zebra mussel infestation of the Mississippi River and its tributaries.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Bright, R.C., E. Plummer and D. Olson. 1988. A survey of the mussels of the Zumbro River drainage, southeastern Minnesota. Unpubl. Report to Mn Dept of Nat. Resources.

Cvancara, A.M. 1970. Mussels (Unionidae) of the Red River Valley in North Dakota and Minnesota. Malacologia 10:57-92.

Davis, M. 1988. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Cannon River drainage in southeastern Minnesota. Unpubl. Report MN Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Alasmidonta marginata* Say

COMMON NAME: Elktoe

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Originally inhabiting many rivers in Minnesota, including the Mississippi, Minnesota, Sunrise and Snake (Dawley 1947), the Elktoe is now common only in the St. Croix River and some of its tributaries (Heath 1990, Hornbach et.al. 1995). It is still found occasionally in the Mississippi (M. Davis pers. comm.) and Zumbro Rivers of southeastern Minnesota, where Bright et al. (1988) considered it a minor component of the mussel fauna. Bright et.al. (1990) considered it to have been a minor component of the Minnesota River fauna historically, and it is now apparently on the verge of extirpation in the Minnesota, as well as the Pomme de Terre (Bright et.al. 1990, 1995).

The designation of the Elktoe as Threatened is necessary and reasonable because it has recently been found alive in only a small number of drainages, making it vulnerable to catastrophic events. In addition, continued persistence of the Elktoe in Minnesota is threatened by the hydrologic alteration of streams and their watersheds, non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, R. Heisler, E. Plummer, K. Stramer, and W. Ostlie. 1995. A survey of the mussels of the Pomme de Terre and Chippewa Rivers, Minnesota, 1990. Unpubl. Report to Mn Dept. Of Nat. Resources.

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Arcidens confragosus* (Say)

COMMON NAME: Rock Pocketbook

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Historically a resident of the Mississippi river and its largest tributaries, where Dawley (1947) characterized it as "not common", the Rock Pocketbook was apparently both more common and more widely distributed in Minnesota in the past than it is today. Van de Schalie and van der Schalie (1950), reporting on survey work by Ellis in the early 1930's, characterized it as having a wide range, but seldom found in large numbers. Evidence of its past distribution can be found in turn of the century shell middens left by pearl hunters near Red Wing, where it is no longer found (M. Davis pers. comm.), and by relict shells found along the Minnesota River (Bright et al. 1990). Numerous surveys conducted along the Mississippi and Minnesota Rivers over the past twenty years have produced records of only two live individuals from two sites in Pool 5 of the Mississippi (M. Davis unpubl. data). It has never been reported from the St. Croix River, one of the last stable habitats for large river mussel fauna in the Upper Midwest.

The viability of remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. The Rock Pocketbook is a thin-shelled species making it especially vulnerable to zebra mussel mortality. For these reasons, it is needed and reasonable to designate the species as Endangered in Minnesota.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cumberlandia monodonta* (Say)

COMMON NAME: Spectaclecase

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Reported from the Mississippi River historically (Thiel 1981), recent collections of the Spectaclecase have come only from the St. Croix River and some of its tributaries (Doolittle 1987, Havlik 1993, Heath 1990). The species has very specific habitat requirements, occurring in colonies under large rocks, so while it can be locally abundant, it is sparsely distributed along the St. Croix River where Doolittle (1987) found it alive at only two sites, and Heath (1990) at four sites. Havlik (1993) found only older live specimens at a third site at Wild River State Park.

The viability of remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution, by the impending zebra mussel infestation of the Mississippi River and its tributaries, and by the vulnerability associated with being a colonial species. For these reasons, it is needed and reasonable to designate the species as Threatened in Minnesota. If the affects of these factors cannot be mitigated, it may become endangered in the future.

SELECTED REFERENCES:

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Havlik, M. 1993. Unionids and margaritiferids (Mollusca:Bivalvia) in the St. Croix River bordering Minnesota at Afton and Wild River State Parks, 8-17 June 1992. Unpubl. Report to MN Dept. Of Nat. Resources.

Heath, D. 1990. Identification of distribution, abundance, and critical habitat for Lampsilis higginsi and Category 2 species of mussels. Wisc. End. Resources Report #65.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cyclonaias tuberculata* (Rafinesque)

COMMON NAME: Purple Wartyback

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Past surveys and shell records indicate that the Purple Wartyback was widely distributed in the Mississippi River below St. Anthony Falls and in the Minnesota and St. Croix Rivers, but not found in large numbers anywhere (Dawley 1947, van der Schalie and van der Schalie 1950). Today it is apparently extirpated from the Minnesota (Bright et.al. 1990), extremely rare in the Mississippi River (Thiel 1981), and healthy only in portions of the St. Croix River (Doolittle 1987, Heath 1990, Hornbach et.al. 1995).

The viability of remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution, and by the impending zebra mussel infestation of the Mississippi River and its tributaries. For these reasons, it is needed and reasonable to reclassify the Purple Wartyback as Threatened in Minnesota. If the effects of these factors cannot be mitigated, it may become endangered in the future.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

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van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ellipsaria lineolata* (Rafinesque)

COMMON NAME: Butterfly

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Based on the presence of old shells, the Butterfly was once present in the Minnesota, St. Croix, and Mississippi Rivers, but was comparatively rare, even in the 1900's (Bright 1990, Coker 1919, Doolittle 1987). It is now uncommon in the St. Croix, where Doolittle (1987) found it at two sampling points, and Hornbach et.al. (1995) quantified as less than one percent of the mollusk fauna, and is rare in the lower reaches of the Mississippi in southeastern Minnesota (Fuller 1985). In a recent survey of Pool 7 only 1 live specimen of the Butterfly was found out of more than 2000 specimens examined (M. Davis unpubl. data). It has apparently been extirpated from the Minnesota River (Bright et.al. 1990).

It is necessary and reasonable to now designate the Butterfly as Threatened in Minnesota because of its low numbers. The viability of remaining populations in the Mississippi is jeopardized by the continuing decline in habitat conditions associated with its management as a navigation canal, with non-point and point source water and sediment pollution, and by the impending zebra mussel infestation of the Mississippi River and its tributaries. If observed trends cannot be reversed, the species may become endangered in the future.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Elliptio crassidens* (Lamarck)

COMMON NAME: Elephant-Ear

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Elephant-Ear once occurred in the Minnesota River, and Mississippi River below St. Anthony Falls, although it was probably always rare (Dawley 1947, van der Schalie and van der Schalie 1950). At the time it was designated as Special Concern in 1984, it had been collected live in the state only once since the 1930's (Coffin and Pfannmuller 1988), but the Minnesota River had not been thoroughly surveyed. It is now known to be extirpated in the Minnesota River (Bright et al. 1990), and in the Mississippi (M. Davis pers. comm.). The only recent record is from the lower St. Croix River where 72 very old individuals were found during a bridge replacement project (Heath 1989).

Most species of mussels require a fish host for their larval stage. The only known fish host for the Elephant-Ear is the skipjack herring, a migratory fish that is now only rarely able to reach Minnesota because of dams. With its host fish functionally unavailable and the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, non-point and point source water and sediment pollution, and the impending zebra mussel infestation of the Mississippi River and its tributaries, the Elephant Ear exists at the brink of extirpation today. A designation of Endangered is therefore needed and reasonable.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

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van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Elliptio dilatata* (Rafinesque)

COMMON NAME: Spike

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Historically widespread and locally common in Minnesota (Dawley 1947), the Spike is now common only in the St. Croix River (Doolittle 1987, Havlik 1993, Heath 1990, Hornbach et.al. 1995) and at the foot of Lake Pepin on the Mississippi River (M. Davis pers. comm.). Occasional specimens are collected from tributaries to the Mississippi River (Davis 1988), but it is apparently extirpated in the mainstem of the Minnesota, despite ample habitat (Bright et. al. 1990). Although rare in the Chippewa R., 19 live individuals were found at 3 sampling stations by Bright et al. (1995).

The designation of the Spike as Special Concern is needed and reasonable because it has recently been found alive in only a small number of drainages, making it vulnerable to catastrophic events. In addition, degradation of mussel habitat in streams throughout its known range is a continuing threat. Further survey work in rivers where it was formerly documented is needed to verify its status in the rest of its former range. Spike populations in Minnesota are vulnerable to further decline because of hydrologic alteration of streams and their watersheds, the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, non-point and point source water and sediment pollution, and the impending zebra mussel infestation of the Mississippi River and its tributaries. If current trends cannot be reversed, the Spike may become threatened in the future.

SELECTED REFERENCES:

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Davis, M. 1988. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Cannon River drainage in southeastern Minnesota. Unpubl. Report MN Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Havlik, M. 1993. Unionids and margaritiferids (Mollusca:Bivalvia) in the St. Croix River bordering Minnesota at Afton and Wild River State Parks, 8-17 June 1992. Unpubl. Report to MN Dept. Of Nat. Resources.

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Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Epioblasma triquetra* (Rafinesque)

COMMON NAME: Snuffbox

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Past records have come from the Mississippi River at Lake Pepin early in this century (Grier 1922). Now rare throughout the Midwest, in Minnesota the Snuffbox has apparently been extirpated in the Mississippi (Thiel 1981), and found only in the St. Croix River, where it is very rare (Doolittle 1987, Heath 1990, Hornbach et.al. 1995).

The designation of the Snuffbox as Threatened is needed and reasonable because of its limited range, sparse population, the attendant probability of inbreeding which could weaken it genetically, the threat of non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. If observed trends cannot be reversed, the Snuffbox may become Endangered in the future.

SELECTED REFERENCES:

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Grier, N.M. 1922. Final report on the study and appraisal of mussel resources in selected areas of the Upper Mississippi River. Amer. Midl. Nat. 8:1-33.

Heath, D. 1990. Identification of distribution, abundance, and critical habitat for Lampsilis higginsi and Category 2 species of mussels. Wisc. End. Resources Report #65.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Fusconaia ebena* (I. Lea)

COMMON NAME: Ebonyshell

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: At one time an abundant and commercially valuable species in the Mississippi River below St. Anthony Falls, the Ebonyshell was also found in the Minnesota and St. Croix Rivers (Coker 1919). By 1984, when it was designated as Special Concern, recent records of live specimens in the Mississippi R. were rare (Coffin and Pfannmuller 1988). Bright et al. (1990) found only dead shells in the Minnesota R., as did Doolittle (1987) in the St. Croix, and Thiel (1981) in the Mississippi. The species is now known only from one site on the lower St. Croix River where a few very old individuals were found during a bridge replacement project (Heath 1989). Hornbach et.al. (1995) did not find this species in their recent work.

Most species of mussels require a fish host for their larval stage. Ebonyshells depend on the Skipjack Herring, a migratory fish that is no longer able to reach Minnesota because of dams, as their larval host (Surber 1913). With its host fish unavailable and the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution and the impending zebra mussel infestation of the Mississippi River and its tributaries, the Ebonyshell exists in Minnesota at the brink of extirpation today. A designation of Endangered is therefore needed and reasonable.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. report to Mn Dept. of Nat. Resources.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

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Surber, T. 1913. Notes on the natural hosts of fresh-water mussels. Bull. Of the U.S. Bureau of Fisheries. 32:101-115, pls. 29-31.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lampsilis teres* (Rafinesque)

COMMON NAME: Yellow Sandshell

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Reported in the literature to be a resident of large rivers, the Yellow Sandshell was once locally abundant in the Mississippi River below St. Anthony Falls according to collection records and personal accounts (Davis pers. comm, Grant 1886, van der Schalie and van der Schalie 1950). Bright et al. (1990) found dead shells as far upstream as Granite Falls on the Minnesota, but no live specimens, and one recently dead specimen was found on the Chippewa R. in 1990 (Bright et al. 1995). Thiel (1981) found only one live specimen in Lake Pepin in a survey of pools 3-10 of the Mississippi. No live specimens have been collected or reported recently from anywhere in the state.

The viability of any remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. The Yellow Sandshell is a thin shelled species leaving it especially vulnerable to zebra mussel mortality. Although the lack of recent records suggests that the species may already be extirpated in the state, the recently dead specimen from the Chippewa R. raises the possibility that it may still be found alive through further survey work. It is therefore needed and reasonable to designate the Yellow Sandshell as Endangered.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, R. Heisler, E. Plummer, K. Stramer, and W. Ostlie. 1995. A survey of the mussels of the Pomme de Terre and Chippewa Rivers, Minnesota, 1990. Unpubl. Report to Mn Dept. Of Nat. Resources.

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van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lasmigona compressa* (I. Lea)

COMMON NAME: Creek Heelsplitter

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Creek Heelsplitter was once widespread and abundant in streams and small rivers in the Mississippi drainage north of St. Anthony Falls in Minnesota (Dawley 1947). While it still persists in a number of rivers around the state, it is present in low numbers. Doolittle (1987) reported it from only one sampling site on the St. Croix. Bright et.al. (1995) concluded from the distribution of live and dead shells in the Pomme de Terre and Chippewa Rivers that the species once was more widely distributed than it is at present in the rivers, where live individuals were found at 5 sampling sites on the Chippewa and 1 sampling site on the Pomme de Terre in 1990. No recruitment was evident at any of the sites. The Creek Heelsplitter also persists in low numbers in the Cannon, Zumbro, Ottertail Rivers (Bright et al. 1988, Bright et.al. 1994a, Davis 1988), as well as in several northern rivers, including the Mississippi upstream of Little Falls (Bright et.al. 1994b, Davis unpubl. data, Hove et al. 1995).

Degradation of mussel habitat in streams throughout its known range is a continuing threat. Many of the streams from which it was reported by Dawley (1947) have not been recently surveyed; the Special Concern designation is necessary and reasonable because of threats to its habitat and the need for further survey work to determine its current status.

SELECTED REFERENCES:

Bright, R.C., T. Atkinson, and C. Gatenby. 1994a. Survey of the mussels of the Ottertail and Pelican Rivers, Minnesota: the data. Unpubl. report to Mn Dept. of Nat. Resources.

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Hove, M., R. Engelking, and C. Freiburger. 1995. Qualitative bivalve survey of the Sandy River drainage, Minnesota. Unpubl. Report to MN Dept. Of Nat. Resources.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lasmigona costata* (Rafinesque)

COMMON NAME: Fluted Shell

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Fluted Shell is a species of medium sized and large rivers, and was historically reported from the Mississippi north of St. Anthony Falls, the Snake and Red Lake Rivers (Dawley 1947). Grier (1922) reported low numbers from the Mississippi, where it represented less than 1% of the mussel fauna. Bright et al. (1990) characterized it as once "sparingly established" in the Minnesota, but in 1990 found only dead shells at 13 sampling stations, primarily between Redwood Falls and the mouth of the Lac Qui Parle River. Cvancara (1970) found it present in the Red River drainage. There are recent reports of live specimens from the Clearwater, Ottertail, Cannon, Zumbro, and Mississippi (Bright et al. 1988, 1994, Davis 1988, pers. comm.) but it is only common on the St. Croix River, where Doolittle (1987) found live specimens at many sampling points throughout the river.

The Fluted Shell's designation as Special Concern is needed and reasonable because it's perilously low numbers anywhere but the St. Croix River make it vulnerable to catastrophic events. Degradation of mussel habitat in streams throughout its known range is a continuing threat. Further survey work in medium sized rivers is needed to verify its status in the rest of its former range.

SELECTED REFERENCES:

Bright, R.C., T. Atkinson, and C. Gatenby. 1994. Survey of the mussels of the Ottertail and Pelican Rivers, Minnesota: the data. Unpubl. report to Mn Dept. of Nat. Resources.

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Bright, R.C., E. Plummer and D. Olson. 1988. A survey of the mussels of the Zumbro River drainage, southeastern Minnesota. Unpubl. Report to Mn Dept of Nat. Resources.

Cvancara, A.M. 1970. Mussels (Unionidae) of the Red River Valley in North Dakota and Minnesota. Malacologia 10:57-92.

Davis, M. 1988. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Cannon River drainage in southeastern Minnesota. Unpubl. Report MN Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Grier, N.M. 1922. Final report on the study and appraisal of mussel resources in selected areas of the Upper MIssissippi River. Amer. Midl. Nat. 8:1-33.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ligumia recta* (Lamarck)

COMMON NAME: Black Sandshell

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Black Sandshell was once common in all but the smallest rivers in Minnesota (Dawley 1947). Although Bright et al. (1990) found dead specimens at 18 sampling points on the Minnesota River, indicating the broad former range of the species, only one live specimen was reported. Thiel (1981) cited evidence of declining numbers in Pools 3-9 of the Mississippi. Bright et al. (1994b) found it alive or recently dead at each of 24 sampling stations in the Mississippi and Crow Wing Rivers upstream of Little Falls. The species is apparently still doing well in the Chippewa River where 56 live specimens were found at 12 sites, and there was evidence of recruitment (Bright et al. 1995), and the Ottertail (Bright et al. 1994a). It has also been recently reported in low numbers from several northern rivers (Davis unpubl. data, Hove 1995). The St. Croix appears to be a strong-hold for the species (Doolittle 1987).

The designation of the Black Sandshell as Special Concern is needed and reasonable because of evidence of decline on the Mississippi and its tributaries, particularly below St. Anthony Falls. Degradation of mussel habitat in streams throughout its known range is a continuing threat. Further survey work in rivers where it was formerly documented is needed to verify its status in the rest of its historical range.

SELECTED REFERENCES:

Bright, R.C., T. Atkinson, and C. Gatenby. 1994a. Survey of the mussels of the Ottertail and Pelican Rivers, Minnesota: the data. Unpubl. report to Mn Dept. of Nat. Resources.

Bright, R.C., C. Gatenby, R. Heisler, E. Plummer, K. Stramer, and W. Ostlie. 1995. A survey of the mussels of the Pomme de Terre and Chippewa Rivers, Minnesota, 1990. Unpubl. Report to Mn Dept. Of Nat. Resources.

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Bright, R.C., R. Heisler, S. Breidenbach and D. Rocha. 1994b. Survey of the mussels of the Camp Ripley portions of the Mississippi and Crow Wing Rivers, Minnesota: the data. Unpubl. Report to the Mn Dept. of Nat. Resources.

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Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Hove, M., R. Engelking, and C. Freiburger. 1995. Qualitative bivalve survey of the Sandy River drainage, Minnesota. Unpubl. Report to MN Dept. Of Nat. Resources.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Megalonaias nervosa* (Rafinesque)

COMMON NAME: Washboard

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Washboards are a large river species historically found in the Minnesota and St. Croix Rivers and in the Mississippi River below St. Anthony Falls (Grier 1922, van der Schalie and van der Schalie 1950). They were likely always rare in the Minnesota, where Bright et al. (1990) found only two dead shells, and no live individuals. They are now very rare in the Mississippi (M. Davis pers. comm., Thiel 1981) and St. Croix Rivers (Heath 1990), where it comprised only one percent of the mussels identified by Hornbach et.al. (1995).

Threatened status for the Washboard needed and reasonable because of the small number of recent reports, and threats to the the viability of remaining populations from the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution, by the impending zebra mussel infestation of the Mississippi River and its tributaries, and by the high commercial value of its shells to the cultured pearl industry which encourages illegal harvest. If the effects of these factors cannot be mitigated, the Washboard may become Endangered in the near future.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Grier, N.M. 1922. Final report on the study and appraisal of mussel resources in selected areas of the Upper MIssissippi River. Amer. Midl. Nat. 8:1-33.

Heath, D. 1990. Identification of distribution, abundance, and critical habitat for Lampsilis higginsi and Category 2 species of mussels. Wisc. End. Resources Report #65.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Novasuccinea* n. sp. Minnesota A Hoagland & Davis

COMMON NAME: Minnesota Pleistocene Ambersnail

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The Minnesota Pleistocene Ambersnail is an extremely rare landsnail currently known from 13 sites in its very limited range of southeast Minnesota and northeast Iowa. Nine populations, ranging from very small to very large in size, are known from Minnesota in Fillmore and Olmsted counties. This taxon is believed to have been more widespread during the Wisconsinan glaciation (>12,000 years ago), but now survives only on tiny patches (ranging up to several tens of square feet in area) of habitat. This landsnail is generally confined to seeps and vent opening areas on the lower portions of certain cool, moist, north-facing, dolomite precipices, termed maderate cliffs. Structurally, maderate cliffs are dependent upon simple networks of interconnected small-scale sinks, vents and fissures within the dolomitic bedrock. Airflow and water seepage through the maderate system maintains an equably cool (ranging between 101C and -101C), humid microclimate throughout the year, essential for the relict species living there.

In general, any major disruption of the physical components (sinks, vents or fissures) can destroy the delicately balanced maderate cliff system and the microclimate that maintains their unique flora and fauna. These activities include the physical filling of upland sinkholes with trash, soil or through extensive farming, the physical compaction and disturbance of talus soil associated with grazing and logging activities, and quarrying. Discharge of agricultural pollutants such as pesticides, herbicides and fertilizers can modify the flora and in some cases can be directly toxic to mollusks. Rock climbing, scientific-collecting, natural disasters, research activities, among others pose secondary risks at some sites. For these reasons, Threatened status is needed and reasonable for this species.

SELECTED REFERENCES:

Frest, T.J. 1991. Summary status reports on eight species of candidate land snails from the driftless area (paleozoic plateau), upper midwest. Unpubl. Final Report to the U.S. Fish and Wildlife Service, Region 3. 54pp.

Ostlie, W. 1992. Completion of the algific slope/maderate cliff landsnail survey in Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Novasuccinea* n. sp. Minnesota B Hoagland & Davis

COMMON NAME: Iowa Pleistocene Ambersnail

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Iowa Pleistocene Ambersnail is an extremely rare landsnail currently known from 17 sites in its very limited range of southeast Minnesota and northeast Iowa; five small to very small populations are known from the state, occurring in Fillmore and Olmsted counties. This taxon is believed to have been more widespread during the Wisconsinan glaciation (>12,000 years ago), but now survives only on tiny patches (ranging up to several tens of square feet in area) of habitat. This landsnail is generally confined to seeps and vent opening areas on the lower portions of certain cool, moist, north-facing, dolomite precipices, termed maderate cliffs. Structurally, maderate cliffs are dependent upon simple networks of interconnected small-scale sinks, vents and fissures within the dolomitic bedrock. Airflow and water seepage through the maderate system maintains an equably cool (ranging between 101C and -101C), humid microclimate throughout the year, essential for the relict species living there.

In general, any major disruption of the physical components (sinks, vents or fissures) can destroy the delicately balanced maderate cliff system and the microclimate that maintains their unique flora and fauna. These activities include the physical filling of upland sinkholes with trash, soil or through extensive farming, the physical compaction and disturbance of talus soil associated with grazing and logging activities, and quarrying. Discharge of agricultural pollutants such as pesticides, herbicides and fertilizers can modify the flora and in some cases can be directly toxic to mollusks. Rock climbing, scientific-collecting, natural disasters, research activities, among others pose secondary risks at some sites. For these reasons, Endangered status is needed and reasonable for this species.

SELECTED REFERENCES:

Frest, T.J. 1991. Summary status reports on eight species of candidate land snails from the driftless area (paleozoic plateau), upper midwest. Unpubl. Final Report to the U.S. Fish and Wildlife Service, Region 3. 54pp.

Ostlie, W. 1992. Completion of the algific slope/maderate cliff landsnail survey in Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Obovaria olivaria* (Rafinesque)

COMMON NAME: Hickorynut

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Historically found in the Minnesota and St. Croix Rivers and the Mississippi River below St. Anthony Falls (van der Schalie and van der Schalie 1950), the Hickorynut is now absent from the Minnesota River (Bright et al. 1990), rare in the St. Croix (Doolittle 1987, Hornbach et.al. 1995) and uncommon and scattered in the Mississippi River (M. Davis unpubl. data, Heath 1989, Helms and Assoc. et al. 1990). The Shovelnose Sturgeon (*Scaphirhynchus platorhynchus*) is the only known fish host.

The Hickorynut's designation as Special Concern is needed and reasonable because of observed reductions in its range and abundance, as well as that of its host fish. The Hickorynut in Minnesota is vulnerable to further declines from the hydrologic alteration of streams and their watersheds, the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. If the effects of these factors are not ameliorated, the Hickorynut may become Threatened.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Heath, D. 1989. A survey of freshwater mussels at the proposed west channel bridge site (U.S. Hwys 14, 16, 61) in Houston Co, Mn and LaCrosse, WI. Unpubl. report to Kapur and Associates, Milwaukee, Wisconsin.

Helms and Associates, Inc., and Marine Engineering Associates Inc. 1990. Results of mussel survey conducted at the Burlington Northern Railroad Bridge near Winona, MN. Unpubl report to Johnson Brothers Corp., Litchfield, Minnesota.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Plethobasus cyphyus* (Rafinesque)

COMMON NAME: Sheepnose

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Reported in the literature to be a species common only to large rivers, Sheepnose mussels were considered abundant in the Mississippi River below Lake Pepin and rare in the Minnesota and St. Croix Rivers by Dawley (1947). Shells can be found in pearl hunter middens near Red Wing, MN (M. Davis pers. comm.), and museum and literature records exist from other areas of the Mississippi such as Lake Pepin (Grier 1922, van der Schalie and van der Schalie 1950). Bright et al. (1990) found none in the Minnesota. The only recent live records of Sheepnose mussels are of an old individual collected by a fisheries biologist near Minnieska, MN in 1991 (Mike Davis pers. comm.), and 3 live specimens found in the lower St. Croix River in connection with a bridge replacement (Heath 1989).

Endangered status is needed and reasonable for the Sheepnose because of the perilously low numbers that have been recently reported. Its extirpation may be imminent because of the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

Grier, N.M. 1922. Final report on the study and appraisal of mussel resources in selected areas of the Upper MIssissippi River. Amer. Midl. Nat. 8:1-33.

Heath, D. 1989. St. Croix River U.S. Hwy 10 bridge freshwater mussel relocation project at Prescott, WI, Phase 1:mussel removal. Unpubl. report to Ayres Associates, Madison, Wisconsin.

van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Pleurobema coccinium* (Conrad)

COMMON NAME: Round Pigtoe

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Round Pigtoes were once historically found in the Zumbro, Cannon, Minnesota and St. Croix Rivers, and in the Mississippi River below St. Anthony Falls (Bright et al. 1988, 1990; Davis 1988, Doolittle 1987). However, Dawley (1947) considered the species not to be abundant anywhere in the state. Today they are apparently extirpated from the Minnesota River (Bright et al. 1990), extremely rare in the Cannon and Zumbro Rivers (Bright et al. 1988, Davis 1988), rare in the Mississippi and common only in the St. Croix River (Doolittle 1987, Heath 1990), where Hornbach et.al. (1995) found it comprised three percent of the specimens identified.

The Round Pigtoe's Threatened status is needed and reasonable because it has recently been found alive in only a small number of drainages, making it vulnerable to catastrophic events. Degradation of mussel habitat in streams throughout its known range is a continuing threat, as is the spread of the Zebra Mussel. Further survey work in rivers where it was formerly documented is needed to verify its status in the rest of its former range.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Bright, R.C., E. Plummer and D. Olson. 1988. A survey of the mussels of the Zumbro River drainage, southeastern Minnesota. Unpubl. Report to Mn Dept of Nat. Resources.

Davis, M. 1988. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Cannon River drainage in southeastern Minnesota. Unpubl. Report MN Dept. Of Nat. Resources.

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Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Heath, D. 1990. Identification of distribution, abundance, and critical habitat for Lampsilis higginsi and Category 2 species of mussels. Wisc. End. Resources Report #65.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Potamilus capax* (Green)

COMMON NAME: Fat Pocketbook

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: None, and probably extirpated from Minnesota

BASIS FOR PROPOSED MINNESOTA STATUS: When the current list of Endangered Species was created and 1984, the Fat Pocketbook had not been collected live in the Mississippi River since before 1947 (Coffin and Pfannmuller 1988). Despite a number of surveys in the Mississippi since 1984, no live specimens of the Fat Pocketbook have been found (M. Davis pers. comm.). With no live specimens found in over 50 years, the extirpation of the species from Minnesota is certain, and removal from the list is necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

USFWS. 1989. A recovery plan for the Fat Pocketbook pearly mussel *Potamilus capax* (Green 1832). USFWS. Atlanta, Georgia. 22pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Quadrula fragosa* (Conrad)

COMMON NAME: Winged Mapleleaf

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Winged Mapleleafs were thought to be extinct until a small population was discovered in the St. Croix River in 1987 (Doolittle 1987). Extensive surveys from 1988 through 1992 have documented only 77 individuals restricted to a 20 km stretch south of Taylors Falls, MN (U.S.F.W.S. 1993).. The extant population of the Winged Mapleleaf occurs in riffles over clean gravel, sand and rubble substrates and in clear areas of high water quality. It is most abundant in shallow areas with fast current. Hornbach (1992) concluded that the Winged Mapleleaf is only found under conditions that would be considered high quality habitat for mussel habitat. The age structure of the individuals sampled indicates that in recent years, recruitment to this population has been low. The youngest large cohort is from 1984.

Listed as federally Endangered, the following factors now potentially threaten the continued existence of the Winged Mapleleaf: narrow range, sparse population, the attendant probability of inbreeding which could weaken it genetically, seasonal streamflow variations resulting from its location downstream of a hydropower plant which operates on a peaking regime, the threat of non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. For these reasons Endangered status in Minnesota is needed and reasonable.

SELECTED REFERENCES:

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Hornbach, D.J. 1992. An examination of the population structure, community relationships, and habitat characteristics for the winged mapleleaf mussel (*Quadrula fragosa*) at Interstate Park, St. Croix River, Wisconsin and Minnesota. Unpubl. Report to Wisc. And MN Dept. Of Nat. Resources.

U.S.F.W.S. 1993. Draft Recovery Plan for the Winged Mapleleaf Mussel (*Quadrula fragosa*).

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Quadrula metanevra* (Rafinesque)

COMMON NAME: Monkeyface

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Monkeyface mussels were once widely distributed in the larger streams of the Mississippi basin, although they were among the less common mussels where they occurred (Fuller 1978). They are no longer found in the Minnesota River (Bright et al. 1990) and are very rare in the Mississippi (Davis pers. comm., Thiel 1981). Only the St. Croix River appears to still support a viable population (Doolittle 1987, Heath 1990), where Hornbach et.al. (1995) found it represented in three percent of their sample.

The Monkeyface is declining or extirpated throughout most of its former range. The viability of remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution, by the impending zebra mussel infestation of the Mississippi River and its tributaries. The Threatened designation is thus needed and reasonable. If observed trends cannot be reversed, the Monkeyface will likely become Endangered in the future.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Fuller, S.L. 1978. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Upper Mississippi River: observations of selected sites within the 9-foot channel navigation project on behalf of the U.S. Army Corps of Engineers. Report to the Army Corps of Engineers, No. 78-33. Acad. Of Nat. Sciences of Philedelphia. 401 pp.

Heath, D. 1990. Identification of distribution, abundance, and critical habitat for Lampsilis higginsi and Category 2 species of mussels. Wisc. End. Resources Report #65.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Quadrula nodulata* (Rafinesque)

COMMON NAME: Wartyback

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Museum records and recent surveys show that the Wartyback historically populated the Minnesota River (Bright et al. 1990) and the Mississippi River below St. Anthony Falls (van der Schalie and van der Schlalie 1950). However, the species must have always been rare, since Dawley (1947) does not mention it. In the Minnesota River, the species was first recorded by Havlik (1977) based on dead shells found at Savage. Bright et al. (1990) found a total of 7 live individuals at 4 sites above Mankato, and dead shells at 8 other sites. Heath (1990) and Hornbach (1995) reported none from the St. Croix. Only a few individuals from have been recently reported from the Mississippi in Pool 9 (M. Davis pers. comm.).

The viability of any remaining populations is jeopardized by the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. These factors in combination with the small number of recent live specimens, make the designation of the Wartyback as Endangered needed and reasonable.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

Havlik, M. 1977. Naiad mollusks of the Minnesota River at Savage, Minnesota, March 1977. Unpubl. report to the St. Paul District, U.S. Army Corps of Engineers. 5 pp.

Heath, D. 1990. Identification of distribution, abundance, and critical habitat for Lampsilis higginsi and Category 2 species of mussels. Wisc. End. Resources Report #65.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Simpsonaias ambigua* (Say)

COMMON NAME: Salamander mussel

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The historical distribution of the tiny rare Salamander mussel is poorly documented. It exists primarily in colonies beneath rocks or ledges where its host the mudpuppy (*Necturus maculosus*) resides. Fuller (1978) reported the Salamander "on the edge of extinction" in Minnesota. Although historically more widely recorded in the Mississippi basin, it is reported today only from the St. Croix River drainage (Doolittle 1987). Bright et al. (1990) documented the first record of the species from the Minnesota River when they found 4 dead shells near Granite Falls.

Threatened status for the Salamander mussel is needed and reasonable for a number of reasons, including non-point and point source water and sediment pollution, and by the impending zebra mussel infestation of the Mississippi River and its tributaries. In addition, the Salamander mussel is vulnerable because of its colonial habit, its narrow habitat requirements, and by the uncertain presence of its host which is also negatively affected by the most of same factors that threaten the mussels. The small number of recent reports suggest that species may actually be endangered, but because its habitat preferences make survey difficult, there may be more occurrences than have been recently reported.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Fuller, S.L. 1978. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Upper Mississippi River: observations of selected sites within the 9-foot channel navigation project on behalf of the U.S. Army Corps of Engineers. Report to the Army Corps of Engineers, No. 78-33. Acad. Of Nat. Sciences of Philedelphia. 401 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Tritigonia verrucosa* (Rafinesque)

COMMON NAME: Pistolgrip

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Pistolgrip mussels were historically found in the Minnesota and St. Croix Rivers and in the Mississippi River below St. Anthony Falls (Dawley 1947). They are no longer found in the Minnesota River (Bright et al. 1990), and are very rare in the Mississippi (Davis pers. comm., Thiel 1981). Only the St. Croix River appears to still support a viable population, where Doolittle (1987) reported live specimens from more than 5 sites, and Hornbach et.al. (1995) found in represented in about one percent of their sample.

The small number of documented locations in just two rivers in combination with the continuing decline in habitat conditions on the Mississippi associated with its management as a navigation canal, with non-point and point source water and sediment pollution, by the impending zebra mussel infestation of the Mississippi River and its tributaries make the designation of the Pistolgrip as Threatened needed and reasonable.

SELECTED REFERENCES:

Bright, R.C., C. Gatenby, D. Olson, and E. Plummer. 1990. A survey of the mussels of the Minnesota River. Unpubl. Report to Mn Dept. Of Nat. Resources.

Dawley, C. 1947. Distribution of aquatic mollusks in Minnesota. Amer. Midl. Nat. 38:671-697.

Doolittle, T.C. 1987. Distribution and relative abundance of freshwater mussels in the St. Croix National Scenic Riverway. Unpubl. Report to WI Dept of Nat. Resources.

Hornbach, D.J., P. Baker, and T. Deneka. 1995. Abundance and distribution of the endangered mussel Lampsilis higginsi in the lower St. Croix River, Minnesota and Wisconsin. Unpubl. Report to U.S.F.W.S., Minneapolis.

Thiel, P. 1981. A survey of the unionid mussels of the Upper Mississippi River (Pools 3-11). Wisc. Dept. of Nat. Res. Tech. Bulletin 124. 24 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Venustaconcha ellipsiformis* (Conrad)

COMMON NAME: Ellipse

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Evidence from the distribution of dead shells suggest that the Ellipse historically occurred over a large portion of the Cannon and Zumbro Rivers (Bright et al. 1988, Davis 1988). It has also been reported from the Mississippi, but not in large numbers (van der Schalie and van der Schalie 1950). The most recent live specimens were first found by Davis in the Cannon River (Davis 1988). The Ellipse today is limited to small portions of the Cannon and Zumbro Rivers where it exists in scant populations (Bright et al. 1988, Davis 1988).

The Ellipse's designation as Threatened is needed and reasonable because of its limited range, sparse population, the threat of non-point and point source water and sediment pollution and by the impending zebra mussel infestation of the Mississippi River and its tributaries. If observed trends cannot be reversed, the Ellipse may become Endangered.

SELECTED REFERENCES:

Bright, R.C., E. Plummer and D. Olson. 1988. A survey of the mussels of the Zumbro River drainage, southeastern Minnesota. Unpubl. Report to Mn Dept of Nat. Resources.

Davis, M. 1988. Freshwater mussels (Mollusca: Bivalvia: Unionidae) of the Cannon River drainage in southeastern Minnesota. Unpubl. Report MN Dept. Of Nat. Resources.

van der Schalie, H. and A. van der Schalie. 1950. The mussels of the Mississippi River. Amer. Midl. Nat. 44:448-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Vertigo hubrichti hubrichti* (Pilsbry)

COMMON NAME: Midwest Pleistocene Vertigo

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Midwest Pleistocene Vertigo is a rare landsnail currently known from 23 sites in its very limited range of southeast Minnesota and northeast Iowa; four small populations occur within the state, occurring in Fillmore County. This taxon was more widespread during the Wisconsinan glaciation (>12,000 years ago), but now survives only in small, relict, cold-producing habitats, termed algific slopes and maderate cliffs. Within such habitats, populations are generally confined to small patches of decaying deciduous tree leaves (most often paper birch and mountain maple), often in or immediately in front of open vents in otherwise bryophyte-covered areas. Structurally, algific slopes and maderate cliffs are dependent upon simple networks of interconnected small-scale sinks, vents and fissures within the dolomitic bedrock. Airflow and water seepage through the maderate system maintains an equably cool (ranging between 101C and -101C), humid microclimate throughout the year, essential for the relict species living there.

In general, any major disruption of the physical components (sinks, vents or fissures) can destroy the delicately balanced maderate cliff system and the microclimate that maintains their unique flora and fauna. These activities include the physical filling of upland sinkholes with trash, soil or through extensive farming, the physical compaction and disturbance of talus soil associated with grazing and logging activities, and quarrying. Discharge of agricultural pollutants such as pesticides, herbicides and fertilizers can modify the flora and in some cases can be directly toxic to mollusks. Rock climbing, scientific-collecting, natural disasters, research activities, among others pose secondary risks at some sites. For these reasons, Endangered status is needed and reasonable for this species.

SELECTED REFERENCES:

Frest, T.J. 1991. Summary status reports on eight species of candidate land snails from the driftless area (paleozoic plateau), upper midwest. Unpubl. Final Report to the U.S. Fish and Wildlife Service, Region 3. 54pp.

Ostlie, W. 1992. Completion of the algific slope/maderate cliff landsnail survey in Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Vertigo hubrichti variabilis* n.subsp.

COMMON NAME: Variable Pleistocene Vertigo

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: *Vertigo hubrichti variabilis* is a rare landsnail currently known from 54 sites in its very limited range within the Paleozoic Plateau of southeast Minnesota, northeast Iowa and southwestern Wisconsin; 12 small to very small populations are known from the state, occurring in Fillmore, Olmsted, Houston and Winona counties. This taxon survives only in small, relict, cold-producing habitats, termed algific slopes and maderate cliffs. Within such habitats, populations are generally confined to small patches of decaying deciduous tree leaves (most often paper birch and mountain maple), often in or immediately in front of open vents in otherwise bryophyte-covered areas. Structurally, algific slopes and maderate cliffs are dependent upon simple networks of interconnected small-scale sinks, vents and fissures within the dolomitic bedrock. Airflow and water seepage through the maderate system maintains an equably cool (ranging between 101C and -101C), humid microclimate throughout the year, essential for the relict species living there.

In general, any major disruption of the physical components (sinks, vents or fissures) can destroy the delicately balanced maderate cliff system and the microclimate that maintains their unique flora and fauna. These activities include the physical filling of upland sinkholes with trash, soil or through extensive farming, the physical compaction and disturbance of talus soil associated with grazing and logging activities, and quarrying. Discharge of agricultural pollutants such as pesticides, herbicides and fertilizers can modify the flora and in some cases can be directly toxic to mollusks. Rock climbing, scientific-collecting, natural disasters, research activities, among others pose secondary risks at some sites. For these reasons, Threatened status is needed and reasonable for this species.

SELECTED REFERENCES:

Frest, T.J. 1991. Summary status reports on eight species of candidate land snails from the driftless area (paleozoic plateau), upper midwest. Unpubl. Final Report to the U.S. Fish and Wildlife Service, Region 3. 54pp.

Ostlie, W. 1992. Completion of the algific slope/maderate cliff landsnail survey in Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Vertigo meramecensis* Van Devender

COMMON NAME: Bluff Vertigo

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: *Vertigo meramecensis* is a rare landsnail verified from 18 sites within southeast Minnesota, northeast Iowa, and central Missouri; three verified populations occur within the state in Olmsted and Winona counties, with a potential fourth occurring in Wabasha County. The bluff vertigo generally occurs on steep, moist, shaded, cool north-facing slopes and cliff faces. It has been found on algific slopes and maderate cliffs, but generally avoids the areas with continuous cooling effects. On non-algific sites, the species is confined to the bases and the lowermost 20' of the cliff face.

The bluff vertigo is somewhat subject to the same range of threats that impact other species associated with algific slopes and maderate cliffs: physical filling of upland sinkholes with trash, soil or through extensive farming, physical compaction and disturbance of talus soil associated with grazing and logging activities, quarrying and discharge of agricultural pollutants (pesticides, herbicides and fertilizers) that can modify the flora and in some cases can be directly toxic to mollusks. However, since the species is not as dependent upon the cold air or cool water discharge (typical of these systems) as other relict snail species, it should be less affected by disturbances to air flow. On non-algific or non-maderate sites, the species is somewhat more fragile than others, due to its tendency to occur at cliff bases and other areas likely to be impacted by humans, cattle grazing or other activities. For these reasons, Threatened status is needed and reasonable for this species.

SELECTED REFERENCES:

Frest, T.J. 1991. Summary status reports on eight species of candidate land snails from the driftless area (paleozoic plateau), upper midwest. Unpubl. Final Report to the U.S. Fish and Wildlife Service, Region 3. 54pp.

Ostlie, W. 1992. Completion of the algific slope/maderate cliff landsnail survey in Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program.

JUMPING SPIDERS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Habronattus taxanus* Griswold

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species is widespread but has a very spotty distribution in the United States east of the Rocky Mountains. In Minnesota, *Habronattus taxanus* has been taken on dry prairie both from the ground and by sweeping. It occurs at two localities in the state: Hole in the Mountain Nature Conservancy Preserve, Lincoln County and Ottawa Bluffs Nature Conservancy Preserve, LeSueur County . At both sites it occurs on dry prairie slopes in habitat vulnerable to disturbance. As long as these sites remain as prairie and under the management of The Nature Conservancy, the species is not at risk. Some concern might be expressed at the possible encroachment of red cedar, *Juniperus virginiana,* and the possibility of increased gravel mining near the Ottawa Bluffs locality. Nonetheless, because of this species' very limited distribution in Minnesota, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Griswold, C.F. 1987. A revision of the jumping spider genus *Habronattus* F.O.P.CCambridge (Araneal: Salticidal), with phenetic and cladistic analyses. University of California Publications in Entomology 107. University of California, Berkeley. 344pp.

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Marpissa grata* (Gertsch)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a Great Lakes endemic species, known only from Michigan and Minnesota (status in Wisconsin uncertain). Most records indicate that the species is associated with fresh water habitats, either wetlands, ponds or rivers. It is taken most frequently by sweeping sedges or other emergent vegetation. In Minnesota, it has been collected from five counties scattered through the central and northern parts of the state. In light of the importance of the state's population to the species' survival, Special Concern status is reasonable.

SELECTED REFERENCES:

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Metaphidippus arizonensis* (Peckham & Peckham)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Metaphidippus arizonensis* is a species occurs of sand prairie in Minnesota, particularly in association with prairie forbs. The species reaches its northeastern-most limit in Minnesota. Throughout North America, its distribution is extremely spotty, probably reflecting the lack of collecting on the Great Plains proper. It is found at the following three localities in Minnesota: Anoka and Isanti Counties, Cedar Creek Natural History Area-Allison Savanna Nature Conservancy Preserve; Wabasha Co., southeast of Kellogg just north of Nature Conservancy Weaver Dunes Preserve; and Winona Co., Whitewater Wildlife Management Area.

Of the salticids in Minnesota, the biology of this species is best known. In its habitat it can be very abundant, but it seems to be sensitive to disturbance. In the more suburbanized Bunker Prairie area of Anoka Co., this species was never encountered. The species appears to be dependent on the seed heads and capsules of native forbs for the females to use as egg laying sites, and for immatures and adults to use for retreat sites. Especially favored in this regard are the old capsules of *Penstemon grandiflorus*, and the old seed heads of *Lespedeza capitata*.

The preferred habitat of this species is vulnerable to human disturbance, especially to recreational use, irrigated farming, and in Anoka and Isanti Counties, increasing suburbanization. Its habitat needs to be maintained by periodic burning. Due to its very limited distribution in the state, Special Concern status is needed and reasonable for this species.

SELECTED REFERENCES:

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Paradamoetas fontana* (Levi)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Paradamoetas fontana* is a species of wetland areas characterized by low levels of permanent shallow water. It has been collected in sedge bogs (fens), shrubs near a bog, heath bogs, and a small wetland marsh without any obvious bog vegetation. Many seemingly suitable areas have been surveyed elsewhere in the state, and the species has not been found. Populations at Solana State Forest are very healthy and the small population at Cedar Creek (Cedar Bog Lake) appears stable. The species has a restricted range in the Great Lakes area of the United States and Canada.

The species is at the western periphery of its range in Minnesota, where it is known from sites in four counties. The Ramsey Co. site in Roseville has been destroyed by urbanization. Two of the sites, Stearns Co., Rockville Tamarack Bog Nature Conservancy Preserve; and Anoka Co., Cedar Creek Natural History Area are maintained and protected. The largest populations are in Aitkin Co., Solana State Forest. Because this species' preferred habitat is vulnerable to human disturbance, particularly wetland drainage, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Cutler, B. 1981. A revision of the spider genus *Paradamoetas* (Araneae:Salticidae). Bull. Am. Mus. Nat. Hist. 170:207-215.

Cutler, B. 1982. Description of a new species of *Paradamoetas* (Araneae:Salticidae), with a revised key to the genus. Gr. Lakes Ent. 15:219-222.

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Phidippus apacheanus* Chamberlin & Gertsch

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Although in the southern United States, *Phidippus apacheanus* occurs in a great variety of open habitats, in Minnesota the species occurs only in relatively undisturbed sand prairie. Like other salticids in its habitat, this species is associated with broad or compound leaved forbs, and old seed heads. Juveniles have been found in retreats on old infloresences of *Lespedeza capitata*. It has been collected at three locations in Minnesota. The one that has been known the longest is the strip of private land just north of The Nature Conservancy holding southeast of Kellogg in Wabasha Co. It has also been found on the Whitewater Wildlife Management Area. The most recent find was at a site in extreme eastern Fillmore Co., about 1 2 miles east of Peterson, T104N, R8W, S.21, SW 1/4. All of these sites are sandy oak savanna or sand prairie, and represent the northeastern-most populations of the species. Because of its very limited distribution in Minnesota, it is reasonable to designate this as a species of Special Concern.

SELECTED REFERENCES:

Levi, H.W. and H.M. Field. 1954. The spiders of Wisconsin. Am. Midl. Nat. 51:440-467.

Levi, H.W., L.R. Levi, and J.L. Kaspar. 1958. Harvestmen and spiders of Wisconsin; additional species and notes. Trans. Wisc. Acad. Sci. 47:43-52.

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Phidippus pius* Scheffer

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Phidippus pius* is associated with virgin or regenerating grazed prairie, in particular with native shrubs and forbs. In Minnesota, it is restricted to unplowed prairie sites in the south-central and southwest portions of the state, and is known to occur on two Nature Conservancy Preserves, Hole-in-the-Mountain Prairie in Lincoln Co., and Kasota Prairie in LeSueur Co. It also occurs on the Minnesota Historical Society Indian Petroglyphs site in Cottonwood Co., and on a railway right of way, 1 mile south of Pipestone in Pipestone Co. Distribution throughout North America is spotty, and the species is considered to be rare, probably because of destruction of native grassland. Because of its very limited distribution in Minnesota, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sassacus papenhoei* Peckham & Peckham

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Sassacus papenhoei* is a common species in southern states with only spotty distribution north of the 351 N latitude. Minnesota has the northernmost populations east of the Great Plains. In Minnesota, the species occurs in sand prairie, especially those sites rich with native forbs. The species is found at only two sites in the southeast corner of the state. The Wabasha Co. locality occurs on privately owned land just north of the Nature Conservancy site in the Weaver Dunes. This locality is also south of the DNR Scientific and Natural Area, thus at present it receives no protection. The other location for this species is on the Whitewater Game Refuge in Winona Co., where the populations are stable and large, and no major incursions seem evident.

Because the preferred habitat in Minnesota is vulnerable to human disturbance, particularly recreational use and irrigated farming, Special Concern status is needed and reasonable for this species.

SELECTED REFERENCES:

Richman, D.B., and Cutler, B. 1977. A list of jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia 1:82-109.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Tutelina formicaria* (Emerton)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: In Minnesota, *Tutelina formicaria* occurs in oak savanna - sand prairie habitat in association with characteristic grasses such as *Andropogon* and *Aristida*. In Minnesota this species has a close affinity for old seed pods of *Penstemon grandiflorus*, which are used as sites for building retreats, and particularly, for making egg sacs. It has not been found building retreats on forbs utilized by other species of salticids. In Minnesota, the species is found only at the Allison Savanna Nature Conservancy preserve, Anoka Co., which is the northwestern-most locality for the species in North America. It has been sought but not found at Cedar Creek Natural History Area. Collecting in similar appearing, but more highly disturbed habitat at Wild River State Park, Chisago Co., and at a locality in Cass Co. also failed to locate this species. Because of its very specific habitat requirements and limited distribution, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Cutler, B. Manuscript in preparation on spiders associated with old seed pods of *Penstemon grandiflorus*.

Kaston, B.J. 1981. The Spiders of Connecticut. Revised edition, Natural History Survey of Conn., Bull. 70. l020pp.

Richman, D.B. and B. Cutler. 1971. A list of the jumping spiders (Araneae: Salticidae) of the United States and Canada. Feckhamia 1:82-109.

BUTTERFLIES AND MOTHS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Atrytone arogos* (Scudder)

COMMON NAME: Arogos Skipper

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Arogos Skipper is widespread in the midwest, where subspecies *iowa* inhabits native prairie. Subspecies *arogos* occurs along the U.S.'s eastern coastal plain from Long Island and New Jersey south to Mississippi in sandy, open pinelands. The destruction of over 99% of the tallgrass prairie for agriculture and other development has restricted subspecies *iowa* to the scattered fragments of native prairie that remain in the midwest. The eastern subspecies is even rarer. In Minnesota, the skipper occurs in prairie remnants from the southeastern bluff prairies west and north as far a Clay County, but colonies are widely scattered and mostly small (R. Huber, pers. comm.). The native grasses big bluestem (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*) appear to be the principal larval host plants (Scott 1986). Survey work by the Minnesota County Biological Survey since 1987 has established that the skipper is rare in Minnesota, although some parts of its potential range remain poorly known (Dana and Haarstad 1989;Selby 1989; Schlicht and Saunders 1995). While probably not in immediate danger of extirpation in the state, the Arogos Skipper is vulnerable to further population decline. Disappearance from former habitats in the Twin Cities area is documented (R. Huber, pers. comm.). In addition to habitat destruction, the use of prescribed burning to maintain native prairie may pose a hazard to the persistence of colonies in protected sites. For these reasons, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Dana, R., and J. Haarstad. 1989. Minnesota County Biological Survey: Butterfly Survey-1988. Unpublished report to the MN Dept. of Natural Resources, Natural Heritage and Nongame Wildlife Research Programs.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

Royer, R. A., and G. M. Marrone. 1992. Conservation status of the arogos skipper (*Atrytone arogos*) in North and South Dakota. Unpublished report to the U.S. Dept. of the Interior, Fish and Wildlife Service, Denver, Colorado. 29 pp + appendices.

Schlicht, D., and M. Saunders. 1995. Completion of status surveys for the Dakota Skipper (*Hesperia dacotae*) and the Poweshiek Skipper (*Oarisma poweshiek*) in Minnesota, with data on the Regal Fritillary (*Speyeria idalia*). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 17pp. + appendices.

Scott, J. A. 1986. *The butterflies of North America: a Natural History and Field Guide*. Stanford University Press, Stanford.

Selby, G. 1989. A systematic inventory, population monitoring program, and ecological study of rare lepidoptera at the Prairie Coteau Scientific and Natural Area (SNA), Pipestone County, Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 63pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Clossiana freija* (Thunberg)

COMMON NAME: Freija Fritillary

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This butterfly is restricted to peatland habitats in northern Minnesota. At the time the species was designated as Special Concern in 1984, it was not believed to be rare, but it was feared that the planned large-scale exploitation of peat for energy could seriously jeopardize its survival in the state (Coffin and Pfannmuller 1988). The threat of peat development has since diminished considerably, and a number of large peatlands have been dedicated as State Scientific and Natural Areas, protecting them from destruction. Although only a few additional locations for the freija fritillary have been recorded since 1984, this butterfly is probably widespread and locally common across much of northern Minnesota. For this reason, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Clossiana frigga saga* (Staudinger)

COMMON NAME: Frigga Fritillary

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Frigga Fritillary is restricted to peatland habitats in northern Minnesota. At the time the species was designated as Special Concern in 1984, there were only a handful of recorded locations for the butterfly in Minnesota, and it was feared that planned large-scale exploitation of peat for energy could seriously jeopardize its survival in the state (Coffin and Pfannmuller 1988). The threat of peat development has since diminished considerably, and a number of large peatlands have been dedicated as State Scientific and Natural Areas, assuring their protection from destruction. Additionally, recent survey work in Roseau County by the MN County Biological Survey located a number of new occurrences, indicating that the species is probably fairly common in the Red Lake peatlands and other large peatland areas across northern Minnesota (Cuthrell 1991). For this reason, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Epidemia dorcas dorcas* (W. Kirby, 1837)

COMMON NAME: Dorcas Copper

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time the species was designated as Special Concern in 1984, this butterfly was believed to be restricted in Minnesota to peatland habitats in the coniferous forest region of the state. Although the Dorcas Copper was not then believed to be particularly rare, it was feared that the projected large-scale exploitation of peat for energy would seriously jeopardize the butterfly's survival in the state (Coffin and Pfannmuller 1988). The pressure to develop a peat-to-energy industry has since abated, and a number of large peatlands have been designated Scientific and Natural Areas, assuring their protection from destruction. Additionally, recent survey work by the Minnesota County Biological Survey in the aspen parkland region of northwestern Minnesota has revealed that the Dorcas Copper is widespread there and locally abundant where its larval host plant, shrubby cinquefoil (*Potentilla fruticosa*) is common (Cuthrell 1991). Substantial areas of this habitat are within State Wildlife Management Areas that are maintained as brushland for sharptail grouse and other wildlife and this should afford the butterfly considerable security. For these reasons, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Epidemia epixanthe michiganensis* (Rawson)

COMMON NAME: Bog Copper

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time the species was designated as Special Concern in 1984, the strongest known colony of the Bog Copper occurred in the rapidly developing Anoka Sand Plain. There were a handful of records from farther north, but observations suggested that populations in the northern peatlands were sparse. It was feared that the projected large-scale exploitation of peat for energy could seriously jeopardize the survival of the species in the northern part of the state (Coffin and Pfannmuller 1988). This threat has diminished considerably, and a number of large peatlands have been protected from destructive development through dedication as State Scientific and Natural Areas. Additionally, recent survey work by the MN County Biological Survey located several new occurrences in Roseau Co., suggesting that the species is more widespread and common in northern MN that was previously believed (Cuthrell 1991). For this reason, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Erebia discoidalis discoidalis* (W. Kirby)

COMMON NAME: Red-disked Alpine

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time the species was designated as Special Concern in 1984, there was concern that the projected large-scale mining of peat for energy could destroy enough habitat to seriously jeopardize its survival in Minnesota (Coffin and Pfannmuller 1988). The threat of this development has since diminished considerably, and a number of large peatlands have been protected from destruction through dedication as State Scientific and Natural Areas. Additionally, recent inventory efforts in Roseau Co. by the MN County Biological Survey located several new occurrences, supporting the supposition that this butterfly is widespread and perhaps locally common across much of northern Minnesota (Cuthrell 1991). For this reason, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Erynnis persius persius* (Scudder)

COMMON NAME: Persius Dusky Wing

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Persius Dusky Wing ranges across North America from Alaska and California to Maine and Virginia. Eastern populations, from Minnesota eastward, are treated as subspecies *persius*; other subspecies are western. Although long reported as a feeder on willows and poplars, subspecies *persius* in fact appears to be restricted to members of the Fabaceae, as are the western subspecies. The recorded host plants are wild lupine (*Lupinus perennis*) and yellow wild indigo (*Baptisia tinctoria*) (D. Schweitzer, pers. comm.). The butterfly occurs in open sandy savannas and barrens where host plants are common. Accordingly, it is very patchily distributed and generally uncommon to rare. Habitat destruction by development as well as successional changes resulting from fire suppression have had similar effects on this butterfly as on the Karner Blue, which occurs in the same habitat. Because collectors often ignore skippers, and because the Persius Dusky Wing is very similar in appearance to other members of the genus, our understanding of its present status is poorer than that of the Karner blue. In Minnesota the Persius Dusky Wing has been recorded from only one site, where it was discovered subsequent to the original state listing process (R. Huber, pers. comm.). This is the same Winona County site where the state's only surviving population of the Karner blue occurs. The probable larval host plant here is wild lupine; *Baptisia tinctoria* does not occur in Minnesota although two other species in the genus do and could serve as hosts. Survey efforts in other habitats with wild lupine have not located additional colonies of the butterfly (Cuthrell 1990). As with the Karner blue, prescribed burning is the most natural and efficient process for maintaining the habitat of the species but it may at the same time cause high levels of mortality in the butterfly. Because it has only a single annual generation instead of the Karner blue's two and is in the pupal stage rather than the more abundant egg stage when burning would be done, Persius Dusky Wing may be even more susceptible to extirpation by fire. For these reasons, it is necessary and reasonable to designate this species as Endangered in Minnesota at this time.

SELECTED REFERENCES:

Burns, J. M. 1964. Evolution of skipper butterflies in the genus *Erynnis*. *University of California Publications in Entomology* Vol. 37:1-216.

Cuthrell, D. L. 1990. Status of the Karner blue butterfly, *Lycaeides melissa samuelis* Nabokov, in Minnesota 1990. Unpubl. report submitter to MN Dept. of Natural Resources, Nongame Wildlife Research Program.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hesperia leonardus* Harris

COMMON NAME: Leonardus Skipper

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species occurs in Minnesota in two quite distinct forms, until recently treated as separate species (Scott and Stanford 1981). In extreme western Minnesota as far north as Clay County the Great Plains subspecies *pawnee* Dodge, 1874, occurs in dry prairie remnants (R. Huber, pers. comm.). The eastern subspecies *leonardus* , the traditional Leonard's Skipper, is represented in Minnesota by populations in dry sand prairies and barrens from the southeastern part of the state to the Anoka Sand Plain (R. Huber, pers. comm.). A few recent records indicate that similar populations occur northward in the transition woodlands zone of the state from Crow Wing and Wadena Counties to Roseau County (R. Huber, pers. comm.; Cuthrell 1991). Subspecies *leonardus* extends into southeastern Manitoba (Klassen et al. 1989) The Minnesota populations of subspecies *leonardus*, along with populations in western Wisconsin, are not typical, but suggest gene flow between *pawnee* and *leonardus* (*pawnee* populations in western Minnesota are fully typical of that subspecies, with no evidence of genetic contact) (Scott and Stanford 1981(82)).

Both subspecies seem to tolerate more habitat disturbance than other butterflies that depend upon native prairie or savanna, especially grazing, but they are nonetheless readily eliminated by common land-use practices. Survey efforts in the late 1980's have established that *pawnee* is rarer in Minnesota than was previously believed (Dana and Haarstad 1989;Selby 1989; Schlicht and Saunders 1995). The principal threats to this subspecies in Minnesota are overgrazing and gravel mining. Populations of subspecies *leonardus* are seriously threatened by development in the Twin Cities metropolitan area, which includes the Anoka Sand Plain, a major area for this subspecies in the state. Several known and probably many unknown colonies have been lost to development since the original listing process. All populations of both subspecies are highly localized, and most are small. Circumstantial evidence suggests that this species is sensitive to fire. This poses a particularly serious problem for conservation of *leonardus* colonies as its savanna and barrens habitats tend to succeed to woodland rather quickly in the absence of fire, eliminating the skipper. Given its restricted habitat requirements and limited distribution in the state, Special Concern status is necessary and reasonable for this species.

SELECTED REFERENCES:

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Dana, R., and J. Haarstad. 1989. Minnesota County Biological Survey: Butterfly Survey-1988. Unpublished report to the MN Dept. of Natural Resources, Natural Heritage and Nongame Wildlife Research Programs.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

Schlicht, D. and M. Saunders. 1995. Completion of status surveys for the Dakota Skipper (*Hesperia dacotae*) and the Poweshiek Skipper (*Oarisma poweshiek*) in Minnesota, with data on the Regal Fritillary (*Speyeria idalia*). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 17pp. + appendices.

Scott, J. A., and R. E. Stanford. 1981. Geographic variation and ecology of *Hesperia leonardus* (Hesperiidae). *Journal of Research on the Lepidoptera* 20:18-35.

Selby, G. 1989. A systematic inventory, population monitoring program, and ecological study of rare lepidoptera at the Prairie Coteau Scientific and Natural Area (SNA), Pipestone County, Minnesota. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 63pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lycaeides idas nabokovi* Masters

COMMON NAME: Nabokov's Blue

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Nabokov's Blue is a distinctive subspecies of *Lycaeides idas*, a circumboreal species formerly confused with *Lycaeides argyrognomon*, a strictly Old World taxon (Higgins 1985). It is restricted to northern Minnesota, northern Wisconsin, upper peninsula Michigan, southeastern Manitoba, and possibly southwestern Ontario, and it appears to be rare throughout its range (Klassen et al. 1989; Masters 1972). This butterfly, originally described from specimens collected in Minnesota, has been recorded from a handful of localities across the northern part of the state (R. Huber, pers. comm.). Inventory efforts in the past decade have added only a few new records, and while the search has not been extensive enough to demonstrate that the butterfly is rare, the scarcity of records does provide a basis for concern (A. Wolf, pers. comm.). The preferred habitat is open woodland where the larval host plant, dwarf bilberry (*Vaccinium cespitosum*), is abundant (R. Dana, pers. comm.; A. Wolf, pers. comm.). Forest fires may have been important in creating and maintaining habitat for the species; whether modern forest management practices are beneficial or harmful is not known. Due to its very limited distribution in Minnesota, Special Concern designation is needed and reasonable.

SELECTED REFERENCES:

Higgins, L. G. 1985. The correct name for what has been called *Lycaeides argyrognomon* in North America. *Journal of the Lepidopterists' Society* 39:145-146.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Masters, J. H. 1972. A new subspecies of *Lycaeides argyrognomon* (Lycaenidae) from the eastern Canadian forest zone. *Journal of the Lepidopterists' Society* 26:150-154.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Lycaeides samuelis* Nabokov

NEW SCIENTIFIC NAME: *Lycaeides melissa samuelis* Nabokov

COMMON NAME: Karner Blue

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Since it was designated as a Threatened species in 1984, one of the two populations of the Karner Blue in Minnesota has died out (Lane and Dana 1994). Intensive survey of other potential habitat areas in the state has not located any additional populations (Lane and Dana 1994; Cuthrell 1990). The surviving population, in Winona County, comprises a very local cluster of several small colonies threatened by successional encroachment of woodland into its barrens or savanna habitat. Butterfly numbers here appear to have declined from levels observed in the 1970's following the discovery of the population, reaching precariously low levels during the drought of the late 1980's (Lane and Dana 1994). The situation of the taxon as a whole has suffered similarly: the Karner Blue has now been extirpated in five states where it historically occurred and is considered to be in serious jeopardy in the remaining six states. In 1992, the U.S. Fish and Wildlife Service listed the Karner Blue as an endangered species (Department of Interior, Fish and Wildlife Service 1992). Managers of this butterfly's habitat are faced with the dilemma that the most natural and efficient method to maintain its habitat, prescribed burning, probably also poses a threat to the butterfly itself; research is needed to determine how serious this is. Due to the precarious nature of the state's population of this species, Endangered status is necessary and reasonable.

When originally designated as a Threatened species in Minnesota, the Karner Blue was treated as a full species, *Lycaeides samuelis*, in anticipation of similar treatement in the systematics literature. This has not happened, and it is being listed in accordance with the traditional treatment as a subspecies of the Melissa Blue, *Lycaeides melissa*. Although the nominate subspecies of the latter (*Lycaeides melissa melissa*) occurs widely in the prairie part of Minnesota, the two entities are distinct biologically and there are no intergrading populations. Research is presently underway to determine whether the Karner Blue should be accorded full species rank (Lane and Weller 1994).

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1990. Status of the Karner Blue butterfly, *Lycaeides melissa samuelis* Nabokov, in Minnesota 1990. Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey.

Department of Interior, Fish and Wildlife Service. 1992. Endangered and threatened wildlife and plants: proposed endangered status for the Karner blue butterfly. *Federal Register* 57:2241-2247.

Lane, C. P., and R. P. Dana. 1994. The status of the Karner blue butterfly in Minnesota. In D.A. Andow, R.J. Baker, and C.P. Lane (eds.), *Karner Blue Butterfly: a Symbol of a Vanishing Landscape,* pp. 5-21. Miscellaneous Publication 84-1994. Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, MN.

Lane, C. P., and S. J. Weller. 1994. A review of *Lycaeides* Hübner and Karner blue butterfly taxonomy. In D.A. Andow, R.J. Baker, and C.P. Lane (eds.), *Karner Blue Butterfly: a Symbol of a Vanishing Landscape,* pp. 5-21. Miscellaneous Publication 84-1994. Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, MN.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Oarisma garita* (Reakirt)

COMMON NAME: Garita Skipper

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The Garita Skipper is a butterfly of western North American grasslands, from British Columbia and Washington east to Manitoba and south through New Mexico and Arizona into Mexico (Scott 1986). The larva feeds upon grasses and a number of species have been reported, but habits in Minnesota are not known. Minnesota occurrences are on the eastern periphery of the species' range. When the state list was created in 1984, only one record for the species in Minnesota was known, and this was assumed to represent a stray or only a temporary adventive establishment along a rail corridor (R. Huber, pers. comm.). Inventory work by the Minnesota County Biological Survey in western Minnesota has recently established that the species is a breeding resident of the state, however. Three small colonies are known from drier native prairie openings in Kittson County (Cuthrell 1991). Nearly all of the dry prairie habitat within its apparently very limited range in Minnesota has been destroyed for gravel mining or agriculture, and the remaining areas where the butterfly occurs are small and threatened by encroaching aspen brush. The use of prescribed burning to combat this may itself pose a serious threat to the survival of these colonies. For these reasons, Threatened status is needed and reasonable.

SELECTED REFERENCES:

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

McCabe, T. L., and R. L. Post, 1977, *Skippers (Hesperioidea) of North Dakota*, North Dakota Insects Publication No. 11, Schaefer-Post Series, Dept. of Entomology and Agricultural Experiment Station, Fargo.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

Scott, J. A. 1986. *The butterflies of North America: a Natural History and Field Guide*. Stanford University Press, Stanford.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Oeneis jutta ascerta* Masters & Sorensen

COMMON NAME: Jutta Arctic

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time the species was designated as Special Concern in 1984, the Jutta Arctic was not believed to be rare in Minnesota, as its preferred habitat--poor fens with scattered spruce and tamarack, and conifer swamps--is in good supply across northern Minnesota, and there were a number of records from throughout most of the potential range. The primary basis for concern was the threat of habitat destruction resulting from planned large-scale exploitation of peat for energy (Coffin and Pfannmuller 1988). This threat has since diminished considerably, and a number of large peatlands have been protected from destruction through dedication as State Scientific and Natural Areas. In addition, recent survey work by the MN County Biological Survey discovered a number of new occurrences in Roseau Co., supporting the earlier supposition that it is reasonably common in most of northern Minnesota (Cuthrell 1991). For this reason, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Proclossiana eunomia dawsoni* (Barnes & McDunnough)

COMMON NAME: Bog Fritillary

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: The Bog Fritillary is restricted to peatland habitats in northern Minnesota. At the time the species was designated as a species of Special Concern in 1984, there were only a handful of recorded locations for the butterfly in Minnesota, and it was feared that planned large-scale exploitation of peat for energy could seriously jeopardize its survival in the state (Coffin and Pfannmuller 1988). The threat of peat development has since diminished considerably, and a number of large peatlands has been dedicated as State Scientific and Natural Areas, protecting them from destruction. In addition, recent survey work by the MN County Biological Survey located a number of new occurrences in Roseau Co., indicating that the species is probably fairly common in the Red Lake peatlands and other large peatland areas across northern Minnesota (Cuthrell 1991). For this reason, Special Concern status is no longer necessary or reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Cuthrell, D.L. 1991. The butterflies of Kittson and Roseau Counties, Minnesota, with special emphasis on the Dakota Skipper *Hesperia dacotae* (Skinner). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program and Minnesota County Biological Survey. 63pp.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Pyrgus centaureae freija* (Warren)

COMMON NAME: Grizzled Skipper

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Grizzled Skipper is a northern species that has been recorded from a single locality in Minnesota, in Lake County. Although it has not been seen since 1981, observations of the butterfly here span a period of several years (R. Huber, pers. comm.). When the state list was created a decade ago, it was not clear whether the Minnesota occurrence was anything more than a temporary, adventive colonization event beyond the species' normal range. Data now available for Manitoba (Klassen et al. 1989) document it occurrence in the southeast corner of Manitoba, suggesting that northeast Minnesota is part of its natural range. Minnesota specimens have been assigned to subspecies *freija* , but more material is needed for confirmation. This is the subspecies present in Manitoba (Klassen et al. 1989), and populations in lower peninsula Michigan are tentatively assigned to this subspecies (Schweitzer 1989; D. Schweitzer, pers. comm.).

The early adult flight period, the two-year life cycle (adults only every other year), and our poor understanding of this species' habitat preferences are at least partially responsible for the extreme scarcity of records, but there is little doubt that the Grizzled Skipper is rare in the state. It is reported to prefer forest edges and openings, and wet, brushy habitats in Manitoba (Klassen et al. 1989). Modern forest management practices may pose a problem for the species, but more precise information about habitat requirements are needed to determine if there is indeed a threat. Until more complete surveys are conducted for this species, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

Klassen, P., A. R. Westwood, W. B. Preston, and W. B. McKillop. 1989. *The Butterflies of Manitoba*. Manitoba Museum of Man and Nature, Winnipeg.

Schweitzer, D. F. 1989. A review of Category 2 Insecta in USFWS Regions 3, 4, 5. Unpublished review prepared for The U. S. Fish and Wildlife Service, 1 Gateway Center, Newton Corners, MA..

Scott, J. A. 1986. *The butterflies of North America: a Natural History and Field Guide*. Stanford University Press, Stanford.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Schinia indiana* (J.B. Smith)

COMMON NAME: Phlox Moth

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Phlox Moth is a small, attractively colored moth very closely associated with its obligate larval host plant, prairie or downy phlox (*Phlox pilosa*). Larvae feed on the developing fruits of this plant, and the flight period of the single annual generation is synchronous with the early summer flowering period of the host (Schweitzer 1989; Hardwick 1958). Adult moths spend almost all of their time on phlox inflorescences and are colored to match withered flowers, making them quite inconspicuous when at rest. The recorded range of this moth is from Minnesota to Michigan, south through Indiana and Illinois to Arkansas, although it is not known from several states within this range. There are only a small number of records and even fewer recent ones. Most are from sandy barrens where the host plant is common (Schweitzer 1989). Not known from Minnesota in 1984, it has since been documented at two sites in western Minnesota, both prairies, not sandy barrens (Balogh 1987; R. Dana, pers. comm.). Although present evidence is that the moth is rare in Minnesota, the host plant is not uncommon here, occurring in many prairie remnants and also in sandy savannas and barrens. Intensive survey is needed to determine the exact degree of the moth's rarity in the state. One fortunate aspect of its biology is that it pupates in the soil, so that during the normal times of prescribed burning for prairie management this species is not in much danger. Until further survey work clarifies its distribution in the state, Special Concern status is necessary and reasonable for this species.

SELECTED REFERENCES:

Balogh, G. J. 1987. New localities for *Schinia indiana* (Smith) (Noctuidae). *The Ohio Lepidopterist* 9(2):15-16.

Hardwick, D. F. 1958. Taxonomy, life history, and habits of the elliptoid-eyed species of *Schinia* (Lepidoptera: Noctuidae), with notes on the Heliothidinae. *Canadian Entomologist* Vol 90, Supplement 6.

Schweitzer, D. F. 1989. A review of Category 2 Insecta in USFWS Regions 3, 4, 5. Unpublished review prepared for the U. S. Fish and Wildlife Service, 1 Gateway Center, Newton Corners, MA.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Speyeria idalia* (Drury)

COMMON NAME: Regal Fritillary

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Regal Fritillary is one of North America's showiest butterflies. Its historical range extended from North Dakota and Oklahoma eastward through the prairie peninsula all the way to the Atlantic seaboard from New Brunswick to Delaware, and south in the Appalachians to North Carolina (Scott 1986). Although it occurred in meadows and other grasslands east of the limits of true prairie, the Regal Fritillary is principally a species of the tallgrass prairie. For reasons not fully understood, it has disappeared since 1980 from almost all of the eastern part of its range (Schweitzer 1989). Although there has been no corresponding recent decline in the western part of its range, the earlier destruction of nearly all of the tallgrass prairie dramatically affected this butterfly, which numbered in the hundreds of millions prior to agricultural settlement. Today it is closely associated with native prairie remnants.

In Minnesota, the Regal Fritillary was historically found throughout the prairie region as far north as Polk County as well as in the Anoka Sand Plain and prairie openings in the southeast (R. Huber, pers. comm.; Macy and Shepard 1941). It has disappeared from the Anoka Sand Plain, and although widespread in the prairie region it is confined to native remnants most of which are too small to support self-sustaining colonies of this large butterfly (Dana and Haarstad 1989; Schlicht and Saunders 1995). It appears to favor mesic and dry-mesic prairie for larval development, where prairie bird's-foot violet (*Viola pedatifida*) is the predominant larval host (other violets are also probably used) (Selby 1989; R. Dana, pers. comm.). The number of adults a typical acre of prairie can produce is probably small and populations may therefore depend upon the ability of adults to find their way to many such remnants over a large area. The rapidity of this butterfly's decline in the eastern part of its range suggests that it is highly susceptible to subtle environmental change and should be monitored. Much more research into details of its biology is needed for effective conservation planning on its behalf. Of particular concern is the sensitivity of immature stages to prairie fire, which is not presently known. For these reasons, Special Concern status is both necessary and reasonable for this species.

SELECTED REFERENCES:

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Macy, R. W., and H. H. Shepard. 1941. *Butterflies: a Handbook of the Butterflies of the United States, Complete for the Region North of the Potomac and Ohio Rivers and East of the Dakotas*. University of Minnesota Press, Minneapolis.

Opler, P. A. 1992. *A Field Guide to Eastern Butterflies*. Houghton Mifflin Co., Boston, New York, London.

Royer, R. A., and G. M. Marrone. 1992. Conservation status of the regal fritillary (*Speyeria idalia*) in North and South Dakota. Unpublished report to the U.S. Dept. of the Interior, Fish and Wildlife Service, Denver, CO. 44 pp + appendices.

Schlicht, D. and M. Saunders. 1995. Completion of status surveys for the Dakota Skipper (*Hesperia dacotae*) and the Poweshiek Skipper (*Oarisma poweshiek*) in Minnesota, with data on the Regal Fritillary (*Speyeria idalia*). Unpubl. Final Report to the Minnesota DNR, Nongame Wildlife Program. 17pp. + appendices.

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CADDISFLIES

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Agapetus tomus* Ross

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Agapetus* are found in streams of hilly terrain and are specialized for feeding on the uppermost and often exposed rock surfaces; larvae graze on diatoms, green algae, and fine particular organic matter, including detritus. Mature *Agapetus* larvae are up to 6 mm. in length. Larval cases are tortoise-shaped with relatively large stones incorporated on each side. Adult males are about 5.5 mm. in length, with uniform dark brown to black wings, and legs below coxae tawny (Ross 1941).

Agapetus tomus is best known from Pennsylvania and southeastern United States (AL, KY, TN, GA). Its disjunct occurrence in Minnesota is documented from only seven males and 11 females, collected in Eaglehead, Pine County in July 1965. Attempts to relocate this species in Pine County in August 1991 were unsuccessful (Luedeman 1991). Further inventory work is needed to attempt to relocate this species in Minnesota and delineate its range. Until such time as more field data are available on *Agapetus tomus*, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Luedeman, J. 1991. A preliminary survey for endemic species, and restricted or disjunct populations of caddisflies in Minnesota. Unpubl. final report to Minnesota DNR, Nongame Wildlife Program.

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Ross, H.H. 1941. Descriptions and records of North American Trichoptera. Transactions of the American Entomological Society 67:35-126;

Wiggins, G B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Asynarchus rossi* Leonard and Leonard

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Asynarchus* feed primarily on detritus, and are most commonly found in lentic habitats including ponds, lake margins, and marshes; some have been reported from streams and cold springs. Mature *Asynarchus* larvae are up to 29 mm. in length; cases may be constructed from sand, pebbles, bark, wood, and leaves in various arrangements. Adult males are about 15 mm in length, wings irrorate, dark brown and pale yellow (Leonard and Leonard 1949).

Outside of Minnesota, this species is known from Quebec, Michigan, and Wisconsin. Its occurrence in Minnesota represents its western range limit, and is documented from only a single male specimen collected from Valley Creek, Washington County in 1965. Further inventory work is needed to attempt to relocate this species in Minnesota and delineate its range. Until more field data are available on this species, it is necessary and reasonable to assign it Special Concern status.

SELECTED REFERENCES:

Leonard, J.W. and F.A. Leonard. 1949. Noteworthy records of caddis flies from Michigan, with descriptions of new species. Occasional Papers of the Museum of Zoology 520:1-35;

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ceraclea brevis* (Etnier)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Ceraclea* are found in lentic and lotic waters, usually on bottom substrates. Many species feed on detritus; some are specialized for feeding on freshwater sponges and are found burrowing within these colonies. Mature *Ceraclea* larvae are about 12 mm. In length, stout bodied, with abdominal gills arranged in clusters. Cases are usually constructed of sand with a flanged dorsal lip and are wide anteriorly, tapered, and curved distally; species associated with sponges are usually made entirely of silk and may incorporate pieces of sponge (Etnier 1968).

Ceraclea brevis is known worldwide from a single specimen, which was collected at the Garrison Ranger Station, Crow Wing County, Minnesota, in August, 1965. A subsequent attempt to collect this species from Borden Lake (near Garrison), Crow Wing County, in August 1991, was unsuccessful (Luedeman 1991). Further inventory work is needed to attempt to locate this species in Minnesota and delineate its range. Until more field data are available, Special Concern status is necessary and reasonable for this species.

SELECTED REFERENCES:

Etnier, D.A. 1968. Range extensions of Trichoptera into Minnesota, with descriptions of two new species. Entomological News 79:188-192;

Luedeman, J. 1991. A preliminary survey for endemic species, and restricted or disjunct populations of caddisflies in Minnesota. Unpubl. final report to Minnesota DNR, Nongame Wildlife Program.

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ceraclea vertreesi* (Denning)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Ceraclea* are found in lentic and lotic waters, usually on bottom substrates. Many species feed on detritus; some are specialized for feeding on freshwater sponges and are found burrowing within these colonies. Mature *Ceraclea* larvae are about 12 mm. in length, stout bodied, with abdominal gills arranged in clusters. Cases are usually constructed of sand with a flanged dorsal lip and are wide anteriorly, tapered, and curved distally; species associated with sponges are usually made entirely of silk and may incorporate pieces of sponge. Adult males are between 11-16 mm. in length, brownish in color, with irregular scattering of hyaline spots (Denning 1966, Morse 1975).

Outside of Minnesota, this species is known from Oregon and British Columbia. Its widely disjunct occurrence in Minnesota is documented by only 17 males and 8 females collected in June, 1989 from Kabekona Bay of Leech Lake, Kabekona River, and Stumphges Rapids of the Mississippi River, all in Hubbard County, and also from Squaw Lake and Nicollet Creek, in Itasca State Park in Clearwater County. All Minnesota sites are within a 40 km. radius. Further inventory work is needed to delineate the range of this species in Minnesota, but Special Concern status is necessary and reasonable until these data are gathered.

SELECTED REFERENCES:

Denning, D.G. 1966. New and interesting Trichoptera. The Pan-Pacific Entomologist 12:228-238; Morse, J.C. 1975. A phylogeny and revision of the caddisfly genus *Ceraclea* (Trichoptera, leptoceridae). Contributions of the American Entomological Institute 11: 1-97;

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Chilostigma itascae* Wiggins

COMMON NAME: Headwaters Chilostigman

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This endemic species is known worldwide only from Nicollet Creek, in Itasca State Park, Clearwater County, Minnesota, where seventeen males and one female were collected in February and March, 1974 (Wiggins 1975). Since that time efforts to find the immature and adult stages of this species have been numerous. Dr. Glenn Wiggins of the Royal Ontario Museum searched intensively for immatures in July and August, 1974. From June-September 1988-1992, Margot Monson also looked for likely candidates for the immature stages of this species. Between January 1988 and June 1990, Monson maintained Malaise traps year round at Nicollet Creek and also traveled to this locality during the months of January-March from 1988-1993, in hopes of encountering adults of this winter emerging species. All of these efforts have been unsuccessful in relocating the species (Monson 1994).

Chilostigma itascae adults were found on sunny days on the surface of the snow in a wetland meadow adjacent to a slow-flowing creek; minimum air temperature was below -17.81C (01F) the night before one collection was made. At this time no larva has been described in the genus *Chilostigma*. Adult males are about 8-10 mm. in length, wings brownish with black setae and dense setal fringe around periphery, with some distinct brown markings (Wiggins 1975).

Not only is *Chilostigma itascae* one of very few species of animal or plant known to be endemic to Minnesota, but its occurrence here is the first record of the genus *Chilostigma* in North America; previously, this genus had been represented by a single species from Scandinavia and Finland, *C. sieboldi*. Given the well-documented and recent observation of *Chilostigma itascae* in the state, and its extremely restricted distribution, Endangered status is necessary and reasonable to insure, as much as possible, that any extant population of this species is protected from extinction.

SELECTED REFERENCES:

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1975. Contributions to the systematics of the caddisfly family Limnephilidae (Trichoptera). II. The Canadian Entomologist 107: 325-336.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hydroptila metoeca* Blickle and Morse

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Hydroptila* live in lentic and lotic habitats and feed on algae and diatoms. Mature *Hydroptila* larvae have laterally compressed cases up to 5.5 mm. in length, constructed of two silken valves typically covered with a single layer of sand grains, or occasionally with diatoms or algae. Adult males are about 3 mm. in length (Blickle and Morse 1954, Blickle 1979}.

This species is known in Minnesota from only two males collected in Garrison, Crow Wing County and from Link Lake, Itasca County in July-August, 1965. Elsewhere, it is reported from Newfoundland, New England (ME, DE, NH, NJ, PA), Virginia, and Ohio. Attempts to collect this species from Borden Lake (near Garrison), Crow Wing County in August 1991 were unsuccessful (Monson pers. comm.). Until further inventory work is conducted on this species, Special Concern designation is needed and reasonable.

SELECTED REFERENCES:

Blickle, R.L. 1979. Hydroptilidae (Trichoptera) of America north of Mexico. New Hampshire Agricultural Experiment Station Bulletin 509. University of New Hampshire, Durham;

Blickle, R.L. and W.J. Morse. 1954. New species of Hydroptilidate (Trichoptera). Bulletin of the Brooklyn Entomological Society 49:121-127;

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hydroptila novicola* Blickle and Morse

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Hydroptila* live in lentic and lotic habitats and feed on algae and diatoms. Mature *Hydroptila* larvae have laterally compressed cases up to 5.5 mm. in length, constructed of two silken valves typically covered with a single layer of sand grains, or occasionally with diatoms or algae. Adult males are about 2.5 mm. in length (Blickle and Morse 1954, Blickle 1979).

This species is most typically known from Quebec, Maine, New Hampshire, Alabama, and Mississippi. Its widely disjunct occurrence in Minnesota is documented by only five males collected at Isabella in Lake County, Tower in St. Louis County, and Eaglehead in Pine County in July 1965. Subsequent collections from Pine County in August 1991 did not yield this species (Monson pers. comm.). Special Concern status is reasonable for this species until further survey work clarifies its distribution in Minnesota.

SELECTED REFERENCES:

Blickle, R.L. 1979. Hydroptilidae (Trichoptera) of America north of Mexico. New Hampshire Agricultural Experiment Station Bulletin 509. University of New Hampshire, Durham;

Blickle,R.L. and W.J. Morse. 1954. New species of Hydroptilidae (Trichoptera). Bulletin of the Brooklyn Entomological Society 49:121-127;

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hydroptila tortosa* Ross

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Hydroptila* live in lentic and lotic habitats and feed on algae and diatoms. Mature *Hydroptila* larvae have laterally compressed cases up to 5.5 mm. in length, constructed of two silken valves typically covered with a single layer of sand grains, or occasionally with diatoms or algae. Adult males are about 2.5 mm. in length, wings brown with some small patches of white setae (Ross 1938).

Beyond Minnesota, this species is known from Maine, New Hampshire, Virginia and North and South Carolina. Its widely disjunct occurrence in Minnesota is documented by two males collected in Finland, Lake County in July 1965. Attempts to collect this species from the Baptism River, Lake County in June 1991 were unsuccessful (Monson pers. comm.). Until additional fieldwork clarifies its distribution in Minnesota, it is needed and reasonable to designated this a species of Special Concern.

SELECTED REFERENCES:

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Ross, H.H. 1938. Descriptions of Nearctic caddis flies (Trichoptera). Bulletin of the Illinois Natural History Survey 21:101-183.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Oxyethira ecornuta* Morton

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Oxyethira* live in lakes and other lotic habitats or in areas of slow current in rivers, where they are often found within beds of submerged aquatic plants. Mature *Oxyethira* larvae are up to 4 mm. in length and are recognized primarily by their exceptionally long slender mid and hind legs and long antennae, which are characteristic for the genus. They are easily identified by their flattened, bottle-shaped cases constructed entirely of silk. Adult males are about 2.5 mm. in length (Kelley 1985, Morton 1893).

This species is very regionally restricted in North America, being known outside of Minnesota only from Ontario. Interestingly, it is also reported from northern Europe. Its occurrence in Minnesota is documented only from a single male collected from LaSalle Creek, Hubbard County in July 1988. Until further inventories are conducted, Special Concern designation is needed and reasonable for this species.

SELECTED REFERENCES:

Kelley, R.W. 1985. Revision of the micro-caddisfly genus *Oxyethira* (Trichoptera: Hydroptilidae). Part II: Subgenus *Oxyethira*. Transactions of the American Entomological Society 111:223-253;

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Morton, K.J. 1893. Notes on Hydroptilidae belonging to the European fauna, with descriptions of new species. Transactions of the Royal Entomological Society of London (1893): 75-82;

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Oxyethira itascae* Monson and Holzenthal

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Oxyethira* live in lakes and other lotic habitats or in areas of slow current in rivers, where they are often found within beds of submerged aquatic plants. Mature *Oxyethira* larvae are up to 4 mm. in length and are recognized primarily by their exceptionally long slender mid and hind legs and long antennae, which are characteristic for the genus. They are easily identified by their flattened, bottle-shaped cases constructed entirely of silk. Adult males are about 2.5 mm. in length (Kelley 1985, Morton 1893).

Oxyethira itascae was a species new to science in 1993, and is known worldwide from two Minnesota locations. These sites, only about 18 km. apart, are at Nicollet Creek, Clearwater County and at LaSalle Creek, Hubbard County. The collections were made in July-August 1988-1989 (Monson and Holzenthal 1993). Until further survey work is conducted, this species' very restricted distribution indicates that Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Monson, M.P. and R.W. Holzenthal. 1993. A new species and new records of *Oxyethira* (Trichoptera: Hydroptilidae) from Minnesota. Journal of the North American Benthological Society 12:438-443;

Wiggins, G. B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polycentropus milaca* Etnier

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Polycentropus* are recorded from most types of freshwater lentic and lotic habitats, including temporary vernal pools; they are commonly predacious. Mature *Polycentropus* larvae are up to 25 mm. in length. Adult males are about 7.5 mm in length, with mottled dark brown wing coloration (Etnier 1968, Nimmo 1986).

This endemic species is known worldwide only from the male holotype, the single specimen collected from the Link Lake Ranger station, Itasca County, Minnesota, in July 1965 (Etnier 1968). An attempt to collect this species from the type locality in July 1991 was unsuccessful (Luedeman 1991). Further inventory work is needed to attempt to locate this species in Minnesota and delineate its range. Until that search is completed, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Etnier, D.A. 1968. Range extensions of Trichoptera into Minnesota, with descriptions of two new species. Entomological News 79:188-192;

Luedeman, J. 1991. A preliminary survey for endemic species, and restricted or disjunct populations of caddisflies in Minnesota. Unpubl. final report to Minnesota DNR, Nongame Wildlife Program.

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Nimmo, A.P. 1986. The adult Polycentropodidae of Canada and adjacent United States. Quaestiones Entomologicae 22:143-251;

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Protoptila talola* Denning

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Protoptila* larvae inhabit streams and graze upon fine particular organic matter, algae, and diatoms, often on the exposed surfaces of rocks. Mature *Protoptila* larvae are up to 3.5 mm in length and incorporate relatively large stones in each side of their tortoise-shaped cases. Adult males are about 4 mm in length (Denning 1947).

This endemic species is known worldwide from only the holotype, a single male specimen collected from the Snake River, Pine County, Minnesota in May 1941 (Denning 1947). An attempt to collect this species from the Snake River in May 1991 was unsuccessful (Luedeman 1991). Until further searches clarify the distribution of this species in Minnesota, designation as a species of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Denning, D.G. 1947. New species of Trichoptera from the United States. Entomological News 58:249-257

Luedeman, J. 1991. A preliminary survey for endemic species, and restricted or disjunct populations of caddisflies in Minnesota. Unpubl. final report to Minnesota DNR, Nongame Wildlife Program.

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Setodes guttatus* (Banks)

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Larvae of the genus *Setodes* are found in lotic habitats and along lake margins and feed upon fine particular organic matter, including plant and animal material. *Setodes* larval cases are slightly curved and constructed from pieces of rock; larvae have been reported to burrow in loose substrate, concealing all but their case opening. Mature *Setodes* larvae may be up to 8.5 mm in length (Holzenthal 1982, Holzenthal and Harris 1985).

The occurrence of this species in Minnesota is documented by two females from Cass Lake, Cass County, collected in 1934 and 1936. This collection is widely disjunct from the rest of the species' range, which includes Quebec, New England (ME, CT, MD, NJ, PA), and Alabama. It is necessary and reasonable to designate *Setodes guttatus* as a species of Special Concern until further fieldwork clarifies its distribution in Minnesota.

SELECTED REFERENCES:

Holzenthal, R.W. 1982. The caddisfly genus *Setodes* in North America (Trichoptera: Leptoceridae), Journal of the Kansas Entomological Society 55:253-271.

Holzenthal, R.W. and S.C. Harris. 1985. The female of *Setodes guttatus* with distribution notes (Trichoptera: Leptoceridae). Journal of the Kansas Entomological Society 58:166-168.

Monson, M.P. 1994. The caddisflies (Insecta: Trichoptera) of the Lake Itasca Region, Minnesota, and a preliminary assessment of the conservation status of Minnesota Trichoptera. Unpubl. M.S. Thesis, Univ. of Minnesota, St. Paul. 135pp.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto.

TIGER BEETLES

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela denikei* W.J. Brown

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species is a regional endemic restricted to southeast Manitoba, southwest Ontario and extreme northern Minnesota, where it prefers sandy or rocky openings in northern hardwood forest communities. The species has been documented from three localities in northern Lake and St. Louis counties (Coffin and Pfannmulller, eds. 1988). Single specimens were collected from an island in Basswood Lake, Lake County in 1958 and from Elbow Lake, St. Louis County in 1979. The third site is located along the Ash River Trail in northern St. Louis County. *Cicindela denikei* has been found repeatedly at this last site since 1964, in spite of the fact that it is located along a sand-gravel ridge that is being slowly excavated for gravel. Less than 15 additional records have been documented outside of Minnesota (R. Huber pers. comm.). Due to the extremely restricted distribution of this species in the state, and the threats to its most reliable population in St. Louis County, it is necessary and reasonable to designate it as Threatened.

SELECTED REFERENCES:

Brown, W.J. 1934. New species of Coleoptera. V. Canad. Ent. 66:22-24.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Wallis, J.B. 1961. Cicindelidae of Canada. Univ. Toronto Press. 74pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela fulgida fulgida* Say

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species is distributed throughout the central Great Plains, from Montana and North Dakota south to northern Texas, New Mexico and Arizona. It also has been documented from southern Alberta. Minnesota represents the eastern periphery of the beetle's range. In Minnesota, this tiger beetle is restricted to the north shore of Salt Lake in Lac qui Parle County, where it was discovered in 1967 (Coffin and Pfannmuller 1988). This site is characterized by moist alkaline flats that are encrusted with magnesium sulfate. *Salicornia rubra*, or glasswort, dominates the vegetation. Modification of water levels could flood the shoreline habitat. Pollution run-off from the surrounding farmland that is on higher ground also may pose a threat. For these reasons, Endangered status is necessary and reasonable for this species.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Say, T. 1823. Descriptions of coleopterous insects collected in the expedition to the Rocky Mountains. Phil. Acad. Nat. Sci., Journ. 3 :139-216.

Willis, H.L. 1967. Bionomics and zoogeography of tiger beetles of saline habitats in the central United States (Coleoptera: Cicindelidae) Kansas Univ. Sci. Bull. 47(5): 143-313.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela fulgida westbournei* Calder

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species of tiger beetle has a very restricted range, being known from only southern Manitoba and Saskatchewan, northern North Dakota and northwestern Minnesota. Two localities in Kittson County, which are separated from one another by approximately 2.5 miles, are the only sites that support this species in Minnesota (Coffin and Pfannmuller 1988). In 1978 *C. fulgida westbournei* was discovered at a site 1.5 miles south of the town of Humboldt; in 1981 it was found 1 mile north of Humboldt between a railroad right-of-way and an adjacent highway. Only six additional records are available for this species outside of Minnesota. Its habitat in Minnesota is characterized by damp, alkaline spots dominated by *Salicornia rubra*. Because of its extremely restricted distribution and vulnerable habitat, a designation as Threatened is necessary and reasonable for this species.

SELECTED REFERENCES:

Calder, E.E. 1922. New *Cicindelas* of the *fulgida* group (Coleoptera). Canad. Ent. 54:62.

Calder, E.E. 1922. Change of names in *Cicindelas*. Canad. Ent. 54:191.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Willis, H.L. 1976. Bionomics and zoogeography of tiger beetles of saline habitats in the central United States (Coleoptera: Cicindelidae; Kansas Univ., Sci. Bull. 47(5): 145-313.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela hirticollis rhodensis* Calder

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This subspecies of tiger beetle is restricted to the Great Lakes, where it is found on sandy shorelines. Records are available from the south shore of Lake Superior, the entire shoreline of Lake Michigan, the western shore of Lake Huron, the south shore of Lake Erie and the west shore of Lake Ontario. The beetle's occurrence in Minnesota is restricted to two sites that are in close proximity to one another in the Duluth area (Coffin and Pfannmuller 1988). These are at Minnesota Point and the Port Terminal on Rice's Point, and are separated by approximately five miles. The beetle was first documented at Minnesota Point in 1960 and at the Port Terminal in 1974. The Duluth locality represents the western periphery of the beetle's range. Because of the species' restricted distribution in the state, and the vulnerability of its habitat to disturbance, Special Concern designation is reasonable.

SELECTED REFERENCES:

Casey, T.L. 1916. Further studies on the Cicindelidae. Memoirs on the Coleoptera, VII. Lancaster. 34pp.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela lepida* Dejean

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This tiger beetle is widely distributed throughout the United States and Canada east of the Rocky Mountains, but is dependent upon a highly specialized habitat - high, steep sandy dunes - for its survival. *Cicindela lepida* was first documented in Minnesota in 1922 from a site near Fridley in Anoka County (Coffin and Pfannmuller 1988). The Fridley dunes, however, were leveled for construction of a high school and private homes sometime between 1924 and 1954. In 1923 the beetle was reported from Scott County and in 1936 from Polk County. Neither of these records have been reconfirmed. The other two sites in Minnesota are near Dumfries in Wabasha County, and 1.5 miles south of Ortonville in Lac qui Parle County. The Ortonville site is pasture, and the trampling may threaten the beetle's larval burrows; the Dumfries slopes, though, are believed to be in good condition. Due to the very restricted distribution of this species, and the vulnerability of its habitat, it is necessary and reasonable to propose it for Threatened status.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Dejean, F.M.A.P. 1831. Species general des coleopteres de la collection de M. le compte Dejean. V. Mequignon Marvis, Paris. 883 p.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela limbata nympha* Casey

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: High, steep, bald dunes of fine, white, wind-shifted sand are the preferred habitat of this tiger beetle species. In Minnesota, it is known from a single, small colony, several acres in size (Coffin and Pfannmuller 1988). This is in Garfield Township, Polk County, 1.5 miles southwest of the town of Fertile. It was first discovered at the site in 1967. The most recent record available is 1970. It is possible that the population no longer exists, but until a thorough survey of the area is completed, Endangered status is necessary and reasonable for *Cicindela limbata nympha*.

SELECTED REFERENCES:

Casey, T.L. 1913. Studies in the Cicindelidae and Carabidae of America. Memoirs on the Coeloptera, IV. Lancaster. 192pp.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Wallis, J.B. 1961. Cicindelidae of Canada. Univ. of Toronto Press. 74pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela macra macra* Leconte

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This tiger beetle inhabits moist sandy stream edges. It is known historically from five counties in Minnesota, however recent collections have been made from only two counties (Coffin and Pfannmuller 1988). The Minnesota records are as follows: Washington Co. - 1921; Winona Co. - 1920; Scott Co. - 1923; Fillmore Co. - 1965 (colony apparently obliterated by flood control and channel changes); and Wabasha Co. 1960-72 (trampling from cattle may have destroyed larval burrows, no recent collection at this site). Further survey is needed to document the range and abundance of the species in the state, but given the limited known distribution and vulnerable habitat, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Leconte, Jr L. 1857. Revision of the Cicindelidae of the United States. Amer. Philos. Soc, Trans. 11:27-64.

Willis, H. L. 1967. Bionomics and zoogeography of tiger beetles of saline habitats in the central United States (Coleoptera: Cicindelidae). Kansas, Univ. Sci Bull 47(5): 145-313.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela patruela patruela* Dejean

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Cicindela patruela patruela* occurs in northeastern United States and southern Canada, reaching the western edge of its range in Minnesota. It occurs in sandy jackpine habitats that are very vulnerable to development. Of the ten counties in which this beetle has been found in Minnesota, only three breeding colonies are known and one of these has been destroyed (Coffin and Pfannmuller 1988). Records in Minnesota are as follows: Cass Co. - no date, pre-1900; Morrison Co. - 1960; Sherburne Co. - 1950; Crow Wing Co. - 1953; Chisago Co. - 1928; Pine Co. - 1956; Winona Co. - 1973; Anoka Co. - 1976 (small breeding colony); Wadena Co. 1960-68 (breeding colony); Todd Co. - 1964-71 (colony destroyed). Although additional survey work may yield additional locations, the limited known distribution makes Special Concern status necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Dejean, F.M.A.P. 1825. Species general des coleopteres de la collection de M. le compte Dejean. I Mequignon Marvis, Paris. 463pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cicindela splendida cyanocephalata* Eckhoff

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Cicindela splendida cyanocephalata* is a species of steep clay embankments that occurs in central United States and in Minnesota at the northeastern edge of its range. Its Minnesota records are limited to three counties in the southeastern part of the state. Specifically, this Cicindelid has been collected consistently at one location in Houston County since 1966, at three locations in Winona County in 1981 and 1982, and at one location in Fillmore County in 1966 (Coffin and Pfannmuller 1988). Further survey is needed to document the range and abundance of the species in the state, but its limited known distribution indicates that Special Concern status is reasonable for this species.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Eckhoff, D. 1939. Cicindelidae of Iowa (Coleoptera). Iowa State College Journ. Sci. 13:201-230.

LEAFHOPPERS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Aflexia rubranura* (DeLong)

COMMON NAME: Red-tailed Prairie Leafhopper

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Red-tailed Prairie Leafhopper is a flightless insect endemic to northern tallgrass prairie and is obligate on its food plant, prairie dropseed (*Sporobolus heterolepis*). This leafhopper is rare throughout its range in midwestern United States and south-central Canada. A recent survey of Minnesota prairies was conducted to obtain accurate data on the distribution of this species in Minnesota. Of the 41 prairie remnants searched, the Red-tailed Prairie Leafhopper was found at only ten sites scattered throughout the southeastern, southwestern, and western portions of the state (Hamilton 1993). Given that this recent, relatively exhaustive, information indicates that the species is quite rare in the state, designation of this species as Special Concern is reasonable.

SELECTED REFERENCES:

Hamilton, K.G.A. 1993. Survey for the red-tailed leafhopper *Aflexia rubranura* (DeLong) (Rhynchota: Homoptera: Cicadellidae). Unpubl. Preliminary Report to the Minnesota DNR, Nongame Wildlife Program. 7pp.

DRAGONFLIES

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ophiogomphus anomalis* Harvey

COMMON NAME: Extra-striped Snaketail

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: In Minnesota, the Extra-striped Snaketail is known from only the St. Croix River. It has been collected there relatively few times in recent years, and was not located in a recent survey of the area (Haarstad 1993, Smith 1995). It is probably a substrate specialist, requiring a very particular composition of gravel, sand, and cobble (K. Soltesz pers. comm.). Based on our current knowledge, and until more definitive information on the distribution of the species is collected, Special Concern status is a reasonable designation.

SELECTED REFERENCES:

Haarstad, J. 1993. The dragonflies of selected eastern Minnesota rivers. Unpubl. final report to the Minnesota DNR, Nongame Wildlife Program. 36pp. + appendices.

Smith, W.A. 1995. Status and distribution of *Ophiogomphus* dragonflies in Wisconsin. Unpubl. report to the USFWS, Region 3. 18pp. + tables.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ophiogomphus susbehcha* Vogt & Smith

COMMON NAME: St. Croix Snaketail

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The St. Croix Snaketail was unknown to science when it was found on the St. Croix River in Wisconsin in 1989 (Vogt and Smith 1993). Despite intensive surveys (Haarstad 1993), it is known from only three populations, two of which are in Minnesota (Smith 1995). These are at Sunrise and at Interstate State Park. It is apparently restricted to larger, fast streams with good water quality and a large proportion of gravel and cobble in the substrate (Smith 1995). Its very limited and near-endemic distribution indicates that it is reasonable to designate this species as Special Concern.

SELECTED REFERENCES:

Haarstad, J. 1993. The dragonflies of selected eastern Minnesota rivers. Unpubl. final report to the Minnesota DNR, Nongame Wildlife Program. 36pp. + appendices.

Smith, W.A. 1995. Status and distribution of *Ophiogomphus* dragonflies in Wisconsin. Unpubl. report to the USFWS, Region 3. 18pp. + tables.

Vogt, T.E. and W.A. Smith. 1993. *Ophiogomphus susbehcha* spec. nov. from north central United States (Anisoptera: Gomphidae). Odontologica 22(4):503-509.

VASCULAR PLANTS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Achillea sibirica* Ledeb.

FAMILY: Asteraceae

COMMON NAME: Siberian Yarrow

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species of wet woodland margins was discovered in Minnesota in 1939 at a site north of Longworth (Roseau County) and reconfirmed at the same site in 1983. Until recently not enough inventory work had been completed in that portion of the state to evaluate the significance of the single known population. But now, after several years of intensive field inventory, only one additional population has been discovered, indicating that it is very rare in the state. Threatened status is needed and reasonable because of concern for the vulnerability of these two small populations to disturbance or destruction.

SELECTED REFERENCES:

Coffin, B.A. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Hulten, E. 1968. Flora of Alaska and neighboring territories. Stanford University Press, California. 1,008pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Scoggan, H. J. 1978. The flora of Canada. National Museum of Natural Sciences, Ottawa. 3 vols.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Allium schoenoprasum* var. *sibiricum*

FAMILY: Liliaceae

COMMON NAME: Wild chives

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species has been documented at seven locations in the state, but only two populations have been observed in recent years. The two known locations are on the Susie Islands and in Jay Cooke State Park, but the historic habitat of this species is rocky shores and ledges along the north shore of Lake Superior. When the species was designated as Special Concern in 1984, this habitat was assumed to be secure. However, given that plant is absent at many apparently suitable sites, and because of the likely continued increase in development pressure and recreational activity that can severely impact this species' habitat, Threatened status is needed and reasonable.

SELECTED REFERENCES:

Coffin, B.A. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Androsace septentrionalis* L. var. *pulverulenta* (Rydb.) Knuth

NEW SCIENTIFIC NAME: *Androsace septentrionalis* L. ssp. *puberulenta* (Rydb.) G.T. Robbins

FAMILY: Primulaceae

COMMON NAME: Northern Androsace

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was designated as Threatened in 1984 because it was thought to be restricted to a few remnant prairie habitats in Kittson and Roseau Counties. The results of field work since 1990 have revealed that the species actually occurs at several locations in Kittson, Roseau and Marshall counties, and has been found as far away as Polk County . Documented collections are almost exclusively from natural settings where the species occurs on exposed surfaces of sand prairies and gravel ridges. This habitat appears to have pre-adapted it for successful invasion of other sandy areas such as roadsides, where it has been observed but not documented by collections. Threatened status is no longer needed or reasonable for this species.

SELECTED REFERENCES:

Coffin, B.A. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Moore, J. W. 1966. A provisional list of flowering plants, ferns and fern allies of Kittson County, Minnesota. Dept. of Bot., Univ. of Minnesota., Minneapolis.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Robbins, G.T. 1944. North American species of Androsace. Am. Midl. Nat. 32:137-163.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Arethusa bulbosa L.*

FAMILY: Orchidaceae

COMMON NAME: Dragon's-mouth

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: *Arethusa bulbosa* is an orchid of temperate and boreal North America with the geographic center of its range in the Great Lakes region. Concern arising from a decline of this species in other parts of its United States' range, led to its designation as Special Concern in 1984. However, Minnesota populations appear to have a stronghold in the large peatlands and conifer swamps in the northern part of the state, extending roughly from Roseau County in the northwest to Carlton County on the southeast. Over 70 locations are now known from this area. A recent DNR survey discovered *A. bulbosa* in nearly every peatland complex studied. Some populations appear to be small, but most extend over several square kilometers and contain thousands of individuals. The majority of these populations are probably secure considering applicable state and federal land-management guidelines. Several populations occur on sites that have a high level of protection. Although other populations in small, outlying peatlands are experiencing local extirpations because of loss of habitat, it is now known to be sufficiently distributed in the state to no longer need Special Concern status.

SELECTED REFERENCES:

Aaseng, N.E. and R.I. Djupstrom. 1992. Peatland Protection, pp. 301-315 *in* Wright, H.E. et.al. The Patterned Peatlands of Minnesota. University of Minnesota Press, Minneapolis. 327pp.

Coffin, B.A. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Luer, C. A. 1975. The native orchids of the United States and Canada excluding Florida. New York Botanical Garden. 361pp.

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Smith, W.R. 1993. Orchids of Minnesota. University of Minnesota Press. Minneapolis. 172pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Asplenium platyneuron* (L.) Britt.

FAMILY: Aspleniaceae

COMMON NAME: Ebony Spleenwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Ebony Spleenwort occurs in dry to mesic rocky woodlands, especially in association with sandstone outcrops. Because of these restrictive habitat requirements, this small woodland fern is limited to five counties in the southeastern corner of the state. These counties have recently been the subject of a comprehensive biological inventory during which only five additional populations were discovered. This brings the total number of historical and recent discoveries to ten, indicating that it is a rare species. Although direct threats to its survival have not yet been adequately documented, all of the known populations are small, and considered fragile. Therefore, designation as Special Concern is needed and reasonable.

SELECTED REFERENCES:

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B., and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

Wagner, W.H. and D.M. Johnson. 1981. Natural History of the Ebony Spleenwort *Asplenium platyneuron* (Aspleniaceae) in the Great Lakes area. Canad. Field Naturalist 95:156-166.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Aster shortii* Lindl.

FAMILY: Asteraceae

COMMON NAME: Short's Aster

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This blue-flowered aster is restricted to remnant forests in the southeastern corner of the state, where it is very rare. There are around a dozen known locations of this species, but four date from prior to 1948, and are believed to have been destroyed by habitat alteration. The several recently-discovered sites are in western Houston and Fillmore Counties and seem to be associated with a transition from silty colluvial soils to slightly coarser soils part way up wooded slopes. It is not yet clear whether this apparent microhabitat preference is related to soil conditions themselves or to possible changes in light that occur as hardwood forest gives way upslope to oak. *Aster shortii* is a late-flowering species, and may have been overlooked in the past because it is less likely to be noticed in mid-summer during the typical botanical field season. However, potential threats from changes in land use are not well understood and the presently-known number of locations and habitat preferences support listing as Threatened at this time.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C.O., and J.W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Astragalus alpinus* L.

FAMILY: Fabaceae

COMMON NAME: Alpine Milk Vetch

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species is known from only one site in Minnesota; the margin of a shallow groundwater-fed pond in Lake County. The pond has several unusual geomorphic and hydrologic features that make it unique in Minnesota. This limits the possibility of Alpine Milk Vetch occurring anywhere else in the state. It also increases the risk to the population because a single catastrophic event or a series of stochastic events could easily cause the extirpation of the species in Minnesota. Endangered status is therefore needed and reasonable.

SELECTED REFERENCES:

Barneby, R.C. 1964. Atlas of North American *Astragalus*. Mem. New York Bot. Gard. 13:1-1188.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Astragalus neglectus* (T. & G.) Sheld.

FAMILY: Fabaceae

COMMON NAME: Cooper's Milk-vetch

CURRENT MINNESOTA STATUS: Special concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was designated as Special Concern in 1984, there were 13 documented locations for in Minnesota. The majority of them were old collections from sandy or gravelly lakeshores. Concerted searches for new populations in the northwestern part of the state have resulted in documentation of over 100 new locations within the past five years. The majority of these locations are in rights-of-way and other recently disturbed areas, suggesting that the species' original habitat may have been in areas subject to natural disturbances such as fire or ice action. Special Concern status is no longer needed nor reasonable for this species because it is now known to be more common in Minnesota than was formerly believed. From a range-wide perspective, it appears that this species has a strong hold in Minnesota although it may, in fact, be quite rare in other states.

SELECTED REFERENCES:

Barneby, R.C. 1964. Atlas of North American *Astragalus*. Memoirs of the New York Botanical Garden 13: 1-1188.

Bowles, M.L. and R.F. Betz. No date. A preliminary assessment of the status and distribution of *Astragalus neglectus* (T. &. G.) Sheldon in the United States. Report to U.S. Fish and Wildlife Service, Office of Endangered Species, Twin Cities. 12pp.

Coffin, B.A. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Minnesota County Biological Survey. 1994. Polk County: Summary of the 1993 field season.. Biological Report No. 48. Minnesota Department of Natural Resources.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Athyrium pycnocarpon* (Spreng.) Tides

OLD FAMILY: Polypodiaceae

NEW SCIENTIFIC NAME: *Diplazium pycnocarpon* (Spreng.) M. Broun.

NEW FAMILY: Dropteridaceae

COMMON NAME: Narrow-leaved Spleenwort

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, nine populations were known in the state, but it was hoped that unexplored potential habitat would produce more records when further surveys were done. The habitat of this species in Minnesota is confined to wooded bluffs in deep stream valleys of the southeastern corner of the state. An extensive biological survey of southeastern Minnesota has recently been completed, and only four populations of this species were located; all were small and in fragile habitats. This significant decline in distribution is believed to be related to the general deterioration of its forest habitat over the last 50 years, and suggests that Threatened status is now needed and reasonable for this species.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Kato, M. and D. Darnaedi. 1988. Taxonomic and phytogeographic relationships of *Diplazium flavoviride*, D. *pycnocarpon*, and *Diplaziopsis.* American Fern Journal 78: 77-85.

Kato, M. 1993. *Diplazium* Swartz. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2, pp 252-253.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Peck, J. H. 1982. Ferns and fern allies of the driftless area of IIlinois, Iowa, Minnesota and Wisconsin. Milwaukee Public Museum. Contributions in Biology and Geology 53. 140pp.

Tryon, R. 1980. The ferns and fern allies of Minnesota. University of Minnesota Press, Minneapolis. 165pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Aureolaria pedicularia* (L.) Raf.

FAMILY: Scrophulariaceae

COMMON NAME: Large False Foxglove

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Large False Foxglove is a plant of dry sand savannas in southeastern Minnesota. There are three 19th century records of this species, but none since then until an intensive survey was conducted between 1987 and 1995. During this recent survey three small colonies were found. Because the earlier populations were found incidental to general field work and the recent ones were the result of a highly directed thorough search, a decline in population is inferred. This conclusion is supported by a well documented decline in suitable habitat. The major cause of decline is land conversion for urban and agricultural purposes. On the basis of these surveys a status of Threatened is deemed both reasonable and necessary.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

Pennell, F.W. 1935. The Scrophulariaceae of eastern temperate North America. Acad. Nat. Sci. Philadelphia Monogr. 1:1-650.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Baptisia alba* (L.) Bent.

FAMILY: Fabaceae

COMMON NAME: Wild False Indigo

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Wild False Indigo is a native legume of prairies in southern Minnesota. When settlers first arrived there it was apparently a common species. As the prairies were plowed, this species began a steep decline. The greatest losses occurred soon after the turn of the century. Today, less than 1% o f the original habitat is believed to survive. Surviving populations survivors exist in a few small isolated remnant prairies that are still threatened by habitat conversion. The species' rarity, coupled with its threatened habitat supports the necessity and reasonableness of listing it as Special Concern at this time.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Bartonia virginica* (L.) B.S.P.

FAMILY: Gentianaceae

COMMON NAME: Virginia Bartonia

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species is apparently confined to sand plain habitats in Anoka County, and has always been very rare. There are three historical records, dating from 1892-1933. Since that time over 90% of its potential habitat has been converted to agricultural use, and it was feared the species had become extinct in Minnesota. For that reason it was not listed as endangered in 1984. Shortly after that, a small remnant population was discovered. But further intensive searches of potential habitat in Anoka and adjacent counties have failed to find any additional populations. The only known population occurs in Cedar Creek Natural History Area, and consists of only a few individuals. Not only is this one of the rarest species in the state, the Anoka Sandplain in which it lives is under intensive development pressure. This combination of rarity and threat supports the necessity and reasonableness of listing *Bartonia* as Endangered at this time.

SELECTED REFERENCES:

Gillet, J.M. 1959. A revision of *Bartonia* and *Obolaria* (Gentianaceae). Rhodora 61:43-62.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Besseya bullii* (Eaton) Rydb.

FAMILY: Scrophulariaceae

COMMON NAME: Kitten-Tails

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR MINNESOTA STATUS: It appears that Minnesota is the population center for this midwestern endemic species, which is considered rare or threatened wherever it occurs. When this species was placed on the state Endangered Species list in 1984, more than half of the historically known populations of this species in Minnesota were located in what is now the metropolitan area of Minneapolis-St. Paul and surrounding suburbs. Only 5 of 21 documented sites were known to survive. However, intensive surveys of metropolitan Minnesota counties since the late 1980's have documented over ninety locations for this species. Despite these high numbers, *Besseya bullii* is an outstanding example of a species at risk because its preferred habitat coincides almost exactly with preferred siting of housing developments. Without statutory protection, these newly-documented populations on bluff prairies, dry open woods and savannahs in the metropolitan area could disappear within years of their discovery. The species occurs in isolated patches that allow the potential for orderly development along with its protection if its presence is taken into account at the planning stage of development. While Endangered status is no longer needed for this species, it is reasonable to retain it in the Threatened category.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Meyer, T. A. 1986. Report on the Status of *Besseya bullii* (Eat.) Rydb. in the United States. Wisconsin Natural Heritage Inventory Program. Report to US Fish and Wildlife Service, Office of Endangered Species, St. Paul.

Mickelson, C. J. and H. H. Iltis. 1966. Preliminary reports on the flora of Wisconsin #50. Wisc. Acad. Sci. Arts and Letters 55:187-222.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

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Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium campestre* W.H. Wagner & Farrar

FAMILY: Ophioglossaceae

COMMON NAME: Prairie Moonwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This diminutive fern, which is often only an inch tall, is known from gravel prairies in western Minnesota and bluff prairies in southeast Minnesota. It appears to be endemic to the Upper Great Plains, but the full extent of its range outside Minnesota remains unknown. *Botrychium campestre* was still new to science when it was first documented in Minnesota in 1984. Since then it has been the subject of highly directed searches throughout western Minnesota, resulting in a total of over 20 known locations. Only a portion of its potential habitat has been intensively searched and the success of these searches indicates that it is more common in Minnesota than was originally believed. Despite recent findings of new locations, this species still warrants concern because available information indicates that its preferred habitat continues to be threatened by gravel mining. For these reasons, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Johnson-Groh C.L. and D.R. Farrar. 1993. Population dynamics of prairie moonworts *Botrychium* subgenus *Botrychium* in Iowa and Minnesota. American Journal of Botany 80 (6 suppl.) 109.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W. H., and F. S. Wagner. 1986. Three new species of moonworts (*Botrychium* subg . *Botrychium*) endemic in western North America. American Fern Journal 76 (2): 33-47.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium gallicomontanum* Farrar & Johnson-Groh

FAMILY: Ophioglossaceae

COMMON NAME: Frenchman's Bluff Moonwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This small prairie fern was entirely unknown to science when it was discovered on Frenchman's Bluff in Norman County in 1988. Since then it has been formally described and named, and is one of only two endemic species of plant in Minnesota. Its dry-prairie habitat appears to be similar to that of *B. campestre*, but no additional locations have been found either in the course of searches for *B. campestre*, or in searches specifically targeting *B. gallicomontanum*. Its single location is believed to be potentially vulnerable to a variety of threats including natural stochastic events. Research is currently underway to determine its response to typical prairie management activities. Thus, Endangered status is both needed and reasonable.

SELECTED REFERENCES:

Farrar, D.R. and C.L. Johnson-Groh. 1991. A new prairie moonwort (*Botrychium* subgenus *Botrychium*) from northwestern Minnesota. American Fern Journal 81(1) 1-6.

Johnson-Groh C.L. and D.R. Farrar. 1993. Population dynamics of prairie moonworts *Botrychium* subgenus *Botrychium* in Iowa and Minnesota. American Journal of Botany 80 (6 suppl.) 109.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium lanceolatum* (S.G. Gmelin) Angstr.

FAMILY: Ophioglossaceae

COMMON NAME: Lance-leaved Moonwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was first collected in Minnesota in 1918 in Morrison County. Until it was collected again in 1991 its status was a mystery. Several years of searches have provided a clearer idea of its distribution and preference for northern hardwood habitats. It is extremely rare, occurring in only a small percentage of the seemingly suitable woodland habitats that were searched. Records now exist for only 18 locations in eight counties. Most of the locations where it is found are under threat of habitat loss or alteration. Since only one site is currently being managed in a manner compatible with the continued existence of this species, Threatened status is needed and reasonable.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium lunaria* (L.) Sw.

FAMILY: Ophioglossaceae

COMMON NAME: Moonwort

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Between 1891 and 1947 there were a total of only six verified records of this species in Minnesota. At the time it was listed as Special Concern in 1984, it was assumed that this very small and inconspicuous plant had been overlooked. The species' range in northeastern Minnesota extends into areas intensively surveyed for *Botrychium mormo,* where it appears to prefer fairly open microhabitats on coarse soils. However, unlike several other members of the subgenus *Botrychium*, no new locations were discovered during these searches. The species is clearly much rarer than was previously believed in Minnesota and Threatened status is now considered needed and reasonable.

SELECTED REFERENCES:

Clausen, R. T. 1938. A monograph of the Ophioglossaceae. Memoirs of the Torrey Botanical Club 19 (2): 1-175.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium minganense* Victorin

FAMILY: Ophioglossaceae

COMMON NAME: Mingan Moonwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: There are very few reliable records of this species from Minnesota, and recent botanical surveys conducted within its preferred habitat (northern hardwood forests) show it to be very rare. However, there is still too little information available to detect population trends, and there are portions of its range that have not yet been adequately surveyed. For these reasons Special Concern status is considered reasonable and necessary at this time, although further research may show it to be in need of a higher degree of protection.

SELECTED REFERENCES:

Farrar, D.R., W.H. Wagner, N.R. Lersten, and C.L. Johnson-Groh. 1986. Subterranean sporophytic gemmae in Botrychium subgenus Botrychium. American Journal of Botany 73 (5): 735-736.

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30(3):75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium oneidense* (Gilbert) House

FAMILY: Ophioglossaceae

COMMON NAME: Blunt-lobed Grape Fern

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This is a very rare species throughout the region, and was first discovered in Minnesota in Cass County in 1992. The species appears to prefer moist depressions in hardwood forests in the central part of the state. After four years of surveys in potentially suitable habitat, only five colonies have been documented, none of which occurs on a protected site. Endangered status is needed and reasonable to reflect the vulnerability of these few populations to disturbance or destruction.

SELECTED REFERENCES:

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium pallidum* W.H. Wagner

FAMILY: Ophioglossaceae

COMMON NAME: Pale Moonwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This cryptic species is probably the rarest moonwort in North America. It was discovered in Minnesota in 1992, and is currently known to exist at only two locations in transitional habitat in Lake County, with a combined population of only 18 individuals. Because of these low numbers, the species is susceptible to extirpation and a status of Endangered is considered reasonable and necessary at this time.

SELECTED REFERENCES:

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium rugulosum* W.H. Wagner

FAMILY: Ophioglossaceae

COMMON NAME: Ternate Grape Fern

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Like several of the other species of *Botrychium*, our level of knowledge of this plant has only recently become adequate enough known to propose a protection status. This species now appears to be very rare in northern Minnesota and apparently throughout its range. Its habitat requirements are still not thoroughly understood, but most of the twelve known locations are either in pine forests or in forested wetland margins. Another population is currently threatened by the construction of a golf course. Because of these concerns, Threatened status is needed and reasonable.

SELECTED REFERENCES:

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W.H. Jr. and F.S. Wagner. 1982. *Botrychium rugulosum*, Ophioglossaceae), a newly-recognized species of evergreen grapefern in the Great Lakes area of North America (Pteridophyta). Contributions from the University of Michigan Herbarium 15: 315-324.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Botrychium simplex* E. Hitchcock

FAMILY: Ophioglossaceae

COMMON NAME: Least Moonwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is possibly the smallest fern in Minnesota and one of the least understood. The majority of the known populations have been found in the course of searches for *Botrychium mormo*. Based on the information at hand, this appears to be a very rare species in Minnesota that can be found in both hardwood forests and prairies and is possibly dependent on a specialized microhabitat. It is hoped that additional field data will help define its habitat needs, and identify any potential threats to its survival, but at present, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae C.Agardh. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 85-106.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Calamagrostis lacustris* (Kearney) Nash

FAMILY: Poaceae

COMMON NAME: Marsh Reedgrass

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Endangered in 1984 because it was known by three herbarium specimens collected from boreal wetlands in St. Louis, Lake and Cook counties. Two of these specimens were collected in the 19th century, and the third was collected in 1945. However the species was not listed because of lack of recent information. The situation has not changed since then. However, the area continues to be developed and there is abundant apparent wetland habitat in the northeastern part of the state that remains to be surveyed, where it is still possible that the species may be found. If it is still present in the state it is likely to be extremely rare, a status of Special Concern is necessary and reasonable until potential habitat has been thoroughly searched.

SELECTED REFERENCES:

Butters, F.K. and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55, 63-101, 116-154, 161-201.

Hitchcock, A.S. 1950. Manual of the grasses of the United States. U.S. Dept. of Agriculture, Miscellaneous Publication 200. 1051pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Calamagrostis montanensis* Scribn. ex Vasey

FAMILY: Poaceae

COMMON NAME: Plains Reedgrass

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Plains Reedgrass is currently known from nine locations in five western Minnesota counties. In each case the habitat is a native prairie on a dry gravelly hill or ridge. This habitat generally has little potential for agricultural conversion because of the poor quality of the soils, but gravel mining is a growing threat. It is likely that the habitat would need active fire management to maintain favorable conditions for this species. When surveys of potential habitat have been completed, it will be necessary to reassess the status of this species. Until that time, the small number of known occurrences in combination with perceived threats from gravel mining make it necessary and reasonable to list Plains Reedgrass as Special Concern.

SELECTED REFERENCES:

Allison, H. 1959. Key to the grasses of Minnesota found in the wild or commonly cultivated as crops. University of Minnesota, Botany Dept. 52pp.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Calamagrostis purpurascens* R. Br.

FAMILY: Poaceae

COMMON NAME: Purple Reedgrass

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This northern grass has a very spotty collection history in Minnesota. It has been found at three locations in the Boundary Waters Canoe Area Wilderness, one of which has been recently verified in the field. The preferred habitat is cliffs and rocky talus. The other sites probably still survive, but they occur in rather remote habitats that are rarely visited by botanists. This species may occur more widely in northern Minnesota, but until a survey is completed it is not possible to determine the full extent of its occurrences or the potential threats to its survival. But because of its apparent rarity, a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55, 63-101, 116-154, 161-201.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Callitriche heterophylla* Pursh.

FAMILY: Callitrichaceae

COMMON NAME: Water-Starwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This rarely-seen aquatic plant is known from four widely scattered collection sites in Rock, Nicollet, Big Stone, and St. Louis counties. Although it is almost certainly a very rare species, there is considerable potential habitat within its range that has not yet been adequately searched. Until more field data are available, it will not be possible to assess population trends or potential threats to its survival. For these reasons, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Fassett, N.C. 1951. *Calltitriche* in the New World. Rhodora 53:137-155, 161-182, 185-194, 209-222.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Caltha natans* Pallas *ex* Georgi

FAMILY: Ranunculaceae

COMMON NAME: Floating Marsh-Marigold

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This small aquatic plant was first collected in Minnesota in the Lake Vermilion-Tower area at the turn of the century and has been documented only sporadically since that time. Most populations discovered in the 1940's and 1950's have not been relocated. Despite the fact that there are many acres of apparently suitable minerotrophic wetland habitat in northeastern Minnesota, and there has been a recent intensive survey effort, fewer than five populations have been documented since 1993. Of these, several are at risk of being flooded by beaver, one is threatened by urban expansion and a second by golf course development. It is reasonable and necessary to list the species as Endangered at this time because of the infrequency with which it has been observed and these threats to several of its known locations.

SELECTED REFERENCES:

Lakela, O. 1943. Rediscovery of *Caltha natans* in Minnesota. Rhodora 45:53-55.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Walton, G.B. 1994. Report for field season 1994. Status survey for *Caltha natans* and *Sparganium glomeratum* in Minnesota. Report submitted to Minnesota Natural Heritage and Nongame Research Program

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex careyana* Torr. *ex* Dewey

FAMILY: Cyperaceae

COMMON NAME: Carey's Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This rare woodland sedge occurs in bluffland habitats in Houston and Fillmore counties in the southeastern corner of the state. There are a total of only five colonies known, each only a few square meters in size. Biological surveys have now been completed in southeastern Minnesota, which makes it likely that few or no additional colonies will be found. The habitats are on fragile slopes and are dependent on a cool, shaded microclimate. These conditions are extremely vulnerable to a variety of non-compatible land use practices. Threatened status for Carey's Sedge is therefore needed and reasonable.

SELECTED REFERENCES:

Mackenzie, K.K. 1931. Cyperaceae, tribe 1, Cariceae. North Amer. Fl. 18:1-168.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex crus-corvi* Shuttlw. ex Kunze

FAMILY: Cyperaceae

COMMON NAME: Raven's Foot Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: There are only two locations of this species known in the state, both. from bottoms of the Mississippi River in Goodhue and Wabasha counties. Both collections date prior to 1930. Since 1930, the habitat of this species has been drastically altered by locks and dams. When it was proposed as endangered in 1984 it was thought that it might still survive along some of the major tributaries of the Mississippi, Subsequent searches in those habitats have failed to discover any new populations, but portions of potentially-suitable habitat remain to be surveyed. For this reason, Special Concern status is necessary and reasonable until more extensive searches are completed because there remains a chance that the species may be found.

SELECTED REFERENCES:

MacKenzie, K.K. 1935. Cyperaceae, tribe 1, Cariceae. North American Flora 18:169-478.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C.O., and Moore, J.W. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex festucacea* Schkuhr *ex* Willd.

FAMILY: Cyperaceae

COMMON NAME: Fescue Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The only known occurrence of this species in Minnesota occurs in an alluvial forest along the Des Moines River. The site is in a state park, so it is protected from the threat of land conversion, but the small size of the population and its occurrence in an active riverway makes it vulnerable to extirpation from stochastic events. Survey of potential habitat has been sporadic, and there is a chance that additional populations may be discovered in the future. Threatened status is needed and reasonable until the potential habitat has been more thoroughly surveyed.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., & G.B. Ownbey. 1984. Annotated list of Minnesota carices, with phytogeographical and ecological notes. Rhodora 86:151-231.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex flava* L.

FAMILY: Cyperaceae

COMMON NAME: Yellow Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species is apparently confined to a few small, wet micro-habitats, possibly associated with ground water seeps, near the North Shore of Lake Superior. There are a total of nine records from St. Louis, Lake and Cook counties, but only two have been confirmed since 1950. At this time it is not known what activities might threaten these habitats, or even how rare these habitats truly are. Until future field surveys in the northeast part of the state provide answers to these questions about the extent of potential habitats and threats, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Lakela, O. 1965. A Flora of Northeastern Minnesota. University of Minnesota Press. 541pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex formosa* Dewey

FAMILY: Cyperaceae

COMMON NAME: A species of sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: *Carex formosa* was proposed as Endangered in 1984, but was not listed because it had not been seen in Minnesota for 46 years. It was thought that if it survived at all it would be very rare, and its fragile forest habitat vulnerable to possible threats. Since that time extensive survey work has been conducted in southeast Minnesota but only a single site has been found. In 1990 it was rediscovered on the slope of a maple basswood forest along the Zumbro River in Olmsted County. The population consists of two small colonies separated by about one mile. One colony receives some protection, but the other one is considered vulnerable. Its extreme rarity and the vulnerability of one of the two known colonies make it necessary and reasonable to list the species as Endangered at this time.

SELECTED REFERENCES:

Coffin, B. And L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Olmsted County. Biological Report No. 51. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex garberi* Fern.

FAMILY: Cyperaceae

COMMON NAME: Garber's Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: When the species was proposed as endangered in 1984, it was known by a single herbarium specimen collected in a swamp in St. Louis County in 1947. It was unclear if the species still survived in Minnesota. In 1991 an extant population was found in Kittson County, reconfirming its survival in the state. Despite the completion of an extensive survey of its habitat in Kittson and adjacent counties only two populations are known. One occurs on state land and receives some protection, but the other population is on private property and is potentially vulnerable to land conversion. It is therefore deemed necessary and reasonable to list the species as Threatened because of its apparent rarity and habitat vulnerability.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A. 1983. *Carex* of northeastern Minnesota: Cook, Lake, St. Louis and Itasca Counties. The Michigan Botanist 22:53-62. 473pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex hallii* Olney

FAMILY: Cyperaceae

COMMON NAME: Hall's Sedge

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species occurs at the eastern periphery of its Great Plains range in northwestern Minnesota. When it was designated as Threatened in 1984, it was known from only four locations in the state and was believed to be restricted to Polk County. Since that time, extensive surveys of the Red River Valley have documented the species at over 50 locations in eight counties, extending from Kittson County on the Canadian border to southwest Minnesota. *Carex hallii* appears to occur with some frequency wherever there are inclusions of saline prairie within a larger wet prairie matrix, and some populations can be very large. However, Special Concern status is still needed and reasonable because the habitat in which it occurs remains threatened by potential conversion to cropland.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1994. Polk County: Summary of the 1993 field season.. Biological Report No. 48. Minnesota Department of Natural Resources.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A. & G.B. Ownbey, 1984. Annotated list of Minnesota Carices, with phytogeographical and ecological notes. Rhodora 86:137-142.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex jamesii* Schwein.

FAMILY: Cyperaceae

COMMON NAME: A species of sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: The habitats of this species are entirely restricted to the blufflands region of the southeast (Houston and Fillmore counties). Even within seemingly ideal habitat, the species is extremely rare. During an intensive survey of potential habitats, only four small colonies were found; all are on steep slopes in densely forested areas. Threats include reduction in canopy cover and increased erosion on the slopes. Threatened status is needed and reasonable because of the small number of known sites and the perceived threats.

SELECTED REFERENCES:

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A. & G.B. Ownbey. 1984. Annotated list of Minnesota carices, with phytogeographical and ecological notes. Rhodora 86:151-231.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex katahdinensis* Fern.

FAMILY: Cyperaceae

COMMON NAME: Mount Katahdin Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as endangered in 1984 because it was known only by a few herbarium records from the border Lakes Region in northern St. Louis county. However, it was not listed because it had not been seen since 1954 and too little was known about it to justify listing. Since that time the species has been relocated and threats to its survival analyzed. It seems to be restricted to sandy beaches on two heavily-used large lakes in the Boundary Waters Canoe Area Wilderness. Despite the wilderness status of the area, recreational use of these sandy beaches is high. It is reasonable and necessary to list the species at this time because of the combination of its extreme rarity and its disturbance from recreational use.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Lakela, O. 1952. Previously unreported plants from Minnesota. Rhodora 54:163-164.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex laevivaginata* (Kukenth.) Mackenzie

FAMILY: Cyperaceae

COMMON NAME: Smooth-Sheathed Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Special Concern in 1984, but too little was known about it to justify listing. At that time it had just been rediscovered after an apparent "absence" of 83 years. The species was obviously very rare. Since then, intensive field surveys have attempted to ascertain its true status. We have learned that it exists as a handful of colonies occupying small groundwater seeps in the blufflands region of southeastern Minnesota. These habitats are very rare and very fragile, and are susceptible to disruptions of the groundwater regime several miles away from the point of discharge. Together with its rarity, the vulnerability of this species' habitat substantiates the need and reasonableness of listing it as Threatened at the present time.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C.O., and J.W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex laxiculmis* Schwein.

FAMILY: Cyperaceae

COMMON NAME: Spreading Sedge

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This sedge occurs in fragmented forest habitats in the blufflands region of southeastern Minnesota. When it was listed as special concern in 1984, it was known from six isolated habitats. However, a thorough survey of that region had not been undertaken, so it was thought that several more locations might be found once a survey was completed. A survey has now been completed, and only an additional three small colonies were found. It is necessary and reasonable to list this species as Threatened because it is much rarer than previously thought, and habitat loss is accelerating.

SELECTED REFERENCES:

Coffin, B., and L. Pfannmuller, 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., and G.B. Ownbey. 1984. Annotated list of Minnesota Carices, with phytogeographical and ecological notes. Rhodora 86:151-231.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex michauxiana* Boeckl.

FAMILY: Cyperaceae

COMMON NAME: Michaux's Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed for Threatened status in 1984 because it was known by two old records from vulnerable habitats near the north shore of Lake Superior. But because the records were old, and survey work incomplete, it was not listed. Since 1984, four additional sites have been found, all in the Boundary Waters Canoe Area Wilderness. Although this species is still considered quite rare, threats to its survival appear minimal at this time and a status of Special Concern is considered necessary and reasonable.

SELECTED REFERENCES:

Coffin, B., and L. Pfannmuller, 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Lakela, O. 1947. The occurrence of *Eleocharis nitida* in the Lake Superior Region. Rhodora 49:81-82.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex pallescens* L.

FAMILY: Cyperaceae

COMMON NAME: Pale Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The pale sedge was proposed as Endangered in 1984, but was not listed because its status was uncertain. At that time it was known only by a series of herbarium specimens collected from a site near the shore of Lake Superior near Duluth, which had not been revisited since 1954. Fortunately, another small colony was discovered in 1992. It is also on the shore of Lake Superior, but several miles northeast of the historic site, and is on private property. It is now necessary and reasonable to list the species as Endangered because it is known to survive in Minnesota and its habitat is vulnerable to development and overuse of its recreational potential.

SELECTED REFERENCES:

Coffin, B., and L. Pfannmuller, 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Lakela, O. 1954. Previously unreported plants from Minnesota with additional place records of rarities. Rhodora 56:39-41.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex plantaginea* Lam.

FAMILY: Cyperaceae

COMMON NAME: Plantain-Leaved Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species was first discovered in Winona County in 1897, then again in Hennepin County in 1903. It had not been seen again by 1984 when the endangered species list was being created. It was proposed as Threatened, but not listed because it was thought to be extirpated. As a result of recent intensive surveys two new locations have been found in hillside maple basswood forests in Wabasha and Winona counties. One of the two sites is threatened by off-road vehicle use, and both sites are potentially threatened by canopy removal. For these reasons it is reasonable and necessary to list the species as Endangered at this time.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Mackenzie, K.K. 1935. Cyperaceae, tribe 1, Cariceae. North American Flora 18:169-478.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex praticola* Rydb.

FAMILY: Cyperaceae

COMMON NAME: Prairie Sedge

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: There have been a total of five populations of this species found in Minnesota. All are on steep cliffs in the Boundary Waters Canoe Area Wilderness. this species was listed as Threatened in 1984, but was not listed because the status of these historic sites was not known. Since that time the known sites have been studied in some detail, and potential threats have been re-evaluated. Although some level of protection is necessary because of the species' rarity, it now appears that the remoteness of its habitat, along with the high degree of statutory protection afforded the land, no longer justifies a status of Threatened and a status of Special Concern is deemed more reasonable.

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55, 63-101, 116-154, 161-201.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex supina* Willd. ex Wahlenb. var. *spaniocarpa* (Steud.) Boivin

FAMILY: Cyperaceae

COMMON NAME: A species of sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was discovered in Minnesota in 1936, in a rocky habitat at the edge of Clearwater Lake in the Boundary Waters Canoe Area Wilderness. Although it has not been seen since that date, no directed search of its potential habitat has been conducted. If it still survives in the state it may well be one of our rarest species. However, additional field work is necessary to determine its exact distribution and habitat preferences. Until more information becomes available, a status of Special Concern is necessary and reasonable..

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55, 63-101, 116-154, 161-201.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex typhina* Michx.

FAMILY: Cyperaceae

COMMON NAME: Cat-Tail Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Cat-Tail sedge occurs exclusively in the floodplain forests of the lower St. Croix River, and the Mississippi River between Wabasha and Houston counties. The populations along the St. Croix River may be stable, but the populations along the Mississippi River are believed to be experiencing a rapid decline caused by habitat degradation. The degradation appears to be a consequence of unnatural water level fluctuations resulting from operation of the locks and dams, and from channel dredging. Special Concern status is needed and reasonable until better population information is available.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A. & G.B. Ownbey. 1984. Annotated list of Minnesota carices, with phytogeographical and ecological notes. Rhodora 86:151-231.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex xerantica* Bailey

FAMILY: Cyperaceae

COMMON NAME: Dry Sedge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: In 1984 this species was known from a single population on cliffs in Cook County and was thought to be severely endangered. Since that time, intensive biological inventories have discovered about 15 populations in dry gravelly habitats in four northwestern counties, leading to the conclusion that the species is more widespread than previously believed. However, all of the known sites are in remnant prairie habitats that will require appropriate management if this species is to survive in Minnesota. Special Concern status is therefore necessary and reasonable.

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55, 63-101, 116-154, 161-201.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Castilleja septentrionalis* Lindl.

FAMILY: Scrophulariaceae

COMMON NAME: Northern Painted-Cup

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Northern painted cup was discovered in Minnesota in 1891 at a single location on the shore of Lake Superior near Grand Portage. In spite of intensive searching, the species was not seen again until 1988 when a small colony was found a few miles away, also on the shore of Lake Superior. Its habitat it is the crevices of the exposed shore rocks (bedrock). Although the rocks themselves are not endangered, the vegetation growing in the crevices is quite fragile and vulnerable to a variety of recreational activities. Similar habitat in Two Harbors has experienced a dramatic loss of plant species following increased foot traffic. (W. Smith pers. comm.) Because of the restricted range and threats from increasing recreational activity, Endangered status is needed and reasonable.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, a checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cephalanthus occidentalis* L.

FAMILY: Rubiaceae

COMMON NAME: Buttonbush

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: *Cephalanthus occidentalis* is a large, spreading shrub or sometimes a small tree up to three meters tall. It can be easily distinguished by its spherical fruiting heads, from which the species derives its common name. It is widely distributed in North America but is quite rare and restricted in Minnesota. Throughout most of its range it occurs in various wetland habitats, and in Minnesota it is largely restricted to riparian habitats along the Mississippi and St. Croix rivers. When this species was listed as Special Concern in 1984, it was thought that commercial activities in the floodplain of the Mississippi River posed a potential threat to its survival. However, with the acquisition of more data, it now appears that this species is adapted to early successional habitats, having been observed colonizing recent dredge-spoil islands in the Mississippi River in Wabasha and Houston counties. It is now believed to be able to maintain a viable presence without management, and Special Concern status is no longer needed or reasonable..

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C. O . 1955. Trees and shrubs of the Upper Midwest. University of Minnesota Press, Minneapolis. 41lpp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Chamaerhodos nuttallii* Pick.

FAMILY: Rosaceae

COMMON NAME: Nuttall's Ground-rose

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This small, biennial plant is characteristic of arid plains, dry prairies, and sandhills in the northern Great Plains, with scattered, outlying populations in western Minnesota. When this species was listed as Special Concern in 1984, there were only five known occurrences in Minnesota. Since that time, intensive plant surveys have been conducted in its preferred habitat type, and its occurrence is now documented at a total of 28 locations. Its preference for exposed gravel surfaces apparently adapts it for colonization of roadsides and gravel pits. This new information indicates that this species is not as rare as previously thought, and Special Concern status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Marquis, R. J., and E. G. Voss. 1981. Distribution of some western North American plants disjunct in the Great Lakes region. The Michigan Botanist 20:53-82.

Minnesota County Biological Survey. 1994. Polk County: Summary of the 1993 field season.. Biological Report No. 48. Minnesota Department of Natural Resources.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Chamaesyce missurica* (Raf.) Shinners

FAMILY: Euphorbiaceae

COMMON NAME: Missouri Spurge

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a rare species known to inhabit the shores of shallow prairie lakes in neighboring states. There is no known unaltered example of this habitat left in the state. The only documented Minnesota collection was made in 1935 from the shores of Battle Lake. Although it is likely that the species may now be extirpated from Minnesota, the Battle Lake location suggests that it could be found on lakeshores in the prairie-forest transition zone, an area of the state that has received little botanical attention to date. Until such surveys either locate extant populations or confirm its extreme rarity, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Richardson, J. W. 1968. The genus *Euphorbia* of the high plains and prairie plains of Kansas, Nebraska, South and North Dakota. The University of Kansas Science Bulletin 48 (3): 45112

Wheeler, L. C. 1941. *Euphorbia* subgenus *chamaesyce* in Canada and the United States exclusive of southern Florida. Rhodora 43:97-286.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cheilanthes lanosa* (Michaux) D.C. Eaton

FAMILY: Pteridaceae

COMMON NAME: Hairy Lip-Fern

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species was not known to occur in Minnesota until 1991 when a single population was found in Winona County. When surveys were completed in Winona and adjacent counties in 1995, no additional populations had been found. The species' microhabitat is highly specialized. It appears to be restricted to cool, shaded limestone outcrops on steep, forested slopes. Any activity that would alter the habitat and change the local micro-climate could threaten its survival. The precarious existence at only one site makes Endangered status needed and reasonable.

SELECTED REFERENCES:

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Tryon, R. 1980. Ferns of Minnesota. University of Minnesota Press. 165pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Crassula aquatica* (L.) Schoenl.

FAMILY: Crassulaceae

COMMON NAME: Pigmyweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This tiny, cryptic plant is a summer flowering annual of aquatic habitats. It is very inconspicuous and seldom seen. It was first found in Minnesota in 1945 at the muddy margin of a prairie pool in Rock County, but has not been seen there since 1945, and is believed to have been destroyed. It is currently known only from Namakan Lake in Voyageurs National Park. Collections from this site represent an unusual "deepwater" form with elongate internodes. This form contrasts sharply with the characteristic dwarf form typically found on mud flats, such as its probable former habitat in Rock County. The decline or extirpation of the typical form in southwest Minnesota is the compelling reason why it is necessary and reasonable to list *Crassula aquatica* as Threatened at this time.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Crow, G. E., W. D. Countryman, G. L. Church, L. M. Eastman, C. B. Barre Hellquist, L. L. Mehrhoff, and 1. M. Storks. 1981. Rare and endangered vascular plant species in New England. Rhodora 83:259-99.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Crataegus douglasii* Lindl.

FAMILY: Rosaceae

COMMON NAME: Douglas Thorn-Apple

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Endangered in 1984, but was not listed because there was some uncertainty about its status. At that time its presence in the state was known from two historical collections on the north shore of Lake Superior. Since then, both sites have been revisited, and the populations are still extant, but total fewer than 20 individuals. Extensive searches have failed to locate any additional populations. Despite the small number of populations, which makes protection reasonable and necessary, Threatened status is considered adequate for this species because both sites are on protected public land.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Lakela, O.L. 1965. A Flora of Northeastern Minnesota. University of Minnesota Press, Minneapolis. 541pp.

Monson, P.H. 1988. Endangered, Threatened, and Special Concern Plants. Grand Portage National Monument. Grand Portage, Minnesota. Olga Lakela Herbarium, University of Minnesota, Duluth. Unpublished report submitted to National Park Service. Grand Portage. 15pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C.O. 1955. Trees and Shrubs of the Upper Midwest. University of Minnesota Press, Minneapolis. 411pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cymopterus acaulis* (Pursh.) Raf.

FAMILY: Apiaceae

COMMON NAME: Wild Parsley

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Cymopterus acaulis* occurs primarily in dry plains and shortgrass prairies from the Great Plains westward across the Rocky Mountains. The species has only been documented three times in Minnesota, probably because habitats are only marginally suitable. The only recent record is a specimen collected in Clay County in 1962. Intensive searches for the species and fieldwork in the Red River Valley counties since that time have failed to find either the 1962 population or any new locations. Its dry prairie habitat and is threatened by gravel mining and urban expansion in the Moorhead area. The species may now be extirpated from the state, but if it remains it must be very rare indeed. Until further surveys confirm one of these conclusions, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Mathias, M. E. 1930. Studies in the Umbelliferae 3. Annals of the Missouri Botanical Garden 17:213-476.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cyperus acuminatus* Torr. & Hook.

FAMILY: Cyperaceae

COMMON NAME: Short-Pointed Umbrella-Sedge

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, there were only three records of this species in Minnesota; one from Nicollet County and two from Pipestone County. Its apparant preferred habitat is the margins of small prairie ponds and pools. The most recent record was dated 1961, but none of the sites had been revisited since their original discovery. It was unclear how rare the species was or if it still survived in Minnesota. Since 1984 the three original collection sites have been revisited, and extensive searches in other potential habitats have been undertaken. Plants could not be found at any of the three older sites and searches of additional sites discovered only four small colonies, with a total of 10 individuals. Because of the extreme rarity of this species, and the threats to its habitat, a status of Threatened is necessary and reasonable.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cypripedium arietinum* R. Br.

FAMILY: Orchidaceae

COMMON NAME: Ram's-Head Lady's-Slipper

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species has always been considered uncommon in Minnesota and its geographical range in the state appears to have been reduced during this century. Populations in Hennepin and Wright Counties have not been verified since 1911 and 1927 respectively, and are believed to have been destroyed by residential development. The often-reported population at Cedar Creek Natural History Area may have been transplanted there from another location. Recent intensive surveys of potential habitat in the northern Twin Cities metropolitan area have failed to document any extant populations south of Aitkin County. When *Cypripedium arietinum* was designated as Endangered in 1984, it was known from fewer than 20 locations. Today there are more than 50 known sites from a variety of forested habitats. Although the species is believed to be more widespread and abundant than was previously believed, Threatened status for this unusual and attractive orchid is deemed reasonable and necessary because several of the known populations have been severely depleted from illicit removal by orchid fanciers.

SELECTED REFERENCES:

Aaseng, N.E. and R.I. Djupstrom. 1992. Peatland Protection, pp. 301-315 *in* Wright, H.E. etal. The Patterned Peatlands of Minnesota. University of Minnesota Press, Minneapolis. 327pp.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Luer, C. A. 1975. The Native Orchids of the United States and Canada Excluding Florida. New York Botanical Garden.

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Smith, W.R. 1993. Orchids of Minnesota. University of Minnesota Press. Minneapolis. 172pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Dalea candida* Willd. var. *oligophylla* (Torr.) Shinners

FAMILY: Fabiaceae

COMMON NAME: White Prairie-Clover

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a species of dry prairies in southwestern Minnesota. It is currently known from a total of five locations in five different counties (Pipestone, Lincoln, Lac Qui Parle, Big Stone and Traverse). It appears to be quite rare, and limited to relatively small remnant habitats. However, it is very similar to a common species of White Prairie Clover, with which it can be easily confused. This confusion may have resulted in its occurrence being under-reported. Until uncertainty over its rarity is resolved, a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Isely, D., & S.L. Welsh. 1960. *Petalostemon candidum* and *P. occidentale* (Leguminosae). Brittania 12:114-118.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Desmodium cuspidatum* (Muhl. *ex* Willd.) DC. *ex* Loud. var. *longifolium* (Torr. & Gray) Schub.

FAMILY: Fabaceae

COMMON NAME: A Species of Tick-Trefoil

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species inhabits mesic deciduous forests in the southeastern part of the state. It is currently known to occur in three counties, but is believed extirpated from at least four others. This historical decline was apparently caused by habitat loss. Current trends in population numbers are difficult to assess, but its forest habitat continues to decline in extent and quality. Most of the habitat of this species has already been searched, but some potential habitat remains unsearched in the Minnesota Valley, and in the south central counties. A status of Threatened or Endangered may be appropriate once the appropriate survey work has been completed, but at this time Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Isely, D.I. 1955. The leguminosae of the north-central United States 20. Hederaceae. Iowa State College Journal of Science 30:33-118.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Dakota County. Biological Report No. 47. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Houston County. Biological Report No. 51. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Desmodium illinoense* Gray

FAMILY: Fabaceae

COMMON NAME: Illinois Tick-trefoil

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time this prairie species was designated as Threatened in 1984, only a handful of collections were documented from Minnesota and several of these dated from the late 1800's. Recent surveys of prairies and dry woodland openings in the southeastern part of the state have increased the number of known locations to over 80. *Desmodium illinoiense* is now known to occur in southeastern Minnesota from Afton State Park to the Iowa border and as far west as Olmsted County. On the basis of these new data Threatened status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Isely, D. 1955. The leguminosae of the north-central United States II. Hedysareae. Iowa St. Coll. J. Sci. 30:33-118.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Dakota County. Biological Report No. 47. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Houston County. Biological Report No. 51. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Desmodium nudiflorum*

FAMILY: Fabaceae

COMMON NAME: Stemless Tick-Trefoil

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Special Concern in 1984 because it was known by a single herbarium specimen collected somewhere in Chisago County in 1892. It was not listed at that time, because field inventories of its habitat were being planned, and it was thought that new information would likely shed light on its true status. Those inventories are now complete, and a total of 15 populations were found in the following counties: Fillmore, Washington, Winona, Pine, Houston, and Wabasha. All of these populations are in remnant hardwood forests, and several are subjected to timber harvesting. The effects of timber harvesting, both past and present, on this species are not currently known, but negative impacts are a possibility. Because of the relative rarity of this species, and the uncertain status of its habitat, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Isely, D. 1955. The leguminosae of the north-central United States, Hedysareae. Iowa St. Coll. Jour. Sci. 30:33-118.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Diarrhena americana* var. *obovata* (Gleason) Brandenburg

FAMILY: Poaceae

COMMON NAME: American Beakgrain

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a woodland grass that was first discovered in Minnesota in 1994, when it was found in the Root River Valley in Fillmore County. Very little is known about it, including its potential range in the state, exact habitat requirements and threats to its survival. In addition to its single new Minnesota status it has been recorded on dry prairies in northeastern Iowa, but has not been seen there recently and was several counties south of the state border. It may actually deserve Endangered or Threatened status, but until more information becomes available, a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Eilers, L.J. and D.M. Roosa. 1994. The vascular plants of Iowa. An annotated checklist and natural history. University of Iowa Press. Iowa City. 304 pp.

Hitchcock, A.S. 1935. Manual of the Grasses of the United States. U.S.D.A. Misc. Publ. 200. 1040pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Dodecatheon meadia* L.

FAMILY: Primulaceae

COMMON NAME: Shooting Star

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, it had just been discovered at a single site in Mower County. At that time there was not enough information available to warrant any status except special concern. We now have the benefit of 10 additional years of field work and it is quite clear that this species is on the verge of extinction in Minnesota. The site where it was discovered in Mower County remains the only known site where it occurs, and much of that site was destroyed by agricultural expansion in 1990. It is necessary and reasonable to elevate this species to Endangered status because of this loss of part of Minnesota's only known population, because the remaining plants number in the dozens, and because their habitat has been reduced to only a few hundred square feet.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Fassett, N.C. 1944. *Dodocatheon* in eastern North America. The American Midland Naturalist 31:455-486.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Drosera anglica* Huds.

FAMILY: Droseraceae

COMMON NAME: English Sundew

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: When English Sundew was designated as Threatened in 1984, the known locations were the result of a single intensive peatland inventory. This work suggested that it was restricted to minerotrophic water tracks in patterned peatlands, where it was found only in the wettest portions of flark formations. Results of more recent botanical surveys outside the extensive patterned peatlands of north-central Minnesota have documented this species from a much broader range of wetland habitats than was originally understood. It has been found in spring fens as far northwest as Roseau County, and in calcareous seepage fens in Clearwater and Mahnomen counties. Given this broader habitat tolerance and wider geographic distribution, Threatened status is no longer needed, and Special Concern status is more reasonable.

SELECTED REFERENCES:

Aaseng, N.E. and R.I. Djupstrom. 1992. Peatland Protection, pp. 301-315 *in* Wright, H.E. etal. The Patterned Peatlands of Minnesota. University of Minnesota Press, Minneapolis. 327pp.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Glaser, P. H., et. al. 1981. The patterned mires of the Red Lake Peatland, northern Minnesota: vegetation, water chemistry and landforms. Jour. Ecol. 69:575-599.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G. A. and P. H. Glaser. 1979. Notable vascular plants of the Red Lake Peatland, northern Minnesota. Mich. Bot. 18:137-142.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Drosera linearis* Goldie.

FAMILY: Droseraceae

COMMON NAME: Linear-leaved Sundew

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as special concern in 1984, there were fewer than ten locations were documented. Two of these were early collections is Morrison and Hennepin counties, where the species has not been recorded since the turn of the century. The remaining modern records were all from extensive peatlands in the northern part of the state. Since that time additional field work has documented a total of 16 populations. This is certainly an under-representation of the species actual locations, because the huge peatlands within which it occurs are nearly inaccessible during the summer except from the air. Although the number of collections remains low, the species is also more secure than it was in 1984 because the majority of known sites fall within the statutory boundaries of peatland Scientific and Natural Areas. For these reasons the species is no longer in need of protection as a Threatened species, and it is reasonable to reclassify the species as Special Concern. Continued monitoring and attention to the species are required because the potential impacts of permitted land uses such as winter roads are still not clearly understood. this time.

SELECTED REFERENCES:

Aaseng, N.E. and R.I. Djupstrom. 1992. Peatland Protection, pp. 301-315 *in* Wright, H.E. etal. The Patterned Peatlands of Minnesota. University of Minnesota Press, Minneapolis. 327pp.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Glaser, P. H., et. al. 1981. The patterned mires of the Red Lake Peatland, northern Minnesota: vegetation, water chemistry and landforms. Jour. Ecol. 69:575-599.

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Wheeler, G. A. and P. H. Glaser. 1979. Notable vascular plants of the Red Lake Peatland, northern Minnesota. Mich. Bot. 18:137-142.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Echinochloa walteri* (Pursh) Nash

FAMILY: Poaceae

COMMON NAME: Walter's Barnyard Grass

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: *Echinochloa walteri* is a distinctive annual grass that may reach 2 meters in height and is very conspicuous when in flower. It is primarily a coastal plain species but has a local, inland distribution along the Great Lakes and the Mississippi River Valley. It probably migrated inland along the receding glacial margin 10,000 years ago and is now isolated from coastal habitats by the changing climate. It was discovered in Minnesota in 1926 in the Mississippi River bottoms near Weaver (Wabasha County). When this species was listed as Special Concern in 1984, there were only four records from Minnesota. All of them were in the environmentally sensitive margins of the Mississippi and St. Croix Rivers. Since 1984, extensive surveys have found 16 additional populations. Several of these newly discovered populations are in less sensitive habitats that are not directly associated with major rivers. It therefore appears that this species is no longer in need of Special Concern status.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Gould, F. W., M. A. Ali, and D. E. Fairbrothers. 1972. A revision of *Echinochloa* in the United States. The American Midland Naturalist 87 (1): 37-59.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eleocharis nitida* Fern.

FAMILY: Cyperaceae

COMMON NAME: Neat Spike-Rush

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Endangered in 1984 because it was known by historical records from only six locations on the north shore of Lake Superior. Nearly all were from wetlands immediately adjacent to major state highways that have undergone improvement since the time the collections were made. None of these records has been recently verified. Because of the absence of verified records, the species was not listed in 1984. Since 1984, searches have found two extant populations; both on the shore of Lake Superior, and both small. This is a part of the state experiencing rapid expansion of recreational use, resulting in increased roads and development. It is reasonable and necessary to list the species as Threatened at this time not only because of its rarity but because of these potential threats.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Lakela, O. 1947. The occurrence of *Eleocharis nitida* in the Lake Superior region. Rhodora 49:81-82.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eleocharis parvula* (Roemer & J.A. Schultes) Link ex Bluff, Nees & Schauer

FAMILY: Cyperaceae

COMMON NAME: A Species of Spike-Rush

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Threatened in 1984 because it had not been seen in the state since 1945. However, historical sites had not been revisited, and little rare plant survey work had been done in its apparently-preferred muddy shoreline habitats. The state of knowledge remains today but so little is known about its actual habitat preferences that there is some chance they may be at risk without our knowing it. Until the necessary field work in the west central part of the state has been done, the small number of records make a status of Special Concern necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Svenson, H.K. 1934. Monographic studies in *Eleocharis* 3. Rhodora 36:377-389.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Empetrum nigrum* L.

FAMILY: Empetraceae

COMMON NAME: Black Crowberry

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This is a species of boreal habitats far north of Minnesota, so its single occurrence on Susie Island in Lake Superior is of unusual interest. It was proposed as Endangered in 1984, but not listed at that time because too little survey work had been completed. After an additional 10 years of field work no additional populations have been found. It now appears that this species is restricted to a single small population on one island. Possible threats include an expanding gull population that nests on the same shore rocks that support the population. Because there is only this single, small population known in the state, its potential for extirpation is high, and Endangered status is needed and reasonable.

SELECTED REFERENCES:

Butters, F. K., and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55: 2155, 63-101, 116-54, 161-201;

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Love, D. 1960. Three-fruited Crowberries in North America. Rhodora 62:265-292.

Love, A., and D. Love. 1959. Biosystematics of the black crowberries of America. Canadian Journal of Genetic Cytology I :34-38

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Soper, J. H., and Voss, E. G. 1964. Black crowberry in the Lake Superior region. The Michigan Botanist 3:35-39.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eupatorium sessilifolium L.*

FAMILY: Asteraceae

COMMON NAME: Upland Boneset

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed for threatened status in 1984, because it was known from only one location in Minnesota and was reported declining in other states. However it was not listed because too little field work had been done to support any status designation. Since that time an intensive inventory of its habitat has been completed, but only three additional populations have been found, all in Houston County. Not only is this species very rare in Minnesota and adjacent states, but its habitat, oak woodland, is coming under increasing pressure from land use incompatible with its persistence. Thus, Threatened status is now needed and reasonable..

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Johnson, M. F., and H. H. Iltis. 1963. Preliminary reports on the flora of Wisconsin 48. Compositae I: Composite Family 1. Wisconsin Academy of Science, Arts and Letters 52:255-342 .

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Fimbristylis autumnalis* (L.) Roemer and J.A. Schultes

FAMILY: Cyperaceae

COMMON NAME: Autumn Fimbristylis

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This small annual sedge is found on the shores of fewer than a dozen shallow, sandy lakes in east-central Minnesota. These habitats occur in seven counties, including Ramsey, Washington, Anoka, Isanti, Pine, St. Louis and Itasca. They are becoming increasingly degraded by lakeshore development and other land-conversion activities. Surveys are not yet completed, but based on a lack of recent records the species appears to have declined in recent historical times, and may continue to decline today. Until further surveys are completed, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Krale, R. 1971. A treatment of *Abildgaardia, Bulbostylis* and *Fimbristylis* (Cyperaceae) for North America. Sida 4:57-227.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Fimbristylis puberula* var. *interior*

FAMILY: Cyperaceae

COMMON NAME: Hairy Fimbristylis

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species is entirely restricted to calcareous fens. These are small groundwater-fed wetlands that are rich in calcium and magnesium bicarbonates. Of the approximately 75 fens known to occur in Minnesota, only two (in Redwood and Wilkin counties) harbor this species. Both of these fens are on private land and have experienced some level of degradation because of incompatible land use practices. Although the Wetland Conservation Act of 1991 currently provides special protection for calcareous fens, the very limited number of sites makes the species vulnerable to extirpation from random or catastrophic events. Endangered status is therefore needed and reasonable.

SELECTED REFERENCES:

Kral, R. 1971. A treatment of *Abildgaardia, Bulbostylis* and *Fimbristylis* (Cyperaceae) for North America. Sida 4:57-227.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Floerkea proserpinacoides* Willd.

FAMILY: Limnanthaceae

COMMON NAME: False Mermaid

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: *Floerkea proserpinacoides* is an intriguing woodland annual whose preferred habitat is cold, spring-fed seeps in river valleys. This is a fairly uncommon habitat, and is largely restricted to a few southeastern and east central counties. When this species was designated as Special Concern in 1984, only three records were known from Minnesota, two of them very old, and there was no information about the size of extant populations. The single known extant population was in the environmentally sensitive St. Croix River valley, where botanical surveys were incomplete. Since 1984, extensive surveys of the St. Croix River valley and southeastern Minnesota have found five additional populations. The number of plants in several of these newly discovered populations is quite large, sometimes reaching thousands of plants. Nonetheless their habitat type is dependent on groundwater input that could be adversely influenced by activities that interrupt or contaminate the aquifer far from the population. Now that surveys have been completed in the species' range and its habitat threats are better understood, it appears that Threatened status is more reasonable and necessary than Special Concern.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Houston County. Biological Report No. 51. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

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Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

Smith, B. H. 1983. Demography of *Floerkea proserpinacoides*, a forest-floor annual 1. Density-dependent growth and mortality. Journal of Ecology 71:391-404.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Gaillardia aristata* Pursch

FAMILY: Asteraceae

COMMON NAME: Blanket-Flower

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The essential habitat of this species within Minnesota is high quality gravel prairies in the northwestern counties. This includes about 20 known locations in five counties (Clay, Norman, Polk, Kittson, and Roseau). Most gravel prairies have been destroyed or degraded over the past century, and are increasingly threatened by gravel mining. Because of these threats, Special Concern status is needed and reasonable.

SELECTED REFERENCES:

Biddulph, S.F. 1944. A revision of the genus *Gaillardia*. Res. Stud. State College. Wash. 12:195-256.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Geocaulon lividum* (Richards.) Fern.

FAMILY: Santalaceae

COMMON NAME: Northern Comandra

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, it had been found at only 12 locations. At that time, the center of its distribution was believed to be a relatively small area in Lake County. Since that time, more than 20 additional populations have been found, with some sizeable concentrations in Roseau County as well as Lake County. Although there is still some concern about the effect of timber harvesting on populations it now appears that the species is not as rare or as limited in distribution as was previously thought, and Special Concern status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Diehl, M. A. 1965. The natural history and taxonomy of *Comandra.* Memoirs of the Torrey Botanical Club 22:1-81.

Lakela, O.L. 1965. A Flora of Northeastern Minnesota. Univ. of Minn. Press, Minneapolis.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Gerardia gattingeri* Sm.

NEW SCIENTIFIC NAME: *Agalinis gattingeri* (Sm.) Sm. *ex* Britt.

FAMILY: Scrophulariaceae

COMMON NAME: Round-stemmed False Foxglove

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Although it is distributed throughout the Midwest, this species is rare and local throughout the region, and appears to have suffered local extirpations not only in Minnesota but across its range. Historic collections from Nicollet, Washington and Wabasha counties date from the 1800's, with a fourth collection fifty years ago from Whitewater State Park. All these areas except Nicollet County have recently been resurveyed, but only the Whitewater population has been relocated (in the 1980's). These data suggest that the species still persists in the state but is probably very rare. Any populations that might be located warrant protection and thus Endangered status is necessary and reasonable.

SELECTED REFERENCES:

Canne, J.M. 1984. Chromosome numbers and the taxonomy of North American *Agalinis* (Scrophulariaceae). Can. J. Bot. 62: 454-456.

Canne-Hilliker, J.M. 1988. Status report on Gattinger's false foxglove (*Agalinis gattingeri*). Report to the Committee on the Status of Endangered Wildlife in Canada, Ottawa, Ontario. 19pp.

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Pennell, F.W. 1935. The Scrophulariaceae of eastern temperate North America. Academy of Natural Sciences of Philadelphia. Monograph I. 650 pp.

Wovcha, D.S., B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River valley and Anoka Sandplain: A guide to native habitats. University of Minnesota Press, Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Glaux maritima* L.

FAMILY: Primulaceae

COMMON NAME: Sea Milkwort

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: *Glaux maritima is* most characteristic of coastal salt marshes, but it does occur inland in alkaline or saline wetlands. Habitats of this type are quite limited in Minnesota, which explains, in part, why the species is rare here. This species was discovered in Kittson County in 1962. It was not found again during the following 22 years, and in 1984 it was listed as a species of Special Concern. It probably would have been listed as Endangered at that time, but no follow-up botanical work had been done in the far northwestern part of the state. However, the alkaline areas in Kittson County and adjacent counties have now been intensively searched for rare species, and only one population of this species has been found. The original label information is too vague to be sure, but this population may be the same one found in 1962. The recent decline of prairie habitat in that part of the state has had devastating effects on all prairie species, and suggests that Endangered status is now needed and reasonable for this species.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

McGregor, R. L., and T. M. Barkley. 1977. Atlas of the flora of the Great Plains. Iowa State University Press, Ames. 600pp.

Moore, J.W. 1966. A provisional list of flowering plants, ferns, and fern allies of Kittson County, Minnesota. Unpublished manuscript. Department of Botany, University of Minnesota, Minneapolis. 17pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Helictotrichon hookeri* (Scribn.) Henr.

FAMILY: Poaceae

COMMON NAME: Oat-Grass

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a native prairie grass confined to remnant gravel prairies on the ancient beach ridges of northwest Minnesota. It is currently known to occur at about 20 locations in five counties (from Clay County north to Kittson). The poor soil of these remaining prairies is not attractive to most forms of agriculture, but gravel mining is a serious threat. For these reasons, Special Concern status is considered necessary and reasonable at this time.

SELECTED REFERENCES:

Allison, Helen. 1959. Key to the grasses of Minnesota found in the wild or commonly cultivated as crops. University of Minnesota. 52pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Heteranthera limosa* (Sw.) Willd.

FAMILY: Pontederiaceae

COMMON NAME: Mud Plantain

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This small, aquatic plant is rare and local throughout much of its range and reaches Minnesota at the extreme northern periphery of its range. Within the state it is very rare and apparently limited to an unusual microhabitat in two adjacent counties. Its single extant Minnesota population was first discovered in Minnesota at Blue Mounds State Park (Rock County) in 1945 and still survives there in viable numbers. The size of the population is difficult to determine because in wet years it seems relatively abundant, but in dry years cannot be seen at all. It is currently threatened by the invasion of a non-native species (mostly brome-grass) and by incompatible land use practices (e.g., herbicide application). The only other historic collection site was at Pipestone National Monument where it was collected in 1956, but has not been relocated since. Both Minnesota populations occur in ephemeral pools that develop in association with outcrops of Sioux quartzite in the prairie region. Areas with comparable outcrops of Sioux Quartzite in Cottonwood and Brown counties have also been surveyed and the species has not been recorded at any new sites. These findings confirm the need and reasonableness of Threatened status for this species.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Thorne, R. F. 1956. Notes on rare Iowa plants 2. Proceedings of the Iowa Academy of Science 63:214-27.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hudsonia tomentosa* Nutt.

FAMILY: Cistaceae

COMMON NAME: Beach-Heather

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species requires active sand dunes, a formation that is very rare in Minnesota. Records at the University of Minnesota Herbarium in 1991 documented fewer than 25 locations for the plant, at widely scattered locations fewer than 15 counties. Many dunes have been planted to conifers or converted to some form of agricultural use. As a result, the total area of suitable habitat left to this species has been seriously reduced. In the absence of active management, these few acres of dunes can become overgrown through natural succession, making them unsuitable habitat for Beach-Heather. Consequently, a status of Special Concern is needed and reasonable for this species.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Skog, J.T., & N.H. Nickerson. 1973. Variation and speciation in the genus *Hudsonia*. Ann. Missouri Bot. Gard. 59:454-464.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Iodanthus pinnatifidus* (Michx.) Steud.

FAMILY: Brassicaceae

COMMON NAME: Purple Rocket

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: When *Iodanthus pinnatifidus* was proposed as a species of Special Concern in 1984, there were only three records from Minnesota, dated 1886, 1902 and 1937. All were from hardwood forests in the southeastern corner of the state, but none had been relocated since their initial discovery. However, there was too little current information to justify any status designation at that time. Since then, a comprehensive biological survey of the southeastern counties has been completed, and only one small population of this species was found. It now appears that this species is very rare in Minnesota, and has likely undergone a dramatic decline in numbers in the last century because of continued disturbance and destruction of its Floodplain Forest habitat. Consequently, Endangered status is now needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Fernald, M. L. 1950. Gray's Manual of Botany, 8th ed. D. Van Nostrand Reinhold Company, New York. 1632pp.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Jeffersonia diphylla* (L.) Pers.

FAMILY: Berberidaceae

COMMON NAME: Twinleaf

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Threatened in 1984, there were only three populations known in the state, and its forest habitat was believed to be in decline. Since 1989, a biological survey of its preferred habitat has been completed and over two dozen additional populations have been found. Although this new information indicates the species is not as rare as previously believed, it is still a very uncommon plant, and its habitat continues to remain threatened. Although Threatened status is no longer deemed necessary, until a more precise analysis of population trends is available, it is reasonable to retain the species in Special Concern status.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

Rosendahl, C.N. and J.W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on flora of the region. Rhodora 49:197-202.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Juglans cinerea*

FAMILY: Juglandaceae

COMMON NAME: Butternut

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Butternut is a forest tree that occurs widely in the northeastern United States. In Minnesota it is found scattered throughout much of the southeastern one-third of the state. In 1967 the fungus *Sirococcus clavigignenti-juglandacearum* was discovered on a butternut tree in Wisconsin. The disease is generally fatal to butternut trees, and there is no known cure. The fungus is spread by wind and rain, and has now reached all parts of butternut's range. Butternut populations are plummeting. Some states report losses as high as 80%, and expect all remaining trees to die within the next 20 years. The situation in Minnesota is not well documented, but it appears that the state could provide nearly the only stronghold for uninfected populations, either because of climatic conditions or genetic factors. The species' original range in the state extended from the southeastern corner of the state west to the Mankato area and northeast toward Duluth. Living trees continue to be documented throughout this range at the present time. A status of Special Concern is necessary and reasonable at this time because of the severe decline of this species across nearly its entire range and the global significance of Minnesota's surviving populations

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

U.S. Forest Service, 1992. Forest Service News, North Central Forest Experiment Station, St. Paul, Minnesota.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Juncus marginatus* Rostk.

FAMILY: Juncaceae

COMMON NAME: Marginated Rush

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The only known location of this species is the sandy shore of Moore Lake in Anoka County. It has not been seen there since 1927, and is believed to have been destroyed by shoreline development. It was proposed as Threatened in 1984 in the hope that it might some day be found at another location, but it was not listed at that time because little botanical work had been done in that part of the state in the recent past. However since that time an intensive botanical survey has been conducted on the Anoka Sandplain and extensive searches of nearby potential habitat have failed to rediscover any new populations. However, potential habitat in several nearby counties remains to be searched, and a status of special concern is reasonable and necessary until it is certain that the species is no longer part of Minnesota's flora.

SELECTED REFERENCES:

Clements, S.E. 1985. A key to the Rushes (*Juncu*s spp.) of Minnesota. The Michigan Botanist. 24:33-37.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Juniperus horizontalis*

FAMILY: Cuppressaceae

COMMON NAME: Creeping Juniper

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species ranges across more than half of Minnesota, but within that range is confined to only about 20 small occurrences. It is a woody ground-cover that occurs only on exposed areas of sand dunes, barrens, and savannahs in the southeastern part of the state from Houston County to the Anoka sandplain and in the northwestern part of the state associated with ancient beach ridges. Along the North Shore and the border lakes it occurs on rock outcrops and ledges. Management of these its dune and savannah habitats is difficult because the exclusion of fire causes the habitat to become overgrown with competing vegetation Management of these habitats is difficult because the exclusion of fire causes the habitat to become overgrown with competing vegetation as has happened at Agassiz Dunes Natural Area in Norman County. However, species itself is sensitive to fire, which is often used to manage dune habitats. Without special management to avoid exposure to fire, Creeping Juniper can be extirpated by this management technique, as has occurred at Sherburne National Wildlife Refuge in Sherburne County (W.R Smith pers. comm.). Because of its rarity, and the difficulty in maintaining existing populations, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Adams, R.P. 1993. *Juniperus* Linnaeus *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp. 412-420.

Lakela, O. 1965. A Flora of Northeastern Minnesota. University of Minnesota Press. 541pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lechea tenuifolia* Michx.

FAMILY: Cistaceae

COMMON NAME: Narrow-Leaved Pinweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species has been documented four times in the state. Two historical populations in Rice and Washington Counties are now believed extinct. However, during the course of recent surveys, two new populations of the species were discovered in Fillmore and Winona counties. Both are in fragile sand savanna habitats, and only one is on public land. Sand savanna habitats require active management to maintain conditions suitable for Narrow-Leaved Pinweed, but conflicting land-use such as timber production and livestock grazing may prohibit such management. Unless threats to the known sites can be ameliorated, the species may be extirpated in the near future. Endangered status is needed and reasonable for this species.

SELECTED REFERENCES:

Hodgdon, A.R. 1938. A taxonomic study of *Lechea*. Rhodora 40:29-69; 87-131.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lespedeza leptostachya* Engelm.

FAMILY: Fabaceae

COMMON NAME: Prairie Bush Clover

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: *Lespedeza leptostachya* is known from only four states: Minnesota, Iowa, Wisconsin and Illinois. This species is currently Federally listed as Threatened, and has undoubtedly experienced widespread decline over the past century, associated with the conversion of tallgrass prairie to cropland. When it was originally designated as Endangered in Minnesota in 1984, there were fewer than ten populations known in Minnesota and fewer that 25 locations rangewide. However, the special emphasis on the plant resulting from its federal status has subjected it to intensive inventory efforts. It is now known at 45 sites in Minnesota alone. Several large and viable populations have now been brought into protection. Despite the increased number of known populations in the state, the majority of all known populations occur in Minnesota and fulfillment of the federal recovery objective is dependent on their protection. While it no longer needs Endangered status, given the global importance of Minnesota's populations, it is reasonable to reclassify this species as Threatened.

REFERENCES:

Clewell, A. F. 1966. Native North American species of *Lespedeza*. Rhodora 68:359-405.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Sather, N.P. 1989. Prairie Bush Clover Inventory and Preserve Design. Minnesota Natural Heritage Program. Minnesota Department of Natural Resources. Biological Report No. 12. St. Paul. 18pp.

Sather, N.P. 1993. *Lespedeza leptostachya* in Minnesota. A Report on 1992 Surveys, Monitoring and Status. Report to U.S. Fish and Wildlife Service. Minnesota Natural Heritage Program, Minnesota Department of Natural Resources, St. Paul. 37pp.

Smith, W.R. 1986. Studies of the population biology of Prairie bush clover (*Lespedeza leptostachya*), Part I. Demographics. pp. 359-366 in T. Elias ed. Conservation and Management of Rare and Endangered Plants, Proceedings of a Conference of the California Native Plant society, November 4-7, 1986.

U.S. Fish and Wildlife Service. 1988. *Lespedeza leptostachya* Recovery Plan. U.S. Fish and Wildlife Service, Twin Cities.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Listera auriculata* Wieg.

FAMILY: Orchidaceae

COMMON NAME: Auricled Twayblade

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This small woodland streambank orchid is considered rare or uncommon throughout its range. There are only five documented populations of this species in Minnesota, three of which were seen only prior to 1946 and are believed to have since been destroyed. The two recently documented populations are both small and believed to be declining. The last time one of the populations was visited, no plants could be found. The species' persistence in Minnesota is precarious and Endangered status is needed and reasonable.

SELECTED REFERENCES:

Case, F. W., Jr. 1964. Orchids of the western Great Lakes region. Cranbrook Institute Science Bulletin 48. 147pp.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Lakela, O. 1965. A flora of northeastern Minnesota. University of Minnesota Press, Minneapolis. 541pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Smith, W.R. 1993. Orchids of Minnesota. University of Minnesota Press. Minneapolis. 172pp.

Whiting, R. E., and P. M. Catling. 1977. Distribution of the auricled twayblade orchid *(Listera auriculata)* in Canada and description of new stations in southern Ontario. Canadian Field-Naturalist 91:403-6.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Listera convallarioides* (Sw.) Nutt. ex Ell.

FAMILY: Orchidaceae

COMMON NAME: Broad-Lipped Twayblade

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was discovered at a remote site in Cook County in 1924. It has not been re-located (despite efforts to do so). The habitat on the site was described as "cedar-spruce-balsam" forest. Although this species may be extirpated, the remoteness of the original discovery site makes it quite likely that it still survives somewhere in the vicinity. In addition, if the habitat is indeed weakly acidic swamps as the original description suggests, there is a great deal of potential habitat that has not been surveyed. A status of Special Concern is necessary and reasonable pending further survey.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Smith, W.R. 1993. Orchids of Minnesota. University of Minnesota Press. 172pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Littorella americana* Fern.

NEW SCIENTIFIC NAME: *Littorella uniflora (*L.) Aschers.

FAMILY: Plantaginaceae

COMMON NAME: American Shore-plantain

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This small, aquatic species is relatively rare, and derives its name from its preferred habitat, the shallow littoral zone of lakeshores. At the time it was listed as Endangered in 1984 it was known from a dozen locations. Since then, the number of documented locations has more than doubled, It now appears that this species has probably been overlooked in the past. The majority of these records are from the Boundary Waters Canoe Area, where degradation of the aquatic environment is less likely than in other areas. Although the protection afforded by Endangered status is no longer needed, Special Concern status remains reasonable because it still requires careful monitoring.

SELECTED REFERENCES:

Arthur, J.C., L.H. Bailey and E.W.D. Holway. 1887. Plants collected between Lake Superior and the international boundary, July 1886. Geological and Natural History Survey of Minnesota Bulletin 3:10-43.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Fernald, M.L. 1918. The North American *Littorella*. Rhodora 20:61-62.

Lakela, O. 1958. Distribution of *Littorella americana* in the mid-arrowhead region of Minnesota. Rhodora 60:33-37.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Luzula parviflora* (Ehrh.) Desv. ssp. *melanocarpa* (Michx.) Hämet-Ahti

COMMON NAME: Small-Flowered Woodrush

FAMILY: Juncaceae

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: There have been only three reported records for this species in Minnesota, all dating before 1948. All are from the rocky shoreline of Lake Superior, a habitat that is increasingly threatened by shoreline development. When the species was proposed as Threatened in 1984 there were no recent records, but it was thought that an intensive search would probably rediscover the species. Despite the lack of a specifically-targeted search for this species, other shoreline species have been reported during this interim period, suggesting that if the species is still present in the state, it is probably very rare. Its protection is necessary at this time because of increased threats to its habitat. However, because there has still not been a search mounted for this species, the status of Special Concern is more appropriate than Threatened as was originally proposed in 1984.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Cheney, L.S. 1893. A contribution to the flora of the Lake Superior Region. Wisc. Acad. Sci. Arts and Letters 9:234-254.

Lakela, O. 1965. A Flora of northeastern Minnesota. University of Minnesota Press. 541pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lysimachia quadrifolia* L.

FAMILY: Primulaceae

COMMON NAME: Whorled Loosestrife

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The information available at this time reveals this species to be confined to deciduous forest habitats in a fairly small area of in the St. Croix Valley in Pine County. A biological survey of the entire St. Croix Valley has been completed, so it is unlikely that additional sites will be found. These potential threats to this species have not been fully investigated yet, but its limited occurrences makes a status of Special Concern needed and reasonable.

SELECTED REFERENCES:

Ray, J.D., Jr. 1956. The genus *Lysimachia* in the New World. Illinois Biological Monograph 24 (No's. 3-4):1-160.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Malaxis monophyllos* (L.) Sw. var. *brachypoda* (Gray) Morris & Eames

FAMILY: Orchidaceae

COMMON NAME: White Malaxis

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is one of the rarer native orchids that occur in Minnesota. It inhabits conifer swamps in the northern half of the state. Recently, intensive surveys of suitable habitat within the heart of its range discovered only 18 small, widely scattered colonies in six counties (Pine, Cass, Clearwater, Itasca, Roseau and Lake of the Woods). A historic population decline cannot be documented from the available data, but it is vulnerable to wetland drainage, logging and land conversion. Given these concerns, Special Concern status is appropriate at this time.

SELECTED REFERENCES:

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Smith, W.R. 1993. Orchids of Minnesota. University of Minnesota Press. 172pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Mammillaria vivipara* (Nutt.) Haw.

NEW SCIENTIFIC NAME: *Escobaria vivipara* (Nutt.) Buxbaum

FAMILY: Cactaceae

COMMON NAME: Ball Cactus

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR MINNESOTA STATUS: When this cactus was listed as Threatened in 1984, the only known populations were in a two or three square mile area in the Minnesota Valley in Big Stone and adjacent portions of Lac Qui Parle counties. The populations in this area were discovered in 1898 and have persisted to the present day. Although additional patches of plants within this population center were found during recent botanical surveys, no new distinct populations were located. Surviving plants of the original population are scattered infrequently among granite outcrops. Only a portion of the population occurs on protected public land. Endangered status is now needed and reasonable not only because it is now clearly known to be one of the rarest species in the state but also because its that population is known to be threatened both by quarry operation and illegal removal by cactus fanciers.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Moyer, L. R. 1899. Extensions of plant ranges in the lapper Minnesota Valley. Minn. Bot. Stud. 1:191-192.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Marsilea vestita* Hooker & Greville

FAMILY: Marsileaceae

COMMON NAME: Hairy Water Clover

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Special Concern in 1984 because it was known only from three historical records, all in shallow ponds on Sioux quartzite in Rock and Pipestone counties. It was not listed at that time because the persistence of extant populations could not be proven. Since then, a small surviving population has been rediscovered at one of the original sites. No additional sites have been discovered, in spite of 10 years of searching at both these sites and areas with Sioux Quartzite outcrops in Cottonwood and Brown counties. It is reasonable and necessary to list this species as Endangered at this time because its current situation seems very tenuous, and it is vulnerable to a variety of stochastic events.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Muhlenbergia uniflora* (Muhl.) Fern.

FAMILY: Poaceae

COMMON NAME: One Flowered Muhly

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This small, delicate grass grows on sandy and peaty lakeshores in northeastern Minnesota. It was proposed as threatened in 1984 because it was known from only two locations. However, it was not listed at that time because no one had seen it since 1957 and it was not possible to adequately assess its status. Since that time it has been discovered at only two new locations, both in the Boundary Waters Canoe Area Wilderness. These few collections confirm its rarity, the species is now known to occur in a setting that is relatively safe from human disturbance. For these reasons a status of special concern is necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Hitchcock, A.S. 1950. Manual of the grasses of the United States. U.S. Department of Agriculture, Miscellaneous publication 200. 1051pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Myosurus minimus* L.

FAMILY: Ranunculaceae

COMMON NAME: Mousetail

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, a total of 13 recent and historical locations were known to exist. Most were in the Upper Minnesota River Valley and were thought to be vulnerable to agricultural activity. Since that time the number of known locations has more than doubled and it has become clear that the plant is restricted to a specialized microhabitat that occurs at the edges of granite and Sioux quartzite outcrops in the Minnesota River Valley and southwestern Minnesota. It now appears that this species is more common than was previously thought and is not threatened by agricultural activity because it prefers areas where soils are too thin for agricultural use. A status of Special Concern is therefore no longer considered reasonable or necessary.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Nietering, E.A. 1983. Floristic Survey of the Granite Outcrops of the Minnesota River Valley. Report to The Nature Conservancy, Minneapolis. 137 pp.

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Roefer, F. 1983. A profile of Jeffers Petroglyph Prairie. Site guidebook. Minnesota Historical Society, St. Paul. Unnumbered pp.

Sather, N.P. 1989. Prairie Bush Clover Inventory and Preserve Design. Minnesota Natural Heritage Program. Minnesota Department of Natural Resources. Biological Report No. 12. St. Paul. 18pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Najas gracillima* (A. Braun *ex* Engelm.) Magnus

FAMILY: Najadaceae

COMMON NAME: Slender Naiad

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Endangered in 1984 because there were only four known historical records and a recent population decline was suspected. It was not listed because there was too little current information regarding the species. Since that time an intensive search for this species has begun (but not yet completed), and 20 previously unknown populations have been found. Although the species does not appear to be as rare as previously believed, it species is reported to be sensitive to the increased turbidity, warming, and eutrophication of lakes and streams that results from industrial and agricultural pollution. For these reasons a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Clausen, R. T. 1936. Studies in the genus *Najas* in the northern United States. Rhodora 38:333-45.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Haynes, R. R. 1979. Revision of north and central American Najas. Sida 8: 34-56.

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C. O. 1935. The genus *Najas* in Minnesota. Rhodora 37:345-48.

Wentz, W. A., and R. L. Stuckey. 1971. The changing distribution of the genus *Najas* (Najadaceae) in Ohio. Ohio Journal of Science 71 :292-302.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Najas marina* L.

FAMILY: Najadaceae

COMMON NAME: Sea Naiad

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Sea Naiad is an aquatic plant largely restricted to shallow lakes in the prairie pothole region of the state. Within historic times, more than 90% of these habitats have been drained or severely degraded. The remaining habitats continue to be threatened by artificial drainage, sedimentation, and contamination. Only seven historical and recent occurrences are known from four counties (Polk, Kandiyohi, Big Stone, and Pope). There has been very little rare plant survey work done in aquatic habitats in these counties and the status of the species at the present time is quite unclear. However all these counties are in areas of the state where aquatic habitats are suffering degradation from surrounding land uses and recreational pressure. A status of special concern is needed and reasonable until the necessary surveys have been completed to be sure that the species is not being threatened by these activities.

SELECTED REFERENCES:

Clausen, R.T. 1936. Studies in the genus *Najas* in the northern United States. Rhodora 38:333-345.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Napaea dioica* L.

FAMILY: Malvaceae

COMMON NAME: Glade Mallow

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species belongs to a monotypic genus that is endemic to the Midwest. It survives today mostly in remnant habitats and is threatened over much of its range. At the time it was placed on the state endangered species list in 1984, there were five known records from Minnesota, but only two from this century. From these records, it appeared that it might have been a prairie plant that was persisting only in areas with steep stream banks. However, recent surveys have located over seventy additional sites. From these records it is now known to be a species that prefers streambank and floodplain conditions in the valleys of small streams. Threatened status is reasonable and necessary because its geographic range in Minnesota is limited and it is unclear how upstream land use could impact its very specific habitat in the future.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Mickelson, C. J. and H. H. Iltis. 1966. Preliminary reports on the flora of Wisconsin No.55. Compositae IV. Wisc. Acad. Sci. Arts and Letters 55:187-222.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Houston County. Biological Report No. 51. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Osmorhiza depauperata* Phil.

FAMILY: Apiaceae

COMMON NAME: Blunt-Fruited Sweet Cicely

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a woodland perennial from northeastern Minnesota. It occurs as a few small scattered colonies in the Boundary Waters Canoe Area Wilderness. It was proposed threatened in 1984 based solely on its rarity, but was not listed because potential threats remained unknown. More research has shown that it is indeed rare, but no systematic surveys have been conducted for the species, and potential impacts of various forest management practices are not well understood. Although some level of protection seems necessary on the basis of its rarity, a status of Special Concern is the most reasonable until surveys can be completed and its life-history is better understood.

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55, 63-101, 116-154, 161-201.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Oxytropis viscida* Nutt.

FAMILY: Fabaceae

COMMON NAME: A Species of Locoweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species is a long-range disjunct, occurring on a single isolated cliff in Cook County. It was proposed as Endangered in 1984, but was not officially listed because of an absence of up-to-date information. Very soon after that, the site was surveyed by botanists. The population was found to still survive, but it had apparently declined since its original discovery in 1938. The cause of the decline is not known, but any such single, small colony of plants is vulnerable to a variety of stochastic events. The potential for extirpation is exacerbated at present by the increasing popularity of rock climbing, which could impact the species' heretofore unaccessible habitat. For these reasons a status of Endangered is both necessary and reasonable at the present time.

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1943. A new Oxytrope of the Minnesota-Ontario border. Rhodora. 45:10-4.

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Paronychia canadensis* (L.) Wood

FAMILY: Caryophyllaceae

COMMON NAME: Canadian Forked Chickweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: In Minnesota, this species is known to occur only in fragile sand savannas in Houston County. Most of the potential habitat has been destroyed or degraded. Only two populations in the northwestern part of the county are known to survive. Their existence was confirmed by a recent biological survey of Houston and adjacent counties, but no additional populations were found. In light of these more complete survey results, it is reasonable and necessary to assign the species to Threatened status.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Core, E. L. 1941. North American Species of *Paronychia.* The American Midland Naturalist 26:369-97.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Paronychia fastigiata* (Raf.) Fern

FAMILY: Caryophyllaceae

COMMON NAME: Forked Chickweed

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: *Paronychia fastigiata* is an inconspicuous annual of sandy, open woods. This species is known to have occurred at only two locations in Minnesota, both along the St. Croix River in Washington County. These populations were found in 1976 and in 1981, but an intensive biological survey of Washington County in 1988 and 1989 failed to relocate any plants. It is believed that the species still survives in Minnesota, but it must be very rare, and its future very tenuous. For these reasons it is reasonable and necessary to protect any remaining populations by designating the species as Endangered.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Core, E. L. 1941. North American Species of *Paronychia.* The American Midland Naturalist 26:369-97.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Pellaea atropurpurea* (L.) Link

OLD FAMILY: Polypodiaceae

NEW FAMILY: Adiantaceae

COMMON NAME: Purple Cliff-brake

PRESENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special concern

BASIS FOR PROPOSED MINNESOTA STATUS: The regional populations of this fern are largely limited to the "Driftless Area" of southeastern Minnesota, where it occurs on dry sandstone and dolomite ledges of steep bluffs. When this species was listed as Threatened in 1984, there had been a total of only five populations documented from Minnesota, some of which had not been seen since the 1930's and 1940's. Since 1984, a biological survey has been completed in the counties where this species occurs and eleven previously unknown populations were discovered. This new information suggests that Threatened status is no longer needed, and Special Concern designation is more reasonable at this time.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Peck, J. H. 1982. Ferns and fern allies of the driftless area of IIlinois, Iowa, Minnesota and Wisconsin. Milwaukee Public Museum. Contributions in Biology and Geology 53. 140pp.

Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

Rosendahl, C.N. and J.W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on flora of the region. Rhodora 49:197-202.

Tryon, A.F. 1957. A revision of the fern genus *Pellaea* section *pellaea*. Ann Mo. Bot. Gard. 44(2):125-193.

Windham, M.D. 1993. *Pellaea* Link *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2, pp 175-189.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Phacelia franklinii* (R. Br.) A. Gray

FAMILY: Hydrophyllaceae

COMMON NAME: Wild Heliotrope

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Threatened in 1984 because there were only five records from Minnesota. Four of the five dated from the 1930's and one from the 1950's. All of the records were from the northeastern corner of the state, but the habitat type was never recorded in detail. It was decided that there was too little reliable information to list it at that time. Since then there have been no additional populations documented, but there have been a few undocumented sight records, suggesting that the species is still present in the state. Although there is still too little reliable information to warrant a listing as Threatened, a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Butters, F. K., and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:2155, 63-101,116-54,161-201.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Gillett, G. W. 1960. A systematic treatment of the *Phacelia franklinii* group. Rhodora 62:205-22.

Lakela, O. 1965. A flora of northeastern Minnesota. University of Minnesota Press, Minneapolis. 541pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Poa paludigena* Fern. & Wieg.

FAMILY: Poaceae

COMMON NAME: Bog Bluegrass

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This small grass is rare across its entire range because it is restricted to active seepage communities. When it was listed as Endangered in 1984, it was thought to be limited to a few sites in the St. Croix Valley and along the Kettle River. Since then it has been found at over thirty locations in these and other drainage systems. Although this species is not as rare as was previously thought, the status of Threatened is reasonable and necessary because of its restriction to seepage communities whose groundwater hydrology is not fully understood and which may be subject to change as a result of alterations in land or water use in recharge areas that could be quite distant from the seeps themselves.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Fernald, M. L. and K.M. Wiegand. 1918. Some new species and varieties of *Poa* from eastern North America. Rhodora 20:122-127.

Ownbey, G.O. and T. Morley. 1991. Vascular Plants of Minnesota, A checklist and Atlas. University of Minnesota Press. 306pp.

Ownbey, G.B. & W.R. Smith. 1988. New and noteworthy plant records for Minnesota. Rhodora 90: 369-377.

Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polemonium occidentale* Greene ssp. *lacustre* Wherry

FAMILY: Plemoniaceae

COMMON NAME: Western Jacob's Ladder

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: At the time the Minnesota Endangered Species List was developed in 1984, this showy wildflower had not been seen in Minnesota since its discovery in 1944, and there was some question as to whether it was a native species. Consequently, it was not nominated for any status. The original Minnesota site was re-located in 1990. After its discovery in Wisconsin in 1982, it was placed on the federal candidate list. As a result of this special status it has been the subject of intensive searches over the last five years, covering nearly one hundred sites and over 10,000 acres in the two states. Despite the intensity of these searches, only three additional populations have been located. Two of these are in Wisconsin, and three are in Minnesota. All three Minnesota sites are in conifer swamps that have experienced episodes of logging. A more immediate threat is potential alteration of its wetland habitat through disruption of groundwater and surface water drainage by beaver activity. Management needs of this species are not well understood, but it is now clear that it is a very rare species for which Endangered status is both reasonable or necessary.

SELECTED REFERENCES:

Anderson, C., R. Lake, J. Dobberpuhl, and N. Sather. 1994. Status of *Polemonium occidentale* ssp. *lacustre*. Interim report to U.S. Fish and Wildlife Service, Office of Endangered Species, Twin Cities, MN. by Wisconsin Natural Heritage Inventory, Wisconsin Department of Natural Resources, Madison. 13 pp.

Lakela, O.L. 1965. A Flora of Northeastern Minnesota. Univ. of Minn. Press, Minneapolis. 541pp.

Ownbey, G.O. and T. Morley. 1991. Vascular Plants of Minnesota, A checklist and Atlas. University of Minnesota Press. 306pp.

Sather, N.P. 1989. Status report on *Polemonium occidentale* var. *lacustre* (Western Jacob's Ladder) in Minnesota. Minnesota Natural Heritage Program. Minnesota Department of Natural Resources, Biological Report No. 4. St. Paul.

Sather, N.P. 1990. Status of *Polemonium occidentale* var. *lacustre* (Western Jacob's Ladder) at Polemonium Bog, St. Louis County, Minnesota. Minnesota Natural Heritage Program. Minnesota Department of Natural Resources, Biological Report No. 21. St. Paul.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polygonum arifolium* L.

FAMILY: Polygonaceae

COMMON NAME: Halberd-leaved Tearthumb

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, it was known from only four locations in four east-central Minnesota counties. Since then, it has been found at 55 additional locations in a total of eight counties. It now appears that this species is more common and widespread than was previously thought, and Special Concern status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Moore, J . W. 1973. A catalogue of the flora of Cedar Creek Natural History Area, Anoka and Isanti counties, Minnesota. Bell Museum of Natural History. Occasional Papers 12. 28pp.

Ownbey, G.O. and T. Morley. 1991. Vascular Plants of Minnesota, A checklist and Atlas. University of Minnesota Press. 306pp.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polygonum careyi* Olney

FAMILY: Polygonaceae

COMMON NAME: Carey's Smartweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This robust annual is one of the most poorly known species in the region and presents several unusual challenges to understanding its status and rarity. It typically occurs in edge habitats that may be associated with disturbances such as logging or fire, where it can take advantage of reduced competition. This species was discovered in Minnesota in 1940 at the edge of a forest near Holyoke, Carlton County. It has not been seen in the state since then, but little botanical activity has occurred in that area in the intervening years. However, edge habitats are typically botanically undercollected and there has been no attempt to look relocate the original collection site or look specifically for this species. Although this species may actually be at risk of extirpation in the state, this lack of current information suggests that a designation of Special Concern is needed and most reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Mitchell, R. S., and J. K. Dean. 1978. Polygonaceae (buckwheat family) of New York State. Bulletin 431. New York State Museum, Albany. 79pp.

Ownbey, G.O. and T. Morley. 1991. Vascular Plants of Minnesota, A checklist and Atlas. University of Minnesota Press. 306pp.

Wherry, E. T., J. M. Fogg, and H. A. Wahl. 1979. Atlas of the flora of Pennsylvania. University of Pennsylvania, Philadelphia. 390pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polystichum acrostichoides* (Michx.) Schott

OLD FAMILY: Polypodiaceae

NEW FAMILY: Dryopteridaceae

COMMON NAME: Christmas Fern

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This rare fern is known to occur at two locations in southeastern Minnesota. Both these sites were discovered in 1979; one in Houston County, the other in Winona County. Based on this information, and on incomplete survey work, this species was listed as Special Concern in 1984. Since 1984, a biological inventory has been completed in these and adjacent counties. No additional populations were found, indicating that this species is rarer and more vulnerable to extirpation than was previously thought. Therefore a status of Threatened is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Peck, J. H. 1982. Ferns and fern allies of the driftless area of IIlinois, Iowa, Minnesota and Wisconsin. Milwaukee Public Museum. Contributions in Biology and Geology 53. 140pp.

Wagner, D.H. 1993. *Polystichum* Roth. *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 290-299.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polytaenia nuttallii* DC.

FAMILY: Apiaceae

COMMON NAME: Prairie parsley

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *P. nuttallii* is a prairie species which can apparently grow in both dry and mesic habitats. It has always been rare in Minnesota, partly because its natural range includes only the southeastern corner of the state. However, as a result of human settlement, natural habitats in that area have been lost or dramatically altered since the time this species was last seen. This species was discovered in Minnesota in 1892 near Lanesboro, Fillmore County, and was last relocated there in 1915. Since then it has not been seen anywhere in the state, in spite of extensive field work conducted in that region. Although no new populations have been found in far southeastern Minnesota, Prairie parsley is considered "infrequent" in northeastern Iowa, and surveys should be conducted farther west in counties along the Iowa border before it can be stated with certainty that the species is extirpated from Minnesota. Until such surveys have been completed, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Crawford, D.J. 1970. The Umbelliferae of Iowa. The University of Iowa Studies in Natural History 21 (4): 1-37; Mathias, M.E., and L. Constance. 1944-45. Umbelliferae. North American Flora 28:43-160, 161-295.

Eilers, L.J. and D.M. Roosa. 1994. The vascular plants of Iowa. An annotated checklist and natural history. University of Iowa Press. Iowa City. 304pp.

Ownbey, G.O. and T. Morley. 1991. Vascular Plants of Minnesota, A checklist and Atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Potamogeton bicupulatus* Fern.

FAMILY: Potamogetonaceae

COMMON NAME: A Species of Pondweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The status of this aquatic species has been unclear for many years because it was known only from a single occurrence in Anoka County. Recent surveys of a number of lakes on the Anoka Sandplain have documented only four additional populations in Isanti and Pine counties. The four lakes harboring this plant also contain other rare or unusual species, possibly indicating that some unique combination of environmental factors are controlling its distribution. All of these lakes occur in areas where development pressure is increasing. Because of the small numbers of records and the degree of perceived threat, the designation of Endangered is necessary and reasonable.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Reznicek, A.A. and R.S.W. Bobbette. 1976. The taxonomy of *Potamogeton* subsection hybrids in North America. Rhodora 78:650-673.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Potamogeton diversifolius* Raf.

FAMILY: Potamogetonaceae

COMMON NAME: Diverse-Leaved Pondweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This is a small floating-leaved aquatic plant that occurs in shallow water of small lakes and large ponds. It was found at a single location in St. Louis County and three locations in Ramsey County between 1927 and 1946, but has not been seen since. Recent surveys of central Minnesota lakes failed to find a single population. Surveys will continue, but its absence from so many potential habitats indicates extreme rarity. Threats to aquatic habitats in Ramsey and adjacent counties are growing, and include: shoreline development, increasing recreational use, and a general decline in water quality. It is these threats that make it necessary and reasonable to list the species as Endangered at the present time despite the lack of recent observations.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Reznicek, A.A. and R.S.W. Bobbette. 1976. The taxonomy of *Potamogeton* subsection hybrids in North America. Rhodora 78:650-673.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Potamogeton lateralis* Morong

FAMILY: Potamogetonaceae

COMMON NAME: One-sided Pondweed

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time this species was designated as Endangered in 1984, it was believed to be a valid taxonomic species. At that time there was a single known site for the species at Squaw Lake, in Itasca State Park**.** Recent research has shown this plant to be a sterile F1 hybrid between two other species, neither one of which is rare in Minnesota. It seems probable that this hybrid could occur spontaneously anywhere its parent species co-occur, so special protection for the hybrid is not considered reasonable or necessary.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Fernald, M. L. 1932. The linear-leaved North American species of *Potamageton* section *Axillaries*. Mem. Am. Acad. Arts. Sci. 17:1-183.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Potamogeton vaginatus* Turcz.

FAMILY: Potamogetonaceae

COMMON NAME: Sheathed Pondweed

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Sheathed Pondweed is a submerged aquatic plant known to have occurred in only a small handful of lakes scattered across central and northern Minnesota. The majority of collections were made between 1930 and 1960, when aquatic botanists were active first in the transition zone near Itasca Park and then in northeastern Minnesota. Recent aquatic surveys in northeast Minnesota have failed to locate the plant, suggesting that it may have declined along with the aquatic habitat. Because aquatic habitats in the west central counties have not focused on rare species there is still hope that the species will be reconfirmed in that part of the state. Although its rarity implies that protection is necessary the lack of aquatic rare plant surveys in west central Minnesota supports the reasonableness of Special Concern status at this time.

SELECTED REFERENCES:

Hellquist, C.B., & G.E. Crow. 1980. Aquatic vascular plants of New England: Part I Zosteraceae, Potamogetonoceae, Zannichelliaceae, Najadaceae. New Hampshire Agricultural Experiment Station Bull. 515:1-68.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Prenanthes crepidinea* Michx.

FAMILY: Asteraceae

COMMON NAME: Great White Lettuce

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This prairie species is known in Minnesota by a single record from Houston County in 1900. Since the turn of the century prairies in that part of the state have been reduced in extent to a few small isolated remnants. Recent biological inventories in the southeast part of the state, including Houston county have failed to discover the species. Many of the rarer species associated with these habitats are now gone entirely from the state, and it is possible that this species is extirpated. However, there are a number of small fragments of potential habitat that were not surveyed, so it is conceivable that it may yet be rediscovered. Special Concern status is therefore necessary and reasonable.

SELECTED REFERENCES:

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Rosendahl, C.O. and J.W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Psoralidium tenuiflora* (Pursh.) Rydb.

FAMILY: Fabaceae

COMMON NAME: Slender-Leaved Scurf Pea

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species was proposed as Special Concern in 1984 on the basis of its presumed extreme rarity. It had been seen in Minnesota once in 1890, and again only in 1915. However, it was not listed because it had gone unseen for so long it was feared extirpated and no systematic surveys had been conducted within potential habitat in the southeast corner of the state. Since that time intensive surveys have searched over a hundred bluff prairie remnants in southeast Minnesota, but the species has been found at only two sites. One of the two populations is quite small, and consists of only seven individuals. Both sites are on bluff prairies that are going to need active fire management if this species is to survive. Now that it is known to be extant in the state, both its extreme rarity and the need for special management indicate that it is necessary and reasonable to list it as Endangered at the present time.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

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Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Pyrola minor* L.

FAMILY: Pyrolaceae

COMMON NAME: Small Shinleaf

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a characteristic plant of boreal forests. It is not uncommon in parts of Canada, but there are only six records from northeastern Minnesota, collected between 1914 and 1951. It seems that this species may have experienced a recent decline, but its status cannot be determined with certainty until more directed field inventory has been completed. Until more current information becomes available, a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Haber, E. 1984. A comparative study of *Pyrola minor x Pyrola asarifolia* (Ericaceae) and its parental species in North America. Canadian Journal of Botany 62 (5): 1054-61.

Lakela, O.L. 1965. A Flora of Northeastern Minnesota. Univ. of Minn. Press, Minneapolis.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rorippa sessiliflora* (Nutt.) Hitch.

FAMILY: Brassicaceae

COMMON NAME: Sessile-flowered Cress

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Rorippa sessiliflora* is a small, aquatic annual that occurs largely in the Mississippi River drainage of the central United States. This species has been collected only twice in Minnesota; once in 1884 along the Mississippi River, and again in 1891 along the Minnesota River. There have been drastic changes in both these river systems in the past 100 years, and the habitat of this species, and the species itself, may no longer survive here. However, there has been no recent attempt to find this species or to search for its habitat, so there is still the possibility that an undiscovered population exists. If it does survive it may be endangered or threatened, but that cannot be determined without additional information. At this time, Special Concern status is needed and reasonable..

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Stuckey, R. L. 1972. Taxonomy and distribution of the genus *Rorippa* (Cruciferae) in North America. Sida 4 (4): 279-430.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rotala ramosior* (L.) Koehne

FAMILY: Lythraceae

COMMON NAME: Tooth-cup

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species has a long collection history in Minnesota, with several collections dating back to the 19th Century. From this record we can infer a steady decline in population numbers and a contraction of range. This was largely a result of habitat lost to agricultural expansion and urban development. Today, this species is known to occur in just two areas. One area is in northern Anoka County, the other is in the Minnesota Valley in Lac Qui Parle County. At both these sites, the plants are restricted to the intermittently exposed margins of small, shallow prairie lakes and ponds. However, there has been no recent attempt to find this species in much of its former range. Given the evidence of historical decline in the species' distribution and abundance, Threatened status is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ruellia humilis* Nutt.

FAMILY: Acanthaceae

COMMON NAME: Wild Petunia

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: None, and probably extirpated from Minnesota

BASIS FOR MINNESOTA STATUS: When this plant was placed on the state endangered species list in 1984, only one population was known to occur in Minnesota. It was discovered in 1974 in Afton State Park (Washington County), a location that was disjunct 200 miles from the northern edge of its range in Iowa and Wisconsin. Because of its remote and isolated location, and the singularity of its occurrence in Minnesota, it was listed as Endangered. Since that time the population appears to have died out. Repeated attempts to verify the population have failed, and no new populations have been found despite intensive survey of nearby habitat. It is now considered extinct in Minnesota. Thus, Endangered status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Fernald, M. L. 1945. *Ruellia* in the eastern United States. Rhodora 47:1-38; 47-63; 69-90.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ruppia maritima* L.

FAMILY: Ruppiaceae

COMMON NAME: Ditch-Grass

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: *Ruppia maritima* is a submerged aquatic plant, with long grass-like leaves, hence its common name Ditch-grass. As of 1991, collections at the University of Minnesota Herbarium documented its occurrence at nine locations in six counties. Although it is believed to occur in prairie pothole lakes in western Minnesota, the majority of locations appear to be in the prairie-forest transition zone.. It appears to be quite uncommon, but comprehensive surveys rare aquatic plants have not been completed in this part of the state. It is reputed to prefer clean, mineral-rich water. Such aquatic conditions are increasingly rare in this part of the state where degradation of the aquatic environment from agricultural land use and recreation has been occurring for many years. For this reason, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Ownbey, G.O. and T. Morley. 1991. Vascular Plants of Minnesota, A checklist and Atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Salix maccalliana* Rowlee

FAMILY: Salicaceae

COMMON NAME: A Species of Willow

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a shrubby species of willow was first discovered in shrubby wetland habitats in the northwestern corner of Minnesota in 1990. It is now known from eights sites in four counties. Although it is difficult for all but the trained eye to differentiate from the common *S. serissima,* there seems little doubt that it is rare, but the total extent of its range has not yet been determined. Likewise, its habitat is potentially quite fragile, but no serious threats to it are now known. For these reasons, Special Concern status is necessary and reasonable at this time.

SELECTED REFERENCES:

Dorn, R.D. 1976. A synopsis of American *Salix*. Canad. J. Bot. 54:2769-2789.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Salix pellita* (Anderss.) Anderss. ex Schneid.

FAMILY: Salicaceae

COMMON NAME: Satiny Willow

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Satiny Willow is a shrubby species of lakeshores in northeastern Minnesota. There are four occurrence records, but the most recent is from 1958. It was proposed as Special Concern in 1984, but was not officially listed because of a lack of current information. Since then it has been documented only at Grand Portage National Monument. However, extensive surveys have not been conducted outside that area, and it still seems likely that it will be found some day. For this reason, a status of Special Concern is reasonable and necessary.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Monson, P.H. 1988. Endangered, Threatened, and Special Concern Plants. Grand Portage National Monument. Grand Portage, Minnesota. Olga Lakela Herbarium, University of Minnesota, Duluth. Unpublished report submitted to National Park Service. Grand Portage. 15pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sanicula canadensis L.*

FAMILY: Apiaceae

COMMON NAME: Canadian Black Snakeroot

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This is a species of hardwood forests in southeastern Minnesota. When it was listed as Special Concern in 1984, there were only seven records in Minnesota. Since that time, however, there has been a concerted effort to search for this species, to find out just how rare it is, and to determine what, if anything, threatens its survival. During this period more than 40 additional occurrences have been located in 13 counties. It now appears that this species is not as rare as previously believed, and Special Concern status is no longer needed or reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

Shan, R. H., and L. Constance. 1951. The genus *Sanicula* (Umbelliferae) in the old world and the new. University of California Publications in Botany 25:1-78.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Scirpus clintonii* Gray

FAMILY: Cyperaceae

COMMON NAME: Clinton's Bulrush

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a dwarf species of bulrush that inhabits a rare type of sandy, transitional habitat. Documentation at the University of Minnesota Herbarium shows 10 locations in the state. There have an unusual distribution in Minnesota that is not easily explained. Single occurrences are located on the Manitoba border in far northwest Minnesota, in southeastern Clearwater County, and on the Iowa border in the southeast. The species has been most heavily documented in the Twin Cities metropolitan area, but was not documented during recent intensive surveys of the area. It may well have disappeared from known sites following human activities. However, aquatic rare plant surveys have not been conducted throughout most of the central or northwestern part of the state, so it is difficult to determine state-wide population trends. At this time, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Fernald, M.L. 1950. Gray's Manual of Botany. D. Van Nostrand Co. New York. 1632pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Scutellaria ovata* Hill var. versicolor *(Nutt.) Fern.*

NEW SCIENTIFIC NAME: *Scutellaria ovata* Hill

FAMILY: Lamiaceae

COMMON NAME: Ovate-leaved Skullcap

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This is a rare species of hardwood forests in southeastern Minnesota. When it was listed as Special Concern in 1984, it had been found a total of eight times in Minnesota, but only twice this century. With so few recent records it was thought that a serious population decline had occurred. However, since its habitat had not been thoroughly surveyed, a status of Special Concern was thought appropriate. Since that time, a comprehensive biological survey of the southeast has been completed, and only two small populations were found. This indicates that the species is indeed very rare, that a loss of habitat has resulted in a recent population decline, and that Threatened status is now needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Epling, C. 1942. The American species of *Scutellaria.* University of California Publications in Botany 20:1-146.

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Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Selaginella selaginoides* (L.) Link

FAMILY: Selaginellaceae

COMMON NAME: Northern Spikemoss

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This small, moss-like plant has widespread distribution in arctic and boreal regions, but it also has an isolated southern range around the Upper Great Lakes. The species is quite rare in this southern range and is largely limited to habitats directly influenced by the lakes. There are four records of this species from Minnesota. Three are from Susie Island in Lake Superior, and the fourth is from the mainland nearby (last seen in 1891). All are from crevices in the shore rocks, which simulate the arctic and alpine habitat where this species is more common. This is a very small and inconspicuous plant, and is best searched for by specialists, a factor which has hampered inventory efforts in the past. From the available information it appears fairly certain that this very rare species is restricted to an extremely small and vulnerable habitat at a single location, and that Endangered status is now needed and reasonable.

SELECTED REFERENCES:

Butters, F. K., and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:2155, 63-101, 116-54, 161-201.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Given, D. R., and J. H. Soper. 1981. The arctic-alpine element of the vascular flora at Lake Superior. National Museum of Natural Sciences. Publications in Botany 10. Ottawa. 70pp.

Hulten, E. 1958. The amphi-Atlantic plants and their phytogeographic connections. Kungliga Svenska Vetenskapsakademiens Handlingar 7: 3-340.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Valdespino, I.A. Selaginellaceae Willkomm *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2. pp 38-63.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Senecio canus* Hook.

FAMILY: Asteraceae

COMMON NAME: Gray Ragwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Gray Ragwort is a small flowering plant of dry prairie and semi-arid habitats. When the current list of Endangered and Threatened Species was drafted in 1984, it had not been seen for 42 years and was believed to be extirpated in Minnesota. Fortunately, it was rediscovered in 1991 in Marshall County, and again in 1993 in Polk County. Biological surveys have now been completed in the northwestern counties and these remain the only known populations. Together they have a combined total of less than 50 plants, and are considered vulnerable to destruction from gravel extraction. Endangered status for the Gray Ragwort is therefore needed and reasonable.

SELECTED REFERENCES:

Barkley, T.M. 1978. *Senecio*. North American Flora, Series II., Part 10:50-139.

Minnesota County Biological Survey. 1994. Polk County: Summary of the 1993 field season.. Biological Report No. 48. Minnesota Department of Natural Resources.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Senecio indecorus* Greene

FAMILY: Asteraceae

COMMON NAME: Unsightly Groundsel

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species is known only from rocky habitats in Cook County. It has been found at a total of six locations four along the North Shore and two inland, but at none since 1957. Although its habitat type seems relatively impervious to damage, it is increasingly subject to use by hikers and rock climbers. Despite the lack of recent records the low number of locations, coupled with increasing potential habitat disturbance make it necessary and reasonable to list the species as Special Concern at this time.

SELECTED REFERENCES:

Butters, F.K., and E.C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55;21-55, 63-101, 116-154, 161-201.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Silene drummondii* Hook.

FAMILY: Caryophyllaceae

COMMON NAME: Drummond's Campion

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The habitat of Drummond's Campion appears to be dry sandy prairie and savannas, developed on dunes and outwash plains mostly in central and northwestern Minnesota. Most of these habitats have now been inventoried by the Biological Survey, and only 10 populations were discovered. This number may represent a viable presence in Minnesota, but the species' dry prairie habitat is increasingly threatened by gravel mining. Because of the limited extent of potential habitat, low number of populations and threat of destruction, Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Maguire, B. 1950. Studies in the Caryophyllaceae - IV. A synopsis of the North American species of the subfamily Silenoideae. Rhodora 52:233-245.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Silene nivea* (Nutt.) Muhl. ex Otth.

FAMILY: Caryophyllaceae

COMMON NAME: Snowy Campion

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: Snowy Campion is a showy plant of river valleys in the southeastern part of the state. It has suffered an historic decline caused by loss of habitat. It was not officially listed as threatened in 1984 because it had not been seen since 1939, and was thought extirpated in Minnesota. Since 1984 the potential habitats of this species have been intensively searched but only four colonies have been found. Only one of the four sites currently receives any protection, and only one population is large enough to withstand potential threats, such as land clearing, road maintenance and cattle grazing. For these reasons a status of Threatened is reasonable and necessary at the present time.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Hitchcock, C.L. and B. Maguire. 1947. A revision of the North American species of Silene. University of Washington publications in Biology. 13:1-73.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

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Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sparganium glomeratum* Laest.

FAMILY: Sparganiaceae

COMMON NAME: Clustered Bur Reed

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The distribution of this species in the western hemisphere is not well understood. When it was originally designated as Endangered in 1984, its disjunct North American locations appeared to be limited to northeastern Minnesota and Saguenay County, Quebec. Recent inventory efforts have confirmed that it extends into northwest Wisconsin. Habitat descriptions on the original three Minnesota collections were somewhat misleading, implying it might be found in sphagnum bogs or floating bogs as well as marshes. New data suggest that its preferred habitat is actually minerotrophic wetlands such as shrub swamps and woodland marshes. Recent intensive searches have been conducted at a number of sites of this type, and several new populations have been found within miles of each other, suggesting that the species may be much more common than was heretofore believed. The number of known Minnesota populations has increased tenfold since 1984, and its Minnesota range is now known to extend from the Duluth and Hibbing area as far west as southwestern Clearwater County. While Endangered status is no longer needed, Special Concern status remains reasonable because, despite the high rate of return on recent surveys, its known centers of population are concentrated in a few widely-separated small areas, and it is subject to potential habitat loss.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Cook, C.D.K. and M.S. Nicholls, 1987. A monographic study of the genus *Sparganium* (Sparganiaceae) Part 2. subgenus *Sparganium*. Bot. Helv. 97:1-44.

Lakela, O. 1941. *Sparganium glomeratum* in Minnesota. Rhodora 43:83-85.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Sather, N.P. and K. Van Norman. 1988. Results of a survey for *Sparganium glomeratum* (Clustered bur reed) in the Chippewa National Forest. Minnesota Natural Heritage Program, Minnesota DNR. Biological Report No. 2. St Paul. 27pp.

Walton, G.B. 1994. Report for field season 1994. Status survey for *Caltha natans* and *Sparganium glomeratum* in Minnesota. University of Minnesota, Duluth. Report submitted to Minnesota Natural Heritage and Nongame Research Program, Minnesota Department of Natural Resources. 9pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Spartina gracilis* Trin.

FAMILY: Poaceae

COMMON NAME: Alkali Cord-grass

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This is a grass of wet prairies and saline swales in western Minnesota. When it was listed as Special Concern in 1984 there were only a small handful of known occurrences. Since then there has been intensive field work conducted in that part of the state, and more than 30 additional locations have been found. It now seems that neither this species nor its habitat are as rare as was previously thought, and Special Concern status is no longer needed to ensure its survival in Minnesota.

SELECTED REFERENCES:

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Mobberley, D. G. 1956. Taxonomy and distribution of the genus *Spartina.* Iowa State College Journal of Science 30 (4): 471-574.

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Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Subularia aquatica* L.

FAMILY: Brassicaceae

COMMON NAME: Awlwort

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR MINNESOTA STATUS: *Subularia aquatica* is a small aquatic species that occurs in shallow lake margins. Although it has wide distribution in North America, it is uncommon or local over most of its range. When it was listed as Endangered in 1984, it was known from only six sites. Since that time the number of known populations has more than doubled. The majority of sites are in the border lakes area, but the species has been documented as far southwest as Caribou Lake in Itasca County. Endangered status is no longer needed because it is more common that was formerly believed. However, Threatened status remains reasonable and necessary because it is still among the rarest species in the state and its shoreline habitat is vulnerable to a number of potentially harmful impacts including aquatic weed control and construction of boat ramps, docks, and retaining walls.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Lakela, O.L. 1965. A Flora of Northeastern Minnesota. Univ. of Minn. Press, Minneapolis.

Mulligan, G. A. & J. A. Calder. 1964. The genus *Subularia* (cruciferae). Rhodora 66:127-135.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Sullivantia renifolia* Rosend.

NEW SCIENTIFIC NAME: *Sullivantia sullivantii* (Torr. & Gray) Britt.

FAMILY: Saxifragaceae

COMMON NAME: Golden Saxifrage

CURRENT MINNESOTA STATUS: Endangered

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species is limited to calcareous or circumneutral sedimentary cliffs in the "driftless area" of southeastern Minnesota. The plants require cool water seeping from porous rock, and the protection of an overhanging ledge. This type of habitat has always been of very limited extent in the state. At the time the species was designated as Endangered in 1984, only three populations were known in the state. Further, it was considered part of a separate species, *Sullivantia renifolia*, which was believed to be restricted to the driftless area of Minnesota, Iowa, and the Missouri Ozarks. Since that time *Sullivantia renifolia* has been redefined as a member of the more widespread, but still rare, *Sullivantia sullivantii*. Also since that time, intensive botanical surveys have been conducted in Minnesota, and the number of known populations in the state has increased from four to seventeen. However, because inventory efforts have been concentrated in southeastern Minnesota in the past five years and because its habitat is so rare, it is likely that nearly all the state's populations have now been documented. Although direct human threats to this species are limited by the inaccessibility of its populations, Threatened status is both reasonable and necessary because indirect threats remain from such activities as quarrying and road construction.

SELECTED REFERENCES:

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Rosendahl, C. O. 1927. A revision of the genus *Sullivantia*. Minnesota Studies in Plant Sciences, No. 6.

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Pusateri, W.P., D.M. Roosa, and D.R. Farrar. 1993. Habitat and Distribution of Plants Special to Iowa's Driftless Area. Jour. Iowa Acad. Sci. 100(2):29-53.

SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Thelypteris hexagonoptera* (Michx.) Weatherby

NEW SCIENTIFIC NAME: *Phegopteris hexagonoptera* (Michx.) Fee

FAMILY: Thelypteridaceae

COMMON NAME: Broad Beech Fern

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984 it was known by a total of five records from forests in Houston, Fillmore, Wabasha and Winona counties. Since 1984, the County Biological Survey has surveyed these counties, and several adjacent counties, but failed to find any Broad Beech Fern. These results indicate that the species is rarer than was previously thought, and has apparently experienced a serious decline. The cause of the apparent decline is not fully understood, but is probably the result of loss or degradation of its woodland habitat. Because of its rarity, and its probable population decline, a status of Threatened is necessary and reasonable.

SELECTED REFERENCES:

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Peck, J. H. 1982. Ferns and fern allies of the driftless area of IIlinois, Iowa, Minnesota and Wisconsin. Milwaukee Public Museum. Contributions in Biology and Geology 53. 140pp.

Smith, A.R. 1993. Thelypteridaceae Ching ex Pichi-Sermolli *in* Flora of North America Editorial Committee, eds. Flora of North America, North of Mexico. Volume 2, pp 206-222.

Tryon, R. 1980. Ferns of Minnesota, ed. 2. University of Minnesota Press, Minneapolis. 165pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Tofieldia glutinosa* (Michx.) Pers.

FAMILY: Liliaceae

COMMON NAME: False Asphodel

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This species is largely restricted to wet prairies in northwestern Minnesota. When this species was listed as Special Concern in 1984, it was understood to be restricted to calcareous fen habitats throughout its statewide range. Since 1984, a thorough biological survey has been completed in northwestern Minnesota, and it now appears that this species is only confined to calcareous seepage fens in the southern part of the state. In the northwestern counties it persists in large populations in wet prairies and even native rights-of-way. In light of these new data, the species does not appear to be in need of Special Concern status.

SELECTED REFERENCES:

Aaseng, N.E. and R.I. Djupstrom. 1992. Peatland Protection, pp. 301-315 *in* Wright, H.E. etal. The Patterned Peatlands of Minnesota. University of Minnesota Press, Minneapolis. 327pp.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Hitchcock, C . L. 1944. The *Tofieldia glutinosa complex of west*ern North America. The American Midland Naturalist 31:487-98.

Minnesota County Biological Survey. 1995. Natural Communities and Rare Species of Goodhue County. Biological Report No. 44. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Polk County: Summary of the 1993 field season.. Biological Report No. 48. Minnesota Department of Natural Resources.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Torreyochloa pallida* (Torr.) Church

FAMILY: Poaceae

COMMON NAME: Torrey's Manna-Grass

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Torrey's Manna-Grass is a wetland grass which is best documented in the arrowhead region but has been found near the Manitoba border in Roseau County, in southeastern Clearwater County and along the St. Croix River in Pine County. There are fewer than twenty records, mostly from the period of 1930-1960, but none since 1980. It has always been considered rare in Minnesota, and this absence of recent records has heightened concern about its status. However, only a portion of its range has been intensively surveyed, so it is difficult to infer population trends at this time. Its outlying records suggest that it could be found anywhere in the coniferous forest region of the state. Until further survey work is completed, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Allison, H. 1959. Key to the Grasses of Minnesota Found in the Wild or Commonly Cultivated as Crops. University of Minnesota. 52pp.

Hitchcock, A.S. 1951. Manual of Grasses of the United States, ed. 2, by A. Chase. U.S.D.A. Misc. Publ. 200. 1051pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Tradescantia ohiensis* Raf.

FAMILY: Commelinaceae

COMMON NAME: Ohio Spiderwort

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This species inhabits sand prairie and savanna habitats in Winona, Houston, Fillmore and Wabasha counties. When designated as a species of Special Concern in 1984, there was concern that its habitat was quite sensitive, and was threatened with destruction or degradation. After several years of field work, it now appears that this species is more common than previously thought, and that its habitat is not particularly sensitive or threatened. It appears to be secure in the Whitewater and Root River Valleys and no longer in need of Special Concern status.

SELECTED REFERENCES:

Anderson, E. 1954. A field survey of chromosome numbers in the species of *Tradescantia* closely allied to *Tradescantia virginiana.* Annals of the Missouri Botanical Garden 41 :305-27.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Houston County. Biological Report No. 50. Minnesota Department of Natural Resources. St. Paul.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Triglochin palustris L.*

FAMILY: Juncaginaceae

COMMON NAME: Marsh Arrow-grass

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: *Triglochin palustris* is a small, sedge-like plant that is widespread in North America, South America, and Eurasia. In North America, however, the species is frequently localized in isolated habitats and is absent from large areas within its range. This is certainly true in Minnesota, where the species was poorly known prior to 1980. At the time it was placed on the state list it was believed to be restricted to calcareous fen habitats. Since 1984, a thorough biological survey has been completed in northwestern Minnesota, and ninety populations are now known from a broader range of wet prairie habitats than was first believed. In light of these new data the species does not appear to be in need of Special Concern status.

SELECTED REFERENCES:

Aaseng, N.E. and R.I. Djupstrom. 1992. Peatland Protection, pp. 301-315 *in* Wright, H.E. etal. The Patterned Peatlands of Minnesota. University of Minnesota Press, Minneapolis. 327pp.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Lakela, O. 1951. Previously unreported plants from Minnesota. Rhodora 53:159-60.

Minnesota County Biological Survey. 1994. Polk County: Summary of the 1993 field season.. Biological Report No. 48. Minnesota Department of Natural Resources.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Trimorpha acris* (L.) Nesom var. *asteroides* (Anderz. *ex* Bess.)

FAMILY: Asteraceae

COMMON NAME: Acrid Fleabane

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a circumboreal species that ranges southward in mountainous regions and in other boreal habitats. It survives at the comparatively southern latitude of Minnesota because of the climatic conditions caused by Lake Superior, and its steep shoreline. There are only three records of this species from Minnesota. All are from the rocky shores of Lake Superior and are dated 1929, 1944 and 1945. This region of the state has not been surveyed recently, and is undergoing rapid recreational development. Until more comprehensive field surveys are completed, a status of Special Concern is needed and reasonable.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Given, D. R., and J. H. Soper. 1981. The arctic-alpine element of the vascular flora at Lake Superior. National Museums of Canada. Publications in Botany 1. Ottawa. 70pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Trimorpha lonchophylla* (Hook.) Nesom

FAMILY: Asteraceae

COMMON NAME: A Species of Fleabane

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is an uncommon and possibly rare species that has been found at about a dozen locations in Wilkin, Norman and Kittson counties in northwestern Minnesota. It occurs in weakly saline meadows, which are a type of seasonal wetland. We know that its habitat has experienced a drastic decline, which is still continuing. From this we can infer a comparable decline in population numbers, but there is no direct evidence that can be used to determine a population trend. Until such information is available a status of special concern is needed and reasonable.

SELECTED REFERENCES:

Cronquist, A. 1947. Revision of the North American species of *Erigeron* north of Mexico. Brittania 6:121-300.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Utricularia gibba* L.

FAMILY: Lentibulariaceae

COMMON NAME: Humped Bladderwort

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: This is a very small and delicate aquatic plant that grows in pools and shallow areas in bogs. When it was listed as Special Concern in 1984, there were only five records from Minnesota. There are now over thirty documented locations from six counties. It appears that this species has probably been overlooked in the past because of its small size. Based on this information, it seems that a status of special concern is no longer reasonable or necessary.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Fassett, N.C. 1957. A manual of aquatic plants. Univ. of Wisconsin Press, Madison. 405 pp.

Lloyd, F. E. 1942. The carnivorous plants. The Cronica Botanica Company, Waltham, Mass. 352pp.

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

Ownbey, G.B. and T. Morley. 1991. Vascular plants of Minnesota: A checklist and atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Utricularia purpurea* Walt.

FAMILY: Lentibulariaceae

COMMON NAME: Purple Bladderwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special concern

BASIS FOR PROPOSED MINNESOTA STATUS: This small aquatic plant is easily recognized by its purple flowers when it is in bloom, but just as easily overlooked when it is not in flower because of its small size and tendency to grow in mats with other, more noticeable, species of bladderwort. It was apparently overlooked in Minnesota until 1992, when it was discovered for the first time. Since that time four additional occurrences have been found, all in small shallow lakes in Pine and Cass counties. It appears to prefer open water in shallow lakes surrounded by boggy floating mats. These shorelines are generally unsuitable for shoreline development, and do not currently attract much recreational use. Although its rarity indicates that protection is needed Special Concern status is reasonable for this species because its habitat appears to be at little risk.

SELECTED REFERENCES:

Fassett, N.C. 1957. A manual of aquatic plants. Univ. of Wisconsin Press, Madison. 405pp.

Myhre, K.M. 1992. Minnesota County Biological Survey. Results of a rare plant search in Cass County, 1992. 6pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Utricularia resupinata* B.D. Greene ex Bigelow

FAMILY: Lentibulariaceae

COMMON NAME: A Species of Bladderwort

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This is a rare carnivorous plant of shallow lake margins in the Boundary Waters Canoe Area Wilderness. It prefers the shallow sandy-bottomed shorelines of softwater lakes. It was proposed as Threatened in 1984 it was known by only one documented record and two unconfirmed sight records, but listing was postponed until the sight records could be confirmed, and further searches conducted. The species is now documented from five different lakes. It now appears that this species is not as rare as was previously believed, and its level of threat is less than some species because all of the sites are in a federal wilderness area where sandy beaches are protected from the recreational development they receive elsewhere. Nevertheless, the rarity of this species, and the specialized nature of its habitat contribute to the necessity and reasonableness of a listing as Special Concern.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Fassett, N.C. 1957. A manual of aquatic plants. Univ. of Wisconsin Press, Madison. 405pp.

Taylor, P. 1989. The Genus *Utricularia*: A Taxonomic monograph. Royal Botanic Gardens, Kew. 724pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Viola lanceolata* L.

FAMILY: Violaceae

COMMON NAME: Lance-leaved Violet

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This is a species of moist swales in sand dunes and savannas, and occasionally lake shores. The vast majority of its original populations were restricted to the Anoka Sand plain in Sherburne, Isanti and Anoka counties. While severe habitat loss was apparent even when it was designated as a species of Special Concern in 1984, lack of current data prevented its being assigned a more protective status. However, an intensive survey of these counties has now been completed, and 28 locations have been identified. However, land conversion has destroyed over 90% of its habitat on the Anoka Sandplain, and the remaining fragments are increasingly threatened by development. The combination of the species' apparent decline and loss of habitat supports the need and reasonableness of a status of Threatened at this time.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

Russell, N. H. Regional variation patterns in the stemless white violets. The American Midland Naturalist 56 (2): 491-503.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Viola novae-anglia* House

FAMILY: Violaceae

COMMON NAME: New England Violet

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: None

BASIS FOR PROPOSED MINNESOTA STATUS: At the time it was placed on the Special Concern list in 1984, New England Violet was considered quite rare outside of Minnesota, although there were nearly 40 documented collections from within the state. Its apparent rarity in other parts of its range was the basis for its 1984 listing as Special Concern in Minnesota. Since that time an intensive survey has been conducted in Minnesota, Wisconsin, and Michigan and the species was found to be more common than had been believed in all three of these states. There are now over 90 records from 10 Minnesota counties. Minnesota appears to be the stronghold of this species, and it seems to be secure here at the present time. Therefore, a status of special concern is no longer necessary or reasonable.

SELECTED REFERENCES:

Ballard, H.E. and Gawler, S.C. 1991. Distributional Status, Ecology and Endangerment of *Viola Novae-Angliae* House. Draft Report to Minnesota Natural Heritage Program. St. Paul.

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Monson, P.H. 1988. Endangered, Threatened, and Special Concern Plants. Grand Portage National Monument. Grand Portage, Minnesota. Olga Lakela Herbarium, University of Minnesota, Duluth. Unpublished report submitted to National Park Service. Grand Portage. 15pp.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

Russell, N. H. 1966. Violets of central and eastern United States: an introductory survey. Sida 2:1-111.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Viola nuttallii* Pursh.

FAMILY: Violaceae

COMMON NAME: Yellow Prairie Violet

CURRENT MINNESOTA STATUS: Special concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: When this species was listed as Special Concern in 1984, it was known from four dry, gravel prairies in Lac Qui Parle County. Because that part of the state had never been systematically surveyed for rare plant species, it was assigned to Special Concern status until systematic surveys could be completed. Since 1984, a comprehensive survey of remaining potential habitat in Lac Qui Parle and adjacent counties has been completed, but no additional locations have been found. One of the previously known sites has been largely destroyed by gravel mining, and this activity poses an increasingly serious threat to the remaining populations. For these reasons it is now needed and reasonable to reclassify this species from Special Concern to Threatened.

SELECTED REFERENCES:

Coffin, B. and L.A. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460pp.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

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Wheeler, G.A., R.P. Dana, and C. Converse. 1991. Contribution to the vascular (and moss) flora of the Great Plains: A floristic survey of six counties in western Minnesota. Michigan Botanist 30 (3): 75-129.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Vitis aestivalis* Michx.

FAMILY: Vitaceae

COMMON NAME: Silverleaf Grape

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This native grape vine is found only in the southeastern corner of the state, where it occurs in fairly dry oak woodlands and forests. Until recent intensive surveys in the area only four historic locations were known from Wabasha and Winona counties. Since that time an additional half-dozen populations have been found in Houston County. The species' distribution appears to be related to the extent of soils derived from underlying sandstone, making it unlikely that it will be found farther west in the state. This hypothesis is corroborated by the lack of new locations from Fillmore County, despite intensive recent searches. Its apparent rarity suggests that a status of Special Concern is necessary and reasonable at this time.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press. 473pp.

Minnesota County Biological Survey. 1994. Natural Communities and Rare Species of Winona County. Biological Report No. 49. Minnesota Department of Natural Resources. St. Paul.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Woodsia alpina* (Bolton) Gray

FAMILY: Dryopteridaceae

COMMON NAME: Alpine Woodsia

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: Alpine Woodsia is a small rare fern inhabiting crevices in cliffs and outcrops along the shore of Lake Superior. There are only eight known locations. There is concern not only because of its rarity, but because of increasing pressure on its habitat. Recreational use of habitats along Lake Superior is increasing dramatically, and activities such as rock climbing may directly threaten this species. However, no comprehensive survey has been done of its potential habitat. For these reasons, a status of Special Concern is necessary and reasonable.

SELECTED REFERENCES:

Brown, D.F.M. 1964. A monographic study of the fern genus *Woodsia.* Nova Hedwigia 16:1-154.

Lakela, O.L. 1965. A Flora of Northeastern Minnesota. University of Minnesota Press, Minneapolis. 541pp.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Xyris torta* Sm.

FAMILY: Xyridaceae

COMMON NAME: Twisted Yellow-eyed Grass

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR MINNESOTA STATUS: There are five historic collections of this species from Minnesota, but none have been made since 1960. There are two duplicate collections from Hennepin County dated 1889 with no recorded location. One of the three Anoka County collections was from the Moore Lake dunes which were largely destroyed in 1960 by the construction of Fridley High School. The two remaining sites were searched unsuccessfully in 1980. The major threat to this species and its habitat is the rapid land development occurring in Anoka County. Intensive searches recently completed in Anoka County have failed to locate any additional populations, indicating that if the species is still present in the state it is very rare, and has suffered a drastic decline in numbers. For these reasons, a status of Endangered is reasonable and necessary.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis. 460 pp.

Kral, R 1966. *Xyris* (Xyridaceae) of the continental United States and Canada. Sida 2(3):177-260.

Moore, J. 11. 1973. A Catalog of the Flora of Cedar Creek Natural History Area, Anoka and Isanti Counties, Minnesota. Bell Museum of Natural History, Univ. of Minn., Minneapolis.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota, A Checklist and Atlas. University of Minnesota Press. 306pp.

Wovcha, D.S, B.C. Delaney, and G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain, A Guide to Native Habitats. University of Minnesota Press. Minneapolis. 234pp.

LICHENS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Anaptychia setifera* Räs

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: According to Hale (1979) this species is known from the Minnesota east to Quebec, Canada and south to northern Michigan and northern New York. The Minnesota localities are at the extreme western limit of its distribution, and are from Cook and Lake Counties. There are four collections made by Bruce Fink between 1897 and 1902 in Lake and Cook counties (Fink 1910). Only one recent collection has been made in 1974 (in Lake County) in spite of searches at many collecting sites in likely places over the past 20 years (C. Wetmore pers. comm.). When the state list was first created in 1984, it was expected that this species would be found at many additional localities, but this has not been the case; however, on-going survey work may yield additional locations. Because it grows on steep rock near lakes, especially Lake Superior, and these habitats are increasingly subject to disturbance from rock climbers or private lakeshore development, it is necessary and reasonable to designate this species as Special Concern.

SELECTED REFERENCES:

Fink, B. 1910. The lichens of Minnesota. Contrib. U.S. Nat. Herbarium. 14(1):1-250.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Caloplaca parvula* Wetm.

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species was unknown to science when it was first collected in Minnesota in 1978 near Kettle Falls, St. Louis County. No additional specimens have been found during the past 16 years. When C. Wetmore (pers. comm.) wrote a monograph of this group and borrowed specimens from all of the major lichen herbaria in US and Canada, one additional specimen was found that had been collected in Mackinac County, Michigan. Study of all related species in North America and Europe have proven it to be previously undescribed and not easily confused with any other known species. This species has been found on the bases of black ash and on sugar maple in wet areas. Changing land use practices a threat to the habitats where this species grows, and consequently it is needed and reasonable to designate it as Endangered at this time.

SELECTED REFERENCES:

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cetraria oakesiana* Tuck.

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: This species is found in the northeastern United States, and it has the typical Appalachian-Great Lakes distribution. It is very rare in Minnesota and has only been collected once in Cook County in a spruce-fir forest (C. Wetmore pers. comm.). *C. oakesiana* is found near the ground on the bases of trees and on stumps and logs in cool, moist situations. It was never collected by Fink (1910), but may have been overlooked because it is often quite small and resembles a faded *Cetraria pinastri*. It is not likely that it has recently invaded the area. On Isle Royale it is only found on the unburned parts of the island. This suggests that it is intolerant to certain types of disturbance. When this species was assigned Special Concern status in 1984, too little information was available to assess its status with any certainty (Coffin and Pfannmuller, eds. 1988). However, recent survey efforts have failed to document additional locations in Minnesota ((C. Wetmore pers. comm.), and a status of Threatened is now necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Fink, B. 1910. The lichens of Minnesota. Contrib. U.S. Nat. Herbarium. 14(1):1-250.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Coccocarpia palmicola* (Sprengel) Arvid. & Galloway

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: *Coccocarpia* is primarily a tropical genus, and the previously known range of *C. palmicola* extended north only to southern Ohio. This rare lichen occurs on the bases of deciduous tress and mossy rocks. At the time the first state endangered species list was created in 1984, it was known from one site in Cook county, where it was found on mossy rocks in a spruce-fir forest (Coffin and Pfannmuller, eds. 1988). This represented a significant range extension to the north, and suggested that further survey might result in additional locations. Because intensive searches for this species have yielded no additional locations in Minnesota (C. Wetmore pers. comm.), Threatened status is now necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lobaria quercizans* Michx.

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: In North America *Lobaria quercizans* is found in the Appalachian Mountains, northeastern United States, and the Great Lakes region, where it is found in old, uncut hardwood forests. In northern Minnesota, this species has recently been found only on old trees in ash and cedar swamps, although it was formerly also recorded growing on rocks in the state (Fink 1910). In other parts of its range, it is commonly found on old, yellow birch trees. Minnesota is at the northwestern limit of its range. In Minnesota it was historically known from ten localities in the northeastern part of the state. When it was designated as a Threatened species in 1984, it had been recently collected from only four localities in St. Louis and one in Itasca County (Coffin and Pfannmuller, eds. 1988). However, recent surveys in old-forest areas of the state have revealed its occurrence at a number of additional locations (C. Wetmore pers. comm.). Because is has been found to be more common than was previously believed, Threatened status is no longer necessary and Special Concern status is now reasonable for this species.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Fink, B. 1910. The lichens of Minnesota. Contrib. U.S. Nat. Herbarium. 14(1):1-250.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

Jordan, W.P. The genus *Lobaria* in North American north of Mexico. The Bryologist 76:225-51.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Parmelia stuppea* Tayl.

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Threatened

BASIS FOR PROPOSED MINNESOTA STATUS: *Parmelia stuppea* has an Appalachian-Great Lakes distribution in eastern North American, but it also occurs along the Pacific Coast. It is fairly common in the southern parts of its range, but it is rare in the Lake Superior region. Elsewhere in its range, this lichen grows on deciduous trees in open woods and swamps, or in California, on mossy rocks. However, the one Minnesota collection was found growing on northern white cedar in Cook County in 1897 (Fink 1910). The species was assigned Special Concern status in 1984 because it had not been recently relocated at the original collection site, nor had additional locations been found despite extensive survey work (Coffin and Pfannmuller, eds. 1988). However, it was recently discovered at a site south of Taylors Falls, (C. Wetmore pers. comm.). For this reason, Threatened status is now necessary and reasonable.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Fink, B. 1910. The lichens of Minnesota. Contrib. U.S. Nat. Herbarium. 14(1):1-250.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Peltigera venosa* (L.) Hoffm.

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This species occurs in the boreal zone (Hale 1979) from southern Alaska south to northern California and south in the Rocky Mountains to New Mexico in the western part of this continent. In eastern North America, it occurs from Minnesota east to Newfoundland and Labrador, Canada and south to Pennsylvania. In Minnesota, it has been found only in Cook County, where it grows on soil and on moist cliffs (C. Wetmore pers. comm). Two localities were found by Bruce Fink in 1897 (Fink 1910), but the only recent collection was from a single locality in 1977. Thorough searches at many localities have yielded no additional records, but some potential habitat remains to be searched. Until its distribution in Minnesota can be more definitely determined, it is needed and reasonable to designate it as a species of Special Concern.

SELECTED REFERENCES:

Fink, B. 1910. The lichens of Minnesota. Contrib. U.S. Nat. Herbarium. 14(1):1-250.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

Thomson, J.W. 1950. The species of Peltigera of North America north of Mexico. The American Midland Naturalist, 44:1-68.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Umbilicaria torrefacta* (Lightf.) Schrad.

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This species is mainly northern and western in distribution. It is found in the western mountains, barely extends south to the high mountains of New England, and has recently been found in the Black Hills and on Isle Royale. It was found in one locality in Cook County in 1980 (C. Wetmore pers. comm.). Like all species of *Umbilicaria*, this lichen grows on bare, sunny, exposed rocks on rocky ridges. In Minnesota, it was found on a rocky ridge that extends into Lake Superior. It is an example of a boreal species that reaches it southern limits in northeastern Minnesota. At the time of its designation as a species of Special Concern in 1984, its distribution in the state was uncertain, and the known locality was not threatened. However, further searches have not found any new locations, and its single location in Minnesota is being subjected to increased rock-climbing activity. For these reasons, Special Concern status is no longer reasonable, and a status of Endangered is now necessary.

SELECTED REFERENCES:

Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's endangered flora and fauna. Univ. of Minnesota Press. Minneapolis.

Hale, M.E. 1979. How to know the lichens. W.C. Brown, Dubuque, Iowa. 246pp.

Llano, G.A. 1950. A monograph on the lichen family Umbilicariaceae in the western Hemisphere. Navexos P-831, Office of Naval Research, Washington, D.C.

FUNGI

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Fuscoboletinus weaverae* A.H. Smith and Shaffer

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This mushroom species is endemic to Minnesota and has been collected twice (1964 and 1969) in the same locality in Crow Wing County, where the documented population is small (D. McLaughlin pers. comm.). It grows on humus in sandy soil of mixed deciduous coniferous forests containing *Quercus, Populus, Betula, Pinus banksiana, P. resinosa,* and *P. strobus*. This species is assumed to be mycorrhizal with conifers based on what is known of related species. It is susceptible to human disturbance through habitat alteration or pollution. In addition, mycorrhizal fungi on sandy soils are especially susceptible to air and water pollution. The single known location and the perceived threats make the assignment of Endangered status necessary and reasonable.

SELECTED REFERENCES:

Smith, A.H. and R.L. Shaffer. 1965. A new species of the Boletaceae. Michigan Bot. 4:27-30.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Laccaria trullisata* (Ellis) Peck

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This mushroom species grows on sparsely vegetated sand dunes along ocean, lake and river shores in eastern North America, and occurs at the northwestern edge of its range in Minnesota. It is reported from two localities in Minnesota, in Crow Wing and Anoka Counties (D. McLaughlin pers. comm.). It is restricted to sand dunes with sparse vegetation and is suspected to be mycorrhizal with plants such as *Hudsonia tomantosa* and pine. Minnesota populations appear to be small. Although additional survey work may yet yield additional locations, habitat disturbance by humans is a threat and is expected to increase along beach fronts. It is therefore necessary and reasonable to designate this mushroom as a species of Special Concern.

SELECTED REFERENCES:

Mueller, G.M. 1992. Systematics of *Laccaria* (Agaricales) in the continental United State and Canada, with discussions on extra-limital taxa and descriptions of external types. Fieldiana NS 30:1-158.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lactarius fuliginellus* A.H. Smith & Hesler

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This mushroom species has been collected twice at a single location in Anoka County under oak in a low area, but has not been found elsewhere in Minnesota (D. McLaughlin pers. comm.). It is at the northwestern limits of its range in Minnesota and occurs in eastern North America, south to Mexico. *L. fugligenellus* which is probably mycorrhizal with oak, can be confused with *Lactarius fumosus*. Futher survey is needed to accurately document its distribution and abundance in the state, but based on our current knowledge, its population size within the state appears to be small, and the location in Anoka County is vulnerable to disturbance from human activity. Its designation as a species of Special Concern is therefore needed and reasonable.

SELECTED REFERENCES:

Hesler, L.R. and A.H. Smith, North American Species of *Lactarius*, Univ. of Michigan Press, Ann Arbor. 1979.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lysurus cruciatus* (Lepr. & Mont.) Lloyd

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: This very distinctive mushroom species has been collected twice in a pasture in Washington County in 1971 and 1973 (D. McLaughlin pers. comm.). It grows on soil in pastures associated with undecomposed horse manure. It has been reported from eastern North America, southern Canada, and California. In Minnesota, it is at the northwestern edge of its range for eastern North America. Although our knowledge of its range and abundacne in Minnesota is incomplete, its known population size and highly specific habitat requirements make it vulnerable to disturbance, and so Special Concern status is necessary and reasonable.

SELECTED REFERENCES:

Ginns, J.H. 1977. *Lysurus gardneri*. Fungi Canadenses 94. 2pp.

Fungi Canadenses - Corrigendum (I), 1987.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Psathyrella cystidiosa* (Peck) A.H. Smith

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This mushroom species is endemic to Minnesota and was reported in Minneapolis in 1911 and 1912, but has not been collected since (D. McLaughlin pers. comm). Nothing is known about its habitat other than the mention of soil at the base of the stem which suggests it grows on the ground. *Psathyrella* species are associated with recycling of organic matter, such as wood, leaf litter or dung, and may occur in or outside woods. This species may be globally extinct, but there is a possibility that on-going survey work may relocate it in the state. It is therefore necessary and reasonable to designate it as Endangered in Minnesota.

SELECTED REFERENCES:

Smith, A.H. The North American Species of *Psathyrella*. Memoir N.Y. Bot. Gard. 24:1-633. 1972.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Psathyrella rhodospora* Weaver & A.H. Smith

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: This red-spored mushroom species was collected in 1971 in Rice County on a basswood stump near Nerstrand Woods State Park (D. McLaughlin pers. comm.). It is endemic to Minnesota, and is presumably saprobic on wood, although its resource specificity is not known. Thus far, it has been reported only from a basswood *(Tilia americana)* stump. Since its population size appears to be very small and its distribution extremely limited, it is necessary and reasonable to assign this species to Endangered status.

SELECTED REFERENCES:

Smith, A.H. 1972. The North American Species of *Psathyrella*. Memoir N.Y. Bot. Gard. 24:1-633.

Mammal Review Team
William Berg, Minnesota DNR
Elmer Birney, University of Minnesota
Donald Christian, University of Minnesota
Michael DonCarlos, Minnesota DNR
Gerda Nordquist, Minnesota DNR

Bird Review Team
Janet Green, Duluth, Minnesota
Robert Janssen, Minnesota Ornithologist's Union
Lee Pfannmuller, Minnesota DNR
Steven Stucker, Minnesota DNR
Frank Swendsen, Minnesota DNR
Douglas Wells, Minnesota DNR

Reptile and Amphibian Review Team
Carol Dorff, Minnesota DNR
John Moriarty, Hennepin Parks Reserve District
Barney Oldfield, Goodhue, Minnesota

Fish Review Team
Henry Drewes, Minnesota DNR
Jay Hatch, University of Minnesota
Konrad Schmidt, St. Paul, Minnesota
James Underhill, University of Minnesota

Mussel Review Team
Robert Bright, University of Minnesota
Michael Davis, Minnesota DNR

Butterfly and Moth Review Team
Robert Dana, Minnesota DNR
Ronald Huber, Prairie Village, Kansas

Vascular Plant Review Team
Thomas Morley, University of Minnesota
Gerald Ownby, University of Minnesota
Nancy Sather, Minnesota DNR
Welby Smith, Minnesota DNR

Other Taxonomic Experts Consulted
Fungi: David McLaughlin, University of Minnesota
Lichens: Clifford Wetmore, University of Minnesota
Jumping Spiders: Bruce Cutler, University of Kansas
Pleistocene Snails: Wayne Ostlie, The Nature Conservancy, Minnesota
Caddisflies: Margot Monson, University of Minnesota
Tiger Beetles: Ron Huber, Prairie Village, Kansas
Dragonflies: Tim Vogt, The Nature Conservancy, Illinois

Mammal Review Team
Number of Species Evaluated: 27
Meeting Dates: 10/28/93
11/3/93
5/20/94

Bird Review Team
Number of Species Evaluated: 60
Meeting Dates: 11/2/93
12/6/93
1/26/94

Reptile and Amphibian Review Team
Number of Species Evaluated: 23
Meeting Dates: 7/26/93
5/10/94

Fish Review Team
Number of Species Evaluated: 47
Meeting Dates: 10/21/93
11/18/93
12/21/93
1/7/94

Mussel Review Team
Number of Species Evaluated: 30
Meeting Dates: 10/15/93
6/15/94
6/22/94

Butterfly and Moth Review Team
Number of Species Evaluated: 28
Meeting Dates: 5/13/94
5/16/94
5/19/94
5/24-27/94
5/31/94
6/1-3/94

Vascular Plant Review Team
Number of Species Evaluated: 313
Meeting Dates: 1/11/94
2/2/94
6/6/94
6/20/94

Conclusion

Based upon the foregoing, the Department's proposed amendments to rules are both necessary and reasonable.

Dated:

Rodney W. Sando, Commissioner
Department of Natural Resources

By:
Gail Lewellan, Assistant Commissioner
for Human Resources and Legal Affairs