

BUTTERFLIES AND MOTHS ONLY

Notations Used

E	Endangered
T	Threatened
SC	Special Concern
N	None (location records maintained by DNR, in most cases)
N (X)	None, and probably extirpated from Minnesota (location records maintained by DNR, in most cases)
--	None (location records <i>not</i> yet maintained by DNR)
*	Change in scientific name accompanies change in status

CHANGE IN SCIENTIFIC NAME NOT ACCOMPANIED BY A CHANGE IN STATUS

<u>Old Scientific Name</u>	<u>New Scientific Name</u>	<u>Status</u>
<i>Atrytone arogos</i>	<i>Atrytone arogos iowa</i>	SC
<i>Erebia disa mancinus</i>	<i>Erebia mancinus</i>	SC
<i>Erynnis persius</i>	<i>Erynnis persius persius</i>	E
<i>Hesperia comma assiniboia</i>	<i>Hesperia assiniboia</i>	E

CHANGE IN STATUS; STATUS SHEET PROVIDED

<u>Common Name</u>	<u>Scientific Name</u>	<u>Current Status</u>	<u>Proposed Status</u>
Abbreviated Underwing	<i>Catocala abbreviatella</i>	--	SC
Whitney's Underwing	<i>Catocala whitneyi</i>	--	SC
Dakota Skipper	<i>Hesperia dactotae</i>	T	E
Otto Skipper	<i>Hesperia ottoe</i>	T	E
* Poweshiek Skipperling	<i>Oarisma powesheik</i>	SC	E
Leadplant Flower Moth	<i>Schinia lucens</i>	--	SC

EXTRACTED FROM

Proposed Amendment of Minnesota Rules, Chapter 6134: Endangered and Threatened Species
Statement of Need and Reasonableness: August 10, 2012

**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	None (location records maintained by DNR, in most cases)
N (X)	None, and probably extirpated from Minnesota (location records maintained by DNR, in most cases)
--	None (location records <i>not</i> yet maintained by DNR)
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<u>Common Name</u>	<u>Scientific Name</u>	<u>Current Status</u>	<u>Proposed Status</u>
Abbreviated Underwing	<i>Catocala abbreviatella</i>	--	SC
Whitney's Underwing	<i>Catocala whitneyi</i>	--	SC
Dakota Skipper	<i>Hesperia dacotae</i>	T	E
Ottoe Skipper	<i>Hesperia ottoe</i>	T	E
* Poweshiek Skipperling	<i>Oarisma powesheik</i>	SC	E
Leadplant Flower Moth	<i>Schinia lucens</i>	--	SC

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Catocala abbreviatella*

COMMON NAME: Abbreviated Underwing

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Abbreviated Underwing occurs in the former tallgrass prairie region of the United States from North Dakota south to Texas, and east through Minnesota and Arkansas to Indiana. Historically, this species was probably very abundant throughout the prairie region of Minnesota as well as in regions like the Anoka Sand Plain where prairie vegetation was a major component. Today, the Abbreviated Underwing likely remains present in scattered prairie remnants throughout its original range where leadplant, its main larval host plant, is available. Over the past several decades, the Abbreviated Underwing has been sporadically observed in the southern half of Minnesota, from Hennepin County south and west through the prairie region of the state. Between 2006 and 2008, the Minnesota DNR's County Biological Survey documented the Abbreviated Underwing in two high quality native prairie remnants in Lincoln and Pipestone County in southwest Minnesota. During this same time period, this moth was also identified in bluff prairie habitat within five state parks in Goodhue, Winona, and Houston counties in southeast Minnesota.

The highly specialized life history and habitat requirements of the Abbreviated Underwing make it inherently sensitive to habitat loss and other land use changes. Persistence of Abbreviated Underwing populations requires a nectar source (such as milkweed) and a good population of leadplant. While the moth can tolerate some degradation of prairie habitat, small amounts of leadplant will not produce enough adults to sustain a population in isolation, making the dispersal of females among patches critical. The dispersal behavior of this moth is not understood, and many small protected prairies may eventually lose the species as neighboring unprotected remnants are destroyed. Remaining prairie habitats are under increasing pressure from human activities such as farming and residential development, especially in areas like the Anoka Sand Plain that are rapidly urbanizing. Agricultural and prairie management activities such as insecticide application, haying, grazing, and spring and fall burns may have a significant impact on developing moth eggs and larvae on leadplants. Once Gypsy Moths become established in Minnesota, treatments used to control these moths could have serious negative impacts on native lepidopterans such as Abbreviated Underwings in the forested regions of the state. Because of its specialized habitat requirements, life history characteristics, and reduced range, it is needed and reasonable to designate the Abbreviated Underwing as a species of Special Concern in Minnesota. This status will highlight the need for targeted survey work to clarify how widely distributed and abundant this moth is in the state as well as whether other *Amorpha* species besides leadplant are used as larval host plants.

SELECTED REFERENCES:

- Covell, C.V., Jr. 2005. A field guide to moths of eastern North America. Virginia Museum of Natural History Special Publication Number 12. Martinsville, VA. 496pp.
- Huber, Ronald L. 1981. Checklist of Minnesota Butterflies. James Ford Bell Museum of Natural History, University of Minnesota. Minneapolis, MN.
- Metzler, E.H., J.A. Shuey, L.A. Ferge, R.A. Henderson, & P.Z. Goldstein. 2005. Contributions to the understanding of tallgrass prairie-dependent butterflies and moths (Lepidoptera) and their biogeography in the United States. Bulletin of the Ohio Biological Survey, New Series. 15(1):1-143.
- Quinn, E.M., and R. Danielson. 2009. A survey of Lepidoptera in three priority areas of the Minnesota state parks system. Final report submitted to the State Wildlife Grants Program, Minnesota Department of Natural Resources. 49 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Catocala whitneyi*

COMMON NAME: Whitney's Underwing

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Whitney's Underwing occurs in the former tallgrass prairie region of the United States from southern Manitoba to Nebraska, east through Minnesota and Arkansas to Kentucky and Indiana. Historically, this species was probably very abundant throughout the prairie region of Minnesota as well as in regions like the Anoka Sand Plain where prairie vegetation was a major component. Today, the Whitney's Underwing likely remains present in scattered prairie remnants throughout its original range in Minnesota where leadplant, its main larval host plant, is available. The Whitney's Underwing is the least common of the leadplant-feeding *Catocala* species and is much less common than the Abbreviated Underwing, a species that appears to be nearly ecologically identical. Over the past several decades, the Whitney's Underwing has been sporadically observed at widely scattered locations in the southern two-thirds of Minnesota, most in the prairie region of the state as well as in Chisago and Ramsey counties. Between 2006 and 2008, the Minnesota DNR's County Biological Survey documented the Whitney's Underwing in three large-to-moderately large high quality native prairie remnants in Lincoln, Lyon, and Pipestone counties in southwest Minnesota. However, this moth was not reported during surveys of bluff prairie habitat within state parks in southeast Minnesota over this same time period.

The highly specialized life history and habitat requirements of the Whitney's Underwing make it inherently sensitive to habitat loss and other land use changes. Persistence of Whitney's Underwing populations requires a nectar source (such as milkweed) and a good population of leadplant. While the moth can tolerate some degradation of prairie habitat, small amounts of leadplant will not produce enough adults to sustain a population in isolation, making the dispersal of females among patches critical. The dispersal behavior of this moth is not understood, and many small protected prairies may eventually lose the species as neighboring unprotected remnants are destroyed. Remaining prairie habitats are under increasing pressure from human activities such as farming and residential development, especially in areas like the Anoka Sand Plain that are rapidly urbanizing. Agricultural and prairie management activities such as insecticide application, haying, grazing, and spring and fall burns may have a significant impact on developing moth eggs and larvae on leadplants. Once Gypsy Moths become established in Minnesota, treatments used to control these moths could have serious negative impacts on native lepidopterans such as Whitney's Underwing in the forested regions of the state. Because of its rarity, specialized habitat requirements and life history characteristics, and reduced range, it is needed and reasonable to designate the Whitney's Underwing as a species of Special Concern in Minnesota. This status will highlight the need for targeted survey work to clarify how widely distributed and abundant this moth is in the state as well as whether other *Amorpha* species besides leadplant are used as larval host plants.

SELECTED REFERENCES:

- Metzler, E.H., J.A. Shuey, L.A. Ferge, R.A. Henderson, & P.Z. Goldstein. 2005. Contributions to the understanding of tallgrass prairie-dependent butterflies and moths (Lepidoptera) and their biogeography in the United States. *Bulletin of the Ohio Biological Survey, New Series*. 15(1):1-143.
- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <<http://www.natureserve.org/explorer>>. Accessed 16 June 2009.
- Opler, P.A., K. Lotts, and T. Naberhaus, coordinators. 2009. *Butterflies and Moths of North America*. Bozeman, MT: Big Sky Institute. <<http://www.butterfliesandmoths.org>>. Accessed 17 June 2009.
- Quinn, E.M., and R. Danielson. 2009. A survey of Lepidoptera in three priority areas of the Minnesota state parks system. Final report submitted to the State Wildlife Grants Program, Minnesota Department of Natural Resources. 49 pp.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hesperia dacotae*

COMMON NAME: Dakota Skipper

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Dakota Skipper is a northern prairie endemic that has disappeared from much of its historical range south and east of Minnesota due to the conversion of native prairie habitat to agriculture, with most known extant occurrences in western Minnesota and the eastern Dakotas. In Minnesota, the Dakota Skipper inhabits native dry-mesic to dry prairie with some topographic variation, where mid-height grasses such as little bluestem, prairie dropseed, and side-oats grama, are a major component of the vegetation. The Dakota Skipper was listed as a Threatened species in Minnesota in 1984 because only two healthy colonies had been consistently documented in the state. It has also been a candidate species for federal listing since 2002.

Today, the Dakota Skipper appears to be rapidly disappearing from remnant prairie habitat in Minnesota. Since listing in 1984, the Minnesota DNR has conducted and supported extensive survey efforts to find new locations of Dakota Skippers and update information for known locations. In pre-agricultural Minnesota, the Dakota Skipper occurred in the Des Moines Lobe drift where prairie predominated, and historical records exist for 17 counties, most along the west edge of the state. While recent surveys have confirmed the presence of Dakota Skippers in 11 of these counties, they have disappeared from their only known locations in 3 counties where they are presumed extirpated. Only four strong populations have been identified, and all other occurrences appear to involve small populations or colonies.

Habitat destruction is the primary threat to the Dakota Skipper, as it is completely dependent upon native prairie habitat for survival. Although habitat for some skipper populations is protected from destruction due to ownership by government or private conservation organizations, many prairie remnants remain vulnerable to plowing, overgrazing, gravel mining, or development. Long-term grazing can degrade prairie to the point that it is no longer suitable skipper habitat, and there are concerns that episodes of heavy grazing may eliminate the Dakota Skipper even if the prairie is not degraded; however, research investigating the effects of cattle grazing on this species is badly needed. Use of herbicides to control weeds or shrubs can eliminate critical nectar sources, and insecticide drift from nearby agricultural fields may kill this skipper. Conservation management of prairie remnants is also an important concern. In some locations in Minnesota the habitat is seriously threatened by shrub and tree invasion, but intense, large-scale prescribed burning of prairie habitat can result in high mortality of immature Dakota Skippers. Small, isolated colonies are susceptible to loss of genetic diversity as well as extirpation from natural events, human caused events, and the vagaries associated with small population sizes. Now that extensive surveys have been conducted, only two additional large colonies have been identified, and several previously known colonies have been extirpated, it is reasonable and needed to reclassify the Dakota Skipper as Endangered in Minnesota.

SELECTED REFERENCES:

- Britten, H.B., and J.W. Glasford. 2002. Genetic population structure of the Dakota Skipper (Lepidoptera: *Hesperia dacotae*): a North American native prairie obligate. *Conservation Genetics* 3:363-374.
- Cochrane, J F., and P. Delphey. 2002. Status assessment and conservation guidelines: Dakota Skipper, *Hesperia dacotae* (Skinner) (Lepidoptera: Hesperidae), Iowa, Minnesota, North Dakota, South Dakota, Manitoba, and Saskatchewan. Department of the Interior, U.S. Fish and Wildlife Service, Twin Cities Field Office, Minneapolis, Minnesota. 77 pp.
- Dana, R.P. 1991. Conservation management of the prairie skippers *Hesperia dacotae* and *Hesperia ottoe*: basic biology and threat of mortality during prescribed burning in spring. *Station Bulletin* 594-199. Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota. 63 pp.
- Minnesota Department of Natural Resources, Division of Ecological Resources. 2008. Rare species guide: an online encyclopedia of Minnesota's rare native plants and animals [Web Application]. Minnesota Dept. of Natural Resources, St. Paul, Minnesota. <<http://www.dnr.state.mn.us/rsg>>. Accessed 24 June 2009.
- Selby, G. 2009. 2007-2008 prairie butterfly surveys in Minnesota. Final report submitted to the Natural Heritage and Nongame Research Program, Minnesota Dept. of Natural Resources. 28 pp. + appendices.
- Swengel, A.B., and S.R. Swengel. 1999. Observations of prairie skippers (*Oarisma poweshiek*, *Hesperia dacotae*, *H. ottoe*, *H. leonardus pawnee*, and *Atrytone arogos iowa*) (Lepidoptera: Hesperidae) in Iowa, Minnesota, and North Dakota during 1988-1997. *The Great Lakes Entomologist* 32(4):267-292.
- U.S. Fish and Wildlife Service. 2009. Species assessment and listing priority assignment form - Dakota skipper. U.S. Fish and Wildlife Service, Bloomington, Minnesota. 48 pp.

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Proposed Amendment of Minnesota Rules, Chapter 6134: Endangered and Threatened Species
Statement of Need and Reasonableness: August 10, 2012

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Hesperia ottoe*

COMMON NAME: Ottoe Skipper

CURRENT MINNESOTA STATUS: Threatened

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: Although the Ottoe Skipper still occupies much of its historical range in central North America, it is now spottily distributed and generally uncommon throughout. Prior to the destruction of native prairie and barrens habitats, it was apparently a fairly common butterfly. For example, Lindsey (1942) reported that it was "moderately plentiful... on virgin prairie" in Iowa. In Minnesota, the Ottoe Skipper inhabits native dry-mesic to dry prairie where mid-height grasses such as little bluestem, prairie dropseed, and side-oats grama are a major component of the vegetation. This includes prairies on deep sands, on steep bedrock-controlled slopes, and on slopes and hills in unsorted glacial till, though adult skippers will range into low prairie for nectar. The Ottoe Skipper was listed as a Threatened species in Minnesota in 1984 because actively reproducing colonies had only been reported from four sites and remaining prairie habitat was vulnerable to destruction.

Since listing in 1984, the Minnesota DNR has conducted and supported extensive survey efforts to find new locations of Ottoe Skippers and update information for known locations. Despite these efforts, there have been no observations of this species in the state since 1995. Historical documentation of the Ottoe Skipper's distribution and abundance in Minnesota is lacking, but it was likely fairly common before the disappearance of prairie habitat. Since the first Minnesota report in 1965, the Ottoe Skipper has only been identified at 12 locations in nine different counties, with unverified records from two additional counties. All locations lie south of a line from Dakota County west to Big Stone County, which is probably the northern limit of the species' natural range. Strong populations have been observed at only two large sites, one in Lincoln County and one in Wabasha County. However, numbers had greatly diminished by the 1990s, and no individuals have been documented during recent surveys. One site in Pipestone County near the Lincoln County site seems to have supported a small population from 1975-1995, but it may have disappeared. Most other Ottoe Skipper records in the state are in small habitat remnants with one to a few individuals observed on a single visit to a site.

Habitat destruction is the primary threat to the Ottoe Skipper, as it is completely dependent upon native prairie and barrens habitat for survival. Although habitat for some of the historical Ottoe Skipper populations is protected from destruction due to ownership by government or private conservation organizations, many prairie remnants remain vulnerable to plowing, overgrazing, gravel mining, or development. Long-term grazing can easily degrade prairie and destroy it as skipper habitat, and episodes of heavy grazing may eliminate the Ottoe Skipper even if the prairie is not degraded. Use of herbicides to control weeds or shrubs can eliminate critical nectar sources, and insecticide drift from nearby agricultural fields may kill this skipper. In addition to protection from destructive activities, prairie requires active management to prevent invasion by trees and eventual succession to woodland, and to suppress non-native invasive species. The principal tool for this purpose is prescribed fire, which can result in high mortality of immature Ottoe Skippers in remnant habitat patches, especially small ones. Small, isolated colonies are also susceptible to loss of genetic diversity as well as extirpation from natural events, human caused events, and the vagaries associated with small population sizes. Given these threats and the disappearance of this skipper from previously known locations in the state, Endangered status is reasonable and needed.

SELECTED REFERENCES:

- Dana, R.P. 1991. Conservation management of the prairie skippers *Hesperia dacotae* and *Hesperia ottoe*: basic biology and threat of mortality during prescribed burning in spring. Station Bulletin 594-199. Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota. 63 pp.
- Lindsey, A.W. 1942. A preliminary revision of *Hesperia*. Denison University Bulletin, Journal of the Scientific Laboratories 37:1-50 + 6 plates.
- Minnesota Department of Natural Resources, Division of Ecological Resources. 2008. Rare species guide: an online encyclopedia of Minnesota's rare native plants and animals [Web Application]. Minnesota Dept. of Natural Resources, St. Paul, Minnesota. <<http://www.dnr.state.mn.us/rsg>>. Accessed 24 June 2009.
- Selby, G. 2009. 2007-2008 prairie butterfly surveys in Minnesota. Final report submitted to the Natural Heritage and Nongame Research Program, Minnesota Dept. of Natural Resources. 28 pp. + appendices.
- Swengel, A.B., and S.R. Swengel. 1999. Observations of prairie skippers (*Oarisma poweshiek*, *Hesperia dacotae*, *H. ottoe*, *H. leonardus pawnee*, and *Atrytone arogos iowa*) (Lepidoptera: Hesperidae) in Iowa, Minnesota, and North Dakota during 1988-1997. The Great Lakes Entomologist 32(4):267-292.

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SPECIES STATUS SHEET

OLD SCIENTIFIC NAME: *Oarisma poweshiek*

NEW SCIENTIFIC NAME: *Oarisma poweshiek*

COMMON NAME: Poweshiek Skipperling

CURRENT MINNESOTA STATUS: Special Concern

PROPOSED MINNESOTA STATUS: Endangered

BASIS FOR PROPOSED MINNESOTA STATUS: The Poweshiek Skipperling is a rare prairie-obligate skipper that is confined to the northern part of the tallgrass prairie in the United States, with nearly half of all known populations located in Minnesota. Prior to settlement this was probably one of the most abundant butterflies of Minnesota prairies, but today it occurs as small, isolated colonies in wet to dry native prairie remnants in western and southern parts of the state. This species appears to tolerate somewhat degraded grassland habitat better than other prairie skippers and is better able to persist in small or odd-shaped remnants such as railroad rights-of-way. However, because of its restricted range, rarity outside Minnesota, and dependence on prairie habitat, the Poweshiek Skipperling was listed as a Special Concern species in 1984.

Since listing in 1984, the Minnesota DNR has conducted and supported extensive survey efforts to find new locations of Poweshiek Skipperlings and update information for known locations. While these surveys have helped identify many new Poweshiek Skipperling sites and provided a much better understanding of their distribution and abundance in the state, the continued loss of prairie and grassland habitat throughout the agricultural regions of Minnesota has contributed to a significant decline of this species over the past several decades. A catastrophic decline was observed between 2001 and 2003 in a population in Polk County that had been one of Minnesota's largest. During extensive survey work in 2004-2006 in southwest MN only a single individual Poweshiek Skipperling was encountered. In 2007, prairie butterfly surveys were conducted at 70 locations across western Minnesota including 26 historic sites, and the species was observed in only 3 sites, all historical locations, with only 1 or 2 individuals sighted in each. In 2008, 51 sites including 19 historic locations were surveyed, but no Poweshiek Skipperlings were observed. In 2009, search efforts focused on two of the historically largest populations in Pipestone and Clay counties, and on the northern-most historical population, in Kittson Co, with similar negative results. Therefore, these skippers appear to be disappearing from habitats where they used to be abundant.

Small colony sizes, isolation due to past habitat loss, and continuing conversion and fragmentation of prairie habitat are the primary threats facing the Poweshiek Skipperling in Minnesota. All prairie remnants that are not protected by permanent dedication for conservation are at risk of destruction for agricultural production, aggregate mining, or development. Even where protected, prairie in Minnesota is strongly susceptible to woodland and non-native species invasion. The principal prevention tool is prescribed fire, which can result in high mortality of immature Poweshiek Skipperlings in remnant habitat patches, especially small ones. Small, isolated colonies are also susceptible to loss of genetic diversity as well as extirpation from natural events, human caused events, and the vagaries associated with small population sizes. Dispersal capabilities and propensities have not been investigated, but field observations suggest that non-prairie habitats are a strong barrier. As such, immigration is unlikely to help sustain small colonies or to reestablish colonies in suitable habitat after extirpation events. Because of its demonstrated rarity, the continued threats to populations in Minnesota, and concerns about its long-term global persistence, it is needed and reasonable to designate the Poweshiek Skipperling as a Endangered species at this time.

SELECTED REFERENCES:

- Dana, R.P. 1991. Conservation management of the prairie skippers *Hesperia dacotae* and *Hesperia ottoe*: basic biology and threat of mortality during prescribed burning in spring. Station Bulletin 594-199. Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota. 63 pp.
- Opler, P.A., K. Lotts, and T. Naberhaus, coordinators. 2009. Butterflies and Moths of North America. Bozeman, MT: Big Sky Institute. <<http://www.butterfliesandmoths.org>>. Accessed 17 June 2009.
- Selby, G. 2005. Status assessment and conservation guidelines: Poweshiek Skipperling (*Oarisma poweshiek* (Parker) (Lepidoptera: Hesperidae). Prepared for Twin Cities Field Office, U.S. Fish and Wildlife Service, Bloomington, MN. 53 pp.
- Selby, G. 2009. 2007-2008 prairie butterfly surveys in Minnesota. Final report submitted to the Natural Heritage and Nongame Research Program, Minnesota Dept. of Natural Resources. 28 pp. + appendices.
- Swengel, A.B. 1998. Effects of management on butterfly abundance in tallgrass prairie and pine barrens. *Biological Conservation* 83(1):77-89.

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SPECIES STATUS SHEET

SCIENTIFIC NAME: *Schinia lucens*

COMMON NAME: Leadplant Flower Moth

CURRENT MINNESOTA STATUS: None

PROPOSED MINNESOTA STATUS: Special Concern

BASIS FOR PROPOSED MINNESOTA STATUS: The Leadplant Flower Moth occurs throughout the former tallgrass prairie region, parts of the southwest, and scattered locations in the southeast United States. Historically, this species was probably very abundant throughout the prairie region of Minnesota as well as in regions like the Anoka Sand Plain where prairie vegetation was a major component. Today, the Leadplant Flower Moth likely remains present in scattered prairie remnants throughout its original range where leadplant, its main larval host plant, is available. Over the past several decades, the Leadplant Flower Moth has been sporadically observed in the southern half of Minnesota and up into the northwest part of the state around Polk County. Between 2006 and 2008, the Minnesota DNR's County Biological Survey documented the Leadplant Flower Moth in three high quality native prairie remnants in Lincoln, Lyon, and Pipestone counties in southwest Minnesota as well as in two degraded former pastures in Nobles and Rock counties where leadplant remains common along the roadsides. During this same time period, this moth was also identified in bluff prairie habitat within three state parks in Goodhue and Winona counties in southeast Minnesota.

The highly specialized life history and habitat requirements of the Leadplant Flower Moth make it inherently sensitive to habitat loss and other land use changes. Persistence of Leadplant Flower Moth populations requires a nectar source and a good population of leadplant. While the moth can tolerate some degradation of prairie habitat, small amounts of leadplant will not produce enough adults to sustain a population in isolation, making the dispersal of females among patches critical. The dispersal behavior of this moth is not understood, and many small protected prairies may eventually lose the species as neighboring unprotected remnants are destroyed. Remaining prairie habitats are under increasing pressure from human activities such as farming and residential development, especially in areas like the Anoka Sand Plain that are rapidly urbanizing. Agricultural and prairie management activities such as insecticide application and grazing may have a significant impact on developing moth eggs and larvae on leadplants. Once Gypsy Moths become established in Minnesota, treatments used to control these moths could have serious negative impacts on native lepidopterans such as Leadplant Flower Moths in the forested regions of the state. Because of its specialized habitat requirements, life history characteristics, and reduced range, it is needed and reasonable to designate the Leadplant Flower Moth as a species of Special Concern in Minnesota. This status will highlight the need for targeted survey work to clarify how widely distributed and abundant this moth is in the state.

SELECTED REFERENCES:

- Hardwick, D.F. 1996. A Monograph to the North American Heliothentinae (Lepidoptera: Noctuidae). Published by the author, Ottawa, Ontario. 281 pp.
- Metzler, E.H., J.A. Shuey, L.A. Ferge, R.A. Henderson, & P.Z. Goldstein. 2005. Contributions to the understanding of tallgrass prairie-dependent butterflies and moths (Lepidoptera) and their biogeography in the United States. Bulletin of the Ohio Biological Survey, New Series. 15(1):1-143.
- Opler, P.A., K. Lotts, and T. Naberhaus, coordinators. 2009. Butterflies and Moths of North America. Bozeman, MT: Big Sky Institute. <<http://www.butterfliesandmoths.org>>. Accessed 17 June 2009.
- Quinn, E.M., and R. Danielson. 2009. A survey of Lepidoptera in three priority areas of the Minnesota state parks system. Final report submitted to the State Wildlife Grants Program, Minnesota Dept. of Natural Resources. 49 pp.