



Text Descriptions of Final Critical Habitat Units for the Dakota Skipper and Poweshiek Skipperling

The U.S. Fish and Wildlife Service designated critical habitat for the Dakota skipper and Poweshiek skipperling in a Federal Register final rule published on October 1, 2015. In that rule, the Service identified 38 units in North Dakota, South Dakota and Minnesota as critical habitat for the Dakota skipper. The tracks range in size from 31 acres to 2,751 acres. For the Poweshiek skipperling, the Service is finalizing 56 critical habitat units in Iowa, Michigan, Minnesota, North Dakota, South Dakota and Wisconsin; ranging in size from 23 acres to 2,751 acres. Several of these tracts are designated for both species. Maps showing locations of the tracts are included in the final rule. Below are detailed descriptions of each of the units with the corresponding map identified. Areas are approximate and have been rounded.

Dakota Skipper (DS)

Descriptions of final critical habitat units, and the reasons they meet the definition of critical habitat for the Dakota skipper (*Hesperia dacotae*).

DS Minnesota Unit 1: (corresponds to Poweshiek Skipperling (PS) Minnesota Unit 1)

Minnesota Unit 1 is 1,131 ac (458 ha) in Pope County owned primarily by the State of Minnesota and managed by the State of Minnesota Department of Natural Resources Division of Parks and Recreation (1,011 ac (409 ha)). Approximately 112 ac (45 ha) are owned by private individuals and 8 ac (3 ha) is owned by Pope County. Located in T124N, R39W, Sections 13, 14, 23, 24, and 25; T124N, R38W, Sections 19, 20, 29, and 30; this unit occurs approximately 2.3 km (1.4 mi) east of the intersection of State Highway 29 and County Road 14 and 7.1 km (4.4 mi) west of County Road 19. We are uncertain of the occupancy of this unit, however, because although the species was last observed in this unit in 2008, the species was not observed in 2012. Thus we are analyzing it as if it were unoccupied for purposes of critical habitat. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes high quality native remnant (untilled) tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs, such as little bluestem grass (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), purple coneflower (*Echinacea angustifolia*), and prairie clover (*Dalea* spp.). This unit includes portions of Glacial Lakes State Park, which was established as a state park in 1963 to preserve the native prairie habitat. The native prairie habitat is rated by the Minnesota Natural Heritage Program County Biological Survey as good quality prairie. Selby (2013, pp. xvi-

xvii) did not rate the habitat in 2012, but documented many flowering forbs, as well as the presence of regal fritillary (*Speyeria idalia*) and other prairie butterflies.

DS Minnesota Unit 2: (corresponds to PS Minnesota Unit 2)

Minnesota Unit 2 is 846 ac (342 ha) in Murray County that is owned by private individuals. Located in T105N, R43W, Sections 1, 2, 3, 10, 11, and 12, this unit occurs approximately 0.4 km (0.3 mi) west of Chandler, Minnesota along Chanarambie Creek, and approximately 0.8 km (0.5 mi) east of 30th Ave. We are uncertain of the occupancy of this unit, however, because although the species was last observed in 2008 and has had several years of adult observations, it was not detected during 2013 surveys. Thus are analyzing it as if it were unoccupied for purposes of critical habitat. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. Dry hill prairie and wet to wet-mesic prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey as fair to excellent quality prairie. Portions of the prairie habitat were ranked by Selby (2009a, p. xlii) as fair quality and Dana (2012, pers. comm.) rated a portion of this prairie as fair to good. This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies. Other portions of the prairie have been ranked as poor quality due to invasive species and lack of management (Selby 2009a, p. xlii) - some of these areas may be suitable for dispersal between higher quality habitats.

Threats to the physical or biological features within DS Minnesota Unit 2 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; conversion or destruction of native prairie habitat; past and present grazing management that degrades or eliminates native prairie grasses and flowering forbs; and isolation from other units.

DS Minnesota Unit 3: (corresponds to PS Minnesota Unit 3)

Minnesota Unit 3 is 126 ac (51 ha) in Murray County that is owned by private individuals. Located in T105N, R43W, Section 5 and T106N, R43W, Sections 32, and 33, this unit occurs along the North Branch of Chanarambie Creek approximately 0.8 km (0.5 mi) south of County Road 5 and 2.4 km (1.5 mi) east of the Pipestone/Murray County line. Dakota skipper was observed within this unit in 1997, 2005, 2007, and 2008. We are uncertain of the occupancy of this unit, however, because although the species was last observed in 2008, it was not detected during 2012 or 2013 surveys. Thus are analyzing it as if it were unoccupied for purposes of critical habitat. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes high quality native tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry prairie habitats in this unit are rated by the Minnesota Natural Heritage Program as good to excellent quality prairie (Service 2013, unpubl. geodatabase). Carney Prairie was described by Selby (2008a, p. xliii) as an “excellent area for prairie butterflies,” and documented other prairie butterfly species at the site in 2007 - 2008 including regal fritillary and Poweshiek skipperling in 2007.

DS Minnesota Unit 4: (corresponds to PS Minnesota Unit 4)

Minnesota Unit 4 is 2,351 ac (951 ha) in Clay County owned primarily by The Nature Conservancy 1,887 ac (764 ha) and the Minnesota Department of Natural Resources Division of Parks and Recreation 464 ac (188 ha) and includes the Bluestem Prairie State Natural Area and portions of Buffalo River State Park. Located in T139N, R46W, Sections 9, 10, 11, 14, 15, 16, 21, 22, 23, 26, and 27, this unit occurs approximately 1.0 km (0.6 mi) east of State Highway 9 and 0.5 km (0.3 mi) south of State Highway 10. This unit is considered to be occupied and has had multiple years of adult observations in at least two sites within this unit. The most recent records of Dakota skipper are from 1996 (at two sites within the unit) and there have been no more recent surveys for the species, however the habitat was assessed in 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The mesic prairie and dry prairie habitats in this unit are unrated by the Minnesota Natural Heritage Program, but are rated as having good to excellent population viability and portions of this unit were mapped as “best” prairie habitat by the Minnesota County Biological Survey (Service 2013, unpubl. geodatabase). A habitat assessment conducted in 2012 assessment of the habitat at the Bluestem Prairie indicates that this site is a high quality prairie that contains the native prairie flora conducive to the Dakota skipper (Selby 2012, p. 9). The site at Buffalo River State park, which adjoins Bluestem Prairie, has not been surveyed since 1996 but recent habitat assessments show that it still contains prairie habitats with the native prairie flora conducive to the species (MN DNR 2013, unpubl.).

Threats to the physical or biological features within DS Minnesota Unit 4 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure and dynamics through properly managed fire, late-season haying, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS Minnesota Unit 5: (corresponds to a portion of PS Minnesota Unit 5)

Minnesota Unit 5 is 620 ac (251 ha) in Clay County, primarily owned by Clay County 404 ac (163 ha), as well as by The Nature Conservancy 136 ac (55 ha), and the Minnesota Department of Natural Resources Division of Ecological Resources 79 ac (32 ha). This unit includes the Felton Prairie and Blazing Star State Natural Areas managed by the Minnesota Department of Natural Resources Division of Ecological Resources and The Nature Conservancy. Located in T142N, R45W, Section 31, T142N, R46W, Section 36, T141N, R45W, Sections 5, 6, 7, and 8; and T141N, R46W, Section 1; this unit occurs approximately 0.8 km (0.5 mi) south of County Road 34 (160th Avenue North), 1.6 km (1.0 mi) west of County Road 27, and 4.8 km (3.0 mi) east of County Road 9. This unit is considered to be occupied and has multiple years of adult observations in at least 4 locations within this unit – the species was observed at most recently during 2012 and 2013 surveys. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and contains high quality native remnant tallgrass prairies containing a high diversity of native prairie grasses and flowering forbs. The mesic prairie, wet prairie and dry prairie habitats in this unit are described as fair to excellent quality (Selby 2009a, Appendix 4 -5, pp. iii -v; MNDNR Rare Features Database, 2012 unpubl.).

Threats to the physical or biological features within DS Minnesota Unit 5 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, improperly managed fire, conversion or destruction of native prairie habitat, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development; the control of invasive plant species and restoration of native tallgrass prairie plant community structure and dynamics through properly managed fire, late-season haying, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS Minnesota Unit 6: (corresponds to PS Minnesota Unit 6)

Minnesota Unit 6 is 275 ac (111 ha) in Norman County owned by The Nature Conservancy. This unit includes the Twin Valley Prairie Star State Natural Area managed by The Nature Conservancy. Located in T143N, R45W, Sections 14, 22, and 23, this unit occurs immediately north of County Road 39 and 6.9 km (4.3 mi) west of County Road 32. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Dakota skipper was last observed in 1993, but not during 1994 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native tallgrass remnant prairie containing a high diversity of native prairie grasses and flowering forbs dominated by native grasses. The wet prairie and wet-mesic prairie habitats in this unit were rated by the Minnesota Natural Heritage Program County Biological Survey in 2009 as good to excellent quality prairie and the dry prairie habitats in this unit are ranked as fair to fair-good with moderate plant diversity and invasion of smooth brome (*Bromus inermis*) (Service 2013, unpubl. geodatabase).

DS Minnesota Unit 7: (Subunit A corresponds to PS Minnesota Unit 7)

Minnesota Unit 7 is comprised of three subunits totaling of 1,571 ac (636 ha) in Lincoln County and Pipestone County owned primarily by the State of Minnesota, The Nature Conservancy, Lincoln County, and private individuals and is part of the Hole in the Mountain Prairie Preserve managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife and The Nature Conservancy. Located in T109N, R45W, Sections 8, 16, 17, 18, 19, 20, 21, 30, and 31; and T108N, R46W, Section 1. Subunit A is approximately 0.3 km (0.2 mi) to Subunit B and 0.5 km (0.3 mi) from Subunit C, and Subunits B and C are approximately 0.5 km (0.3 mi) apart, separated mainly by agricultural land. This unit occurs south of Lake Benton, Minnesota south of State Highway 14 and on both sides of State Highway 75. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. All three subunits are essential for the conservation of the species, as described below in each subunit description.

Additionally, all subunits contain the physical or biological features essential to the conservation of the species. All subunits consist of larval and adult habitat and include high quality native remnant tallgrass prairies containing a high diversity of native prairie grasses and flowering forbs. The subunits also have patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects

patches of higher quality native prairies. The wet-mesic and dry prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey in 2006 -2008 as fair-good to good-excellent quality prairies (Service 2013, unpubl. geodatabase).

Subunit A: This 1,330 ac (538 ha) subunit occurs approximately 1.6 km (1 mi) south of State Highway 14 and adjacent and on both sides of State Highway 75 southwest of Subunits B and C. Located in T109N, R45W, Sections 17, 18, 19, 20, 30, and 31 and T108N, R46W, Section 1, this unit includes the Hole in the Mountain and Altona Wildlife Management Areas owned and managed by the Minnesota State Department of Natural Resources Division of Fish and Wildlife; this portion of the subunit is approximately 634 ac (257 ha). The Nature Conservancy owns approximately 566 ac (229 ha), Lincoln County owns 6 ac (2 ha), and the remaining 124 ac (50 ha) is private land. This subunit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Dakota skipper has been observed in multiple locations within this subunit over multiple years – the most recent observation of the species was in 2008, but the species was not observed during 2012 or 2013 surveys. The dry hill prairie and wet to wet-mesic prairie habitats in this subunit are rated by the Minnesota Natural Heritage Program County Biological Survey as fair to good-excellent quality prairies (Service 2013, unpubl. geodatabase).

Subunit B: This 92 ac (37 ha) subunit occurs approximately 0.8 km (0.5 mi) south of State Highway 14 and adjacent and west of State Highway 75. The unit is owned by The Nature Conservancy. This subunit is located in T109N, R45W, Sections 8 and 17. This subunit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. The most recent observation of the species was in 2009. The dry prairie habitats in this subunit are rated by the Minnesota Natural Heritage Program County Biological Survey as good to good-excellent quality prairies.

Subunit C: This 149 ac (60 ha) subunit occurs approximately 1.9 km (1.2 mi) south of State Highway 14 and adjacent and east of State Highway 75. The most recent observation of the species was in 2009. This subunit is owned primarily by The Nature Conservancy (128 ac (52 ha)). The remaining 21 ac (8 ha) is owned by private individuals. This subunit is located in T109N, R45W, Sections 16, 17, 20, and 21. This subunit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. The dry hill prairie habitats in this subunit are rated by the Minnesota Natural Heritage Program County Biological Survey as fair-good quality prairies (Service 2013, unpubl. geodatabase).

DS Minnesota Unit 8: (corresponds to PS Minnesota Unit 8)

Minnesota Unit 8 is 321 ac (130 ha) in Pipestone County owned by the State of Minnesota and is part of the Prairie Coteau Scientific and Natural Area managed by the Minnesota Department of Natural Resources Division of Ecological Resources. Located in T108N, R44W, Sections 28, 29, 32, and 33, this unit occurs along the west side of State Highway 23 approximately 3.4 km (2.1 mi) southwest of the intersection of State Highway 23 and County Road 18. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Dakota skipper has been observed over multiple years (*e.g.*, 1993-1996 and 2005-2008) in this unit, but was not observed during 2012

surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie and wet prairie habitats in this unit are rated by the Minnesota Natural Heritage Program in 2006 as good to excellent quality prairie (Service 2013, unpubl. geodatabase). Selby (2013, pp. x-xi) did not rate the habitat in 2012, but noted the presence native flowering forbs and other prairie butterflies including regal fritillary.

DS Minnesota Unit 9: (corresponds to PS Minnesota Unit 9)

Minnesota Unit 9 is 416 ac (168 ha) in Pipestone County owned by the State of Minnesota and is part of the Terrace Wildlife Management Area managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife. Located in T107N, R44W, Section 31 and T106N, R44W, Section 6, and T106N, R45W, Section 1, this unit occurs immediately south of County Road 69 (131st St) and immediately east of County Road 16. We are uncertain of the occupancy of this has had adult observations in 2006 – 2008, but the species was not detected in 2013 surveys. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie, wet prairie, and prairie meadow habitats in this unit were rated by the Minnesota Natural Heritage Program County Biological Survey in 2006 as good to excellent quality prairies with high native species diversity (Service 2013, unpubl. geodatabase) and was described as low to medium quality with areas of high quality in 2008 (Selby 2009a, Appendix 5, p. xlviii).

Threats to the physical or biological features within DS Minnesota Unit 9 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat, past and present fire management that degrades or eliminates native prairie grasses and flowering forbs, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development; the control of invasive plant species and restoration of native tallgrass prairie plant community structure; and the implementation of late- season haying, rotational fire management, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS Minnesota Unit 10: (corresponds to PS Minnesota Unit 10)

Minnesota Unit 10 is 1,865 ac (755 ha) in Swift and Chippewa counties and is primarily owned by the Nature Conservancy (1,226 ac (496 ha)). The unit is partially owned by the State of Minnesota (621 ac (251 ha)) and is part of the Lac Qui Parle Wildlife Management Area managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife. The remaining 19 ac (8 ha) is owned by private individuals. Located in T119N, R43W, Sections 1, 2, 3, 11, 12, 13, and 24; T118N, R42, Section 18; and T120N, R43W, Sections 34, 35, and 36, this unit occurs approximately 1.8 km (1.3 mi) southwest of Highway 59/7 along the Swift/Chippewa County line, approximately 3.2 km (2 mi) south of Appleton, Minnesota. This unit is considered to be unoccupied by Dakota skipper – the last observation of the species was in 1995, but it was not detected in 1996, 2005, or 2012. This unit is essential to the conservation of the species because it

provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie, wet prairie, and prairie meadow habitats in this unit were rated by the Minnesota Natural Heritage Program County Biological Survey as good to excellent quality prairies with high native species diversity (Service 2013, unpubl. geodatabase).

DS Minnesota Unit 11:

Minnesota Unit 11 is 197 ac (80 ha) in Pipestone County owned by the Minnesota Department of Natural Resources Division of Fish and Wildlife and is part of the Woodstock Wildlife Management Area managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife. Located in T107N, R44W, Sections 1 and 2, this unit occurs directly north of 171st Street, is immediately west of the Pipestone/Murray County line, and is approximately 1.6 km (1 mi) east of the intersection of County Road 18 and County Road 8. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Adult Dakota skippers were observed in 2007 but not during 2008 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes high quality native tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs dominated by sideoats grama (*Bouteloua curtipendula*), little bluestem, and Indian grass. The dry prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey in 2006 as primarily fair – good to good quality prairie (Service 2013, unpubl. geodatabase).

DS Minnesota Unit 12:

Minnesota Unit 12 is 549 ac (222 ha) in Lincoln County is owned by private individuals. Located in T113N, R45W, Section 36; T113N, R 44W, Section 31 and T112N, R 45N Sections 1, 2, and 11; this unit occurs approximately 0.8 km (0.5 mi) south of County Road 18 and 3.9 km (2.4 mi) east of State Highway 75. This unit is considered to be occupied and has adult observations as recently as 2008. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs dominated by little bluestem, sideoats grama, and other native grasses. The dry and wet-mesic prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey in 2006 and 2008 primarily as fair to good to good-excellent quality prairie and described by Selby (2009a, Appendix 5, p. xxx) as fair to good quality prairie.

Threats to the physical or biological features within DS Minnesota Unit 12 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, past and present herbicide use and grazing management that degrades or eliminates native prairie grasses and flowering forbs, conversion or destruction of native prairie habitat, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development; the control of invasive plant species and restoration of native tallgrass prairie plant community

structure; and the implementation of late- season haying, low intensity rotational grazing management, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS Minnesota Unit 13:

Minnesota Unit 13 is comprised of two subunits totaling 263 ac (106 ha) in Kittson County owned by the State of Minnesota and is part of the Lake Bronson State Park managed by the Minnesota Department of Natural Resources Division of Parks and Recreation. Located in T161N, R46W, Sections 26, 27, 33, 34, and 35 and T160N, R46W, Sections 4 and 5, this unit occurs north of County Road 10, Minnesota approximately 2.9 km (1.8 mi) east of the intersection of County Road 10 and Highway 59. The two sub-units are approximately 0.6 km (0.4 mi) apart, separated primarily by forested land or shrub-land. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Dakota skipper has been observed over multiple years within this unit, most recently in 2009. The species was not detected during 2012 or 2013 surveys. Both subunits are essential for the conservation of the species, as described below in each subunit description. Additionally, both subunits contain the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and contains a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The dry prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey as good quality prairie (Service 2013, unpubl. geodatabase).

Subunit A: This 38 ac (16 ha) subunit occurs directly north of County Road 10, approximately 2.9 km (1.8 mi) east of the intersection of County Road 10 and Highway 59 and is located in T161N, R46W, Section 33 and T160N, R46W, Sections 4 and 5. Dakota skipper was last observed in 2009 in this subunit, but was not detected during 2012 or 2013 surveys. This subunit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range.

Subunit B: This 224 ac (91 ha) subunit occurs north of County Road 10, Minnesota approximately 4.2 km (2.6 mi) east of the intersection of County Road 10 and Highway 59 and is located in T161N, R46W, Sections 26, 27, 34, and 35. Dakota skipper was last observed in 2009 in this subunit, but was not detected in 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range.

DS Minnesota Unit 14:

Minnesota Unit 14 is 842 ac (341 ha) in Polk County and owned by the Minnesota Department of Natural Resources and includes the Tympanuchus Wildlife Management Area managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife. Located in T149N, R45W, Sections 20, 21, 28, 29 and 33, this unit occurs immediately south of 320 St. SW (County Road 45) and immediately west of 170th Ave SW, and approximately 1.3 km (0.8 mi) east of Minnesota State Highway 102. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for purposes of critical habitat. Dakota skipper was observed in 2000 and 2009, but was not detected during surveys in 2012. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency

throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat and includes a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs dominated by little bluestem and other native grasses. The dry and wet-mesic prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey as fair to excellent quality prairie (Service 2013, unpubl. geodatabase).

DS North Dakota Unit 1: (Corresponds to PS North Dakota Unit 1)

North Dakota Unit 1 is 119 ac (48 ha) in Richland County owned primarily by the U.S. Fish and Wildlife Service (111 ac (45 ha)) and includes a portion of the Hartleben Waterfowl Production Area. Approximately 6 ac (2 ha) is owned by the State of North Dakota, and approximately 2 ac (1 ha) is owned by private individual(s). Located in T130N, R50W, Section 16 and 17, this unit occurs approximately 0.6 km (0.4 mi) north of State Hwy 11, 4 km (2.5 mi) east of County Road 3, and approximately 4.3 km (2.7 mi) west of Hankinson, North Dakota. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for the purposes of critical habitat. The Dakota skipper was recorded in 1995 -1997, but the species was not detected during 2012 or 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs and is dominated by lead plant (*Amorpha canescens*) and native grasses. The prairie habitats in this unit were rated as excellent quality prairie (Royer 1997, p. 18). An abundance of flowering forbs and other prairie dependent butterflies were documented in 2012 (Hubers 2013, Appendix A). This unit may also contain small patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

DS North Dakota Unit 2:

North Dakota Unit 2 is 949 ac (384 ha) in Ransom County is primarily owned by the U.S. Department of Agriculture Forest Service and is part of the Sheyenne National Grasslands (630 ac (255 ha)). The remaining 319 ac (129 ha) is owned by The Nature Conservancy. Located in T133N, R53W, Sections 5, 6, 7, and 8, this unit occurs approximately 4 km (2.5 mi) south of 70th Street, 0.8 km (0.5 mi) east of 144th Avenue, , immediately west of 146th Street and approximately 0.8 km (0.5 mi) north of 74th Street. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Dakota skipper was recorded in 1995 and 2003, but was not detected during the 2012 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The native prairie habitats in this unit are described as fair quality prairie.

DS North Dakota Unit 3:

North Dakota Unit 3 is 319 ac (129 ha) in McHenry County, and is owned by private

individuals (159 ac (64 ha)) and the North Dakota State Land Department (160 ac (65 ha)). Located in 154N, R75W, Sections 8, 9, 16, and 17, this unit occurs approximately 22.8 km (14.2 mi) northeast of Karlsruhe, North Dakota, 9.7 km (6 mi) east of North Dakota State Highway 14, on both sides of 52nd Street and 0.8 km (0.5 mi) west of 13th Avenue. This unit is considered to be occupied – the Dakota skipper was recorded in 1998 and 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily, it contains a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as good to excellent quality native prairies (Royer and Royer 2012, pp. 36 -41). This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical or biological features within DS North Dakota Unit 3 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat, haying management that degrades or eliminates native prairie grasses and flowering forbs, flooding, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, the control of invasive plant species and restoration of native mixed grass prairie plant community structure, and the implementation of late- season haying, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs in areas used for haying.

DS North Dakota Unit 5:

North Dakota Unit 5 is 1,053 ac (426 ha) in McHenry County and is primarily owned by the North Dakota State Land Department (557 ac (225 ha)). Approximately 439 ac (178 ha) is owned by private individuals. The remaining land is owned by the U.S. Fish and Wildlife Service (58 ac (23 ha)). This unit is made up of several parts located within T154N, R76W, Sections 4, 5, 8, 9, 14, 15, 16, 17, 21, 28, 29, 32, and 33; and T155, R76W, Sections 32. This unit occurs approximately 12.6 km (7.8 mi) northeast of Karlsruhe, North Dakota, on both sides of North Dakota State Highway 14 and 1.6 km (1.0 mi) north of 48th Street. This unit is considered to be occupied -- Dakota skipper was last observed in 2012 at five sites located within this unit. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily high quality native remnant prairies containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as fair to excellent quality (Royer and Royer 2012, pp. 24 and 42). This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical or biological features within DS North Dakota Unit 5 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, past and present haying management that degrades or eliminates native prairie grasses and flowering forbs, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native mixed grass prairie plant community structure, and the implementation of late-season haying, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs in areas used for haying.

DS North Dakota Unit 6:

North Dakota Unit 6 is 80 ac (33 ha) in McHenry County owned by the North Dakota State Land Department. Located in T157N, R76W, Sections 17 and 18, this unit occurs on both sides of North Dakota State Highway 14, approximately 8.9 km (5.5 mi) west of Willow Road (9th Ave. NE), 0.4 km (0.3 mi) north of 69th St. NE, 0.8 km (0.5 mi) south of 70th Street, and immediately east of 3rd Ave NE. This unit is considered to be occupied – the Dakota skipper has been recorded in 1996, 1997, 1998, and 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described varying habitat of fair to good quality (Royer and Royer 2012, p. 48).

Threats to the physical or biological features within DS North Dakota Unit 6 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat, past and present herbicide or pesticide use, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, and the control of invasive plant species and restoration of native mixed grass prairie plant community structure to result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs in areas used for haying.

DS North Dakota Unit 7:

North Dakota Unit 7 is 280 ac (113 ha) in McHenry County owned by private individuals. Located in T156N, R77W, Sections 30 and 31 and T156N, R78W, Section 25, this unit occurs on both sides of U.S. Highway 2, approximately 2.0 km (1.3 mi) west of Center Avenue N., immediately south of 62nd Street, and immediately east of 2nd Avenue N. This unit is considered to be occupied – the Dakota skipper was observed in 1997, 1998, and 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as fair to good quality prairie (Royer and Royer 2012, p. 45). This unit may also contain small patches of lesser quality native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical or biological features within DS North Dakota Unit 7 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat, past and present haying management that degrades or eliminates native prairie grasses and flowering forbs, flooding, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, the control of invasive plant species and restoration of native mixed grass prairie plant community structure, and the implementation of late- season haying, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs in areas used for haying.

DS North Dakota Unit 8:

North Dakota Unit 8 is 399 ac (161 ha) in McHenry County primarily owned by the North Dakota Land Department (324 ac (131 ha)). The remaining 75 ac (30 ha) is owned by U.S. Fish and Wildlife Service

private individuals. Located in T156N, R78W, Sections 16, 17, 20, and 21, this unit occurs approximately 6.9 mi (11.0 km) northeast of Granville, North Dakota, approximately 3.4 km (2.1 mi) north of U.S. Highway 2, and immediately west of 5th Avenue N., and immediately east of 6th Avenue N. This unit is considered to be occupied – the Dakota skipper was observed at two sites within this unit in 2012, and one of the sites has a record from 1998. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described excellent quality prairie (Royer and Royer 2012, pp. 30 and 33). This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical or biological features within DS North Dakota Unit 8 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; conversion or destruction of native prairie habitat, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, the control of invasive plant species and restoration of native mixed grass prairie plant community structure to result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS North Dakota Unit 9:

North Dakota Unit 9 is 288 ac (117 ha) in Rolette County primarily owned by private individuals (214 ac (87 ha)). The remaining 74 ac (30 ha) is owned by the North Dakota Land Department. Located in T161N, R72W, Sections 3 and 4; and T162N, R72, Sections 33, and 34, this unit occurs on both sides of State Highway 5 (U.S. Hwy 281) approximately 4.8 km (3 mi) east of State Highway 3, and immediately west of 34th Avenue. The Dakota skipper was last recorded in 1996, and no further surveys were done until 2012, when it was not detected. The species was detected in the most recent survey (2014), so we are considering this unit to be occupied. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The dry prairie habitats in this unit are described as fair quality prairie with a prognosis of fair to good (Royer and Royer 2012, p. 69).

Threats to the physical or biological features within DS North Dakota Unit 9 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; conversion or destruction of native prairie habitat, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, the control of invasive plant species and restoration of native mixed grass prairie plant community structure to result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS North Dakota Unit 11:

North Dakota Unit 11 is 633 ac (256 ha) in McKenzie County owned by the U. S. Department of Agriculture Forest Service and is part of the Little Missouri National Grasslands. Located in T153N, R95W, Sections 12 and 13 and T153N, R94W, Sections 7 and 18, this unit occurs 2.2 km (1.4 mi) northeast of State Highway 1806, 10.5 km (6.6 mi) north of State Highway 23, 3.9 km (2.4 mi) south of the shared Williams, Mountrail and McKenzie border, and approximately 2.6 km (1.6 mi) southwest of the Missouri River, which borders McKenzie and U.S. Fish and Wildlife Service

Mountrail counties. This unit is considered to be occupied – Dakota skipper was observed in 2002 and 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as containing “all the requisite flora” and records of other prairie dependent butterflies (Royer 2002, Royer and Royer 2012, p. 57).

Threats to the physical or biological features within DS North Dakota Unit 11 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat; oil and gas development; small size and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, and the control of invasive plant species and restoration of native mixed grass prairie plant community that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS North Dakota Unit 12:

North Dakota Unit 12 is 234 ac (95 ha) in McKenzie County is owned by the U. S. Department of Agriculture Forest Service and is part of the Little Missouri National Grasslands. Located in T153N, R96W, Sections 11 and 12, this unit occurs on both sides of County Road 2, and is approximately 11.6 km (7.2 mi) north of County Road 10, 13.8 km (8.6 mi) northwest of the intersection of State Highway 23 and State Highway 1806, and 2.5 km (1.6 mi) south of the Missouri River, which borders McKenzie and Williams counties. This unit is considered to be occupied – Dakota skipper was observed in 2002 and 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat, primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as containing “all the requisite flora” and records of other prairie dependent butterflies (Royer 2002, pp. 6 -8, 11, Royer and Royer 2012, p. 54).

Threats to the physical or biological features within DS North Dakota Unit 12 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat, oil and gas development; small size and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, and the control of invasive plant species and restoration of native mixed grass prairie plant community structure that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS North Dakota Unit 13:

North Dakota Unit 13 is 727 ac (294 ha) in Ransom County owned by the U.S. Department of Agriculture Forest Service and is part of the Sheyenne National Grasslands. Located in T134N, R53W, Sections 19 and 20, and T134N, R54W, Section 24, this unit occurs immediately north of 70th Street, approximately 0.8 km (0.5 mi) west of 146th Street. This unit is considered to be occupied – Dakota skipper was observed in 2002 and there have been no more recent surveys during the flight period. The habitat suitability was assessed in 2012 (Royer and Royer 2012, p. 96). This unit contains the physical or biological features essential to the

conservation of the Dakota skipper. The unit consists of larval and adult habitat, primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as “fairly typical Dakota Skipper habitat” containing larval food plants, broadleaf flora, and records of other prairie dependent butterflies (Royer and Royer 2012, p. 96).

Threats to the physical or biological features within DS North Dakota Unit 13 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, management that degrades or eliminates native prairie grasses and flowering forbs, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure, and the implementation of late- season haying, rotational fire management, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS South Dakota Unit 1: (Corresponds to PS South Dakota Unit 1)

South Dakota Unit 1 is 348 ac (141 ha) in Marshall County owned by the U.S. Fish and Wildlife Service and part of the Jensen Waterfowl Production Area. Located in T125N, R56W, Sections 27 and 34, this unit occurs approximately 1.6 km (1 mi) south of County Road 16, immediately west of County Road 5 and approximately 0.4 km (0.2 mi) north of the Marshall/Day County line. This unit is considered to be unoccupied by Dakota skipper –the species was observed in 1996, 2002, 2003, and 2005, but the species was not detected in the last four years of surveys (2008 and 2010-2013). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical and biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat: primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as containing an abundance of flowering forbs and native grasses and containing other prairie dependent butterflies (Hubers 2013, p. 4, 63-64; Hubers 2013, pers. comm.). Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs.

DS South Dakota Unit 2: (Corresponds to PS South Dakota Unit 2)

South Dakota Unit 2 is 169 ac (69 ha) in Brookings County owned by the State of South Dakota (South Dakota State University). Located in T112N, R48W, Sections 12 and 13, this unit occurs approximately 2.9 km (1.8 mi) south of the Deuel-Brookings County line, immediately east of 483rd Avenue, and 1.6 km (1 mi) west of 485th Avenue. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Dakota skipper were observed in this unit in 2003 and 2006, but the species was not detected in 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat: primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as good to excellent quality dry- mesic hill prairie (Skadsen 2003, p. 11).

DS South Dakota Unit 3: (Corresponds to PS South Dakota Unit 3 Subunit A)

South Dakota Unit 3 is 516 ac (209 ha) in Deuel County owned by South Dakota Game, Fish and Parks and includes the Crystal Springs Game Production Area. Located in T116N, R49W, Sections 25 and 36, this unit occurs approximately 3.1 km (1.9 mi) southeast of Altamont, South Dakota, 1.6 km (1 mi) east of State Highway 15, and 3.2 km (2 mi) south of County Road 309. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Dakota skipper was last observed in 2003, but was not detected during surveys in 2012 or 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily fair to good quality native prairie containing a diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are rated as fair to good quality dry-mesic hill prairie (Skadsen 2003, p. 18).

DS South Dakota Unit 4: (Corresponds to PS South Dakota Unit 4)

South Dakota Unit 4 is 292 ac (118 ha) in Grant County owned by the U.S. Fish and Wildlife Service. Located in T120N, R51W, Sections 15 and 22, this unit occurs approximately 2.8 km (1.7 mi) south of 149th Street, immediately north of 152nd Street, and 9.0 km (5.6 mi) east of Interstate Highway 29, and includes Myers Lake Waterfowl Production Area. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for purposes of critical habitat. Dakota skipper has been observed over multiple years in this unit, including 1996, 2004 and 2012. The species was not detected in 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. Other prairie butterflies and purple coneflower were documented in 2012 (Hubers 2013, pp. 55-56).

DS South Dakota Unit 5: (Corresponds to PS South Dakota Unit 5)

South Dakota Unit 5 is 119 ac (48 ha) in Deuel County is Federal land owned by the U.S. Fish & Wildlife Service. Located in T114N, R47W, Section 5, this unit occurs approximately 3.2 km (2 mi) south of State Hwy 22 and 3.2 km (2 mi) east of County Road 519. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Dakota skipper was last observed in 2004, but not during surveys in 2012 or 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitat in this unit was described as good quality dry-mesic hill prairie (Skadsen 2004, p. 5). Regal fritillary, other prairie butterflies, and a diversity of flowering forbs were documented in 2012 (Hubers 2013, pp. 27 - 30).

DS South Dakota Unit 6: (Corresponds to PS South Dakota Unit 6)

South Dakota Unit 6 is 31 ac (13 ha) in Roberts County owned by the South Dakota Game, Fish and Parks Department. Located in T122N, R48W, Sections 2 and 3, this unit occurs approximately 0.2 km (0.1 mi) north of State Highway 15 and south of Big Stone River and lies within the Hartford Beach State Park. This unit is considered to be occupied – Dakota skipper was observed at this site every year it was surveyed since 1996 (1996 - 1998, 2000 -2002, 2004-2013). This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit is described as fair to poor dry-mesic hill prairie due to woody succession and the small size (Skadsen 2005, p. 6, Skadsen 2011, p. 1, 2012, p. 1).

Threats to the physical or biological features within DS South Dakota Unit 6 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, past and present fire, grazing, and herbicide use management that management that degrades or eliminates native prairie grasses and flowering forbs, and small size and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Implementation of late- season haying, rotational fire management, or other management regimes and the control of invasive plant species and restoration of native tallgrass prairie plant community that results in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS South Dakota Unit 7: (Corresponds to PS South Dakota Unit 7)

South Dakota Unit 7 is 151 ac (61 ha) in Roberts County is owned by the U.S. Fish and Wildlife Service. This unit includes the Week Waterfowl Production Area. Located in T126N, R52W, Sections 7, 8, 17, and 18, this unit occurs approximately 4.5 km (2.8 mi) north of State Highway 10, 0.4 km (0.3 mi) east of the Roberts-Marshall County border. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Dakota skipper was observed in several sites in this unit over multiple years, most recently in 2012, however the species was not detected during 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit were described as good to excellent quality northern mesic tallgrass and dry-mesic hill prairies (Skadsen 2003, p. 30). Regal fritillary was documented in 2012 and the area was described as containing good flowering forbs and native grasses (Hubers 2013, pp. 59-60).

DS South Dakota Unit 8: (Corresponds to PS South Dakota Unit 8)

South Dakota Unit 8 is 501 ac (203 ha) in Roberts County is Federal land owned by the U.S. Fish & Wildlife Service. Located in T124N, R52W, Sections 21, 22, 27, and 28, this unit occurs immediately south of 129th Street, 3.9 km (2.4 mi) east of the Roberts-Day county border, and includes the Wike Waterfowl Production Area. This unit is considered to be occupied and has multiple years of adult observations (1995, 1997, 1998, 2002, 2006, 2007, 2012, and 2013), most recently in 2013. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit were described as fair to good quality dry-mesic hill prairies (Skadsen 2003, p. 31) and as varying quality more recently –good to excellent in some areas and poor in

others (Hubers 2013, pp. 45 - 48). Regal fritillary and other prairie butterflies were observed within this unit in 2012 (Hubers 2013, pp. 45 - 48).

Threats to the physical or biological features within DS South Dakota Unit 8 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; past and present fire and grazing management that degrades or eliminates native prairie grasses and flowering forbs, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure, and the implementation of late- season haying, rotational fire management, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS South Dakota Unit 15: (Corresponds to PS South Dakota Unit 15)

South Dakota Unit 15 is 175 ac (71 ha) in Day County and is owned by the South Dakota Game, Fish and Parks Department. Located in T124N, R53W, Sections 26 and 35, this unit occurs approximately 2.2 km (1.4 mi) northeast of the intersection of County Road 6 and County Road 1 (446th Avenue), approximately 1.6 km (1.0 mi) west of the Day-Roberts County line. This unit is considered to be unoccupied – Dakota skipper was recorded in 2008 at one site within this unit, but the species was not detected in the last five survey years (2009-2013). The species was recorded at another site within the unit in 2002, but not in the most recent three surveys in that location. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit vary, and are described as poor to fair to good quality northern wet-mesic tallgrass prairie (Skadsen 2005, p. 8, 2006, p. 13).

DS South Dakota Unit 16: (Corresponds to PS South Dakota Unit 16)

South Dakota Unit 16 is 348 ac (141 ha) in Day County is Federal land owned by the U.S. Fish and Wildlife Service and is part of Waubay National Wildlife Refuge. Located in T123N, R53W, Sections 16, 17, 20, 21, and 29, this unit occurs approximately 1.2 km (0.8 mi) west of County Road 1 (446th Avenue) along the east side of Spring Lake. This unit is considered to be unoccupied – Dakota skipper was recorded in in 1996-1998 and 2002, but the species was not detected in the last five years of surveys (2003-2005, 2009, and 2012). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as fair to good quality dry-mesic hill prairie (Skadsen 2003, p. 17). Regal fritillary was also documented in 2012 and the habitat was described as good with many flowering forbs (Hubers 2013, pp. 57 - 58).

DS South Dakota Unit 17:

South Dakota Unit 17 is 450 ac (182 ha) in Roberts County is Federal land owned by the U.S. Fish and Wildlife Service and includes the Roberts County Waterfowl Production Area.

Located in T122N, R51W, Sections 22, 27, and 28, this unit occurs 0.8 km (0.5 mi) north of South Dakota State Highway 12, immediately west of 460th Avenue, and immediately east of 458th Avenue. This unit is considered to be occupied – Dakota skipper was observed in 2002 and 2012. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit were described as poor to fair quality dry-mesic hill prairie (Skadsen 2003, p. 25). Regal fritillary and other prairie butterflies were observed in 2012 and the habitat was described as variable, having an abundance of flowering forbs and native grasses, with various invasive plants (Hubers 2013, pp. 51-54).

Threats to the physical or biological features within South Dakota Unit 17 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, and past and present grazing management that degrades or eliminates native prairie grasses and flowering forbs. Special management considerations or protection may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure, and the implementation of late- season haying, low-intensity rotational grazing, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

DS South Dakota Unit 18:

South Dakota Unit 18 is 216 ac (88 ha) in Roberts County owned by the U.S. Fish and Wildlife Service and is part of Lake Emma Waterfowl Production Area. Located in T126N, R53W, Section 25 and T126N, R52W, 30, this unit occurs along the Marshall/Roberts County line, immediately north of State Highway 10, 0.4 km (0.3 mi) south of 118th Street, approximately 3.2 km (2 mi) east of 447th Avenue. This unit is considered to be unoccupied for purposes of critical habitat. The Dakota skipper was observed in 2009, but not during surveys in 2011, 2012 and 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. Some, but not many other prairie butterflies (including regal fritillary) and flowering forbs (including purple coneflower) were observed at this site in 2012 (Hubers 2013, pp. 41--42).

DS South Dakota Unit 22:

South Dakota Unit 22 is 133 ac (54 ha) in Brookings County owned by private individuals. Located in T111N, R47W, Sections 19 and 30, this unit occurs approximately 3.9 km (2.4 mi) south of Highway 30 and immediately east of 484th Avenue. This unit is considered to be occupied - Dakota skipper was observed in 2008 and 2009. This unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitat in this unit was described as good quality prairie (Selby 2009b, p. 1).

Threats to the physical or biological features within DS South Dakota Unit 22 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, conversion or destruction of native prairie habitat, past and present grazing

management that degrades or eliminates native prairie grasses and flowering forbs, and small size and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie habitats subject to future conversion to agriculture or other development, , the control of invasive plant species and restoration of native tallgrass prairie plant community structure; and the implementation of late- season haying, low intensity rotational grazing management, or other management regimes that result in native grasses and flowering forbs available and necessary for Dakota skipper life-history needs.

Poweshiek Skipperling (PS)

Descriptions of final critical habitat units, and reasons they meet the definition of critical habitat for Poweshiek skipperling (*Oarisma poweshiek*).

PS Iowa Unit 1:

Iowa Unit 1 is 237 ac (96 ha) in Howard County owned by the State of Iowa and managed by the Iowa Department of Natural Resources. Located in T100N, R13W, Sections 33 and 34, this unit occurs near the northern border of the state of Iowa approximately 8.9 mi (14.3 km) northeast of Riceville, Iowa and 6.3 km (3.9 mi) west of U.S. Highway 63, immediately south of 50th Street, immediately west of Jade Avenue, and on both sides of Ivy Avenue. This unit includes Hayden Prairie, which was designated as a National Natural Landmark in 1966 and was dedicated as a state preserve in 1968. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Adult Poweshiek skipperling were recorded in 1993, 1994, and 2005, but the species was not detected during the 2007 or 2013 survey years (Selby 2010, p. 10; Olsen 2013, p. 2). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality remnant prairie containing a high diversity of native prairie grasses and flowering forbs; 200 native plant species, including larval food plants, such as Prairie dropseed (*Sporobolus heterolepis*), and adult nectar sources have been documented at this site (Selby 2008b, p. xxxii).

PS Iowa Unit 2:

Iowa Unit 2 is 35 ac (14 ha) in Cerro Gordo County, Iowa and is owned and managed by The Nature Conservancy. Located in T 96N, R 22W, Sections 16 and 17, this unit occurs approximately 1.2 km (0.8 mi) west of Dogwood Avenue, immediately north of Hwy 18, and approximately 1.6 km (1 mi) east of Balsam Avenue (N. Main Street). This unit includes the Hoffman Prairie, which was purchased by The Nature Conservancy in 1985 and was dedicated as a biological and geological State Preserve in 1986. Poweshiek skipperling were recorded at one site within this unit in 1994, 2007, and 2008. The last positive observation of the species was in 2008 (Selby 2009c, p. 3), but the species was not observed in the 2009, 2010, or 2013 (Olsen 2013, p. 2) survey years and an expert in the state believes that the species may be extirpated from the site – thus we are considering this unit to be unoccupied. The 2008 record at this site is the most recent record of the species in the state. Previous observations were made in 1993 and 2007 (Selby 2009c, p. 3.). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality remnant wet prairie containing a high diversity of native prairie grasses and flowering forbs; abundant Prairie Dropseed and adult nectar sources have been documented at this site (Selby 2008b, pp. ii-iv, 2009c, p. 3).

PS Iowa Unit 3:

Iowa Unit 3 is 109 ac (44 ha) in Dickinson County, Iowa owned and managed by The Nature Conservancy. Located in T99N, R37W, Section 33, this unit occurs approximately 3.5

km (2.2 mi) southwest of Wahpeton, Iowa, west of the Little Sioux River, approximately 2.1 km (1.3 mi) south of 190th Street, 1.6 km (1 mi) north of 220th Street, and 3.2 km (2 mi) west of State Highway 86. This unit includes The Nature Conservancy's Freda Haffner Kettlehole State Preserve. This unit is considered to be unoccupied; the last positive observation of the species was in 2000, but the species was not observed in 2004, 2005, or 2007 survey years and an expert in the state concurs that the species has been extirpated from the site. Other prairie butterflies were recently observed in this unit (Selby 2008b, p. xv). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality remnant prairie containing a high diversity of native prairie grasses and flowering forbs; abundant adult nectar sources have been documented at this site (Selby 2008b, p. xv). This unit may also contain small patches of lesser quality native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies as well as low wet areas.

PS Iowa Unit 4:

Iowa Unit 4 is 755 ac (306 ha) in Dickinson County, Iowa primarily owned by the State of Iowa and managed by the Iowa Department of Natural Resources (726 ac (294 ha)). The remaining 29 ac (12 ha) is owned by private individuals. Located in T 99N, R37W, Sections 7, 8, 16 and 17; this unit occurs approximately 5.0 km (3.1 mi) northwest of Wahpeton, Iowa and is bisected by the Little Sioux River, approximately 1.7 km (1.1 mi) south of State Highway 9, 1.6 km (1 mi) north of 190th Street, and 3.5 km (2.2 mi) west of State Highway 86. This unit includes Cayler Prairie which was designated as a National Natural Landmark in 1966 and was dedicated as an Iowa State Preserve in 1971. An additional 385 acres of former pasture and cropland to the north and east were purchased by the Iowa Department of Natural Resources in 1998. This unit is considered to be unoccupied. The Poweshiek skipperling was recorded at multiple locations in this unit and over multiple years (1993, 1994, and 2000), but the species was not observed in the 2004, 2005, or 2007 survey years and an expert in the state concurs that the species is either possibly extirpated or presumed extirpated from 4 the sites within this unit. Other prairie Lepidoptera were recently observed in this unit (Selby 2008b, pp. ix - xi). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs; over 200 native prairie plant species have been documented at this site including 35 species of grasses dominated by native big bluestem (*Andropogon gerardi*), Indian grass, little bluestem, muhly grass (*Muhlenbergia capillaris*), and blue grama grass (*Bouteloua gracilis*) (Selby 2008b, pp. ix - xi).

PS Iowa Unit 5:

Iowa Unit 5 consists of 75 ac (30 ha) in Osceola County, Iowa and is owned by private individuals. Located in T100N, R41W, Sections 9, 16, 17, 20, 29, 31, and 32; and T99N, R41W, Section 6; and T99N, R42W, Section 1; this unit occurs immediately south of the Minnesota and Iowa State boundary, and immediately west of State Highway 60. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical

habitat. The last positive observation of the species was in 2007 at one site in this unit, but an expert in the state believes that the species' status at that site and others within this unit is unknown. Iowa Unit 5 contains multiple nearby sites along an 8 km (5 mi) stretch of fairly continuous patches of native prairie habitat between State Highway 60 and the railroad grade. Poweshiek skipperling has been recently recorded at least twice at four of the five sites within the unit – the species was recorded at sites within this unit in 1993, 1994, 2003, 2004, and 2007. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The native prairie habitat was recently rated at two of the sites within Iowa Unit 5; one was rated as high quality and the other as “fairly high quality” (Selby 2008b, pp. 6, xxxvi, xxxvii). Additionally, Iowa Unit 5 also contains the second most-recent record (2007) of the species in the entire state. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, pp. xxxvi-xxxvii). This unit also has patches of lesser quality native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairie.

PS Iowa Unit 6:

Iowa Unit 6 consists of consists of 79 ac (32 ha) in Dickinson County, Iowa is owned by the State of Iowa. Located in T100N, R35W, Sections 14 and 23, this unit occurs 2.9 km (1.8 mi) south of the Jackson County and Dickinson County boundary line, and approximately 0.8 km (0.5 mi) east of 320th Avenue. This unit is considered unoccupied - the last positive observation of the species was in 1993 and the species was not detected in 2007, but an expert in the state believes that the species' status at that site within this unit is possibly extirpated. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The native prairie habitat was recently described as high quality (Selby 2008b, p. xxiii). The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, p. xxiii).

PS Iowa Unit 7:

Iowa Unit 7 consists of consists of 146 ac (59 ha) in Dickinson County, Iowa is owned by the State of Iowa and includes the Garlock Slough Wildlife Management Area. Located in T99N, R37W, Section 35, this unit occurs immediately north of Iowa State Highway 86 and south of Okoboji Boulevard. This unit is considered unoccupied - the last positive observation of the species was in 1994 and the species was not detected in 2007, but an expert in the state believes that the species' status at that site within this unit is possibly extirpated. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The native prairie habitat was not rated recently but described as containing many native prairie grasses and flowering forbs (Selby 2008b, p. xxv). The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, p. xxv).

PS Iowa Unit 8:

Iowa Unit 8 consists of consists of 207 ac (84 ha) in Osceola County, Iowa and is primarily owned by the county (96 ac (39 ha)). The remaining land is owned by private individuals (55 ac (22 ha)) and the Iowa Department of Natural Resources (56 ac (23 ha)). Located in T99N, R40W, Sections 6, 7, and 8; this unit occurs immediately south of the intersection of Sorrell Avenue and 160th Street, and 0.6 km (0.4 mi) north of the intersection of Sorrell Avenue and 170th Street. This unit is considered unoccupied - the last positive observation of the species was in 1994 and the species was not detected in 2007, but an expert in the state believes that the species' status at that site within this unit is possibly extirpated. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The native prairie habitat was recently described as "fairly high quality" (Selby 2008b, p. xxxviii). The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, p. xxxviii).

PS Iowa Unit 9:

Iowa Unit 9 consists of consists of 312 ac (126 ha) in Dickinson County, Iowa is primarily owned by private individuals (192 ac (78 ha)). The remaining 121 ac (49 ha) is owned by the State of Iowa. Located in T100N, R37W, Section 12, and T100N, R36W, Section 7, this unit occurs immediately south of the Minnesota and Iowa State line and approximately 1.6 km (1 mi) east of Iowa State Highway 86. This unit is considered unoccupied - the last positive observation of the species was in 1993 and the species was not detected in 2007, but an expert in the state believes that the species' status at that site within this unit is possibly extirpated. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The native prairie habitat was recently described as high quality (Selby 2008b, p. viii). The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, p. viii).

PS Iowa Unit 10:

Iowa Unit 10 consists of consists of 139 ac (56 ha) in Kossuth County, Iowa and is owned by private individuals. Located in T95N, R29W, Section 31, this unit occurs immediately east of the 70th Avenue and approximately 5.6 km (3.5 mi) north of 130th Street. This unit is considered unoccupied - the last positive observation of the species was in 1994 and the species was not detected in 2007 or 2013 and an expert in the state believes that the species' status at that site within this unit is possibly extirpated. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The native prairie habitat was recently described as high quality (Selby 2008b, p. xxxiii). The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, p. xxxiii).

PS Iowa Unit 11:

Iowa Unit 11 consists of 272 ac (110 ha) in Emmet County, Iowa is owned by the State of Iowa and includes the Anderson Prairie Complex Wildlife Management Area. Located in T100N, R34W, Sections 28 and 33, this unit occurs immediately east of the 360th Avenue and approximately 0.8 km (0.5 km) north of County Road A20. This unit is considered unoccupied - the last positive observation of the species was in 1994 and the species was not detected in 2007, but an expert in the state believes that the species' status at that site within this unit is possibly extirpated. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The quality of the native prairie habitat was not recently rated, but numerous flowering forbs and abundant Prairie Dropseed were recently recorded at the site (Selby 2008b, p. xxviii). The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs (Selby 2008b, p. xxviii).

PS Michigan Unit 1:

Michigan Unit 1 is 25 ac (10 ha) in Oakland County owned by the State of Michigan Department of Natural Resources and is part of the Holly State Recreation Area managed by the Michigan Department of Natural Resources Parks and Recreation Division. Located in T5N, R8E, and Section 12, this subunit occurs east of N. Brandt Road, approximately 0.8 km (0.5 mi) south of Groveland Road, 1.1 km (0.7 mi) west of State Highway 15, and immediately north of Perryville Road, approximately 1.3 km (0.8 mi) west of Ortonville, Michigan. This unit is considered to be occupied and has had recent adult observations over multiple years (2005-2013). This unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a good quality prairie fen with a high diversity of native prairie grasses and flowering forbs and is dominated by little bluestem and mat muhly (*Muhlenbergia richardsonis*). This unit contains prairie fen habitat that has been recently (2011) rated by the Michigan Natural Features Inventory as good to fair quality and having excellent population viability (Service 2013, unpubl. geodatabase).

Threats to the physical or biological features within PS Michigan Unit 1 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; groundwater depletion, alteration, and contamination; and small size and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie fen habitats and surrounding lands that influence fen hydrology that are subject to future conversion to development, the control of invasive plant species, and restoration of native prairie fen plant community structure that results in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS Michigan Unit 2:

Michigan Unit 2 is 66 ac (27 ha) in Oakland County and is primarily owned and managed by the Michigan Department of Natural Resources Parks and Recreation Division (51 ac (21 ha)). The remaining 15 ac (6 ha) is owned by private individuals. Located in T5N, R7E, and Section 25, and T5N, R8E, and Sections 30 and 31, this subunit occurs southwest of Interstate 75 on both sides of Worden Road, approximately 0.6 km (0.4 mi) north of East Holly Road. This unit is considered to be occupied and has had recent adult observations over multiple years – in 2005, 2007, 2008, and 2012. This unit contains the physical or biological features

essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a good quality prairie fen with a high diversity of native prairie grasses and flowering forbs. The fen is dominated by mat muhly, tussock sedge (*Carex stricta*), bluejoint reedgrass (*Calamagrostis canadensis*) shrubby cinquefoil (*Dasiphora fruticosa*), black-eyed Susan (*Rudbeckia hirta*), and other native plant species. This unit contains a good quality prairie fen habitat that has been recently rated by the Michigan Natural Features Inventory as fair quality habitat having fair to good population viability (Service 2013, unpubl. geodatabase).

Threats to the physical or biological features within PS Michigan Unit 2 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, groundwater depletion, alteration, and contamination, and small size and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie fen habitats and surrounding lands that influence fen hydrology that are subject to future conversion or development, the control of invasive plant species and restoration of native prairie fen plant community structure that results in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS Michigan Unit 3:

Michigan Unit 3 is 394 ac (159 ha) in Oakland County is primarily owned by private individuals (270 ac (109 ha)). The Springfield Township Park and Recreation Office owns approximately 92 ac (37 ha), which is part of the Shiawassee Basin Nature Preserve, 27 ac (11 ha) is owned by the Michigan Metro Girl Scouts, and the remaining 5 ac (2 ha) is owned by the Michigan Nature Association. Located in T4N, R8E, Sections 7, 8, 17, and 18 and T4N, R7E, Sections 1 and 12, this subunit occurs 2.0 km (1.3 mi) southwest of Interstate 75 and immediately north of the railroad tracks, primarily between Rattalee Lake Road and Davisburg/Broadway Road. This unit is considered to be occupied and contains three sites with recent adult observations over multiple years (2005 – 2013). This unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a high quality prairie fen with a high diversity of native prairie grasses and flowering forbs. The prairie fen and surrounding wetlands contain over 100 documented plant species, dominated by mat muhly and other fen species including shrubby cinquefoil, little bluestem, tussock sedge, Kalm's lobelia (*Lobelia kalmii*), and others. The majority of this unit consists of a prairie fen habitat that has been recently (2011) rated by the Michigan Natural Features Inventory as excellent habitat and excellent viability and is considered to be the stronghold for Poweshiek skipperling in the state of Michigan (Service 2013, unpubl. geodatabase). This unit also contains at least one other prairie fen with a habitat rating of fair to good, but where the species was not found during the most recent survey year.

Threats to the physical or biological features within PS Michigan Unit 3 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation, past and present fire management that degrades or eliminates native prairie grasses and flowering forbs, conversion or destruction of native prairie habitat, groundwater depletion, alteration, and contamination, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie fen habitats and surrounding lands that influence fen hydrology that are subject to future conversion or development, and the control of invasive plant species and restoration of native prairie fen plant community structure that results in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS Michigan Unit 4:

Michigan Unit 4 is 256 ac (104 ha) in Oakland County primarily owned by private individuals (147 ac (59 ha)). The remaining 109 ac (44 ha) is owned by the Michigan Nature Association. Located in T4N, R7E, and Sections 22, 27, 28, 33, this unit occurs approximately 0.6 km (0.4 mi) west of Milford Road, 1.7 km (1 mi) north of White Lake Road, immediately south of Demode Road, north of Knobby View Drive, and west of the railroad tracks. This unit is considered to be occupied and has had recent adult observations (2007- 2013). This unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a good quality prairie fen with a high diversity of native prairie grasses and flowering forbs. The prairie fen is surrounded by wetlands, dry mesic prairie, oak forest and old fields. This unit contains prairie fen habitat has been rated by the Michigan Natural Features Inventory (2011) as good quality habitat having good population viability. This unit may also contain small patches of lesser quality (or unrated) native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical or biological features within PS Michigan Unit 4 include but are not but are not limited to: ecological succession and encroachment of invasive species and woody vegetation, lack of management; conversion or destruction of native prairie habitat, groundwater depletion, alteration, and contamination, and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie fen habitats and surrounding lands that influence fen hydrology that are subject to future conversion or development, and the control of invasive plant species and restoration of native prairie fen plant community structure, and the implementation of rotational fire management, or other management regimes that result in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS Michigan Unit 5:

Michigan Unit 5 is 23 ac (10 ha) in Livingston County and is owned by private individuals. Located in T3N, R6E, Section 23, this unit occurs along the eastern edge of Bullard Lake located approximately 0.6 km (0.4 mi) north of State Highway 59 and immediately west of Fenton Road. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperlings were observed in 2007, but the species was not found in the two most recent survey years (2008 or 2009). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a good quality prairie fen with a high diversity of native prairie grasses and flowering forbs; the fen is dominated by sedges (*Carex* spp.) and tamarack (*Larix laricina*). This unit contains prairie fen habitat that has been recently (2011) rated by the Michigan Natural Features Inventory as a good –fair quality fen habitat (Service 2013, unpubl. geodatabase).

PS Michigan Unit 6:

Michigan Unit 6 is 257 ac (104 ha) in Washtenaw County primarily owned by Washtenaw County Parks Commission (120 ac (48 ha)) and Michigan Department of Natural Resources (106 ac (43 ha)). Approximately 25 ac (10 ha) is owned by private individuals and the remaining 6 ac (3ha) is owned by Washtenaw County. Located in T1S, R3E, Section 15, 16, and 22, this unit occurs approximately 1 km (0.6 mi) east of State Highway 52, immediately

grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS Michigan Unit 8:

Michigan Unit 8 is 363 ac (147 ha) in Jackson County and Hillsdale County owned primarily by private individuals (312 ac (126 ha)) and the remaining 50 ac (20 ha) is owned by The Nature Conservancy. Located in T5S, R1W, and Sections 5 and 6 and T4S, R1W, Sections 29, 30, 31, and 32, this unit is located approximately 1.1 km (0.7 mi) north of Highway 12, 4.2 km (2.6 mi) west of S. Jackson Road, and 0.2 km (0.1 mi) south of West Liberty Road. This unit has had multiple years of adult observations (2007- 2012), but the species was not observed in 2013 surveys. We are uncertain of the occupancy of this unit, but are analyzing it as unoccupied for the purpose of critical habitat. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a high quality prairie fen with a high diversity of native prairie grasses and flowering forbs. At least 89 plant species have been documented on the fen including black-eyed Susan and shrubby cinquefoil. This unit contains prairie fen habitat which has been recently (2011) rated by the Michigan Natural Features Inventory as excellent habitat having excellent population viability (Service 2013, unpubl. geodatabase). The prairie fen habitats in this unit likely comprise the largest undisturbed fen complex in Michigan. This unit may also contain small patches of lesser or unrated quality native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

PS Michigan Unit 9:

Michigan Unit 9 is 34 ac (14 ha) in Jackson County is owned by private individuals. Located in T4S, R1W, and Section 27, this unit is located approximately 0.7 km (0.4 mi) west of S. Jackson Road and 0.7 km (0.4 mi) south of West Liberty Road. This unit is considered to be occupied – the last observation of the species at this site was in 1996, but there have been no subsequent surveys. This unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains a high quality prairie fen with a high diversity of native prairie grasses and flowering forbs. This unit contains prairie fen habitat is not rated by the Michigan Natural Features Inventory, however other prairie fen dependent butterflies have been documented at this location (Service 2013, unpubl. geodatabase; Hosler 2013, pers. comm).

Threats to the physical or biological features within PS Michigan Unit 9 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; conversion or destruction of native prairie habitat; groundwater depletion, alteration, and contamination; past or present grazing management that degrades or eliminates native prairie grasses and flowering forbs; and isolation from other units. Special management considerations or protection may be needed to address these threats include, but are not limited to: Prioritization and protection of native prairie fen habitats and surrounding lands that influence fen hydrology that are subject to future conversion or development, and the control of invasive plant species and restoration of native prairie fen plant community structure; and the implementation of rotational fire management, or other management regimes that result in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS Minnesota Unit 1: (corresponds to DS Minnesota Unit 1)

Minnesota Unit 1 is 1,131 ac (458 ha) in Pope County owned primarily by the State of Minnesota and managed by the State of Minnesota Department of Natural Resources Division of Parks and Recreation (1,011 ac (409 ha)). Approximately 112 ac (45 ha) are owned by private individuals and 8 ac (3 ha) are owned by Pope County. Located in T124N, R39W, Sections 13, 14, 23, 24, and 25; T124N, R38W, Sections 19, 20, 29, and 30,, this unit occurs approximately 2.3 km (1.4 mi) east of the intersection of State Highway 29 and County Road 14 and 7.1 km (4.4 mi) west of County Road 19. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling has been recorded at multiple locations within this unit between 1993 and 2003, but it was not observed in 2012 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes high quality native remnant (untilled) tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs, such as little bluestem grass, Indian grass, purple coneflowers, and prairie clover. This unit includes portions of Glacial Lakes State Park, which was established as a state park in 1963 to preserve the native prairie habitat. The native prairie habitat is rated by the Minnesota Natural Heritage Program County Biological Survey as good quality prairie. Selby (2013, pp. xvi-xvii) did not rate the habitat in 2012 but documented many flowering forbs as well as the presence of regal fritillary and other prairie butterflies.

PS Minnesota Unit 2: (corresponds to DS Minnesota Unit 2)

Minnesota Unit 2 is 846 ac (342 ha) in Murray County owned by private individuals. Located in T105N, R43W, Sections 1, 2, 3, 10, 11, and 12, this unit occurs approximately 0.4 km (0.3 mi) west of Chandler, Minnesota along Chanarambie Creek, and approximately 0.8 km (0.5 mi) east of 30th Ave. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling has been recorded at several locations within this unit and in multiple years (e.g., 1997, 2003, and 2005) – the most recent record of the species in this unit is from 2005. The species was not detected in 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. Portions of the prairie habitat were ranked by Selby (2009a, p. xlii) as fair quality and Dana (2012, pers. comm.) rated a portion of this prairie as fair to good. This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies. Dry hill prairie, wet to wet-mesic prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey as fair to excellent quality prairie. Other portions of the prairie have been ranked as poor quality due to invasive species and lack of management (Selby 2009a, p. xlii) – some of these areas may be suitable for dispersal between higher quality habitats.

PS Minnesota Unit 3: (corresponds to DS Minnesota Unit 3)

Minnesota Unit 3 is 126 ac (51 ha) in Murray County owned by private individuals. Located in T105N, R43W, Section 5 and T106N, R43W, Sections 32, and 33, this unit occurs

along the North Branch of Chanarambie Creek approximately 0.8 km (0.5 mi) south of County Road 5 and 2.4 km (1.5 mi) east of the Pipestone/Murray County line. Poweshiek skipperling was observed within this unit in 1997, 2005, and 2007. This unit is considered to be unoccupied because although the species was last observed in 2007, it was not detected during surveys in 2008, 2012, or 2013. Thus, we are analyzing it as if it were unoccupied for purposes of critical habitat. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes high quality native tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry prairie habitats in this unit are rated by the Minnesota Natural Heritage Program as good to excellent quality prairie. Carney Prairie was described by Selby (2008a, p. xliii) as an “excellent area for prairie butterflies”, and documented other prairie butterfly species at the site in 2008 including regal fritillary and Dakota skipper.

PS Minnesota Unit 4: (corresponds to DS Minnesota Unit 4)

Minnesota Unit 4 is 2,351 ac (952 ha) in Clay County owned primarily by The Nature Conservancy (1,887 ac (763 ha)) and the Minnesota Department of Natural Resources Division of Parks and Recreation (464 ac (188 ha)) and includes the Bluestem Prairie State Natural Area and portions of Buffalo River State Park. Located in T139N, R46W, Sections 10, 11, 14, 15, 16, 22, 23, 26, and 27, this unit occurs approximately 1.6 km (1 mi) east of State Highway 9 and (1.3 km (0.8 mi) south of State Highway 10. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. It has had multiple years of adult observations at several locations within this unit. The most recent records of Poweshiek skipperlings are from 1996 and although there have been no more recent surveys for the species; the species expert in the state assigned a status of unknown to the sites within the unit. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The mesic prairie and dry prairie habitats in this unit are unrated by the Minnesota Natural Heritage Program but are rated as having good to excellent population viability and portions of this unit were mapped as “best” prairie habitat by the Minnesota County Biological Survey (Service 2013, unpubl. geodatabase). A habitat assessment in 2012 at the Bluestem Prairie indicates that this site is a high quality prairie that contains the native prairie flora conducive to the species (Selby 2012, p. 9). The site at Buffalo River State park, which adjoins Bluestem Prairie, has not been surveyed since 1996 but recent habitat assessments show that it still contains prairie habitats with the native prairie flora conducive to the species (MN DNR 2013, unpubl.).

PS Minnesota Unit 5: (a portion corresponds to DS Minnesota Unit 5)

Minnesota Unit 5 is 975 ac (395 ha) in Clay County primarily owned by the State of Minnesota (435 ac (176 ha)). The remainder of this unit is owned by Clay County (404 ac (163 ha)) and by The Nature Conservancy (136 ac (55 ha)). This unit includes the Felton Prairie and Blazing Star State Natural Areas managed by the Minnesota Department of Natural Resources Division of Ecological Resources and The Nature Conservancy. Located in T142N, R45W, Section 31, T141N, R45W, Sections 5, 6, 7, and 8; and T141N, R46W, Section 1; and T142N, U.S. Fish and Wildlife Service 30 Accompanies FR dated October 1, 2015

R46W, Section 36; this unit occurs approximately directly south of County Road 34 (160th Avenue North), 1.6 km (1 mi) west of County Road 27, and 3.2 km (2.0 mi) east of County Road 9. This unit is unoccupied for purposes of critical habitat. The species was last observed in 1995 at two locations within this unit, but the species was not observed during the three most recent surveys at either site. This unit also contains at least 2 historical locations of the species where other prairie dependent butterflies (e.g., Dakota skipper and regal fritillary) have been observed more recently (Selby 2013, p. iii). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and contains high quality native remnant tallgrass prairies containing a high diversity of native prairie grasses and flowering forbs. The mesic prairie, wet prairie and dry prairie habitats in this unit are described as fair to excellent quality (Selby 2009a, Appendix 4 and 5, pp. iii -v; MNDNR Rare Features Database, 2012 unpubl.).

PS Minnesota Unit 6: (corresponds to DS Minnesota Unit 6)

Minnesota Unit 6 is 275 ac (111 ha) in Norman County owned by The Nature Conservancy. This unit includes the Twin Valley Prairie Star State Natural Area managed by The Nature Conservancy. Located in T143N, R45W, Sections 14, 22, and 23, this unit occurs immediately north of County Road 39 and 7.0 km (4.3 mi) west of County Road 32. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling was last recorded in 1994, and although there have been no more recent surveys for the species; the species expert in the state assigned a status of unknown to the sites within the unit. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes a high quality native tallgrass remnant prairie containing a high diversity of native prairie grasses and flowering forbs dominated by native grasses. The wet prairie and wet-mesic prairie habitats in this unit were rated by the Minnesota Natural Heritage Program County Biological Survey in 2009 as good to excellent quality prairie and the dry prairie habitats in this unit are ranked as fair to fair-good with moderate plant diversity and invasion of smooth brome (Service 2013, unpubl. geodatabase).

PS Minnesota Unit 7: (corresponds to DS Minnesota Unit 7 Subunit A)

Minnesota Unit 7 is 1,330 ac (538 ha) occurs approximately 1.6 km (1 mi) south of State Highway 14 and adjacent and on both sides of State Highway 75. Located in T109N, R45W, Sections 17, 18, 19, 20, 30, and 31; T109N, R46W, Section 24; and T108N, R46W, Section 1; this unit includes the Hole in the Mountain and Altona Wildlife Management Areas owned and managed by the Minnesota State Department of Natural Resources Division of Fish and Wildlife (634 ac (257 ha)). The Nature Conservancy owns approximately 566 ac (229 ha), Lincoln County owns 6 ac (2 ha), and the remaining 124 ac (50 ha) is private land. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. There are multiple element occurrences of Poweshiek skipperling within this unit—the most recent observation of the species was in 2005, but the species was not observed during 2012 or 2013 surveys. This unit is essential to the conservation of the species because it provides

habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the species. The unit consists of larval and adult habitat and includes high quality native remnant tallgrass prairies containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie and wet to wet-mesic prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey as fair to good-excellent quality prairies (Service 2013, unpubl. geodatabase). The unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

PS Minnesota Unit 8: (corresponds to DS Minnesota Unit 8)

Minnesota Unit 8 is 321 ac (130 ha) in Pipestone County owned by the State of Minnesota and is part of the Prairie Coteau Scientific and Natural Area managed by the Minnesota Department of Natural Resources Division of Ecological Resources. Located in T108N, R44W, Sections 28, 29, 32, and 33, this unit occurs along the west side of State Highway 23 approximately 3.4 km (2.1 mi) southwest of the intersection of State Highway 23 and County Road 18. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling has been observed over multiple years in this unit, most recently in 2007, but was not observed during 2012 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie and wet prairie habitats in this unit are rated by the Minnesota Natural Heritage Program in 2006 as to excellent quality prairie (Service 2013, unpubl. geodatabase). Selby (2013, pp. x- xi) did not rate the habitat in 2012, but noted the presence native flowering forbs and other prairie butterflies including regal fritillary.

PS Minnesota Unit 9: (corresponds to DS Minnesota Unit 9)

Minnesota Unit 9 is 416 ac (168 ha) in Pipestone County owned by the State of Minnesota and is part of the Terrace Wildlife Management Area managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife. Located in T107N, R44W, Section 31 and T106N, R44W, Section 6, and T106N, R45W, Section 1, this unit occurs immediately south of County Road 69 (131st St) and immediately east of County Road 16. This unit, it is considered to be unoccupied for purposes of critical habitat. The species was recorded at one site in the unit during 2006 surveys, but was not detected during the three most recent (2007, 2008, and 2013) survey years. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie, wet prairie, and prairie meadow habitats in this unit were rated by the Minnesota Natural Heritage Program County Biological Survey in 2006 as good to excellent quality prairies with high native species diversity (Service 2013, unpubl. geodatabase) and was described as low to medium quality with areas of high quality in 2008 (Selby 2009a, Appendix 5, p. xlviii).

PS Minnesota Unit 10: (corresponds to DS Minnesota Unit 10)

Minnesota Unit 10 is 1,865 ac (755 ha) in Swift and Chippewa counties and is primarily owned by The Nature Conservancy (1,226 ac (496 ha)). The unit is partially owned by the State of Minnesota (621 ac (251 ha)) and is part of the Lac Qui Parle Wildlife Management Area managed by the Minnesota Department of Natural Resources Division of Fish and Wildlife. The remaining 19 ac (8 ha) is owned by private individuals. Located in T119N, R43W, Sections 1, 2, 3, 11, 12, 13, and 24; T118N, R42W, Section 18; and T120N, R43W, Sections 34, 35, and 36, this unit occurs approximately 1.8 km (1.3 mi) west of Highway 59/7 along the Swift/Chippewa County line, approximately 3.2 km (2 mi) south of Appleton, Minnesota. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. There are multiple element occurrences of Poweshiek skipperling in this unit in multiple locations and years, however the last of the species was in 1997, and it was not detected in the most recent surveys (2012). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes a high quality native remnant tallgrass prairie containing a high diversity of native prairie grasses and flowering forbs. The dry hill prairie, wet prairie, and prairie meadow habitats in this unit were rated by the Minnesota Natural Heritage Program County Biological Survey as good to excellent quality prairies with high native species diversity (Service 2013, unpubl. geodatabase).

PS Minnesota Unit 11:

Minnesota Unit 11 consists of 477ac (193 ha) in Wilkin County primarily owned by The Nature Conservancy (455 ac (184 ha)). The remaining 22 ac (9 ha) is owned by private individuals. This unit includes the Western Prairie North Scientific Natural Area. Located in T136N, R45W, Sections 16, 17, and 21, this unit occurs on both sides of County Road 188 immediately south of Township Road 275, approximately 1.3 km (0.8 mi) east of Minnesota State Highway 52. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1994, but was not detected during surveys in 2012. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The mesic and wet-mesic prairie habitats in this unit are rated by Schlicht and Saunders (1994) as good quality prairie. The habitat in this unit was not rated in 2012, but Selby (2013, p. xxii) noted the presence of flowering native forbs such as black-eyed Susan, purple prairie clover, and others as well as the presence of regal fritillary and 2 unidentified prairie skippers. This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

PS Minnesota Unit 12:

Minnesota Unit 12 consists of 274 (111 ha) in Lyon County owned by State of Minnesota Department of Natural Resources Division of Fish and Wildlife and is part of the Prairie Marshes Wildlife Management Area. Located in T110 N, R 43W, and Sections 1 and 2, and T111N, R43W, Sections 35 and 36, this unit occurs approximately 0.8 km (0.5 mi) north of U.S. Fish and Wildlife Service

the intersection of 160th Avenue and 210th Street and 0.6 km (0.4 mi) west of the intersection of 170th Avenue and 220th Street and 1.9 km (1.2 mi) south of County Road 4. This unit is considered unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1994, but was not detected during surveys in 1996, 2012, or 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The mesic prairie habitat in the northern part of this unit were described as good and the southern portions were described as drier and of mixed quality (Selby 2009a, Appendix 4, p. xxxvi). Selby (2009a, Appendix 4, p. xxxvi) noted the presence of regal fritillary in 2007.

PS Minnesota Unit 13:

Minnesota Unit 13 consists of 765 ac (310 ha) in Lac Qui County primarily owned by The Nature Conservancy (677 ac (274 ha)). The remaining land is owned by private individuals (71 ac (29 ha)) and by the Minnesota Department of Natural Resources Division of Fish and Wildlife (17 ac (7 ha)). This unit includes the Pyramid Wildlife Management Area. Located in T120N, R45W, and Sections 11, 13, 14, and 15, this unit occurs immediately east of State Highway 75 and 4.8 km (3 mi) north of County Road 34. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1995 and 1996, but was not detected during surveys in 2012. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The wet-mesic prairie habitats in this unit were described as good to excellent quality Poweshiek skipperling habitat (Dana 2013 pers. comm.). This unit may also contain small patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

PS Minnesota Unit 14:

Minnesota Unit 14 consists of 90 ac (36 ha) in Douglas County that is owned by The Nature Conservancy. Located in T127N, R40W, and Sections 7 and 18, this unit occurs approximately 0.2 km (0.1 mi) east of Sandy Hill Road and approximately 1 km (0.6 mi) north of Minnesota State Highway 55. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1993 and 1994, but was not detected during surveys in 2012. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The mesic prairie habitats in this unit were described as good quality (Dana 2013 pers. comm.).

PS Minnesota Unit 15:

Minnesota Unit 15 consists of 1,369 ac (554 ha) in Mahnomen County that is owned by the State of Minnesota Department of Natural Resources and includes portions of Wambach Wildlife Management Area (WMA) and Santee State Natural Area (SNA). Located in T145N, R41W, and Sections 6 and 7, T145N, R42W, Sections 1, 11, and 12, T146N, R41W, Section 31, and T146N, R42W, Section 36, this unit occurs approximately 1.3 km (0.8 mi) east of State Highway 59 and 3.2 km (2 mi) south of County Road 1. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1993, but was not detected during surveys in 2012. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in Wambach WMA were described as good in 2012 (Runquist 2012, pp. 15- 16) and the Santee SNA was described as good quality by the Minnesota County Biological Survey (Service 2013, unpubl. geodatabase).

PS Minnesota Unit 16:

Minnesota Unit 16 consists of 239 ac (97 ha) in Cottonwood County that is owned by the State of Minnesota Department of Natural Resources. Located in T105N, R37W, Section 6, and T105N, R38W, Sections 1 and 12, this unit occurs immediately east of 360th Avenue and approximately 0.8 km (0.5 mi) south of 380th Street and 2.4 km (1.5 mi) south of County Road 13. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1993, but was not detected during surveys in 2008. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit was described as good quality (Selby 2009a, Appendix 4, p. vi) and described by Dana (2013, pers. comm.) as predominantly wet prairie in good to excellent condition.

PS Minnesota Unit 17:

Minnesota Unit 17 consists of 431 ac (174 ha) in Pope County that is owned by The Nature Conservancy. Located in T123N, R36W, Sections 19, 29, and 30, this unit occurs immediately east of State Highway 104 and approximately 2.4 km (1.5 mi) north of Pope/Kandiyohi County line. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1994, the site was not surveyed during the flight season in 2012, and the species expert in the state has determined the status of the site within this unit to be unknown. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit was

described as good quality rolling dry-mesic and mesic prairie with some wet prairie and wet meadow (Runquist 2012, p. 24; Dana 2013, pers. comm.).

PS Minnesota Unit 18:

Minnesota Unit 18 consists of 466 ac (189 ha) in Clay County that is owned by The Nature Conservancy and includes Audubon Prairie Preserve. Located in T139N, R45W, Sections 31 and 32; and T138N, R45W, Section 5, this unit occurs approximately 7.0 km (4.3 mi) east of State Highway 9 and approximately 4 km (2.5 mi) north of 90th Avenue South. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Poweshiek skipperling was last observed in 1994, the species was not detected in 2012. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are unrated, but Selby (2013, p. 1) noted the presence of pale purple coneflower and other flowering native forbs as well as the presence of regal fritillary and other prairie butterflies.

PS Minnesota Unit 19 (corresponds to DS Minnesota Unit 13):

Minnesota Unit 19 is comprised of two subunits totaling 263 ac (106 ha) in Kittson County owned by the State of Minnesota and is part of the Lake Bronson State Park managed by the Minnesota Department of Natural Resources Division of Parks and Recreation. Located in T161N, R46W, Sections 26, 27, 33, 34, and 35 and T160N, R46W, Sections 4 and 5, this unit occurs north of Minnesota County Road 10, approximately 2.9 km (1.8 mi) east of the intersection of County Road 10 and Highway 59. The two sub-units are approximately 0.6 km (0.4 mi) apart, separated primarily by forested land or shrub-land. This unit is considered unoccupied and the Poweshiek skipperling has been observed within this unit but was not observed during surveys in 2000, 2009, 2012, and 2013. This unit contains the physical and biological features essential to the conservation of the Poweshiek skipperling. In addition, the unit consists of larval and adult habitat and contains a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The dry prairie habitats in this unit are rated by the Minnesota Natural Heritage Program County Biological Survey as good quality prairie (Service 2013, unpubl. geodatabase).

Subunit A: This 38 ac (16 ha) subunit occurs immediately north of Minnesota County Road 10, approximately 2.9 km (1.8 mi) east of the intersection of County Road 10 and Highway 59 and is located in T161N, R46W, Section 33 and T160N, R46W, Sections 4 and 5. Poweshiek skipperling was last observed in YEAR in this subunit.

Subunit B: This 224 ac (91 ha) subunit occurs approximately 0.5 km (0.3 mi) north of Minnesota County Road 10, approximately 4.2 km (2.6 mi) east of the intersection of County Road 10 and Highway 59 and is located in T161N, R46W, Sections 26, 27, 34, and 35. Poweshiek skipperling was last observed in YEAR in this subunit.

PS Minnesota Unit 20:

Minnesota Unit 20 consists of 2,751 ac (1,113 ha) in Polk County, Minnesota. Approximately 2,422 ac (980 ha) is owned and managed primarily by the Minnesota State Department of Natural Resources and includes the Chicog Wildlife Management Area. The U.S. Fish and Wildlife Service

remaining 328 ac (135 ha) is owned by the U.S. Fish and Wildlife Service and is part of the Melvin Slough Wildlife Management Area. Located in T148N, R45W, Sections 19, 20, 21, 22, 27, 28, 29, 30, 32, 33, and 34; and T147N, R45W, Sections 4 and 5, this unit occurs 1.1 km (0.7 mi) west of the intersection of Minnesota State Highway 102 and County Road 41, and is 4.8 km (3.0 mi) north of County Road 1. This unit is considered to be occupied and has had recent adult observations over multiple years (2004-2007, and 2013). This unit contains the physical and biological features essential to the conservation of the Poweshiek skipperling. This unit consists of larval and adult habitat; and contains a high quality native mesic prairie with a high diversity of native prairie grasses and flowering forbs, including little bluestem, black-eyed Susan, and prairie clover.

Threats to the physical and biological features within Minnesota Unit 20 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; and small size and isolation from other units. Special management considerations or protection that may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure that result in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

PS North Dakota Unit 1: (Corresponds to DS North Dakota Unit 1)

North Dakota Unit 1 is 119 ac (48 ha) in Richland County owned primarily by the U.S. Fish and Wildlife Service (111 ac (45 ha)) and includes a portion of the Hartleben Waterfowl Production Area. Approximately 6 ac (2 ha) is owned by the State of North Dakota and 2 ac (1 ha) is owned by private individual(s). Located in T130N, R50W, Section 16 and 17, this unit occurs approximately 0.6 km (0.4 mi) north of State Hwy 11, 4 km (2.5 mi) east of County Road 3, and approximately 4.3 km (2.7 mi) west of Hankinson, North Dakota. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling was recorded at three sites within this unit, most recently in 1997. Only one of those sites has been resurveyed more recently – Poweshiek skipperling was not detected at the site surveyed in 2012 or 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs and is dominated by leadplant and native grasses. The prairie habitats in this unit were rated as excellent quality prairie (Royer 1997, p. 18). An abundance of flowering forbs and other prairie dependent butterflies were documented in 2012 (Hubers 2013, Appendix A). This unit also has patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies.

PS North Dakota Unit 2:

North Dakota Unit 2 is 47 ac (19 ha) in Richland County owned by the U.S. Fish and Wildlife Service and includes the Biggs Waterfowl Production Area. Located in T129N, R50W, Sections 13 and 14, this unit occurs on approximately 1.6 km (1 mi) east of 166th Street, 5.1 km (3.1 mi) west of Interstate Highway 29, and 0.8 km (0.5 mi) south of 98th Street. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling was last observed in 1997, but was not detected during 2012 and 2013 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation

principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat and includes a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs dominated by leadplant and native grasses. The native prairie habitats in this unit are described as good quality prairie (Askertooth 2013, pers. comm.).

PS South Dakota Unit 1: (Corresponds to DS South Dakota Unit 1)

South Dakota Unit 1 is 348 ac (141 ha) in Marshall County owned by the U.S. Fish and Wildlife Service and part of the Jensen Waterfowl Production Area. Located in T125N, R56W, Sections 27 and 34, this unit occurs approximately 1 mi (0.6 km) south of County Road 16, immediately west of County Road 5 and approximately 0.4 km (0.2 mi) north of the Marshall/Day County line. This unit is considered to be unoccupied by Poweshiek skipperling – the last observation of the species was in 2008, but the species was not detected in 2012 or 2013 and the species expert in the state thinks the species may be extirpated from the site. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as containing an abundance of flowering forbs and native grasses and containing other prairie dependent butterflies (Hubers 2013, p. 4, 63-64; Hubers 2013, pers. comm.).

PS South Dakota Unit 2: (Corresponds to DS South Dakota Unit 2)

South Dakota Unit 2 is 169 ac (69 ha) in Brookings County owned by the State of South Dakota (South Dakota State University). Located in T112N, R48W, Sections 12 and 13, this unit occurs approximately 2.9 km (1.8 mi) south of the Deuel-Brookings County line, immediately east of 483rd Avenue, and 1.6 km (1 mi) west of 485th Avenue. We are uncertain of the occupancy within this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. Adult Poweshiek skipperlings were recorded during 2006 surveys in this unit but the species was not detected during 2013 surveys. Surveys conducted in 2012 were at the incorrect location (Service 2013, unpubl. geodatabase). This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat: primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as good to excellent quality dry-mesic hill prairie (Skadsen 2003, p. 11).

PS South Dakota Unit 3: (Subunit A corresponds to DS South Dakota Unit 3)

South Dakota Unit 3 is comprised of two subunits totaling 672 ac (272 ha) in Deuel County owned primarily by the South Dakota Game, Fish and Parks and includes the Crystal Springs Game Production Area. Located in T116N, R49W, Sections 25 and 36, and in T115N, R48W, Section 6, this unit occurs approximately 1.9 mi (3.1 km) southeast of Altamont, South Dakota, 1.6 km (1 mi) east of State Highway 15, immediately west of County Road 8, and 3.2 km (2 mi) south of County Road 309. Subunit A is 1 km (0.7 mi) northeast from subunit B. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for

purposes of critical habitat. The species was last observed in sub-unit A in 2003 and in sub-unit B in 2005, but was not detected in either subunit during 2012 surveys, nor in subunit A in 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily fair to good quality native prairie containing a diversity of native prairie grasses and flowering forbs. This unit also has lesser quality native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies. The prairie habitats in this unit are rated as fair to good quality dry-mesic hill prairie (Skadsen 2003, p. 18).

Subunit A: This 516 ac (209 ha) subunit owned by South Dakota Game, Fish and Parks and includes the Crystal Springs Game Production Area. Located in T116N, R49W, Sections 25 and 36, this subunit occurs approximately 3.1 km (1.9 mi) southeast of Altamont, South Dakota, 1.6 km (1 mi) east of State Highway 15, and 3.2 km (2 mi) south of County Road 309. This subunit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this subunit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily fair to good quality native prairie containing a diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are rated as fair to good quality dry-mesic hill prairie (Skadsen 2003, p. 18).

Subunit B: This 157 ac (63 ha) subunit is owned by The Nature Conservancy. Located in T115N, R48W, Section 6, this subunit occurs immediately west of County Road 8, and approximately 5.6 km (3.5 mi) south of County Road 309. This subunit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this subunit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The subunit consists of larval and adult habitat; primarily fair to good quality native prairie containing a diversity of native prairie grasses and flowering forbs. This subunit also may contain patches of lesser quality or unrated native prairie or dispersal grassland habitat that is within 1 km (0.6 mi) of native high quality prairie that connects patches of higher quality native prairies. The prairie habitats in parts of this unit on the TNC lands are described as tallgrass prairie with abundant native grass and flowering forbs. Regal fritillaries were documented in 2012 (Skadsen 2012, p. 4). The remaining land is within the estimated dispersal distance (1 km (0.6 mi)) of the species and is described as high quality wet- prairie with prairie fens that contains native grasses and flowering forbs (Service 2013, unpubl. geodatabase).

PS South Dakota Unit 4: (Corresponds to DS South Dakota Unit 4)

South Dakota Unit 4 is 292 ac (118 ha) in Grant County owned by the U.S. Fish and Wildlife Service. Located in T120N, R51W, Sections 15 and 22, this unit occurs approximately 2.8 km (1.7 mi) south of 149th Street, immediately north of 152nd Street, and 9.0 km (5.6 mi) east of Interstate Highway 29, and includes Myers Lake Waterfowl Production Area. This unit is considered to be unoccupied for purposes of critical habitat. The Poweshiek skipperling was last observed in 1997, but was not detected during surveys in 2004, 2012, or 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations

of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit were described as good quality dry-mesic hill prairie (Skadsen 2004, p. 5). Dakota skipper, other prairie butterflies, and purple coneflower were documented in 2012 (Hubers 2013, pp. 55-56).

PS South Dakota Unit 5: (Corresponds to DS South Dakota Unit 5)

South Dakota Unit 5 is 119 ac (48 ha) in Deuel County is Federal land owned by the U.S. Fish & Wildlife Service. Located in T114N, R47W, Section 5, this unit occurs approximately 3.2 km (2 mi) south of State Hwy 22 and 3.2 km (2 mi) east of County Road 519. We are uncertain of the occupancy of this unit, and thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling was last observed in 2004, but not during surveys in 2012 or 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Dakota skipper. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitat in this unit was described as good quality dry-mesic hill prairie (Skadsen 2004, p. 5). Regal fritillary, other prairie butterflies, and a diversity of flowering forbs were documented in 2012 (Hubers 2013, pp. 27 - 30).

PS South Dakota Unit 6: (Corresponds to DS South Dakota Unit 6)

South Dakota Unit 6 is 31 ac (13 ha) in Roberts County owned by the South Dakota Game, Fish and Parks Department. Located in T122N, R48W, Sections 2 and 3, this unit occurs approximately 0.2 km (0.1 mi) north of State Highway 15 and south of Big Stone River and lies within the Hartford Beach State Park. This unit is considered to be unoccupied – the Poweshiek skipperling was last observed in 2002 and 2005, but was not observed in the seven most recent survey years at this site. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a good quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit is described as fair to poor dry-mesic hill prairie due to woody succession and the small size (Skadsen 2005, p. 6, Skadsen 2011, p. 1, 2012, p. 1).

PS South Dakota Unit 7: (Corresponds to DS South Dakota Unit 7)

South Dakota Unit 7 is 151 ac (61 ha) in Roberts County is owned by the U.S. Fish and Wildlife Service. This unit includes the Weeks Prairie Waterfowl Production Area. Located in T126N, R52W, Sections 7, 8, 17, and 18, this unit occurs approximately 4.5 km (2.8 mi) north of State Highway 10, 0.4 km (0.3 mi) east of the Roberts-Marshall County border. This unit is considered to be unoccupied for purposes of critical habitat. The Poweshiek skipperling was last observed at one site in this unit in 2006, but not in the most recent 2 surveys. The species was last observed at another site in this unit in 2003, but not in surveys conducted in 2012. The species was not observed in 2013. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the U.S. Fish and Wildlife Service

conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit were described as good to excellent quality northern mesic tallgrass and dry-mesic hill prairies (Skadsen 2003, p. 30). Dakota skipper and regal fritillary were documented in 2012 and the area was described as containing good flowering forbs and native grasses (Hubers 2013, pp. 59 - 60).

PS South Dakota Unit 8: (Corresponds to DS South Dakota Unit 8)

South Dakota Unit 8 is 501 ac (203 ha) in Roberts County is owned by the U.S. Fish & Wildlife Service. Located in T124N, R52W, Sections 21, 22, 27, and 28, this unit occurs approximately immediately south of 129th St., 3.9 km (2.4 mi) east of the Roberts-Day county border, and includes the Wike Waterfowl Production Area. This unit is considered to be unoccupied – Poweshiek skipperling were last observed in 2006, but the species was not detected during the last five years that the site was surveyed. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit were described as fair to good quality dry-mesic hill prairies (Skadsen 2003, p. 31) and described as varying quality more recently –good to excellent in some areas and poor in others (Hubers 2013, pp. 45 - 48). Dakota skipper, regal fritillary, and other prairie butterflies were observed within this unit in 2012 (Hubers 2013, pp. 45 - 48).

PS South Dakota Unit 15: (Corresponds to DS South Dakota Unit 15)

South Dakota Unit 15 is 175 ac (71 ha) in Day County and is owned by the South Dakota Game, Fish and Parks Department. Located in T124N, R53W, Sections 26 and 35, this unit occurs approximately 2.2 km (1.4 mi) northeast of the intersection of County Road 6 and County Road 1 (446th Avenue), approximately 1.6 km (1.0 mi) west of the Day-Roberts County line. This unit is considered to be unoccupied, but has had adult observations as recently as 2004. The Poweshiek skipperling was recorded at one site in this unit in 2002 and 2004, but not in the most 8 survey years. The species was recorded at another site within the unit in 2002, but not in the most recent two surveys in that location. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are vary, and are described as poor to fair to good quality northern wet-mesic tallgrass prairie (Skadsen 2005, p. 8, 2006, p. 13).

PS South Dakota Unit 16: (Corresponds to DS South Dakota Unit 16)

South Dakota Unit 16 is 348 ac (141 ha) in Day County is Federal land owned by the U.S. Fish and Wildlife Service and is part of Waubay National Wildlife Refuge. Located in T123N, R53W, Sections 16, 17, 20, 21, and 29, this unit occurs approximately 1.2 km (0.8 mi) west of County Road 1 (446th Avenue) along the east side of Spring Lake. This unit is considered to be

unoccupied – Poweshiek skipperling was recorded in 2002, but the species was not detected in the most recent few years of surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as fair to good quality dry- mesic hill prairie (Skadsen 2003, p. 17). Dakota skipper and regal fritillary were documented in 2012 and the habitat was described as good with many flowering forbs (Hubers 2013, pp. 57 - 58).

PS South Dakota Unit 17:

South Dakota Unit 17 is 198 ac (80 ha) in Moody County owned by The Nature Conservancy. Located in T107N, R50W, Sections 25 and 36, this unit occurs immediately east of 471st Avenue (County Road 77), approximately 1.5 km (1.0 mi) west of Interstate 29 and 1.6 km (1.0 mi) south of 230th Street. We are uncertain of the occupancy of this unit, thus are analyzing it as if it were unoccupied for purposes of critical habitat. The Poweshiek skipperling were observed in 2003 but not during 2012 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit described as good quality northern mesic tallgrass prairie (Skadsen 2003, p. 44) with observations of regal fritillary in 2012 (Skadsen 2012, p. 4).

PS South Dakota Unit 18:

South Dakota Unit 18 is 401 ac (162 ha) of federal land in Marshall County owned by the U.S. Fish and Wildlife Service that includes the North Lamee Waterfowl Production Area. Located in T127N, R56W, Sections 9, 10, 15, and 16, this unit occurs immediately west of 434th Avenue, approximately 0.8 km (0.5 mi) south of 107th Street, and 4.5 km (2.8 mi) north of 111th Street. This unit is unoccupied – Poweshiek skipperling were observed in 2002, 2003, and 2005 but not during 2012 surveys. This unit is essential to the conservation of the species because it provides habitat essential to accommodate populations of the species to meet the conservation principles of redundancy and resiliency throughout the species range. Additionally, this unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. The unit consists of larval and adult habitat; primarily a high quality native remnant prairie containing a high diversity of native prairie grasses and flowering forbs. The prairie habitats in this unit are described as fair to good quality dry- mesic hill prairie (Skadsen 2003, p. 43). Regal fritillary and other prairie butterflies were documented in 2012 and the habitat was described as mixed with an abundance of flowering forbs (Hubers 2013, pp. 37 - 38).

PS Wisconsin Unit 1:

Wisconsin Unit 1 consists of 1,535 ac (621 ha) on the Southern Unit Kettle Moraine State Forest, Wisconsin State Natural Area in Waukesha County, Wisconsin. Approximately 1,515 ac (613 ha) are owned and managed by the Wisconsin Department of Natural Resources. Approximately 11 ac (4 ha) is owned by the Wisconsin Department of Transportation and the remaining 10 ac (4 ha) is owned by private individuals. Located in T5N, R17E, and Sections 3,

4, 8, 9, 10, 16, 17, 20, and 21, this unit is approximately 2.5 km (1.5 mi) northwest of the town of Eagle, Wisconsin along Wilton Road, immediately north of State Highway 59, and west of State Highway 67 on both sides of County Road N. This unit has had recent adult observations over multiple years (1993-2012) and locations within the unit. The species was not detected during 2013 surveys. Southern Unit Kettle Moraine Prairies consists of three effectively contiguous but separately named prairies in the Southern Unit Kettle Moraine State Forest; Scuppernong Prairie, Wilton Road Prairie, and the Kettle Moraine Low Prairie. Scuppernong Prairie and Wilton Road prairies are approximately 0.3km (0.2 mi) apart in the Southern Unit Kettle Moraine State Forest, separated by a small road and connected by dispersal habitat. Wilton Road Prairie and Kettle Moraine Low Prairie are separated by less than 0.3 km (0.2 mi) and connected by dispersal habitat. The Scuppernong Prairie may support the most viable population of Poweshiek skipperling in Wisconsin; the majority of occurrences in the state recently have been recorded there. This unit contains the physical or biological features essential to the conservation of the Poweshiek skipperling. This unit consists of larval and adult habitat and contains high quality native tallgrass prairie with a high diversity of native prairie grasses and flowering forbs, particularly prairie dropseed and black-eyed Susan. This unit also has patches of lesser quality native prairie or dispersal grassland habitat that is within 1 km (0.62 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical and biological features within Wisconsin Unit 1 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; conversion or destruction of native prairie habitat; and isolation from other units. Special management considerations or protection that may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure that result in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs. Fire management at Scuppernong Prairie has recently been reintroduced as a management tool to reduce woody vegetation encroachment. This unit needs management that maintains a balance between controlling invasive plants and woody vegetation encroachment with maintaining enough of woody vegetation to discourage over-dispersal of small populations.

PS Wisconsin Unit 2:

Wisconsin Unit 2 consists of 116 ac (47 ha) in Green Lake County, Wisconsin. Approximately 114 ac (46 ha) is owned and managed by the Wisconsin State Department of Natural Resources and includes Puchyan State Natural Area. The remaining 2 ac (1 ha) is owned by private individual(s). Located in T16N, R12E, Section 1, this unit occurs approximately 7 km (4.3 mi) northwest of Green Lake, Wisconsin, approximately 0.9 km (0.5 mi) north of County Road CC, and 5.4 km (3.4 mi) west of State Highway 49. This unit is considered to be occupied and has had recent adult observations over multiple years (1997, 2000, 2009, 2012, and 2013). This unit contains the physical and biological features essential to the conservation of the Poweshiek skipperling. This unit consists of larval and adult habitat; and contains a high quality native wet-mesic prairie with a high diversity of native prairie grasses and flowering forbs, particularly prairie dropseed and black-eyed Susan. The high quality wet mesic prairie is surrounded by “low” prairie and sedge meadow (Swengel and Swengel 2012, p. 4) - these patches of lesser quality native prairie or dispersal grassland habitat are within 1 km (0.62 mi) of native high quality prairie that connects patches of higher quality native prairies.

Threats to the physical and biological features within Wisconsin Unit 2 include but are not but are not limited to: Ecological succession and encroachment of invasive species and woody vegetation; flooding; conversion or destruction of native prairie habitat; and small size

and isolation from other units. Special management considerations or protection that may be needed to address these threats include, but are not limited to: The control of invasive plant species and restoration of native tallgrass prairie plant community structure that result in native grasses and flowering forbs available and necessary for Poweshiek skipperling life-history needs.

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