The Odonata of South Dakota, A Survey of Species Distribution with Recommendations for Species of Greatest Conservation Needs

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Introduction:

This project was started in 2010 as a result of a small grant from Prairie Biotic Research, Inc. of Ames, IA, to survey odonata in eastern South Dakota. Funding for the 2011 – 2012 season was provided through the South Dakota Game, Fish and Parks Wildlife Diversity Small Grants Program.

Until the mid 1960's there had been very little collecting of odonates in South Dakota, a few random species, mostly anisoptera (dragonflies), scattered in collections such as the Williamson-Kennedy Odonata collection of the University of Michigan Museum of Zoology (Kormandy, 1960) or the Smithsonian. The first systematic study of odonates in South Dakota was Michael Fresvik's Odonata of East-central South Dakota (unpublished MS Thesis, 1969). He spent the summer of 1968 collecting in 19 counties from the Missouri River to the Big Sioux River. He reported a total of 36 species. In 1969, George Bick and Lothar Hornuff spent 3 days collecting in Yankton and Custer counties and reported 9 species that were new for the state (Bick & Hornuff, 1972).

In the 1970's two studies took place. On June 12, 1975 Provonsha and McCafferty (1977) sampled Hot Brook in Hot Springs County. They found 10 species along Hot Brook, 4 were new to SD and all were new to Hot Springs County. George Bick, Juanda Bick, and Lothar Hornuff collected in North and South Dakota between June 23rd and August 3rd, 1976. Combining their collections along with a search of literature and specimens in institutional collections they recorded 27 species in 23 counties scattered across South Dakota.

Between 1979 and 1982 intensive collecting was done by the author in Todd County, as well as in the Black Hills counties of Custer, Fall River, Pennington, and Lawrence. 66 species were found in this 4 year period. Between the end of 1982 and 1998, there was no published work for South Dakota.

In July, 1998, a few members of the Dragonfly Society of the Americas, including the author, did limited collecting in the Black Hills as well as a few localities along I-90 to Sioux Falls following the DSA annual meeting in Valentine, NE, (Beckemeyer, 1998). The author also visited the Black Hills again in 1999 and 2000. Tamara Lawson (1999) did a study of odonata on Wind Cave National Park that added a number of species for Custer Co.

Dennis Skadsen (personal communication, 2011) provided a database of his personal collection from northeastern SD covering 2002 to 2010. Most were from Day, Marshall, and Roberts counties. The collection contained 25 species, including the only record of Celithemis elisa (Calico pennant) to date.

David M. Stagliano (2006) published a study of aquatic organisms in streams in Harding and Butte Co's. It contained data on 11 species of odonates.

Recently there have been records submitted to OdonataCentral website by several people.

Methods:

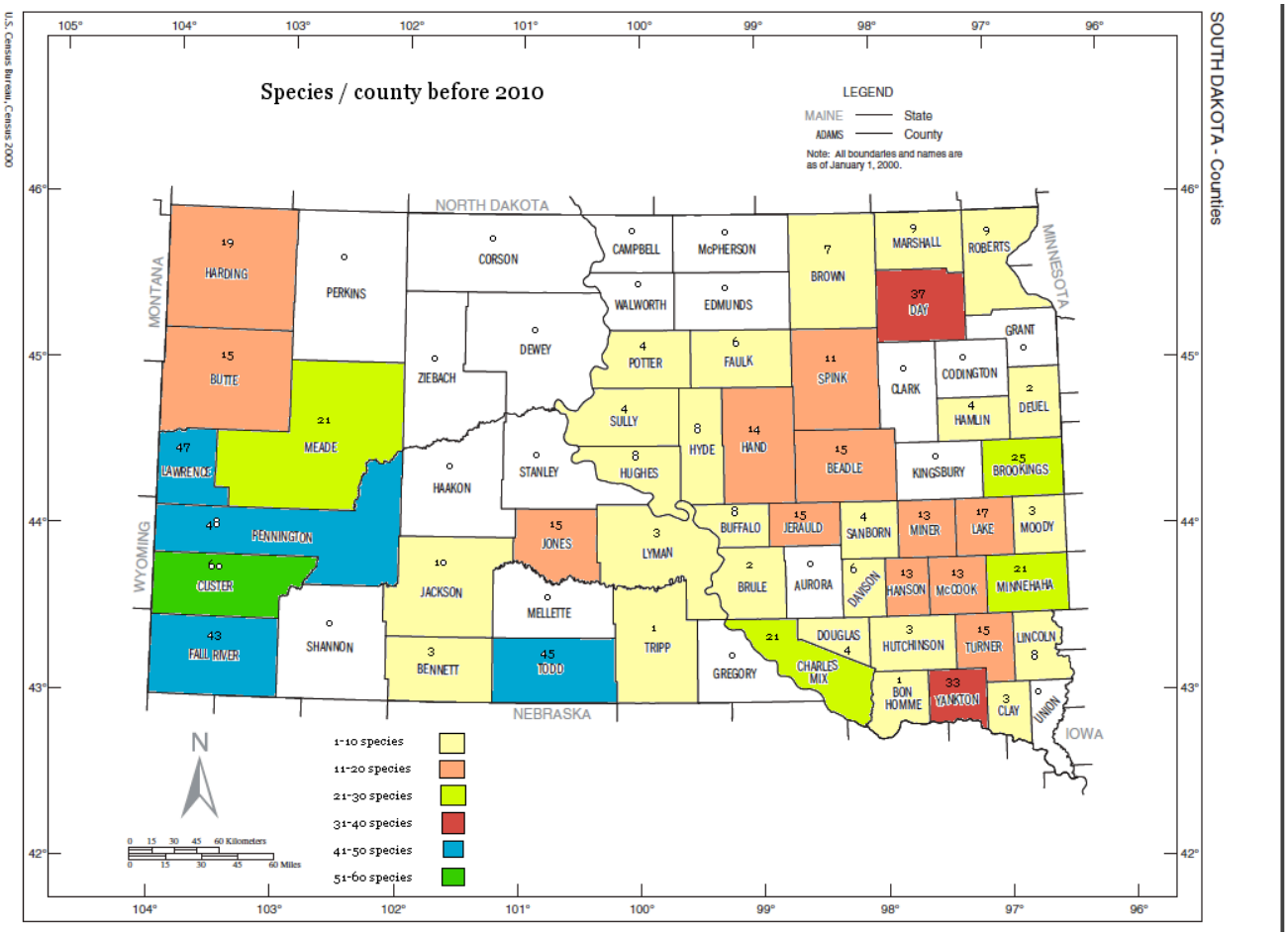
Field surveys were made in appropriate aquatic habitats, both lentic and lotic. Voucher specimens of adults were captured with aerial nets, or for some of the common or distinctive species observations were made, either by capture and release or sight. Vouchers were processed with acetone, dried, and archived in the author's personal collections at present. Collection data were added to an Excel Spreadsheet that contains historical / literature records, unpublished records from personal communications with other odonatologists, specimens in the SDSU collection (mostly collected by Fresvik for his thesis), and personal collections of the author. Based on the data collected recommendations have been made for species of greatest conservation need in the state of South Dakota.

Data & Results:

Based on data from before 2010 when the current study was started, of the 66 counties in SD 20 had no recorded species, 22 counties had 1 – 10 species, and 24 counties had 11 or more species. At the end of the 2012 collecting season only 3 counties still had 0 species, 14 counties had 1 -10 species, and 49 counties had 11 or more species. The following maps show the counties and number of species in each prior to 2010 and the end of 2012.

Figure 1:

Number of species per county in South Dakota before 2010 and at end of 2012



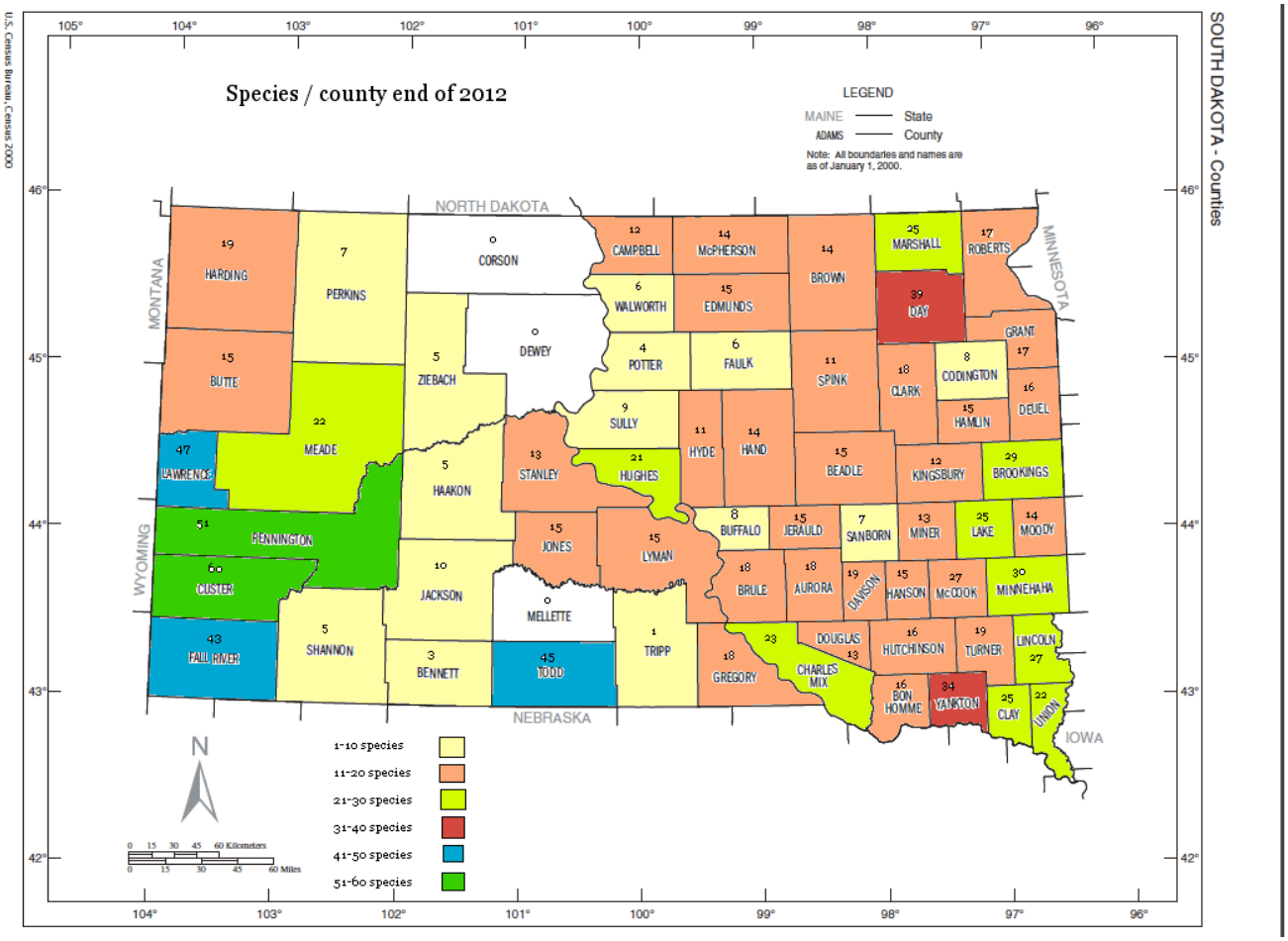


Table 1:

Distribution of Odonata Species in South Dakota by County
[1] = species found in county for first time during current survey (2010 – 2012)
[2] = species previously known from county and reconfirmed in present survey
(x/x-x/x: x) = early date – late date: # of records with dates

Odonata – 95 species

Zygoptera – 41 species

Family Calopterygidae – 3 species

Calopteryx aequabilis: (6/20 – 8/23: 19), 11 counties: Bennett, Codington[1], Custer, Day, Deuel, Lawrence, Marshall[1], McCook[1], Meade, Pennington[2], Todd

Calopteryx maculata: (6/6-8/23: 13), 8 counties: Bennett, Custer, Fall River[2], Gregory[1], Pennington, Todd, Union[1], Yankton

Hetaerina americana: (6/9-9/29: 25), 15 counties: Bennett, Custer, Fall River[2], Jones, Lawrence, Lincoln[1], McCook[1], Minnehaha[1], Moody[1], Pennington[2], Roberts[1], Todd, Turner, Union[1], Yankton

Family Lestidae – 8 species

Archilestes grandis: (9/24-9/29: 2), 3 counties: Custer, Pennington[1], Todd

Lestes australis: (6/4-7/12: 13), 10 counties: Buffalo, Gregory[1], Hanson, Hughes[1], Jerauld, Lake, McCook, Minnehaha, Moody, Union[1]

Lestes congener: (7/6-9/26: 26), 22 counties: Brookings, Butte, Charles Mix, Clay[1], Custer, Davison, Day, Fall River, Hand, Harding, Hughes, Hutchenison[1], Hyde, Jerauld, Lake[2], Marshall[1], McCook[1], McPherson[1], Miner, Minnehaha, Moody[1], Todd

Lestes disjunctus: (7/18-8/23: 13), 11 counties: Brookings, Butte, Custer, Day, Fall River, Harding, Jerauld, Lawrence, Marshall[1], Pennington, Todd

Lestes dryas: (6/4-7/31: 6), 10 counties: Brookings, Custer, Day, Deuel[1], Hand, Harding, Meade, Minnehaha, Spink, Union[1]

Lestes forcipatus: (7/21-9/16: 4), 2 counties: Charles Mix, Todd

Lestes rectangularis: (6/9-8/23: 6), 5 counties: Davison[1], Lake[1], Marshall[1], Todd, Union[1]

Lestes unguiculatus: (6/4-9/29: 72), 43 counties: Aurora[1], Beadle, Bon Homme[1], Brookings, Brown[1], Buffalo, Butte, Campbell[1], Charles Mix, Clay[1], Coddington[1], Custer, Davison[1], Day, Deuel[1], Edmunds[1], Fall River, Grant[1], Haakon[1], Hand, Hanson, Harding, Hutchinson, Hughes, Hyde, Jerauld, Jones, Kingsbury[1], Lake[2], Lawrence[2], Marshall[1], McCook[2], McPherson[1], Meade, Miner, Minnehaha, Moody[2], Pennington[1], Perkins[1], Roberts[1], Todd, Union[1], Yankton

Family Coenagrionidae - 30 species

Amphiagrion sp. (intermediate): (6/9-8/14: 18), 14 counties: Beadle, Bon Homme[1], Brookings, Charles Mix, Custer, Fall River, Lawrence, McCook, Meade, Pennington, Spink, Todd, Turner, Yankton

Argia alberta: (6/12-8/23: 9), 8 counties: Custer, Fall River, Jackson, Jones, Lawrence, Shannon[1], Todd, Yankton

Argia apicalis: (7/6-9/4: 21), 15 counties: Brule[1], Charles Mix, Clark[1], Clay[1], Custer, Davison[1], Edmunds[1], Grant[1], Lincoln[1], Lyman[1], McCook[1], Spink, Todd, Turner[2], Union[1]

Argia emma: (7/6-7/26: 10), 4 counties: Custer, Lawrence, Pennington, Todd

Argia fumipennis: (6/6-8/23: 11), 8 counties: Clay[1], Custer, Fall River, Gregory[1], Lawrence, McCook[1], Pennington, Todd

Argia immunda: (6/12-8/19: 7), 2 counties: Custer, Fall River[1]

Argia lugens: (7/8: 1), 1 county: Fall River

Argia moesta: (7/5-8/7: 3), 3 counties: Fall River, McCook[1], Perkins[1]

Argia plana: (6/6-7/15: 3), 5 counties: Custer, Fall River, Gregory[1], Lawrence, Yankton

Argia vivida: (6/12-8/16: 12), 6 counties: Custer, Fall River, Lawrence, Meade, Pennington[2], Todd

Coenagrion angulatum: (6/7-6/21: 2), 3 counties: Day, Jerauld, Minnehaha

Coenagrion resolutum: (6/4-7/16: 12), 11 counties: Beadle, Brookings, Day, Faulk, Lake, Lawrence, Lincoln[1], McCook, Minnehaha, Moody, Spink

Enallagma anna: (6/12-8/19: 15), 10 counties: Custer, Fall River, Jackson, Lawrence, Meade, McCook, Pennington, Todd, Turner, Yankton

Enallagma annexum: (6/4-8/19: 29), 24 counties: Brookings, Butte, Campbell[1], Clark[1], Clay[1], Custer, Day, Deuel[1], Douglas[2], Edmunds[1], Fall River, Faulk, Hamlin[1], Hanson, Harding, Lake[2], Lawrence, Lincoln[1], Marshall[2], Meade, Miner, Pennington, Roberts[1], Yankton[2]

Enallagma antennatum: (6/6-8/19: 24), 19 counties: Bon Homme[1], Brule[1], Buffalo, Clay[1], Custer, Grant[1], Gregory[1], Hamlin[2], Hanson, Lawrence, Lincoln[2], Marshall[1], McCook[2], Minnehaha, Pennington, Roberts, Todd, Turner[2], Yankton[2]

Enallagma basidens: (7/22-8/23: 2), 2 counties: Fall River, Todd

Enallagma boreale: (6/9-8/9: 17), 14 counties: Bon Homme[1], Brookings, Campbell[1], Clay[1], Custer, Day, Deuel[1], Edmunds[1], Fall River, Lawrence, Marshall, Miner, Pennington, Yankton[1]

Enallagma carunculatum: (6/5-9/21: 43), 37 counties: Aurora[1], Beadle, Brookings[1], Brule[1], Buffalo, Butte, Clark[1], Custer, Davison[2], Day[1], Deuel[1], Edmunds[1], Fall River, Grant[1], Gregory[1], Haakon[1], Hamlin[1], Hutchinson[1], Jerauld, Lawrence, Lyman[1], Marshall[2], McCook[1], McPherson[1], Perkins[1], Meade, Pennington, Perkins[1], Roberts[1], Sanborn[2], Spink, Stanley[1], Sully[1], Todd, Turner, Yankton[2], Ziebach[1]

Enallagma civile: (5/25-9/26: 74), 47 counties: Aurora[1], Beadle, Bon Homme[1], Brookings[2], Brown, Brule[1], Butte, Campbell[1], Charles Mix[2], Clark[1], Clay[1], Custer, Davison[2], Day, Deuel[1], Douglas, Faulk, Gregory[1], Haakon[1], Hamlin[2], Harding, Hanson[2], Hughes[1], Hutchinson[2], Hyde[1], Jackson, Jerauld, Kingsbury[1], Lake[2], Lawrence, Lincoln[2], Marshall, McCook, Meade, Miner, Minnehaha, Moody[2], Pennington[2], Perkins[1], Sanborn[2], Spink, Sully[1], Todd, Turner[2], Union[1], Yankton[2], Ziebach[1]

Enallagma clausum: (6/1-8/19: 13), 13 counties: Brown[1], Campbell[1], Clark[1], Codington, Davison, Day, Edmunds[1], Hamlin, Kingsbury[1], Lincoln[1], Marshall[2], Pennington[2], Yankton

Enallagma ebrium: (6/1-8/19: 17), 25 counties: Beadle, Brookings, Brown, Brule, Buffalo, Charles Mix, Custer, Day, Davison, Hamlin, Hand, Hanson, Harding, Hyde, Jerauld, Lake, Lyman, Lawrence, McCook, McPherson[1], Meade, Miner, Minnehaha, Roberts, Turner

Enallagma exsulans: (7/7-7/25: 3), 2 counties: Pennington, McCook[1]

Enallagma hageni: (6/4-8/6: 80), 42 counties: Aurora[1], Beadle, Bon Homme[1], Brookings[2], Brown, Campbell[1], Charles Mix, Clark[1], Codington[1], Custer, Davison, Day[1], Deuel[2], Douglas[1], Edmunds[1], Fall River, Faulk, Grant[1], Gregory[1], Hamlin[1], Hand, Hanson, Harding, Hutchinson[2], Hyde, Jerauld, Kingsbury[1], Lake[2], Lawrence, Lincoln[1], Lyman[2], Marshall[2], McCook, McPherson[1], Roberts[2], Sanborn, Stanley[1], Todd, Turner, Unon[1], Walworth[1], Yankton[2]

Enallagma praevarum: (6/12-8/23: 14), 7 counties: Custer, Fall River, Jackson, Lawrence, Meade, Pennington, Todd

Enallagma signatum: (7/21-8/23: 4), 5 counties: Hanson, Marshall[1], Todd, Turner, Yankton

Ischnura cervula: (6/21: 2), 2 counties: Custer, Lawrence

Ischnura damula: (6/23-7/21: 5), 6 counties: Custer, Day, Fall River, Lawrence, Marshall, Pennington

Ischnura perparva: (6/12-7/26: 7), 7 counties: Custer, Fall River, Jackson, Lawrence, Meade, Pennington, Yankton

Ischnura verticalis: (5/25-9/21: 95), 53 counties: Aurora[1], Beadle, Bon Homme[1], Brookings, Brown[2], Brule[1], Buffalo, Butte, Charles Mix[2], Clark[1], Clay[1], Codington[1], Custer, Davison[1], Day[2], Deuel[1], Douglas[2], Edmunds[1], Fall River, Faulk, Grant[1], Gregory[1], Haakon[1], Hamlin[1], Hand, Hanson[2], Harding, Hughes[2], Hutchinson[1], Hyde[1], Jones, Kingsbury[1], Lake[2], Lawrence, Lincoln[2], Lyman[1], Marshall[1], McCook[2], McPherson[1], Meade, Miner, Minnehaha[2], Moody[1], Pennington, Perkins[1], Sanborn[2], Spink, Stanley[1], Sully[1], Todd, Turner[2], Union[1], Yankton[2]

Nehalennia irene: (6/28: 1), 11 counties: Brookings. Buffalo, Custer, Day, Jerauld, Lake, Marshall, McCook, Miner, Minnehaha, Yankton

Anisoptera – 54 species

Family Aeshnidae – 8 species

Aeshna canadensis: (7/9-7/10: 2), 1 county: Custer

Aeshna constricta: (7/20-9/16: 18), 16 counties: Brookings, Brown[1], Clay, Hand, Lake, Lawrence, Lincoln[1], Marshall[1], McCook[1], Minnehaha, Moody[1], Pennington, Potter, Sully, Todd, Union[1]

Aeshna interrupta: (7/6-8/13: 22), 14 counties: Brookings, Custer, Day, Edmunds[1], Hand, Hughes[1], Lake, Lawrence, Marshall[1], Pennington, Potter, Roberts[2], Sully, Todd

Aeshna palmata: (7/5-8/13: 14), 3 counties: Custer, Lawrence, Pennington

Aeshna umbrosa: (7/18-9/29: 12), 8 counties: Custer, Lawrence, Lincoln[1], Moody[1], Pennington, Roberts, Todd, Union[1]

Anax junius: (6/5-9/4: 54), 41 counties: Aurora[1], Beadle, Bon Homme[1], Brookings[2], Brown, Brule[1], Butte, Campbell[1], Clark[1], Clay[1], Custer, Day, Deuel[1], Douglas[1], Fall River, Grant[1], Gregory[1], Hamlin[1], Hanson, Harding, Hughes[2], Hutchinson[1], Jerauld, Jones, Kingsbury[1], Lake[2], Lawrence, Lincoln[1], Lyman[1], Marshall[1], McPherson[1], Miner, Minnehaha[2], Moody[1], Roberts, Stanley[1], Sully, Todd, Union[1], Walworth[1], Yankton[2]

Rhionaeschna californica: (6/25-8/10: 4), 4 counties: Custer, Lawrence, Meade, Pennington

Rhionaeschna multicolor: (6/6-8/7: 27), 19 counties: Aurora[1], Charles Mix[2], Clay[1], Custer, Douglas[1], Fall River, Gregory[1], Haakon[1], Hughes[1], Lake[1], Lawrence, Lyman, Meade[1], Pennington[1], Shannon[1], Stanley[1], Todd, Yankton, Ziebach[1]

Family Gomphidae – 11 species

Arigomphus cornutus: (6/4-8/10: 14), 5 counties: Custer, Gregory[1], Lawrence, Lincoln[1], Pennington

Arigomphus submedianus: (7/26: 1), 1 county: Davison[1]

Erpetogomphus designatus: (7/15-8/9: 3), 1 county: Fall River[2]

Gomphus externus: (6/9-8/28: 6), 7 counties: Bon Homme[1], Clay[1], Harding, Hughes, Minnehaha, Yankton, Union[1]

Gomphus fraternus: (no date), 1 county: Spink

Gomphus graslinellus: (6/6-7/24: 12), 6 counties: Brookings, Custer, Fall River, Gregory[1], Minnehaha, Pennington

Ophiogomphus severus: (6/28-8/12: 22), 5 counties: Custer[2], Harding, Lawrence, Pennington[2], Todd

Stylurus amnicola: (7/26: 1), 1 county: Minnehaha

Stylurus intricatus: (no date), 1 county: Fall River

Stylurus notatus: (7/26-9/24: 2), 1 county: Minnehaha[2]

Stylurus plagiatus: (7/13: 1), 1 county: Charles Mix

Family Macromiidae – 1 species

Macromia illinoiensis: (no date), 1 county: Spink

Family Corduliidae – 7 species

Epitheca cynosura: (6/4-7/24: 12), 7 counties: Bon Homme[1], Charles Mix[1], Day, Douglas[1], Gregory[1], Lincoln[2], Todd

Epitheca petechialis: (6/21-7/15: 2), 3 counties: Custer, Lawrence, Pennington

Epitheca spinigera: (no date), 1 county: Custer

Epitheca princeps: (6/5-7/26: 5), 5 counties: Charles Mix[1], Davison[1], Gregory[1], Kingsbury[1], Lincoln[2]

Somatochlora ensigera: (7/23-7/24: 2), 3 counties: Custer, Clay, Day

Somatochlora minor: (7/9-8/12: 7), 2 counties: Custer, Lawrence

Neurocordulia molesta: (9/20: 1), 1 county: Bon Homme

Family Libellulidae – 27 species

Brechmorhoga mendax: (7/5-8/9: 7), 1 county: Fall River[2]

Celithemis elisa: (8/9: 1), 1 county: Day

Celithemis eponina: (7/10-8/23: 9), 7 counties: Aurora[1], Clay[1], Day, Lincoln, Lyman[1], Todd, Union[1]

Erythemis simplicicollis: (6/5-8/27: 19), 13 counties: Brule[1], Charles Mix, Day[2], Gregory[1], Haakon[1], Hughes[1], Jones, McPherson[1], Minnehaha[1], Pennington[1], Stanley[1], Todd, Yankton[2]

Leucorrhinia hudsonica: (7/21: 1), 1 county: Custer

Leucorrhinia intacta: (6/24-9/19: 20), 22 counties: Beadle, Brookings[2], Brule[1], Butte, Custer, Day, Deuel[1], Fall River, Grant[1], Hamlin[1], Hanson, Hughes[1], Jerauld, Kingsury[1], Lake[1], Lawrence, Lincoln[1], McPherson[1], Meade[2], Pennington, Roberts[1], Yankton

Libellula forensis: (6/21-7/21: 3), 5 counties: Butte, Custer, Harding, Lawrence, Meade

Libellula luctuosa: (6/5-9/24: 50), 34 counties: Aurora[1], Brookings[1], Brule[1], Butte, Campbell[1], Charles Mix, Clark[1], Custer, Davison[1], Day, Fall River, Grant[1], Haakon[1], Hamlin[1], Hanson, Hughes[2], Hutchinson[1], Jackson[2], Jones, Lake[1], Lawrence, Lincoln[2], Marshall, McCook[1], McPherson[1], Meade[2], Minnehaha[2], Pennington[2], Shannon, Stanley[1], Todd, Union[1], Walworth[1], Yankton[2]

Libellula pulchella: (5/25-9/4: 79), 48 counties: Aurora[1], Beadle, Bon Homme[1], Brookings[2], Brown, Brule[1], Butte, Charles Mix, Clark[1], Clay[1], Custer, Davison[1], Day, Deuel[1], Douglas[1], Fall River, Grant[1], Hamlin[1], Hand, Hanson[2], Harding, Hughes[1], Huthinson[1], Hyde, Jackson, Jerauld, Jones, Kingsbury[1], Lake[2], Lawrence, Lincoln[1], Lyman[1], Marshall[1], McCook[2], McPherson[1], Meade, Miner, Minnehaha[2], Pennington[2], Perkins[1], Roberts[2], Shannon[1], Stanley[1], Todd, Turner, Union[1], Walworth[1], Yankton[2]

Libellula quadrimaculata: (6/9-8/10: 15), 7 counties: Brown[1], Custer, Day, Fall River, Hughes[1], Lawrence, Pennington

Libellula saturata: (6/12-8/9: 8), 2 counties: Fall River[2], Pannington[1]

Pachydiplax longipennis: (7/6-8/26: 19), 16 counties: Aurora[1], Brule[1], Charles Mix, Clay[1], Day, Grant[1], Haakon[1], Hughes[1], Hutchinson[1], Lyman[1], Minnehaha[1], Sanborn[1], Stanley[1], Todd, Union[1], Yankton

Pantala flavescens: (6/7-9/4: 12), 10 counties: Brookings[1], Campbell[1], Clay[1], Douglas[1], Grant[1], Hughes[1], Lake[1], Lincoln[1], Turner[1], Union[1]

Pantala hymenea: (6/26-8/5: 3), Brookings[1], Hughes[1], Turner[1]

Perithemis tenera: (6/6-9/4: 24), 22 counties: Aurora[1], Brule[1], Charles Mix, Clark[1], Davison[1], Day[2], Deuel[1], Douglas, Gregory[1], Hand, Hughes[1], Jones, Lincoln[1], Lyman[1], McCook[1], McPherson[1], Minnehaha[1], Pennington, Sanborn[1], Stanley[1], Todd, Walworth[1]

Plathemis lydia: (6/4-8/9: 59), 38 counties: Aurora[1], Beadle, Bon Homme[1], Brookings[2], Brule[1], Butte, Charles Mix[2], Clark[1], Clay[1], Custer, Davison[1], Day[2], Douglas[1], Fall River, Grant[1], Gregory[1], Hamlin[1], Hand, Harding, Hyde[2], Hutchinson[1], Jackson, Jerauld, Lawrence, Lincoln[1], Lyman[1], Marshall[1], McCook[1], McPherson[1], Minnihaha[2], Pennington, Roberts, Sanborn[1], Sully[1], Todd, Turner, Union[1], Yankton[2]

Sympetrum corruptum: (5/1-9/12: 30), 33 counties: Beadle, Bon Homme[1], Brookings, Buffalo, Butte, Campbell[1], Clarks[1], Clay[2], Custer, Davison[2], Day, Edmunds[1], Fall River, Faulk, Grant[1], Haakon[1], Hand, Harding, Hanson, Hughes, Hutchinson[1], Lawrence, Lincoln[1], Meade, Minor, Moody[1], Pennington[2], Perkins[1], Roberts, Shannon[1], Sully, Yankton, Ziebach[1]

Sympetrum costiferum: (7/10-10/1: 14), 18 counties: Beadle, Brookings, Campbell[1], Clark[1], Codington[1], Custer, Day, Edmunds[1], Fall River, Grant[1], Marshall[1], Pennington, Potter, Stanley[1], Sully[1], Todd, Union[1], Yankton

Sympetrum danae: (8/19-9/25: 2), 3 counties: Custer, Lawrence, Pennington[2]

Sympetrum internum: (6/8-9/29: 21), 32 counties: Beadle, Brookings, Brown[2], Charles Mix, Clark[1], Custer, Day, Deuel[1], Edmunds[1], Fall River, Hand, Harding, Hughes, Hyde, Jackson, Jerauld, Jones, Kinsbury[1], Lake, Lawrence, Meade, Mine, Minnehaha[2], Moody[1], Pennington, Potter, Roberts[1], Spink, Todd, Tripp, Turner[2], Yankton

Sympetrum obtrusum: (6/19-9/12: 35), 27 counties: Aurora[1], Brookings, Brown[1], Brule[1], Charles Mix, Clark[1], Codington[1], Custer, Day, Deuel[1], Edmunds[1], Fall River, Grant[1], Harding, Hutchinson[1], Jones, Lake[1], Lincoln[1], Marshall[1], McCook[1], Minnehaha[1], Moody[1], Penington[2], Roberts[1], Spink, Todd, Turner[1]

Sympetrum pallipes: (7/9-8/9: 4), 5 counties: Custer, Fall River[1], Harding, Lawrence, Pennington

Sympetrum rubicundulum: (6/9-9/21: 36), 26 counties: Aurora[1], Bon Homme[1], Brown[1], Brule[2], Clark[1], Clay[1], Codington[1], Custer, Davison[1], Day, Edmunds[1], Fall River, Grant[1], Hanson[1], Hutchinson[1], Jones, Kingsbury[1], Lake[1], Marshall[1], McCook[1], Minnehaha[1], Pennington, Roberts[2], Todd, Turner[1], Union[1]

Sympetrum semicinctum: (7/10-10/1: 24), 23 counties: Aurora[1], Brown[1], Butte, Charles Mix, Clay[1], Custer, Davison[1], Fall River, Haakon[1], Hand, Hanson[1], Hughes[2], Jackson, Jones, Lawrence, Lincoln[1], Lyman[1], McCook[1], Meade, Moody[1], Pennington[2], Todd, Yankton

Sympetrum vicinum: (9/16-9/29: 4), 1 county: Todd

Tramea lacerata: (6/4-9/12: 40), 33 counties: Aurora[1], Bon Homme[1], Brookings, Brule[1], Campbell[1], Charles Mix, Clark[1], Clay[1], Custer, Day, Douglas[1], Fall River, Grant[1], Haakon[1], Hamlin[1], Hanson, Hughes[1], Hutchinson[1], Hyde[1], Jones, Lake[2], Lincoln[1], Lyman[1], McPherson[1], Moody[1], Minnehaha[1], Pennington, Stanley[1], Todd, Union[1], Walworth[1], Yankton, Ziebach[1]

Tramea onusta: (6/7-9/4: 9), 8 counties: Aurora[1], Brookings, Day, Douglas[1], Hamlin[1], Lake[1], Lincoln[1], Yankton

Table 2 :

Species by County

Updated 12/11/2012
461 NCRs, 3 NSRs
Key: # species at start / # species at end
NCR = new county records
NSR = new state records
plain text black – historical / Dot Map project/ OC records pre 2010 / unpublished collections (SDSU)
Bold text black – older records verified in current survey
Plain text red – S. Hummel prior to 2010
Bold text red – new records in current survey

Aurora – 0/18 species +18
Lestes unguiculatus-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Rhionaeschna multicolor-NCR
Celithemis eponina-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Sympetrum semicinctum-NCR
Tramea lacerata-NCR
Tramea onusta-NCR

Beadle – 15/15 species
Lestes unguiculatus
Amphiagrion sp.
Coenagrion resolutum
Enallagma carunculatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Anax junius
Leucorrhinia intacta
Libellula pulchella
Plathemis lydia
Sympetrum corruptum
Sympetrum costiferum
Sympetrum internum

Bennett – 3/3 species
Calopteryx aequabilis
Calopteryx maculata
Hetaerina americana

Bon Homme – 1/16 species +15
Lestes unguiculatus-NCR
Amphiagrion sp. -NCR
Enallagma antennatum-NCR
Enallagma boreale-NCR
Enallagma civile-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Gomphus externus-NCR
Epitheca cynosura-NCR
Neurocordulia molesta
Libellula pulchella-NCR
Plathemis lydia-NCR
Sympetrum corruptum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata-NCR

Brookings– 25/29 species +4
Lestes congener
Lestes disjunctus
Lestes dryas
Lestes unguiculatus
Amphiagrion sp.
Coenagrion resolutum
Enallagma annexum
Enallagma boreale
Enallagma carunculatum-NCR
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Aeshna constricta
Aeshna interrupta lineata
Anax junius
Gomphus graslinellus
Leucorrhinia intacta
Libellula luctuosa-NCR
Libellula pulchella
Pantala flavescens-NCR
Pantala hymenaea-NCR
Plathemis lydia
Sympetrum corruptum
Sympetrum costiferum
Sympetrum internum
Sympetrum obtrusum
Tramea lacerata
Tramea onusta

Brown– 7/14 species +7
Lestes unguiculatus-NCR
Enallagma civile
Enallagma clausum-NCR
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Aeshna constricta-NCR
Anax junius
Libellula pulchella
Libellula quadrimaculata-NCR
Sympetrum internum
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Sympetrum semicinctum-NCR

Brule– 2/18 species +16

Argia apicalis-NCR
Enallagma antennatum-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Enallagma ebrium
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Erythemis simplicicollis-NCR
Leucorrhinia intacta-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum
Tramea lacerata-NCR

Buffalo– 8/8 species

Lestes australis
Lestes unguiculatus
Enallagma antennatum
Enallagma carunculatum
Enallagma ebrium
Ischnura verticalis
Nehalennia irene
Sympetrum corruptum

Butte– 15/15 species

Lestes congener
Lestes disjunctus
Lestes unguiculatus
Enallagma annexum
Enallagma carunculatum
Enallagma civile
Ischnura verticalis
Anax junius
Leucorrhinia intacta
Libellula forensis
Libellula luctuosa
Libellula pulchella
Plathemis lydia
Sympetrum corruptum
Sympetrum semicinctum

Campbell – 0/12 species +12

Lestes unguiculatus-NCR
Enallagma annexum-NCR
Enallagma boreale-NCR
Enallagma civile-NCR
Enallagma clausum-NCR
Enallagma hageni-NCR
Anax junius-NCR
Libellula luctuosa-NCR
Pantala flavescens-NCR
Sympetrum corruptum-NCR
Sympetrum costiferum-NCR
Tramea lacerata-NCR

Charles Mix– 21 / 23 species +2

Lestes congener
Lestes forcipatus
Lestes unguiculatus
Amphiagrion sp.
Argia apicalis
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Rhionaeschna multicolor
Stylurus plagiatus
Epitheca cynosura-NCR
Epitheca princeps-NCR
Erythemis simplicicollis
Libellula luctuosa
Libellula pulchella
Pachydiplax longipennis
Perithemis tenera
Plathemis lydia
Sympetrum internum
Sympetrum obtrusum
Sympetrum semicinctum
Tramea lacerata

Clark – 0/18 species +18

Argia apicalis-NCR
Enallagma annexum-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Enallagma clausum-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum corruptum-NCR
Sympetrum costiferum-NCR
Sympetrum internum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata-NCR

Clay– 3/25 species +22

Calopteryx maculata
Lestes congener-NCR
Lestes unguiculatus-NCR
Argia apicalis-NCR
Argia fumipennis violacea-NCR
Enallagma annexum-NCR
Enallagma antennatum-NCR
Enallagma boreale-NCR
Enallagma civile-NCR
Ischnura verticalis-NCR
Aeshna constricta
Anax junius-NCR
Rhionaeschna multicolor-NCR
Gomphus externus-NCR
Celithemis eponina-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Pantala flavescens-NCR
Plathemis lydia-NCR
Somatochlora ensigera
Sympetrum corruptum-NCR
Sympetrum rubicundulum-NCR
Sympetrum semicinctum-NCR
Tramea lacerata-NCR

Codington – 0/8 species +8

Calopteryx aequabilis-NCR
Lestes unguiculatus-NCR
Enallagma clausum-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Sympetrum costiferum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR

Corson – 0/0 species

Custer– 60/60 species

Calopteryx aequabilis
Calopteryx maculata
Hetaerina americana
Archilestes grandis
Lestes congener
Lestes disjunctus
Lestes dryas
Lestes unguiculatus
Amphiagrion sp.
Argia alberta
Argia apicalis
Argia emma
Argia fumipennis violacea
Argia immunda
Argia plana
Argia vivida
Enallagma anna
Enallagma annexum
Enallagma antennatum
Enallagma boreale
Enallagma carunculatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Enallagma praevarum
Ischnura damula
Ischnura perparva
Ischnura verticalis
Nehalennia irene
Aeshna canadensis
Aeshna constricta
Aeshna interrupta
Aeshna palmate
Aeshna umbrosa
Anax junius
Rhionaeschna californica
Rhionaeschna multicolor
Arigomphus cornutus
Gomphus graslinellus
Ophiogomphus severus severus
Epitheca petechialis
Epitheca spinigera
Somatochlora ensigera
Somatochlora minor
Leucorrhinia hudsonica
Leucorrhinia intacta
Libellula forensis
Libellula luctuosa
Libellula pulchella
Libellula quadrimaculata
Plathemis lydia
Sympetrum corruptum
Sympetrum costiferum
Sympetrum danae
Sympetrum internum
Sympetrum obtrusum
Sympetrum pallipes
Sympetrum rubicundulum
Sympetrum semicinctum
Tramea lacerata

Davison– 6/19 species +13

Lestes congener
Lestes rectangularis -NCR
Lestes unguiculatus-NCR
Argia apicalis-NCR
Enallagma carunculatum
Enallagma civile
Enallagma clausum
Enallagma ebrium
Enallagma hageni-NCR
Ischnura verticalis-NCR
Arigomphus submedianus-NSR-NCR
Epitheca princeps-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum corruptum
Sympetrum rubicundulum-NCR
Sympetrum semicinctum-NCR

Day– 37/ 39 species +2

Calopteryx aequabilis
Lestes congener
Lestes disjunctus
Lestes dryas
Lestes unguiculatus
Coenagrion angulatum
Coenagrion resolutum
Enallagma annexum
Enallagma boreale
Enallagma carunculatum-NCR
Enallagma civile
Enallagma clausum
Enallagma ebrium
Enallagma hageni
Ischnura damula
Ischnura verticalis
Nehalennia irene
Aeshna constricta
Aeshna interrupta lineata
Anax junius
Epitheca cynosura
Somatochlora ensigera
Celithemis elisa
Celithemis eponina
Erythemis simplicicollis
Leucorrhinia intacta
Libellula luctuosa
Libellula pulchella
Libellula quadrimaculata
Pachydiplax longipennis
Perithemis tenera (DRS)
Plathemis lydia-NCR
Sympetrum corruptum
Sympetrum costiferum
Sympetrum internum
Sympetrum obtrusum
Sympetrum rubicundulum
Tramea lacerata
Tramea onusta

Deuel – 2/16 species +14

Calopteryx aequabilis
Calopteryx maculata
Lestes dryas-NCR
Lestes unguiculatus-NCR
Enallagma annexum-NCR
Enallagma boreale-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Leucorrhinia intacta-NCR
Libellula pulchella-NCR
Perithemis tenera-NCR
Sympetrum internum-NCR
Sympetrum obtrusum-NCR

Dewey – 0/0 species

Douglas– 4/13 species +9

Enallagma annexum
Enallagma civile
Enallagma hageni-NCR
Ischnura verticalis
Anax junius-NCR
Rhionaeschna multicolor-NCR
Epitheca cynosura-NCR
Libellula pulchella-NCR
Pantala flavescens-NCR
Perithemis tenera
Plathemis lydia-NCR
Tramea lacerata-NCR
Tramea onusta-NCR

Edmunds – 0/15 species +15

Lestes unguiculatus-NCR
Argia apicalis-NCR
Enallagma annexum-NCR
Enallagma boreal-NCR
Enallagma carunculatum-NCR
Enallagma clausum-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Aeshna constricta-NCR
Aeshna interrupta lineata-NCR
Sympetrum corruptum-NCR
Sympetrum costiferum-NCR
Sympetrum internum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR

Fall River– 43 species

Calopteryx maculata
Hetaerina americana
Lestes congener
Lestes disjunctus
Lestes unguiculatus
Amphiagrion sp.
Argia alberta
Argia fumipennis violacea
Argia immunda
Argia lugens
Argia moesta
Argia plana
Argia vivida
Enallagma anna
Enallagma annexum
Enallagma basidens
Enallagma boreale
Enallagma carunculatum
Enallagma hageni
Enallagma praevarum
Ischnura damula
Ischnura perparva
Ischnura verticalis
Anax junius
Rhionaeschna multicolor
Erpetogomphus designatus
Gomphus graslinellus
Stylurus intricatus
Brechmorhoga mendax
Leucorrhinia intacta
Libellula luctuosa
Libellula pulchella
Libellula quadrimaculata
Libellula saturata
Plathemis lydia
Sympetrum corruptum
Sympetrum costiferum
Sympetrum internum
Sympetrum obtrusum
Sympetrum pallipes
Sympetrum rubicundulum
Sympetrum semicinctum
Tramea lacerata

Faulk – 6/6 species

Coenagrion resolutum
Enallagma annexum
Enallagma civile
Enallagma hageni
Ischnura verticalis
Sympetrum corruptum

Grant – 0/17 species +17

Lestes unguiculatus-NCR
Argia apicalis-NCR
Enallagma antennatum-NCR
Enallagma carunculatum-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Leucorrhinia intacta-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Pantala flavescens-NCR
Plathemis lydia-NCR
Sympetrum costiferum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata-NCR

Gregory – 0/18 species +18

Calopteryx maculata-NCR
Lestes australis-NCR
Argia fumipennis violacea-NCR
Argia plana-NCR
Enallagma antennatum-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Rhionaeschna multicolor-NCR
Anax junius-NCR
Arigomphus cornutus-NCR
Gomphus graslinellus-NCR
Epitheca cynosura-NCR
Epitheca princeps-NCR
Erythemis simplicicollis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR

Haakon – 0/11 species +11

Lestes unguiculatus-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Ischnura verticalis-NCR
Rhionaeschna multicolor-NCR
Erythemis simplicicollis-NCR
Libellula luctuosa-NCR
Pachydiplax longipennis PB 2012-**NCR**
Sympetrum corruptum-NCR
Sympetrum semicinctum PB 2012-**NCR**
Tramea lacerata-NCR

Hamlin– 4/15 species +11

Enallagma annexum-NCR
Enallagma antennatum
Enallagma carunculatum-NCR
Enallagma civile
Enallagma clausum
Enallagma ebrium
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Leucorrhinia intacta-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Plathemis lydia-NCR
Tramea lacerata-NCR
Tramea onusta-NCR

Hand– 14/14 species

Lestes congener
Lestes dryas
Lestes unguiculatus
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Aeshna constricta
Aeshna interrupta lineata
Libellula pulchella
Perithemis tenera
Plathemis lydia
Sympetrum corruptum
Sympetrum internum
Sympetrum semicinctum

Hanson– 13/15 species +2

Lestes australis
Lestes unguiculatus
Enallagma antennatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Anax junius
Leucorrhinia intacta
Libellula luctuosa
Libellula pulchella
Sympetrum corruptum
Sympetrum rubicundulum-NCR
Sympetrum semicinctum-NCR
Tramea lacerata

Harding– 19/19 species

Lestes congener
Lestes disjunctus
Lestes dryas
Lestes unguiculatus
Enallagma annexum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Anax junius
Gomphus externus
Ophiogomphus severus
Libellula forensis
Libellula pulchella
Plathemis lydia
Sympetrum corruptum
Sympetrum internum
Sympetrum obtrusum
Sympetrum pallipes

Hughes– 8/21 species +13

Lestes australis-NCR
Lestes congener
Lestes unguiculatus
Enallagma civile-NCR
Ischnura verticalis
Aeshna interrupta-NCR
Anax junius
Rhionaeschna multicolor-NCR
Erythemis simplicicollis-NCR
Leucorrhinia intacta-NCR
Libellula luctuosa
Libellula pulchella-NCR
Libellula quadrimaculata-NCR
Pachydiplax longipennis-NCR
Pantala flavescens-NCR
Pantala hymenaea-NCR
Perithemis tenera-NCR
Sympetrum corruptum
Sympetrum internum
Sympetrum semicinctum
Tramea lacerata-NCR

Hutchinson– 3/16 species +13

Lestes congener-NCR
Lestes unguiculatus
Enallagma carunculatum-NCR
Enallagma civile
Enallagma hageni
Ischnura verticalis-NCR
Anax junius-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum corruptum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata-NCR

Hyde– 8/11 species +3

Lestes congener
Lestes unguiculatus
Enallagma civile-NCR
Enallagma ebrium
Enallagma hageni
Ischnura verticalis-NCR
Libellula pulchella
Perithemis tenera
Plathemis lydia
Sympetrum internum
Tramea lacerata-NCR

Jackson– 10/10 species

Argia alberta
Enallagma anna
Enallagma civile
Enallagma praevarum
Ischnura perparva
Libellula luctuosa
Libellula pulchella
Plathemis lydia
Sympetrum internum
Sympetrum semicinctum

Jerauld– 15/15 species

Lestes australis
Lestes congener
Lestes disjunctus
Lestes unguiculatus
Coenagrion angulatum
Enallagma carunculatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Nehalennia irene
Anax junius
Leucorrhinia intacta
Libellula pulchella
Plathemis lydia
Sympetrum internum

Jones– 15/15 species

Hetaerina americana
Lestes unguiculatus
Argia alberta
Ischnura verticalis
Anax junius
Erythemis simplicicollis
Libellula luctuosa
Libellula pulchella
Perithemis tenera
Sympetrum corruptum
Sympetrum internum
Sympetrum obtrusum
Sympetrum rubicundulum
Sympetrum semicinctum
Tramea lacerata

Kingsbury – 0/12 species +12

Lestes unguiculatus-NCR
Enallagma civile-NCR
Enallagma clausum-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Epitheca princeps-NCR
Leucorrhinia intacta-NCR
Libellula pulchella-NCR
Plathemis lydia-NCR
Sympetrum internum-NCR
Sympetrum rubicundulum-NCR

Lake– 17/25 species +8

Lestes australis
Lestes congener
Lestes rectangularis-NCR
Lestes unguiculatus
Coenagrion resolutum
Enallagma annexum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Nehalennia irene
Aeshna constricta
Aeshna interrupta lineata
Anax junius
Rhionaeschna multicolor-NCR
Leucorrhinia intacta-NCR
Libellula luctuosa-NCR
Libellula pulchella
Pantala flavescens – NSR-NCR
Sympetrum corruptum
Sympetrum internum
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata
Tramea onusta-NCR

Lawrence– 47/47 species

Calopteryx aequabilis
Hetaerina americana
Lestes disjunctus
Lestes unguiculatus
Amphiagrion sp.
Argia alberta
Argia emma
Argia fumipennis violacea
Argia plana
Argia vivida
Coenagrion resolutum
Enallagma anna
Enallagma annexum
Enallagma antennatum
Enallagma boreale
Enallagma carunculatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Enallagma praevarum
Ischnura cervula
Ischnura damula
Ischnura perparva
Ischnura verticalis
Aeshna constricta
Aeshna interrupta lineata
Aeshna palmata
Aeshna umbrosa
Anax junius
Rhionaeschna californica
Rhionaeschna multicolor
Arigomphus cornutus
Ophiogomphus severus severus
Epitheca cynosura
Epitheca petechialis
Somatochlora minor
Leucorrhinia intacta
Libellula forensis
Libellula luctuosa
Libellula pulchella
Libellula quadrimaculata
Plathemis lydia
Sympetrum corruptum
Sympetrum danae
Sympetrum internum
Sympetrum pallipes
Sympetrum semicinctum

Lincoln– 8/27 species +19

Hetaerina americana-NCR
Argia apicalis-NCR
Coenagrion resolutum-NCR
Enallagma annexum-NCR
Enallagma antennatum
Enallagma civile
Enallagma clausum-NCR
Enallagma hageni-NCR
Ischnura verticalis
Arigomphus cornutus-NCR
Aeshna constricta-NCR
Aeshna umbrosa-NCR
Anax junius
Epitheca cynosura
Epitheca princeps
Celithemis eponina
Leucorrhinia intacta-NCR
Libellula luctuosa
Libellula pulchella-NCR
Pantala flavescens-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum corruptum-NCR
Sympetrum semicinctum-NCR
Sympetrum obtrusum-NCR
Tramea lacerata-NCR
Tramea onusta-NCR

Lyman– 3/15 species +12

Argia apicalis-NCR
Enallagma carunculatum-NCR
Enallagma ebrium
Enallagma hageni
Ischnura verticalis-NCR
Anax junius-NCR
Rhionaeschna multicolor
Celithemis eponina-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum semicinctum-NCR
Tramea lacerata-NCR

Marshall– 9/25 species +16

Calopteryx aequabilis-NCR
Lestes congener-NCR
Lestes disjunctus-NCR
Lestes rectangularis-NCR
Lestes unguiculatus-NCR
Enallagma annexum
Enallagma antennatum-NCR
Enallagma boreale
Enallagma carunculatum
Enallagma civile
Enallagma clausum
Enallagma hageni
Enallagma signatum-NCR
Ischnura damula
Ischnura verticalis-NCR
Nehalennia irene
Aeshna constricta-NCR
Aeshna interrupta lineata-NCR
Anax junius-NCR
Libellula luctuosa
Libellula pulchella-NCR
Plathemis lydia-NCR
Sympetrum costiferum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR

McCook– 13/27 species +14

Calopteryx aequabilis-NCR
Hetaerina americana-NCR
Lestes australis
Lestes congener
Lestes unguiculatus
Amphiagrion sp.
Argia apicalis-NCR
Argia fumipennis violacea-NCR
Argia moesta-NCR
Coenagrion resolutum
Enallagma anna
Enallagma antennatum
Enallagma carunculatum-NCR
Enallagma civile
Enallagma ebrium
Enallagma exsulans-NCR
Enallagma hageni
Ischnura verticalis
Nehalennia irene
Aeshna constricta-NCR
Libellula luctuosa-NCR
Libellula pulchella
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Sympetrum semicinctum-NCR

McPherson – 0/14 species +14

Lestes congener-NCR
Lestes unguiculatus-NCR
Enallagma carunculatum-NCR
Enallagma ebrium-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Erythemis simplicicollis-NCR
Leucorrhinia intacta-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Tramea lacerata-NCR

Meade– 21/22 species +1

Calopteryx aequabilis
Lestes unguiculatus
Amphiagrion sp.
Argia emma
Argia vivida
Enallagma anna
Enallagma annexum
Enallagma carunculatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Enallagma praevarum
Ischnura perparva
Ischnura verticalis
Rhionaeschna multicolor
Leucorrhinia intacta
Libellula forensis
Libellula luctuosa
Libellula pulchella
Sympetrum corruptum
Sympetrum internum
Sympetrum semicinctum

Mellette – 0/0 species

Miner– 13/13 species

Lestes congener
Lestes unguiculatus
Enallagma annexum
Enallagma boreale
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Nehalennia irene
Anax junius
Libellula pulchella
Sympetrum corruptum
Sympetrum internum

Minnehaha– 21/30 species +9

Hetaerina americana-NCR
Lestes australis
Lestes congener
Lestes dryas
Lestes unguiculatus
Coenagrion angulatum
Coenagrion resolutum
Enallagma antennatum
Enallagma carunculatum-NCR
Enallagma civile
Enallagma ebrium
Enallagma hageni
Ischnura verticalis
Nehalennia irene
Aeshna constricta
Anax junius
Gomphus externus
Gomphus graslinellus
Stylurus amnicola
Stylurus notatus
Erythemis simplicicollis-NCR
Libellula luctuosa-NCR
Libellula pulchella
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia
Sympetrum internum
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata-NCR

Moody– 3/14 species +11

Hetaerina americana-NCR
Lestes congener-NCR
Lestes unguiculatus
Enallagma civile
Enallagma hageni
Ischnura verticalis-NCR
Aeshna constricta-NCR
Aeshna umbrosa-NCR
Anax junius-NCR
Sympetrum corruptum-NCR
Sympetrum internum-NCR
Sympetrum obtrusum-NCR
Sympetrum semicinctum-NCR
Tramea lacerata-NCR

Pennington– 48/51 species +3

Calopteryx aequabilis
Calopteryx maculata
Hetaerina americana
Archilestes grandis-NCR
Lestes disjunctus
Lestes dryas
Lestes unguiculatus-NCR
Amphiagrion sp.
Argia emma
Argia fumipennis violacea
Argia vivida
Enallagma anna
Enallagma annexum
Enallagma antennatum
Enallagma boreale
Enallagma carunculatum
Enallagma civile
Enallagma clausum
Enallagma exsulans
Enallagma hageni
Enallagma praevarum
Ischnura damula
Ischnura perparva
Ischnura verticalis
Aeshna constricta
Aeshna interrupta lineata
Aeshna palmata
Aeshna umbrosa
Rhionaeschna californica
Rhionaeschna multicolor
Arigomphus cornutus
Gomphus graslinellus
Ophiogomphus severus severus
Epitheca petechialis
Erythemis simplicicollis
Leucorrhinia intacta
Libellula luctuosa
Libellula pulchella
Libellula quadrimaculata
Libellula saturata-NCR
Perithemis tenera
Plathemis lydia
Sympetrum corruptum
Sympetrum costiferum
Sympetrum danae
Sympetrum internum
Sympetrum obtrusum
Sympetrum pallipes
Sympetrum rubicundulum
Sympetrum semicinctum
Tramea lacerata

Perkins – 0/7 species +7

Lestes unguiculatus-NCR
Argia moesta-NCR
Enallagma carunculatum-NCR
Enallagma civile-NCR
Ischnura verticalis-NCR
Libellula pulchella-NCR
Sympetrum corruptum-NCR

Potter– 4/4 species

Aeshna constricta
Aeshna interrupta lineata
Sympetrum costiferum
Sympetrum internum

Roberts– 9/17 species +8

Hetaerina americana
Lestes unguiculatus-NCR
Lestes annexum-NCR
Enallagma antennatum
Enallagma carunculatum-NCR
Enallagma ebrium
Enallagma hageni
Aeshna interrupta lineata-NCR
Aeshna umbrosa
Anax junius
Leucorrhinia intacta-NCR
Libellula pulchella
Plathemis lydia
Sympetrum corruptum
Sympetrum internum-NCR
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR

Sanborn– 4/7 species +3

Enallagma carunculatum
Enallagma civile
Enallagma hageni
Ischnura verticalis
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR

Shannon – 0 / 5 species +5

Argia alberta
Rhionaeschna multicolor
Plathemis lydia
Libellula pulchella
Sympetrum corruptum

Spink– 11/11 species

Lestes dryas
Amphiagrion sp.
Argia apicalis
Coenagrion resolutum
Enallagma carunculatum
Enallagma civile
Ischnura verticalis
Gomphus fraternus
Macromia illinoiensis
Sympetrum internum
Sympetrum obtrusum

Stanley– 0/13 species +13

Enallagma carunculatum-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Anax junius-NCR
Rhionaeschna multicolor-NCR
Erythemis simplicicollis-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Perithemis tenera-NCR
Plathemis lydia-NCR
Sympetrum costiferum-NCR
Tramea lacerata-NCR

Sully– 4/9 species +5

Enallagma carunculatum-NCR
Enallagma civile-NCR
Ischnura verticalis-NCR
Aeshna constricta
Aeshna interrupta lineata
Anax junius
Plathemis lydia-NCR
Sympetrum corruptum
Sympetrum costiferum-NCR

Todd– 45/45 species

Calopteryx aequabilis
Calopteryx maculata
Hetaerina americana
Archilestes grandis
Lestes congener
Lestes disjunctus
Lestes forcipatus
Lestes rectangularis
Lestes unguiculatus
Amphiagrion sp.
Argia alberta
Argia apicalis
Argia emma
Argia fumipennis violacea
Argia vivida
Enallagma anna
Enallagma antennatum
Enallagma basidens
Enallagma carunculatum
Enallagma civile
Enallagma hageni
Enallagma praevarum
Enallagma signatum
Ischnura verticalis
Aeshna constricta
Aeshna interrupta lineata
Aeshna umbrosa
Anax junius
Rhionaeschna multicolor
Ophiogomphus severus severus
Epitheca cynosura
Celithemis eponina
Erythemis simplicicollis
Libellula luctuosa
Libellula pulchella
Pachydiplax longipennis
Perithemis tenera
Plathemis lydia
Sympetrum costiferum
Sympetrum internum
Sympetrum obtrusum
Sympetrum rubicundulum
Sympetrum semicinctum
Sympetrum vicinum
Tramea lacerata

Tripp– 1/1 species

Sympetrum internum

Turner– 15/19 species +4

Hetaerina americana
Lestes unguiculatus
Amphiagrion sp.
Argia apicalis
Enallagma anna
Enallagma antennatum
Enallagma carunculatum
Enallagma civile
Enallagma ebrium
Enallagma hageni
Enallagma signatum
Ischnura verticalis
Libellula pulchella
Pantala flavescens-NCR
Pantala hymenea - NSR-NCR
Plathemis lydia
Sympetrum internum
Sympetrum obtrusum-NCR
Sympetrum rubicundulum-NCR

Union – 0/22 species +22

Hetaerina americana-NCR
Calopteryx maculata-NCR
Lestes australis-NCR
Lestes dryas-NCR
Lestes unguiculatus-NCR
Argia apicalis-NCR
Enallagma civile-NCR
Enallagma hageni-NCR
Ischnura verticalis-NCR
Aeshna constricta-NCR
Aeshna umbrosa-NCR
Anax junius-NCR
Gomphus externus-NCR
Celithemis eponina-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Pachydiplax longipennis-NCR
Pantala flavescens-NCR
Plathemis lydia-NCR
Sympetrum costiferum-NCR
Sympetrum rubicundulum-NCR
Tramea lacerata-NCR

Walworth – 0/6 species +6

Enallagma hageni-NCR
Anax junius-NCR
Perithemis tenera-NCR
Libellula luctuosa-NCR
Libellula pulchella-NCR
Tramea lacerata-NCR

Yankton– 33/34 species +1

Calopteryx maculata
Hetaerina americana
Lestes unguiculatus
Amphiagrion sp.
Argia alberta
Argia apicalis
Argia plana
Enallagma anna
Enallagma annexum
Enallagma antennatum
Enallagma boreale-NCR
Enallagma carunculatum
Enallagma civile
Enallagma clausum
Enallagma hageni
Enallagma signatum
Ischnura perparva
Ischnura verticalis
Nehalennia irene
Anax junius
Rhionaeschna multicolor
Gomphus externus
Erythemis simplicicollis
Leucorrhinia intacta
Libellula luctuosa
Libellula pulchella
Pachydiplax longipennis
Plathemis lydia
Sympetrum corruptum
Sympetrum costiferum
Sympetrum internum
Sympetrum semicinctum
Tramea lacerata
Tramea onusta

Ziebach – 0/5 species +5

Enallagma carunculatum-NCR
Enallagma civile-NCR
Rhionaeschna multicolor-NCR
Sympetrum corruptum-NCR
Tramea lacerata-NCR

Species that should be considered as Species of Greatest Conservation Need:

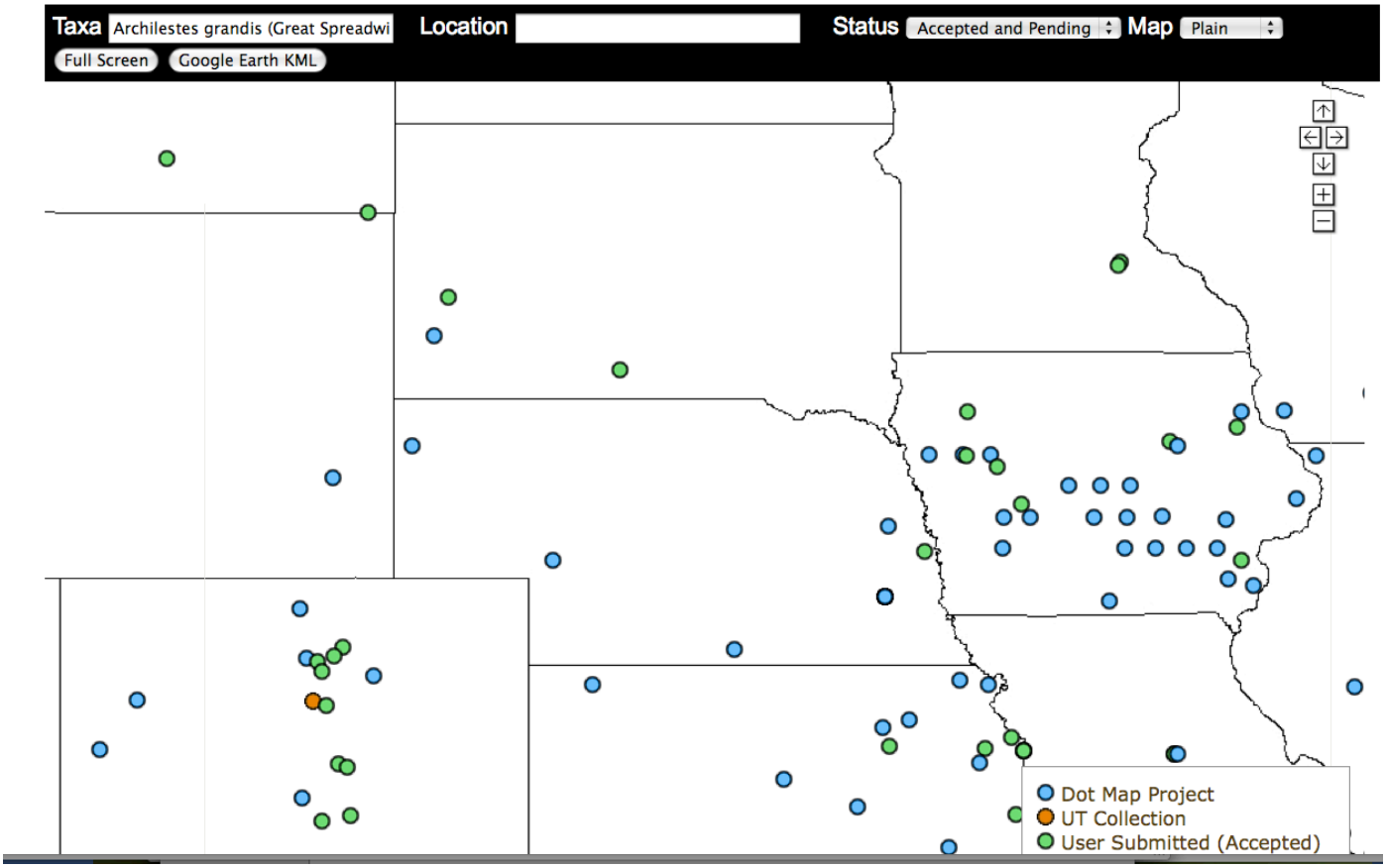
The following species are rare in South Dakota. Some are based on very few specimens reported in the state or an extremely limited range with the state. A few species represent disjunct populations dependant on rare environmental conditions and could be extirpated from the state if that habitat would be disturbed. This later case is true of a few species found only in the Black Hills. All of these species are considered to be secure in North America as a whole.

There are no federally listed endangered species in South Dakota as the only federally listed species is Somatochlora hineana (Hine's Emerald) which has only been found far to the east of South Dakota (mostly Wisconsin, Illinois, and Missouri with isolated populations in states to the east and south of these states). South Dakota doesn't have the necessary environmental conditions to support this species.

The following maps where prepared from data available on OdonataCentral.com (Abbott, J.C. 2007. OdonataCentral: An online resource for the distribution and identification of Odonata. Texas Natural Science Center, The University of Texas at Austin. Available at http://www.odonatacentral.org. (Accessed: December 16, 2012)). The author is the Great Plains Administrator for OdonataCentral and responsible for vetting records submitted for the region. Note: OC = OdonataCentral records.

Habitat information is a combination of Dennis Paulson (2009) and the authors observations.

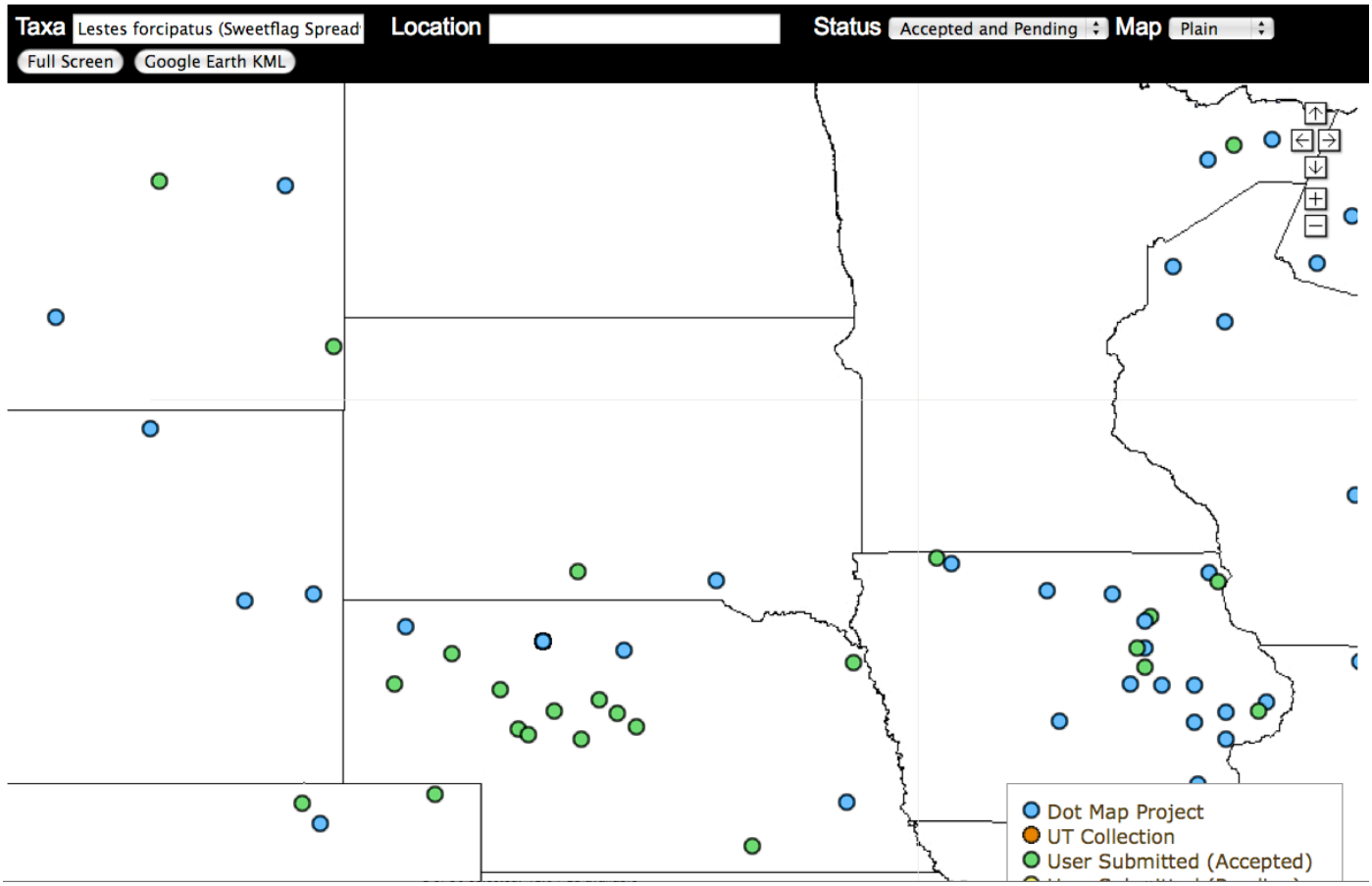
Archilestes grandis:



SD distribution: *Archilestes grandis* is known from three counties: Custer, 1) Dennis Paulson Coll., no date given, Bick, Bick, & Hornuff (1977), and 2) Wind Cave Nat. Park, 1998, T. Lawson (1999); Todd, Antelope Creek, Mission, 9/29/1979, S. Hummel (personal collection); and Pennington, Rapid Creek, Rapid City, 9/24/9012, P. Bjork (OC).

Habitat: slow, wooded streams.
A. grandis is a southwestern species that began expanding its range north and east across the US in the 1950's. South Dakota is along the north edge of its current range. At the present time it is rare in SD, but could well expand northward in the future. It is a late season species, which may account for the scarcity of records as it is on the wing after most collectors are not working in the field due to other obligations. While being considered as a Species of Greatest Conservation Need, it may be more common in southern SD than presently known.

Lestes forcipatus:

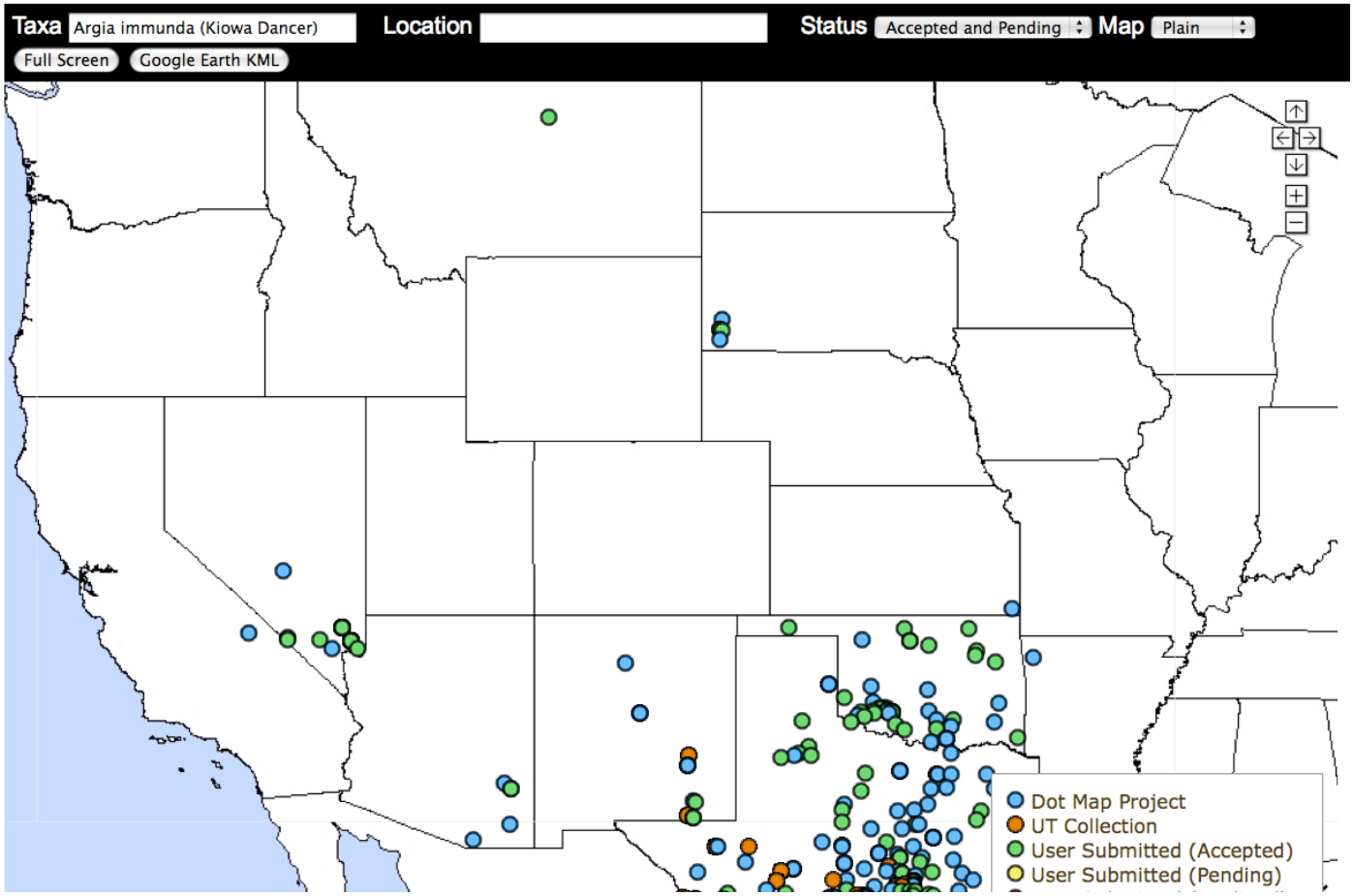


SD distribution: *Lestes forcipatus* is known from two counties: Charles Mix, no date or locality given, Bick, Bick, and Hornuff (1977); Todd, Antelope Dam west of Mission, 9/16/1979, 7/29/1981, and 8/7/1982, and Antelope Creek in Mission, 7/21/1981, Hummel (personal collection).

Habitat: *L. forcipatus* is found around ponds and small lakes with emergent vegetation.

L. forcipatus is part of a 3 species complex with *L. disjunctus* and *L. australis.* These three species can be very difficult to distinguish from each other, especially the males. The later two species have been found in 11 and 10 counties respectively and are widespread in SD. Fresvik (1968) showed *L. forcipatus* to be found in Buffalo, Hanson, Jerauld, Lake, McCook, Minnehaha, and Moody counties, but after checking the specimens in the SDSU collection it was found that all of his specimens were actually *L. australis*. *L. forcipatus* is now known from just two counties in SD and is at the north limit of its range through the central US. It hasn't been found in SD since 8/7/1982.

Argia immunda:

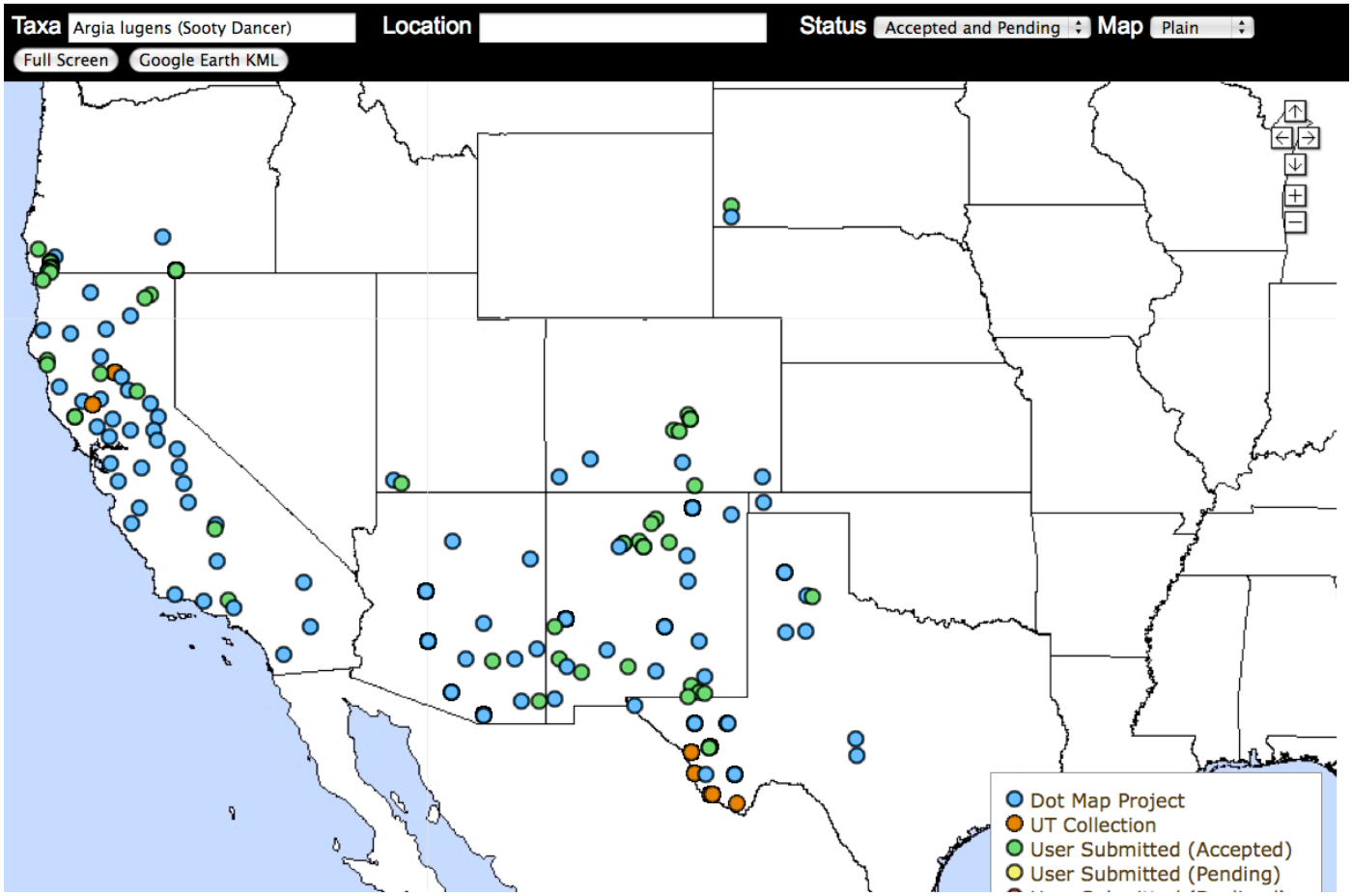


SD distribution: *Argia immunda* is known from two counties: Custer, no locality or date, Bick, Bick, and Hornuff (1977); Fall River (8 records), 1) no locality, 7/5/1932, F. Bingham (USNM), R. Beckemeyer (1998, personal communication); 2) Hot Brook, 6/12/1975, Provonsha & McCafferty (1977); 3) no locality or date, Bick, Bick, and Hornuff (1977); 4 & 5) Hot Brook, Chautauqua Park, Hot Springs, 7/3/1981, 7/22/2000 S. Hummel (personal collection); 6) Hot Brook, upstream from Chautauqua Park, Hot Springs, 7/22/2000, S. Hummel (personal collection); 7) Lake, Cold Brook Rec. Area, 7/22/2000, S. Hummel (personal collection); 8) Fall River @ Allen Ranch Campground, Hot Springs, 8/9/2010, S. King (OC).

Habitat: medium to small, rocky streams.

A. immunda is a species found mainly in the south-central and southwestern states. The SD population is extremely disjunct from the normal range. While the SD records are limited in geographic range, nearly all from Hot Brook in Hot Springs, it has been recorded there from 7/5/1932 to 8/9/2010. If conditions were to change in Hot Brook this population could easily be wiped out. It should be considered to be vulnerable in SD.

Argia lugens:

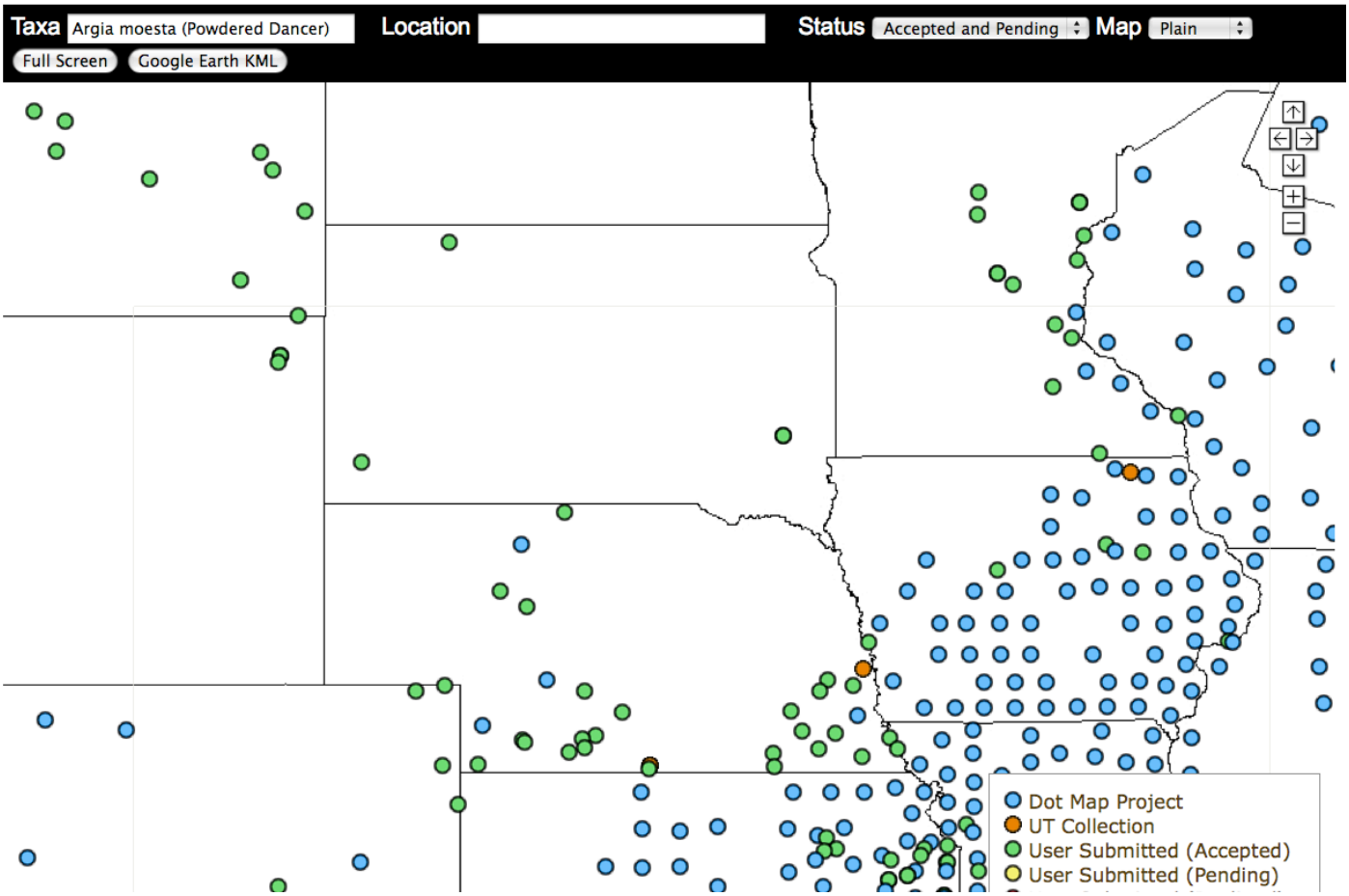


SD distribution: *Argia lugens* may no longer be present in SD. While there are two dots on the map, they represent one individual collected by the author on 7/8/1980, Hot Brook @ Chautauqua Park, Hot Springs, Fall River Co. (M. S. Hummel, 1999). It has not been seen since. If still present, it is very disjunct from the rest of the species population.

Habitat: *A. lugens* prefers small to medium open rocky streams, good current, bordered by a riparian zone, such as found along Hot Brook.

Since this species is known from just a single record it should definitely be placed on the list of Species of Greatest Conservation Need and further studies need to be done to determine if it is extinct in SD

Argia moesta:

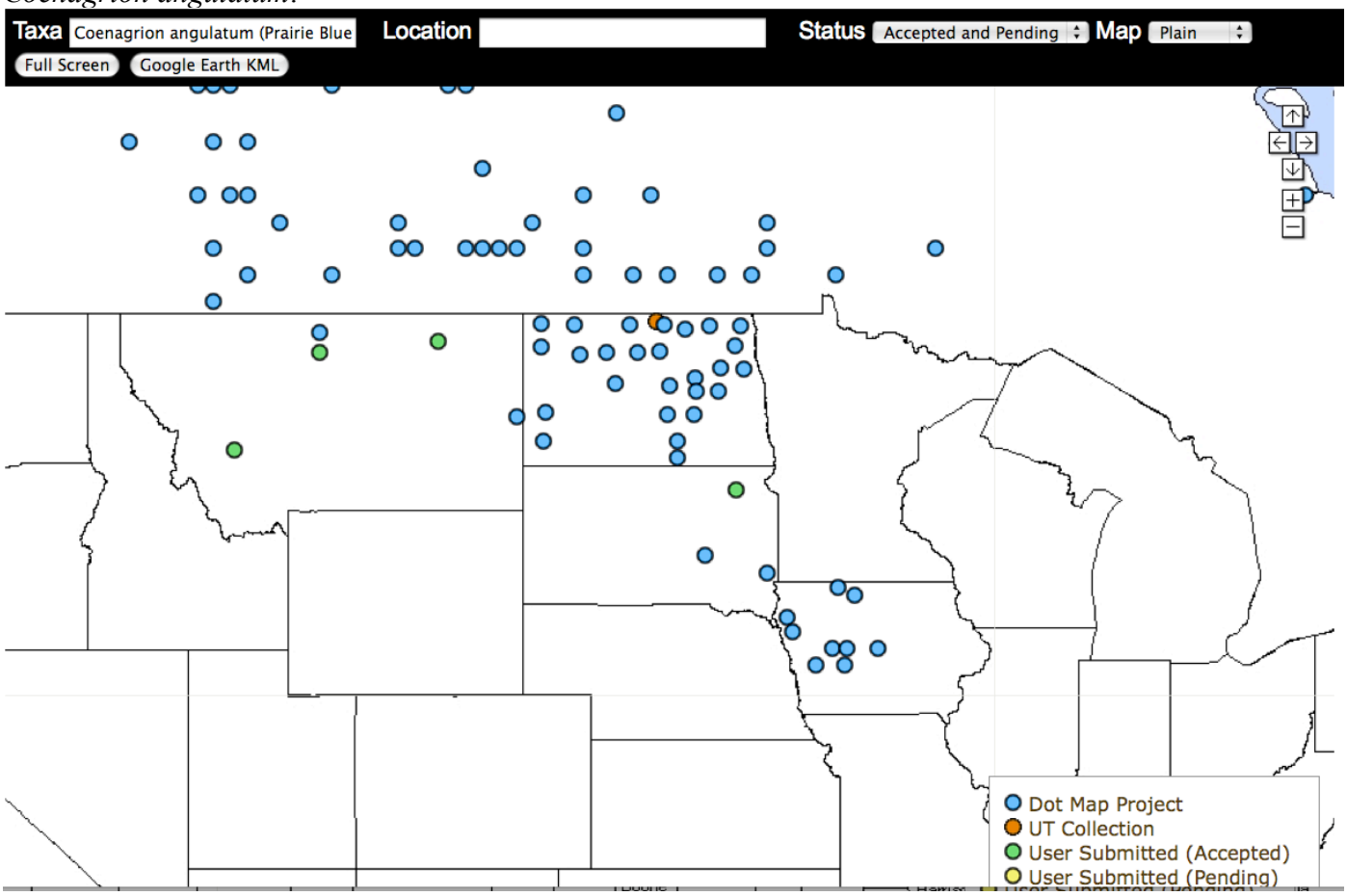


SD distribution: *Argia moesta* has been found three times at widely separated localities in SD. All three records are by the author. It was first found on 7/5/1981 along Hot Brook @ Chautauqua Park, Hot Springs, Fall River Co. It was not found again in SD until 7/25/2011 along the Little Vermillion River in McCook Co and on 8/7/2012 on the Grand River below Shadehill Reservoir in Perkins Co. Where the species is found it can be abundant and is probably more widely spread in SD.

Habitat: *A. moesta*'s preferred habitat ranges from large to small streams, muddy to sandy bottoms, usually with rocks on which they perch.

The recommendation for inclusion as a Species of Greatest Conservation Need is based on limited records, but with further collecting and observation it may prove to be fairly common in SD.

Coenagrion angulatum:

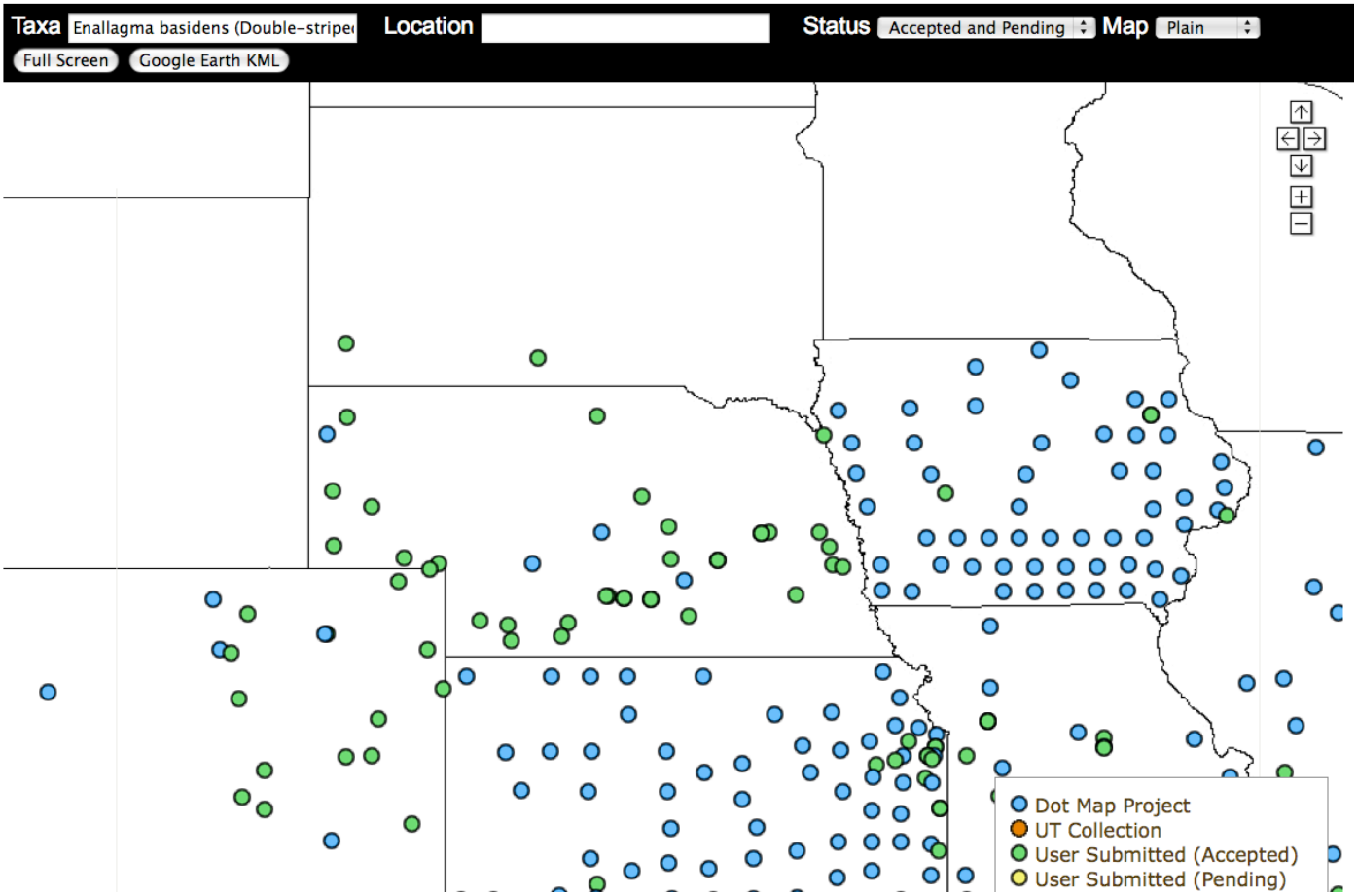


SD distribution: *Coenagrion angulatum* has been reported from three counties: Day, no date or locality given, Bick, Bick, and Hornuff (1977); Jerauld, 6/21/1968, 3 mi. east of Wessington Springs, M. Fresvik (1969); Minnehaha, 6/17/1968, 3 mi. north of Sherman, M. Fresvik (1969).

Habitat: *C. angulatum* may be found in a variety of prairie wetlands, mostly lentic, but occasionally small streams with abundant emergent vegetation.

While eastern SD seems to be well within the species range, it hasn't been found since 1976 in spite of extensive collecting by D. Skadsen and the author in appropriate habitat. This species may be exterpated from the state or extremely rare, therefore, it is recommended for inclusion as a Species of Greatest Conservation Need.

Enallagma basidens:

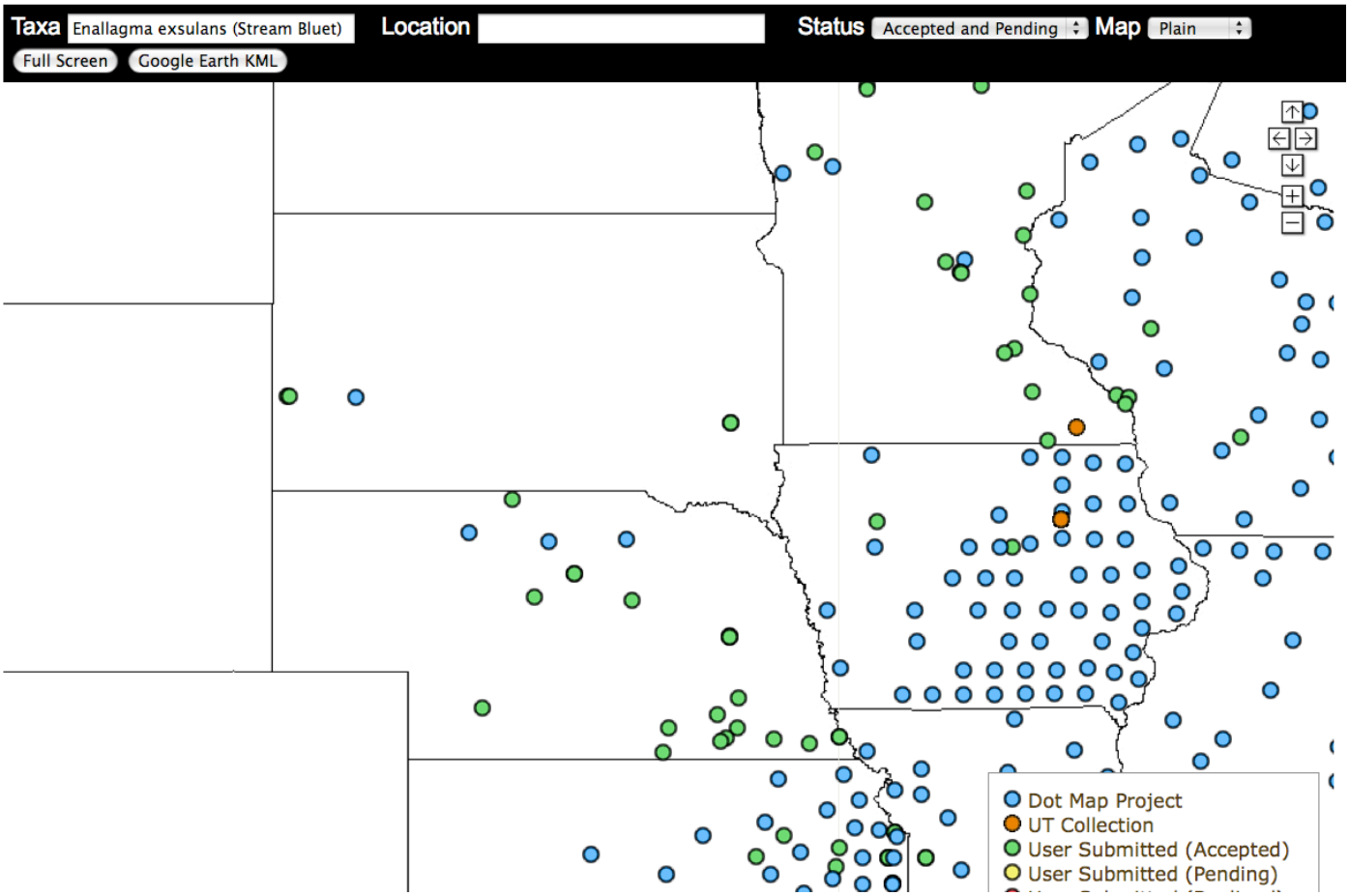


SD distribution: *Enallagma basidens* has been recorded in SD only twice, both by the author. The first record was from Todd Co., 8/23/1982, along Antelope Creek in Mission. The second record was from Fall River Co., 7/22/2000, Cold Brook Rec. Area. Both of these record are slight northern extensions of the species from its range in NE.

Habitat: The preferred habitat of *E. basidens* is ponds and lake margins, or slow streams with emergent vegetation.

Due to it's limited range in SD, *E. basidens* is recommended for inclusion as a Species of Greatest Conservation Need.

Enallagma exsulans:

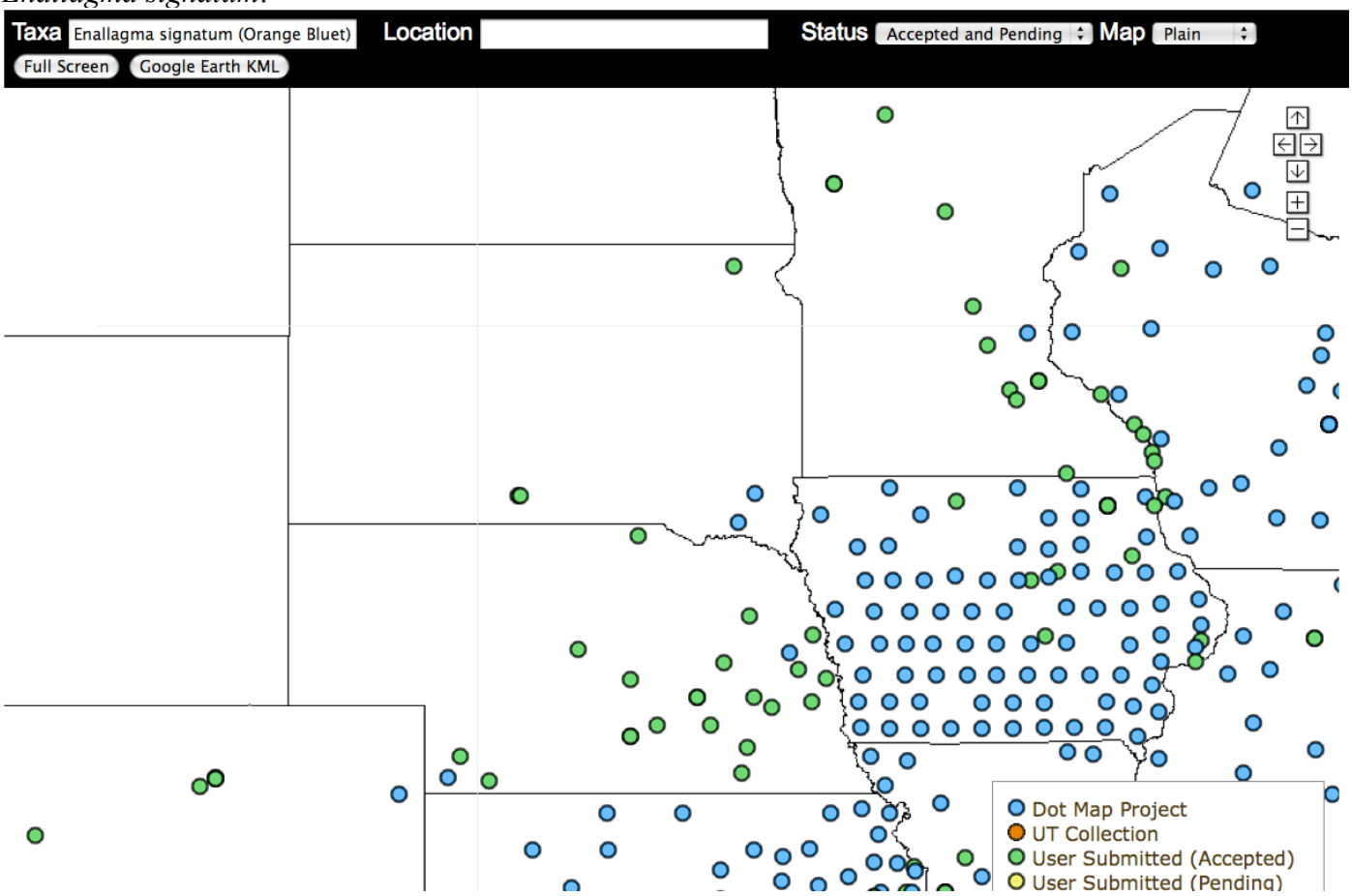


SD distribution: *Enallagma exsulans* has been found three times in two Counties. All records are by the author: Pennington, 1) 7/7/1981 & 7/25/1998, Deerfield Lake; McCook, 7/25/2011, 252 St @ Little Vermillion River.

Habitat: *E. exsulans* typically is a stream species being found along medium to large streams, but it can be found around vegetated lake shores in the northern part of its range (hence Deerfield Lake). The author has found it at lakes, as well as larger streams, commonly in northern IA.

The SD records represent a northern extension at the western edge of its range. The records being spread over 30 years indicates that the species is probably stable, but with only three records it should be considered for inclusion as a Species of Greatest Conservation Need.

Enallagma signatum:

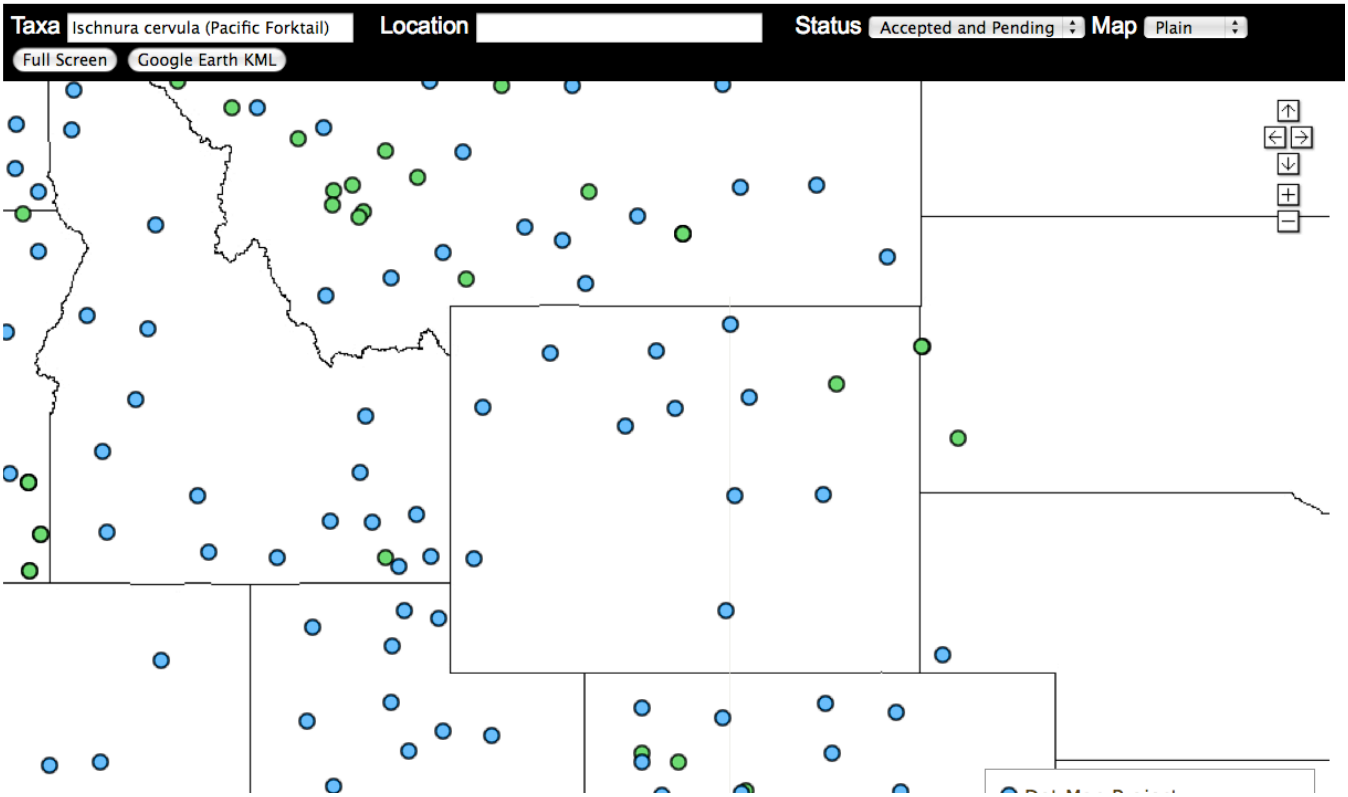


SD distribution: *Enallagma signatum* has been reported from five counties: Hanson, 8/31/1968, 2 mi. south of Alexandria, M. Fresvik (1969); Marshall, 7/21/2010, Roy Lake St. Pk., West Unit, S. Hummel (personal collection), Todd, 1) 7/29/1981, Antelope Dam, S. Hummel (personal collection), 2) 8/23/1982, Antelope Creek, Mission, S. Hummel (personal collection); Turner, no date or locality given, M. Fresvik (1969); Yankton, no date or locality given, Bick, Bick, and Hornuff (1977).

Habitat: *E. signatum* is a generalist of lakes, ponds, and slow streams.

These SD records represent a northwestern extension of the range of this species. As a generalist that can live in many habitats it is probably more common than the records indicate. Due to the small number of records at the present time it is recommended for inclusion as a Species of Greatest Conservation Need.

Ischnura cervula:

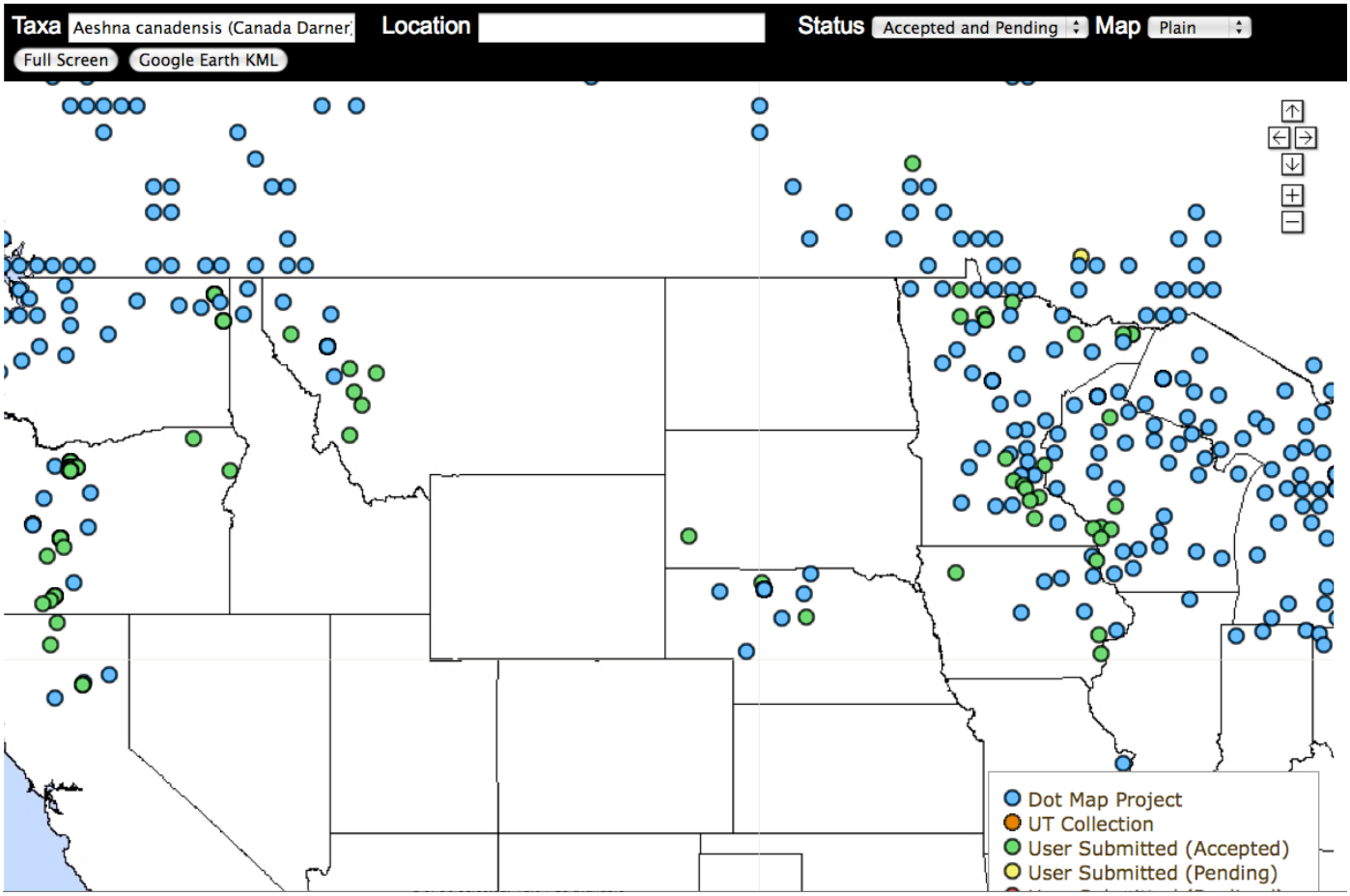


SD distribution: *Ischnura cervula* has been found in two counties at three locations: Custer, no date, Wind Cave National Park, T. Lawson (1999); Lawrence, 1) 6/21/1999, Mud Lake, Coxes Lake GPA, S. Hummel (personal collection), 2) 6/21/1999,Mirror Lake GPA, S. Hummel (personal collection).

Habitat: *I. cervula* can be found in any pond, lake, marsh, even ditch with abundant vegetation. It can be very common over most of its range.

The SD records are at the extreme eastern edge of its range. It may be expanding it range to the east, but more collecting in western SD is needed to confirm this, therefore, it is recommended for inclusion as a Species of Greatest Conservation Need.

Aeshna canadensis:

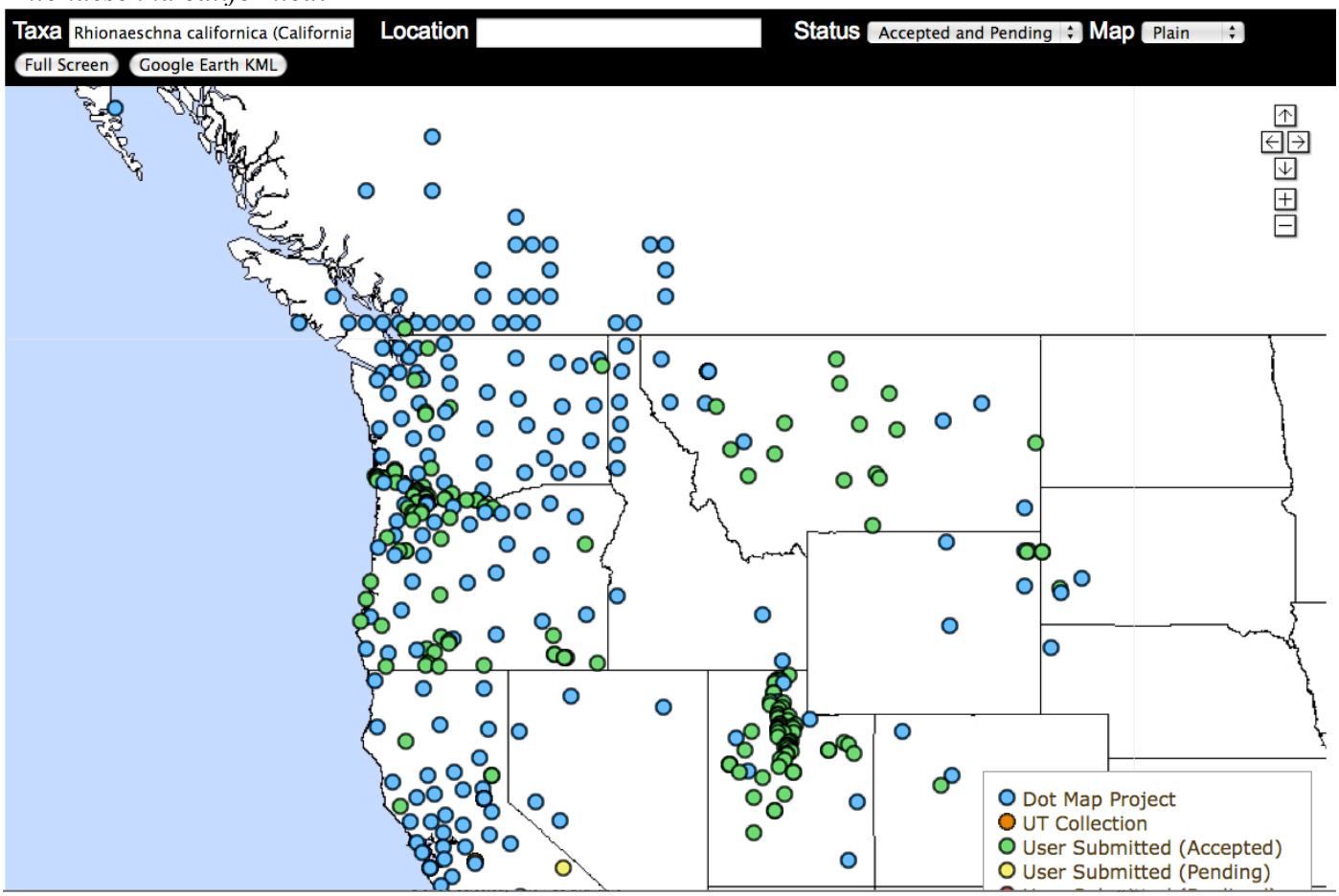


SD distribution: *Aeshna canadensis* is only know from three collections in Custer Co.: 1) 7/9/1980, French Creek Natural Area, Custer St. Pk., S. Hummel (personal collection); 2) 7/10/1980, French Creek Natural Area, Custer St. Pk., S. Hummel (personal collection); 3) no date, Wind Cave National Park, T Lawson (1999).

Habitat: *A. canadensis* is a species of lakes and ponds with abundant emergent vegetation.

A. canadensis is a strong flier and can often be found long distances from their breeding habitat. The SD localities, along with the NE population represents a slightly disjunct population from the eastern and western ranges of this species in the middle of the great plains. Since it has been found in only a very small area of SD it should be included in the Species of Greatest Conservation Need.

Rhionaeschna californica:

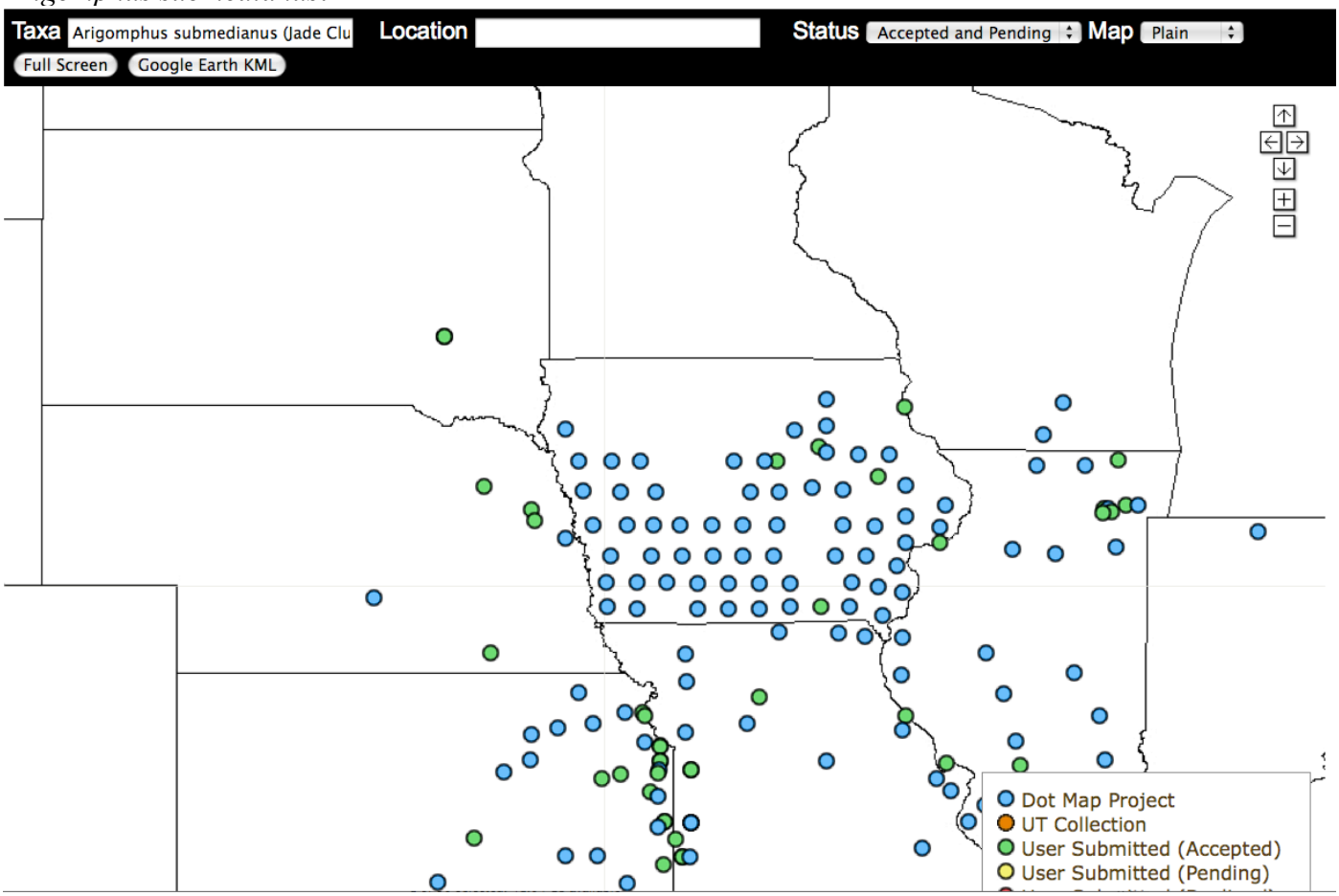


SD distribution: *Rhionaeschna californica* is known from 4 counties: Custer, 1) no date or locality, Bick, Bick, and Hornuff (1977), 2) 8/10/1980, Bismark Lake, S. Hummel (personal collection), 3) no date, Wind Cave National Park, T. Lawson (1999); Lawrence, 1) 6/21/1999, Mirror Lake GPA, S. Hummel (personal collection, 2) Mud Lake, Coxes Lake GPA, S. Hummel (personal collection); Meade, 6/26/2005, N. Block (BugGuide.net); Pennington, no date or locality, Dot Map Project.

Habitat: *R. californica* is a pond and lake species. It prefers areas with vegetation. Like *A. canadensis* it can be found long distances from their breeding habitat.

R. californica is a rare species and at the eastern edge of its range in the Black Hills. It should be listed as a Species of Greatest Conservation Need.

Arigomphus submedianus:

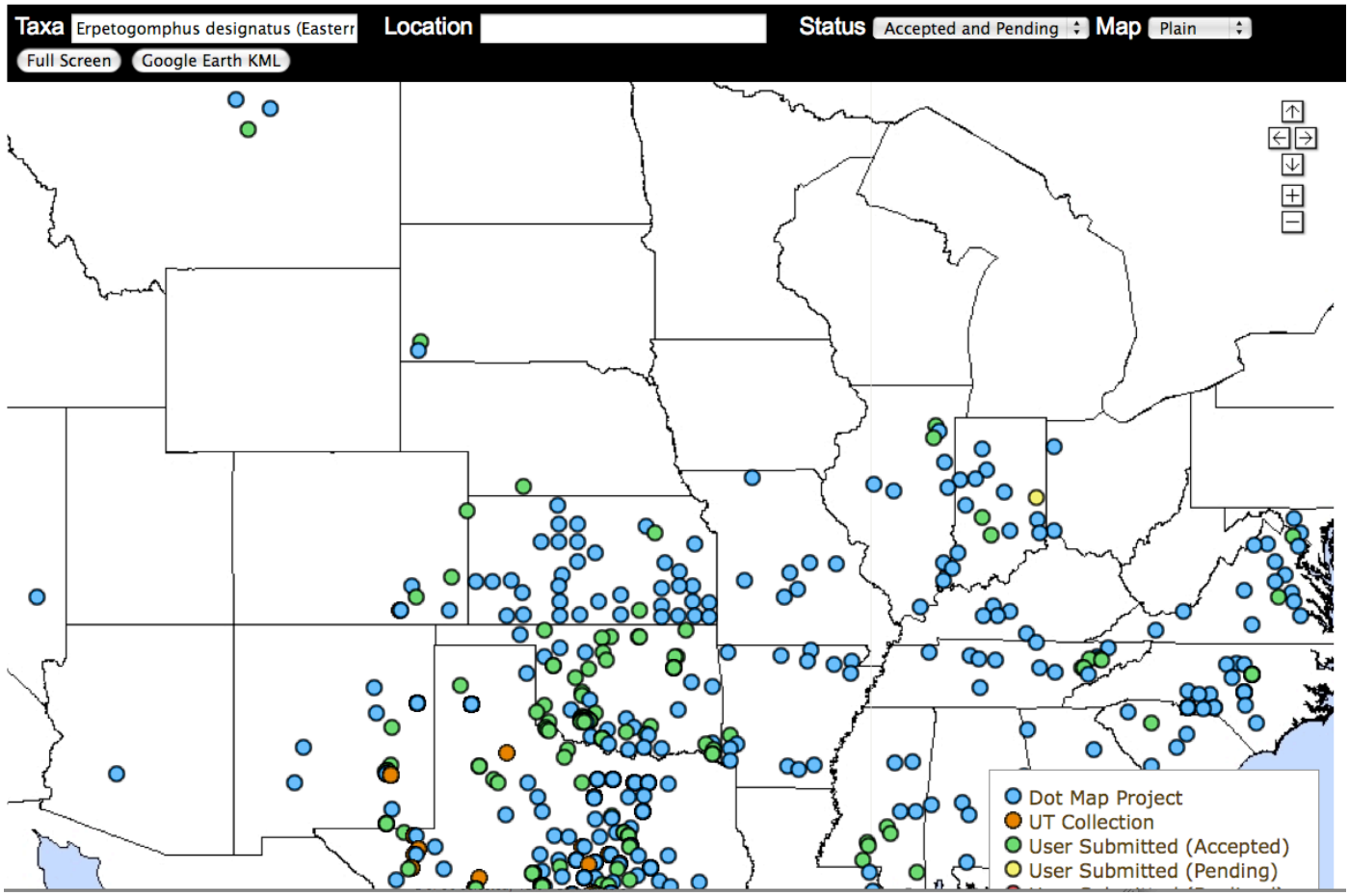


SD distribution: *Arigomphus submedianus* in SD is based on a single specimen observed by the author in Davison Co. at Mitchell Lake, just south of the dam on 7/26/2011.

Habitat: Arigomphids are unusual among gomphid dragonflies in their preferred habitats being ponds and lakes, or slow streams and ditches, rather than rivers.

This specimen represents a northwest extension of *A. s*ubmedianus's range. No voucher was taken, but it was observed perched at a distance of about 1 meter. The coloration of the specimen and habitat indicates this species. The author has much experience with this species in IA. This species spends most of its time patrolling territories over water. Wading in to the lake is often necessary in order to capture, but they will occasionally perch in weeds or shrubs. Most all of the gomphids are under represented in the SD fauna with only three species having more than three records. *A. submedianus* should be included as a Species of Greatest Conservation Need in SD.

Erpetogomphus designatus:

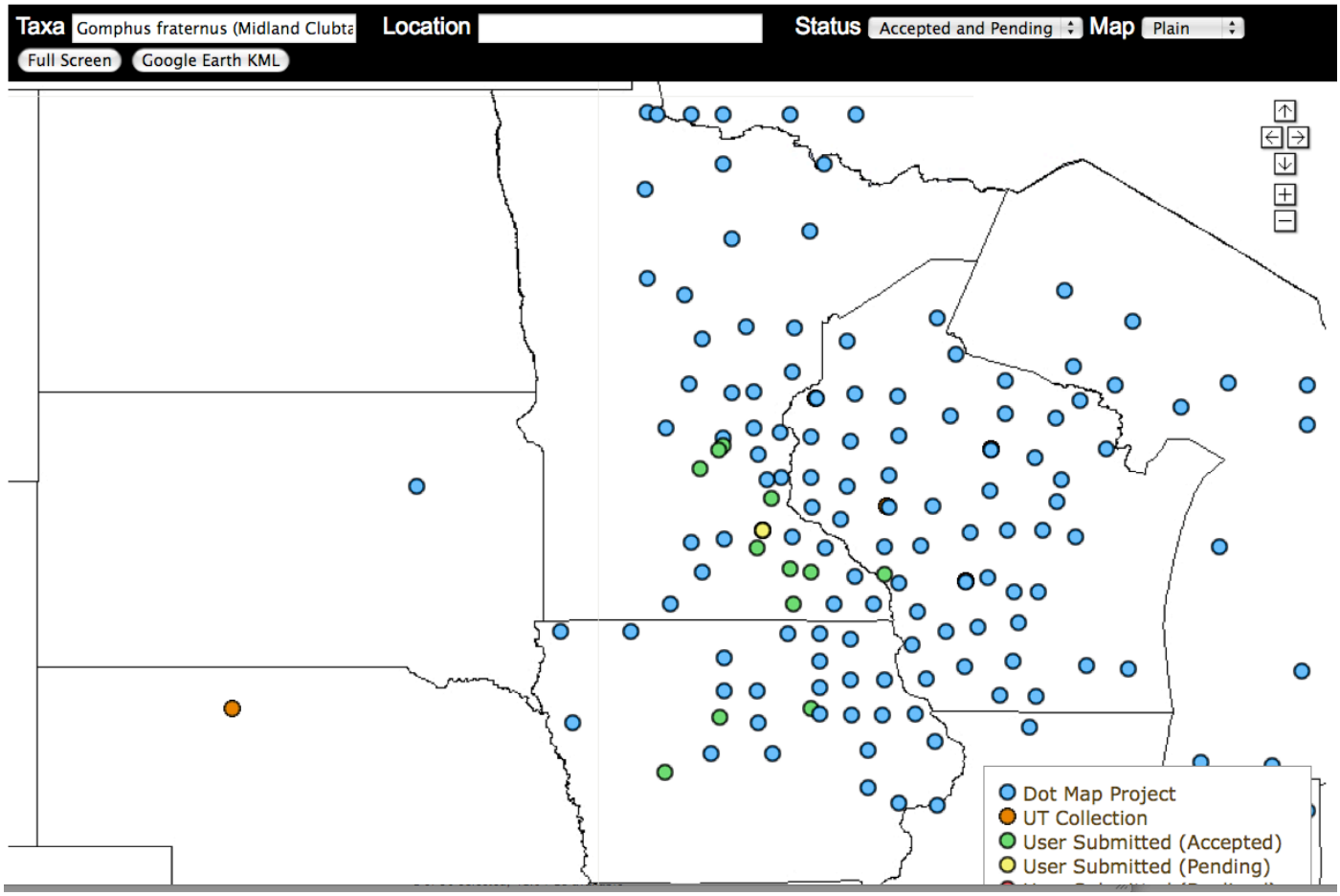


SD distribution: *Erpetogomphus designatus* is another highly restricted, disjunct species in SD. There are three records of the species, all from Fall River Co. 1) 7/15/1998, Fall River near an overflow seepage, B. Mauffrey (1999); 7/24/1998, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal Collection; 8/9/2010, Fall River @ Allan Ranch, Hot Springs, S. King (OC).

Habitat: Sandy and gravelly streams and rivers.

Capturing or observing this species usually requires wading of streams. Since E. designatus has only been found along Hot Brook and Fall River at Hot Springs it should be listed as a Species of Greatest Conservation Need.

Gomphus fraternus:

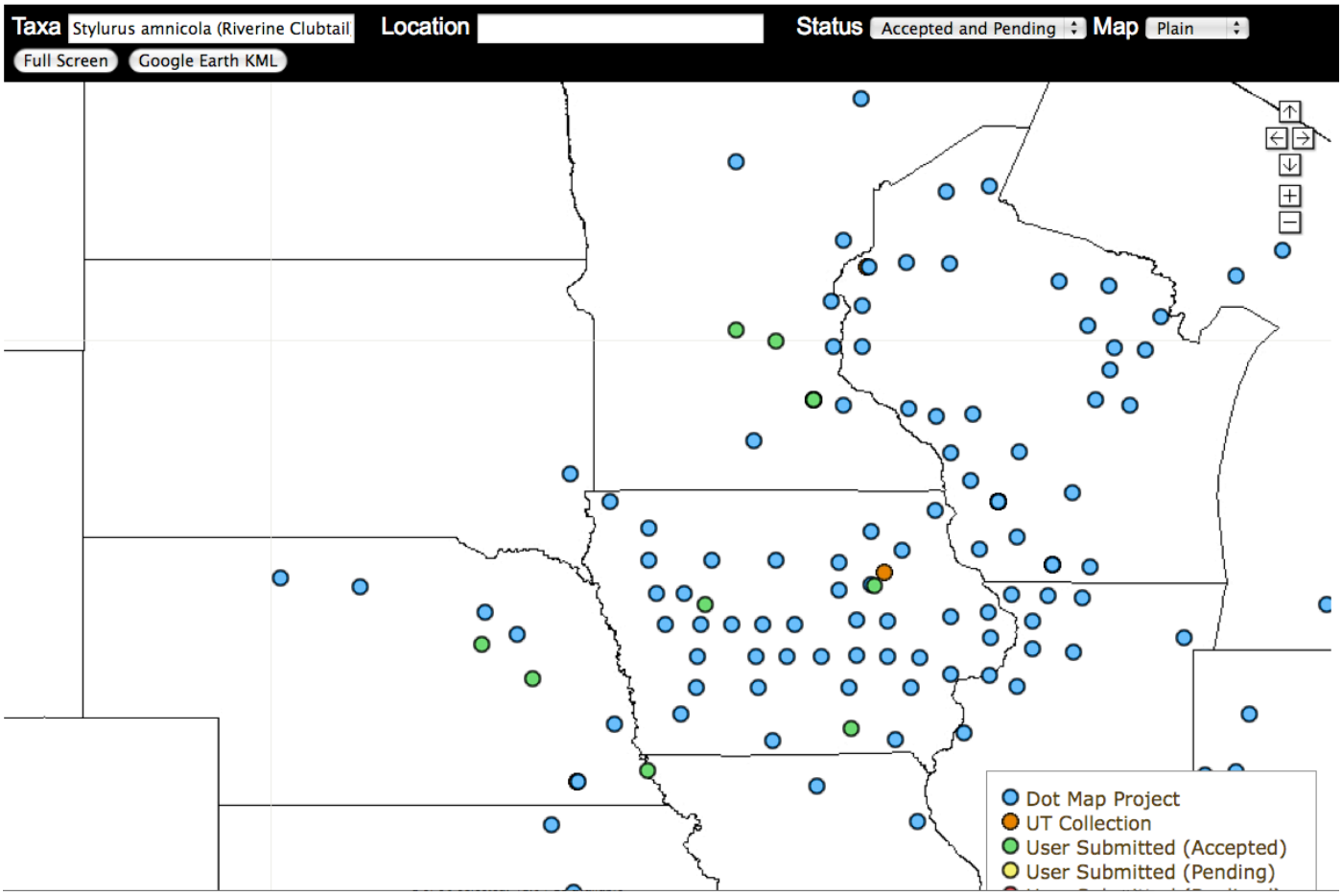


SD distribution: *Gomphus fraternus* has been reported just once in SD. That was for a collection by Carl Cook, Spink Co., no date or locality given, Bick, Bick, and Hornuff (1978).

Habitat: Clean streams with moderate current with rock and mud substrates.

Capturing or observing this species usually requires wading of streams. With just one record in the state this species should be included on the Species of Greatest Conservation Need list.

Stylurus amnicola:

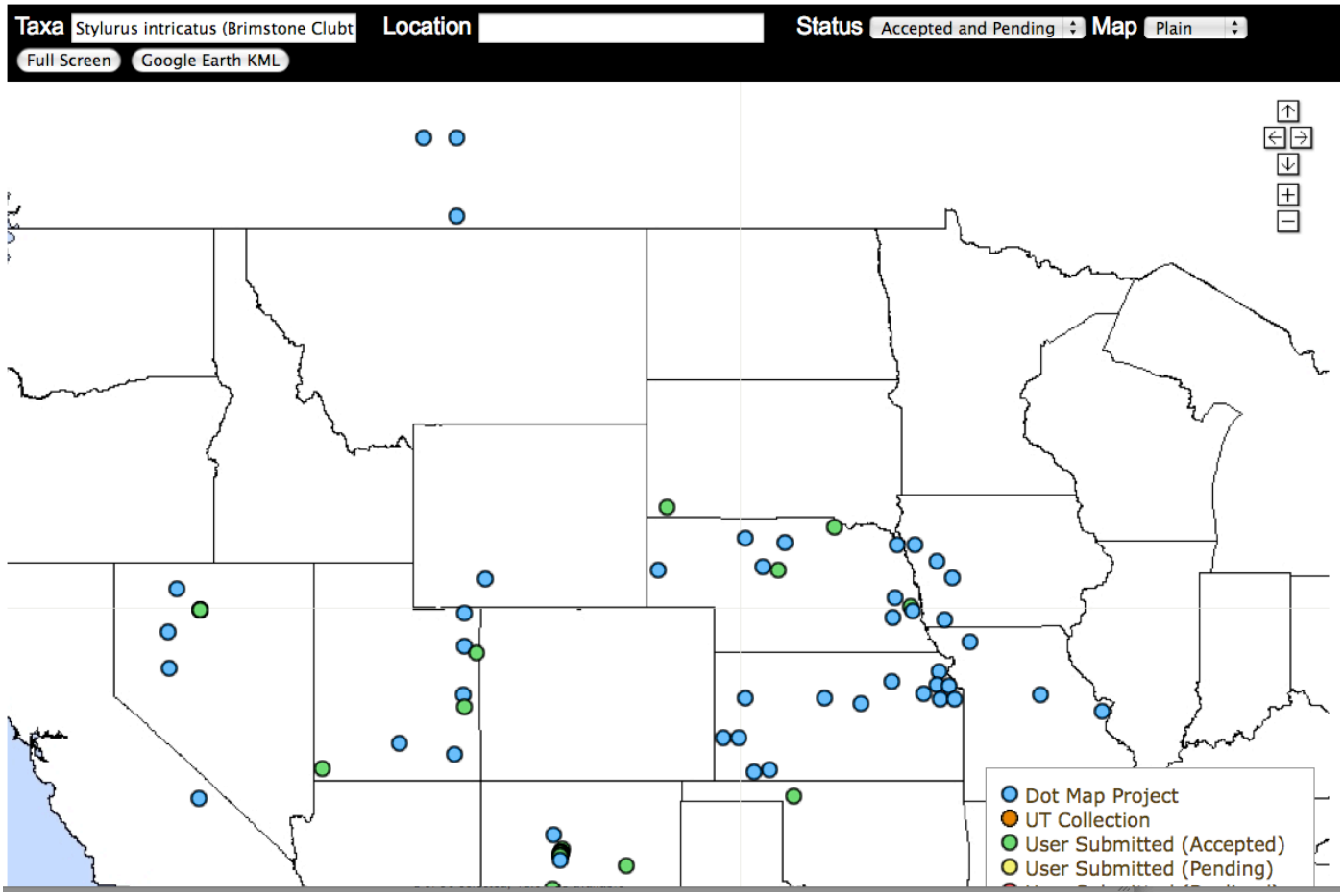


SD distribution: *Stylurus amnicola* is known from one specimen in Minnehaha Co., 7/26/1998, Beaver Creek Nature Park, S. & MJ Krotzer, (Paulson, et. al. 1999).

Habitat: Medium to large slow-flowing to fast rivers with varied bottom types. Often found some distance from streams while foraging.

Capturing or observing this species usually requires wading of streams. With one specimen known from SD, though only a small range extension from known populations in northwest IA, S. amnicola should be placed on the Species of Greatest Conservation Need list.

Stylurus intricatus:

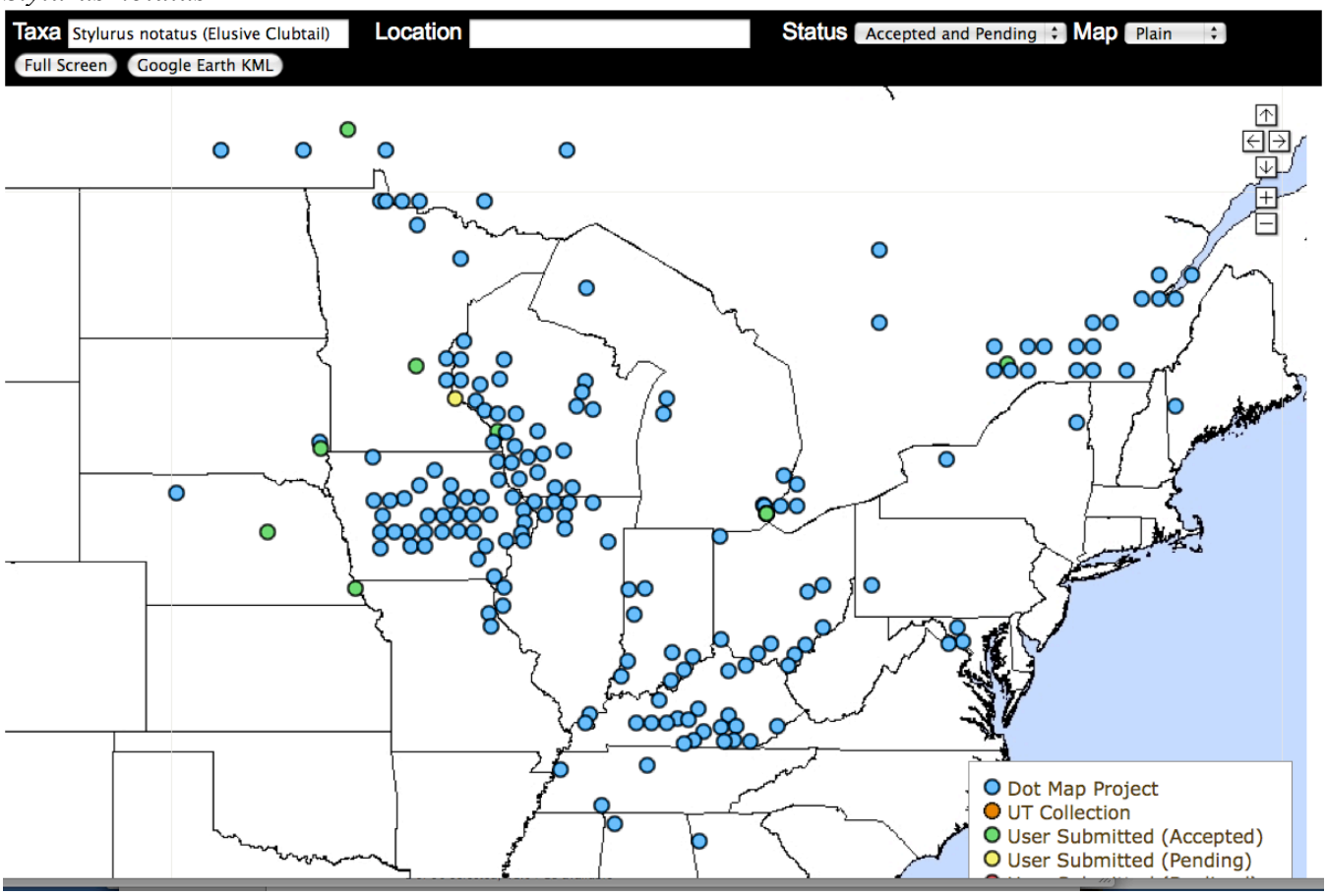


SD distribution: *Stylurus intricatus* is known from one collection (Bick, Bick, and Hornuff, 1977) from Fall River Co. No date or locality given. The species is known from the Niobrara River in NE, so this is a slight range extension in to southwestern SD.

Habitat: *S. intricatus* is typically found along slow-flowing, warm muddy rivers in open country.

Capturing or observing this species usually requires wading of streams. As it is only known from one collection *S. intricatus* should be included as a Species of Greatest Conservation Need.

Stylurus notatus

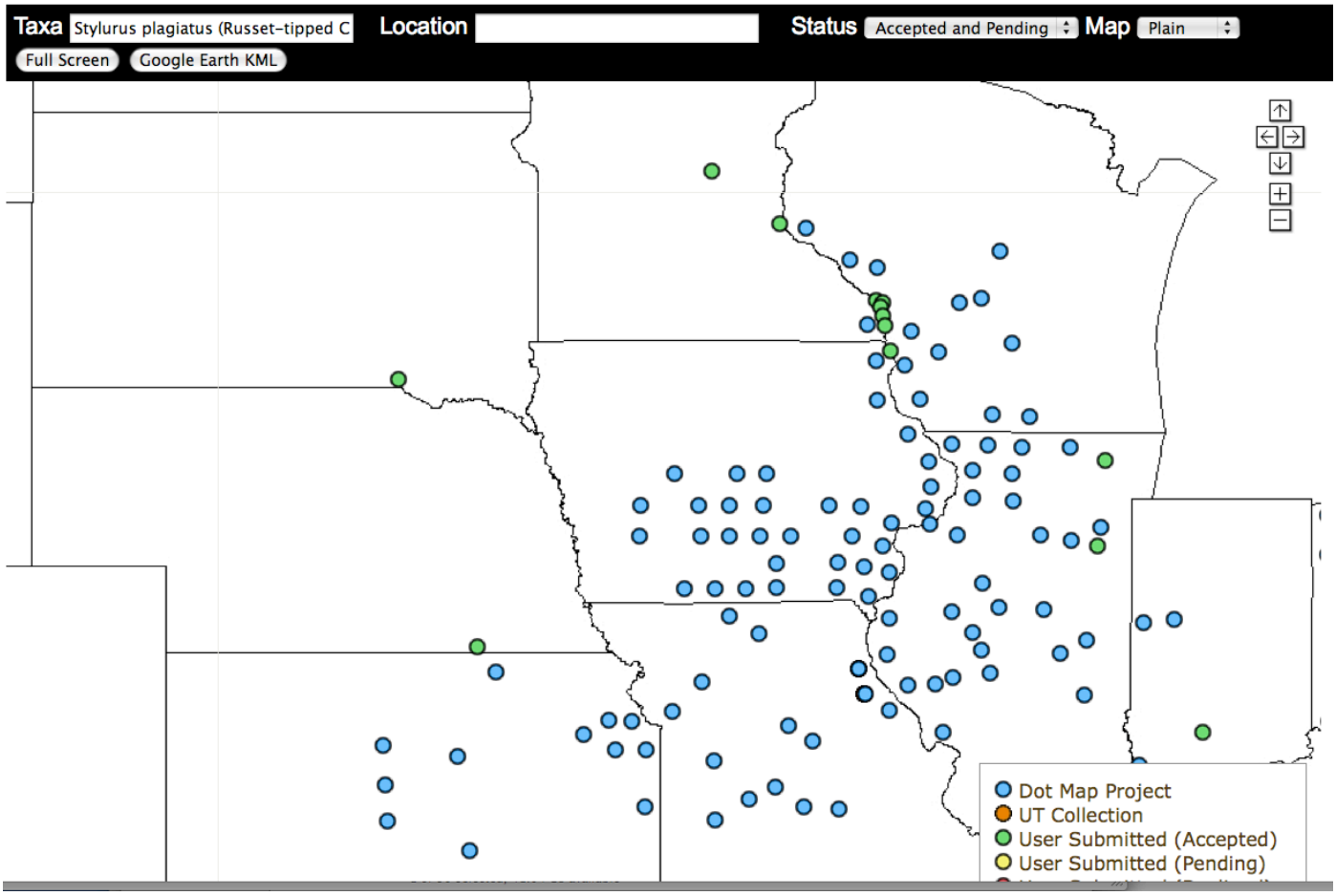


SD distribution: *Stylurus notatus* is known from 2 collections in Minnehaha Co.: 1) 7/26/1998, Beaver Creek Nature Area, S. & MJ. Krotzer (Paulsen et. al. 1999); 2) 9/24/2010, Sioux Falls, S. King (OC)

Habitat: Large, slow-flowing rivers.

As the common name (elusive clubtail) this species can be hard to find. It may be more common along the larger steams in eastern SD that the records indicate. Capturing or observing this species usually requires wading of streams. Based on the distribution of this species, eastern SD should be within its expected range. Still, with only two records in SD it should also be included as a Species of Greatest Conservation Need.

Stylurus plagiatus:

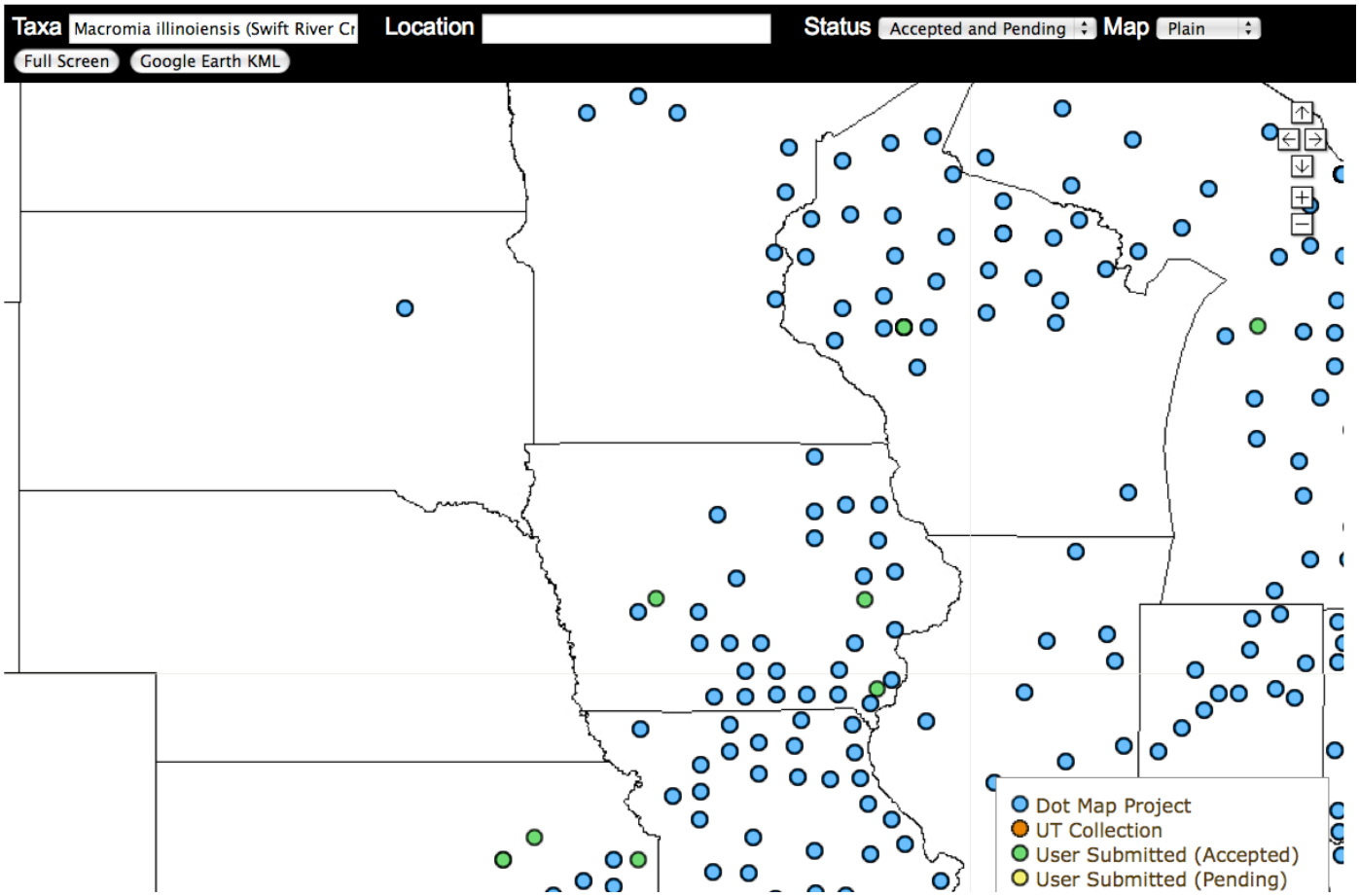


SD distribution: *Stylurus plagiatus* in SD is based on one specimen from Charles Mix Co. It was reported by F. Sibley (OC) from the east side of Fort Randell Dam, 7/13/1998.

Habitat: Slow-flowing rivers and streams, large to small.

This record represents a large range extension for the species to the north and west of its known range. Capturing or observing this species usually requires wading of streams. As only one record is known for the species it should be includes as a Species of Greatest Conservation Need.

Macromia illinoiensis:

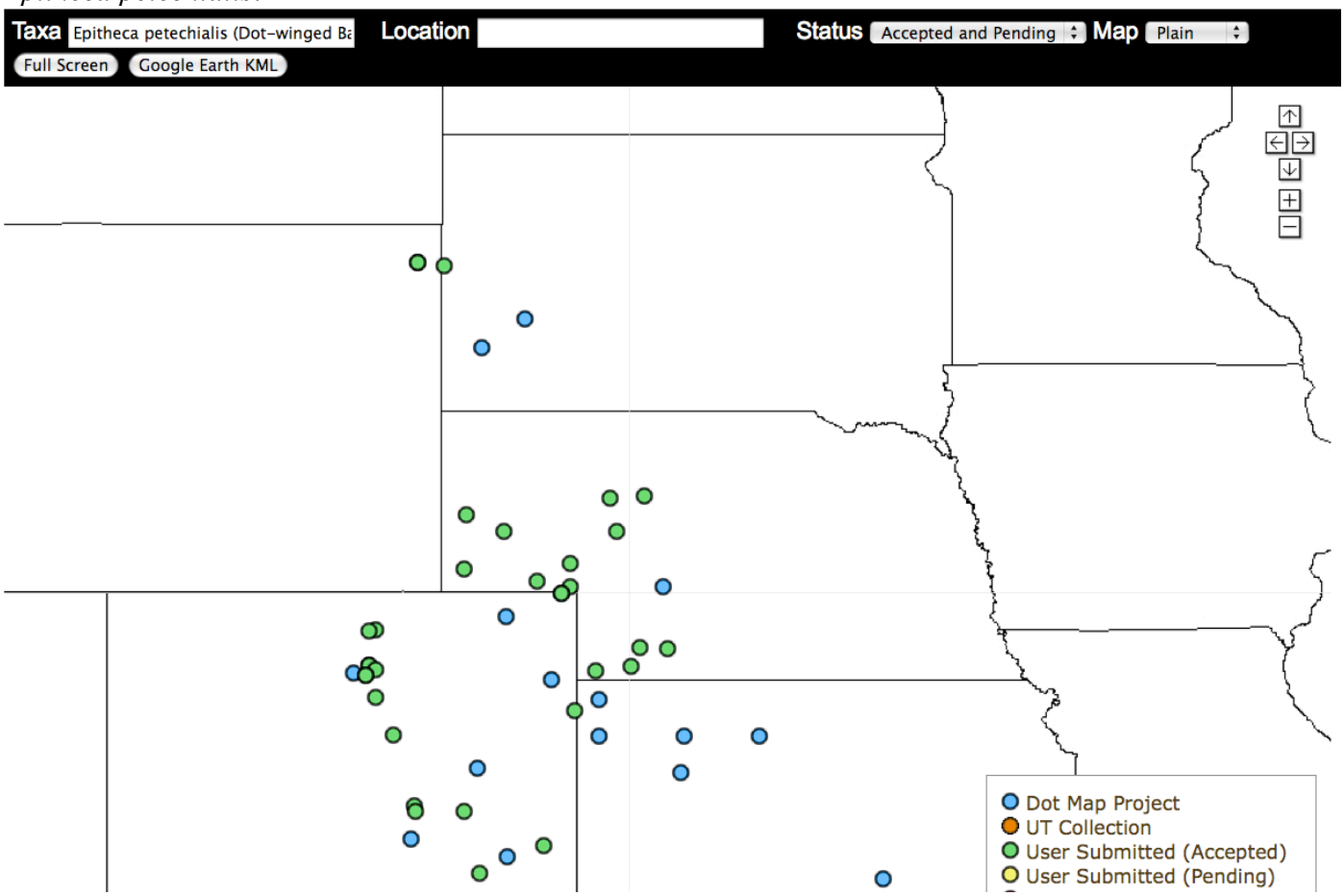


SD distribution: *Macromia illinoiensis* is another species with just one record for SD that wasn't found in the current survey. Its inclusion in SD is based on a record, like that of *Gomphus fraternus*: a collection by Carl Cook, Spink Co., no date or locality given, Bick, Bick, and Hornuff (1978).

Habitat: Large steams and rivers, clear to muddy, slow to fast currents, rocks or not.

M. illinoiensis is a large black and yellow species. The color pattern is unmistakable. Capturing this species usually requires wading of streams. This record is some distance from the known range of the species. If it actually exists in SD it should be on the Species of Greatest Conservation Need list.

Epitheca petechialis:

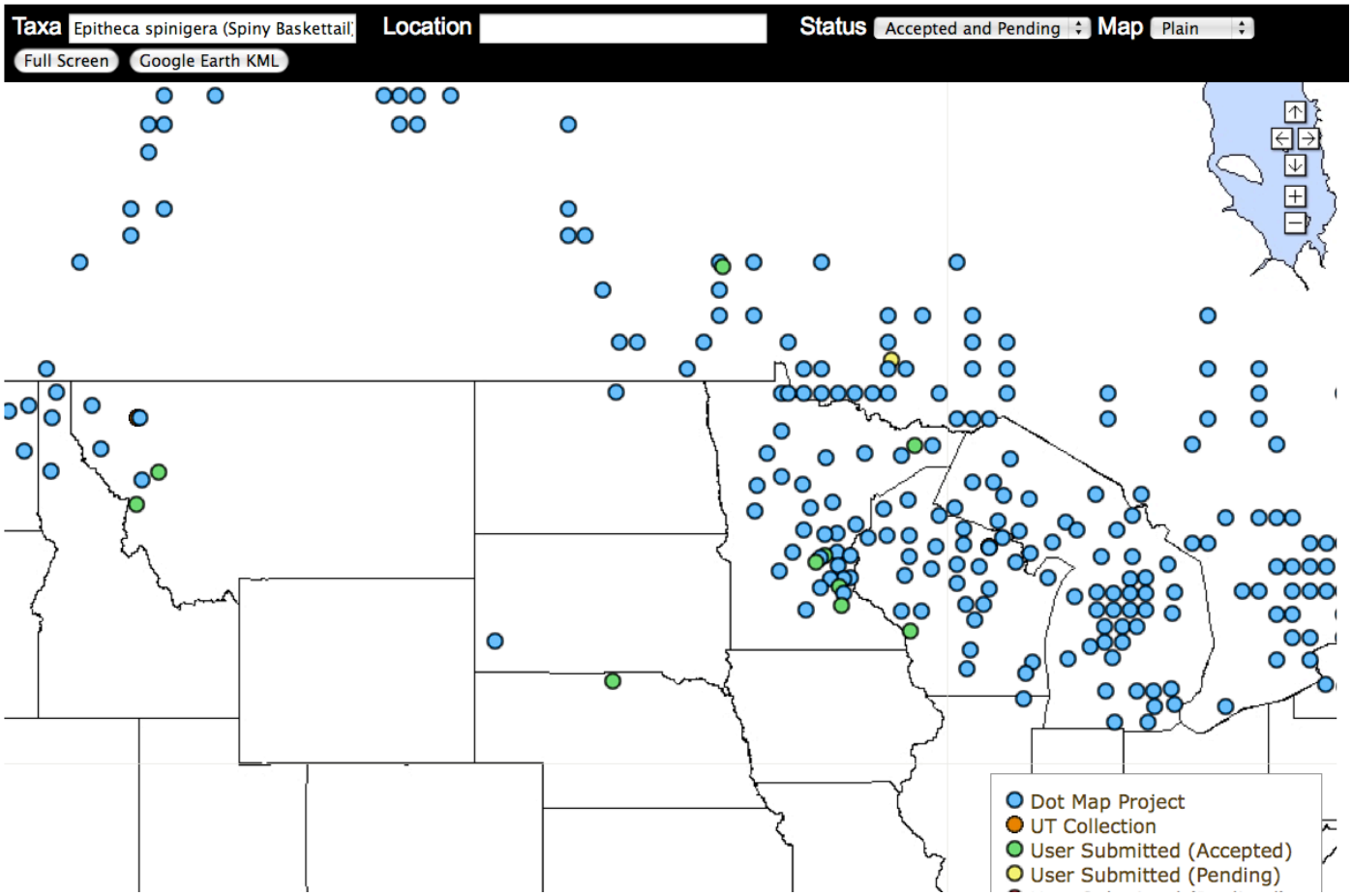


SD distribution: *Epitheca petechialis* in SD is a northern extension of the species range. It is common in western NE. It has three records in the Black Hills in three counties: Custer, no date or locality, Dot Map Project (Donnelly, 2004); Lawrence, 6/21/1999, Mirror Lake GPA, S. Hummel (personal collection); Pennington, 7/15/1998, Sheridan Lake, B. Mauffrey (personal communication)

Habitat: Lakes, ponds, and slow streams.

The three records in SD plus one record in WY represents a slightly disjunct population of this species. It is rare in SD and should be on the Species of Greatest Conservation Need.

Epitheca spinigera:

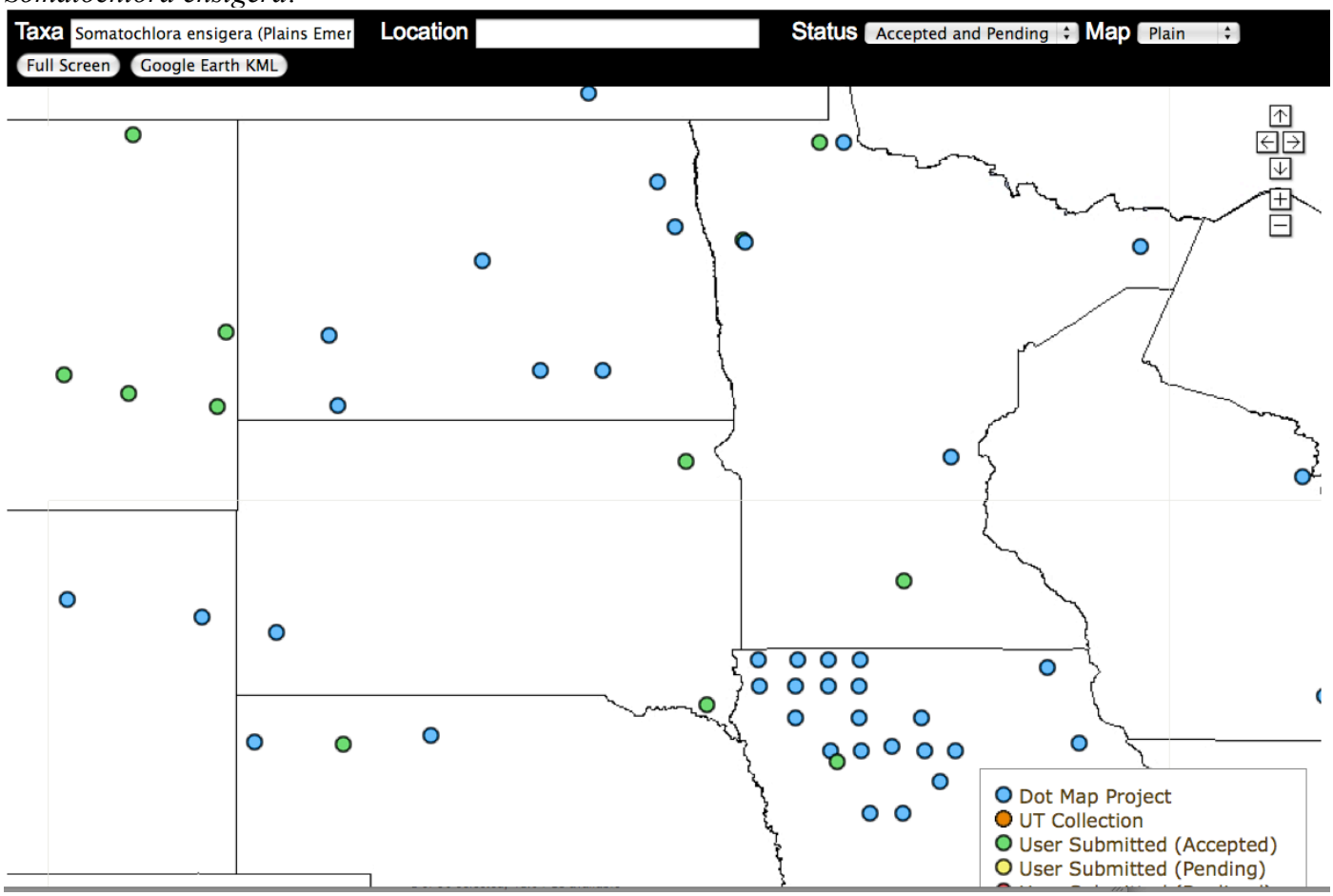


SD distribution: *Epitheca spinigera* is represented in SD by a single Dot Map Project record from Custer County. No date or locality has been found (Donnelly, 2004).

Habitat: Ponds and lakes, rarely at slow streams.

With just one record *S. spinigera* should be listed as a Species of Greatest Conservation Need.

Somatochlora ensigera:

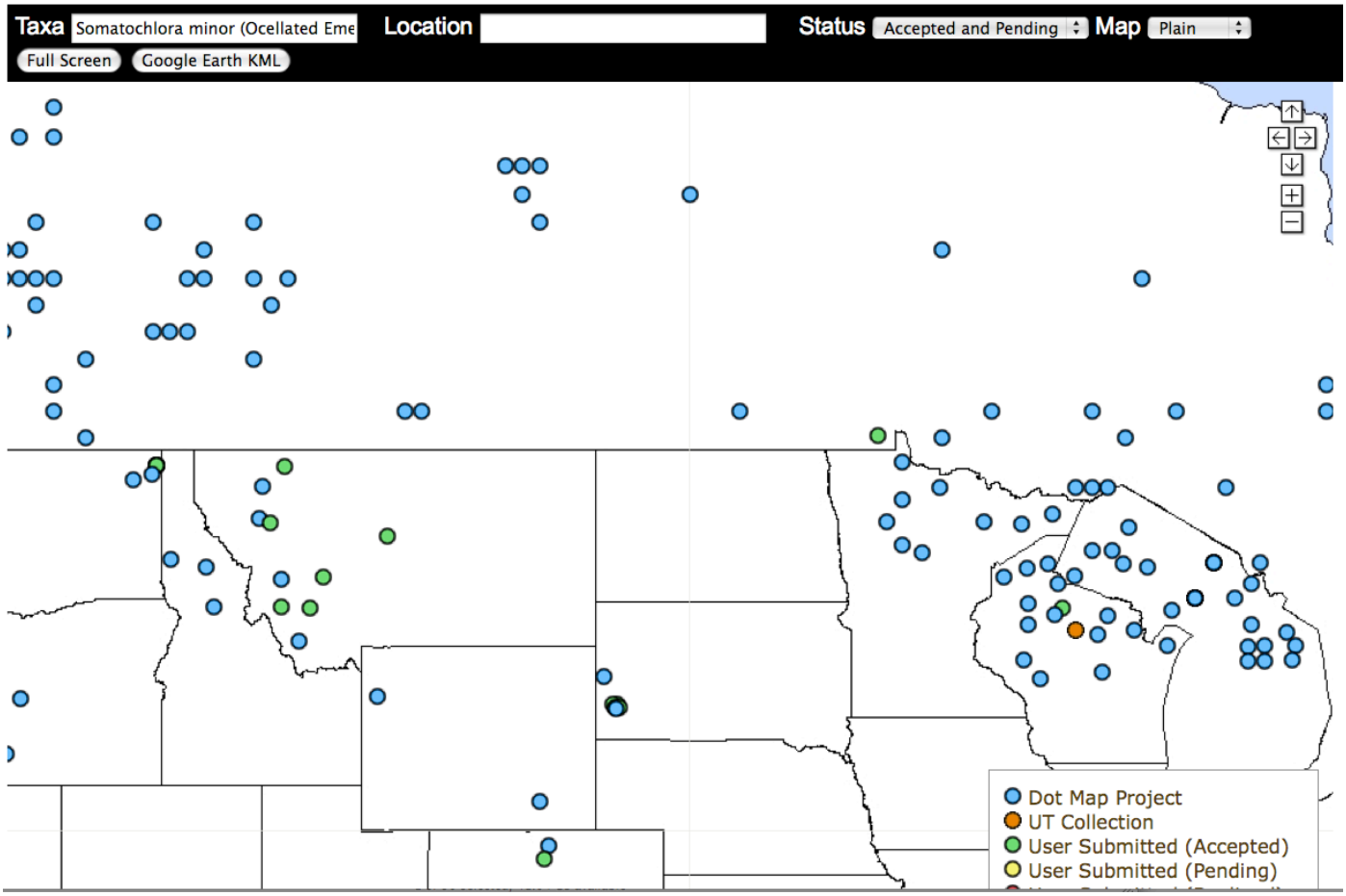


SD distribution: *Somatochlora ensigera* has been reported from three widely separated counties in SD: Custer, no date or locality, Dot Map Project (Donnelly, 2004); Clay, 7/23/2008, stream @ Spirit Mound St. Pk., D. Skadsen (personal communication); Day, 7/24/2004, Chekapa Creek, D. Skadsen (personal communication).

Habitat: Streams and small rivers with riffles and pools, open areas with some riparian shrubs.

Somatochlorans can be difficult to observe and capture. They tend to fly up and down streams, but can be perching in vegetation and fly rapidly away when disturbed. Finding them can require wading of streams. This species is most often found in plains habitats so it should be much more common in SD than the records indicate. Most of SD represents a gap in the species known range. At the present time this species should be included as a Species of Greatest Conservation Need.

Somatochlora minor:

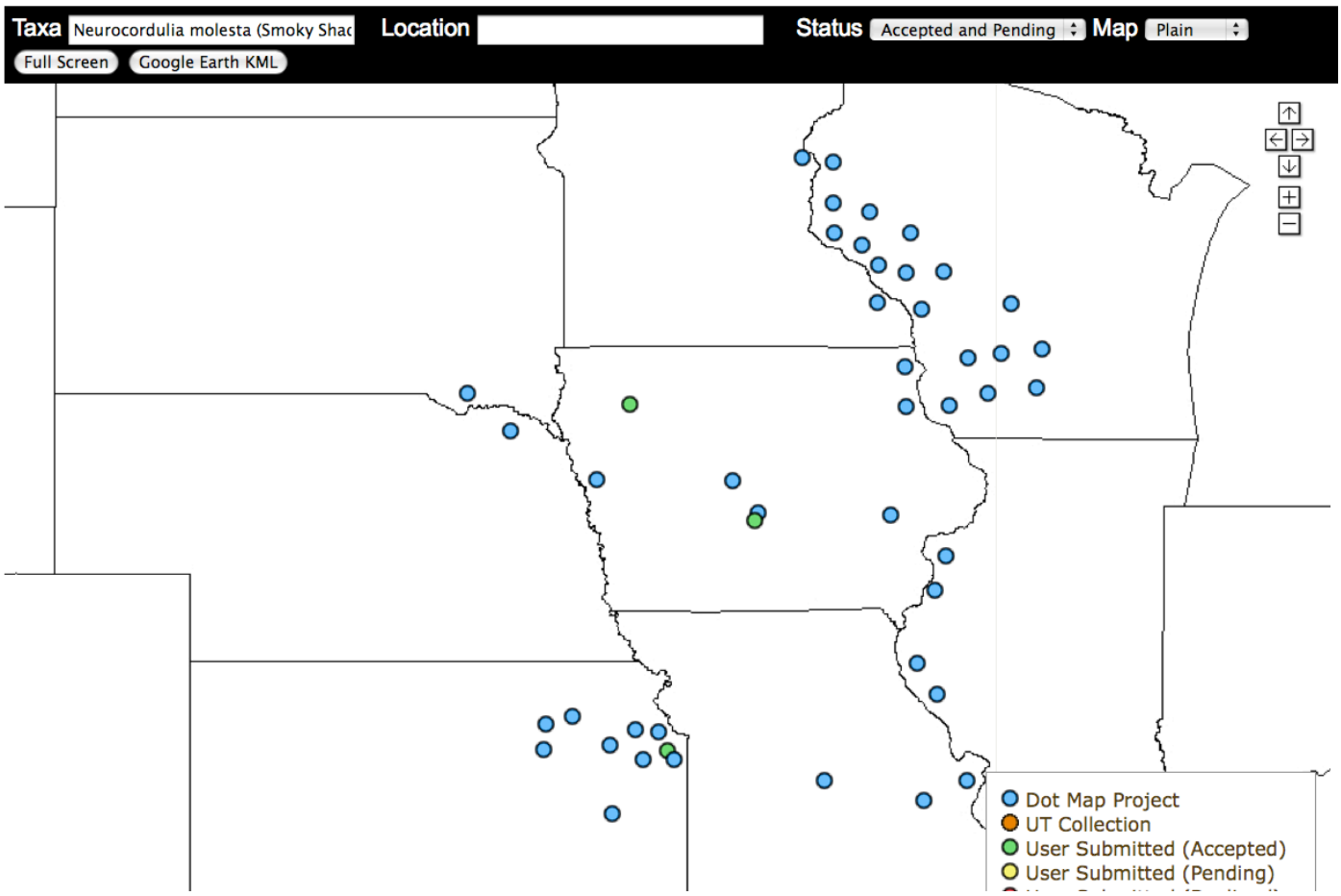


SD distribution: *Somatochlora minor* is known from just two counties in the Black Hills with most records (6 of 8) coming from Custer Co. Custer: 1) 7/13/1969, Custer St. Pk., G. H. Bick and L. E. Hornuff (1969). 2) 7/9/1980, French Creek, French Creek Natural Area, Custer St. Pk., S. Hummel (personal collection). 3) 7/10/1980, French Creek, French Creek Natural Area, Custer St. Pk., S. Hummel (personal collection). 4) 7/18/1981, French Creek east of Bluebell CG, Custer State Park, S. Hummel (personal collection). 5) 8/10/1983, French Creek @ F.S. Road 341, S. Hummel (personal collection). 6) 8/12/1983, Grace Coolidge Creek south of Center Lake , Custer St. Pk., S. Hummel (personal collection). Lawrence: 1) 7/25/1976, 15.3 mi south of Deadwood – S. Dunkle (Bick, Bick, and Hornuff, 1977). 2) no date or locality, S. Dunkle (personal communication).

Habitat: Small to medium sized streams, slow to moderately fast, clear streams with pools. In woodland or open areas.

While there have been a number of specimens taken of *S. minor* in the Black Hills its range is quite restricted. In the west the author has seen this species mostly in mountainous areas. This species should be included on the Species of Greatest Conservation Need list.

Neurocordulia molesta:

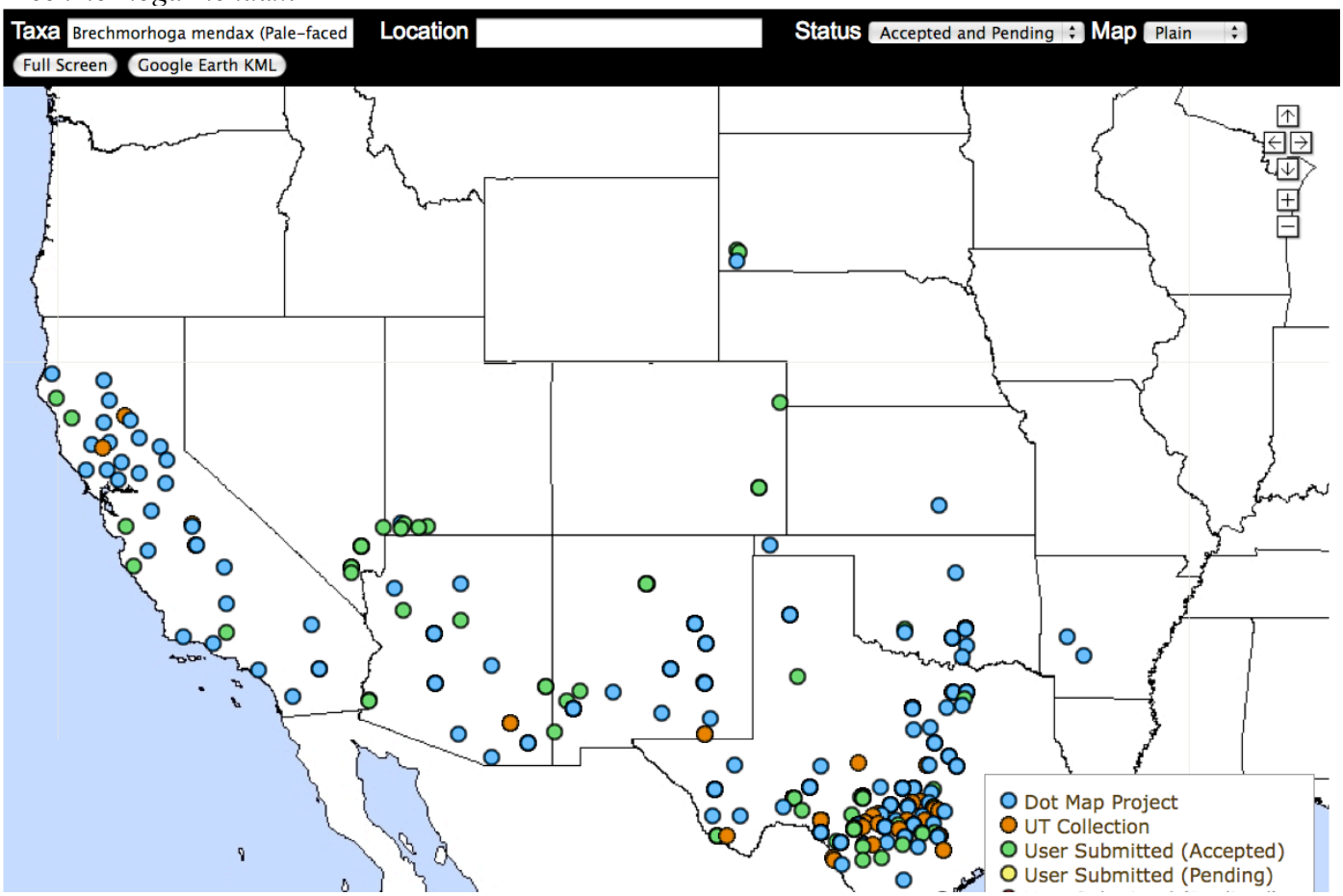


SD distribution: There is one record of *Neurocordulia molesta* in SD. Bon Homme Co., 9/20/1984, Backwater area of the Missouri River, Troelstrup et. al., 1985

Habitat: Rivers with slow to moderate currents in open or wooded areas.

Neurocordulids are typically late evening fliers, often on the wing at and after dusk. They are difficult to observe and capture. The one record for SD is of a nymph taken in a trap in the Missouri River. *N. molesta* may be found along other free-flowing parts of the Missouri River, but would not be expected along the impoundments. It should be included as a Species of Greatest Conservation Need.

Brechmorhoga mendax:

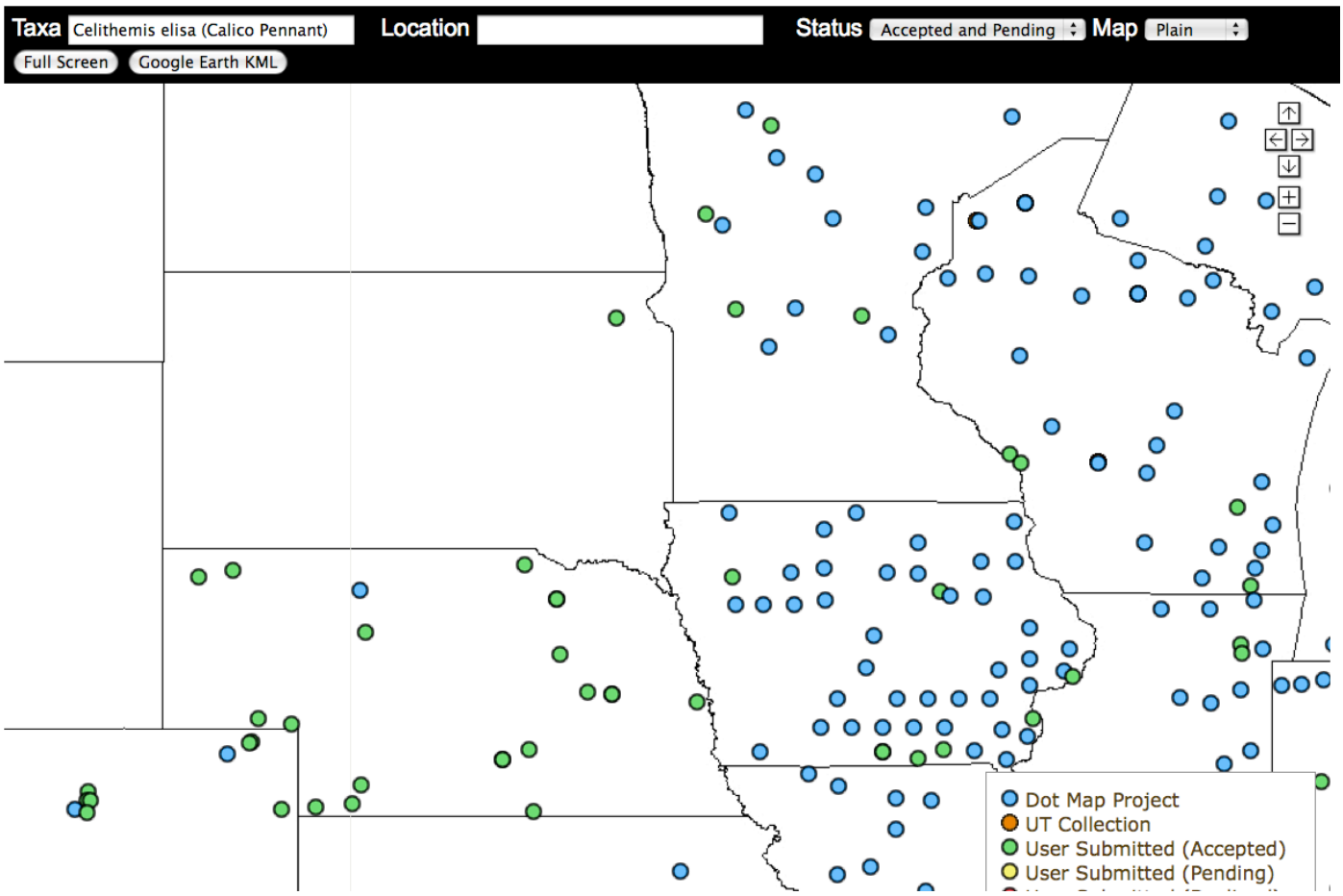


SD distribution: There are nine records for *Brechmorhoga mendax* in SD, all from Fall River Co. 1) early 1900's, no locality given, id by L. M. Gates, U. NE, Lincoln collection (Beckemeyer, personal communication). 2) no date or locality given, Bick, Bick, and Hornuff (1977). 3) 7/8/1980, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal collection). 4) 7/5/1981, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal collection). 5) 7/15/1998, Fall River near overflow seepage, Hot Springs, B. Mauffrey (personal communication). 6) 7/24/1998, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal collection). 7) 7/22/2000, Hot Brook upstream from Chautauqua Park, Hot Springs, S. Hummel (personal collection). 8) 8/9/2010, Fall River @ Allen Ranch, Hot Springs, S. King (OC).

Habitat: Shallow, rocky steams with riffles and pools, some current. Wooded or open banks, but must have sun.

B. mendax is a very unusual libellulids as it has a clubbed tail like a gomphid and flies low over the water of streams. Like *Argia lugens*, this species has only been found at Hot Springs. Its range in SD is highly disjunct from the main range of the south and southwestern U. S. Its dependence on just Hot Brook and Fall River make it vulnerable to habitat loss. It should be listed as a Species of Greatest Conservation Need.

Celithemis elisa:

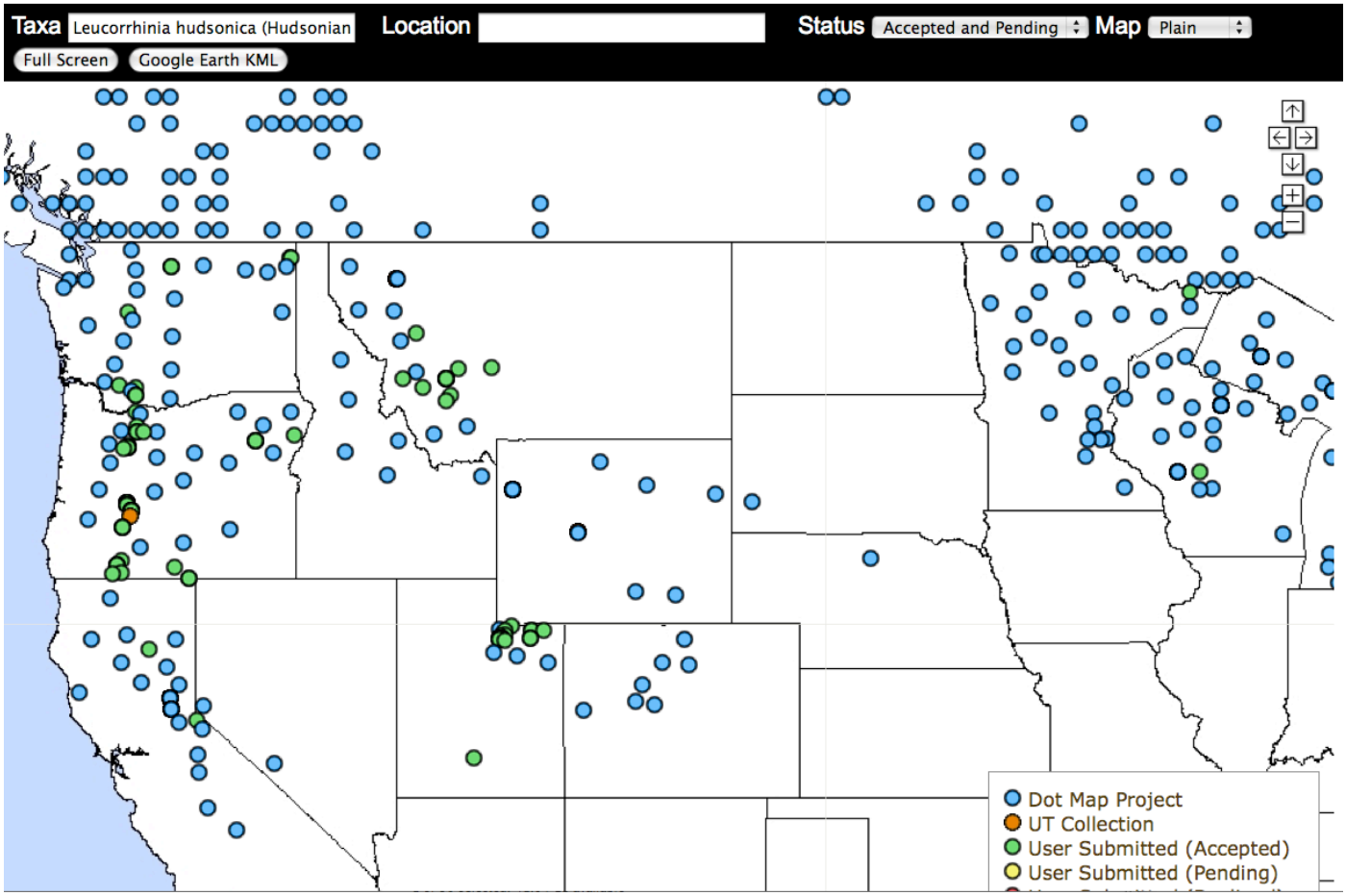


SD distribution: *Celithemis elisa* has only been found once in SD, in Day Co. It was found on 8/9/2002, Enemy Swim Lake, D Skadsen (personal communication).

Habitat: Ponds and lakes with vegetated margins.

While surveying was done in the eastern part of SD during this project in appropriate habitat, no further specimens were found. It would seem that this species should be found in most of eastern SD to southwestern SD. Since there is just the one specimen known from the state it should be listed as a Species of Greatest Conservation Need.

Leucorrhinia hudsonica:

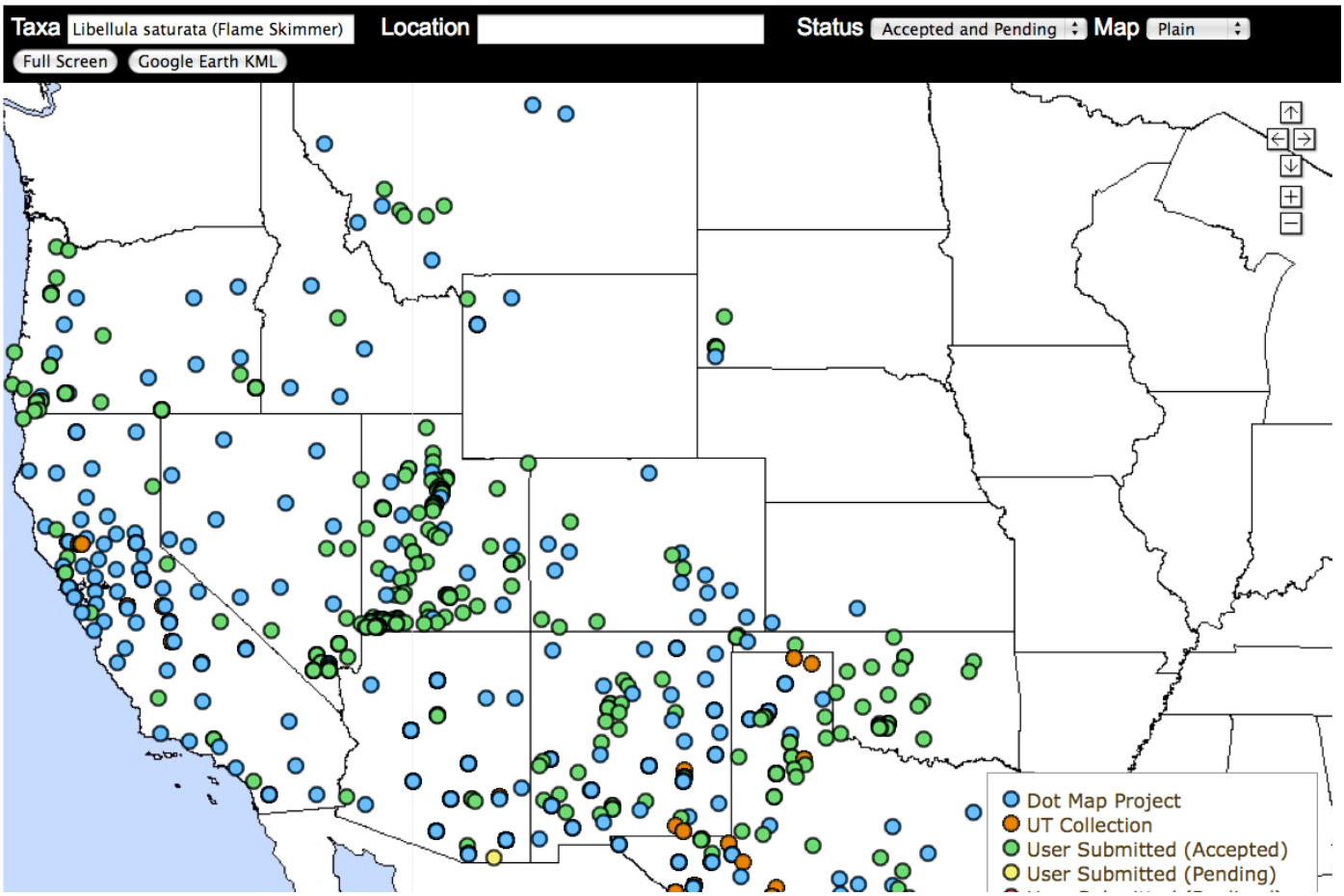


SD distribution: *Leucorrhinia hudsonica*'s presence in SD is based on one specimen found by S & MJ Krotzer (D. Paulson, 1999) at Bismark Lake on 7/21/1998.

Habitat: Marshes and sedge meadows.

This specimen fills a gap in an eastern extension of the western part of the species range. It should be included as a Species of Greatest Conservation Need.

Libellula saturata:

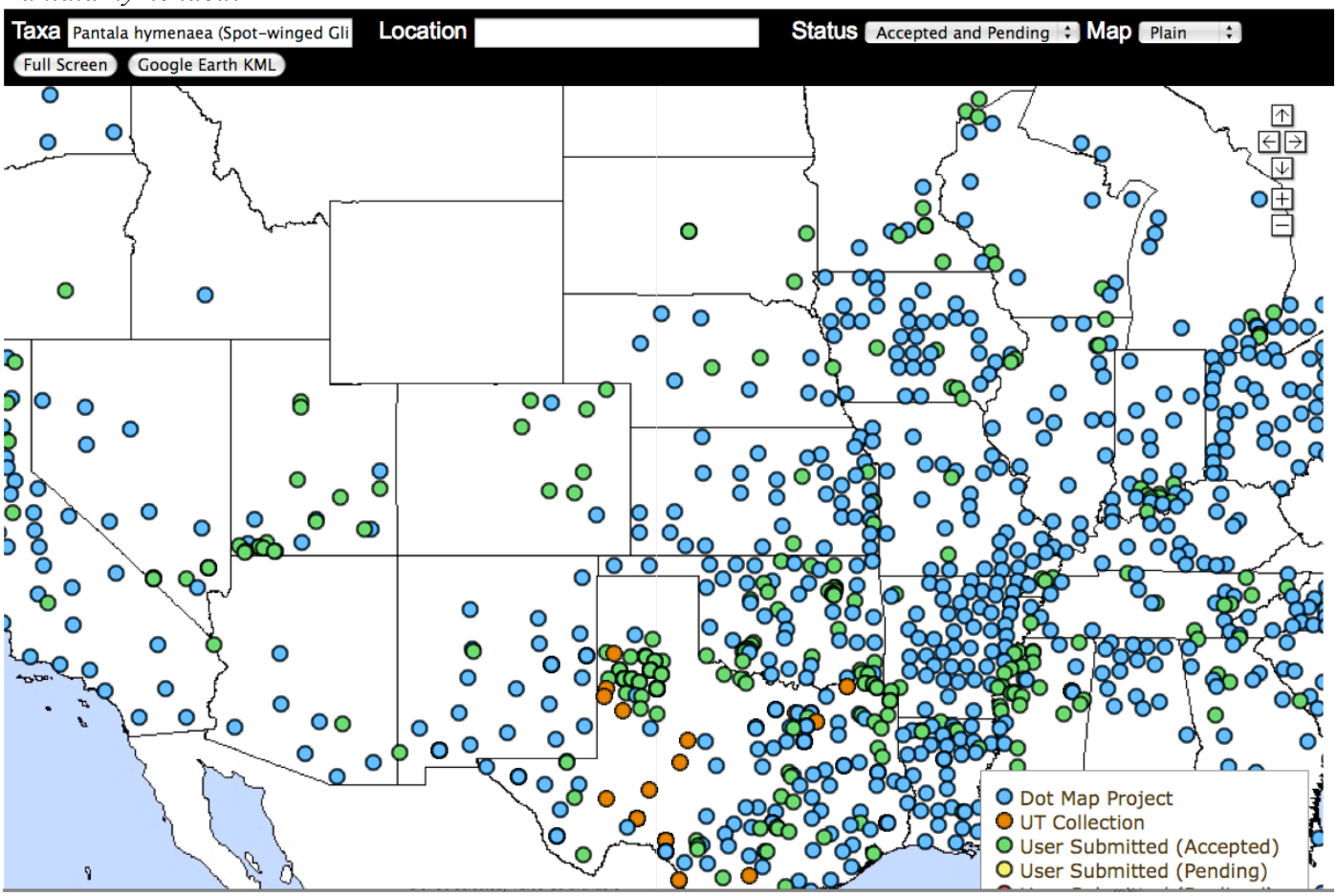


SD distribution: *Libellula saturata* was known only from Fall River Co. until the summer of 2012 when it was found in Pennington Co. Fall River Co.: 1) 6/12/1975, Hot Brook, Hot Springs, A. V. Provonsha and W. P. McCafferty (1977). 2) no date or locality given, Bick, Bick, and Hornuff (1977). 3) 7/8/1980, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal collection). 4) 1/15/1998, Fall River near overflow seepage, B. Mauffrey (personal communication). 5) 7/24/1998, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal collection). 6) 7/22/2000, Hot Brook @ Chautauqua Park, Hot Springs, S. Hummel (personal collection). 7) 7/22/2000, Hot Brook upstream from Chautauqua Park, Hot Springs, S. Hummel (personal collection). 8) 7/22/2000, Cold Brook Rec. Area, S. Hummel (personal collection). 9) 8/9/2010, Fall River @ Allen Ranch, Hot Spring, S. King (OC). Pennington, 7/4/2012, Rapid Creek, Rapid City, P. Bjork (OC).

Habitat: Ponds, lakes, and slow streams.

While there have been 10 sightings and collections of specimens between 1975 and 2012, the range of *L. saturata* in SD is still limited. The localities are very disjunct from the main range of the species, which is mostly southwestern in the U. S. Because it is an isolated population, although seemingly secure, it is recommended to be included as a Species of Greatest Conservation Need.

Pantala hymenaea:

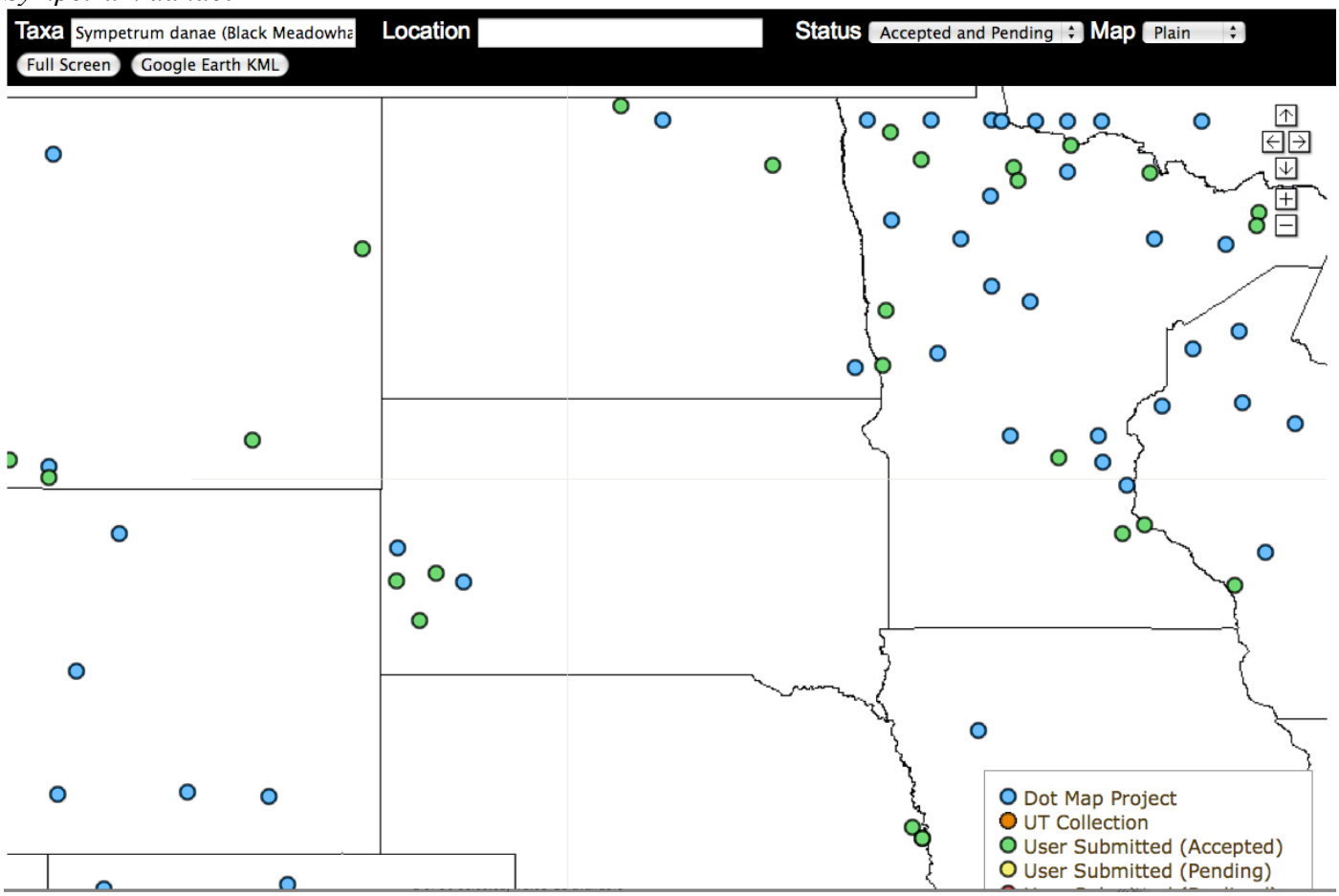


SD distribution: *Pantala hymenaea* was first found in SD in 2010. It is known from three counties at present. Brookings: 6/26/2012, Parking lot on SDSU campus, S. Hummel (observed flying with *P. flavescens* over cars in parking lot). Hughes: 7/10/2012, ponds, Farm Island SRA, S. Hummel (personal collection). Turner: 8/5/2010, north of 286 St (US 18) along 453 Ave, S. Hummel (personal collection).

Habitat: Can be seen nearly anywhere as the *Pantala*'s are strong fliers. Often breed in temporary wetlands, small ponds, even swimming pools. Have been known to oviposite on cars.

SD is along the edge of the known range of *P. hymenaea*. It is probably much more widespread in SD than the records indicate even though only recently discovered in the state. Until more is known about the species range in SD and how common it is it should be included as a Species of Greatest Conservation Need.

Sympetrum danae:

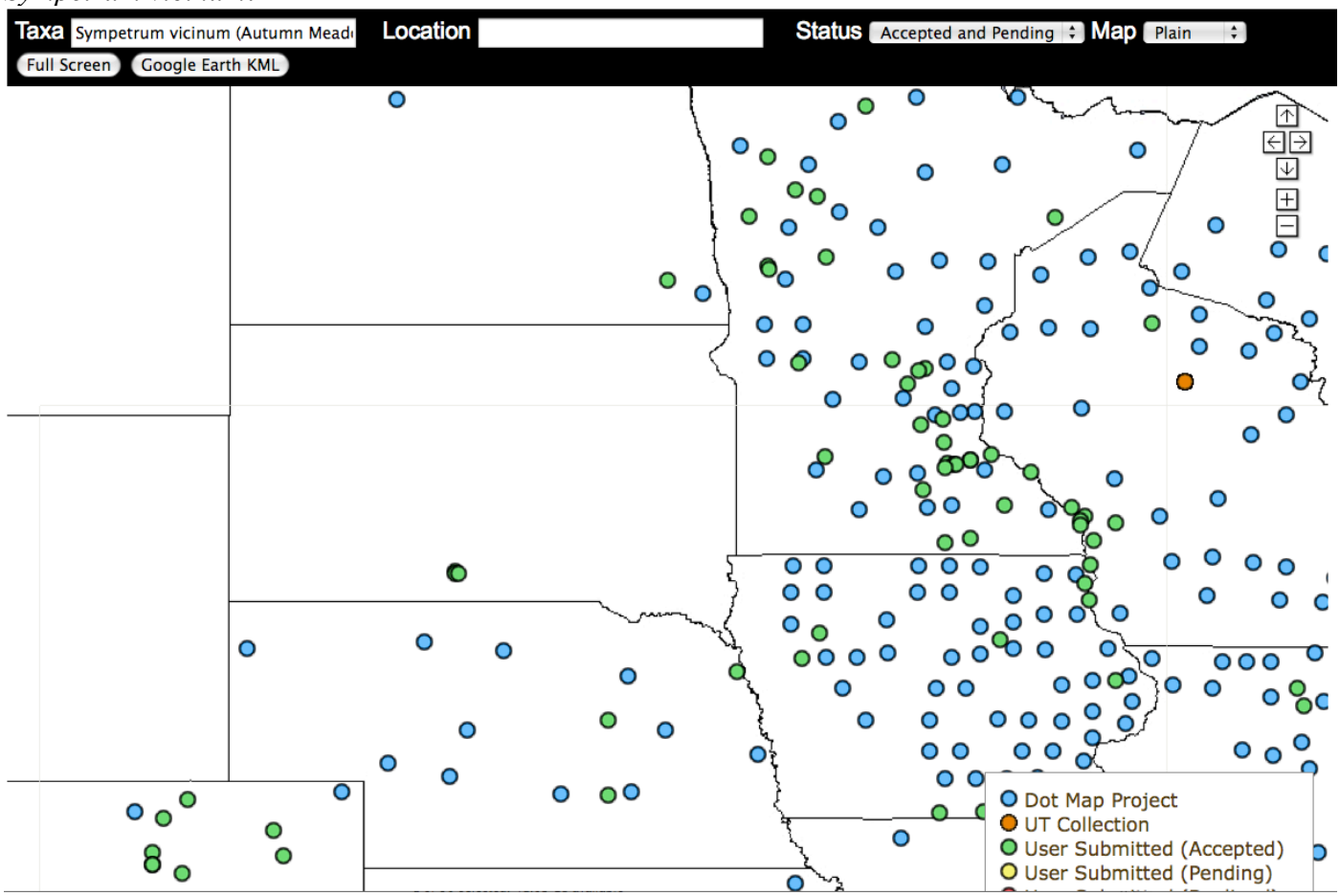


SD distribution: *Sympetrum danae* in SD seems to be restricted to the Black Hills area. There have been five records from three counties. Custer: No date, Wind Cave National Park, T. Lawson (1999). Lawrence: no date or locality, Dot Map Project (Donnelly, 2004). Pennington: 1) no date or locality, Bick, Bick, and Hornuff (1977). 2) 8/19/2012, Ditch Creek, P. Bjork (OC). 3) 9/25/2012, Rapid Creek, Rapid City, P. Bjork (OC).

Habitat: Shallow lakes, marshes, and fens.

S. danae is a wide ranging species across northern North America. The species is not restricted to mountainous areas and should be found in other parts of SD. Like other Sympetras species it has a late season flight range, therefore, not often encountered by surveyors of odonates. It should be included as a Species of Greatest Conservation Need.

Sympetrum vicinum:



SD distribution: *Sympetrum vicinum* has been found four times in one county in SD. Todd: 1) 9/18/1979, Antelope Lake, S. Hummel (personal collection). 2) 9/21/1979, Mission Dan and Antelope Creek to south, S. Hummel (personal collection). 3) 9/29/1979, Antelope Creek in Mission, S. Hummel (personal collection). 4) 8/23/1982, Antelope Creek in Mission, S. Hummel (personal collection).

Habitat: Well vegetated ponds and lakes.

S. vicinum is one of the latest flying odonates in North America and often missed by casual collectors. Its location in Todd Co. is a slight extension of the NE population. It is probably more wide spread in SD than currently indicated. It should be placed on the Species of Greatest Conservation Need list.

Conclusion: Of the 95 species known in South Dakota, 32 have been recommended for inclusion on the states list of Species of Greatest Conservation Need. Most of these species are rare with limited ranges with the state. A few are disjunct from the species man range. In a few cases the species may be more common than the records indicate due to late season flight ranges or in the case of Neurocordulia molesta activity in the late evening along large rivers where the are extremely hard to find.

South Dakota remains an under surveyed state and more work may show that some of the species recommended here for Species of Greatest Conservation Need my be removed from the list, while changes in the range of other species may bring them in to South Dakota for the first time and they will need to be added to the list. The ranges of many species of odonates in North America are currently changing as the result of climate change. Shifts of ranges to the north and east have been found for many species.

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