Farmland and Prairie Campaign

Description

The Farmland and Prairie Campaign Revision is intended to provide an update on the status of the 2005 Comprehensive Wildlife Conservation Plan & Strategy (CWCP; IDNR 2005) and to revisit the Goals, Stressors, Focal Species and Actions of this Campaign. There is an update of what has been accomplished towards the goals of the original Campaign as well as specific actions to help guide the next 10 years of implementation. While different goals could be set and various stressors and actions may be relevant and/or beneficial, the revision focuses on key goals that are realistic, achievable, and most needed within the next 10 years. These key goals will facilitate progress towards achieving the overarching goals of the Wildlife Action Plan and the Farmland and Prairie Campaign (Campaign).
The Campaign focuses on the conservation, restoration and management of grassland and shrubland habitats to benefit Species in Greatest Conservation Need (SGCN; Appendix 4) and other associated wildlife. The amount of native prairie that has been converted and lost to agriculture and development exceeds 99.9% in Illinois (State of Illinois 2005). The small areas that remain, as well as other restored grasslands, are under constant threat from human development and deteriorating habitat quality. Populations of obligate grassland and shrubland wildlife that were once common across Illinois on small, diverse farms continue to decline as landowners convert grassland, shrubland, pasture, hay, small grains and hedgerows to soybeans, corn or (anthropogenic) developments (Walk et al 2010). Human populations continue to grow, increasing global demand for agricultural commodities further exacerbating the competition for land use. Illinois has lost 3.6 million acres of farmland since 1950 – mostly to development (Illinois Department of Agriculture 2015).
The priority actions from the 2015 IWAP are: 1. Establish desired number and distribution of viable populations for each SGCN, 2. Manage habitats by promoting the natural processes, desired structure, and disturbance regimes to benefit native species, 3. Develop resilient and connected habitats enabling species to withstand likely changes to the landscape and environment, and 4. Foster an awareness, appreciation, and connection to SGCN and associated habitats among the public.

Goals

The goals of the 2005 Campaign set specific and measurable benchmarks for recovering specific habitats and groups of species.

<u>General Goals</u>

1. “Breeding populations of Partners in Flight priority shrub/successional species, including northern bobwhite, American woodcock and Bell’s vireo, have doubled.”
2. “Breeding populations of Partners in Flight priority grassland species including Upland sandpiper, Loggerhead shrike, Bobolink, and Grasshopper sparrow have doubled.”
3. “Use of grassland habitats by migratory grassland sparrows, Bobolinks and meadowlarks has increased by 20%.”
4. “Implementation of the Greater prairie-chicken recovery plan (Walk 2004) is completed, including recovery of Northern harrier, Short-eared owl, Upland sandpiper, Henslow’s sparrow, Loggerhead shrike and other endangered species.”

5. “Distribution and abundance of Franklin’s ground-squirrel are known and conservation needs addressed.”
6. “Clarification or change in liability statutes to promote private land access for wildlife associated recreation.”

Upland Gamebird Goals

1. “Add about 124,000 coveys (of northern bobwhite) to the pre-hunt autumn population, estimated at 95,000 coveys in 1999 (Dimmick et al 2002). This population could support an annual harvest of 876,000 birds.”
2. “Increase the autumn pre-hunt flock of wild Ring-necked pheasants to 2 million birds from an estimated current 800,000 birds.”

Grassland Bird Goals

1. “An additional 1 million acres of grassland, emphasizing upland, treeless grasslands larger than 0.5 mile wide and ecological connectivity among grasslands and other habitat patches, are established and maintained.”
2. “Wildlife-value (structure, floral diversity, disturbance regimes) of 1 million existing acres of grassland are enhanced.”
3. “Five additional “ecological pattern” Grassland Bird Conservation Areas (see Fitzgerald et al. 2000) have been established.”
4. “Three wet prairie areas of 1,000 to 2,000 acres, connected by dispersal corridors, are restored and managed in the Grand Prairie natural division.”
5. “At least 6 areas (300-500 acres each) of ephemeral wetlands and accompanying upland sand prairie habitat are restored and managed for Illinois chorus frogs in the inland sand areas.”
6. “High-quality examples of all prairie communities, including all Grade A and B Illinois Natural Areas Inventory (INAI) sites are restored and managed within all natural divisions within which they occur.”

Shrub/successional Bird Goals

1. “Extent and condition of shrub/successional habitats are known and monitoring can identify conservation needs.”
2. “As appropriate, small woodlots and forests have native shrub-dominated, early successional edges and perennial herbaceous borders.”
3. “Herbaceous and shrub corridors link isolated upland habitat patches in areas of intensive agriculture.”

Current Status as of 2015

General Goals Status

1. Populations of Northern bobwhite and American Woodcock continue to decline, Bell's Vireo have made a modest improvement.
2. Most breeding populations of Partners in Flight priority grassland species identified in the Campaign are declining. (Table 5)
3. According to Breeding Bird Survey trend data (Table 5) for Illinois, general trends of grassland sparrows, Bobolinks and meadowlarks are as follows:
    - Grasshopper sparrow population down 6.58%
    - Henslow's sparrow population up 6.02%
    - Field sparrow population down 2.88%
    - Savanna sparrow population down 3.76%
    - Bobolink population down 6.77%
    - Eastern meadowlark population down 2.77%
4. Prairie Chicken Recovery Plan update – Three year SWG grant to translocate 300 prairie-chickens form Kansas started in 2014. Ninety-three birds released in the spring of 2014, 49 birds were fitted with transmitters. Eleven radio-collared birds remained as of 1/21/15.
    - Year 2 translocation was scheduled to begin in March/April 2015 was 'paused' due to Out-of State travel authorizations and Administrative Review.
    - Record rainfall across Illinois in June and July of 2015 resulted in a very poor nesting season for the prairie chickens.
5. Information about the distribution and abundance of Franklin's ground-squirrel populations are being investigated.
    - Ongoing research has identified a significant population of Franklin's ground squirrels in Sangamon County. Additional research provided insights into habitat requirements.
    - Preliminary results show that maintenance of habitat in an early successional state and development of artificial topography for burrowing habitat is critical.
    - Franklin's ground squirrels are subject to genetic isolation when populations are cut off by development and road-building.
    - Additional populations must be identified and secured before de-listing (Young 2012).
6. Recreational access benefitted from changes to 745 ILCS 65 Recreational Use of Land and Water Areas Act. These changes were passed in January of 2014 and limit the liability of landowners who allow access for recreational and/or conservation purposes.

Upland Gamebird Status

1. Quail populations and harvest continue to decline
    - In the 2005-06 season, 29,983 quail hunters killed an estimated 244,521 quail (including some from shooting preserves) (Lischka 2006). In 2014-15 season, 11,328 quail hunters shot an estimated 54,199 wild quail (Williams 2016).
    - Breeding Bird Survey results from 2003-2013 in Illinois show an annual trend of -5.18% for northern bobwhite (Table 5).
    - Southern Illinois University's quail researcher John Roseberry suggested/predicted that the "bobwhite could be virtually extinct in 20 years" if the current population trends didn't stabilize or begin to increase (Roseberry 2012).

2. Pheasant populations and harvest continue to decline
    - In the 2005-06 season, 44,430 pheasant hunters killed an estimated 146,961 pheasants (including some from shooting preserves) (Lischka 2006). In 2014-15 season, 15,549 pheasant hunters shot an estimated 41,316 wild pheasants (Williams 2016).
    - Breeding Bird Survey trends in Illinois showed an annual trend of -9.28% from 2003 – 2013 (Table 5).

Grassland Bird Status

1. Over 4000 acres of grassland have been purchased in the last 10 years (in the Grand Prairie, Southern Till Plain and Mason County Sands COA by the IDNR)
    - IDNR has acquired and improved over 4000 acres of Grassland and shrubland (mostly Pheasant Habitat Areas or State Habitat Areas) since 2005
    - Pheasants Forever acquired Forever Fields, a 508 acre L&W Reserve that has been restored and partially planted to native warm-season grasses and forbs.
    - Pheasants Forever acquired: Buffalo Prairie and T-Lakes, (377 acres-bargain sale to IDNR), Willow Creek, (161 acres-bargain sale to IDNR)
    - The State Acres for Wildlife (SAFE) Program (CP38) has enrolled nearly all allocated acres since 2008 and current enrollment is 22,247 acres (November 2015). The Farm Service Agency requested 10,000 additional SAFE acres in December 2014, but received (and quickly allocated) 2000 additional acres in the summer of 2015.
    - Pheasants Forever and Quail Forever have a 'Build a Wildlife Area Program' with a goal of opening 80 acres to walk-in upland hunting in every county they serve. This initiative has been successfully implemented in several counties.
    - Congress Re-authorized the Farm Bill in 2014, but reduced the overall acreage cap by 8 million acres. The reduction of Conservation Reserve Program (CRP) acres in Illinois is yet to be determined.
2. Funding and staffing levels at IDNR and -federal agencies (i.e., Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA)) remain low, affecting their ability to manage the composition and structure of grasslands and shrublands, as well as the amount of disturbance applied to these habitats.
3. Existing Grassland Bird Conservation Areas:
    - Prairie Ridge State Natural Area (Jasper and Marion County Units, IDNR)
    - Midewin National Tallgrass Prairie (USDA Forest Service)
    - Pyramid State Park (IDNR)
    - Proposed 'new' Grassland Bird Conservation Areas
        - Sibley/Saybrook Pheasant Habitat Areas (IDNR)
        - Nachusa Grasslands (The Nature Conservancy)
4. Three large wet prairie areas have not yet been restored or managed in the Grand Prairie natural division.
5. Over 198 acres of CP23A (Wetland Restoration) have been enrolled in CRP in Mason Co (with Signup Incentive Payment from Illinois Chorus Frog Grant – R. Bluett, IL DNR, personal communication).

- Wetlands created in the Sands Areas include 16 lined wetlands, 5 excavated wetlands in Tazewell, Mason, Menard and Cass counties.
- Wetlands at Sparks Pond and Clear Creek were restored.
- One hundred sixteen acres of sand prairie on public land has been restored/managed (Clear Creek, Sparks and Rollo).
- GIS analysis to identify potential habitat for IL Chorus frogs and mud turtles beyond areas previously identified as suitable habitat (Figure 4) and used this new layer to refine the COA boundaries.

6. Fifty-two hill prairies were evaluated in an Illinois Natural Areas Inventory (INAI) update (Szafoni 2012)
    - Twelve of the 35 formerly High Quality INAI communities evaluated were considered of moderate quality
    - Fourteen glacial drift hill prairies, one gravel hill prairie, 2 sand hill prairies retained their 'A' or 'B' status, though some were downgraded from A to B.
    - Many prairies had been reduced in size due to woody encroachment

Shrub/successional Bird Goals

1. Goal has not been reached but work is underway to evaluate the extent and condition of this habitat type (Benson 2015).
    - Current research is using LIDAR to identify shrubland habitat
    - This work will help evaluate the amount and distribution of shrublands in different regions of Illinois
    - Research will also investigate the nesting success and preferences of shrubland birds.
    - Growing-season burns are being used in parts of the state to manage shrublands
2. In 2005 there were 18,076 acres of Upland Bird Habitat Buffers (CP33) in Illinois (USDA [2] 2015).
3. In November of 2015 there were 59,852 CP33 acres in Illinois. Net Gain of 41,776 acres of CP33 (not all acres link habitat patches). (USDA[2] 2015).

Stresses and Threats to Wildlife and Habitat

Habitat Stresses

The Farmland and Prairie Campaign covers the wildlife and habitats in Illinois' highly agricultural landscape. Over half of the land area in the state is planted to 2 crops: corn and soybeans (almost 22 million acres in 2015 (USDA[1] 2015). This is the largest stressor for this Campaign. The amount of 'Natural' land cover includes very small and isolated native prairies, restored prairie, forest and riparian areas. Human development is constantly encroaching into both the agricultural and natural areas.

There are a wide range of specific stressors and actions that can be taken to improve and restore habitat for the targeted SGCN. Stressors identified in the 2005 CWCP include the extent and amount of fragmentation, composition/structure, disturbance, hydrology, invasive/exotic species, erosion and

sedimentation in grassland and shrubland habitats. Issues on working farmland and prairie (both native remnants and restored prairie) and shrubland may be different and are described independently in this section. Actions needed to reduce the effects of these stressors and improve/enhance these habitats are discussed together.

Farmland Issues

The effects of the recent spike in corn and soybean prices from 2008 – 2014 were far-reaching and will continue to be felt for many years to come. Across the state, pastures, fencerows and tracts of timber were cleared and tilled under to make room for more corn and soybeans. There were almost 140,000 fewer acres of CRP in 2014 than in 2005 and 400,000 fewer acres of total grasslands in Illinois (USDA[2] 2015). These changes intensified two of the primary stressors listed in the 2005 CWCP by decreasing the extent of these habitats and adding to the fragmentation of the landscape.
Other stressors include the continued widespread use of modern herbicides, fertilizers and insecticides which may affect the composition and quality of habitat and have poorly understood effects on wildlife. The widespread use and acceptance of new chemical compounds continues to raise questions about their effects and safety for wildlife as well as people. Regardless of the specific chemicals and their effects, new chemistries, methods of delivery and interactions between agriculture and wildlife will continue to have potential impacts and create concerns.

Alternatives to traditional corn and soybean agriculture such as organic farming, cover crops and biofuels are steadily gaining acceptance. Recent research (Van Beek et al 2014) found higher nest success, increased bird densities and more conservative species in no-till fields compared to fields with conventional tillage. Nest success in no-till fields was relatively low but with the amount of no-till fields on the landscape, the impacts of timing and methods of tillage on nesting birds needs to be better understood (Van Beek et al 2014). Additional research at the Illinois Natural History Survey is investigating bird use, diversity and abundance of various cover crops, perennial crops and various crop rotations.

Grassland/Shrubland Issues

The loss of grassland and shrubland habitat is the primary threat to the species that depend on them. Loss can be from development (for agriculture, commercial or urban development etc.) or loss due to succession and deteriorating quality. Additional research is needed to determine the location and amount of habitat as well as the type, frequency and scale of management needed to maintain quality shrubland habitat. There are currently two research projects underway at the Illinois Natural History Survey to better understand the status and extent of existing shrublands and shrubland management needs in Illinois (Kirk Stodala, personal communication). The first project will use Light Detection and Ranging (LiDAR) equipment to identify and characterize shrublands at a large spatial scale. These data will be used to identify and quantify existing shrubland and other plant community types. Once key areas are identified, management needs can be scheduled and implemented. The second project is evaluating the effects of invasive shrub species on shrubland birds. The results of these studies will provide managers with information about the most detrimental species of invasive plants and the level of invasion that causes detrimental effects on shrubland birds.

Grasslands for hay or pasture can be suitable for many species of wildlife. However, poorly timed mowing, excessive grazing or woody succession can cause them to become unsuitable. Area-sensitive grassland species need large tracts of open, treeless grasslands. Targeted conservation programs such as

SAFE have created complexes of 'whole field' CRP. These focused areas are designed to amplify the benefits of clustered small fields to emulate larger grasslands. Research that monitors grassland bird use of these areas show that populations of Dickcissel, Eastern Meadowlark, Northern Bobwhite have doubled on SAFE areas in Mason and Tazewell Counties, despite the continued declines that are occurring statewide (Ward et al, 2015).

Extent (amount of habitat), Fragmentation, isolation, juxtaposition, patch size and edge effects,

- Reduction of 8 million acres in total CRP allotment (National allocation reduced from 32 million to 24 million in the 2014 Farm Bill).
- Total CRP enrollment in 2014 was ~140,000 fewer acres than we had in 2005 for Illinois
- Small Grains acreage in 2005-2015; 60,000 acres of oats, 630,000 acres of wheat in 2005. In 2014 there were 35,000 acres of oats and 740,000 acres of wheat (a net gain of 50,000 acres of rowcrops). (USDA[2] 2015)
- Trends in modern agriculture continue to increase field size and expand into former grasslands, forest and old fields.
- Competition for limited land/habitat is exacerbated by the increasing human population and development and expansion of towns and cities.
    - Existing grasslands are often poorly managed and unfit for grassland species most of the year due to mowing, haying or a lack of disturbance.
        - These grasslands can become traps that attract wildlife and then are manipulated in ways that destroy nests, individuals or populations
        - Grasslands left unmanaged can become unsuitable for many species of grassland wildlife
- Size and shape of grasslands are often too small and/or linear to provide adequate protection from nest predators that target edges and are more effective at finding their prey in small patches.
- High land values and commodity prices have put added pressure to sell and develop land or convert existing habitat to row-crop agriculture.

Composition-Structure

- Limited availability of staff to provide technical assistance and a lack of funding for habitat management on public and private lands
- Invasive species often change habitat composition and reduce habitat quality
- Some pollinators are host specific and must have their host plant to survive (Monarch butterfly and milkweeds)

Disturbance - frequency, timing and intensity of disturbances

- Changes in agricultural practices and crop choices have resulted in the loss of seasonal habitats provided by the rotations and farming methods common for many small grains (wheat, oats, etc.)
- The 2005 CWCP succinctly stated that the condition of Grasslands in IL are increasingly divided into two conditions:
    - Lands that are too heavily disturbed (cropped annually, frequently mowed, heavily grazed or developed).
    - Lands that are given little or no management (fire, timely mowing, grazing, forestry) and are maturing into low quality closed forest.

Invasive/Exotic species

- Invasive species (e.g., tall fescue, reed canary grass, thistle species, autumn olive etc.) encroach on grasslands and shrublands and decrease habitat quality, change the structure/suitability of the habitat and displace native wildlife including SGCN.
- Invasive species can also make restoration of old pasture or early CRP plantings more complicated and labor intensive due to the difficulties of killing the existing grass and depleting the seed bank before planting native species. Many of these undesirable grasses are still recommended and sold for new waterway plantings, soil stabilization and some CRP practices.
- Other aggressive, broad-leafed species can invade both native and restored prairie and become monotypic stands with little diversity. This lack of diversity decreases the habitat quality for wildlife by reducing the number of insects attracted to flowering plants and by displacing desirable plants with higher value as food and/or structural cover. Canada goldenrod, Teasel sp., Vetch sp., Sericea lespedeza are some problematic species.
- The Invasive Species Campaign covers the issues caused by exotics in detail.

Population Stresses

Recruitment:

- Declines in native pollinator populations due to habitat loss, fragmentation, invasive plants, non-native landscaping, and insecticides.
- Habitat fragmentation and reduced connectivity increases mortality and decreases recruitment of young (e.g., road mortality of Blanding's turtles) and limits gene flow between populations.

Direct Anthropogenic Stresses

Killing, direct killing/removal by humans

Disturbance, direct harassment by humans

- Human usage patterns preclude species use or interrupt species use (e.g., nest disturbance).

Structures-Infrastructure:

- Reduced survival of migratory birds due to threats such as collisions with buildings, wind turbines, towers, etc.
    - Researchers currently working to determine the effects of wind turbines on migratory birds, bats and other species
        - direct mortality
        - avoidance behaviors by some species
        - reduced nest success

Additional Challenges to Implementation:

- Lack secure and consistent funding mechanisms for:
    - habitat acquisition and protection projects.
    - habitat improvement projects.
- Lack of staff to adequately plan and implement restoration projects
- The effects, severity and rate of climate change is unknown, but models predict negative effects on many groups of species and native habitats. (Hall 2012, Staudinger et al 2015)

Focal Species

The Focal Species for the Farmland and Prairie Campaign were selected to "represent the larger suite of SGCN addressed by the campaigns, species that are expected to respond to conservation actions, or species that are the focus of current conservation and monitoring efforts." Monitoring for these species will be used as a measure of the success of the conservation actions of the Campaign.

1) Eastern meadowlark –
    a. Habitat – Grasslands, prairies, savannas and cultivated fields
    b. Distribution - Statewide, common migrant and summer resident, winter resident in southern part of state
    c. Abundance – declining 2.55% per year from 2003 – 2013 (Table 5)
2) Grasshopper sparrow –
    a. Habitat – Grasslands, prairies, old fields, airports and savannas
    b. Distribution - Statewide, fairly common migrant and summer resident
    c. Abundance – declining 5.73% per year from 2003 – 2013 (Table 5)
3) Northern bobwhite - Successional Field, Grassland
    a. Habitat – Grasslands, brushy fields, open woodlands and hedgerows
    b. Distribution - Statewide, common permanent resident, decreasing northward
    c. Abundance – declining 5.18% per year from 2003 – 2013 (Table 5)
4) Monarch/pollinators –
    a. Habitat – Grasslands, prairies, old fields, cultivated areas with milkweeds and other nectar sources
    b. Distribution - Statewide, active summer, year-round resident
    c. Abundance – declining
5) Ornate box turtle –
    a. Habitat – Prairies, and open fields in former prairie
    b. Distribution – Need more information
    c. Abundance – uncommon/rare
6) Henslow's sparrow –
    a. Habitat –Fields and meadows with a combination of grasses and forbs
    b. Distribution - Statewide, uncommon migrant and summer resident
    c. Abundance – increasing 6.5% per year from 2003 – 2013 (Table 5)
7) Upland sandpiper –
    a. Habitat – Grasslands, prairies, old fields, airports and savannas
    b. Distribution - uncommon to rare migrant and summer resident
    c. Abundance – Need More Information, declining, State Endangered
8) Bobolink –
    a. Habitat – Prairies, tall grasslands, wet meadows and cultivated croplands
    b. Distribution – common migrant and fairly common summer resident in northern half of Illinois, decreasing southward
    c. Abundance – declining 9.01% per year from 2003 – 2013 (Table 5)

<u>*Emphasis Game Species added 2015</u>

Ring-necked pheasant –
    a. Habitat – Open country, cultivated and grassland areas

b. Distribution - fairly common permanent resident in northern and central Illinois, decreasing southward to roughly Interstate 70, absent in southern Illinois.
c. Abundance – declining 9.28% per year from 2003 – 2013 (Table 5)

*Bird habitat, distribution and abundance data are from *Kleen et al 2004* and *Breeding Bird Survey Data. 2015*.

Actions

1. Manage quality of existing habitat.

Need: Most of the grassland and shrublands in Illinois are in need of additional management in order to provide optimal habitat for SGCN. If the Campaign is to be successful, the best place to start and build momentum may be to lead by example and show other partners and the public what quality stewardship looks like on these habitats and the response from wildlife (e.g., Prairie Ridge).

- Existing grasslands and shrublands under IDNR management will be restored and enhanced to benefit SGCN.
    - Three additional Habitat Teams (one IDNR team recently established at Gibson City, July, 2015) should be hired and placed in key locations to help manage Tier 2 and Tier 3 sites in the Grand Prairie and Southern Till Plain Natural Divisions in the next 10 years.
    - Dedicated funding for grassland management should be a priority for core grassland and shrubland sites on public and private lands (i.e., fund habitat teams and develop implementation schedules for priority sites).
    - Pheasant and Habitat Stamp Funds as well as State Wildlife Grants could be targeted for collaborative positions or contracts to do this work on state and private sites.
    - Opportunistic grants like the current funding dedicated to improve Monarch Habitat

- Collaborations with conservation partners, including IDNR offices, NGO's and other state and federal agencies to better target Campaign Goals and Focus Areas.
    - Partnerships with Pheasants Forever, Natural Resource Conservation Service, Farm Service Agency, The Nature Conservancy, etc. that target specific grassland and shrubland areas and goals of the Campaign.
    - Improved coordination between Divisions and Offices at IDNR to focus on habitat objectives from the Campaign.

- Develop a reporting/tracking system for IDNR and partners to actively track management efforts including acres managed (acres burned, disked, treated for invasive species etc.), acquisitions, restorations and other progress towards achieving the goals of the Farmland and Prairie Campaign.

- Work with all partners to develop a public relations campaign to delay roadside mowing until after August 1 (Aug. 15 is preferable).
        - Including: Illinois Department of Transportation, IDNR, County and municipal governments, county Soil and Water Conservation Districts and the public
        - Human Dimensions survey to determine the best approach and method for reaching landowners and managers to get cooperation.

Expected Outcome: This action should improve the condition of existing grassland and shrubland habitats. Many sites are under-staffed and/or lack specific and science-driven direction on grassland management. Populations of SGCN and other associated wildlife should increase on well-managed sites.

2. Increase the quantity of habitat for grassland and shrubland species (by acquisition or easement).

Need: In order to reach the goals of the Campaign, significant achievements must be made to establish more grassland and shrubland habitat.

- Improve participation and increase enrollments in existing land protection and management programs through innovative partnerships in focus areas.
    - Coordinate and promote existing initiatives and programs to increase the amount of high quality habitat for SGCN within focus areas and reach out to new partners.
        - Work with commercial and corporate agricultural retail suppliers, local yield monitor data and federal programs (Habitat Buffers for Upland Birds-CP33, State Acres for Wildlife-CP38 and Pollinator Habitat-CP42) to collectively market Farm Programs that will provide strategic grassland habitat, increase profits for landowners and reduce runoff.
        - Illinois Nutrient Loss Reduction Strategy (2015) is targeting a reduction of nitrogen and phosphorous runoff. Priority areas overlap with State Acres for Wildlife areas.
        - Seek funds from the USDA Regional Conservation Partnership Program (RCPP) and other programs to provide benefits to SGCN in focus areas. ($235 million is allocated to the RCPP Program).

- Work with partners to increase the allocation of CRP (especially SAFE) acres, nationally and in Illinois.

- Determine which agricultural practices (e.g. specific cover crops and rotations, organic crops, etc.) are beneficial (or less detrimental) to grassland wildlife on the 23+ million acres of rowcrops in Illinois.

- Partners need to discuss a permanent easement program (like the state Conservation Reserve Enhancement Program (CREP) that would offer incentives on top of CRP practices like SAFE or the Grassland Reserve Program (GRP) and provide permanent grassland and shrubland habitat.

Expected Outcome: The high cost of land and volatile commodity markets make acquisition of former prairie (aka farm land) very expensive. Through selective acquisitions, easement programs and by pooling resources and working with new partners, it is possible that areas with multiple resource concerns can be successfully converted to grasslands or shrublands that help meet multiple goals for very different purposes.

3. Improve the conservation status of SGCN.

Need: Many SGCN continue to decline.

- Develop and begin implementation of at least 1 management plan/year for a grassland or shrubland SGCN.
  - *A barn owl recovery plan was approved and initiated in 2009. They have since been downgraded from 'endangered' to 'threatened' and 258 nest boxes have been installed. In 2014, 54 active nests in 19 counties were documented (Esker, personal communication).*
- Develop and begin implementation of at least 1 Site Management Schedule/year for grassland/shrubland habitats that will benefit SGCN.

Expected Outcome: Recovery Plans and Management Schedules will help improve the conservation status of SGCN as they are implemented.

<u>Universal Management Actions for the Farmland and Prairie Campaign</u>

4. Through incentives-based programs and technical assistance, establish or restore grassland, early successional/shrub, wetland, and riparian habitat.
Need: The amount and quality of grassland and shrubland habitat has declined steadily across the state over the last half-century. Wildlife that need these habitats have decreased in response.

- promote programs that offer incentives, easements or cost-share to establish and maintain grassland and shrubland habitat
- emphasize actions on treeless grasslands larger than 0.5 mile wide and ecological connectivity among grasslands and other habitat patches to conserve area-sensitive grassland Species in Greatest Need of Conservation
- establish additional shrub/successional habitat in clumps, not strips, using native shrub species
- work with conservation partners and private landowners statewide to enhance small woodlots and forests with native, shrub-dominated, early successional edges and perennial herbaceous borders
- expanses of rowcrop cultivation should be integrated with grassland, shrub/successional and open woodland habitats by including cover crops, organic practices, alternative crops (e.g. bioenergy crops) and no-till practices to increase wildlife benefits
- connect habitats via corridors and buffer strips where possible to facilitate movement of less mobile groups (herps, inverts, small mammals etc.)

Expected Outcome: Increasing the amount and quality of habitat for many SGCN should allow local populations to increase and expand.

5. Enhance the condition of farmland habitats for wildlife.

Need: The condition and management practices (e.g. routine mowing, use of invasive grasses) for many grass waterways, filter strips and other areas on working farmland is detrimental to wildlife. Minor changes to the management and the timing when it occurs could improve the value of these areas for many SGCN.

- raise awareness of wildlife habitat and nesting seasons to build support and acceptance of delayed mowing and changes to 'normal' farming practices
- educate landowners on the proper timing and season for prescribed fire and mechanical disturbance to manage existing habitats
- restore/convert areas dominated by undesirable species (e.g., conversion of tall fescue and bluegrass to native warm-season grasses) to habitat beneficial to SGCN
- disturb successional habitats as needed with appropriately timed prescribed fire and managed grazing to enhance grassland structure and floral diversity, and to control woody vegetation.
- discourage mowing of idle grasslands during wildlife nesting seasons, and eliminate unnecessary mowing (only mow after August 1 or late winter unless meeting a specific management objective).
- maintain shrub/successional habitat and broad transitions between open and wooded habitat types
- growing season burns can help set back rank stands of grasses and overgrown shrublands)
- develop property tax codes and farm programs that reward good stewardship of wildlife habitats on private lands
- Encourage the use of native and/or wildlife friendly species of grasses, forbs and shrubs

Expected Outcome: Providing the preferred timing and management actions to landowners can lead to the acceptance of practices that can be beneficial to wildlife.

6. Restore and protect native prairie communities and imperiled and extirpated wildlife.

Need: The vast majority of native prairie has been lost in Illinois. Protecting these remnant areas and the species found there is important to preserve the legacy of our native prairies as well as the value of these sites to researchers to better understand the interactions and diversity of native flora and fauna found in native prairie. Information learned on these sites can potentially improve prairie restorations across the state.

- use appropriately timed prescribed fire and managed grazing to enhance grassland structure and floral diversity, and to control woody vegetation.
- remove and control (chemical, mechanical and biological) invasive exotic plants, especially within and adjacent to high quality natural areas
- reintroduce native species into prairie habitat where decimating factors have been eliminated and natural recovery is unlikely
- In large grassland areas, linear wooded areas (overgrown fencerows) and tall trees should be removed to reduce habitat for nest predators and to eliminate raptor perches.
- collaboration among the Illinois Endangered Species Protection Board, Illinois Department of Natural Resources, U.S. Fish & Wildlife Service and other agencies, organizations and institutions on recovery plans and actions for rare and declining species

Expected outcome: Native prairie remnants will be preserved and enhanced.

7. Conduct outreach to improve landowners participation in wildlife conservation.

Need: Some growers/landowners are simply not interested in managing for wildlife. Providing information on the economic and other benefits of wildlife conservation may increase participation in these activities.

- promote cover crops, organic farms and bioenergy crops that can contribute towards improved wildlife habitat.
- evaluate soil condition and carbon budgets for agricultural lands, and promote actions that improve soil condition and sequester atmospheric carbon
- continue working with and targeting voluntary farm programs to meet wildlife and habitat objectives compatible with and in addition to soil and water conservation.
- promote field borders of native warm-season grasses and forbs enrolled in the CRP program (Habitat Buffers for Upland Birds - CP33 and Pollinator Habitat - CP42) that are financially advantageous when planted on most wooded edges.

Expected Outcome: Educating landowners and producers about the benefits of these land use practices will impact more acres for wildlife across the state, reduce sedimentation and nutrient runoff and improve water quality in rivers, streams, lakes and ponds.

Specific Actions

8. Acquisition of grasslands should follow a Landscape Scale Approach (when possible) to maximize the benefits to grassland birds.

Need: Due to the high costs of acquisition and restoration, it will be much more productive if all partners work towards common goals in landscapes that are clearly identified, whenever possible. Defining what is desirable is an important step towards reaching the goals of the Campaign.

- purchase/protect grasslands and shrublands with the highest likelihood of providing benefits to SGCN by following the Landscape Scale Approach (Sample and Mossman 1997):
  - small-scale landscape grasslands should be made up of parcels of at least 80 acres, but 'bigger is better'.
    - Walk and Ward (2008) recommended $\geq$120 acres to increase grassland bird diversity and abundance.
    - Clusters of smaller tracts can emulate the benefits of larger, contiguous tracts
  - Medium-scale landscape grasslands should be at least 1,000 – 5,000 acres in size with a 250 – 1,000 acre core and the remaining landscape should be at least 35% grassland (Sample and Mossman 1997)
  - Large-scale grassland landscapes should be 10,000 – 50,000 acre areas with a 2000 acre core and at least 35% of the remaining area within the landscape be in grassland (Sample and Mossman 1997)

- Use USDA Programs and collaboration with private landowners and other conservation organizations (promoting suitable practices) to create and enhance medium or large scale grassland landscapes.
- The proportion of woody cover on and around potential grassland sites should be $\leq$ 10%. (Walk and Ward 2008)
- Potential grassland sites with a higher proportion of pasture, hay, small grains and other grasslands in their vicinity should receive preference for acquisition

Expected Outcome: Clearly identified landscapes and features that will benefit the Campaign goals will help the state and partners organize and target acquisitions and easements to build landscape scale grasslands in suitable areas.

9. Look for innovative partnerships to work with existing grants, programs and initiatives to increase the amount of habitat for SGCN.

Need: Many grants and initiatives tend to be narrowly focused on a particular issue; nutrient loss, Gulf Hypoxia, soil erosion, biofuels, cover crops, etc. There are opportunities to incorporate quality habitat for SGCN while achieving the goals of various grants and/or initiatives.

- Evaluate programs and initiatives that could be used to address multiple resource concerns
  - Illinois Nutrient Loss Reduction Strategy (2015) identifies specific areas of excessive nitrogen and phosphorous runoff that are contributing to the Hypoxic Zone in the Gulf of Mexico
  - The 2014 Farm Bill Authorized $225 Million for the Regional Conservation Partnership Program (RCPP) which identifies Illinois as a priority area to reduce runoff of nitrogen and phosphorous (Up to $100 million may be allocated per fiscal year)
  - The Conservation Reserve Program has various practices that may be eligible in priority areas and watersheds
    - Allocated acres for some programs have been exhausted (e.g. SAFE).
    - The current Farm Bill (2014) reduced the cap for CRP by 8 million acres
- Evaluate agricultural fields (yield monitors, soil fertility, precision agriculture equipment, etc.) to identify specific areas of individual fields that contribute the most runoff (sediment, phosphorous and nitrogen) and are NOT profitable to growers most years.
  - Work with farmers and landowners to show them which acres are costing them money, and how much money they are losing per acre, per year.
  - Show potential payments from existing USDA Programs to make these areas profitable and suitable habitat for SGCN.
  - Work with agriculture retailers (Brandt, FS, Grow-Mark, etc) to take proactive steps to reduce runoff/nutrient loss (e.g. split shot Nitrogen application, follow BMP's) and make progress towards meeting the goals of the Illinois Nutrient Loss Reduction Strategy (2015) by putting suitable habitat on the land.

- Conduct a comprehensive review of priority state and federal resource concerns and applicable programs/grants to highlight areas that could address multiple resource concerns and provide more habitat for SGCN.

Expected Outcome: Increase in the amount of grassland habitat for SGCN through the use of innovative partnerships.

Focus Areas

Priority sites and areas for the Farmland and Prairie Campaign (Figure 5) were selected by the Farmland and Prairie Committee based on current (and potential) locations of large blocks of grassland or shrubland. The priority sites and areas for the Campaign are prioritized as medium, high and highest priority. Sites that are moderate priority are small, isolated or low-moderate quality grasslands or shrublands that occur anywhere in the state. High priority sites and areas are focused on specific natural divisions and high quality, native remnants and areas with the potential for restoration of habitat to help meet the goals of the Campaign. Highest priority sites and areas are specific sites or areas within priority natural divisions with permanent protection (conservation easement or public ownership) that are key areas to meet the goals of the campaign. These sites and areas can be revised as conditions and/or opportunities for restoration change/evolve.

Highest Priority:

- Grand Prairie Natural Division
  - Jim Edgar/Panther Creek SFWA
  - Pembroke Savannas
  - Momence Wetlands Area
  - Midewin Tallgrass National Prairie
  - Des Plaines
  - Goose Lake Prairie
  - Sibley/Saybrook complex
  - SAFE areas in 50 mile radius from Sibley/Saybrook
    - 9 additional Pheasant Habitat Areas within 50 mile radius (~1300 acres of state-owned grasslands)
- Illinois River and Mississippi River Sand Areas Natural Division
  - Green River State Fish and Wildlife Area
  - Hanover Bluff State Natural Area
- Rock River Hill Country Natural Division
  - Castle Rock State Park - Lowden Miller State Forest
  - Franklin Creek State Natural Area
  - Nachusa State Habitat Area
  - Nachusa Grasslands – The Nature Conservancy
- Southern Till Plain Natural Division
  - Prairie Ridge State Natural Area (Greater Prairie Chicken)
  - Southern Till Plain SAFE areas within 25 mile radius of Prairie Ridge
  - Twelve-Mile Prairie
  - Pyramid State Park
  - Burning Star State Fish and Wildlife Area

- Wisconsin Driftless
    - Mississippi Palisades State Park
- Upper Mississippi River and Illinois River Bottomlands Natural Division
    - Lost Mound Unit – Upper Mississippi River National Wildlife and Fish Refuge

High Priority:

- Grand Prairie Natural Division
    - Grand Prairie SAFE Areas
    - Kankakee River Sands Areas
    - Pheasant Habitat Areas and State Habitat Areas
    - Snakeden Hollow State Fish and Wildlife Area and Satellites
        - Buffalo Pasture and T-Lakes Pheasant Habitat Areas
        - Forever Fields Upland Management Area (Pheasants Forever)
        - Victoria Pheasant Habitat Area
- Southern Till Plain Natural Division
    - Southern Till Plain SAFE Areas
    - Ten-Mile Creek State Fish and Wildlife Area
- Illinois River and Mississippi River Sand Areas Natural Division
    - Mason County Sands Areas
- Native prairie/shrubland remnants that contain significant examples of natural communities (Illinois Natural Areas Inventory sites)

Moderate Priority:

Areas of suitable habitat that are isolated or not in preferred landscapes and lack an easement or long-term protection

- CRP, CREP or other large areas of privately owned grassland and/or shrubland

Management Resources

A list of resources (preferably including URLs) of documents and websites that would provide resources and more depth to concepts introduced in the Universal Management Recommendations. Alternatively we could house this section of the plan only on the IWAP website (so that it would be easier to keep current and updated) and only mention it in the plan.

Grassland Birds

Cornell Lab of Ornithology – All About Birds
https://www.allaboutbirds.org/

Grassland Birds- Overview of threats and recommended management strategies:
http://www.birds.cornell.edu/pifcapemay/vickery.htm

Grassland Bird Conservation and Management:
http://wwx.inhs.illinois.edu/files/3113/9483/0974/GrasslandSciencePolicy.pdf

Midwest Birds of Concern – United States Fish and Wildlife Service:
http://www.fws.gov/midwest/MidwestBird/concern.html

North American Breeding Bird Survey:
https://www.pwrc.usgs.gov/bbS/

North American Grassland Birds: An Unfolding Conservation Crisis?:
http://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Brennan_and_Kuvlesky_2005.pdf

Management Plans and Strategies

Partners in Flight – US Best Management Practices:
http://www.partnersinflight.org/pubs/BMPs.htm

Upper Mississippi River and Great Lakes Region Joint Venture Bird Conservation Plans. 2007. (Implementation Plan, Landbird Habitat Conservation Strategy, Shorebird Habitat Conservation Strategy, Waterfowl Habitat Conservation Strategy, Waterbird Habitat Conservation Strategy)
http://www.uppermissgreatlakesjv.org/Plans.htm

Illinois Nutrient Loss Reduction Strategy:
Illinois Department of Agriculture, Nutrient Loss Reduction Strategy
http://www.epa.illinois.gov/Assets/iepa/water-quality/watershed-management/nlrs/nlrs-final.pdf

Invasive Species:

Illinois Nature Preserves Commission Invasive Species Management Guide
http://www.dnr.illinois.gov/INPC/Pages/INPCManagementGuidelines.aspx

Missouri Department of Conservation Field Guide to Invasive Species.
http://nature.mdc.mo.gov/status/invasive

Monarch Butterfly:
Monarch Mania – Illinois Department of Natural Resources
http://www.dnr.illinois.gov/education/Pages/monarchgen.aspx

Ohio Department of Natural Resources – Milkweeds and Monarchs:
http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/id%20guides/Milkweeds&Monarchs.pdf

Northern Bobwhite Quail
biology and habitat:
http://www.clemson.edu/extension/natural_resources/wildlife/publications/fs7_bobwhite_quail.html

http://www.dgif.virginia.gov/quail/open-land.asp

http://bringbackbobwhites.org/

Managing CRP Grasslands for Bobwhite Quail – Missouri Department of Conservation:
http://mdc.mo.gov/your-property/wildlife-your-property/game-birds-your-property/quail-management/managing-crp-grasslan

Why quail stocking/release is not effective:
http://mdc.mo.gov/blogs/more-quail/pen-raised-quail

http://mdc.mo.gov/blogs/more-quail/jump-starting-your-quail-population

http://mdc.mo.gov/blogs/more-quail/jump-starting-your-quail-population-part-2

http://quailforever.org/Habitat/Why-Habitat/Quail-Facts/Quail-Stocking.aspx

http://bringbackbobwhites.org/blogs/kentucky/195-more-pen-raised-quail-cmon

USDA Conservation Programs:
Conservation Reserve Program (CRP): http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index

CRP Practices Library: http://www.fsa.usda.gov/programs-and-services/conservation-programs/crp-practices-library/index

United States Department of Agriculture, Natural Resources Conservation Service – Field Office Technical Guide:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/

United States Department of Agriculture, National Agricultural Statistics Service. 2015.
http://quickstats.nass.usda.gov/

Performance Measures

Outcome performance measures are designed to assess the overall impact of undertaking conservation actions on Implementation Goals. Output performance measures are designed to assess how active the program is at working toward the Implementation Goals.

Overarching Goal	Type	Performance Measure
Viable Populations	Outcome	Focal Species abundance (or relative abundance) is maintained or increased
	Outcome	Implement monitoring for Focal Species and SGCN that are not currently monitored at statewide or finer spatial scales (natural division)
	Output	Through direct acquisition or conservation easement, acquire (and manage) tracts large enough to support area-sensitive SGCN in priority areas.
	Output	Develop and begin implementation of 1 Recovery Plan per year for SGCN species
Habitat Management	Outcome	Manage existing grassland and shrubland habitat to maximize habitat quality and increase populations of SGCN
	Output	Net gain of grassland and shrubland acres within important natural divisions
	Output	Increased management/disturbance (prescribed fire, herbicide application, strip disking, fallowing) of grasslands (e.g., warm-season grasses and forbs) to increase quality and diversity
	Outcome	Improve water quality and reduce sediment delivery to wetlands and streams through upland management
Habitat resiliency and connectedness	Outcome	Enhanced size and quality of grassland and shrubland communities
	Outcome	Increased ecological connectivity among habitat patches that support populations of less mobile species (e.g., herpetofauna)
Public Awareness, Appreciation, Connection	Output	Targeted grassland and shrubland education to increase support for these habitats that benefit wildlife and society
	Output	Work with Partners to implement existing plans that can benefit Campaign Goals (e.g., Nutrient Loss Reduction Strategy)
	Output	Work with partners and the public to develop and implement a public relations campaign about nesting grassland birds and the need to delay mowing (roadside and recreational) until after August 1

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Table 5. Breeding Bird Survey Data from Illinois for SGCN 1966 – 2013

Credibility	Species	1966 - 2013 trend	2003 - 2013 trend
RED	American Woodcock	-0.94	-0.58
Yellow	Bell's Vireo	-0.6	0.86
Yellow	Bobolink	-6.77	-9.01
Blue	Dickcissel	-1.94	3.58
Blue	Eastern Meadowlark	-2.77	-2.55
Blue	Field Sparrow	-2.88	-1.85
Blue	Grasshopper Sparrow	-6.58	-5.73
RED	Henslow's Sparrow	6.02	6.5
Yellow	Loggerhead Shrike	-7.18	-10.34
Blue	Northern Bobwhite	-3.94	-5.18
Blue	Ring-necked pheasant	-4.05	-9.28
RED	Northern Harrier	1.52	4.81
Blue	Song Sparrow	-0.36	-1.76
RED	Upland Sandpiper	0.13	6.4

Regional Credibility Ranking - Shows the users an estimate of the validity of the data

This category reflects data with an important deficiency.

This category reflects data with a deficiency.

This category reflects data with at least 14 samples in the long term, of moderate precision, and of moderate abundance on routes.

Sauer, J. R., J. E. Hines, J. E. Fallon, K. L. Pardieck, D. J. Ziolkowski, Jr., and W. A. Link. 2014. *The North American Breeding Bird Survey, Results and Analysis 1966 - 2013. Version 01.30.2015 USGS Patuxent Wildlife Research Center, Laurel, MD*

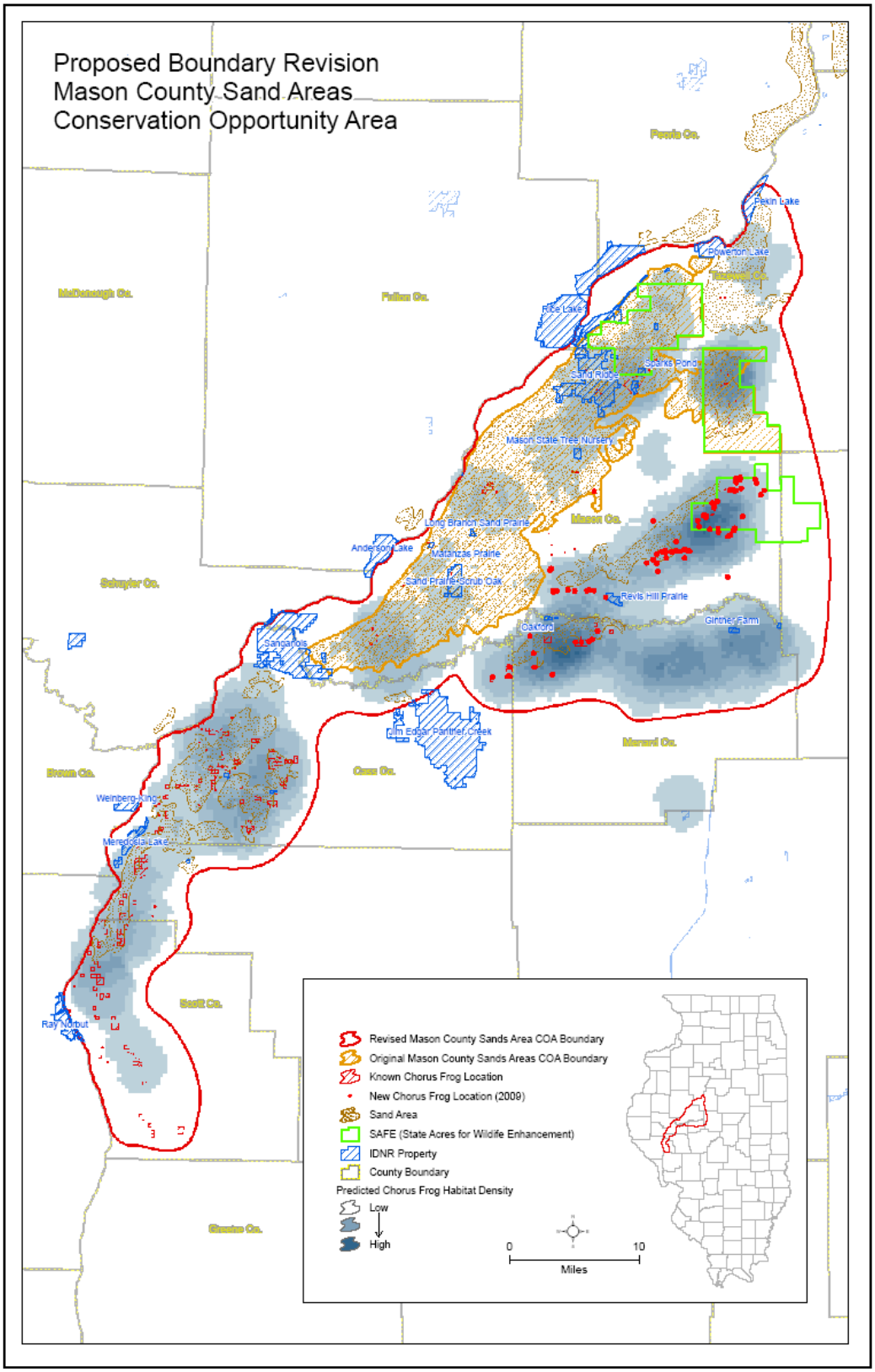

Figure 4. Amendment to the Mason Co. Sands portion of the Conservation Opportunity Area

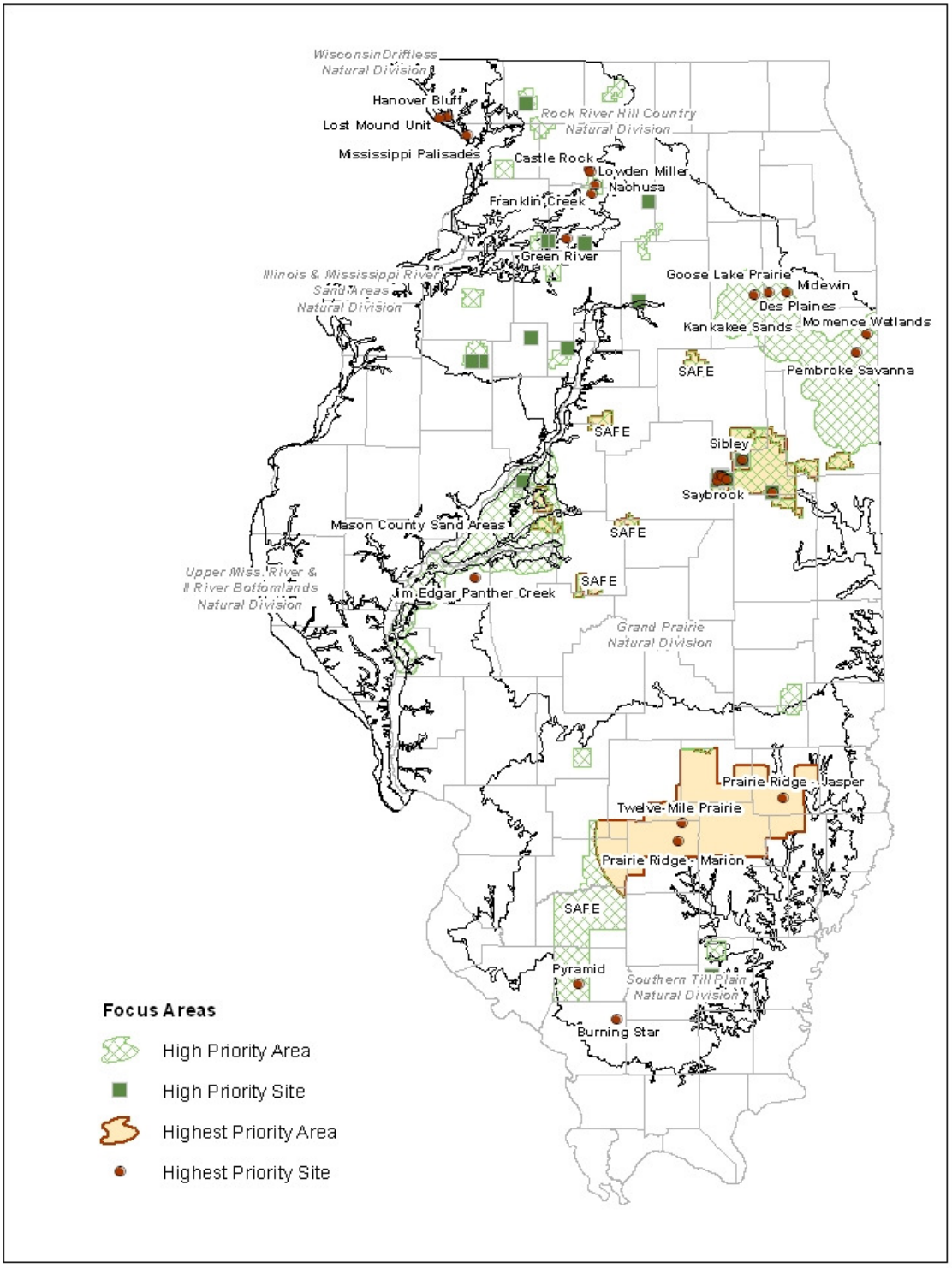

Figure 5. Focus areas and sites identified by the Farmland and Prairie Campaign

Appendix 4. Status and stresses to Illinois Species in Greatest Conservation Need addressed in the Farmland and Prairie Campaign. Definitions and methods:

Common Name: Commonly recognized name for the species.

Scientific Name: Currently recognized name for the species based on the most recently available literature.

Campaign Habitat: Major habitat type where the species occurs in Illinois.

Specific Habitat: More detail habitat location for species in Illinois.

Historic Status: Number of Counties, or HUC8 watershed for fish and mussels, with records from before 1980.

Current Status: Number of Counties, or HUC8 watersheds for fish and mussels, with recent records (last 20 years).

Trend: Trends were based on the change in distribution of the species by comparing their Current and Historic Status. If a change less than 25% was observed the trend was recorded as 0, changes with magnitudes between 25-49% were coded as +1 (distribution increased) or -1 (distribution decreased), changes greater than 50% were coded as +2 (distribution increased) or -2 (distribution decreased).

Stressors: Each stressor type was rated as either a recognized stressor (1), not a recognized stressor (0), or as having not enough information to make a rating (NMI=Need More Information).

Appendix 4. Status and stresses to Illinois Species in Greatest Conservation Need addressed in the Farmland and Prairie Campaign.

							Habitat Stresses						Community Stresses							Population Stresses				Direct Human Stressors		
Common Name	Scientific Name	Campaign Habitat	Specific Habitat	Historic Status	Current Status	Trend	Extent	Fragmentation	Composition-structure	Distrubtion/Hydrology	Invasives/Exotics	Pollutants-Sediment	Competitors	Predators	Parasites/Deisease	Prey/Food	Hosts	Invasive/Exotics	Other Symbionts	Genetics	Dispersal	Recruitment	Mortality	Killing	Disturbance	Structures/Infrastructure
BIRDS																										
American Golden-Plover	*Pluvialis dominica*	Agricultural Field	Agricultural, Mudflat, Grassland	NMI	NMI	-1	0	1	1	1	0	1	0	0	1	1	0	0	0	0	0	1	1	0	0	1
Barn Owl	*Tyto alba*	Prairie (Native Grass)	Savanna, Grassland, Agriculture	4	10	1	1	1	1	1	1	1	0	1	0	1	0	0	0	0	1	1	1	0	0	1
Bobolink	*Dolichonyx oryzivorus*	Prairie (Native Grass)	Grassland	53	33	-2	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1
Dickcissel	*Spiza americana*	Prairie (Native Grass)	Grassland	101	101	-2	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1
Eastern Meadowlark	*Sturnella magna*	Prairie (Native Grass)	NMI	102	101	-2	1	1	1	0	1	0	0	1	0	0	0	1	0	0	0	1	1	0	1	0
Field Sparrow	*Spizella pusilla*	Prairie (Native Grass)	Successional	102	99	-2	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1
Grasshopper Sparrow	*Ammodramus savannarum*	Prairie (Native Grass)	Grassland	100	74	-2	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	0	0	1	1
Greater Prairie-Chicken	*Tympanuchus cupido*	Prairie (Native Grass)	Grassland	1	2	-1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	0	1
Henslow's Sparrow	*Ammodramus henslowii*	Prairie (Native Grass)	Undisturbed Grass	11	61	2	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	0	0	1	1
Le Conte's Sparrow	*Ammodramus leconteii*	Prairie (Native Grass)	Grassland, Marsh	NMI	NMI	-2	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Loggerhead Shrike	*Lanius ludovicianus*	Prairie (Native Grass)	Grassland	84	21	-2	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	0	0	1
Northern Bobwhite	*Colinus virginianus*	Prairie (Native Grass)	Successional Field, Grassland	100	91	-2	1	1	1	1	1	1	0	1	0	1	0	0	0	0	1	1	1	0	0	0
Northern Harrier	*Circus cyaneus*	Prairie (Native Grass)	Grassland, Marsh	40	33	1	1	1	1	1	1	0	0	1	0	1	0	0	0	0	0	1	1	0	0	1
Ring-Necked Pheasant	*Phasianus colchicus*	Agricultural Field	NMI	72	58	-2	1	1	1	1	1	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0
Short-Eared Owl	*Asio flammeus*	Prairie (Native Grass)	Grassland	5	NMI	0	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	1	1	0	1	1
Smith's Longspur	*Calcarius pictus*	Agricultural Field	Agricultural, Grassland	NMI	NMI	NMI	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0
Upland Sandpiper	*Bartramia longicauda*	Prairie (Native Grass)	Grassland	32	24	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	1	1	0	0	1
HERPTILES - Amphibians																										
Crawfish Frog	*Lithobates areolata*	Sedge Meadow	Ephemeral Wetland in Clay Soil Grassland, Prairie with Abundant Crayfish Burrows	31	10	-2	1	1	1	1	1	0	1	0	1	0	0	1	0	1	1	1	0	0	1	1
Illinois Chorus Frog	*Pseudacris illinoensis*	Sand Prairie	Ephemeral Wetland in Sandy Soil Grassland, Prairie	10	10	0	1	1	1	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
HERPTILES - Reptiles																										
Coachwhip	*Masticophis flagellum*	Rocky Grassland, Savanna Slopes	Rocky Grassland, Savanna Slopes	1	0	-2	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0	1	1	0	1	1
Eastern Massasauga	*Sistrurus catenatus*	Sedge Meadow	Wet Soil Grassland, Prairie with an Abundance of Crayfish Burrows	21	8	-2	1	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	1
Grahm's Crayfish Snake	*Regina grahamii*	Sedge Meadow	Marsh, Wet Grassland	37	12	-2	1	1	1	1	1	0	0	0	0	1	0	0	0	1	1	1	0	1	1	1
Illinois Mud Turtle	*Kinosternon flavescens*	Sand Prairie	Sandy-Soil Grassland, Prairie	10	4	-2	1	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	1	0
Kirtland's Snake	*Clonophis kirtlandii*	Sedge Meadow	Marsh, Sedge Meadow, Wet Grassland with Abundant Crayfish Burrows	27	15	-1	1	1	1	1	0	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1
Lined Snake	*Tropidoclonion lineatum*	Prairie (Native Grass)	Prairie	12	4	-2	1	1	1	0	0	0	1	1	1	0	0	0	0	1	1	1	1	0	0	1
Ornate Box Turtle	*Terrapene ornata*	Grassland	Sandy-Soil Grassland, Prairie	49	21	-2	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	1	1	1
Plains Hog-nosed Snake	*Heterodon nasicus*	Sand Prairie	Sandy-Soil Grassland, Prairie	17	10	-1	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	1	1	1
Slender Glass Lizard	*Ophisaurus attenuatus*	Prairie (Native Grass)	Sandy-Soil Grassland, Prairie	23	10	-1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	1	1	0	1	1
Smooth Greensnake	*Opheodrys vernalis*	Prairie (Native Grass)	Prairie, Old Field	26	14	-1	1	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	0	1	1
INVERTEBRATE - Hemiptera (True Bugs)																										
a leafhopper	*Athysanella incongrua*	Prairie (Native Grass)	Hill Prairie	NMI	1	NMI	1	1	1	1	0	0	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Cuerna alpina*	Prairie (Native Grass)	Prairie	NMI	1	NMI	1	1	1	1	1	1	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI
a leafhopper	*Flexamia abbreviata*	Prairie (Native Grass)	Dry Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Flexamia albida*	Prairie (Native Grass)	Hill Prairie	NMI	2	NMI	1	1	1	1	1	0	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI

							Habitat Stresses						Community Stresses							Population Stresses				Direct Human Stressors		
Common Name	Scientific Name	Campaign Habitat	Specific Habitat	Historic Status	Current Status	Trend	Extent	Fragmentation	Composition-structure	Distrubtion/Hydrology	Invasives/Exotics	Pollutants-Sediment	Competitors	Predators	Parasites/Deisease	Prey/Food	Hosts	Invasive/Exotics	Other Symbionts	Genetics	Dispersal	Recruitment	Mortality	Killing	Disturbance	Structures/Infrastructure
a leafhopper	*Flexamia grammica*	Prairie (Native Grass)	Sand Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Flexamia pectinata*	Prairie (Native Grass)	Prairie , Mesic Grassland	NMI	4	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Lonatura catalina*	Prairie (Native Grass)	Xeric Prairie	NMI	5	NMI	1	1	0	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Paraphlepsius carolinus*	Prairie (Native Grass)	Sand Prairie	NMI	2	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Paraphlepsius nebulosus*	Prairie (Native Grass)	Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Paraphlepsius umbellatus*	Prairie (Native Grass)	Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Pendarus magnus*	Prairie (Native Grass)	Wet Prairie, Marsh	NMI	5	NMI	1	1	1	1	1	1	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI
a leafhopper	*Polyamia dilata*	Prairie (Native Grass)	Hill Prairie	NMI	4	NMI	1	1	1	1	1	0	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Polyamia rossi*	Prairie (Native Grass)	Sand Prairie	NMI	NMI	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Polyamia similaris*	Prairie (Native Grass)	Xeric Prairie	NMI	NMI	NMI	1	1	0	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a leafhopper	*Scaphytopius dorsalis*	Prairie (Native Grass)	Xeric Prairie	NMI	4	NMI	1	1	0	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Giant Grassland Cicada or Bush Cicada	*Tibicen dorsatus*	Prairie (Native Grass)	Prairie	NMI	10	NMI	1	1	1	1	1	1	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI
Redveined Prairie Leafhopper	*Aflexia rubranura*	Prairie (Native Grass)	Xeric or Mesic Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
INVERTEBRATE - Hymenoptera (Bees & Wasps)																										
American Bumble Bee	*Bombus pensylvanicus*	Prairie (Native Grass)	Prairie	NMI	42	NMI	1	1	1	1	1	1	0	0	1	0	0	NMI	NMI	1	0	0	0	NMI	NMI	NMI
Half-black Bumble Bee	*Bombus vagans*	Prairie (Native Grass)	Prairie	NMI	23	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Rusty-Patched Bumble Bee	*Bombus affinis*	Prairie (Native Grass)	Prairie	NMI	8	NMI	1	1	1	1	1	1	0	0	1	0	0	NMI	NMI	1	0	0	0	NMI	NMI	NMI
Southern Plains Bumble Bee	*Bombus fraternus*	Prairie (Native Grass)	Prairie	NMI	14	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
INVERTEBRATE - Lepidoptera (Butterflies & Moths)																										
a moth	*Anacampsis wikeri*	Prairie (Native Grass)	Prairie	NMI	2	NMI	1	1	1	1	1	1	0	0	0	0	1	NMI	NMI	0	1	0	1	NMI	NMI	NMI
a torticid moth	*Eucosma bipunctella*	Prairie (Native Grass)	Mesic Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
a torticid moth	*Eucosma fulminana*	Prairie (Native Grass)	Mesic Prairie	NMI	5	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
an inch worm moth	*Digrammia ordinata*	Prairie (Native Grass)	Prairie	NMI	5	NMI	1	1	1	1	1	1	0	0	0	0	1	NMI	NMI	0	1	0	1	NMI	NMI	NMI
Brown Flower Moth	*Schinia saturata*	Prairie (Native Grass)	Sand Prairie	NMI	4	NMI	1	1	1	1	1	1	0	0	0	0	1	NMI	NMI	0	0	0	1	NMI	NMI	NMI
Cobweb Skipper	*Hesperia metea*	Prairie (Native Grass)	Sand Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Dakota Skipper	*Hesperia dacotae*	Prairie (Native Grass)	Xeric Prairie	NMI	1	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Ernestine's Moth	*Phytometra ernestinana*	Prairie (Native Grass)	Prairie	NMI	5	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Gorgone Checkerspot	*Chlosyne gorgone carlota*	Prairie (Native Grass)	Xeric Prairie	NMI	NMI	NMI	1	1	1	1	1	1	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI
Grote's Black-tipped Quaker	*Dichagyris grotei*	Prairie (Native Grass)	Xeric Prairie	NMI	NMI	NMI	1	1	1	1	1	1	0	0	0	0	1	NMI	NMI	0	0	0	1	NMI	NMI	NMI
Leadplant Leafwebber Moth	*Sciota dammersi*	Prairie (Native Grass)	Xeric Prairie	NMI	NMI	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Marked Noctuid Moth	*Tricholita notata*	Prairie (Native Grass)	Mesic Prairie	NMI	3	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Monarch Butterfly	*Danaus plexippus*	Prairie (Native Grass)	Prairie, Meadow	NMI	NMI	NMI	1	1	1	1	1	1	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI	NMI
Northern Flower Moth	*Schinia septentrionalis*	Prairie (Native Grass)	Mesic/Xeric Prairie	NMI	NMI	NMI	1	1	1	1	1	1	0	0	0	0	1	NMI	NMI	0	0	0	1	NMI	NMI	NMI
Orange Mint Moth	*Pyrausta orphisalis*	Prairie (Native Grass)	Prairie	NMI	4	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Orange Sallow Moth	*Rhodoecia aurantiago*	Prairie (Native Grass)	Mesic Prairie	NMI	2	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	1	NMI	NMI	NMI
Ottoe Skipper	*Hesperia ottoe*	Prairie (Native Grass)	Xeric Prairie	NMI	6	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Pearly Indigo Borer	*Sitochroa dasconalis*	Prairie (Native Grass)	Unknown	NMI	3	NMI	NMI	NMI	NMI	NMI	NMI	NMI	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Prairie Sedge Moth	*Neodactria murellus*	Prairie (Native Grass)	Xeric Prairie	NMI	2	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Regal Fritillary	*Speyeria idalia*	Prairie (Native Grass)	Xeric or Mesic Prairie	NMI	32	NMI	1	1	1	1	1	1	0	0	0	1	1	NMI	NMI	1	1	1	0	NMI	NMI	NMI
Silphium Borer Moth	*Papaipema silphii*	Prairie (Native Grass)	Prairie	NMI	2	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Spirea Leaftier Moth	*Evora hemidesma*	Prairie (Native Grass)	Prairie	NMI	5	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Whitney's Underwing	*Catocala whitneyi*	Prairie (Native Grass)	Hill Prairie	NMI	2	NMI	1	1	1	1	1	0	0	0	0	0	1	NMI	NMI	0	0	0	1	NMI	NMI	NMI
Yellow Sedge Borer	*Archanara subflava*	Prairie (Native Grass)	Prairie	NMI	5	NMI	1	1	1	1	1	1	0	0	0	0	1	NMI	NMI	0	1	0	1	NMI	NMI	NMI

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INVERTEBRATE - Orthoptera (Grasshoppers, Katydids, Crickets)																										
Prairie Mole Cricket	*Gryllotalpa major*	Prairie (Native Grass)	Tallgrass Prairie	NMI	NMI	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
Velvet-Striped Grasshopper	*Eritettix simplex*	Prairie (Native Grass)	Sand Prairie	NMI	4	NMI	1	1	1	1	1	1	0	0	0	0	0	NMI	NMI	0	0	0	0	NMI	NMI	NMI
MAMMALS																										
Franklin's Ground Squirrel	*Poliocitellus franklinii*	Prairie, Marsh	Tall/Mid-Grass Prairie, Marsh Edge, Field/Forest Edge	14	10	-2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Gray/Timber Wolf	*Canis lupus*	Prairie, Upland Forest, Woodland, Savanna	Areas of High Ungulate Population	10	NMI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0