Chapter 2 - METHODS

Overview

The second edition (2015) of the SWAP involved an evaluation and revision of the list of SGCN and habitats developed for the 2005 Kansas Comprehensive Wildlife Conservation Plan, development of a simplified set of criteria for prioritizing SGCN, identification of spatially explicit priority areas for conservation, and identification of priority conservation issues and actions within these priority areas.

This 3rd edition (2022) involved a re-evaluation and revision of the SGCN list, a reassement of threats for species and habitats, identification of new or revised actions and monitoring programs for species and habitats, and the addition of new conservation success stories.

Evaluation and revision of lists of species and habitats

Species of Greatest Conservation Need

The list of SGCN identified in the 2015 Kansas Wildlife Action Plan was revised according to the following decisions and based on the existing selection and ranking criteria (Appendix 1):

- Changes to nomenclature since previous edition were updated
- Status assessments that have been updated since the previous edition were reviewed for changes that would affect a species' inclusion or priority rank.
- Changes made as part of the 2018 five-year review of threatened and endangered species were incorporated.
- Plants that met one or more of the selection criteria were added
- Terrestial and aquatic invertebrates recommended by species experts that met one or more of the selection criteria were added
- Experts were contacted to inquire whether any pollinators may be missing based on the selection criteria

Even though there is no state statute protecting plants in Kansas, plants were included in this revision because the SWAP is a statewide plan meant to used by any and all interested in the conservation of Kansas' biodiversity. The final list contains 429 SGCN. This list may change due to new information gleaned from inventory and monitoring activities, and emerging issues such as disease. Additionally, KDWP is required by State statute to evaluate the State Threatened and Endangered Species List, and the Species in Need of Conservation (SINC) list every five years. Similar to the Federal listing process, this requires extensive coordination with other agencies and groups concerned with the conservation of these species and the effects of this action on commerce and industry.

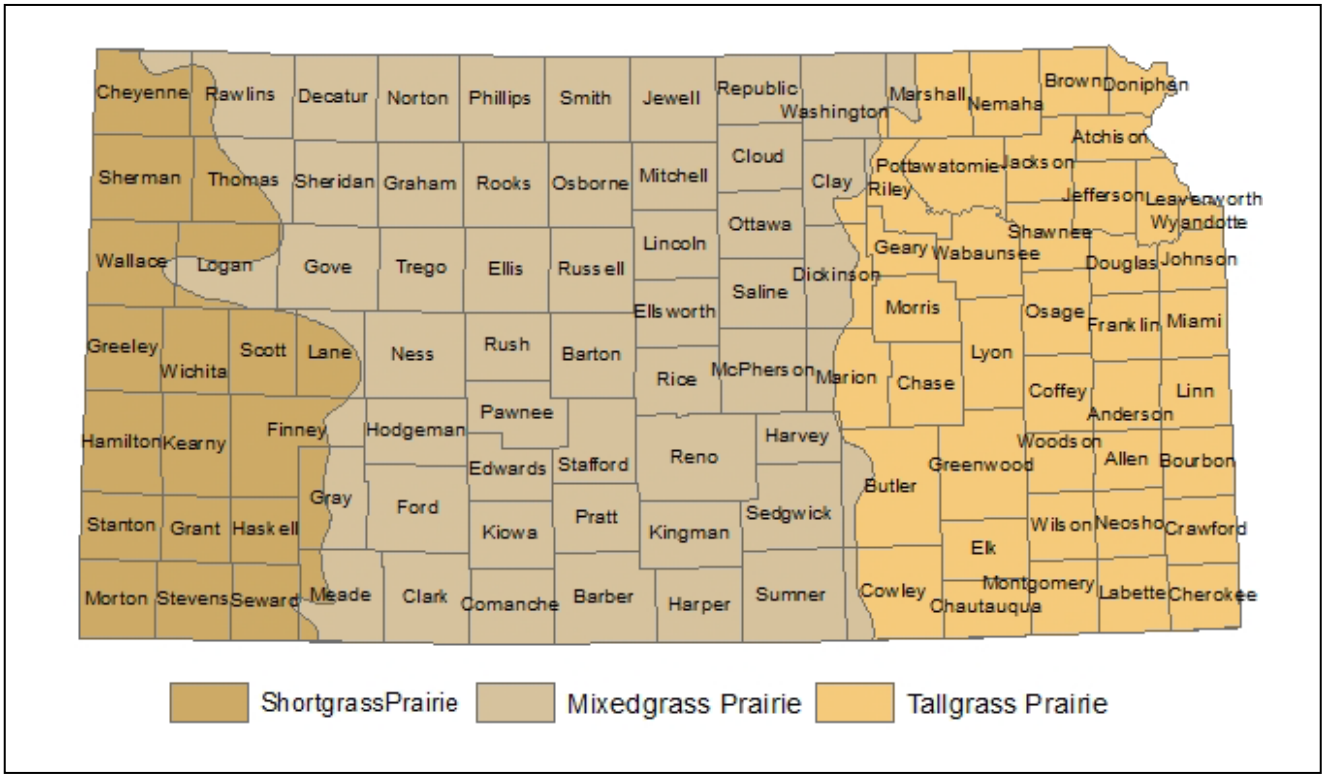
Habitats

The ecoregions defined by the North American Bird Conservation Initiative (2000) and refined by the Playa Lakes Joint Venture were adopted as the planning framework for this plan. The state is comprised of three Conservation Regions: Shortgrass Prairie, Central Mixed Grass Prairie, and Eastern Tallgrass Prairie (Figure 1).

Terrestrial habitats were identified from the Kansas Gap Land Cover Map (Egbert et al. 2001) which uses an alliance-level vegetation classification system based on the National Vegetation Classification system. For the purpose of this Plan, land cover types were generalized to reflect the habitat types and terminology used by conservation practitioners in the state (Figure 2A). New map products created since development of the first edition, such as the 2005 landcover map created by the Kansas Applied Remote Sensing Program (Peterson et al. 2010) and NatureServe's Ecological Systems classification (Comer et al. 2003), were evaluated for this revision. Although these products have some advantages over the GAP classification, it was decided that the overriding consideration should be familiarity with and ease of use by conservation practitioners in the state. Therefore, the GAP map has been retained as the basis for habitat classification.

Aquatic habitats were identified from the document "Fish Ecoregions of Kansas: Stream fish assemblage patterns and associated environmental correlates" (Hawks et al. 1986) with additional input provided by the staff of the Kansas Department of Wildlife and Parks (Figure 2B).

Figure 1. Kansas Conservation Regions based on the Bird Conservation Regions Map, U.S. NABCI Committee, September 2000.



Prioritizing SGCN and habitats

Species of Greatest Conservation Need were prioritized into two categories. Tier 1 includes species listed as endangered or threatened at the federal or state level, or with global conservation status rank of G1 or G2; all remaining SGCN were assigned to Tier 2. NatureServe's global conservation status ranks are a synthesis of factors relating to rarity, trends, and threats and offer a good assessment of a species' vulnerability throughout its range. These ranks capture several of the criteria used to rank SGCN in the first edition. State endangered species statuses are the result of consensus among Kansas wildlife professionals as to which species are in most critical need of conservation action in the state.

Of the 429 SGCN, 94 are classified as Tier 1 and 335 are classified as Tier 2. Tier 1 species include nine amphibians, one amphipod, six birds, 15 fish, eight gastropods, 21 insects, three isopods, five mammals, 14 mussels, one planarian, eight plants, three reptiles, and one plants. Tier 2 species include five amphibians, two amphipods, four arachnid, 82 birds, 12 crustaceans, 55 fish, eight gastropod, 93 insects, one isopod, 16 mammals, 16 mussels, 23 plants, 16 reptiles, and two turtles (see Appendix 2). The SGCN list will be modified and species of interest may change dependent upon acquisition of new information, the dynamic nature of many threats, and emerging issues such as disease.

Habitats are prioritized based on their dominance and importance to the conservation of SGCN in each Conservation Region. A list of priority habitats can be found in the chapters dedicated to each Region. Priority terrestrial habitats are the native vegetation communities that are dominant on the landscape in each ecoregion. Priority aquatic habitats include rivers and streams and their associated chutes, sloughs, and oxbows.

Ecological Focus Areas - Identification of priority areas for conservation

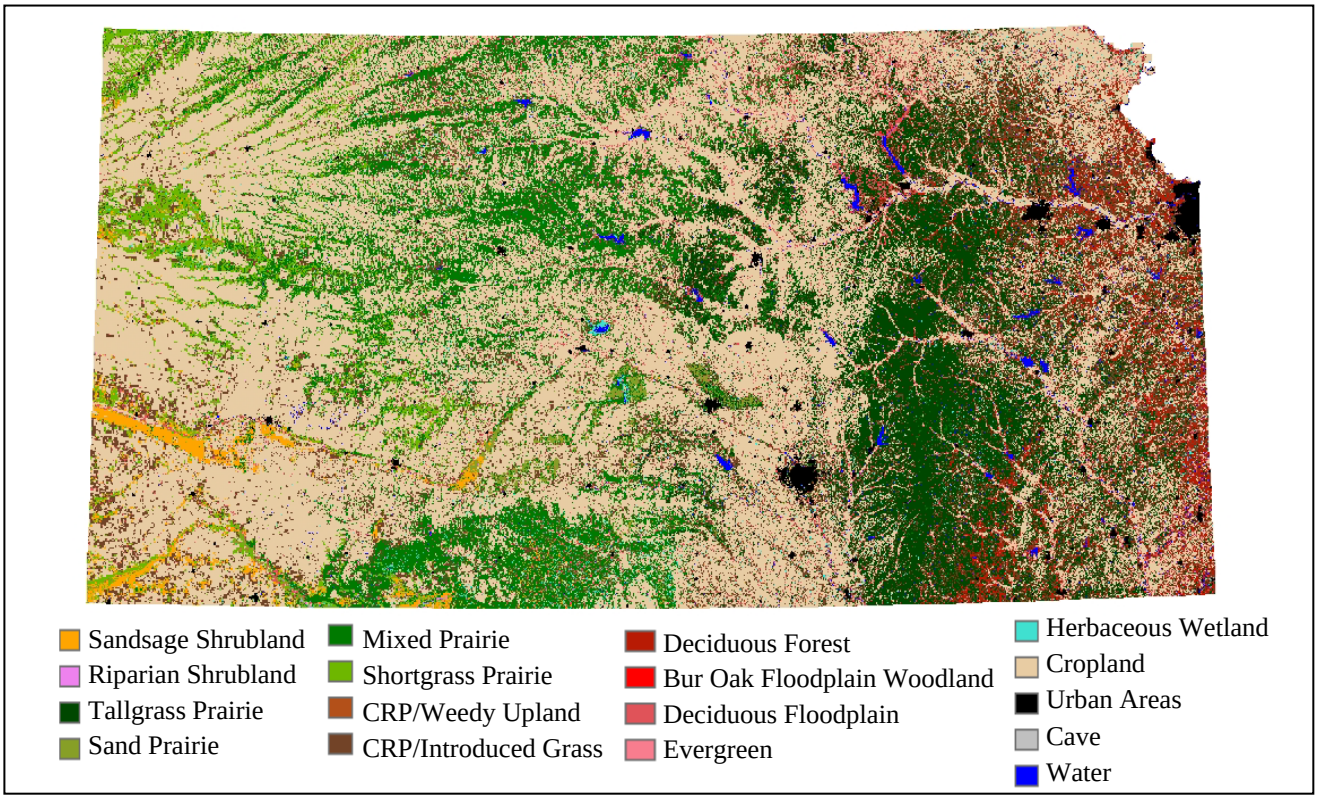
The Ecological Focus Areas (EFA) represent landscapes where conservation actions can be applied for maximum benefit to all Kansas wildlife. Each EFA includes a suite of SGCN and priority habitats and a unique set of conservation actions designed to address the specific resource concerns facing these species and habitats. Each EFA also includes one or more protected areas that can serve as demonstration sites for conservation actions. Although EFAs have been selected for the purpose of concentrating conservation measures, conservation actions will not be limited to EFAs if opportunities arise in other areas. A set of statewide conservation actions that are somewhat general in nature have been designed to address issues that plague the entire state or are not associated with any particular priority area.

The design of EFAs was based primarily on priority native habitats and refined using SGCN locations, and was built upon other planning efforts that address conservation priorities in the state. Aquatic EFAs were based on The Nature Conservancy's priority streams and by the Special Aquatic Life Use (SALU) streams defined by the Kansas Department of Health and Environment, with some exclusions based on expert opinion. The selected streams were buffered by 100 m; 12-digit HUCs that intersect the buffers comprise the EFAs.

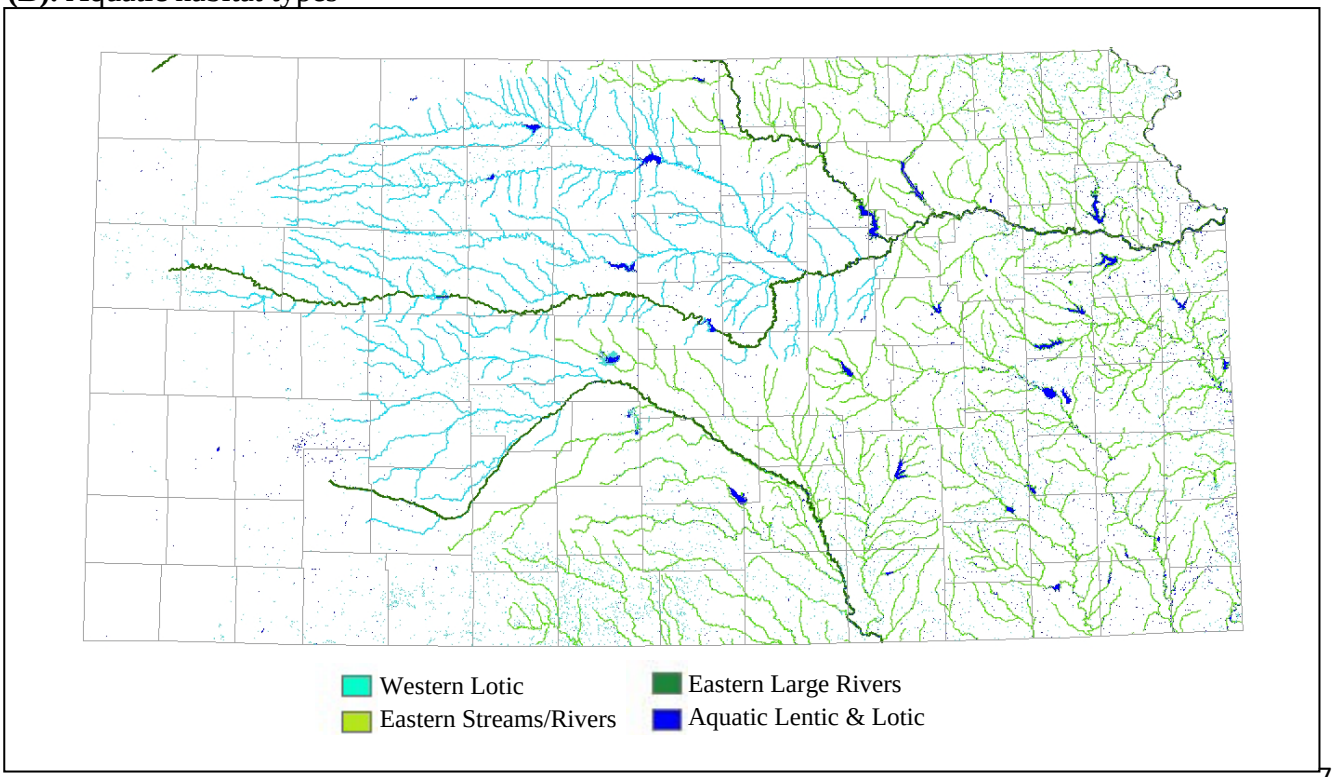
Terrestrial EFAs were designed using several data layers including large natural areas from the Crucial Habitat Assessment Tool (CHAT), landscape connectivity (also from the CHAT), portfolio sites

identified by The Nature Conservancy, landcover, potential high-quality forest, high-quality natural communities, ecoregions, physiographic provinces, and locations of SGCN.

Figure 2. Kansas Habitat Types
(A). Terrestrial habitat types.



(B). Aquatic habitat types



EFAs have been designed to be compatible with the Crucial Habitat Assessment Tool (CHAT) developed in cooperation with the Western Governors Association. CHAT is an online system of maps that displays crucial wildlife habitat based on commonly agreed upon definitions developed by the Western Governor's Wildlife Council across 16 western states. The CHAT provides a high-level, coarse-scale overview of crucial habitat for pre-planning on a wide variety of development projects across the West and is designed to reduce conflicts and surprises while ensuring wildlife values are better incorporated into land use planning. The SWAP and CHAT are similar tools designed to protect the state's biodiversity using data inputs such as locations of sensitive species and native habitats. By developing EFAs the SWAP goes a step further by identifying specific areas that offer the best opportunity to achieve conservation goals.

The following data layers were used as inputs in the development of terrestrial EFAs:

- CHAT large natural areas: This dataset was calculated from the NatureServe Landscape Integrity Model as a way to identify large areas that were relatively intact or have low levels of anthropogenic impacts. A minimum size was set at 1,000 hectares, but the threshold for "impacted" varied by ecodivisions to account for regional differences. Landscape condition is a measure of land cover impacted by human activities associated with ecological stressors. The Wildlife Council's Landscape Integrity Workgroup used a NatureServe landscape condition model to identify Large Natural Areas and Important Connectivity Zones.
- CHAT connectivity: The Landscape Integrity workgroup of the CHAT produced a West-wide dataset on Important Connectivity Zones which represents buffered landscape pathways connected to core habitats of Large Natural Areas. Landscape connectivity describes ease of movement for fish and wildlife based on species-specific habitat preferences and behavior. Well-connected habitats provide for higher quality ecological and biological processes.
- TNC portfolio sites: This layer was derived from Ecoregional Assessments conducted by The Nature Conservancy and its partners to identify areas of biodiversity significance and prioritize conservation action.
- 2005 land cover patterns – Level I: This dataset was developed by the Kansas Applied Remote Sensing Program at the Kansas Biological Survey using imagery from the Landsat 5 satellite. The percent of natural vegetation (grassland or forest) within a procedural hexagon was calculated from the 11 cover types mapped.
- Potential high-quality forest: This layer was developed by the Kansas Biological Survey by intersecting forest cover from the 2005 Land Cover Patterns layer with the Kansas Historic Forest layer derived from GLO plat maps created in the 1850s and 1860s. Currently forested areas that were forested prior to Euro-American settlement were considered potential high-quality forest. Much of the area included in EFAs has been determined to be of high quality from field survey.
- High-quality natural communities: This layer was developed through field surveys conducted primarily by the Kansas Natural Heritage Inventory. Comprehensive natural area surveys have been conducted in only seven counties in northeast Kansas so the layer is of limited usefulness outside this region. It was used to develop the Tallgrass Prairies EFA.
- Locations of SGCN: This layer includes observation data from the Kansas Natural Heritage Inventory, the Kansas herpetological and mammal atlases maintained by the Sternberg Museum

of Natural History, and KDWP databases. Records more than 40 years old were not used to eliminate the possibility of including in EFAs areas that no longer provide suitable habitat. Comprehensive surveys for most SGCN have not been conducted and data on the distribution of many SGCN is lacking and therefore insufficient for identifying priority areas.

- Spatial priorities developed by partners were used to develop EFAs where appropriate. Layers showing the priority areas for the following entities were evaluated:

The Nature Conservancy
Playa Lakes Joint Venture
Kansas Dept. of Wildlife and Parks
U.S. Fish and Wildlife Service
National Wild Turkey Federation
Ducks Unlimited
Kansas Dept. of Health and Environment
Kansas Forest Service

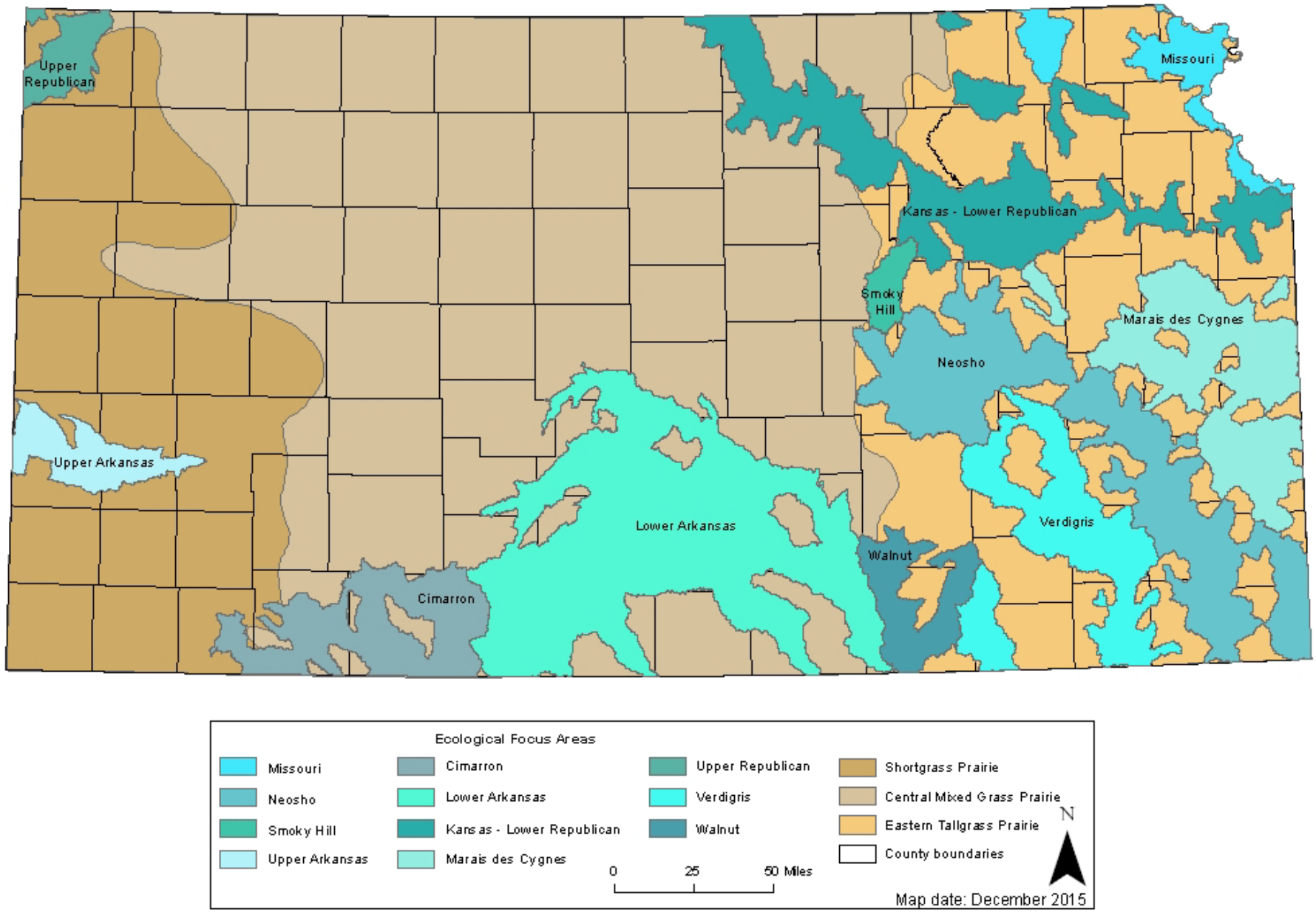
Identification of conservation issues and actions

Conservation issues and actions were identified from several existing planning documents developed by the KDWP Wildlife Diversity Program, the Kansas Central Grasslands All-bird Workshop, Partners in Flight, and Playa Lakes Joint Venture. These issues and actions were reviewed for current applicability and updated where needed. Issues were prioritized according to their impact on conservation and management of SGCN within key habitats within EFAs. The issues listed in each EFA are not exhaustive and are considered priority due to their impact on conservation and management of SGCN. The order in which the issues and actions are listed is not significant to their priority. Conservation actions were identified to address these issues. Conservation issues and actions were organized according to the framework of Salafsky lexicon's classification of general threats and conservation actions (Salafsky et al. 2008). Adopting the Salafsky's classification system will improve conservation work through consistency of terms and enable SWAPs to be summarized at the regional level.

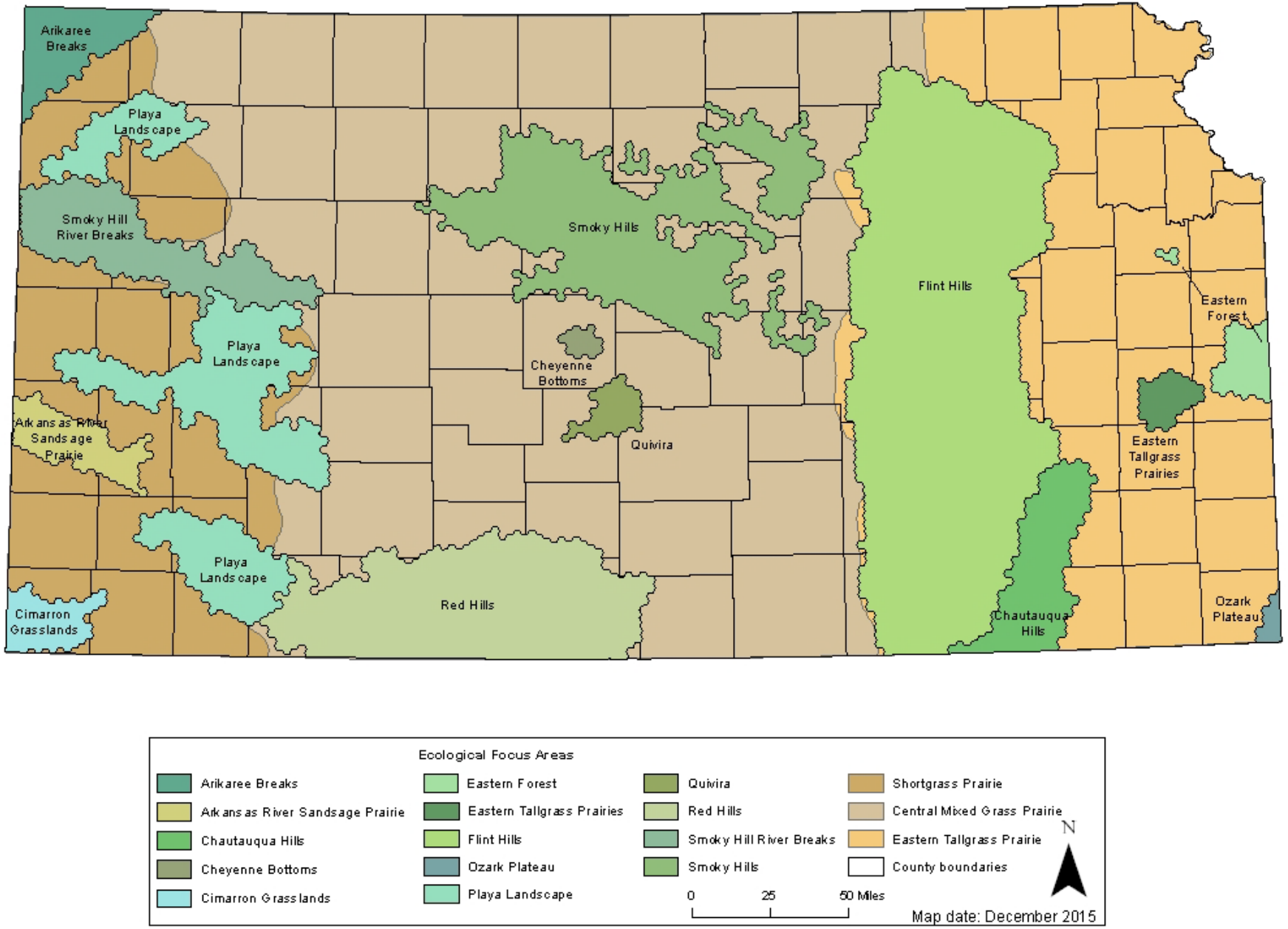
Public Involvement

Public input for the second edition revision of the SWAP was encouraged through multiple outlets. Public participation was invited through news releases, email lists of interested parties, email lists of experts, social media, exposure through Commission meetings, and presentations at society meetings. A draft of the plan was posted on KDWP's website in January 2016, with the public comment period of two months. Public comments were submitted via email or through the website. All comments received were reviewed by the SWAP Technical Committee and changes were made with a majority agreement. The types of public comments received relevant to the SWAP ranged from requesting inclusion on SWAP partners list, changes to the SGCN list, highlighting other agency/organizations' plans and conservation tools, and addressing the inclusion, removal or clarification of issues and actions. KDWP's website (http://ksoutdoors.com/Services/Kansas-SWAP) will continue to serve as the primary communication tool for providing information about the SWAP with the general public.

Figure 3. Ecological Focus Areas
(A). Aquatic Ecological Focus Areas



(B). Terrestrial Ecological Focus Area



How to Use this Plan: Implementation

The purpose of the SWAP is not to produce a plan – it is to implement actions and to improve fish and wildlife conservation in the future. Knowing it will take coordination from many entities for successful conservation impacts, KDWP will continue current efforts to facilitate partnership contacts through ongoing communication and coordination with partners and potential partners. It is expected that through frequent contact with potential partners and stakeholders, project proposals can be developed to address implementation of actions directed at the top ranked species, EFAs, or issues. Through on-going communication and coordination will all stakeholders, Kansas' SWAP will remain a vital, adaptive template for future fish and wildlife conservation efforts in the state.

Adaptive Management and Monitoring

Adaptive management recognizes uncertainty in how habitats may respond to management, and capitalizes upon changes and improvements in how we manage natural resources. Adaptive management involves four essential pieces: (1) developing plans, (2), implementing those plans, (3) monitoring the effects of management actions, and (4) adjusting future plans. Plan implementation and monitoring are conducted within an experimental framework to facilitate the learning process and allow for testing of new management methods and techniques. Monitoring and adaptive management will be facilitated through processes involving the KDWP and potential partners. Through ongoing communication supplemented by this process, ideas for projects can be exchanged and coordinated, information from existing surveys can be shared, and projects can be developed for implementing top strategies from this plan ("top" strategies being those addressing highest ranked habitats, issues, and species).

Monitoring approaches are identified within each key habitat within each conservation region. Monitoring is crucial to employing adaptive management approaches and ensuring strategies have the desired results. It is an ongoing part of management by the KDWP and many other agencies and organizations. Existing monitoring/data-gathering processes will be the basis for assessing the results of implementation of this plan. As individual projects are developed, evaluation/monitoring will be part of each project. In addition, specific projects, solely for monitoring, may be designed and implemented. In some cases, new approaches will have to be developed, and in other cases, information will be available from partner agencies and organizations. Monitoring of some species and habitats will provide relevant information for evaluating plan success. This includes monitoring SGCN at the statewide, conservation region, and habitat scales, in addition to monitoring success of individual projects. These monitoring projects will analyze both performance measures and achievement of actual changes in habitats or species status.

In keeping with the concepts behind the design of the Kansas Wildlife Action Plan approach and advice from the U.S. Fish and Wildlife Service and the International Association of Fish and Wildlife Agencies, at first Kansas' monitoring will employ existing surveys and inventories, including monitoring being done by conservation partners. As with the concept of using the best available information and not gathering new information on which to base this plan, the same concept applies to monitoring. The KDWP and their potential partners assisting in implementing this plan have ongoing, standardized surveys to monitor a host of parameters dealing with species and habitats in Kansas.

Information from these existing data gathering efforts will be meshed with information from additional monitoring efforts to provide the best, comprehensive picture of plan results. Monitoring will initially be focused on priority research and survey needs to obtain basic information. Monitoring will also be used to determine when strategies have adequately addressed various issues. When conservation success is not what was anticipated, monitoring will allow plans to be updated and altered so new actions can be developed and implemented – the "adaptive" part of adaptive management. In a number of cases, monitoring or research will need to be the first step to determine existing conditions where this basic knowledge does not yet exist.

As implementation of Kansas' Wildlife Action Plan proceeds, monitoring will shift to include tracking tangible achievement of resource conservation. As this plan is implemented through operational planning and specific, detailed projects, it is anticipated that achieving positive conservation results may in many instances take several years. It will be necessary to maintain emphasis on monitoring to determine when, and to what extent, tangible results are achieved, and to decide when changes may need to be made in actions.

Success Story – Kansas Natural Resource Planner

The Kansas Natural Resource Planner (NRP) is an interactive mapping website designed to assist in the planning of development and conservation projects so that Kansas can benefit from development of its resources while protecting sensitive wildlife species and their habitats. The NRP provides an unbiased and non-regulatory resource that can be used during the early stages of development projects (e.g., wind facilities, oil and gas, or transmission lines), conservation planning, and environmental review. The NRP is an ongoing collaborative effort between the Kansas Applied Remote Sensing program (KARS) at the Kansas Biological Survey (KBS) and the Kansas Department of Wildlife and Parks, and is funded in part by the State Wildlife Grant program.

The NRP provides a central, accessible repository for Kansas natural resource data that enables users to view more than 20 categories of natural resource and infrastructure data. The site features over 40 data layers that include energy resources, terrestrial habitat, aquatic habitat, lakes and reservoirs, and wetland and riparian areas. The NRP also contains the Kansas data used in the Crucial Habitat Assessment Tool (CHAT) which was developed in cooperation with the Western Association of Fish and Wildlife Agencies. Dynamic data layers such as Species of Concern occurrences are updated periodically; new data layers are added at the request of users. All data layers are thoroughly documented and many are available for download via the KBS data portal.

Since its roll-out in 2010 the NRP has been accessed by a wide variety of users including local energy companies, conservation practitioners, state and federal agencies, engineering and consulting firms, researchers, and private individuals. The Kansas Natural Resource Planner can be accessed at: http://kars.ku.edu/maps/naturalresourceplanner.