

Chapter Eight

Priorities for Conservation Actions

Required Element #4: Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions.

This Plan was developed to be a 25-year strategic plan. Specific operational priorities are beyond the scope of this Plan. Operational plans that identify shorter-term (1-5 year) priorities for implementing the conservation actions identified in Chapter 6 may be developed by individual entities contributing to the plan, or by IWAP Implementation Committee or its Working Groups or Subcommittees.

For example, using this Plan as a foundation, DNR's Wildlife Bureau has developed more specific plans for each of its three sections (Public Lands Wildlife Management, Research, and Private Lands Wildlife Management). This process has been valuable in focusing the Bureau's efforts. The process of stepping the IWAP visions and goals into a plan for a specific organization also makes it more explicit how various portions of the organization can most effectively contribute to the realization of the Plan's visions, and how these roles weave together to make an impact.

While this plan does not identify detailed near-term priorities, this first part of this chapter describes the broad-scale priorities for each of the six Vision Elements, and the second part depicts the geographic priorities of this plan, which culminate in Map 8- 25 "High Opportunity Areas for Cooperative Conservation." Iowa needs to build a diverse, resilient habitat base to support sustainable wildlife populations. When the IWAP was originally developed, it established habitat protection, restoration and enhancement as the foundation for improving the status of SGCN. At the time, the Plan stressed that at least three general approaches need to be taken:

1) **Protect and enhance existing habitats that benefit SGCN.** This approach gives priority to areas of the state with existing habitat for SGCN or that can be suitable with habitat enhancements. Areas with the greatest existing species diversity should be targeted, land acquired or permanent conservation easements developed, and the appropriate management plans implemented. This approach is the most cost-effective way to benefit the most species in the short term. But SGCN are declining with the amount of existing habitat available today. Enhancing these habitats may slow the decline in local populations, but in the Steering Committee's view will not by itself reverse statewide or regional declines.

The greatest potential to apply this approach is for SGCN that inhabit wooded habitats and some grasslands. These existing habitats are most abundant in the Driftless Area, the Central Irregular Plains, the Loess Hills, and along the interior river systems (Map 2-1). The Central Irregular Plains, Rolling Loess Prairies, and Steeply Rolling Loess Prairie ecoregions have many acres of mostly cool season grasslands enrolled in the short term Conservation Reserve Program that could be permanently protected and enhanced to improve habitat for SGCN. Few if any wetlands or wetland-grassland complexes exist in private ownership.

2) **Develop new habitats for SGCN in areas where these habitats do not exist.** This approach would provide new habitat for SGCN but at a higher cost. Establishing new habitats and restoring populations will extend the range of these species, provide the potential for greater genetic diversity and interaction between populations,

and reduce the chances of local population extinctions if travel corridors are also provided. It will also be necessary to meet the recreation goals (50% increase in wildlife-associated recreation in areas near home).

Partnerships between DNR, USFWS, Iowa County Conservation Boards and private conservation organizations have had many successes restoring wildlife habitats on agricultural land. Agricultural lands too steep or too wet for economical farming have been targeted for acquisition or protection, then wetlands and grasslands have been restored or grazed pastures allowed to revert to forest.

Opportunities to restore habitats for SGCN exist statewide. The Des Moines Lobe currently has the greatest acreage of restored wetland-grassland complexes in the state and nearly unlimited opportunities for further conservation activities. Similar opportunities exist on a more restricted basis in the Loess Prairies and the Eastern Iowa and Minnesota Drift Plains. Riparian wetlands can be restored along most of the interior river systems.

3) Improving the status of aquatic SGCN will require a more broadly-applied conservation effort. Habitat in rivers, streams, lakes, impoundments and wetlands can be improved only if soil erosion, siltation and all the associated problems are reduced (Chapter 5). Targeting areas to protect and restore habitats for terrestrial SGCN will help with this process but will not protect enough land by itself to help all aquatic systems. Vegetative cover must be returned to more of the landscape to hold soil in place. Existing soil-retention programs like terracing, buffer strips and no-till agriculture need to be expanded and new approaches explored to make soil conservation more widely acceptable and financially attractive to the farming community.

Targeting individual watersheds with a comprehensive conservation effort to improve the status of all SGCN and to serve as demonstration areas is the best initial approach to build support for more-widespread efforts. DNR in cooperation with Iowa Department of Agriculture and Land Stewardship (IDALS), Iowa's County Conservation Boards (CCBs), U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) and Farm Services Agency (FSA), Iowa Soil & Water Conservation Districts, U.S. Environmental Protection Agency (EPA) and local government entities has had success in restoring selected watershed to provide a variety of wildlife, recreational, social and economic benefits to local communities.

A blend of all three approaches will continue to be necessary to accomplish all the goals of the IWAP. The plight of all SGCN in Iowa is caused by the loss of native vegetation from the landscape that provided wildlife habitat and kept soil and associated products out of the waters. Protecting existing habitats is a good strategy to prevent further losses, but it alone will not return SGCN to their former range or raise populations to a viable level. Habitats for SGCN need to be restored in socially acceptable places. Widespread conservation practices will be needed to address water quality issues and are best approached on a watershed basis.

Priorities for Vision Elements

Wildlife Vision

Iowa will have viable wildlife populations that are compatible with modern landscapes and human social tolerance.

Goal 1

Common species will remain common.

Priorities: Continued monitoring will be necessary to detect downward trends in abundance or contractions of area occupied within the State. Current examples of common Iowa species experiencing recent population declines include Northern Flicker, Chimney Swift, Tiger Salamander, and Monarch butterfly.

The first goal is most likely to be achieved by taking a broad, habitat-based approach to conservation as opposed to highly localized actions targeting specific species. Conservation activities to address the first goal should be directed to regions of the state identified in the map of High Opportunity Areas for Collaborative Conservation (Map 8- 25). In these areas there are many opportunities to leverage funding, making each conservation dollar go further.

Goal 2

Populations of SGCN will increase to viable levels

Priorities: To achieve this goal the second approach to habitat protection must be taken - creating new habitats for SGCN through land acquisition and management and by taking specific conservation actions designed to improve the status of SGCN that need more intensive assistance. This will take a combination of habitat protection, habitat management and scientific inventory and monitoring.

The habitat acquisition issues are discussed under the habitat vision goals below. The inventory and monitoring issues are discussed in Chapter 7. Once the distribution and abundance of SGCN are more fully understood, conservation actions can be tailored to their recovery. Specific habitat management prescriptions can be defined to assist key species, populations may need translocation to newly created habitats or to isolated tracts of existing habitat, connections may need to be developed between habitat blocks, etc.

Goal 3

The abundance and distribution of wildlife will be balanced with its impact on the economic livelihood and social tolerance of Iowans.

Priorities: Past experience has shown that human social tolerance to wildlife must be cultivated and considered when implementing new conservation actions in a landscape dominated by private land. For example, concentrated populations of white-tailed deer and giant Canada geese have created problems for citizens in some circumstances, precipitating a need for the Wildlife Depredation Program. Wildlife management in Iowa always takes place in the context of relationships and being respectful of neighbors. Examples include managing water levels on public wetlands during periods of heavy rainfall to reduce the risk of flooding on adjacent private lands, weed management to minimize encroachment from public grasslands to private lands, and notifying local residents in advance of prescribed burns. Potential issues need to be considered when implementing the conservation actions outlined in this Plan and steps taken to minimize impacts on neighboring landowners.

Research on Iowan's Wildlife Value Orientations (WVO) and tolerances for certain species and conservation actions was conducted in 2012-2013 (Stephenson et al. 2013). Periodic follow-up on this project to track trends or changes in Iowan's WVOs and to address specific issues of current relevance would be helpful in achieving this goal.

Habitat Vision

Iowa will have healthy ecosystems that incorporate diverse, native habitats capable of sustaining viable wildlife populations.

Goal 1

By 2030, the amount of permanently protected wildlife habitat in Iowa will be doubled.

Priorities: Coordination with other wildlife and biodiversity conservation plans prepared by natural resource agencies and private conservation organizations should continue to be a high priority. Prioritization criteria used by these organizations differ and may include different classes of species or different regional boundaries. Their cumulative site priorities are important in identifying significant locations for future habitat protection actions through partnerships (Map 8- 4 through Map 8- 24).

In the past, land acquisition efforts in Iowa were directed at purchasing the highest quality habitats available at the time funds were available. Too frequently this resulted in scattered small tracts of land that provided limited opportunity for biodiversity management, had little connectivity, and were difficult to manage logistically. Habitat blocks were too small to manage for more than one habitat class (e.g. grasslands or forest) on the area. If multi-species management was attempted the resulting habitat patches were too small to attract area-sensitive species. The Neal Smith National Wildlife Refuge is a notable example of a large-scale restoration (by Iowa standards) that is attempting to establish a functional tallgrass prairie ecosystem.

Since the 1980's habitat acquisitions have focused on the eventual development of major conservation areas of 3,000 - 5,000 acres in more or less continuous blocks. Experience has shown that areas of this size allow management for biodiversity between habitat classes and provide the ability to manage for multiple successional stages within one habitat class. This approach benefits multiple SGCN that need different successional stages on the same site or single species whose habitat needs change throughout the year. It also benefits game species that typically are more abundant in early successional stages as well as nongame. Partners In Flight has adopted a similar approach in designing Bird Conservation Areas, an initiative which Iowa has been implementing since 2001.

Expanding existing large core conservation areas to the desired size should be given priority over work in smaller areas. Map 8- 3 shows the location of existing habitat complexes of 2,000 acres or larger that are in public ownership that could reach the 3,000-acre threshold with comparative ease. These are permanently protected conservation lands owned by DNR, county conservation boards, the federal government (U.S. Fish and Wildlife Service – National Wildlife Refuges and Waterfowl Production Areas, U.S. Army Corps of Engineers, National Park Service), The Nature Conservancy, Iowa Natural Heritage Foundation or protected under long-term federal wetland easements.

Land (or funding) is seldom available for acquisition in blocks of this size so initial purchases in a new geographical area should be screened for expansion potential. Conservationists working in target areas to acquire large tracts must exhibit patience. State government in Iowa relies on willing sellers to acquire or protect land. Projects of this size can take a decade or longer to complete.

Map 8- 3 also shows extensive areas of the state that do not have core habitat blocks to meet the habitat or recreation goals of this Plan. The Loess Prairies, Steeply Rolling Loess Prairies, and west-central portion of the Des Moines Lobe ecoregions are notably devoid of these areas, as is the northern third of the Eastern Iowa & Minnesota Drift Plains ecoregion. Smaller geographic areas without permanently protected conservation lands can be found in all the other ecoregions as well.

Not all habitat protection efforts can be vested in acquiring large core blocks of habitat. Once the distribution of more SGCN is better understood, key smaller tracts of habitat may be identified that are required for the protection of

exceptionally imperiled SGCN. Connectivity needs to be established between large core areas that are isolated from other tracts. A more dispersed approach may be needed to protect target watersheds and aquatic SGCN rather than concentrating efforts in one location. These decisions need to be made on a case-by-case basis.

Goal 2

Protected habitats will be diverse, representative, native plant communities in large and small blocks on public and privately-owned land and waters.

Priorities: While most terrestrial and aquatic habitat classes occur in every region of the state, certain habitat classes were historically more prevalent in specific landforms. Habitat-oriented conservation actions aimed at SGCN should primarily protect, restore, and enhance native habitats and native SGCN. Priority habitat classes by region are shown in Table 8- 1.

Habitat protection and management decision-makers, however, must be realistic in assessing changes that have occurred since pre-settlement times. Many native habitats have been displaced from their original sites. Habitat reconstruction or restoration activities should be focused in areas with the most potential for successful reestablishment of ecosystem processes and maintenance of ecosystem function.

Table 8- 1. Priority habitat classes by ecoregion

PRIORITY HABITAT CLASSES		
ECOREGION	TERRESTRIAL	AQUATIC
40a. Loess Flats and Till Plains	<ul style="list-style-type: none"> • Savanna • Grasslands • Shrublands 	<ul style="list-style-type: none"> • Rivers • Streams • Ponds • Lakes (constructed)
47a. Northwest Iowa Loess Prairies	<ul style="list-style-type: none"> • Grasslands • Wetlands 	<ul style="list-style-type: none"> • Streams
47b. Des Moines Lobe	<ul style="list-style-type: none"> • Grasslands • Wetlands • Riparian Forest • Savanna 	<ul style="list-style-type: none"> • Rivers • Oxbows
47c. Eastern Iowa and Minnesota Drift Plains	<ul style="list-style-type: none"> • Grasslands • Wetlands • Riparian Forest 	<ul style="list-style-type: none"> • Rivers • Streams (cold, cool or warm water)
47d. Missouri Alluvial Plain	<ul style="list-style-type: none"> • Forest 	<ul style="list-style-type: none"> • Missouri River Channel • Oxbows
47e. Steeply Rolling Loess Prairies	<ul style="list-style-type: none"> • Grasslands • Shrublands • Savanna 	<ul style="list-style-type: none"> • Rivers • Streams • Ponds
47f. Rolling Loess Prairies	<ul style="list-style-type: none"> • Grasslands • Shrublands • Savanna 	<ul style="list-style-type: none"> • Rivers • Streams • Ponds • Lakes (constructed)

PRIORITY HABITAT CLASSES		
ECOREGION	TERRESTRIAL	AQUATIC
47m. Western Loess Hills	<ul style="list-style-type: none"> Grasslands (northern 1/3) Woodlands (southern 2/3) Savanna 	<ul style="list-style-type: none"> Streams
52b. Paleozoic Plateau/ Coulee Section	<ul style="list-style-type: none"> Open Woodland Grassland Forest 	<ul style="list-style-type: none"> Coldwater Streams Rivers Backwaters
52c. Rochester/ Paleozoic Plateau Upland	<ul style="list-style-type: none"> Goat Prairie Deciduous Forests Open Woodland 	<ul style="list-style-type: none"> Coldwater Streams
72d. Upper Mississippi Alluvial Plain	<ul style="list-style-type: none"> Riparian Forest 	<ul style="list-style-type: none"> Rivers Backwaters

Management Vision

Diverse wildlife communities will be developed on public and private lands and waters through the use of adaptive ecological management principles.

Goal 1

Wildlife management will be based on science.

Priorities: Strategies within this vision stress educated partners working together. The following elements are key to success of this goal.

- Conservation actions adopted as part of the IWAP should be based on the best available science. Research, inventory, and survey needs for SGCN are identified in Chapter 7.
- Prior to implementation of management actions, the purpose, intended outcomes, and assumptions underlying the actions should be made explicit, and the possibility for evaluation of the action in an Adaptive Resource Management framework should be explored.
- Better communication must be developed between wildlife scientists, the staffs of government land management agencies at all levels, public land managers, and private landowners to assure that an adaptive approach is built into land management decisions.

Recreation Vision

More Iowans will participate in wildlife-associated recreation, and all Iowans will have access to publicly owned recreation areas to enjoy wildlife in its many forms.

Goal 1

The number of Iowans participating in wildlife-associated recreation (wildlife viewing, hunting, fishing, photography, hiking, outdoor classrooms, etc.) will increase 50 percent by 2030.

Priority: A broad and expanded base of support is needed to help ensure that wildlife and habitat management and protection efforts receive adequate attention and investment. The 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation in Iowa estimates that in 2011, 1.3 million people participated in wildlife-associated

recreation in Iowa. The report also estimates that in 2011 there were 522,000 resident anglers, 216,000 resident hunters, and 780,000 resident wildlife watchers sixteen years of age and older in Iowa.

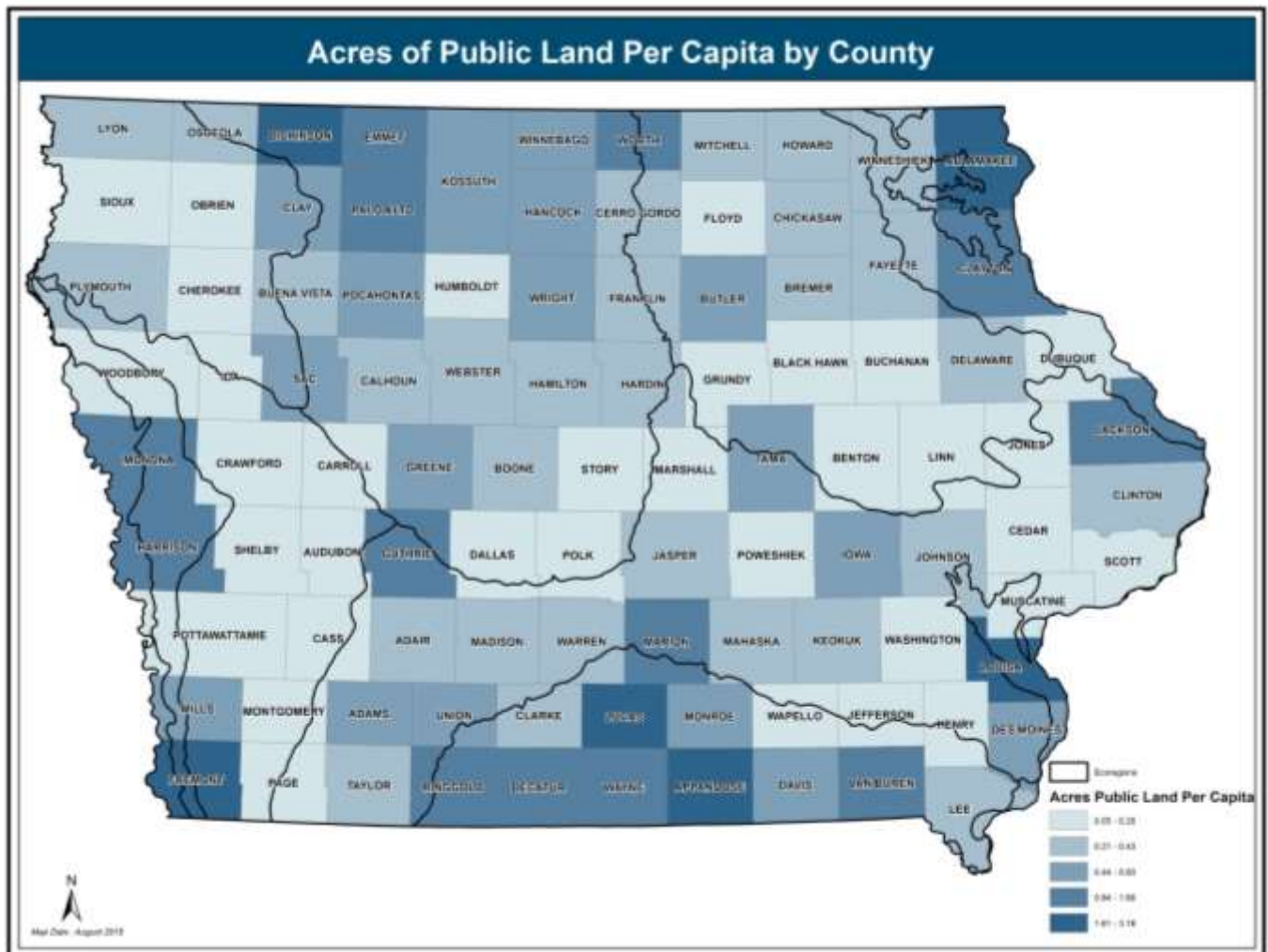
Continued development and expansion of opportunities for wildlife-associated recreation, combined with efforts to engage specific audiences will be critical.

Goal 2

Wildlife-associated recreation will be available to all Iowans on public lands near their home.

Priority: In a culture where time for leisure activities is limited, new participants in wildlife-associated recreation will need to find public lands on which to recreate close to home. While all Iowans deserve access to quality natural areas, the first priority should be given to acquiring and protecting public natural areas close to larger population centers. This will create an appreciation for wildlife-associated recreation among the greatest number of citizens in the early stages of the 25-year effort and generate support needed for completing the Plan. The current spatial arrangement of conservation lands relative to population centers are displayed below (Map 8- 1). The distribution of existing public lands is shown in Map 8- 25.

Map 8- 1. Distribution of Iowa’s public land in relation to county population size



Education Vision

Iowans will respect wildlife for its many values and they will advocate effectively for conservation of wildlife and wildlife habitats.

Goal 1

Iowans will understand the relationships of:

- Land use, and its impacts on wildlife diversity and abundance
- land use, and its impacts on quality of life for all citizens
- land use, and its impacts on Iowa's economic sectors related to wildlife recreation
- wildlife diversity & abundance, and its impacts on quality of life in Iowa
- wildlife diversity & abundance, and its impacts on Iowa's economy
- quality of life for all citizens, and its impacts on Iowa's economy
- Iowa's economic decisions and their impacts on wildlife-based contributions to quality of life for all citizens
- Iowa's economic decisions and their impacts on wildlife diversity & abundance

Priorities: The conservation actions proposed to implement this vision incorporate national standards proposed by the Association of Fish and Wildlife Agencies. The relationships among the health of Iowa's lands and waters and its human and wildlife communities are complex and dynamic. Therefore, it will be important to continue efforts to coordinate with other sectors (e.g., education, tourism, economic development, regional planning, and public health organizations) in the development of conservation education programs and messages.

Funding Vision

Stable, permanent funding will be dedicated to the management of wildlife at a level adequate to achieve the visions of this plan.

Goal 1

Government (Federal, State, and County) and private conservation spending will be increased so that the goals of this Plan are reached by 2030.

Goal 2

Funding will be dependable, secure, and appreciated as a powerful economic and social investment.

Priorities: Of the six vision statements, reaching the Funding Vision goal is the highest priority. None of the other visions can be implemented in anything near the 25-year time frame without increased funding. An estimate of the costs and benefits for implementing the IWAP is included in Chapter 10.

No single conservation organization or stakeholder group has the power to attain the necessary funding on their own. An effort comparable to the Teaming With Wildlife coalition, inclusive all potential stakeholders will be necessary. A grass roots coalition of wildlife enthusiasts of all types - birdwatchers, bird feeders, hikers, back packers, hunters, anglers, photographers, etc. - is a start, but it should also include local government leaders whose communities stand to benefit from increased recreation revenues and improved quality of life. Only a broad-based coalition will have the strength necessary to obtain a sustainable, dedicated federal funding stream for all-wildlife conservation.

Lobbying must be done at the Federal level to convince Congress to supply basic funding to the states equivalent to the \$350 million targeted in the Conservation and Reinvestment Act. Funding at the state level will be essential to obtain whatever level of non-Federal matching funds will be mandated by Congress.

Geographic Priorities

Map 8- 2 through Map 8- 24 represent a broad array of wildlife and biodiversity plans, programs and priority areas prepared by natural resource entities. Map 8- 25 displays a combination of these priorities. If the areas displayed as priorities in Map 8- 25 could be conserved or restored such that they functioned as healthy ecosystems with intact ecosystem functioning, then we might expect that the visions of this Plan had been achieved: Iowa would have sustainable, connected networks of healthy, resilient, ecosystems to sustain viable wildlife populations and to provide accessible recreation opportunities and enjoyment for all.

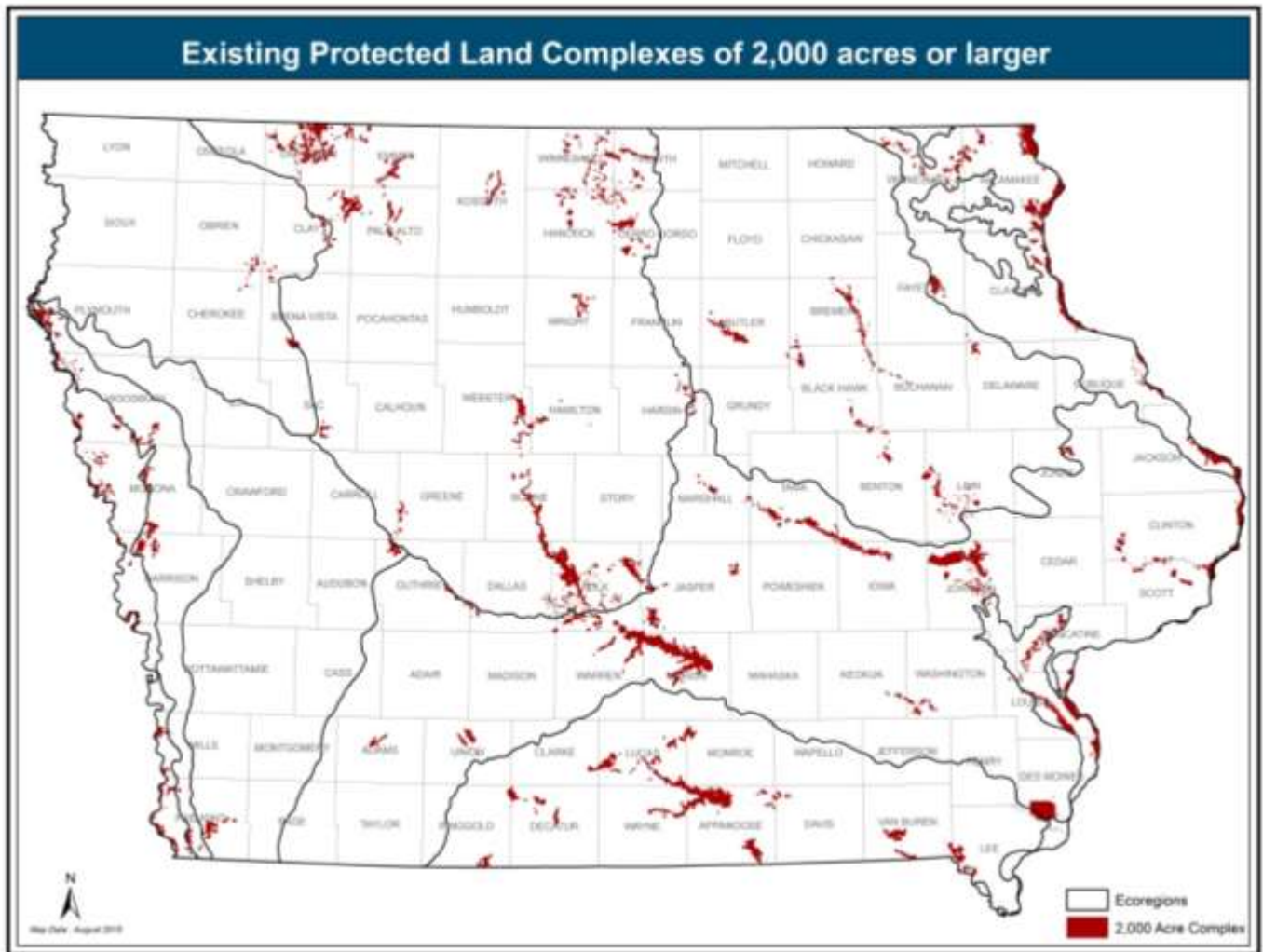
The purpose of displaying geographic priorities is also more practical than simply depicting a grand vision of one potential scenario for Iowa's future. Map 8- 25 and the maps that comprise it are used in a variety of ways to inform the design and delivery of conservation programs. Conservation organizations use the map to determine where to pursue conservation projects with partners and most effectively leverage their limited dollars. Granting entities use the map to delineate priority areas for wildlife conservation work. Transportation or utility development planners can use the map to help them identify areas of importance to wildlife to avoid disturbance, or areas that would be good candidates for mitigation in the event of disturbance to wildlife or habitat elsewhere.

Process for Geographic Priority Map Updates or Changes

Because the IWAP is designed to serve as a living document that strategically guides conservation efforts across many sectors and entities, it is most useful when the information within the Plan is up to date. For this reason, occasional updates and/or corrections to layers that are presented below will likely be necessary prior to the next IWAP revision. For example, as additional Bird Conservation Areas are designated or shallow lake restoration priorities are added, the associated map may be updated and corrected in the shapefiles that underlie Map 8-25. As such corrections or updates occur, a notice will be posted to the IWAP website, and subsequent requests for the electronic shapefiles will contain the updated maps.

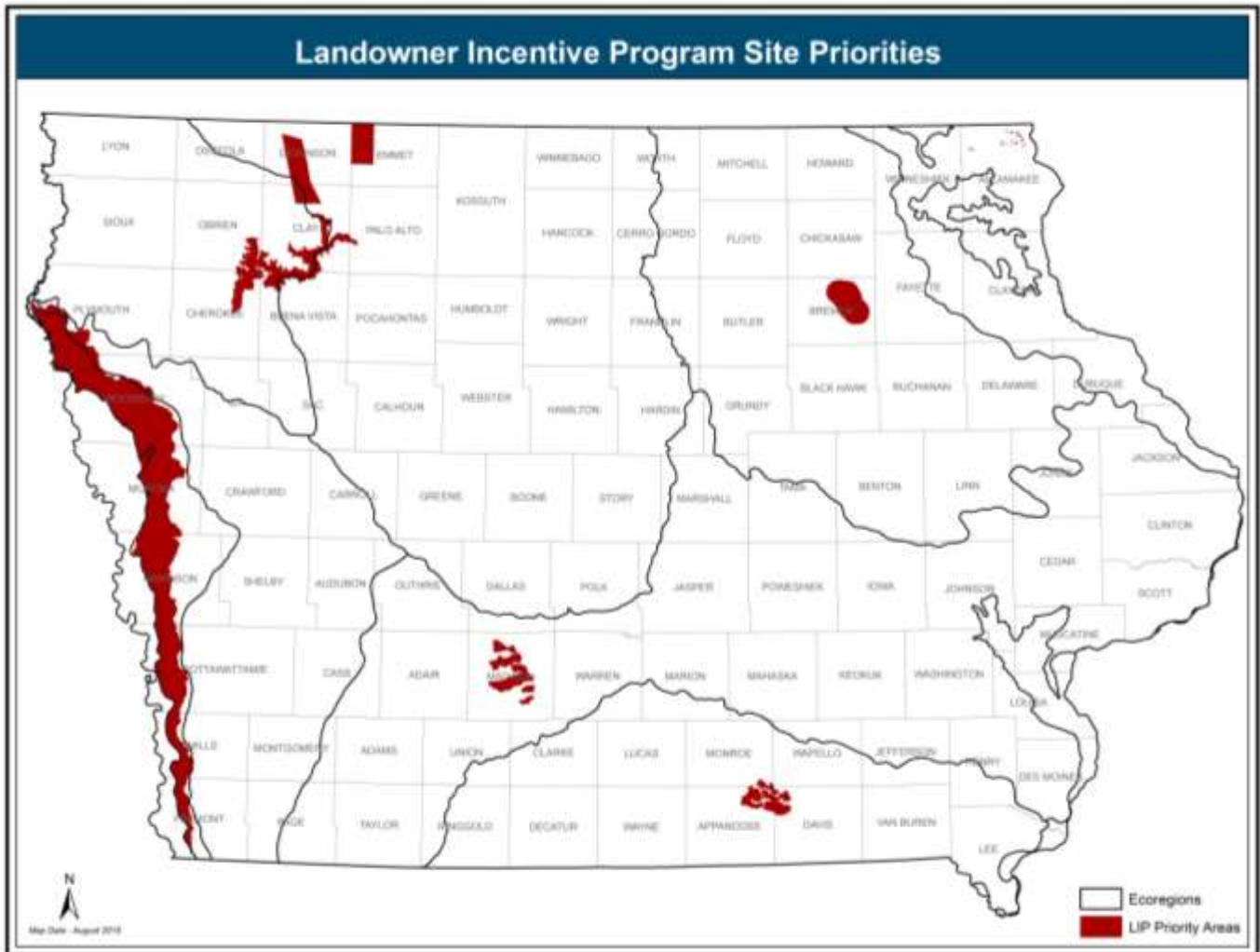
If, at a point prior to the next IWAP comprehensive review and revision, the Implementation Committee or its Working Groups decide that a full review of geographic priorities is warranted, then that review process will be coordinated by the Habitat Working Group, and will be submitted as a minor or major revision to the U. S. Fish and Wildlife Service for approval.

Map 8- 2. Existing protected land complexes of 2,000 acres or larger



Map 8- 4. Landowner Incentive Program Site Priorities

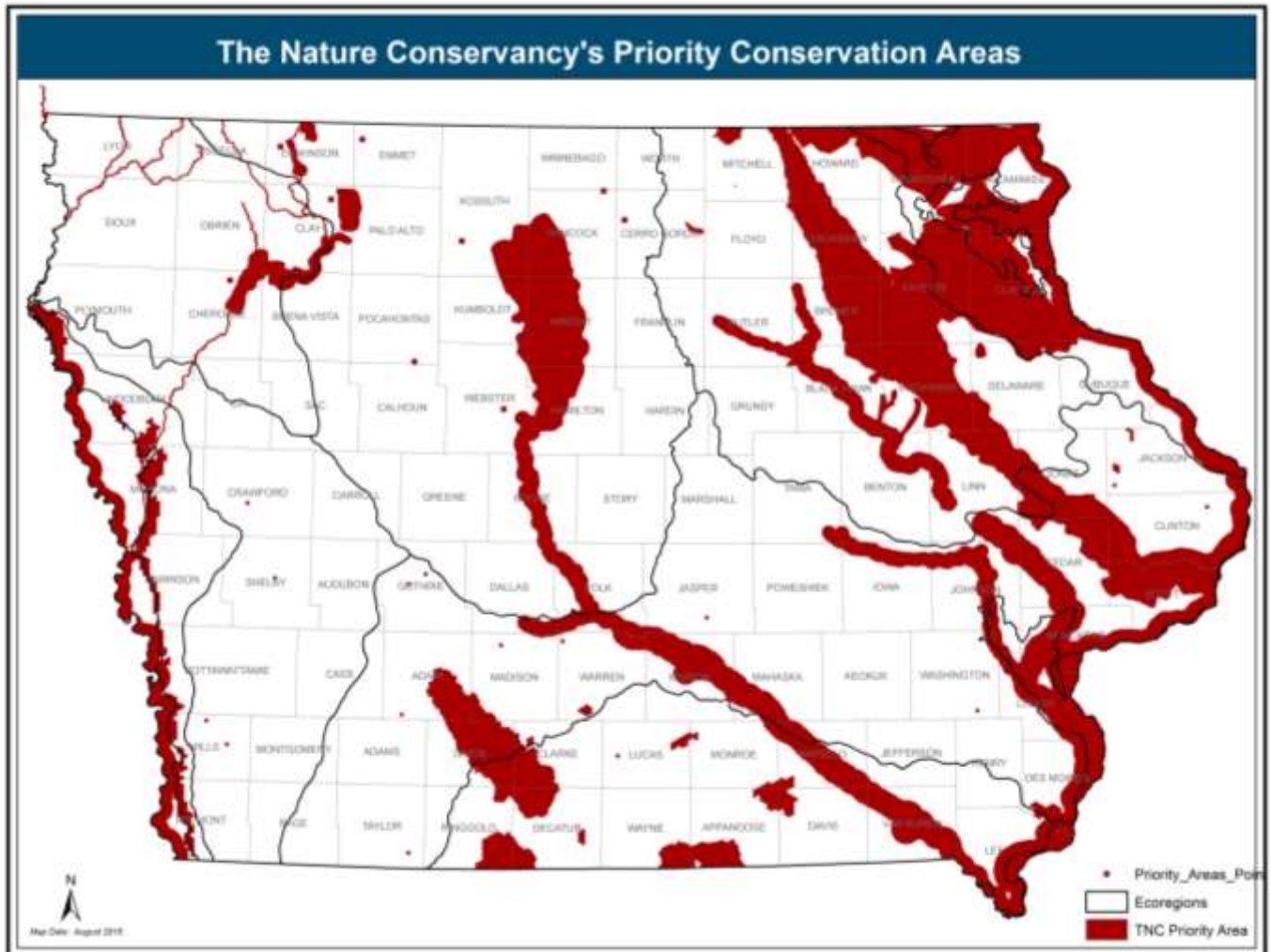
The Landowner Incentive Program (LIP) was designed to protect and restore habitat for state and federally listed endangered and threatened plant and animal species on private lands. The program provided financial incentives and educational materials to private landowners willing to participate in the program. Scientists knowledgeable about Iowa's Threatened and Endangered species established site priorities. The identified sites include known and potential habitats for endangered and threatened species. Although LIP was discontinued and program work was completed in Iowa in 2010, this map layer is considered important in determining current and future Wildlife Action Plan priorities, because habitat work in these areas would benefit listed species and those SGCN that utilize similar habitats. For this map, LIP priorities which are now encompassed by other priority layers (e.g., Topeka Shiner Critical Habitat, BCAs, ARCA) have been removed to reduce duplication.



Map 8- 5. The Nature Conservancy's Priority Areas within Iowa.

This map reflects areas of biological significance based on The Nature Conservancy's freshwater and terrestrial ecoregional planning that took place between 1999 and 2008 including the Northern Tallgrass Prairie, Central Tallgrass Prairie, Prairie Forest Border ecoregional assessments, and the Upper Mississippi River Basin assessment.

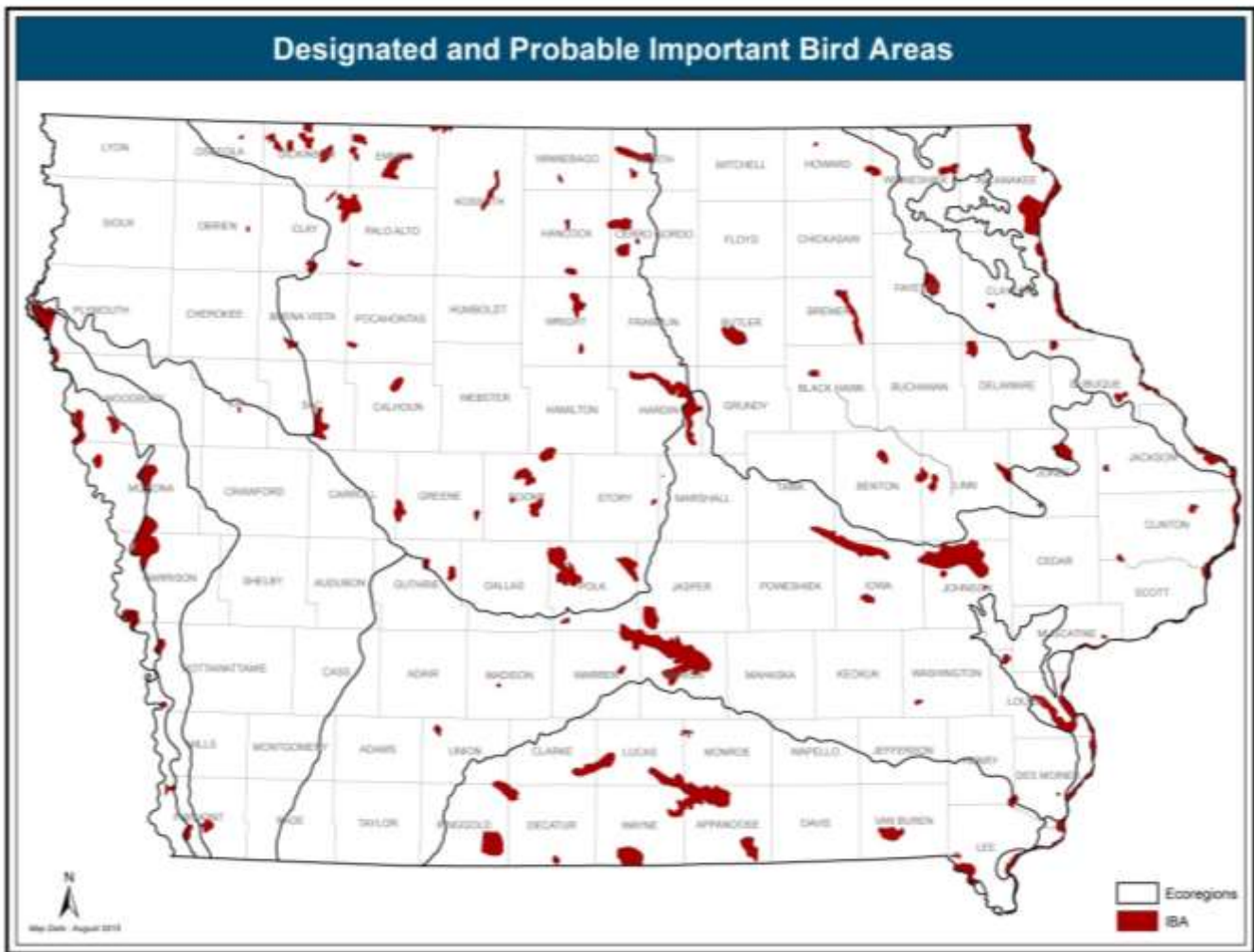
The assessments include analyses of plant, animal and natural community data, along with expert opinion and analysis of those places in each of the ecoregions, that if protected, will conserve the biodiversity in those ecoregions. Iowa represents a portion of each of those ecoregions. The Nature Conservancy currently has active efforts underway in these freshwater sites: Missouri River, Mississippi Rivers, Boone watershed, Cedar watershed and the Des Moines River. The Conservancy also is currently active in the Loess Hills, Little Sioux, Grand River Grasslands, Lower Cedar valley and the Driftless region.



Map 8- 8. Iowa Audubon's Important Bird Areas

Iowa Audubon's Important Bird Areas (IBA) Program is a citizen-led, science-based and data-driven bird conservation initiative. Phase I of this long-term effort is the identification, recognition and prioritization of habitats that support the most seriously declining species of birds. A State IBA Technical Committee evaluated all data received on a habitat-by-habitat basis, and then voted to confer IBA recognition when criteria were met. Habitats that meet criteria are considered to be the most essential habitats. A total of 70 IBA's in 55 counties have been officially recognized in Iowa and 130 additional habitats have been nominated

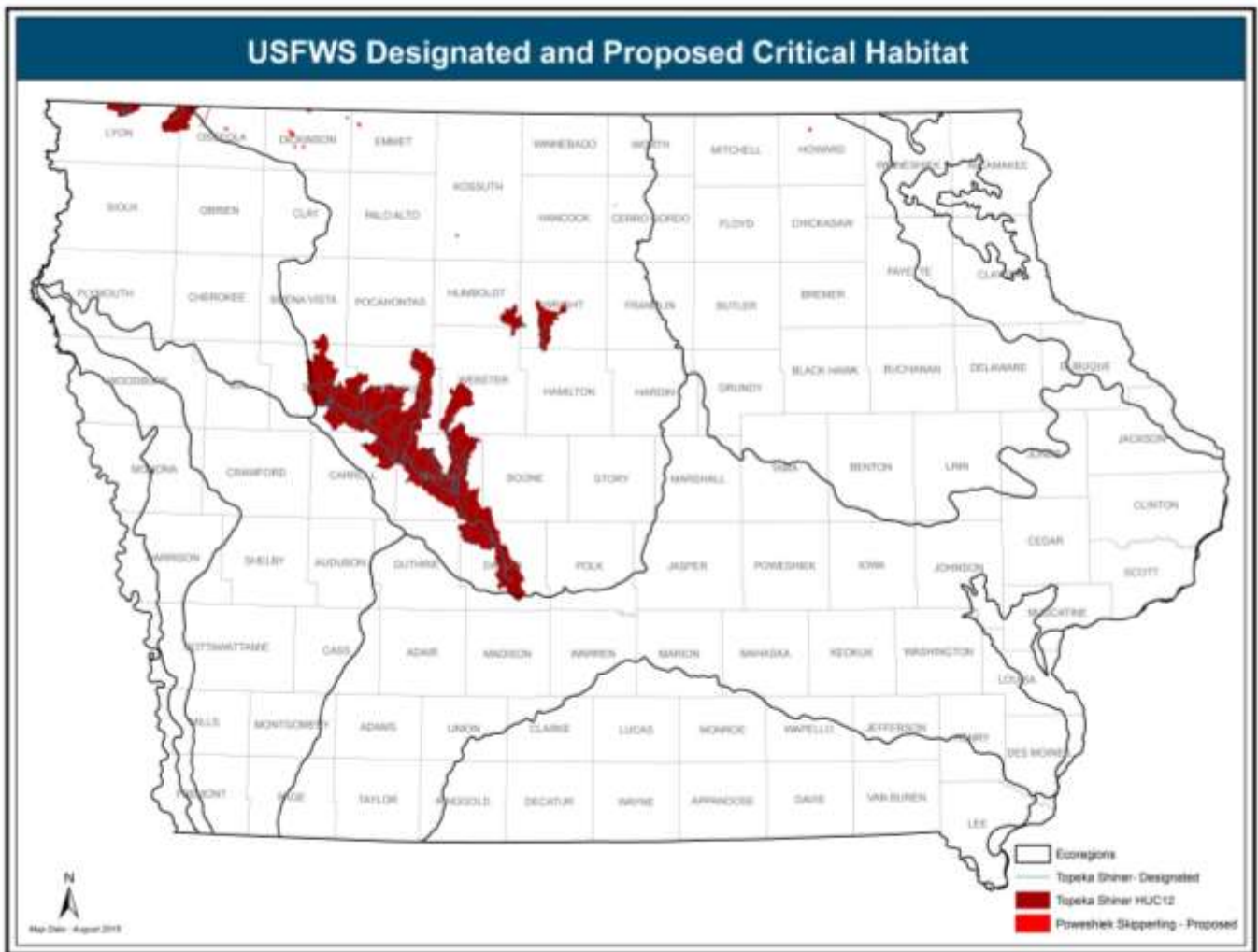
Phase 2 of the IBA Program is long-term monitoring of bird populations and habitat conditions, and organizing education programs at designated IBA sites where appropriate. Phase 3 is working with landowners and land managers to develop and implement long-term conservation plans to protect, restore, enhance and manage IBAs according to their environmental threats and conservation needs.



Map 8- 9. Designated Critical Habitat for Topeka Shiner and Proposed Critical Habitat for Poweshiek Skipperling

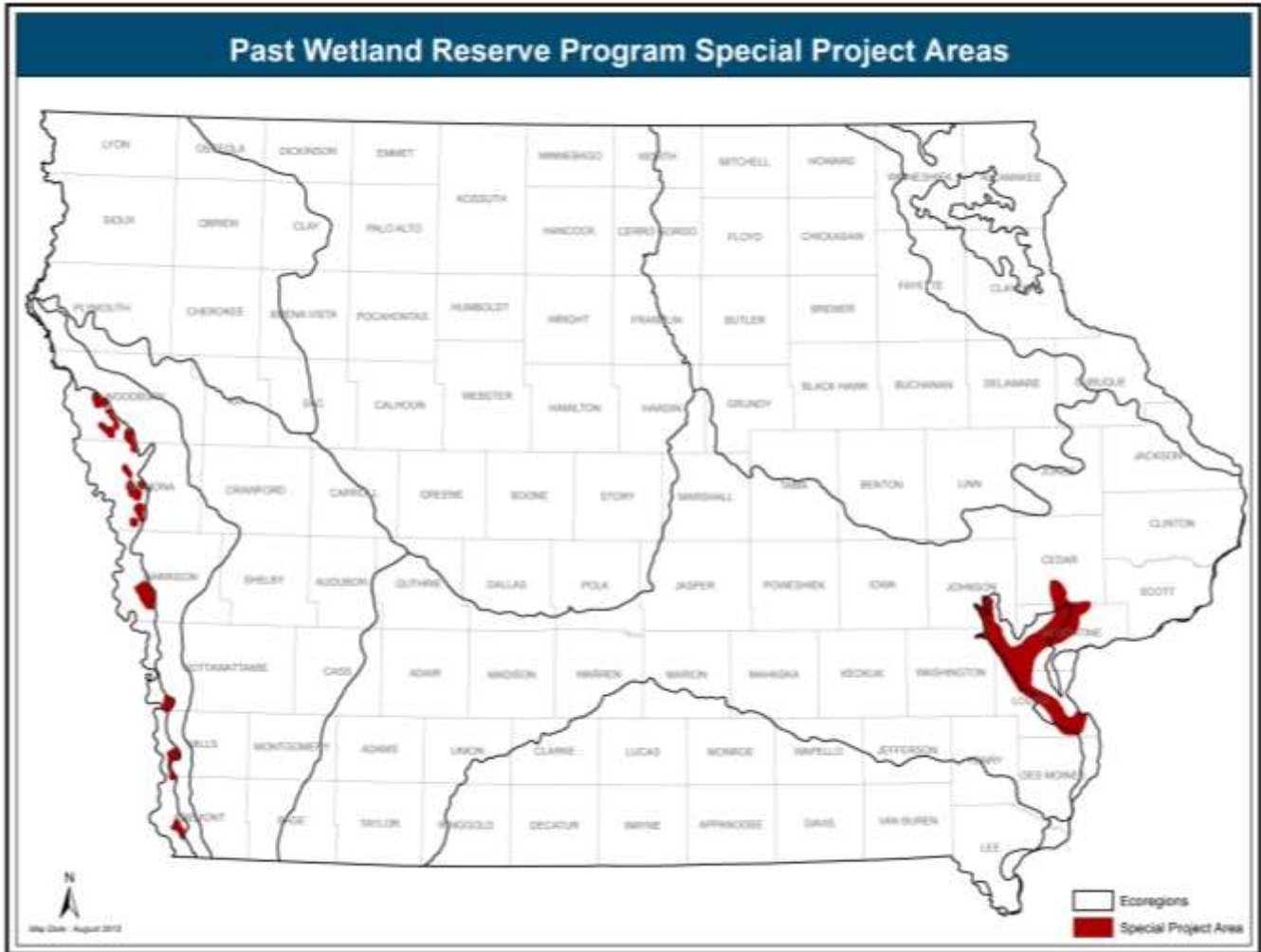
The Topeka Shiner, *Notropis topeka*, is a federally endangered species of minnow. This map shows known and potential critical habitat for Topeka Shiners in Iowa. The Poweshiek Skipperling (*Oarisma Poweshiek*) is a federally endangered species of butterfly. This map displays proposed critical habitat for Poweshiek Skipperlings in Iowa.

This habitat is essential for the conservation of these two species and may require special management and protection. All indicated areas designated as critical habitat are occupied by the species or have been documented at the site in the past (and for the Topeka Shiner, there are also short segments that provide critical links between habitats). An area is designated as critical habitat through the federal regulatory process. The designation does not set up a preserve or refuge and has no specific regulatory impact on landowners' actions on lands that do not involve federal agency funds, authorization, or permits. Although this map displays critical habitat for only two species, it can be used to help set priorities for conservation actions in for those part of the state.



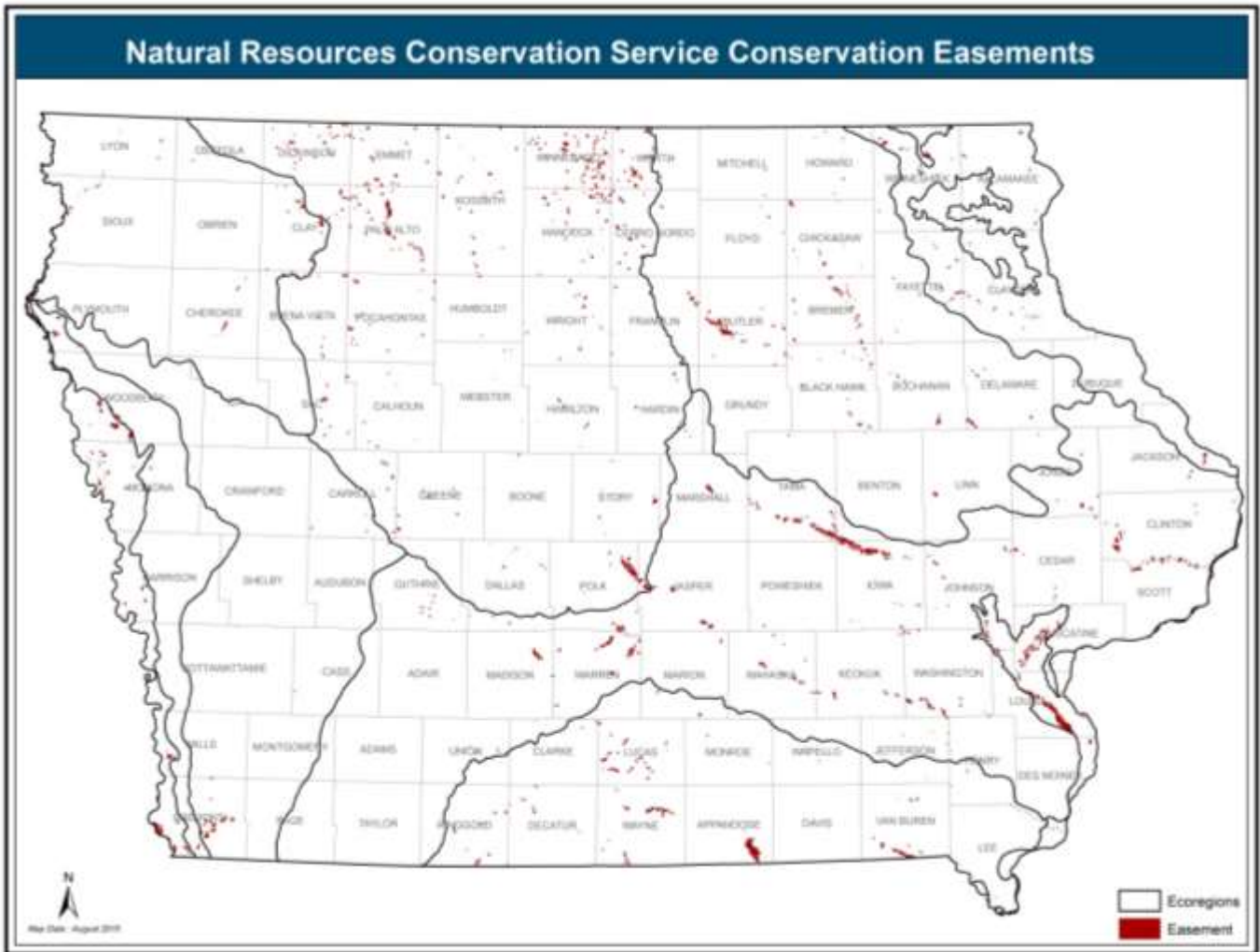
Map 8- 11. Past Wetland Reserve Program Special Project Areas.

Major flooding that covered Iowa and the Midwest in 1993 led to the passage of the Federal Wetland Reserve Act designed to get development and agriculture out of areas prone to flood and return them to their original wetland condition. DNR, in cooperation with NRCS and NGO partners have been able to acquire permanent easements on 100,000 acres in Iowa. This map identifies areas DNR has worked with landowners to enroll lands in WRP and acquire their residual value so that these lands could be managed for wildlife.



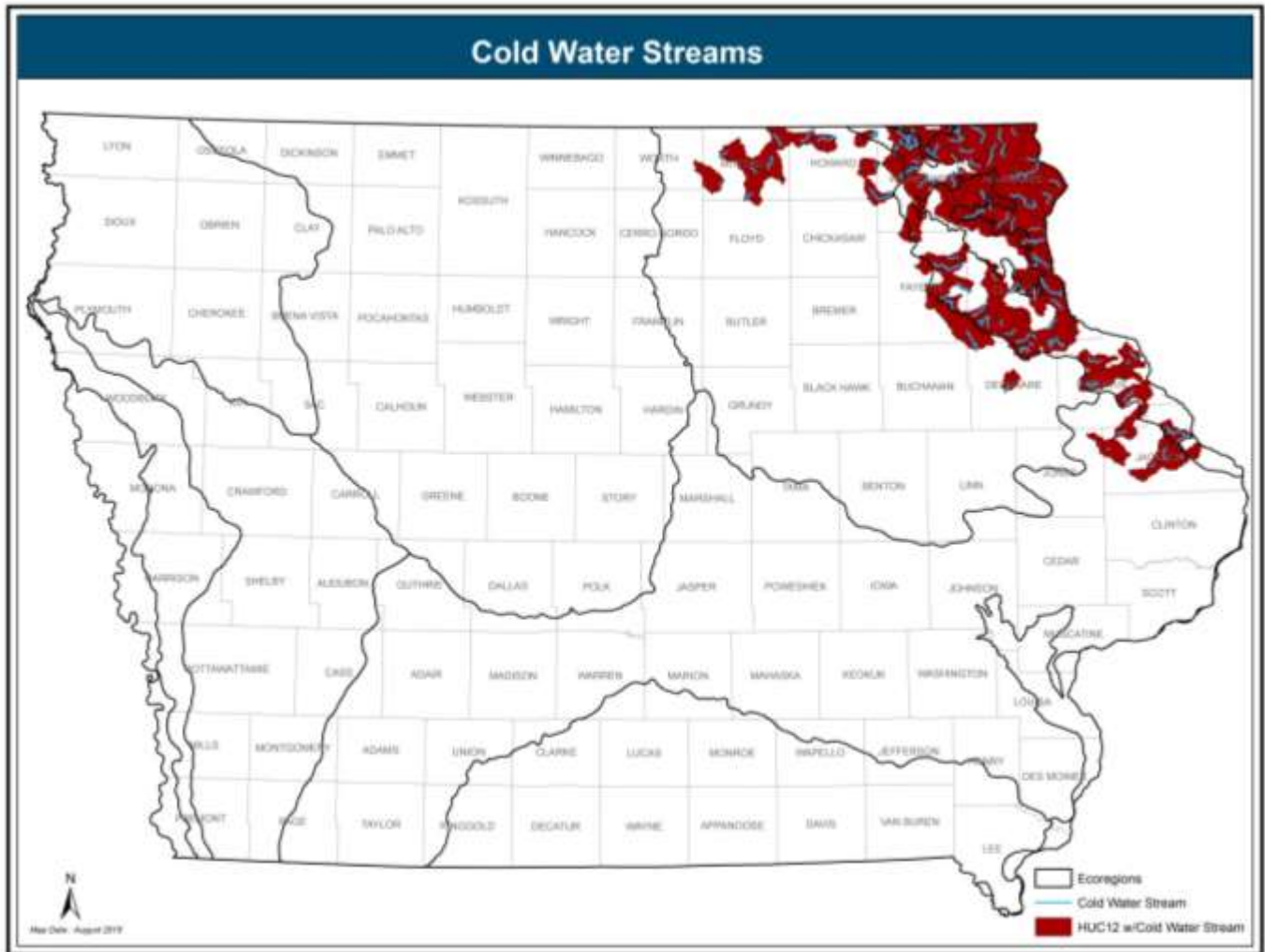
Map 8- 12. Natural Resources Conservation Service Wetland Easements

The USDA Wetlands Reserve Easement (WRE, formerly called WRP), Emergency Wetlands Reserve Program (EWP), and a few other wetlands restoration programs have helped slow the loss of wetlands in Iowa. Wetlands restoration is focused in the 35-county area in northcentral Iowa called the Prairie Pothole area, and along river and stream corridors throughout the state.



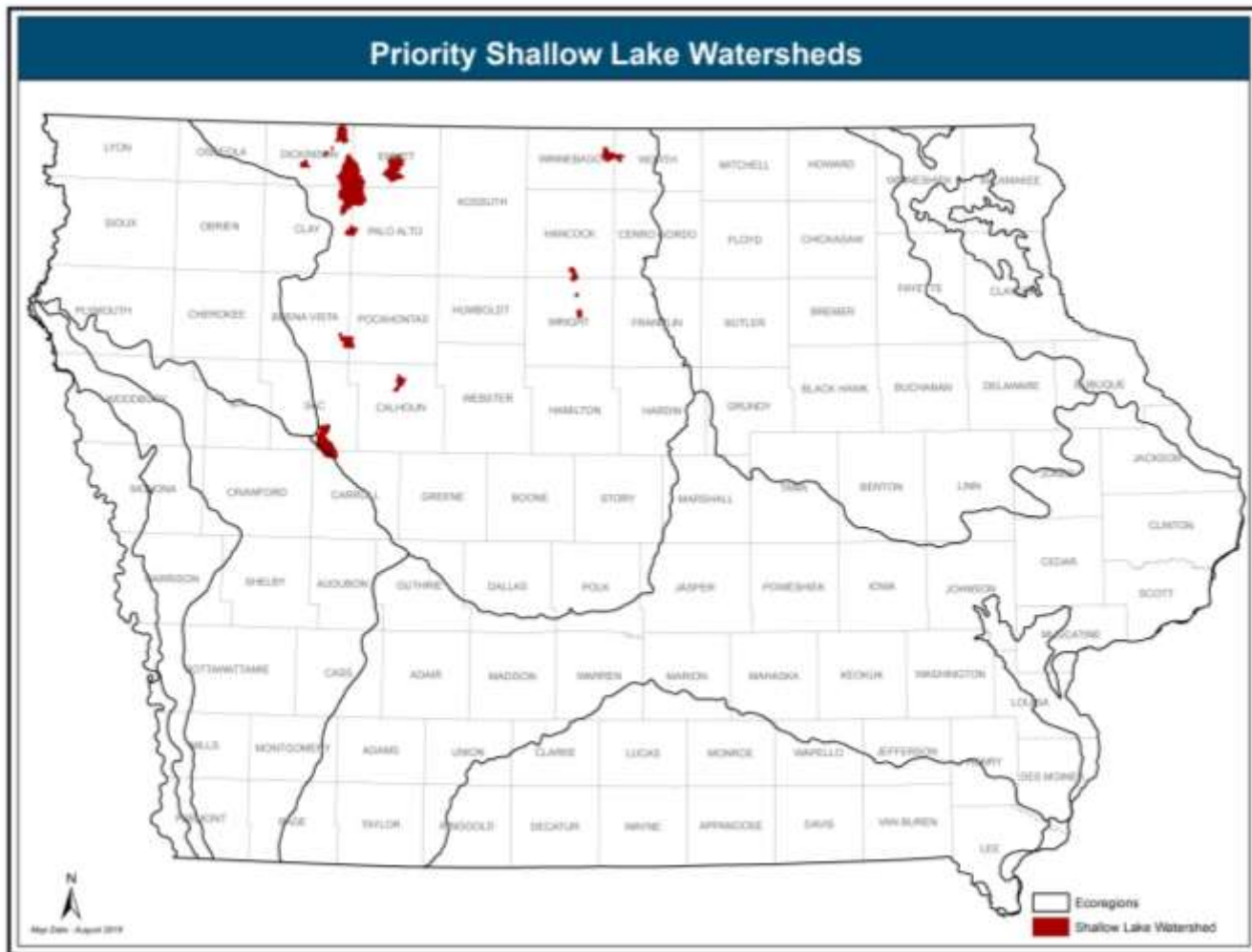
Map 8- 13. Watersheds with Coldwater Streams

The Driftless Area covers over 16,000 square miles across Northeast Iowa, Southwest Wisconsin, Southeast Minnesota and Northwest Illinois. The area escaped coverage by glacial drifts which covered much of the upper Midwest during the latter part of the Pleistocene epoch. Due to its unique karst geology characterized by sinkholes, caves and springs, the Driftless Area supports a high concentration of spring-fed, regionally significant coldwater streams. Coldwater streams are flowing waters with maximum summer water temperatures that are typically below 22°C. This map displays Hydrologic Unit Code (HUC) 12 watersheds containing coldwater streams.



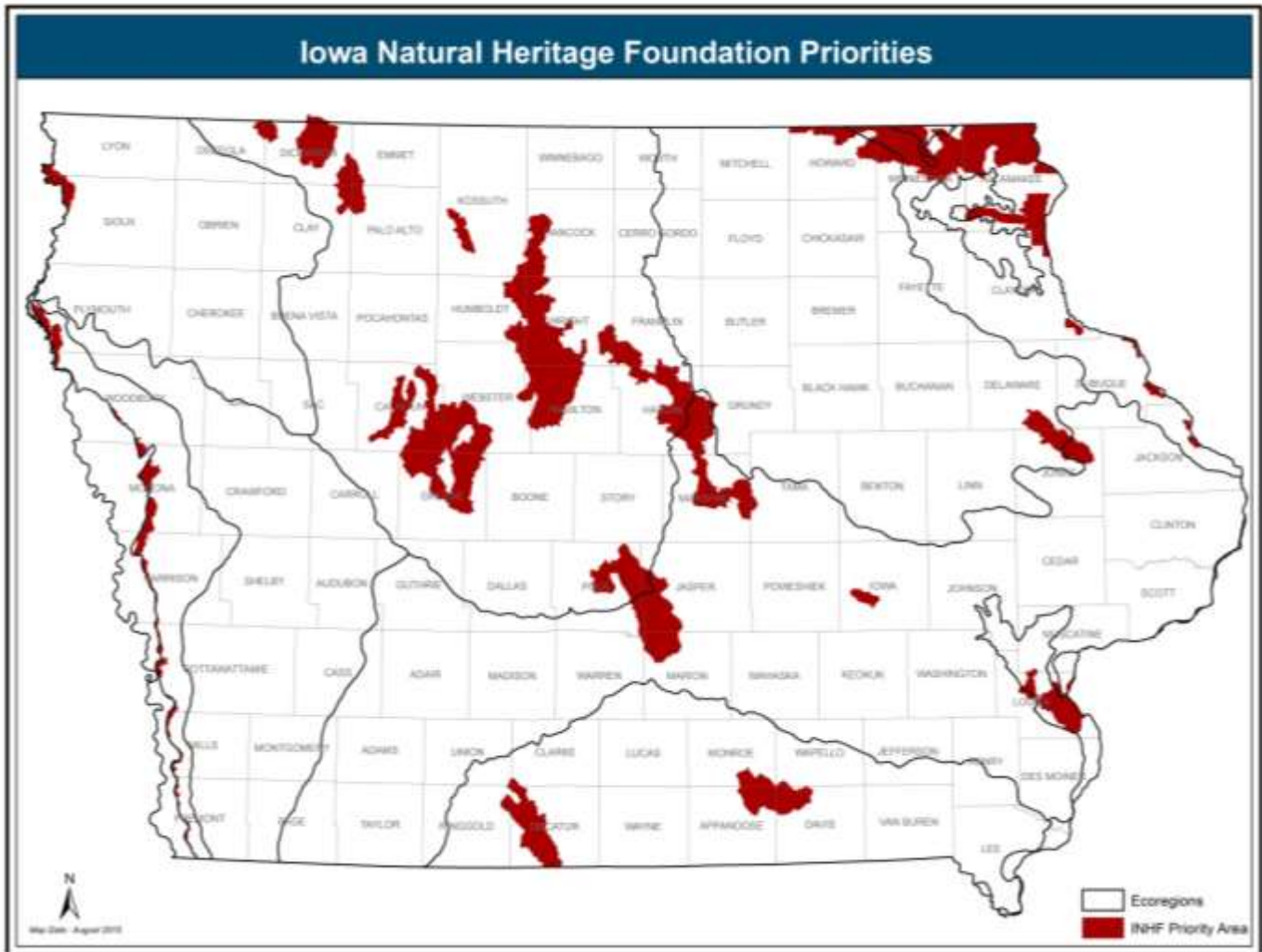
Map 8- 14. Priority Shallow Lakes

Ducks Unlimited and the Iowa DNR's Wildlife and Fisheries Bureaus developed a prioritized list of shallow lakes to be renovated over the next ten years, which is updated periodically as restoration projects are completed. Natural lakes in Northwest Iowa are mainly characterized as shallow, windswept systems that exhibit poor water quality. Significant watershed changes and the introduction of common carp in the late 1800's have forever made management of these water bodies a challenge. The current focus of the Shallow Lake Restoration Program is on shallow lakes that support both fishing and wildlife benefits. In addition, there is an emphasis on shallow systems above important natural lakes.



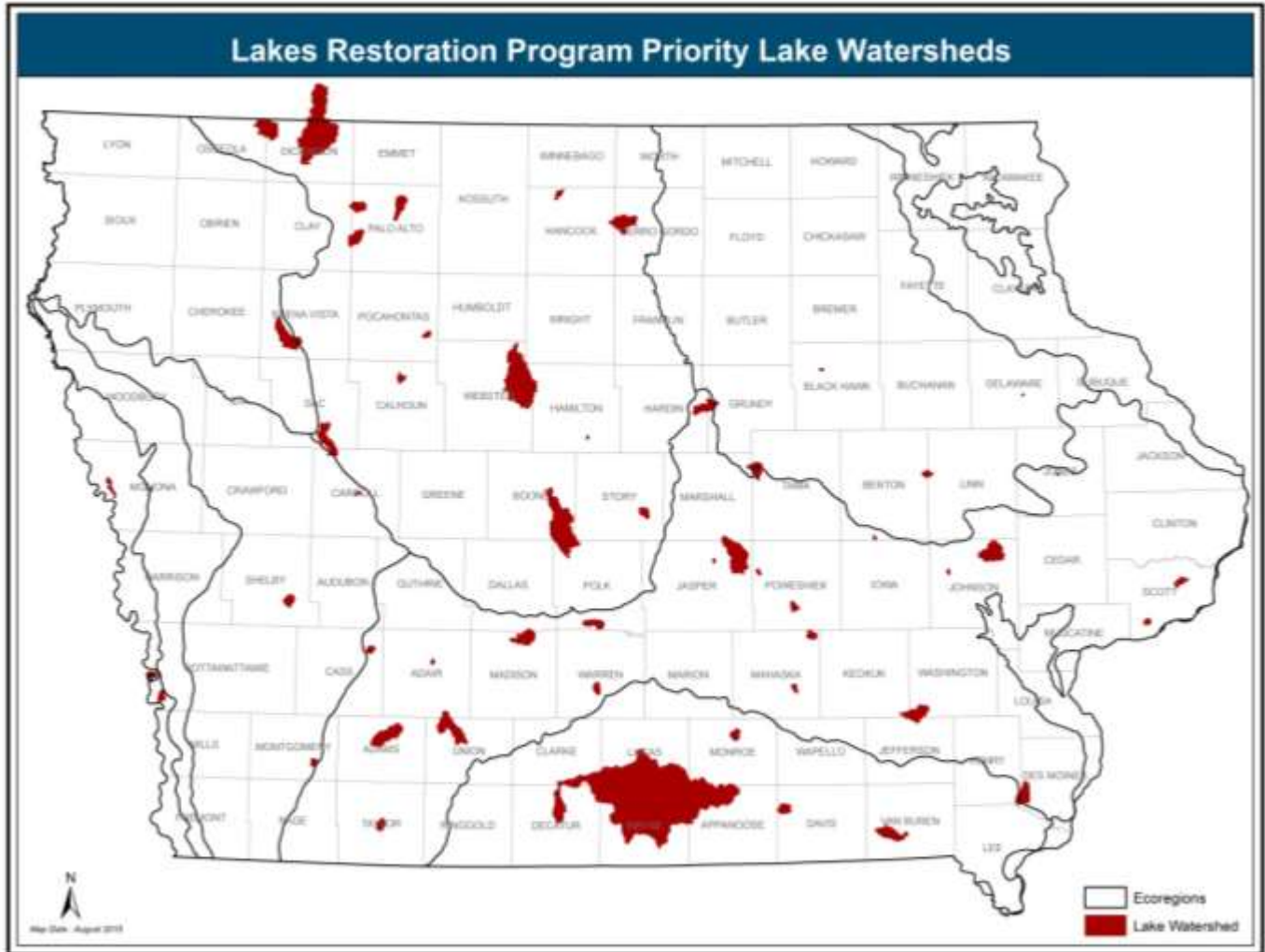
Map 8- 15. Iowa Natural Heritage Foundation Priorities

The Iowa Natural Heritage Foundation (INHF) is an accredited land trust. INHF is a member-supported organization and its priorities include protecting priority lands, connecting natural landscapes and natural corridors, restoring natural areas, and engaging Iowans with Iowa's natural heritage.



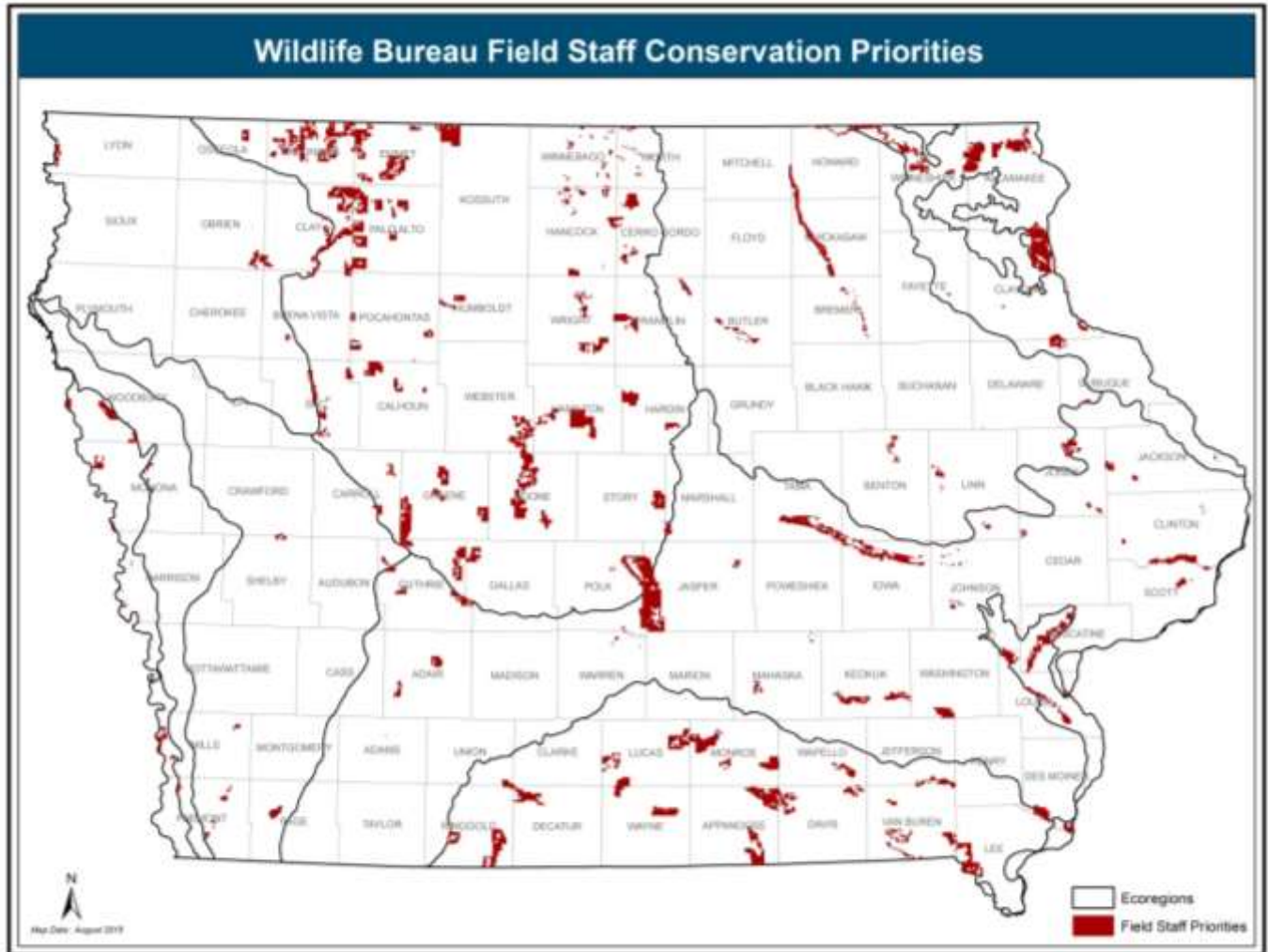
Map 8- 16. Lakes Restoration Program Priority Lakes Watersheds

2006 was a milestone year of intensified focus on Iowa's lakes. This emphasis was encouraged by the 2006 Infrastructure Bill (HF2782), which provides additional funding and requires the DNR to use a science-based approach to achieving lake water quality improvements. 127 of Iowa's principal public lakes were ranked for lake restoration suitability based upon a number of socio-economic, water quality, and watershed factors. The ranking process is used to maintain a priority list of thirty-five lakes for consideration as potential lake restoration projects. As of 2015, 22 lakes have been restored and are in a maintenance phase. An additional 23 restorations are in progress, and 14 lakes are in a planning/evaluation phase.



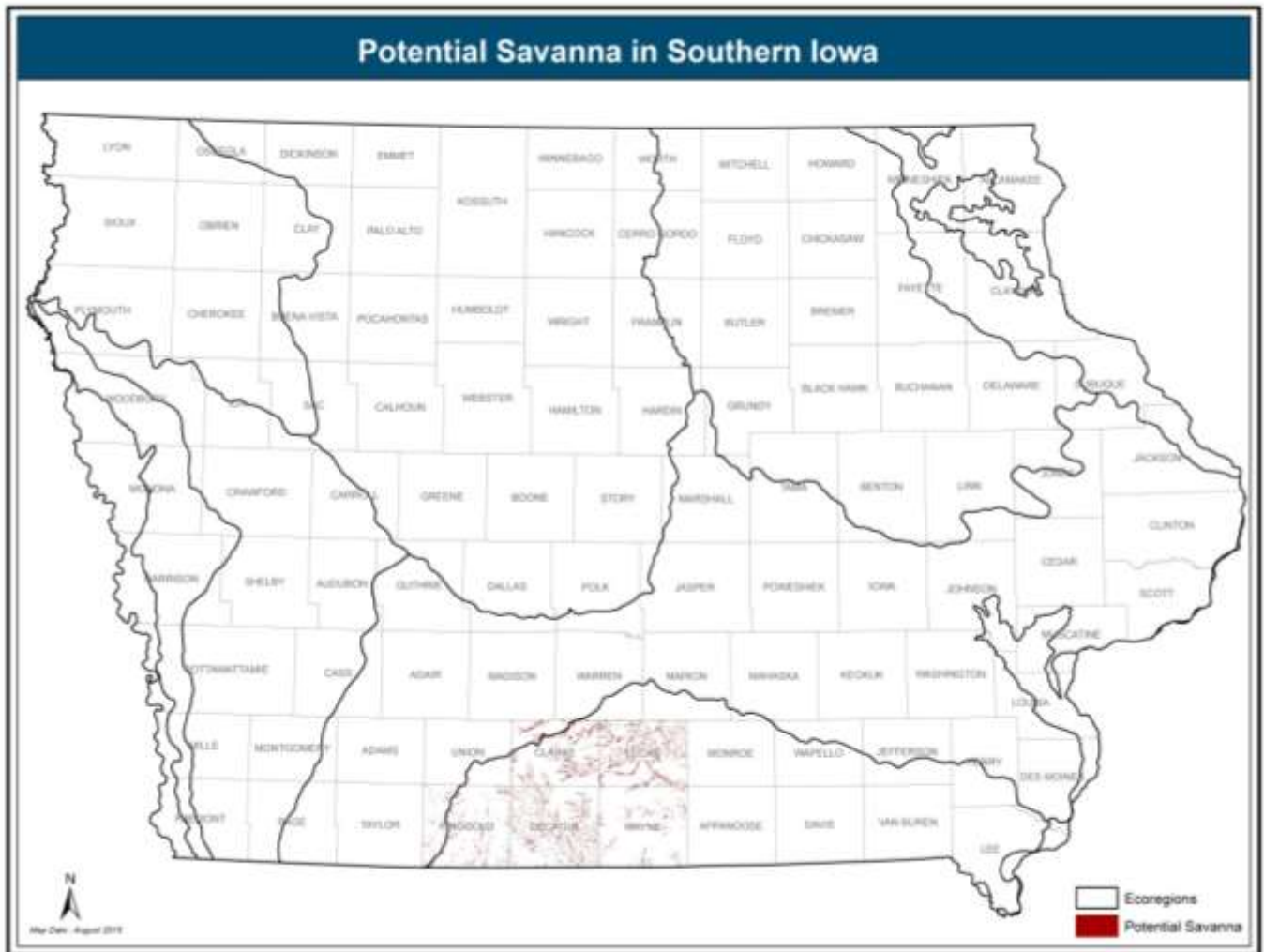
Map 8- 17. Habitat conservation priorities identified by Wildlife Bureau field staff

As the importance of habitat conservation on a landscape scale has become increasingly apparent, the DNR's Wildlife Bureau has placed an emphasis on the creation and maintenance of habitat complexes. This serves to provide core areas for wildlife to reproduce and maintain their populations and decreases the threats caused to populations by habitat fragmentation. With this in mind, in the mid-1990s the wildlife bureau field staff identified areas which serve as important habitat and are important to maintain as habitat, and also areas which would be most beneficial to wildlife populations if they could be restored to habitat through voluntary habitat improvement programs (such as Farm Bill conservation programs) or through easements, or acquisition from willing sellers. This is valuable information as it represents the habitat value assigned to individual areas by those who are intimately familiar with their local landscape.



Map 8- 18. Savanna Restoration Potential

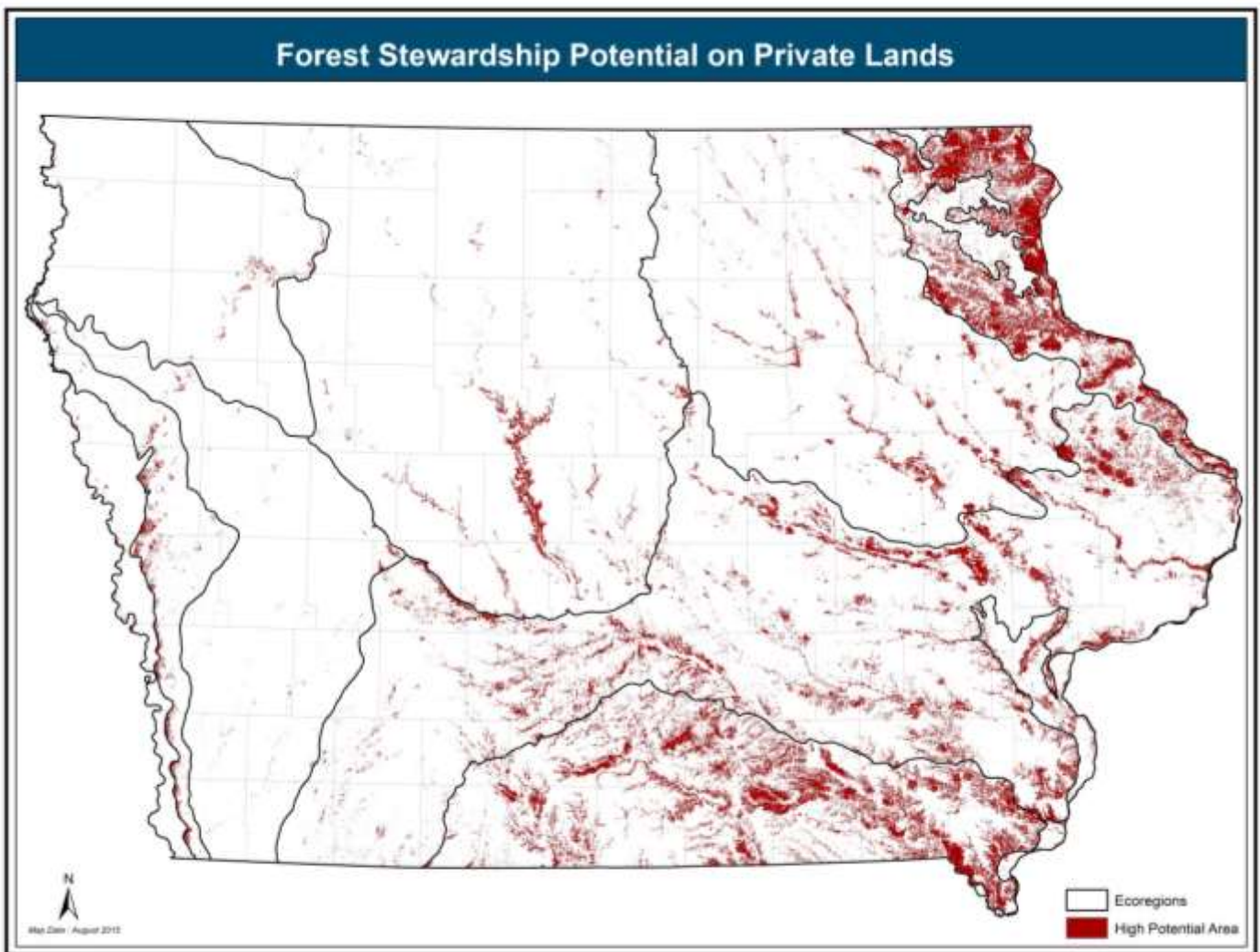
Savanna restoration potential was assessed within a five-county area in southern Iowa by the US Fish and Wildlife Service's Partners for Fish and Wildlife Program. The assessment was based upon soil type and current land cover type. This map is used by conservation partners in southern Iowa to prioritize savanna restoration work.



Map 8- 19. Forest Stewardship Potential

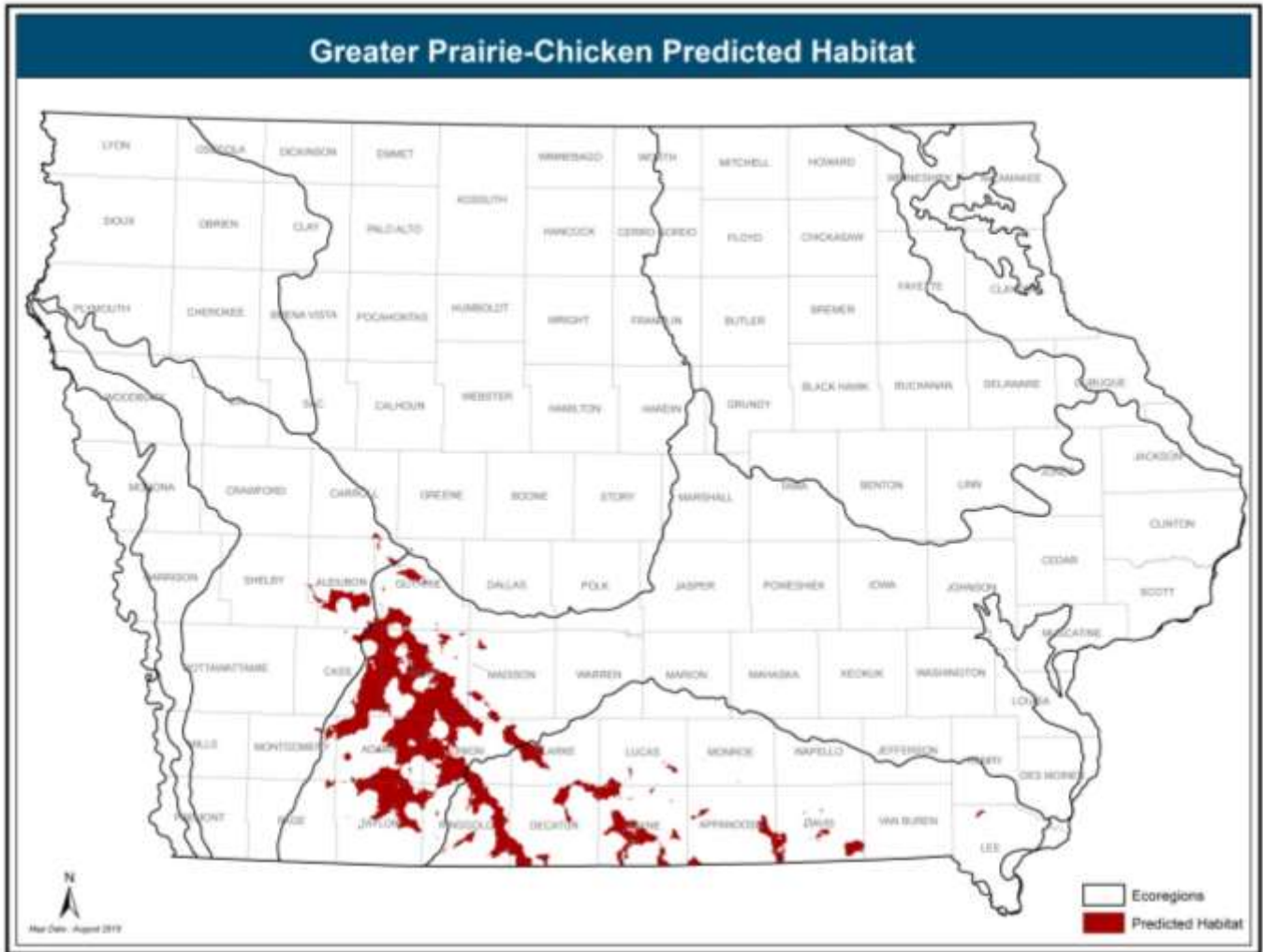
The Forest Stewardship Spatial Analysis Project (a partnership between the U.S. Forest Service and the states) identified 12 factors which help identify the “Stewardship potential” of a given piece of land. The factors were differentiated into two groups: resource potential and resource threats.

Resource Potential Factors	Resource Threat Factors
Riparian Zones	Forest Health (Pest/Disease Risk)
Priority Watersheds	Development Level
Forest Patch Size	Wildfire Assessment
Natural Heritage Data (Forest Wildlife)	
Public Drinking Water Supply Sources (Priority Watersheds)	Iowa identified 3 additional resource potential factors:
Private Forest Lands	Forest Soils
Proximity to Public Lands	Forested Landscapes
Wetlands	Historic Forest
Topographic Slope	



Map 8- 20. Greater Prairie-chicken Predicted Habitat

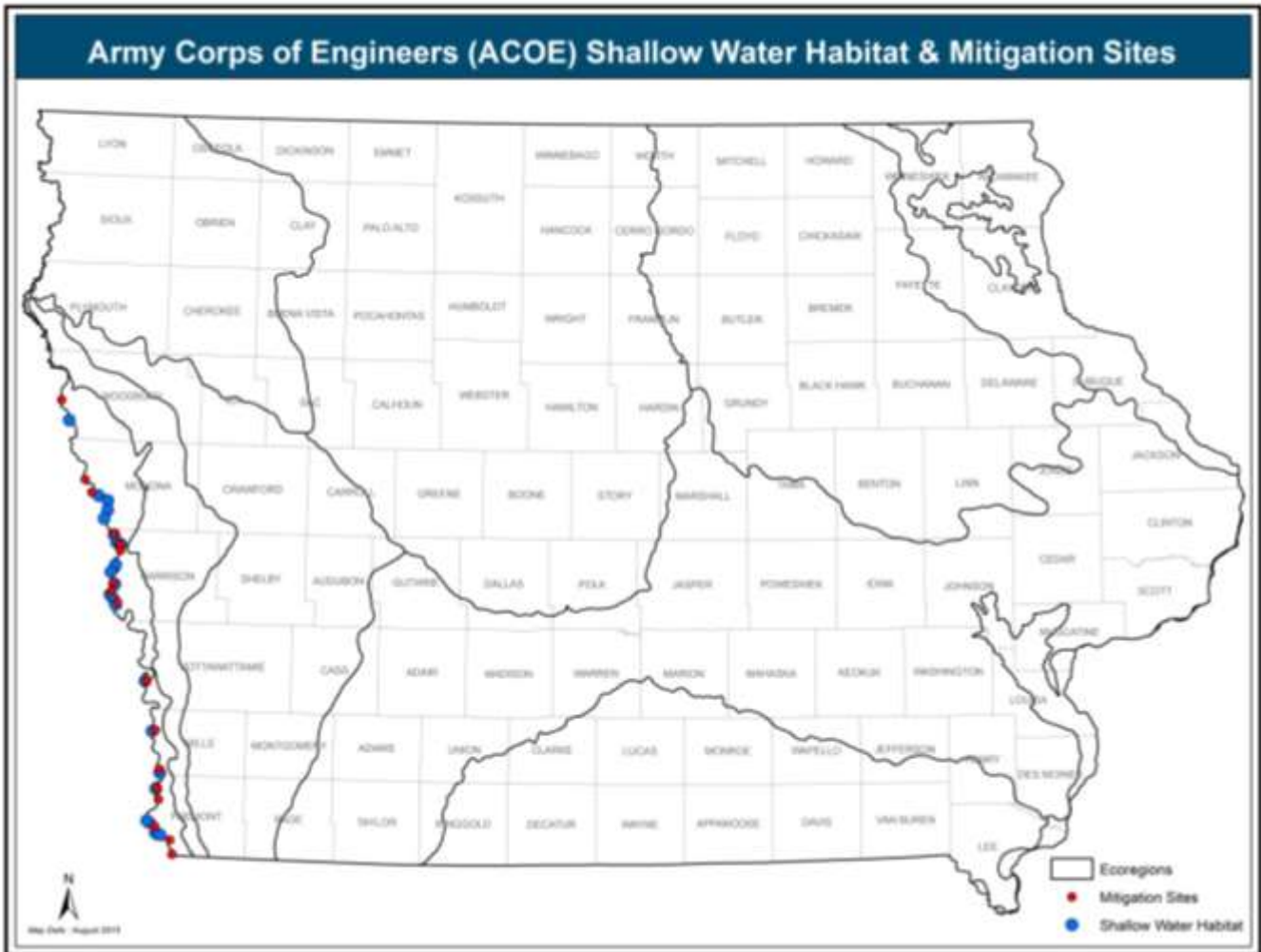
The U.S. Fish and Wildlife Service developed a model for predicting suitable habitat for the Greater Prairie-chicken. Landscape suitability was mapped by applying a model developed for Northwest Minnesota to the 2001 National Land Cover Data for Iowa. Logistic regression was used to compare landscape characteristics between booming grounds and random sites. This map depicts only the highest level of suitability modeled. The model is based on the assumption that areas classified as hayland are equivalent to grassland habitat. In addition to providing information about the Greater Prairie-chicken, this map is included as a representation of the location of mid-grass habitat in amounts significant enough to support grassland species more generally.



Map 8- 21. U.S. Army Corps of Engineers Habitat Restoration Sites

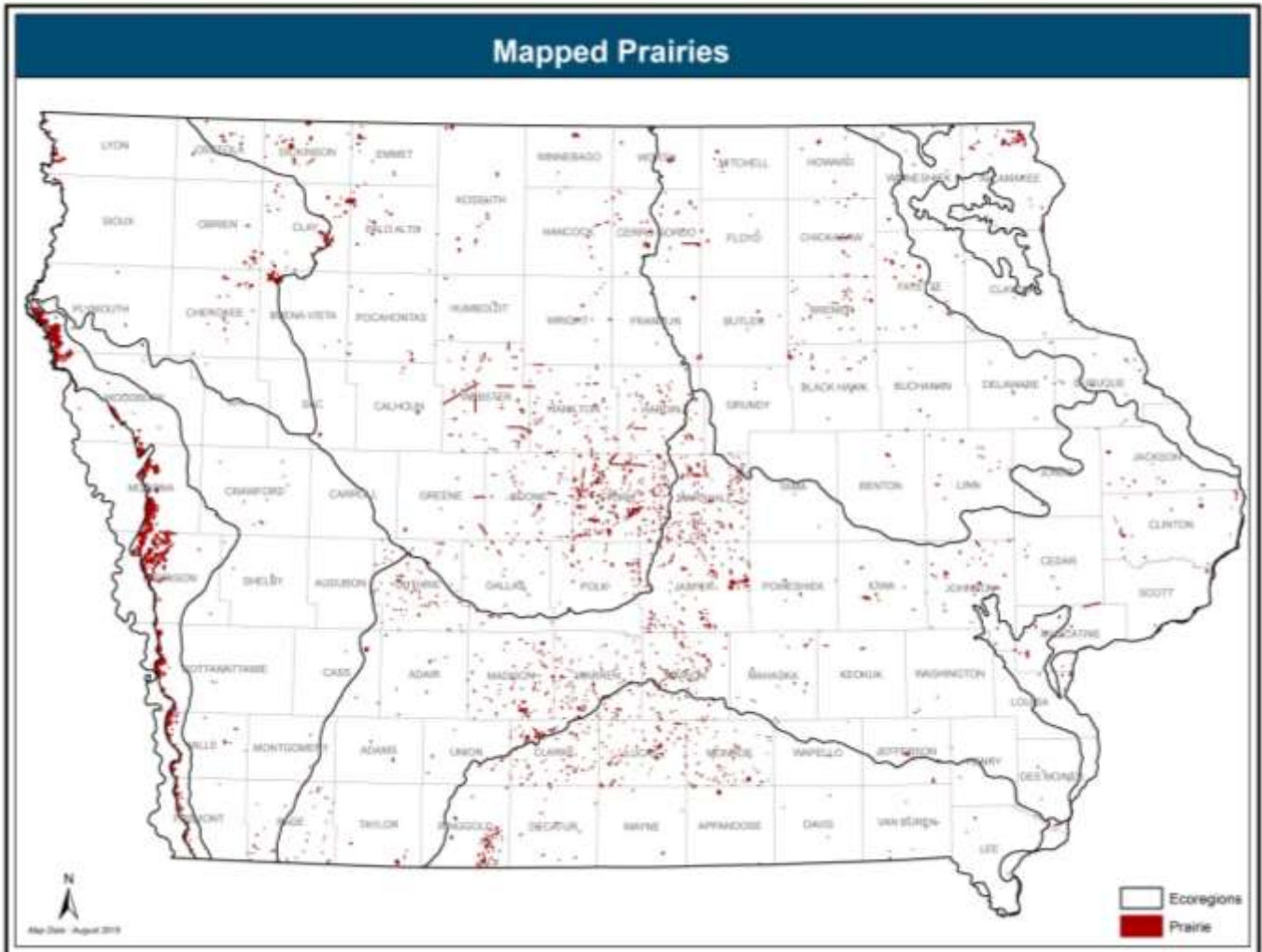
Mitigation Areas: On the Missouri River, there is an authorization to restore 20% of the habitat lost as a result of the U.S. Army Corps of Engineers (USACE) Bank Stabilization and Navigation Project that occurred on the river. On the Iowa portion of the river, these mitigation areas are managed by the Iowa DNR as part of a formal agreement with the USACE due to impacts on Missouri River aquatic and terrestrial habitat from USACE activities. The Mitigation Project habitat restoration goal in Iowa is 23,725 acres.

Shallow Water Habitat Areas: USACE’s Missouri River Recovery Program includes restoration and protection of shallow water habitat, in addition to other conservation activities. These shallow water habitat areas are important to three federally listed species (Pallid Sturgeon, Least Tern and Piping Plover) along the Missouri River. These habitat areas are also managed by DNR through an agreement with USACE.



Map 8- 22. Mapped Prairies

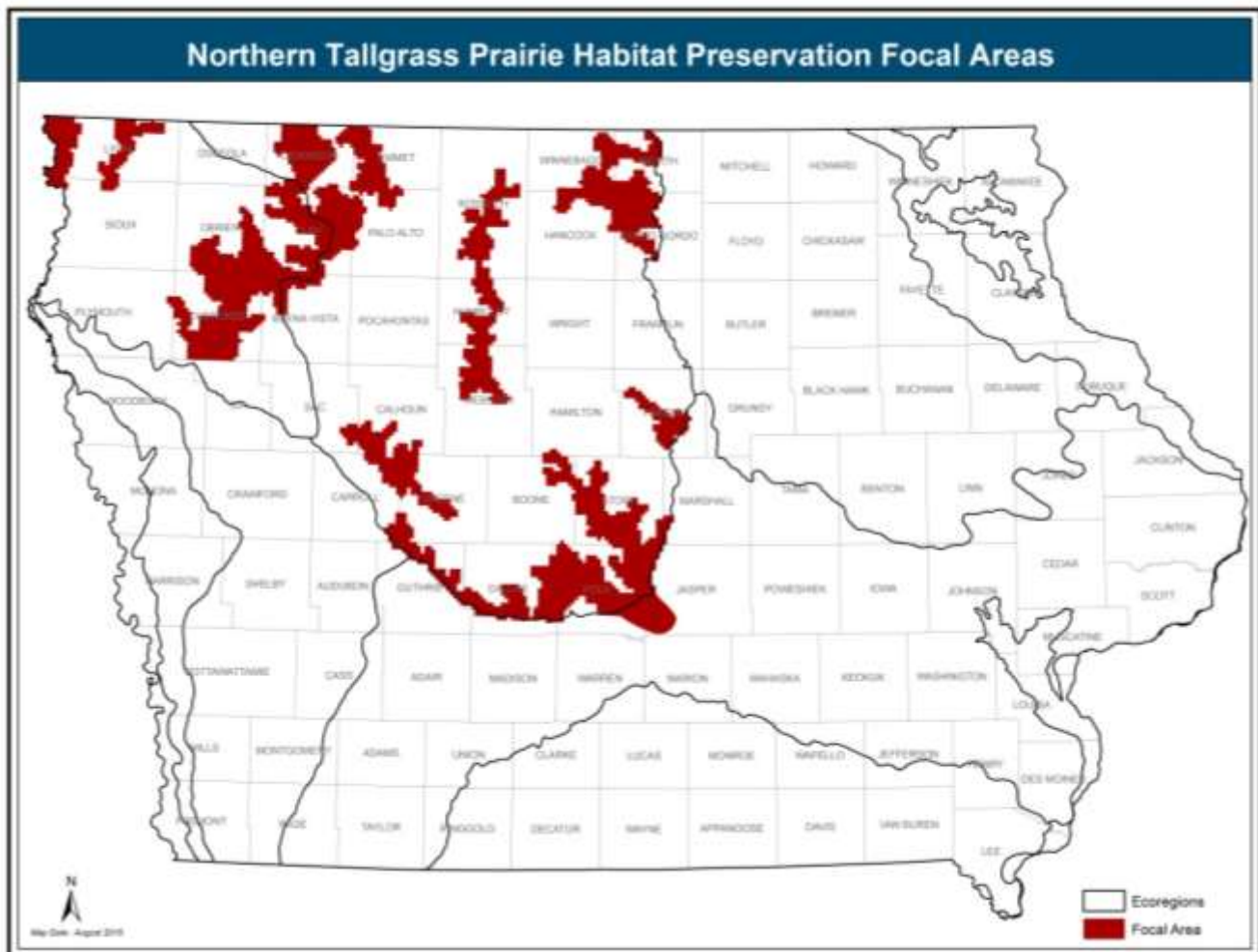
The DNR maintains a map of Prairie that includes both remnant and restored prairies of varying quality. This map represents incidental information about occurrence of prairies (as opposed to showing results of a full inventory, which has not been undertaken for Iowa). Also, please note that the size of each prairie mapped is smaller than it appears on the map; these areas are depicted in a larger format to make it possible to view them at the scale of a statewide map.



Map 8- 23. Northern Tallgrass Prairie Focal Areas

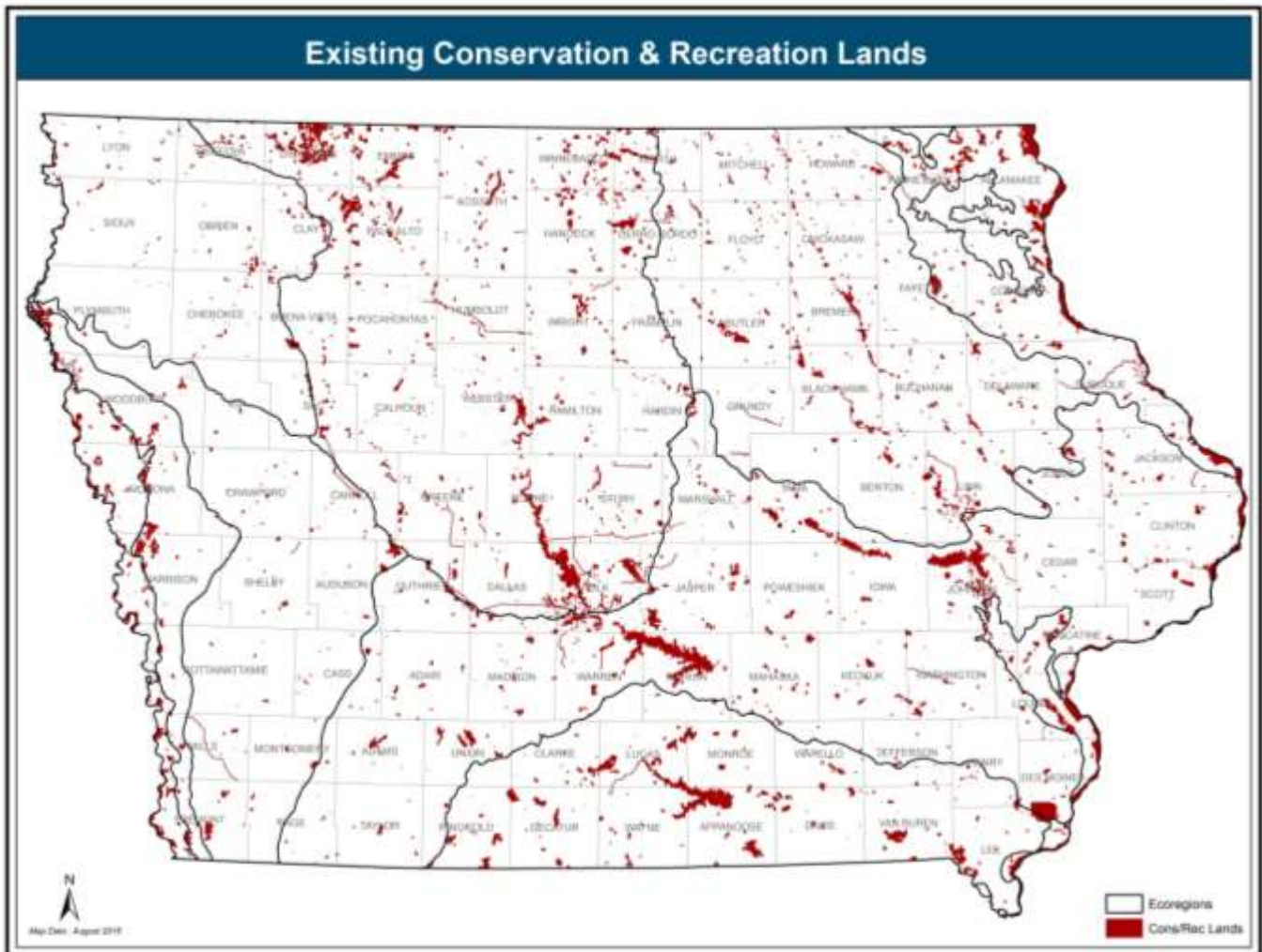
In order to protect a portion of the remaining native tallgrass prairie in Iowa and Minnesota, in 2000 Congress established the Northern Tallgrass Prairie Habitat Preservation Area (HPA). About 300,000 – 320,000 acres of native tallgrass prairie remain within the HPA. The goal is to protect 77,000 acres, which equates to 0.3% of the historic tallgrass prairie land area, across the HPA. The HPA stretches across 37 counties in northwest Iowa and 49 counties in the western third of Minnesota. The U. S. Fish and Wildlife Service (USFWS) works with partners including private entities, land trusts and other non-governmental organizations, and government agencies to protect and restore tallgrass prairie tracts within the HPA. These parcels become part of the USFWS's Northern Tallgrass Prairie National Wildlife Refuge (NTGP NWR). Therefore, the NTGP NWR is different from a typical refuge, as it is made up of scattered prairie parcels which are protected through fee title acquisition or through easements.

The Iowa Tallgrass Prairie Working Group developed a plan for tallgrass prairie conservation in Iowa in 2013. At that time, the Iowa portion of the NTGP NWR consisted of 352 acres of the total 5,255 acres within the Refuge. As part of the planning process, landscapes with the best potential for protection and restoration of native prairie were identified. These focal landscapes are displayed below.



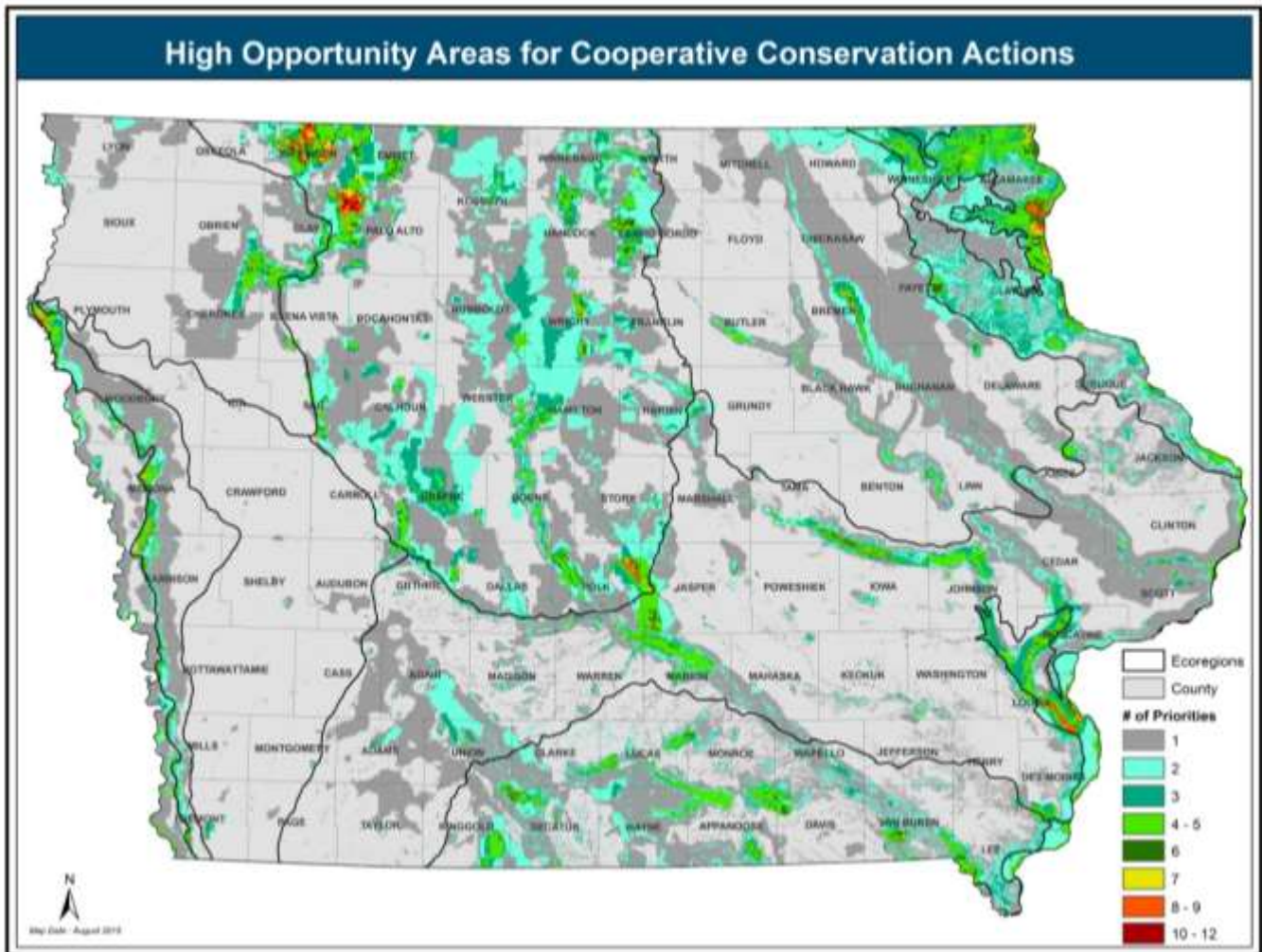
Map 8- 24. Existing Conservation and Recreation Lands

This map shows the extent of areas that are utilized for conservation and recreation purposes. These lands are owned by a variety of entities including Federal agencies, Iowa DNR, and County Conservation Boards, land trusts, and private landowners enrolled in the Iowa Habitat and Access Program.



Map 8- 25. High Opportunity Areas for Cooperative Conservation Actions

Map 8- 2 through Map 8- 24 were combined to identify priority areas for conservation actions. The shaded areas on the map indicate areas identified as a priority for action by one or more of the plans referenced above. Darker shading indicates areas where progressively more of the plans have overlapping priorities and indicate where partnering to maximize the effect of resources should be possible.



References Cited in Chapter Eight

- Salafsky, N, D Salzer, AJ Stattersfield, C Hilton-Taylor, R Neugarten, SHM Butchart, B Collen, N Cox, LL Master, S O'Connor, and D Wilkie. 2008. *A standard lexicon for biodiversity conservation: unified classifications of threats and actions*. Conservation Biology 22:897-911.
- Stephenson, AL. 2013. *Assessment of wildlife value orientations, state agency credibility, and tolerance for mountain lions in Iowa*. Thesis, Iowa State University, Ames IA.