

Permanent and Seasonal Wetlands Campaign

Introduction

The Permanent and Seasonal Wetlands Campaign focuses on the conservation of wetlands throughout Illinois but with a special emphasis on those that support high densities of wetland dependent Native Species. The Campaign is designed to positively influence wetland Natural Communities and Native Species through increases in wetland acreage and wetland quality through land protection and active management. Conservation Action Strategies are focused to impact Native Wildlife Species, but secondary benefits will occur for Native Plant Species, wetland Natural Communities, and society.

Wetlands are important habitats that provide many valuable ecological services. By holding drainage waters and moderating storm water runoff, wetlands help to dampen changes in water levels in rivers and streams, reducing flooding (Demissie and Khan 1993), and recharging groundwater supplies. When allowed to behave naturally in structure and function wetlands provide locations where water and nutrients accumulate and are highly productive in support of plant and animal life. Similarly, by intercepting and slowly releasing runoff, wetlands allow physical and biochemical treatment of sediment and other pollutants that severely degrade natural features and ecosystem services.

Wetlands were historically a dominant feature of the Illinois landscape but more than 90% have been modified for agriculture, residential or commercial development, and other land uses (Dahl 2006). Of the remaining recognizable wetlands in Illinois, most have been highly degraded. Invasive plants and wildlife have reduced biodiversity and degraded habitat structure and function. These wetlands are also increasingly isolated from other wetlands. Sedimentation has reduced wetland volume, while changes in hydrology have starved some wetlands of water and overwhelmed others. Wetlands are naturally dynamic systems and dependent on hydrologic disturbance (both floods and droughts) to remain healthy and functional. However, the type, rate, and severity of hydrologic change is now often outside of historically defined thresholds. Each of these stresses has reduced the ability of remaining wetlands to effectively perform their ecosystem functions, including the provision of sustainable, diverse, and abundant wildlife populations.

Despite perceived changes in societal views of wetlands (Johnson and Pflugh 2008, Kim and Petrolia 2013), some people continue to perceive wetlands negatively as breeding grounds for mosquitoes or undesirable animals and as wastelands or marginal areas for “productive” uses. Thus, pressure to drain, fill, or otherwise eliminate wetlands, as well as resistance to restoration or establishment, remains high in many areas. Considering the increasingly known benefits of wetlands, a focused and persistent educational component may prove valuable to raise public awareness of the benefits provided by wetlands. Despite these challenges, several large-scale partnership wetland restoration projects have occurred in Illinois, including the Cache River project in far southern Illinois, and the Emiquon Complex and Hennepin & Hopper Lakes on the Illinois River. These restorations have resulted in high quality wetland systems recognized by the international community for their importance (Ramsar 2014).

Objectives

The primary objectives of the Permanent and Seasonal Wetlands Campaign include (1) increasing wetland extent, interconnectedness, and quality to meet the requirements of Native Species, (2) promoting sustainable science-based management, and (3) protecting existing wetlands to support all wetland dependent Native Species. Achieving these objectives will preserve natural features by restoring ecosystem processes

that allow self-regulation, decreasing habitat fragmentation, and integrating best management practices on Key Wetland Natural Communities.

Objectives for Natural Communities

- High-quality examples of all wetland communities are protected and maintained (IDNR 2023).
- A net gain of marsh and shallow wetland types is achieved through restoration, enhancement and management.
- A net gain of combined wetland types is achieved in the river bottomlands of Illinois.
- A net gain of temporary and seasonal wetlands is achieved on private land using conservation easements and landowner agreements.
- Implement strategies to reduce or eliminate deficits for all wetland types identified by the Upper Mississippi River and Great Lakes Region Joint Venture in Illinois.
- Increase the implementation of moist-soil management or other natural wetland management strategies on public waterfowl management areas and other sites to improve Natural Community quality.
- Reduce total sediment delivery to wetlands by implementing buffers along streams, ditches and other waterways through the use of conservation easements and agreements on highly erodible lands, and adoption of other erosion control practices across broad regions.
- The distribution and impact of detrimental wetland invasive species is stabilized or reduced by active management or other conservation action.
- Increase wetland capacity in watersheds with persistent flooding issues (Demisse and Khan 1993) in support the Nutrient Loss Reduction Strategy. These wetlands should be structured to provide habitat for Native Species and provide other ecosystems functions when possible.

Objectives for Native Species

- Initiate the Recovery Process for all State-listed wetland dependent bird species
- Increase nesting populations of wetland dependent birds (Sauer et al. 2014)
- Provide habitat of sufficient extent and quality to support viable Odonate populations.
- Make available large connected complexes of wetlands within a suitable spatial distribution to support a diverse assemblage of herpetofauna through their life cycle.
- Provide sufficient shorebird habitat (e.g., mudflat) during spring and fall migration to meet Upper Mississippi River and Great Lakes Region Joint Venture objectives. (Potter et al. 2007a)
- Increase use-days by migrant duck populations (September- January) in the Illinois and Mississippi River valleys.

Objectives for Education and Outreach

- Increased wetland education in areas under pressure for wetland loss, with high wetland restoration potential, or with chronic flooding issues to increase support for wetland protection and wetland management approaches that benefit wildlife and society.
- Increased education for agency staff and the public regarding the benefits of moist soil management and other natural wetland management strategies.

Species of Greatest Conservation Need

Species identified as Species of Greatest Conservation Need associated with the Permanent and Seasonal Wetlands Campaign are identified in the Native Species Section of this Plan (Appendix I). Key species associated with this Campaign include amphibians, reptiles, birds, dragonflies, damselflies, and many plant species. Some of these species found in wetland Natural Communities include:

- Northern Pintail (*Anas acuta*): migration period; Marsh, Emergent Wetland
- Black Tern (*Chlidonias niger*): breeding, migration periods; Marsh
- Least Bittern (*Ixobrychus exilis*): breeding, migration periods; Emergent Marsh
- Black-crowned Night Heron (*Nycticorax nycticorax*): breeding, migration periods; Swamp, Marsh
- Blanding's Turtle (*Emydoidea blandingii*): full life cycle; Marsh, Sedge Meadow

Several Illinois Stewardship Species (Appendix III) are also associated with the Permanent and Seasonal Wetlands Campaign including two wildlife species [Hine's Emerald Dragonfly (*Somatochlora hineana*), Illinois Chorus Frog (*Pseudacris illinoensis*)] and nine plant species [Wild Parsnip (*Berula erecta*), Decurrent False Aster (*Boltonia decurrens*), Hedge Hyssop (*Gratiola quartermantiae*), Sweet-scented Indian-plantain (*Hasteola suaveolens*), Creeping St. John's-wort (*Hypericum adpressum*), Glade Mallow (*Napaea dioica*), Common Reed (*Phragmites australis* spp. *americanus*), Hall's Bulrush (*Schoenoplectiella hallii*), Hairy Valerian (*Valeriana edulis*)]. While some of these plant species did not meet the S-rank criteria for designation as Species of Greatest Conservation Need they are still considered important species for maintaining the character of Wetland Natural Communities as part of this Campaign.

Natural Lands

Wetlands functioning as Natural Lands include those protected in the Illinois Nature Preserves System as High-quality Natural Communities and others managed primarily for their ecological benefits. Where large wetland complexes include both a dedicated Nature Preserve and non-dedicated areas, the Nature Preserve is considered within the Natural Lands Sector, and the adjacent managed recreation/production acreage is treated within the Work Lands Sector.

Stressors to Habitats and Species in Natural Lands

Land Transition

- Shifts in landuse adjacent to wetlands may increase stormwater runoff and associated sediment and pollutant loads degrading Natural Community Quality.
- Loss of wetland extent and function may occur through shifts in landuse or through succession.

Hydrologic Alteration

- Shifting precipitation patterns and associated Flooding Regimes can eliminate suitable conditions in wetlands at seasonally appropriate times for wetland dependent species
 - Observed flooding within wetlands is more frequently exceeding the historic patterns in seasonality, magnitude, and duration

- Continued development (e.g., drain tiling, impervious surfaces) in adjacent areas exacerbates these climate driven patterns by decreasing infiltration
- Hydrologic Stability – Wetlands cycle through periodic wet and dry periods in order to retain their natural character.
 - Water control structures may continuously maintain water in Natural Communities at inappropriate levels that prevent seed germination, the completion of life cycles, or allow the establishment of invasive species.
 - Water control structures may maintain water in wetlands that seasonally differ from the conditions these Natural Communities evolved under.

Invasive Species and Disease

- Invasive Species stress Natural Communities and Native Species through predation, competition or habitat alteration.
 - Invasive plants disrupt wetland habitats and negatively impact many wetland-dependent species.
 - Invasive wildlife species can degrade Natural Communities or displace Native Wildlife Species.
- Diseases and other factors may depress Native Species Health leading to direct mortality or reduced fitness.

Pollution and Pollutants

- Sediments delivered through runoff into wetlands increase rates of siltation and sedimentation reducing wetland quality and extent
 - Sedimentation reduces water depth and clarity degrading wetland Natural Communities
 - Sedimentation reduces substrate firmness and the ability of submersed and emergent vegetation to establish their roots.
- Stormwater or other influents may degrade wetlands with Thermal Pollution
- Stormwater or contaminated ground water entering wetlands with unusual chemical loads may degrade Natural Community Quality and impact wetland dependent species.
- Herbicide drift impacts Native Species of plants and may diminish wildlife health.

Conservation Action Strategies for Natural Lands

Land Protection Strategy

1. Protect wetland Natural Communities as well as adjacent areas as buffers through land acquisition and conservation easements.
2. Wetland protection priorities should include:
 - a. High-quality, rare, declining, vulnerable, or threatened wetlands;
 - b. Expanding existing protected lands to establish/protect large wetland complexes;
 - c. Creating habitat “corridors” to connect already protected wetland sites;
 - d. Wetland habitats critical to specific wildlife species identified in the Recovery Process;
3. Work towards eliminating wetland habitat deficits identified by Upper Mississippi River and Great Lakes Region Joint Venture - Shorebird, Waterbird, and Waterfowl conservation plans (Potter et al. 2007a, Soulliere et al. 2007a & b, Pierce et al. 2014).

4. Review and update floodplain inundation risk maps to more accurately characterize flood frequency zones and delineate wetlands (e.g., 100-year floodplain).

Land Stewardship Strategy

1. Increase the extent and quality of historically abundant wetland Natural Communities and duplicate historic habitat complexity and juxtaposition within wetlands through active management (Stafford et al. 2010)
2. Reduce sediment inputs into streams, rivers, and wetlands from row crop field through minimum tillage, vegetated waterways, buffers, and wetland restoration.
3. Conduct timber stand improvement on wetland associated forests (i.e., Swamps, Floodplain Forests)
 - Reduce shade tolerant soft woods (e.g., cottonwood, green ash, silver maple, willow)
 - Increase mast producing hardwoods (e.g., oak, hickory, pecan) within floodplain sites that will support these tree species
 - Manage for diversity of stand density, age, and structure utilizing strategies that promote natural regeneration where appropriate (Knutson et al. 1996).

Invasive Species Strategy

1. Control Invasive Species to enhance wetland Natural Communities by mimicking natural disturbance regimes through the use of water level manipulation and prescribed fire.
2. Maintain open wetland Natural Communities through mechanical and chemical control measures of encroaching woody vegetation.

Education and Outreach Strategy

1. Facilitate interagency communication to provide consistent messaging and information about wetlands and wetland dependent Native Species.
2. Facilitate cooperation among and within state and federal agencies to provide accurate information and strengthen public support for wetland conservation.

Research Strategy

1. Fill information gaps and develop conservation actions to address stresses.
2. Support and conduct research to gain a greater understanding of wetland ecology and wetland-dependent wildlife.

Focal Monitoring Species for Natural Lands

The presence and subsequent increase in abundance of the following species are indicative of high quality wetland habitat:

1. Odonata Diversity
2. Secretive Marsh Birds (Sora, Virginia Rail, Black Rail, King Rail, Least Bittern, American Bittern)
3. Amphibian Diversity
4. Wood Duck (*Aix sponsa*)

Focus Areas for Natural Lands

1. Volo Bog State Natural Area
2. Little Black Slough Nature Preserve
3. Chauncey Marsh Nature Preserve
4. Illinois Beach Nature Preserve (especially for the Panne Natural Community Type)

Working Lands

Wetlands that function within the Working Lands Sector are often managed to serve human needs especially flood water storage, nutrient processing, sediment collection, and recreation. While providing those services these Natural Communities also support populations of Native Species. Despite large wetland losses throughout Illinois the remaining wetlands are often not managed to maximize wildlife benefits (Stafford et al. 2011). Managed wetlands commonly focus on attracting individual species for hunting (e.g., planting and flooding corn to attract mallards) which greatly reduces wetland quality and limits the value of the wetland for most wetland dependent Native Species.

Stressors to Habitats and Species on Working Lands

Land Transition

- Degradation of wetland quality through altered hydrology, water quality, and sedimentation.
- Loss of wetland extent and function through shifts in the use of the land or succession.

Hydrology

- Shifting Flood Regimes can eliminate appropriate conditions in wetlands at seasonally appropriate times for wetland dependent species
 - Observed flooding within wetlands is more frequently exceeding the historic patterns in seasonality, magnitude, and duration
 - Continued development (e.g., drain tiling, impervious surfaces) in adjacent areas exacerbates these climate driven patterns by decreasing infiltration
- Hydrologic Stability – Wetlands cycle through periodic wet and dry periods in order to retain their natural character.
 - Water control structures may continuously maintain water in Natural Communities at inappropriate levels that prevent seed germination, the completion of life cycles, or allow the establishment of invasive species.
 - Water control structures may maintain water in wetlands that seasonally differ from the conditions these Natural Communities evolved under.

Invasive Species and Disease

- Invasive Species stress Natural Communities and Native Species through predation, competition, or habitat alteration.

- Non-native invasive plants often outcompete natives, disrupting wetland habitats, negatively impacting many wetland-dependent species.
- Invasive animals can further degrade habitat or displace native animal species.
- Diseases and other factors may stress species through direct mortality or reduced health and fitness.

Pollution and Pollutants

- Stormwater runoff with high sediment loads may reduce Natural Community Quality and extent.
- Stormwater or other influents may degrade wetlands with Thermal Pollution
- Stormwater or contaminated ground water entering wetlands with unusual chemical loads may degrade Natural Community Quality and impact wetland dependent species.
- Herbicide drift impacts Native Species of plants and may diminish wildlife health.

Conservation Action Strategies for Working Lands

Land Protection Strategy

1. Protect wetland Natural Communities as well as adjacent areas as buffers through land acquisition and conservation easements.
2. Wetland protection priorities should include:
 - a. High-quality, rare, declining, vulnerable, or threatened wetlands;
 - b. Expanding existing protected lands to establish/protect large wetland complexes;
 - c. Creating habitat “corridors” to connect already protected wetland sites;
 - d. Wetland habitats critical to specific wildlife species identified in the Recovery Process;
3. Work towards eliminating wetland habitat deficits identified by Upper Mississippi River and Great Lakes Region Joint Venture - Shorebird, Waterbird, and Waterfowl conservation plans (Potter et al. 2007a, Soulliere et al. 2007a & b, Pierce et al. 2014).
4. Review and update floodplain inundation risk maps to more accurately characterize flood frequency zones and delineate wetlands (e.g., 100-year floodplain).

Land Stewardship Strategy

1. Increase historically abundant habitats and duplicate historic habitat complexity and juxtaposition within wetlands (Stafford et al. 2010)
 - Recover floating leaved, submersed aquatic, and emergent vegetation in backwater lakes and wetlands along Illinois and Mississippi rivers (Bellrose et al. 1983).
 - Increase water depth, water clarity, and substrate firmness in floodplain lakes and managed wetlands through consolidation of sediments by repeated annual dewatering and drying.
 - Reduce sediment inputs into streams, rivers, and wetlands from adjacent lands through minimum tillage, vegetated waterways, buffers, and wetland restoration.
 - Recover shallow and seasonal wetlands to support Native Species dependent upon these Natural Communities (e.g., amphibians, migratory birds, dragonflies).
 - Restore wetland hydrology by plugging ditches, removing drain tiles, and adding water control structures where needed to allow shallow and seasonal wetlands to hold water for greater time periods and dewater naturally.

- Use technical assistance and incentive-based or voluntary programs to establish shallow water wetlands on private lands.
2. Manage wetland hydrology to improve Natural Community Quality.
 - Delay wetland dewatering until mid-summer to allow successful reproduction of Native Species in spring and early summer.
 - Maintain water in managed wetlands through mid- to late-spring to maximize wetland habitat availability for Native Species and to mimic historic flooding regimes.
 - Maintain and increase water control in wetlands within river floodplains through managed or partial connections which can isolate them from growing-season floods yet still allow movement of aquatic species when appropriate.
 3. Manage existing wetlands to enhance Native Species population viability.
 - Adopt moist-soil, or other natural wetland management strategies on public waterfowl management areas and other sites to increase Natural Community Quality to benefit Native Species including wading birds, waterfowl, and shorebirds during spring, summer, and fall (Fredrickson and Taylor 1982).
 - Reduce the total number of acres of managed wetlands planted to row crops and other planted waterfowl food plots and manage natural vegetation to produce more nutritious, persistent, and preferred foods for waterfowl and other Native Species (Fredrickson and Taylor 1982, Loesch and Kaminski 1989).

Invasive Species Strategy

1. Control Invasive Species to enhance wetland Natural Communities in managed wetlands by mimicking natural disturbance regimes through the use of water level manipulation and prescribed fire.
2. Control Invasive Species to enhance wetland Natural Communities in managed wetlands through targeted mechanical and chemical control measures.

Education and Outreach Strategy

1. Provide consistent positive messaging about wetlands and wetland dependent Native Species to increase public awareness, knowledge, and connectedness.
2. Conduct outreach efforts focused on reducing pesticides, fertilizers, and other chemicals from entering wetlands and waterways
3. Develop targeted messaging to inform the public about wetland stressors and management alternatives to address them within the Working Lands Sector.
4. Increase water quality education efforts in areas that are highly developed, under high development pressure, or within fragile geographic zones (i.e., karst terrain).

Research Strategy

1. Fill information gaps and develop conservation actions to address stresses.
2. Support and conduct research to gain a greater understanding of wetland ecology and wetland-dependent wildlife.

Focal Monitoring Species for Working Lands

1. Wood Duck (*Aix sponsa*)
2. Amphibian Diversity
3. Odonata Diversity
4. Migratory Shorebird species
5. Secretive Marsh Birds (Sora, Virginia Rail, Black Rail, King Rail, Least Bittern, American Bittern)

Focus Areas for Working Lands

1. Fox Creek State Fish and Wildlife Area and Bailey Wetlands
2. Carlyle Lake State Fish and Wildlife Area
3. Mississippi River State Fish and Wildlife Area
4. Rice Lake State Fish and Wildlife Area

Developed Lands

Wetlands that function within the Developed Lands Sector are managed primarily to serve human needs such as flood water storage, nutrient processing, sediment collection, and recreation. While providing those services these Natural Communities also support populations of Native Species.

Stressors to Habitats and Species on Developed Lands

Land Transition

- Shifts in landuse adjacent to wetlands may increase stormwater runoff and associated sediment and pollutant loads degrading Natural Community Quality.
- Wildlife benefits are reduced when wetlands become more isolated from other wetlands and other productive habitats.
- Wetlands designed for stormwater detention may have limited ability to mimic natural water level fluctuations due to their predetermined engineered drainage rate.

Invasive Species and Disease

- Invasive Species stress natural systems and Native Species through predation, competition, or habitat alteration.
 - Invasive plants disrupt wetland habitats and negatively impact many wetland-dependent species.
 - Invasive wildlife species can degrade Natural Communities or displace Native Wildlife Species.
- Diseases and other factors may depress Native Species Health leading to direct mortality or reduced fitness.

Pollution and Pollutants

- Overland flow directing chemical, sediment, and organic pollutants (e.g., nutrients, pesticides, road salt) may reduce Natural Community Quality.
- Stormwater and contaminated ground water entering wetlands with unusual chemical loads may degrade Natural Community Quality and impact wetland dependent species.
- Herbicide Drift impacts Native Species of plants and may diminish wildlife health.

Conservation Action Strategies for Developed Lands

Land Protection and Stewardship Strategy

1. Champion landuse planning strategies that maintain and enhance wetland Natural Communities.
2. Support landuse planning and management strategies that facilitate wildlife friendly habitats on developed lands.

Education and Outreach Strategy

1. Provide consistent positive messaging about wetlands and wetland dependent Native Species to increase public awareness, knowledge, and connectedness.
2. Develop targeted messaging to inform the public about wetland stressors and management alternatives to address them.
3. Increase water quality education efforts in areas that are highly developed, under high development pressure, or within fragile geographic zones (i.e., karst terrain).

Research Strategy

1. Fill information gaps and develop conservation actions to address stresses.
2. Support and conduct research to gain a greater understanding of wetland ecology and wetland-dependent wildlife.

Focal Monitoring Species for Developed Lands

1. Diversity of wetland dependent birds
2. Amphibian Diversity
3. Odonata Diversity
4. Wood Duck (*Aix sponsa*)

Focus Areas for Developed Lands

1. Wetlands adjacent to publicly owned artificial impoundments used primarily for recreation
2. Wetlands associated with Detention and Retention Basins
3. Rain Gardens on Illinois State Parks and other facilities

Monitoring the Effectiveness of Landscape Stewardship Actions and Species Management Actions

There are ongoing survey efforts directed toward Native Species associated with this Campaign (e.g., [Spring Bird Count](#), [Waterfowl aerial inventories](#), [Illinois Odonate Survey](#), [Plants of Concern](#)). We expect these efforts to continue to inform our assessments of the conservation status of Illinois' Native Species. However many Native Species remain undersurveyed in Illinois and directed research projects will be required to assess the effectiveness of our conservation actions on their populations. This could include establishing additional monitoring programs for Dragonflies and Damselflies, Secretive Marsh Birds, or Amphibians and Reptiles to assess our conservation efforts in wetlands.

The Illinois Natural Areas Inventory (INAI) Standards & Guidelines will provide a standard monitoring methodology for determining the quality of wetland Natural Communities in Illinois. While the INAI is maintained to acknowledge natural heritage features of statewide significance the evaluation and grading process is designed to assess Natural Community Types of all qualities.

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