



LOWER CHIPPEWA RIVER PROPERTIES MASTER PLAN

State Wildlife Areas

- Tiffany
- Dunnville
- Big Swamp
- Rock Falls

Extensive Wildlife Habitat Area

- Waterville

State Natural Areas

- Lower Chippewa River
- Caryville Savanna
- Nine Mile Island

Wisconsin Department of Natural Resources
Bureau of Wildlife Management, Bureau of Endangered Resources

FEBRUARY 2010

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**Cover photo by Kris Johansen
"View of the Chippewa River floodplain from Five-Mile Bluff"**

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The Chippewa River by Dunnaville Wildlife Area. Photo by Armund Bartz.

All Department of Natural Resources properties are required to be covered by a Master Plan describing the scope, purpose and management of the project. This Master Plan complies with Wisconsin Administrative Code, NR 44 - Master Planning for Department Properties.

CHAPTER ONE

INTRODUCTION AND PLAN OVERVIEW

The Lower Chippewa River Properties (LCRP) Master Plan includes a grouping of four Wildlife Areas, three State Natural Areas, and one tract of extensive wildlife habitat land in the Lower Chippewa River area. All of these properties have similarities in cover type, management and use. The properties covered by this plan are listed below and are shown on Map A.

- Tiffany Wildlife Area
- Dunnville Wildlife Area
- Big Swamp Wildlife Area
- Rock Falls Wildlife Area
- Caryville Savanna State Natural Area
- Nine Mile Island State Natural Area
- Lower Chippewa River State Natural Area
- Waterville Extensive Wildlife Habitat Area*

* *The Extensive Wildlife Habitat Program (when active), allowed the acquisition of scattered wildlife lands without the establishment of a project boundary.*

The Lower Chippewa River State Natural Area, a landscape-scale project boundary encompasses all the other properties, essentially there are eight smaller projects within a larger project. The Lower Chippewa River State Natural Area project was designed to complement the existing properties and other state ownership in the area by acquiring and protecting additional key tracts of land with state natural area value. Each property of the plan group retains their own boundaries and acreage goals.

Purpose of the Properties and Management Authority

The scope of use and management of a state property is governed by its official designation. The Lower Chippewa River Properties is an assemblage of properties designated as Wildlife Areas and State Natural Areas. Wildlife Areas are acquired and managed under the authority of Sec. 23.09 (2) (d) 3 Wis. Statutes and Administrative Code NR 1.51. Wildlife Areas are set aside to provide habitat for wildlife and a place where people can hunt, trap, and fish. Wildlife areas are also open for traditional outdoor uses of walking, skiing, snow shoeing, nature study, berry picking, etc. As directed by NR 1.51 and NR 1.61, other recreational uses may be allowed by the property's Master Plan if those uses do not detract from the primary purpose of the property.

The use of funding from the Federal Aid in Wildlife Restoration Act (also known as the Pittman-Robertson Act, authorizing an excise tax on sporting arms and ammunition) to acquire, develop or manage Wildlife Areas comes with guidance to state fish and wildlife agencies based on the authorizing legislation. The statutes and applicable regulations prohibit a state fish and wildlife agency from allowing recreational activities and related facilities that would interfere with the purpose for which the State acquired, developed, or is managing the land.

Natural Areas are defined and authorized in State Statute 23.27-23.29 and Administrative Code NR 1.32 as “an area of land or water which has educational or scientific value or is important as a reservoir of the state’s genetic or biological diversity and includes any buffer area necessary to protect the area’s natural value”. Section 23.27 (1) defines natural areas as "reserves for native biotic communities...habitat[s] for endangered, threatened, or critical species...or areas with highly significant geological or archaeological features". Section 23.28(1) provides authority to designate areas as State Natural Areas and Section 23.29 provides authority to legally dedicate and protect State Natural Areas in perpetuity.

While the intent of the State Natural Areas program is to preserve the best examples of the state’s diverse natural communities, other recreational uses may be allowed if those uses do not threaten those natural values.

Significance of the Lower Chippewa River Properties

The subject assemblage of Wildlife and Natural Areas has outstanding biological diversity and ecological significance. The combination of prairie/woodland, extensive floodplain/steep slopes and large river systems/backwaters in this part of the state and on the subject properties creates outstanding richness in species composition and numbers. The Lower Chippewa River State Natural Area was initiated in recognition of this ecological significance, to compliment the existing state projects and help fill in the ecological gaps in the surrounding landscape.

There are 125 known rare (endangered, threatened or special concern) species within the area (more than any other location of comparable size in Wisconsin). Of 37 native communities identified in the Wildlife Acton Plan as having a major or significant association with the Western Coulee and Ridges ecological unit, 15 were identified in the plan area. There are 87 vertebrate Species of Greatest Conservation need that are significantly or moderately associated with these 15 native communities with 41 of these currently documented on the subject properties. These Native Communities and Species of Greatest Conservation Need are documented in Appendix B. Resources present include native communities and species that are globally imperiled.

The planning area contains most of the free flowing portions of the Lower Chippewa and Lower Red Cedar Rivers and adjacent lands. This ecologically rich area contains the largest floodplain forest in the upper Midwest and 25% of the remaining remnant prairie in Wisconsin. These rivers contain 70% of the fish species present in Wisconsin (including 18 rare species). The subject planning area is also included in one of North America’s major bird migration routes, the Mississippi River Flyway, and has great importance for migrant waterfowl, songbirds and raptors both as spring and fall stopover areas. These state wildlife and natural areas provide significant benefits for both game and non-game wildlife species.

For public recreation, these properties have high value for a variety of hunting, trapping, fishing, bird watching and other compatible uses. All the properties are open to public hunting; it is by far the most common recreational use. This is true of both the Wildlife Areas and Natural Areas. These properties contribute greatly to the outdoor recreational opportunities, scenic/rural character and quality of life to those living in and visiting the surrounding area.

Plan Overview

In general, the management on properties included in this plan continues and reinforces the management direction of the previous property plans. As is true with most Natural Area and Wildlife Area properties, these properties have very light development. Under this plan that will also remain unchanged. The only noteworthy infrastructure addition is a management access road into the central portion of Tiffany WA. The most significant changes resulting from this 2010 master plan revision are the establishment of the Rock Falls Wildlife Area (by re-designation of the Rock Falls Extensive Habitat Area), and boundary expansions on three properties (Big Swamp – 1,857 acres, Tiffany – 305 acres, and Rock Falls - 1,648 acres). If the lands within the boundary expansions are acquired, it would increase ecological function of the properties, connect existing publicly owned lands, and provide for more easily defined boundaries with road access.

CHAPTER TWO

MANAGEMENT, DEVELOPMENT, AND USE

This chapter is organized into two main parts; Section One covers universal plan elements which apply to all the properties in the plan group. Section Two focuses on the individual properties – a property description followed by management objectives and prescriptions unique to that property.

SECTION ONE: UNIVERSAL ELEMENTS FOR ALL PROPERTIES

Vision

The Lower Chippewa River State Wildlife Areas and Natural Areas are tracts of land linked and managed to protect and enhance the many common and rare native communities and associated wildlife present in this area. This assemblage of properties is central to the culture and character of the surrounding area for aesthetics, outdoor recreation and ecological values.

Goals

Management goals to meet the vision for this group of properties are:

- Protect and enhance habitat for native wildlife species.
- Protect and enhance rare, high quality, natural communities and associated rare species of statewide significance, including floodplain forest, floodplain savanna, oak savanna and remnant prairie.
- Preserve and enhance the large river systems and their associated biological diversity and recreational opportunities through the use of appropriate management practices.
- Maintain traditional outdoor recreational uses (hunting/trapping) while encouraging other compatible recreational use.

Land Management Classifications

Management of these properties is described through a specific land management classification per NR44. All lands covered under this plan fall into two land management classifications, native community management area and habitat management area.

Native Community Management Areas are managed to represent, restore and perpetuate native plant and animal communities, whether upland, wetland or aquatic, and other aspects of native biological diversity.

Habitat Management Areas are managed to provide or enhance habitat, whether upland, wetland or aquatic, to support specific species of plants and animals.

Tiffany, Dunnville and Big Swamp WAs contain both Native Community Management Areas and Habitat Management Areas. All remaining Wildlife Area lands are classed as Habitat Management Area. The total acreage of these management areas by property is shown in Table 3-1, and their location is shown on Map series G (2009 state ownership). The acreage totals by property may vary from the actual property acreage due to the inclusion of other imbedded state lands such as trails.

Table 3-1: Land Management Classifications of the Lower Chippewa River Properties*

Property	Native Community Management Area Acres	Habitat Management Area Acres
Lower Chippewa River SNA	429 acres	1,305 acres
Nine Mile Island SNA	1,299 acres	279 acres
Caryville Savanna SNA	412 acres	0 acres
Tiffany WA	12,389 acres	759 acres
Dunnville WA	1,795 acres	2,748 acres
Big Swamp WA	354 acres	441 acres
Rock Falls WA	0 acres	268 acres
Waterville Ex. Hab. Lands	0 acres	316 acres

* Reflects state ownership in 2009

Resource Management and Protection

The following general management objectives apply, as appropriate to the site, to all the properties covered under this plan. While these management objectives are expected to remain relatively constant, some modifications in management should be expected as the knowledge base expands. As an example, new technology has made bat inventory work much more efficient. Future bat inventory work could reveal the presence of species that would benefit by incorporating minor management modifications.

Property-specific management objectives and prescriptions are included later in this chapter in the individual property sections.

GENERAL RESOURCE MANAGEMENT PRINCIPLES

The following land management principles are statements of general land management philosophy or intent for the Lower Chippewa River properties. They provide a framework for the property-specific management provisions contained in this chapter.

- Where possible, manage for larger blocks of habitat and a continuum of habitats from lowland to upland. Also, establish and maintain linkages between habitat blocks to create travel corridors for the movement of species over time.

- Maintain, restore, and enhance grasslands and oak savannas at a landscape scale with an emphasis on native communities to benefit common species such as white-tailed deer, Wild Turkeys, Blue-winged Teal, Mallard and uncommon species such as Henslow's Sparrow, Lark Sparrow, Brown Thrasher, Bell's Vireo and Yellow-billed Cuckoo.
- Maintain and enhance the quality and extent of open wetlands, with particular emphasis placed on wet and wet-mesic prairie, sedge meadow, emergent marsh for the benefit of common species such as Mallard, Blue-winged Teal, Wood Duck, beaver, muskrat, otter, raccoon and uncommon species such as King Rail, American Bittern, Least Bittern, Black Tern, and Willow Flycatcher. Maintain existing shrub-carr wetland in areas that do not have high potential for management as sedge meadow, wet prairie, or wet mesic prairie.
- Maintain the extent and quality of bottomland hardwood, swamp hardwood stands, and southern tamarack swamp to benefit common species such as Wood Duck, raccoon, white-tailed deer, Wild Turkey, beaver and uncommon species such as Red-shouldered Hawk, Cerulean Warbler and Kentucky Warbler.
- Maintain the health, vigor and diversity of central hardwood stands to provide wildlife habitat and aesthetic values.
- For wildlife habitat value, maintain, enhance, and expand oak stands and retain aspen stands wherever practicable and consistent with management objectives for the management area to benefit common wildlife species such as Ruffed Grouse, American Woodcock, white-tailed deer and uncommon species such as Blue-winged Warbler, Black-billed Cuckoo and Bell's Vireo.
- Maintain the limited native jack and white pine cover type on these properties.
- Gradually phase out conifer plantations over time.
- Convert most cropped land to native cover types.
- Where feasible, identify and eradicate populations of invasive species by cutting, pulling, burning, herbicide treatment and/or bio-control. Invasive species of particular concern currently include common and glossy buckthorn, exotic bush honeysuckles, garlic mustard, reed canary grass, and purple loosestrife.

The Value of Larger Blocks of Habitat

Gone are the extensive prairies, savannas, wetlands, and larger patches of forest that dotted this landscape prior to European settlement. Today, all types of remaining native habitats, but especially grasslands/prairies and upland forests, are severely fragmented, having been broken in small patches by agriculture, highways, and urban and rural development. In general, the wildlife benefits of a particular habitat type increase as patch size increases. Although it is not well known what the minimum area required for maintaining viable populations of many species of grassland nesting birds, it is largely accepted that the larger a contiguous grassland is, the more benefits it provides to these species. Similarly, larger blocks of forested habitat provide higher quality habitat for interior-forest bird species. In addition to the wildlife habitat benefits associated with large blocks of habitat, the ease and efficiency of management increases as patch size increases.

General Recreation Management and Use Objectives and Prescriptions

All state wildlife areas and state natural areas in the LCRP are open to traditional outdoor recreational uses including hunting, fishing, trapping, walking, nature study, and berry picking except for the beaver/otter closed area on Tiffany WA. The uses accommodated and encouraged meet the requirements of the Stewardship reauthorization law (hunting, trapping, fishing, hiking and cross country skiing).

A substantial percentage of these properties are wetlands, islands or are bordered or bisected by the Chippewa River. This limits access and recreational uses. Most of these properties are a considerable distance from population centers which often makes them a destination for hunters/trappers looking for a more secluded experience, but less so for those looking for a walk or casual wildlife watching.

The Lower Chippewa River from Eau Claire to the Mississippi is one of the longest stretches of free flowing river in Wisconsin (over 60 miles). As such, it is a fairly popular canoe route. Canoe camping occurs regularly but is currently legally allowed only by permit on state lands at Tiffany WA. The Lower Wisconsin Riverway has allowed canoe camping on sandbars and islands for many years without creating significant management problems. A code change to allow sandbar camping on LCR Properties will be pursued.

RECREATIONAL USE OBJECTIVES FOR ALL PROPERTIES:

- Provide high quality hunting, trapping, and fishing opportunities.
- Provide opportunities for non-hunting related recreational activities, such as hiking, untracked cross country skiing, wildlife viewing, nature study, berry picking, canoeing, and canoe/camping when compatible with the property's capabilities and the primary management objective.

RECREATION MANAGEMENT PRESCRIPTIONS FOR ALL PROPERTIES:

- Limit public motor vehicle access to designated parking lots and their access roads. Department management roads may be gated or otherwise closed to public access at the discretion of the property manager.
- Bicycle, all motor vehicle, and horse use is prohibited on the properties. Snowmobile trails may be allowed at the discretion of the property manager on Wildlife Area lands if part of a regional trail system. Snowmobile trails are not allowed on SNA lands with the possible exception of those that are in place at the time of acquisition.
- Initiate a change in administrative code to allow camping on state-owned sandbars from the County Road 'H' bridge to the confluence of the Mississippi River. A small section from the mouth of the Red Cedar River to Dunnville Road will be excluded to reduce overuse, sanitation and safety concerns.

Unique, property-specific management and developments are detailed in the individual property-sections of this chapter.

General Administration Management Policies and Provisions

The following section describes general property administration and management policies and provisions that apply to all state managed lands of the LCRP.

FUNDING CONSTRAINTS

Implementation of the master plan is dependent upon staffing and funding allocations that are set by a process outside of the master plan. Operational funding for the Department is established by the state legislature. Development projects also follow an administrative funding and approval process outside of the master plan. Many of the initiatives contained within the plan are dependent upon additional funding and staffing support. Therefore, a number of legislative and administrative processes outside of the master plan will determine the rate this master plan will be implemented.

FACILITY MANAGEMENT AUTHORITY

The property manager may relocate or temporarily close road and trail segments or other public use facilities as deemed necessary after appropriate authorization by normal Department approval processes. The new road and trail location and design must be consistent with the land classification requirements (NR 44) and the management objectives for the management area in which it is located

PUBLIC HEALTH AND SAFETY

All facilities will comply with federal, state, and local health and sanitation codes. The property manager has the authority to close trails and other facilities on the property when necessary due to health, safety, or environmental damage concerns. In designated public use areas such as parking lots and designated trails, trees or other natural elements that are deemed public hazards will be removed. Safety inspections are done at least twice per year.

REFUSE MANAGEMENT

Visitors are required to carry out any refuse they bring in because no designated refuse or recycling receptacles are available. Burying of refuse is not allowed anywhere on the property.

ROAD MANAGEMENT PLAN AND PUBLIC VEHICLE ACCESS POLICY

The wildlife areas have a network of primitive, lightly and moderately developed roads that are used for management purposes and public access. Except for roads that lead to public parking lots or boat access sites all roads are closed to public vehicle access. Closed roads are gated or signed.

All Department maintained service roads that are not open to public vehicles will be maintained as primitive or lightly developed roads [NR 44.07(3)]. On primitive roads, which are seasonal and not regularly maintained, ruts and downed trees may be present. Maintenance is done on primitive roads as needed. Public access roads managed by the Department shall be constructed and maintained as either lightly developed or moderately developed roads. The property manager may determine which of these road standards to apply on a case by case basis.

The following management prescriptions apply to Department managed roads:

- Maintain permanent service roads and public access roads in a sustainable condition according to Wisconsin Forestry’s Best Management Practices for Water Quality.
- Regularly inspect active roads, especially after heavy storm events. Clear debris as needed from the road surfaces, culverts and ditches to decrease unsafe conditions and prevent damage.
- Maintain stable road surfaces to facilitate proper drainage and reduce degradation from traffic during wet or soft conditions; or close the road when these conditions exist.
- Monitor soil disturbance and take measures to prevent excessive damage.
- Restore roads used in timber harvests to non-erosive conditions, in accordance with Wisconsin Forestry’s Best Management Practices for Water Quality.

DISABLED ACCESSIBILITY

All new construction and renovation of infrastructure will follow guidelines set forth within the Americans with Disabilities Act and also be done in a manner consistent with NR 44 standards of the land use classification of the site where the development is located.

The property manager has the authority to make reasonable accommodations, including motorized vehicle access, for people with disabilities, consistent with the requirements of the area’s land use classification.

ENDANGERED, THREATENED AND SPECIES OF SPECIAL CONCERN PROTECTION

Implementation of all management prescriptions in the master plan will be carried out with consideration of the needs of endangered, threatened, and species of special concern and the potential impacts to the species and their habitat. Management actions planned during plan implementation will be checked against a database of listed species to assure that no department actions results in the direct taking of any known endangered or threatened resource.

BEST MANAGEMENT PRACTICES FOR WATER QUALITY

All forest management activities will comply with the most recent version of the guidelines in the Wisconsin Forestry’s Best Management Practices for Water Quality (BMPs).

PEST CONTROL

Wisconsin Statute 26.30 states; “It is the public policy of the state to control forest pests on or threatening forests of the state...” Any significant forest pest events will be evaluated with consideration given to the property management goals and the potential threat of the pest to other landowners. Infestations of the non-native gypsy moth caterpillar will be managed according to the Forest’s Gypsy Moth Management Plan. Responses to significant infestations from other forest pests may include timber salvage or pesticide treatments. Any response to a significant pest outbreak will be evaluated by an interdisciplinary team of scientists and communicated through press releases and notices to interested parties.

CONTROL OF INVASIVE SPECIES

Invasive plants will be controlled using appropriate and effective methods, including but not limited to the use of bio-control, herbicides, cutting, hand removal, fire or bio-control. Control methods may be restricted in certain sensitive management areas.

CHEMICAL USE

Herbicides and pesticides may be used for various purposes such as the control of invasive plants or to control plant competition in vegetation regeneration areas and insect control except as restricted in the management prescriptions in this master plan. All department procedures and herbicide and pesticides label requirements will be followed.

PRESCRIBED FIRE

Prescribed fire may be used as a management tool where feasible and safe except when restricted by management area prescription. It may be used to help regenerate forest cover types such as oak types. It may also be used to create and maintain grassland/prairie habitat, wildlife habitat, to reduce fuels to lessen fire hazard and to control undesirable vegetation.

FIRE SUPPRESSION

As stated in Wisconsin Statutes 26.11, “The Department is vested with power, authority and jurisdiction in all matters relating to the prevention, detection and suppression of forest fires outside the limits of incorporated villages and cities in the state except as provided in sub (2), and to do all things necessary in the exercise of such power, authority and jurisdiction.” Forest fire suppression actions will consider the property management goals and the threats of the fire to life and property. Appropriate techniques will be used in each event to provide effective fire suppression while minimizing resource damage.

AUTHORIZED RESPONSE TO CATASTROPHIC EVENTS

Wildfires, timber diseases and insect infestations shall be controlled to the degree appropriate to protect the values of each management area. Necessary emergency actions may be taken to protect public health and safety. Appropriate management responses to catastrophic events are determined on a case-by-case basis, and action will be taken as appropriate.

NON-METALLIC MINING POLICY

The Department may use gravel, sand, fill dirt or other fill material from department-owned lands for Department use. Under certain circumstances other government bodies or agencies may also have access to these materials. Section 23.20 of the Wisconsin Statutes states, “the department may permit any town, county, or state agency to obtain gravel, sand, fill dirt or other fill material needed for road purposes from any department-owned gravel pit or similar facility if this material is unavailable from private vendors within a reasonable distance of the worksite. The department shall charge a fee for this material commensurate with the fee charged by private vendors.”

Nonmetallic mining is regulated under the requirements of NR 135 Nonmetallic Mining Reclamation, Wis. Adm. Code, except for sites that do not exceed one acre in total for the life of the mining operation. Site reclamation under NR 135 is administered by the county. NR 135 requires mining sites to be located appropriately, operated in a sound environmental manner, and that all disturbed areas be reclaimed according to a reclamation plan. Department of Transportation (DOT) projects are exempt because DOT projects have their own reclamation requirements. New sites will not be considered where they would impact geological or ecological features of significance or within any designated State Natural Area.

Real Estate Management

ACQUISITION POLICIES

It is the policy of the Natural Resources Board and the DNR to acquire lands from willing sellers only. As required by state and federal laws, the Department pays just compensation for property, which is the estimated market value based on an appraisal. At times, it is in the interest of the Department and the landowner for the Department to acquire only part of the rights to a property, or an easement. The Department has a number of easement options available to address these situations.

Staff may periodically contact landowners within the property boundary to explain the Department's land acquisition program and to see if they have an interest in selling their property. Acquisition priorities for the properties vary from year to year and are based on a number of factors, such as resource management or recreation needs and available funding, which may be from a variety of sources.

AIDES IN LIEU OF TAXES

For all State properties purchased after 1992, the Department makes an annual payment in lieu of property taxes to replace property taxes that would have been paid if the property had remained in private ownership. More detailed information on how the Department pays property taxes may be found in a publication titled, Public Land Property Taxes, PUB-LF-001 and can also be found at: <http://dnr.wi.gov/org/land/facilities/realestate/pilt.html>.

FUTURE BOUNDARY ADJUSTMENT PROCESS

From time to time adjustments in property boundaries are needed. In some cases parcels of land are removed from the boundary to allow alternative, necessary public uses by local governments. In other cases it may be desirable to add small parcels adjacent to the property so they can be purchased for resource protection or to meet expanding recreational needs. Property boundary changes of 40 acres or more require approval by the Natural Resources Board. Wisconsin Administrative Code Ch. NR 44 provides a plan amendment process that may be used to make adjustments in the property boundary.

Like all large river systems, the Lower Chippewa River is dynamic. River frontage is constantly shifting with lands being created by gradual river movement (reliction) and deposition (accretion) and removed by river movement and erosion .

Lands added by reliction and accretions are typically considered to be legally added to adjacent ownership. Assignment of acreages along a river, however, can be complex and is covered by statute and legal precedent.

EASEMENTS, ACCESS PERMITS, AND LAND USE AGREEMENTS

Easements provide access across state property for utilities, town roads, or county highways. Easements are permanent and will continue to be upheld under the master plan. Access Permits provide access across state property to private ownership within the property boundary. Land use agreements provide for a variety of uses on a Department property, such as snowmobile trails.

Public Communications Plan

The public and other governments may be provided opportunities to have on-going involvement in the implementation of this master plan. This communication plan describes how the public will be periodically informed about activities and developing issues on the LCRP, and it provides information on how the public will be notified of opportunities for involvement when significant, new issues related to management of these properties arise. Annually the Department will issue a report that summarizes the following:

- For the past year, the primary management and development activities that were completed and other significant issues that were addressed.
- For the up-coming year, outline any planned management and development activities and any changing management actions or approaches.

The annual report may also include other information of interest to the public on various topics related to management and use of the properties. Some of the additional types of information that may be included from time to time are: the status of forest insect or disease problems, storm damage, new information on endangered or threatened species, recreational management problems or new opportunities, and recreational use changes or trends. The annual report will be available on the WDNR Internet Web site.

In the event the Department considers a change to the master plan (plan variance or amendment) the public will be informed of the proposal and the review and comment process. As appropriate, news releases will be used to announce master plan amendment/variance proposals and review procedures. The Department will also maintain a contact list of persons, groups, and governments who have requested to be notified of potential plan changes.

WDNR CONTACT PERSONS

The following Department staff may be contacted regarding questions about the LCRP or the master plan. At the time of this publication, the contact information is:

General LCRP or State Wildlife Area Questions

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Tiffany and Big Swamp State Wildlife Areas; Lower Chippewa State Natural Area (Buffalo County)

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SECTION TWO: INDIVIDUAL PROPERTY PLANS

The first part of Section Two section provides a description of each property of the LCRP as well as the management and development specific to each property. The management prescriptions by habitat type, that have application to all properties, follows at the end of Section Two.

Lower Chippewa River State Natural Area (LCR SNA)

State ownership (2009): 1,852 acres (includes 56 acre easement)

Project boundary: approximately 312,000 acres

Acquisition authority: 15,470 acres

PROPERTY DESCRIPTION

This State Natural Area was established in 2000 in recognition of the fact that the area contains more rare species than any other location of comparable size in the state. The project was designed on a landscape scale to allow targeted acquisition and long-term protection of the habitats required to maintain this diversity. Project establishment had strong support from other resource management agencies/groups and the public. (See Map A.)

State Natural Area acquisition targets the Chippewa and Red Cedar River corridors and hillside prairies/savannas on the interior of the LCR SNA. The existing wildlife and natural area properties lying within this large project area continue as independent projects and retain their own acquisition boundaries and authority. This landscape scale State Natural Area is intended to expand on and complement what is protected within these existing projects. All the other LCRP properties lie within the LCR SNA boundary.

As of 2009, 1,852 acres of the 15,000 acre acquisition goal have been acquired. Criteria for future acquisitions within the LCR SNA are discussed later in this section.

This project acquisition boundary contains 25% of the remaining native grassland in Wisconsin. Most of this remnant prairie is located on south facing slopes (hillside prairie). Remnant prairie is a focus of future acquisition. A growing number of private landowners have become aware of the importance of these sites and voluntarily maintain them with periodic brushing and fire.

The other focus of acquisition/management is the large river corridors. Most of the State Natural Area land acquired to date is scattered tracts in the floodplain along the Chippewa and Red Cedar Rivers. Active management has included restoration of prairie, savanna or floodplain forest on former crop fields. A large (48.5 acre), shallow, backwater lake (Wilcox Lake) was acquired as part of a larger property bordering the Chippewa River just upstream from Tiffany WA in Pepin County. The lake is maintained in a natural condition and provides excellent waterfowl habitat and hunting.

The focus on maintaining, restoring and connecting blocks of floodplain forest and the gradient from lowlands to uplands will increase and improve breeding habitat for a large number of area-sensitive, rare and Species of Greatest Conservation Need (SGCN) birds and other wildlife. Opportunities to manage large blocks of land with a continuum of habitats from lowland to upland are rare statewide but are available in this project. Protection of the large river corridors also provides important avenues of travel for many species. The Lower Chippewa River floodplain forest is considered the largest floodplain forest in the upper Midwest.

Hunting, fishing, and trapping are the most common recreational pursuits on these lands. Additionally, users of the Chippewa/Red Cedar State Bike trails and the Chippewa/Red Cedar Rivers benefit from protection of the natural landscape in the area. Eight small gravel parking lots provide public access points. No developments are planned other than adding parking as needed to serve future acquisitions. The closure of a town road (Fuller Road, Eau Claire County) will be considered if additional acquisition makes it feasible.

The Lower Chippewa and Red Cedar Rivers themselves also provide habitat for 70% of the state's fish species including 18 rare species. Both rivers also contain diverse invertebrate communities including 20 rare species (all mussels, dragonflies or mayflies). The protection and management of current and future land holdings (especially those fronting on the rivers) will serve to help protect/preserve these large river resources.

LAND USE CLASSIFICATION

All currently owned lands are classified as Native Community Area, except lands upstream from Caryville Savanna which are classed Habitat Management Areas. (See Maps G-1, 2, 3.) Future land purchases will be given one or the other of these two land use classifications based on the land's resource values and management potential.

The following objectives and prescriptions apply to both the Native Community Management and Habitat Management Areas on this property. The Native Community Management Areas contain the higher quality natural communities.

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Maintain the floodplain forest, floodplain savanna and prairie habitat for rare and special concern species and to provide opportunities for research, education, and ecological interpretation. Keep block size as large as possible.
- Restore agricultural lands to floodplain forest, savanna, prairie, or wetlands as soil type, elevation, surrounding cover-type, current conditions and historical records indicate.
- Protect the Chippewa and Red Cedar Rivers.
- Maintain a continuum of habitats from lowland to upland wherever possible.
- Maintain the river corridor as an important travel corridor for various species.
- Control invasive species.
- Continue to acquire lands to reach the acreage goal.

Management Prescriptions:

- Follow the general management guidance found in the bottomland hardwood chapter of the DNR's Old Growth Forest Handbook.
- Restore floodplain forest by planting of seedlings of appropriate species (silver maple, river birch, hackberry, swamp white oak, and basswood). The threat of emerald ash borer will effect decisions made regarding the planting of ash species.
- Reconstruct and enhance prairie/savanna by planting native species, prescribed burning, and cutting/herbicide treatment for woody plants.
- Follow DNR Grassland/Savanna Protocol to minimize impact on sensitive species.
- Adhere to Wisconsin Forestry's Best Management Practices for Water Quality (BMPs).
- Convert agricultural lands in the floodplain to appropriate natural cover-type as soon as practical.
- Restore the portion of the Lower Chippewa River State Natural Area near Round Hill and Wilcox Lake to the highest SNA standards found in Appendix C.

Table 3-2: Lower Chippewa River State Natural Area; current and desired future cover types for existing state property (See Maps D-1, 2, 3.)

Cover Type	Current		Predicted 50 year	
	Acres	% Cover	Acreage Objective	Future % Cover
Agriculture	106	6%	0	0%
Bottomland Hardwood	715	40%	715	40%
Grass/Herb. Veg/Upland Brush	564	31%	670	37%
Emergent Wetland	84	5%	84	5%
Lowland Brush	13	1%	13	1%
Oak	100	6%	100	6%
Open Water	76	4%	76	4%
Upland Conifer	6	0%	6	0%
Upland Hardwood	132	7%	132	7%
Total	1,796	100%	1,796	100%

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescriptions support the general public use objectives presented in Universal Plan Section at the beginning of this chapter.

Management Prescriptions

- Maintain 6 parking areas. (See Maps E-1, 2, 3.)
- Develop parking areas on new acquisitions as needed.
- Maintain primitive service roads.
- Consider partial closure of Fuller road (1010th street) as lands are acquired.

LOWER CHIPPEWA RIVER STATE NATURAL AREA (LCR SNA) ACQUISITION FOCUS

The LCR SNA project boundary is approximately 312,000 with total acquisition authority for 15,000 acres. The immediate river corridor and specific hillside prairie areas have been identified as high priorities to focus acquisition efforts. The LCR SNA project boundary and the acquisition focus area is shown on Map H. The following criteria are also applied to determine acquisition priorities:

1. The site must have a biological assessment completed to determine natural quality, natural community diversity, species composition, degree of human caused disturbance, threat and rarity.
2. Only highly rated natural communities or extremely rare communities of lower quality will be considered for acquisition or easement (prairies or savannas should be five acres or more in size or have the potential to reach that minimum size through management).
3. Parcels that contain known rare species populations, or are adjacent to such a population, and can be readily restored to acceptable habitat that can enhance the survival of the rare species.
4. Acquisition may include lands that contribute significantly to securing a travel corridor to benefit rare and common species.

An important tract within the focus area is the undeveloped "Tyrone" power plant site owned by Xcel Energy. This 4,000 acre property lying across the Chippewa River from Dunnville WA is similar in land-cover and habitat types to the Dunnville WA and it harbors many high-value natural communities and rare species. Should this property become available, its acquisition is a high Department priority.

Tiffany Wildlife Area

State ownership (2009): 13,118 acres

Project boundary: 15,955 acres

Acquisition authority: 15,955 acres

PROPERTY DESCRIPTION

The Tiffany Wildlife Area (Tiffany WA) is a large block of public land stretching approximately 13 miles along the Lower Chippewa River, just upstream from its confluence with the Mississippi River. The property is long and narrow being approximately 2.5 miles wide at its widest point. Because the Chippewa River forms the boundary between Pepin and Buffalo Counties, the wildlife area is split between these two counties, with most of the property being on the Buffalo County, or east side of the river. East of the river the property is primarily floodplain forest. On the west side, the Pepin County portion, the topography rises steeply from the river and is mostly steep upland forest. (See Map A.)

The lower 12 miles of the Chippewa River, through what is now the Tiffany WA, was an important staging area during the logging era of the late 1800's. Logs were stockpiled and made into rafts for movement to mills down the Mississippi. Since the late 1800's much of the Tiffany WA land was farmed, grazed and/or used for wood cutting. Intensive logging occurred from the 1920's to the 1940's; most of the timber down to a 6" diameter was harvested.

During the 1940's much of the land was tied up in leases for hunting and trapping that essentially excluded use by local hunters and trappers. The Nelson, Durand and Pepin Sportsmen's Clubs petitioned the Conservation Commission to establish a public hunting and fishing area on the Lower Chippewa River, and the Tiffany WA was established in 1946. The property is named for a lumberman with the largest landholdings in the area at the time, H. O. Tiffany.

Changes Over Time

An interesting side note is that a 2005 report (Faulkner and Weiher 2005) used aerial photographs to determine the hydrographic and vegetation change in the Tiffany Bottoms area from 1939 to 2001. This report concluded that open water within the Tiffany Bottoms area has been increasing since 1950 and that the cause of this may be changes in land use and land cover on surrounding agricultural land. The report also concluded that the vegetation cover has changed and will continue to change. Based on analysis done on aerial photographs, forest and woodland cover have increased and savanna, prairie/open, and marsh cover have decreased. Hydrographic conditions and vegetation changes did not have a clear relationship, thus, the report concludes, changes in vegetation are more likely the result of succession patterns and management.

Tiffany WA has extensive water resources, between the Chippewa River and numerous sloughs, ponds and backwaters. The following description is taken directly from the 1980 Master Plan:

“This tributary to the Mississippi River flows generally in a southwesterly direction. The water is clear, medium hard and alkaline. Sand is the main bottom type followed in abundance by gravel, rubble, bedrock and silt. There are 26.78 miles of public frontage along the Chippewa with 19.83 miles in Buffalo County and 6.93 miles in Pepin County. The Wildlife Area provides for all but 3.04 miles of this frontage. There are many flowing sloughs running through the bottomland. The largest sloughs are Dark, Battle and Beef Sloughs. Most waters within the property are dependent on the water level in the Chippewa River. Spring runoff and heavy rains force the Chippewa River out of its banks resulting in replenishment of water to beaver flowages, potholes and dead sloughs.

Beef Slough bisects the area from the north to Fox Coulee Landing. At Fox Coulee Landing, Dark Slough branches west off Beef Slough then flows west to the center of the area, then south across Highway 35. Beef Slough then flows south from Fox Coulee and branches to form Stump Slough and Beef Slough. Beef Slough, beyond this point, only carries water during high water periods. Stump Slough flows south and joins Dark Slough just above Highway 35. Dark Slough, Stump Slough and the northern portion of Beef Slough are the only sloughs that flow year around, thus, the majority of water based recreation is concentrated in and along these sloughs.”

An 8,000 acre closed area for beaver/otter trapping has been maintained on the Tiffany WA since 1956. The closed area was established in recognition of the fact that beaver are a very important habitat altering furbearer species that can have very positive impacts on other wetland dependent plants and animals. Due to soil porosity, annual flooding and the very flat topography of the floodplain forest, creating permanent man made impoundments and flowages is not cost effective, or in some cases, even feasible. In the past on two different occasions, consideration was given by the Department to open the area to regulated trapping. This proposal was met with much opposition by the same local rod and gun clubs that originally petitioned the State of Wisconsin to purchase the property. In consideration of the past local support of the closed area, and because the closed area serves as such an important tool to maintain the diverse system of wetland plants and animals, this area remains closed to beaver and otter trapping.

Although complete recreational survey data is not available, it is clear that hunting is by far the most common form of recreation on Tiffany WA (estimated at 80% of use). Waterfowl and deer hunting can produce crowding due to the somewhat limited access, but the property is large enough that those wanting a more solitary hunting experience can usually find it if they are willing to walk.

Primitive camping is allowed by permit on the Tiffany WA. Most camping takes place along the Chippewa River or at points along the Beef Slough. Camping is not permitted at or within sight of parking areas or boat landings. A maximum of 15 groups are allowed to camp in the WMA at one time. Permits are issued free on a first come, first served basis. No permanent campsites are established and no maintenance has been required. On average, 35 permits/year are issued with the highest number during the gun deer season.

Camping by canoeists on the sandbars along the Chippewa is also common and is usually done without permit. Canoeing on the river is often primarily for the enjoyment while boating is usually associated with the specific purpose of hunting or fishing. Commonly, water levels are too unpredictable for pleasure power boating.

A rough service road is maintained that runs the entire length of the property parallel to and near the Chippewa River. The road is open to use by hunters, hikers, birders, skiers or anyone that chooses to walk in for recreational purposes. The service road is 16 miles total. There are 16 gravel parking lots at access points on the periphery of Tiffany WA. There are four access points that serve as parking areas as well as boat launch sites for small watercraft. The property is often accessed from the Chippewa River with public landings at Ella (on the Pepin County side) or from downstream on USH '35'. Access to the interior of the property for management purposes is difficult due to the lack of a suitable access point from State Highway 25. To conduct management activities in the central portion of the property, staff are required to travel 6 miles along the rough service road from the Chippewa River Landing located along State Highway 35. Management practices in these areas generally occur during the winter months and the long travel distance along the rough service road creates safety concerns when staff are working with chainsaws and heavy equipment. Due to human safety concerns and the complications created by lack of access for management, a primitive management road will be developed from the Misha Mokwa parking area into the Bennet's Lake area. This management road will be gated and used only by DNR staff to access the property with heavy equipment, trucks, tractors and ATV's exclusively for management purposes. Public vehicle access is prohibited to maintain the primitive nature of the property.

An overlook with an interpretive sign is maintained on the northwest (Pepin County) side of the property. This site provides a view of the Dead Lake and Silver Birch Lake areas. Tiffany WA has exceptional opportunities for birding. Again, no surveys have been done to provide data, but it is assumed that the level of this type of use is relatively low at this time. The identification of Tiffany WA on birding trails and as part of the Lower Chippewa River Important Bird Area (IBA) may serve to increase awareness and use. Recreational use of Tiffany WA during the warmer months is often limited by biting insects.

Xcel Energy owns an inactive railroad corridor that runs the full length of the property. (The corridor was acquired to provide rail access to a once proposed power plant site north of Durand. Xcel Energy owns a 337 acre in-holding within Tiffany WA. The railroad corridor is currently leased from Xcel Energy to The Chippewa Valley Motor Car Association (CVMCA), a non-profit group that has rebuilt the railroad tracks from the City of Durand 8 miles into Tiffany WA for the use of railroad motor cars. The railroad corridor runs the entire length of Tiffany WA but flooding has damaged the remainder of the tracks and trestles beyond the means of this group to handle repairs. The cars used by the CVMCA were originally used by railroad maintenance crews. The motor car train is used several times a year for rides sponsored by various non-profit groups into the interior of Tiffany WA for birding, nature study and general enjoyment. Use of the train for hunter access is not allowed. The railroad grade; however, is used as a walk-in access corridor to travel to the interior of Tiffany WA.

Most of Tiffany WA is subject to flooding. The table below summarizes a project completed for the USFWS on the "Tiffany Bottoms" and indicates over 75% saturated soils or flooding for at least a part of

each year. The area studied for this project was approximately 22,000 acres that included the Buffalo County portion of Tiffany WA and some adjacent lands (mostly USFWS lands).

Table 3-3: Summary of Hydrologic Regime, Tiffany WA

Hydrologic Regime	Acres	% of Total Acres
Permanently Flooded	3,051.1	13.4%
Semi permanently Flooded	676.3	3.0%
Seasonally Flooded	13,301.2	58.5%
Saturated Soil	1,176.1	5.2%
Temporarily Flooded	1,084.5	4.8%
Infrequently Flooded	3,451.5	15.2%
Total	22,740.7	100.0%

This USFWS project developed a land cover/land use dataset and geo-referenced image by contract with USGS's Upper Midwest Environment Sciences Center in La Crosse. The data was obtained from interpretation of August 2001 color infrared aerial photography. Although the hydrologic descriptions are considered approximate and it covers an area larger than Tiffany WA, it is considered a good representation of the hydrologic features in Tiffany WA.

Access and use on Tiffany WA is complicated by the river bisecting the property and private lands bordering most of the east boundary along State Highway 25. The Pepin County portion of Tiffany WA is mostly upland with extremely steep topography and very limited road access. Much Tiffany WA does not receive frequent active management or use due to difficult access and physical limitations. Past management included establishing prairie on old fields, aspen, oak management and bottomland hardwood management, and savannah and wet meadow restoration.

STATE NATURAL AREAS

Two sites on the Tiffany WA are designated as state natural areas.

Tiffany Bottoms SNA (Number 30)

This 402 acre State Natural Area was established in 1958 within the Buffalo County portion of Tiffany WA. This was very early in the Natural Area (formerly Scientific Area) program and indicates the long standing recognition of the area's unique natural values. The Bureau of Endangered Resources (BER) website (<http://dnr.wi.gov/org/land/er/>) gives this summary: "...the site captures the transition between typical floodplain forest of silver maple, river birch, ashes, and basswood in the southern portion and the more oak-dominated forest in the northern part (swamp white, bur, and black). Soil types also change, from sandy outwash in the north to sand with accumulations of silty alluvium in the south."

Five Mile Bluff Prairie State Natural Area (Number 76)

Established in 1969, it currently encompasses 194 acres on the Pepin County side of Tiffany WA (see Map G-1). The BER summary description states: "Located on 300 foot high river bluffs, Five-Mile Bluff Prairie contains an excellent dry prairie overlooking the Chippewa and Mississippi Rivers. There are three small patches of dry lime prairie near the top of the bluff on the steepest slopes, which are otherwise

forested with aspen, chokecherry, and staghorn sumac. Bluff tops support a brushy mixture of black, bur, white, and red oaks. Dominant prairie species are big and little blue-stem, Indian grass, side-oats grama, wormwood, puccoon, bird's-foot violet, bastard-toadflax, white and purple prairie-clovers, silky aster, downy painted cup, flowering spurge, and blue-eyed grass. The site harbors numerous reptiles, and in spring, large numbers of migrating hawks and eagles can sometimes be seen.”

LAND USE CLASSIFICATION

As shown on Map G-1, the upland hardwood portion of the Pepin County side of the project is split between a Native Community Management Area and a Habitat Management Area. The Native Community Management Area of 826 acres is centered on the Five Mile Bluff area in the south. The Habitat Management Area encompassing 759 acres is in the north. The floodplain forest areas on the Pepin County portion of the project fall within the floodplain forest and Wetlands Native Community Management Area. Note that the land use classification area is based on current Department ownership.

The entire Buffalo County portion of this project is classed as Native Community Management Area which is divided into two management units. The Floodplain Prairie and Savanna Native Community Management Area, is located in the northern 1/3 on the eastern side of the Chippewa River and encompasses 3,844 acres. The Floodplain Forest and Wetlands Native Community Management Area, is located in the southern 2/3 on the eastern side of the Chippewa River, as well as the western side of the property south of State Highway 35. The Floodplain Forest and Wetlands Native Community Management Area is furthered divided into a passive management area encompassing 3,390 acres and an active management area encompassing 4,328 acres.

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Tiffany WA Habitat Management Area

This habitat management area is located on the western side of the Tiffany WMA north of the Five Mile Bluff Native Community Management Area. This area consists primarily of oak, central hardwoods, aspen, white and red pine plantations and old agricultural fields that are maintained as grassland. This area provides the best opportunity to manage for early successional wildlife species. Populations of early successional wildlife like Ruffed Grouse and woodcock have seen a substantial decline in the southwestern part of the state in the past 30 years. This decline is in large part due to maturing forests. Management in this area will focus on maintaining various age classes with an emphasis on regenerating early and mid-successional tree species to benefit wildlife species that rely upon this habitat type.

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Manage and maintain aspen and native shrub species.
- Regenerate oak (along with other mid-successional tree species) in order to maintain the species within oak-dominated or mixed cover types. Improve the oak age class distribution for long-term sustainability of the species.

- Manage for a diversity of age class and forest structure.
- Maintain aesthetic buffers along the river corridor.

Management Prescriptions:

- Achieve natural regeneration of aspen primarily through coppice (i.e., root sprouts).
- Maintain oak stands through management techniques appropriate for the stand and site conditions.
- Research prescriptions are allowed, they may vary somewhat from standard silvicultural practices.
- Maintain forest cover along the river corridor according to appropriate Riparian Management Zone Principles.
- On non-forested sites that are succeeding to native shrubs, maintain that habitat through periodic prescribed burning and mowing.

Native Community Management Area - Five Mile Bluff Prairie/Wood

This Native Community Management Areas is located on the western side of the Chippewa River south of the Habitat Management Area. This area is a large block of southern dry-mesic forest with steep drainages and small open dry prairies. The southern dry-mesic forests are oak-dominated with red, white, and bur oaks 10-15” in diameter, with some up to 30” in diameter. Some oaks show a spreading limb structure that may indicate a portion of the woods was previously open oak woodland. These areas provide important habitat for rare wildlife species including Red-shouldered Hawk, Cerulean Warbler, Hooded Warbler and Yellow-billed Cuckoo as well as for common wildlife species such as white-tail deer and turkey. The shrub layer within the forest varies from being more open under some of the semi-open grown white oak to moderately dense with common buckthorn and brambles under the closed canopy forest. The herb layer also varies, typically in response to slope aspect and the previous disturbance history of the area. Also included within the site is a small area of floodplain forest along the Chippewa River. Previous timber management has created small openings within the forest canopy in which big-tooth aspen, in various age classes, is regenerating. A 194 acre Natural Area, Five Mile Bluff Prairie (Number 76) is located within this Native Community Area. (See Map G-1.)

Unless specifically addressed below, management will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Maintain and expand prairie and open oak woodland within the management area to provide habitat for native plant and animal species.
- Begin to develop structural and functional attributes of old forests including biologically mature trees, large diameter trees and large snags and coarse woody debris.
- Provide closed canopy or near closed canopy to benefit area sensitive species.
- Develop aesthetic qualities of old forest habitat.
- Protect scenic and aesthetic qualities of the Chippewa River.

- Consider habitat requirements for bird Species of Greatest Conservation Need, which are found in these uplands, when conducting management prescriptions.

Management Prescriptions:

- Allow old forest to develop through passive management and limited active management.
- Prairie and oak woodland will be managed through prescribed burning, brush cutting and herbicide application.
- Control of invasive species, non-commercial forest manipulation and prescribed burning may occur.
- Retain snags and course woody debris.
- Salvage of trees is permitted through consultation from affected DNR programs.

Native Community Management Areas – Floodplain Prairie and Savanna, and Floodplain Forests and Wetlands

Starting at the northern end of the property on both sides of the Chippewa River and continuing south to the confluence of the Chippewa and Mississippi rivers, these two Native Community Management Areas consists of an exceptionally large block of a matrix of vegetation types including floodplain forest, southern sedge meadow, emergent marsh, shrub-carr, alder thickets, hardwood swamps, oxbow lakes, and dry-mesic prairie.

The Floodplain Prairie and Savanna Management Area consists of dry prairies and floodplain savannas found primarily in the northern 1/3 of the property east of the Chippewa River.

In the Floodplain Forest and Wetlands Management Area, on sandy outwash areas, swamp white oak dominates the canopy, and in the southern half of the site, on sand with accumulations of silty alluvium, silver maple is the canopy dominant. The floodplain forests dominated by swamp white oak have a more mesic assemblage of herbaceous species. The extent of the forest and the numerous microhabitats provide ideal habitat for many rare “area sensitive” bird species including Red-shouldered Hawk, Cerulean Warbler, Kentucky Warbler and Yellow-billed Cuckoo. Tiffany Bottoms SNA (#30) is a part of this management area. To better represent the full range of natural features, this SNA is being expanded to 717 acres. (See Map G-1.)

Unless specifically addressed below, management will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Floodplain Prairie and Savanna Management Area

Management Objectives:

- Expand and maintain the floodplain savanna and prairie habitat for rare, special concern and common species.
- Maintain floodplain forest.
- Maintain a continuum of habitats from lowland to upland wherever possible.

- Maintain the river corridor as an important travel corridor for various species.
- Control invasive species.
- Provide opportunities for research, education, and ecological interpretation.
- Protect scenic and aesthetic qualities of the Chippewa River.

Management Prescriptions:

- Prairie and floodplain savanna will be maintained and restored through prescribed burning, timber sales, brush mowing and herbicide treatment.
- Where appropriate and feasible, use forestry practices to regenerate floodplain forest tree species. Based on site conditions and the presence of invasive species, practices such as tree selection and group selection cuts may be used.
- Consider extended rotations to create a transitional area when managing adjacent to passive management areas.
- Restore the most northerly stands adjacent to the SNA at Round hill as an ecological reference area, meeting the standards found in Appendix C.
- Adhere to Wisconsin Forestry’s Best Management Practices for Water Quality (BMPs).

Floodplain Forest and Wetlands Management Area (passive)

Management Objectives:

- Maintain and develop structural and functional attributes of old forests including biologically mature trees, large diameter trees, large snags and coarse woody debris.
- Provide closed canopy or near closed canopy to benefit area sensitive species.
- Develop aesthetic qualities of old forest habitat.
- Protect scenic and aesthetic qualities of the Chippewa River.

Management Prescriptions:

- Allow old forest to develop through natural processes, passive management and limited active management.
- Prairie, savanna and sedge meadow management may occur where those community types occur.
- Control of invasive species, non-commercial forest manipulation, and prescribed burning may occur.
- Retain snags and coarse woody debris.
- Salvage of trees is permitted through consultation from affected DNR programs.

Floodplain Forest and Wetlands Management Area (active)

Management Objectives:

- Maintain at least 50 % in mature forest with closed canopy or near closed canopy in large blocks to minimize habitat fragmentation.
- Maintain floodplain forest to improve the age class distribution for long term sustainability of floodplain forest species.
- Develop old forest attributes through natural processes and active management that mimics natural disturbance.

- Silvicultural and other management activities must attempt to avoid the introduction and/or spread of invasives (especially reed canary grass) in the understory of this community.

Management Prescriptions

- Where appropriate and feasible, use forestry practices to regenerate floodplain forest tree species. Thinning, single tree selection and group selection are common management tools used in these forest types. Based on site conditions and the presence of invasive species (especially reed canary grass), these cutting practices may be used individually or in combination to achieve the management objectives.
- Consider extended rotations to create a transitional area when managing adjacent to passive management areas.
- Maintain and restore prairie and floodplain savanna through prescribed burning, timber sales, brush mowing and herbicide treatment.
- Adhere to Wisconsin Forestry’s Best Management Practices for Water Quality (BMPs).
- Consider following the DNR Old Growth and Old Forest Handbook Management Guidelines.
- Silvicultural and other management activities must attempt to avoid the introduction and/or spread of invasives (especially reed canary grass) in the understory of this community.

Table 3-4: Tiffany WA, Current and desired future cover types for existing (2009) state property
(See Land Cover Map D-1 and Future Land Cover Map F-1.)

Cover Type	Current		Predicted 50 year	
	Acres	% Cover	Acres Objective	Future % Cover
Aspen	50	0%	50	0%
Barren Land (open sand)	3	0%	3	0%
Bottomland Hardwood	8,652	66%	8,650	66%
Grass/Herb. Veg/Upland Brush	1,055	8%	1,050	8%
Lowland Brush	1,029	8%	1,036	8%
Oak	1,960	15%	2,013	15%
Open Water	80	1%	80	1%
Road	13	0%	13	0%
Upland Conifer	78	1%	25	1%
Upland Hardwood	198	2%	198	2%
Total	13,118	100%	13,118	100%

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescriptions support the general public use objectives presented in Universal Plan Section at the beginning of this chapter. (See Map E-1.)

Management Prescriptions

- Maintain 12 existing parking areas and 4 boat landing/parking areas on the property’s periphery.
- Maintain a gated primitive service road from the Hwy 35 Landing to Thibodeau Road parking lot.
- Maintain the gated primitive service roads within the Pepin County portion of the Tiffany WA.
- Develop a 1.5 mile gated primitive service road entering the property near Misha Mokwa.
- Maintain an existing scenic overlook along County Road N near Dead Lake.
- Continue inland camping using the permit system.

Dunnville Wildlife Area

State ownership(2009): 4,366 acres

Project boundary: 5,895 acres

Acquisition authority: 5,895 acres

PROPERTY DESCRIPTION

The Dunnville Wildlife Area (Dunnville WA) started as a leased public hunting ground in 1951. This came as a response to a petition from the Dunn County Fish and Game Association to the Wisconsin Conservation Department. The original lease was on 3,200 acres. In 1952 the Conservation Department purchased 40 acres from Dunn County under the Scattered Wetlands Program. In 1967 Dunnville WA was established as a project with a goal of 3,507 acres. In 1979 the acreage goal was revised to the current 5,707 acres. (See Map A.)

Dunnville WA derives its name from the once important village of Dunnville located on the edge of the Wildlife Area on CTH 'Y'. Although only a few houses remain today, in the 1850's Dunnville was a prominent community chosen as the county seat of Dunn County. By 1888 steamboat traffic had been replaced by the railroad and the population of Dunnville was on the decline.

The Chippewa and Red Cedar Rivers have been travel routes since prehistoric times. The confluence of the two rivers not only gave rise to the community of Dunnville, but there are archeological sites attesting to the importance of the site in much earlier times. Two prehistoric mound groups first reported in 1908 and 1909 were located within the boundaries of the wildlife area. One mound group, west of the Red Cedar River has since been lost. The other, a group of 24 mounds, has been vandalized extensively, but is still evident.

The Dunnville pictographs, rock paintings first noted in 1882, have also been lost. They may have been located within the wildlife area somewhere along the east bank of the Red Cedar River. Surveys have established two other sites with prehistoric relics that may be related to the mound groups.

Dunnville WA is often known locally as "Dunnville Bottoms" in recognition that most of the property is relatively flat bottomland bordering the northwest side of the Chippewa River. The property also contains a terrace escarpment that rises 80 feet or more for a distance of up to a mile or more from the river. The project boundary extends approximately 7 miles (straight line distance) along the Chippewa River and 1-2 miles in width. The Red Cedar River bisects the property and enters the Chippewa River within the boundary. In addition to 9.9 miles (meandered) along the Chippewa River and 2.7 miles along the Red Cedar River, the property contains numerous ponds and sloughs that are remnants of old river channels.

The Dunnville WA is comprised of a diverse mix of habitat cover types, ranging from expansive sand bars to lowland floodplain forest and backwater sloughs with interspersed prairies and savannas as well as sharecropped farm fields. Further from the river, steep hillsides dominated by oaks and other northern hardwoods are common. Atop the hills is a plateau consisting of mostly mixed hardwoods, jack pine barrens, and one 80 acre red pine plantation. Nearly one quarter of this Wildlife Areas' acreage (more than 900 acres) is managed as prairie or oak savanna, including approximately 200 acres of native remnants that have never been farmed.

There is more than a mile of gravel town roads that provide access into Dunnville WA. Twenty un-surfaced or gravel parking lots are maintained. In addition, a surfaced boat landing/parking lot is maintained on the Red Cedar River. While existing roads provide relatively good access into this Wildlife Area, there are limitations on use posed by the steep escarpment, sloughs, wetlands and flood prone lands associated with both large rivers. A short, primitive management access road is planned across Dunnville WA to provide access to Nine Mile Island SNA. (See Map E-2.)

This Wildlife Area provides excellent hunting opportunities for deer, turkey, Ruffed Grouse, Woodcock, waterfowl, squirrels, cottontail rabbits, raccoons and pheasants. Pheasant hunting can create concentrations of hunters particularly on opening weekend. Crowding is somewhat reduced by stocking throughout the season with limited birds stocked each time. "Put and take" pheasant hunting is a popular form of hunting on Dunnville. While the property is heavily used for pheasant hunting recreation it does not have good over-winter cover to hold and perpetuate a naturally reproducing population of "wild" pheasants.

While hunting is the primary public use on Dunnville WA, it also gets significant use by other recreationists due to excellent access and the proximity to Menomonie. Other recreational uses include birding, hiking, swimming/sun bathing (Chippewa River sandbar), berry picking and just getting out in the natural world. The heavy use on Dunnville WA does come with some problems including littering, crowding (pheasant hunting and sand bar use), illegal ATV use, and sign/gate vandalism.

An additional recreational feature on the Dunnville State WA is the Red Cedar State Trail. The trail has a crushed limestone surface and is used primarily for bicycling, but the section within the Wildlife Area is also used for hiking and snowmobiling when snow conditions allow. Hunting is allowed on the Red Cedar Trail within Dunnville WA.

The Red Cedar State Trail begins in the city of Menomonie, passes through the Wildlife Area paralleling the Red Cedar River then crosses the Chippewa River on a major trestle near the mouth of the Red Cedar River to join the Chippewa River Trail. The Chippewa River State Trail runs along the Chippewa River to Eau Claire. Pepin County has developed an additional spur trail to connect to Durand, under an agreement with Xcel Energy.

LAND USE CLASSIFICATION

The majority of this property (2,757 acres) is classed as Habitat Management Area. Note that the land use classification area is based on current Department ownership. (See Map G-2.) In recognition of the great diversity on this property there are two Native Community Management Areas. The Floodplain Terrace and Prairie Native Community Management Area comprises 1,139 acres. The Red Cedar Cliffs and Forest is 587 acres. A new SNA of 633 acres has been established to serve as an Ecological Reference Area for the Native Community Types included. (The acreage total of the management areas exceeds the property acreage total because some other project lands such as state trails are included in the management area acreage.)

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Habitat Management Area

This habitat management area occupies the majority of the Dunnville WA acreage. This area consists primarily of bottomland hardwoods, oak, central hardwoods, aspen, and old agricultural fields that have been, or will be converted to grassland. An extensive system of backwater sloughs and small lakes is also present within this habitat management area. This area provides a patchwork of cover types and benefits edge species and species that use multiple cover types and age classes, including whitetail deer, turkeys, Ruffed Grouse, and Woodcock.

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Maintain and enhance grasslands/savanna and increase block size to benefit grassland dependent species.
- Convert agricultural lands to appropriate natural cover types.
- Wild Rice management may occur in some wetlands including the planting of harvested seed.
- Maintain floodplain forest to improve the age class distribution for long term sustainability of floodplain forest species.

Management Prescriptions:

- Manage grasslands through prescribed burning, mowing, timber harvest and herbicide use. Consider removing wooded fencerows and narrow strips of trees to connect grassland blocks where possible.
- Utilize agricultural practices to provide winter food plots for wildlife and as site preparation for eventual conversion to prairie, savanna, or forest.
- Where appropriate and feasible, use forestry practices to regenerate floodplain forest tree species.

Native Community Management Area – Floodplain Terrace Prairies and Wetlands

This site provides an example of the globally imperiled riverine terrace prairie and associated terrace-based seepage lakes, floodplain forests, oak savanna, and gravel bars along the Chippewa River. The

riverine terrace prairie is a complex of dry-mesic prairies on sandy terraces intermixed with wet-mesic and wet prairie in low swales. The dry-mesic prairies surveyed are dominated by big bluestem, switch grass, and Kentucky bluegrass. The upper part of the terrace currently has an 80 acre red pine plantation that will be removed when merchantable. This site lies adjacent to oak stands and jack pine barrens, which will facilitate natural conversion of the plantation to oak/pine barrens. Scattered patches of shrubs include gray dogwood, prickly ash, smooth sumac, and nannyberry. Swales are dominated by willows, prairie cord grass, reed canary grass, and sedges. Small seepage lakes, some with wild rice, are also found among the dry-mesic prairies. These areas can be found scattered throughout the property between 640th Street on the east and the Red Cedar River on the west.

Unless specifically addressed below, management will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Monitor for oak wilt and promote conversion to oak barrens in affected areas.
- Maintain and increase jack pine/barrens for native plants and animals where soil conditions and cover type deem appropriate.
- Phase out red pine plantations.
- Maintain the mosaic of prairie, seepage lakes, floodplain forest and oak savanna for habitat for rare and special concern species such to provide opportunities for research, education, and ecological interpretation.
- Maintain and expand prairie and open oak woodland within the management area to provide habitat for native plant and animal species.
- Designate and restore a prairie and barrens State Natural Area to be managed to standards found in Appendix C.

Management Prescriptions:

- Where practical, utilize appropriate forestry techniques to remove trees affected by oak wilt and encourage a more open oak barrens landscape.
- Utilize prescribed burning, scarification, and direct seeding to promote jack pine/barrens.
- Use even-aged management to remove red pine plantations, allowing for conversion to secondary cover types.
- Use prescribed fire, mowing, timber harvest and herbicide to limit succession in prairies and savannas as well as to continue opening upland hardwood stands where appropriate.
- Limit disturbance near wetlands/seepage lakes to prevent the spread of reed canary grass.
- Follow DNR Grassland/Savanna Protocol to minimize impact on sensitive species.

Native Community Management Area –Red Cedar River Cliffs and Forest

Located along both sides the Red Cedar River, this primary site represents important examples of northern dry-mesic forests, moist and dry cliffs, unique lowland forests, and the plants and animals these natural communities support. Just before the Red Cedar River enters the Chippewa River floodplain is a stretch of closed canopy forest dominated by red oak, red maple, and white pine. In some areas, this

forest continues along a steep gradient to the river; in other locations there are 10-15 ft tall sandstone cliffs with red maple, white pine, and yellow and white birch in the canopy. The cliff vegetation varies from dry and exposed to moist with moss and lichens. Occasionally, below the cliffs is a river terrace with a sugar maple dominated northern mesic forest. On the level floodplain of the Red Cedar River are small areas of silver maple dominated floodplain forest and a larger area of hardwood swamp dominated by black ash. Small forested seeps are present on the east side of the river with red maple, black ash, and basswood. Also along the east side of the river are 20-30 ft tall sandstone cliffs with sparse vegetation characterized by sand cress.

Although much of the forest shows signs of past disturbance, including timber harvests related to a 1980 windstorm and stone quarrying, this site retains important ecological characteristics, such as very low invasive species cover, closed canopy forests that support forest interior birds and some natural communities that are unique to the entire LCRP. The Moist and Dry Cliffs have the potential of supporting rare plants such as cliff goldenrod and musk-root. These important elements, along with the recreational value of the Red Cedar State Trail that traverses the site, makes this an important site for conservation.

Unless specifically addressed below, management will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Develop and maintain an older, closed canopy forest with emphasis on long lived tree species where those species comprise the primary cover type.
- Enhance forest structural diversity and development of old growth characteristics such as large diameter trees, standing dead snags, and coarse woody debris.
- Protect water quality through protection and maintenance of wetland habitats and seeps.
- Protect the scenic and aesthetic qualities of the site.
- Support scientific research that is compatible with the ecological and aesthetic attributes of the site.
- Protect the archeological features from further disturbance and degradation.

Management Prescriptions:

- Promote the growth and retention of large oaks and white pines through techniques such as thinning, extended rotation, and managed old growth.
- Thin specific stands in a way that maintains closed canopy conditions within a majority of the actively managed area.
- Avoid forest management on steep hillsides.
- Retain snags and coarse woody debris whenever their retention does not conflict with other forest management activities or present hazards.
- Prevent physical disturbance of the archeological features (mounds). Control woody species invading the mound. Follow the DNR's guidelines outlined in "Burials, Earthworks and Mounds Preservation Policy and Plan".
- Consider following the DNR Old Growth and Old Forest Handbook Management Guidelines.

Table 3-5: Dunnville WA, Current and desired future cover types for existing state property
(See Maps D-2 and F-2.)

Cover Type	Current		Predicted 50 year	
	Acres	% Cover	Acreage Objective	Future % Cover
Agriculture	265	6%	2	0%
Aspen	114	3%	98	2%
Barren Land (sandbars/gravel)	32	1%	33	1%
Barrens Community	0	0%	221	5%
Bottomland Hardwood	1,464	33%	1,612	37%
Grass/Herb. Veg/Upland Brush	1,064	24%	1,187	27%
Lowland Brush	95	2%	95	2%
Maintained Active Use	1	0%	1	0%
Oak	501	11%	440	10%
Open Water	141	4%	137	4%
Swamp Hardwood	41	1%	41	1%
Upland Conifer	290	7%	126	3%
Upland Hardwood	302	7%	298	7%
Wetland	76	2%	76	2%
Total	4,366	100%	4,366	100%

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescriptions support the general public use objectives presented in Universal Plan Section at the beginning of this chapter. (See Map E-2.)

Management Prescriptions

- Stock pheasants on sites with suitable cover to provide increased opportunity for harvest during the pheasant hunting season.
- Maintain 20 existing parking areas throughout the property.
- Maintain primitive roads to provide foot access throughout the property.
- Monitor the erosive actions of the Chippewa River at the end of Dunnville Road and consider closing/abandoning the parking area at the end of the road.
- Establish a primitive road to provide access to Nine Mile Island.

Big Swamp Wildlife Area

State ownership (2009): 795 acres

Project boundary: 2,714 acres

Acquisition authority: 2,714 acres

PROPERTY DESCRIPTION

This property is located just south of State Highway 10 in Buffalo County between Durand and Mondovi. (See Map A.) This project originated in 1956 as a result of interest from the Mondovi Conservation Club and other conservation groups to protect wintering habitat for the largest population of ring-necked pheasants in Buffalo County. Most of the property is wetland and access to the property is difficult. There are no roads, trails or parking lots as the property currently lacks adequate public road frontage where a parking lot could be established.

A 320 acre State Natural Area (Bear Creek Tamarack Relict) has been established on the property as a part of the LCR SNA. The site contains the largest tamarack bog relict known in the driftless area. The bog relict contains a mixture of species with southern Wisconsin fen affinities and northern Wisconsin bog affinities. The site also has numerous seeps that coalesce to form Bear Creek.

Based on local topography, it is thought that the Buffalo River may once have flowed through what is now Big Swamp WA and emptied into the Chippewa River north of where the City of Durand now lies. Part of the Big Swamp WA wetland is drained by Bear Creek which flows west to the Chippewa River. The eastern portion of the Wildlife Area is drained by a tributary to Farrington Creek which flows south and east to the Buffalo River.

Immediately east of the current Big Swamp WA boundary is a large open area of low agricultural land/pasture. The area is maintained for farming purposes by a series of drainage ditches (once part of an organized drainage district). A federal government program, the Wetland Reserve Program (WRP) is currently available that may pay the landowners for a permanent easement that would allow the restoration of these drained wetlands. In November of 2008, a preliminary engineering study was completed that indicates that wetland restoration is feasible.

LAND USE CLASSIFICATION

The Big Swamp WA is classified as Habitat Management Area, except for the portion that is a State Natural Area, which is classed as Native Community Management Area. Note that the land use classification area is based on current Department ownership. (See Map G-3.)

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTIONHabitat Management Area

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objective:

- Restore the hydrological function and ecological integrity of a larger block.

Management Prescription:

- Work with federal agencies to apply the WRP program.

Native Community Management Area –Bear Creek Tamarack Relict

A 320 acre State Natural Area (Bear Creek Tamarack Relict) has been established on the property. The site contains the largest tamarack bog relict known in the driftless area. The bog relict contains a mixture of plant species with southern Wisconsin fen affinities and northern Wisconsin bog affinities. Wildlife species using this area include American Woodcock, Black-billed Cuckoo, raccoon and white-tail deer. The site also has numerous seeps that coalesce to form Bear Creek.

Management Objectives:

- Maintain tamarack swamp and bog relict habitat following the general prescriptions found later in this section.

Management Prescription:

- Monitor and control invasive species and maintain the hydrology of the site.

Table 3-6: Big Swamp WA, Current and desired future cover types for existing state property

(See Map D-3.)

Cover Type	Current		Predicted 50 year	
	Acres	% Cover	Acreage Objective	Future % Cover
Bottomland Hardwood	292	37%	292	37%
Grass/Herb. Veg/Upland Brush	109	14%	109	14%
Lowland Brush	230	29%	230	29%
Oak	36	5%	36	5%
Upland Hardwood	128	16%	128	16%
Total	795	100%	795	100%

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescription supports the general public use objectives presented in Universal Plan Section at the beginning of this chapter.

Management Prescription

- Develop public parking areas when suitable lands are acquired.

Nine Mile Island State Natural Area

State ownership (2009): 1,564 acres

Acquisition authority: 3,942 acres

Project boundary: 3,942 acres

PROPERTY DESCRIPTION

This project originated in 1990 as Natural Area number 236 with an acreage goal of 3,942 acres. (See Map A.)

The focus of this State Natural Area is the oak barrens, floodplain forest, sloughs and the Chippewa River itself. Most of this project is, as the name implies, an island located on the Chippewa River upstream of Durand and just downstream from the mouth of the Red Cedar River. The main channel of the Chippewa is to the south and east of the island. The channel on the north and west (Nine Mile Slough) has significant flow only during high water periods. Dunnville WA is adjacent to the north.

Access to the island is typically from the main channel of the Chippewa River by boat or canoe. Except during high water periods, it is also possible to access the island by walking across Nine Mile Slough from private land or Dunnville WA from the west or north. A primitive management road is needed and could be easily developed across Dunnville WA.

A carry-in canoe landing and parking area is maintained where County Road ‘M’ passes close to the river’s edge on the east side of the property. An additional parking area is maintained also along County Road ‘M’ but further to the southwest. A railroad grade bicycle trail passes through the project on the southeast side of the river. This hard-surfaced trail was developed and maintained by Pepin County who holds a lease on the railroad grade from Xcel Energy. This county trail links the City of Durand to the Red Cedar and Chippewa River State Trail system.

Turkey and deer hunting are the most common public uses on the property. The natural setting provided by this project contributes to the enjoyment of those passing through using the bike trail.

Management has included the establishment of prairie grasses/forbs on agricultural fields acquired. The restoration of woodland and oak barrens on the island has also occurred.

LAND USE CLASSIFICATION

All of this currently owned property is classified as a Native Community Management Area except a portion of upland on the mainland east of Nine Mile Island. (See G-2.)

The following objectives and prescriptions apply to both the Native Community Management and Habitat Management Areas on this property. The Native Community Management Areas contain high quality natural communities.

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Maintain the bottomland hardwoods, prairies, and oak savanna/woodland to provide habitat for rare and special concern species.
- Provide opportunities for research, education, and ecological interpretation.
- Maintain and develop structural and functional attributes of old forests including biologically mature trees, large diameter trees, large snags and course woody debris.
- Provide closed canopy or near closed canopy to benefit area sensitive species.
- Develop aesthetic qualities of old forest habitat.
- Protect scenic and aesthetic qualities of the Chippewa River.

Management Prescriptions:

- Maintain the oak savanna through removal of invasive and woody species and prescribed burning.
- Passively manage the bottomland hardwood stands on the island portion of the SNA
- Allow old forest to develop through natural processes, passive management and limited active management.
- Retain snags and course woody debris.
- Salvage of trees is not permitted.
- Follow DNR Grassland/Savanna Protocol to minimize impact on sensitive species.

Table 3-7: Nine Mile Island SNA, Current and desired future cover types for existing state property (See Maps D-2 and F-2.)

Cover Type	Current		Predicted 50 year	
	Acres	% Cover	Acreage Objective	Future % Cover
Agriculture	62	4%	0	0%
Barren Land (sand/gravel bars)	13	1%	13	1%
Bottomland Hardwood	1,063	69%	1,062	69%
Grass/Herb. Veg/Upland Brush	318	19%	382	23%
Oak	63	4%	63	4%
Open Water	22	2%	21	2%
Upland Hardwood	24	1%	24	1%
Total	1,564	100%	1,564	100%

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescriptions support the general public use objectives presented in Universal Plan Section at the beginning of this chapter. (See Map E-2.)

Management Prescriptions

- Establish a primitive access road for SNA management purposes across Dunnville WA.
- Maintain 3 parking lots.
- Maintain a carry-in boat access site.

Caryville Savanna State Natural Area

Ownership: 412 acres (a dedicated SNA owned by Dunn County and managed by DNR)

Project boundary: 412 acres

Acquisition authority: None

PROPERTY DESCRIPTION

Caryville Savanna State Natural Area is a 412 acre Chippewa River island owned by Dunn County and managed by the Department. The island is located two miles directly west of what remains of the small Dunn County Village of Caryville. The entire island was dedicated as a State Natural Area (number 263) in 1991. Dedication is a legally binding perpetual easement that carries the highest level of protection possible for a tract of land. Only through legislative action could any alterations to the property be made that could jeopardize its integrity as a Natural Area. A Management Plan for the property was approved by Dunn County and the Department of Natural Resources in 1994. The Department and Dunn County have joint responsibility to manage the property. (See Map A.)

Dunn County has owned this 412 acre island (known as Brush Island) since 1944. Brush Island is the first in a series of three large islands on the Chippewa River in eastern Dunn County. The other two islands were farmed into the mid-1900's with plantation pine established when the fields were abandoned. Brush Island was never cultivated but may have received some grazing. The island has had little impact from human activity and contains a very high quality oak barrens community supporting numerous plant and animal species. It was evaluated and submitted as a National Natural Landmark based on the size and quality of this regionally rare community.

The barrens community covers about 200 acres on the higher west end of the island with the remainder floodplain forest. The primary management is controlled burning in two units. The river forms a natural firebreak which helps simplify burn management. Management is also complicated, however, by the need to access the property by boat.

The main channel of the Chippewa River passes to the north of the island. The minor channels to the south and between Brush and Happy Island (the next island downstream) could easily be waded during normal water flow. Access to the island is typically by boat or canoe. There is an improved landing at County Road 'H' approximately 3 miles upstream. A small, less improved landing is located less than a quarter mile downstream from the island on the north side of the river.

Turkey and deer hunting are the most common public use of the property. This Natural Area is visible from the Chippewa River Bike Trail as it parallels the slough separating the island from the mainland on the south.

There are no improvements associated with this Natural Area.

LAND USE CLASSIFICATION

All of this property is classified as a Native Community Management Area. (See Map G-3.)

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objective:

- Maintain the savanna to provide habitat for rare and special concern species and to provide opportunities for research, education, and ecological interpretation.

Management Prescriptions:

- Maintain the savanna with removal of invasive and woody species and prescribed burning.
- Follow DNR Grassland/Savanna Protocol to minimize impact on sensitive species.

PUBLIC USE MANAGEMENT AND DEVELOPMENT

Management Prescriptions

None.

Rock Falls Wildlife Area

State ownership (2009): 268 acres

Project boundary: 1,916 acres

Acquisition authority: 1,916 acres

PROPERTY DESCRIPTION

This 268 acre property was purchased in three tracts between 1981 and 1988 as part of the Extensive Wildlife Habitat Program. The area is known as the Rock Falls Wildlife Area or locally as Stoner Marsh. The property is located just outside of the small village of Rock Falls. The name “Stoner” derives from the previous owner of the largest of the three tracts that were acquired here. (See Map A.)

The property lies within the wild pheasant restoration area which was stocked between 1997 and 1999. These birds were offspring of wild Iowa pheasants and introduced only where habitat conditions were considered favorable for a self sustaining population. This stocking proved successful in the area. The property provides critical winter habitat for pheasants. In addition to pheasant hunting, the property is also used for deer, turkey, waterfowl and dove hunting, as well as trapping.

This property has two parking lots serving it, one on the east side of County Road ‘H’, the other on the west side off 890th St.. There is also road shoulder parking and walk-in access off of 90th Ave on the northwest side of the property. There are three dikes on this property, with a combined length of about 1/4 mile. One of the dikes is equipped with a water control structure. Impoundments on this property cover approximately 35 acres. In addition, the county snowmobile association maintains a trail that runs along the east and south boundaries as well as a bridge crossing Rock Creek. DNR also has a flowage easement with NRCS allowing overflow from a WRP wetland restoration on private property to the south to flow into one of the previously mentioned impoundments on the Wildlife Area.

Rock Creek bisects this property flowing from south to north towards the Chippewa River. Currently most of the portion of this property located east of Rock Creek is mixed prairie grass nesting cover. There is one impoundment on this side of the creek as well. The rest of the land cover east of the creek is large planted white pines, mixed hardwoods and shrub carr along the creek. West of the creek, is mixed hardwoods and shrub carr adjacent to the creek. As you move away from the creek, the landscape becomes predominantly mixed prairie grass and wetland impoundment. The topography of this entire parcel is generally flat, but becomes slightly rolling near and adjacent to the creek.

A 478 acre Federal Waterfowl Production Area is located one half mile east of this property. The U.S. Fish and Wildlife Service recently completed a Comprehensive Conservation Plan for the St. Croix

Wetland Management District which covers eight counties, including Dunn and Pepin counties. The plan articulates management goals for the next 15 years and specifies the objectives and strategies needed to accomplish these goals. Several goals in the plan overlap with the Lower Chippewa River Master Plan. The Fish and Wildlife Service plan calls for expanded land protection in the Rock Falls area and cooperative efforts with other agencies to benefit waterfowl and grassland dependent birds.

LAND USE CLASSIFICATION

All lands of the Rock Falls WA are classified as a Habitat Management Area. (See Map G-3.)

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Unless specifically addressed below, management on Department managed lands will be in accordance with the Management Objectives and Prescriptions by Habitat Type as provided later in this chapter. The universal plan elements in Section One of this chapter also apply.

Management Objectives:

- Create and maintain a large block of grassland to support grassland SCGN species and protect associated ecological values.
- Protect the water quality of Rock Creek.
- Manage for mature oaks and white pines where each is the primary cover type.
- Manage water levels in the impoundments for waterfowl, marshbirds and shorebirds.
- Provide winter food plots for wildlife.

Management Prescriptions:

- Limit disturbance near the banks of the Rock Creek.
- Manage grasslands through prescribed burning, mowing, and herbicide application.
- Use appropriate forestry techniques to promote old, mature oaks and white pines.
- Utilize drawdowns to provide natural forage for waterfowl and shorebirds.
- Plant 2-4 acres annually of food plots for winter food for pheasants, and other bird species.
- Follow DNR Grassland/Savanna Protocol to minimize impact on sensitive species.

Currently (2009) this is a relatively small property, no cover type changes planned on the existing acreage. (See Map D-3.)

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescriptions support the general public use objectives presented in Universal Plan Section at the beginning of this chapter. (See Map E-3.)

Management Prescriptions

- Maintain 2 parking areas on the periphery of the property.
- Primitive trails provide foot access throughout the property.
- Develop new parking areas as public lands are acquired.

Waterville Extensive Wildlife Habitat Area

State ownership (2009): ~316 acres

Project boundary: ~316 acres

Acquisition authority: None

PROPERTY DESCRIPTION

This Extensive Wildlife Habitat Area located in Pepin County, Town of Waterville, was purchased in 1980 with a small (2.5 acre) donated addition in 1982. The tract is located about one mile west of Durand with County Road ‘P’ bordering on the north, the Chippewa River on the southeast and the Eau Galle River on the southwest. As is true of many Government Lot Chippewa River properties, the actual acreage can vary with the movement of the river. The current actual land area (by aerial photo) appears to be significantly greater than the 316 acres indicated in land records. There is close to a mile of frontage on the Chippewa. (See Map A.). Main uses of this property include deer, turkey, and waterfowl hunting, as well as trapping.

In addition to the frontage on the Chippewa and Eau Galle Rivers, there is about a mile's worth of Thompson slough running through the property. This slough links the Chippewa River to Thompson Lake north of the property. The property is in the floodplain and is zoned as such, and has a generally flat terrain. There are roughly 100 acres of open field that were once in agriculture. These fields are currently in grass and brush. The remainder of the property is floodplain forest, predominantly silver maple, with an extensive network of backwater sloughs.

There is one gated entrance to this property off of County Road ‘P’. There is room for at least six vehicles to park near this gate on what was the roadbed of old County Road ‘P’. The property has no other improvements or trails.

LAND USE CLASSIFICATION

All of the currently owned property is classified as a Habitat Management Area. (See Map G-1.)

RESOURCE MANAGEMENT, DEVELOPMENT, AND PROTECTION

Unless specifically addressed below, management on Department managed lands will be in accordance with the General Management Objectives and Prescriptions by Habitat Type.

Management Objectives:

- Prevent woody succession in the grasslands.
- Prevent reed canary grass encroachment.

Management Prescriptions:

- Manage grasslands through prescribed burning, mowing and herbicide application.
- Limit disturbance near sloughs to prevent spread of reed canary grass.

This is a relatively small property with no cover type changes planned for future management. (See Map D-1.)

PUBLIC USE MANAGEMENT AND DEVELOPMENT

The following prescriptions support the general public use objectives presented in Universal Plan Section at the beginning of this chapter. (See Map E-1.)

Management Prescriptions

- Maintain 1 parking area on the periphery of the property.
- Primitive trails provide foot access on the property.

MANAGEMENT PRESCRIPTIONS - BY HABITAT TYPE**Grasslands, Prairies, and Oak Opening (savanna) Habitats**

Once common, native grasslands and oak openings are now rare communities statewide, however this area contains a high percentage of the remaining native grassland and oak openings found within the state. In addition to the remnant native habitat types, many of the LCRP contain prairie reconstructions. While prairie reconstructions provide only a portion of the rare biodiversity present in a native prairie, in the appropriate context, they provide important habitat for many wildlife species including many SGCN such as Grasshopper, Field and Henslow's Sparrow as well as waterfowl, deer and turkeys.

MANAGEMENT PRESCRIPTIONS

Land management in areas of prairie and oak openings (oak savanna) primarily focuses on simulating the natural disturbances (primarily fire) that historically functioned to maintain structure and diversity in these communities. Management approaches used on individual parcels will vary based on the management potential and opportunities for the site, which in turn are derived from site-based factors such as soils, topography, hydrology, and cover type, parcel size and surrounding land uses.

The following management practices are to be applied on grassland, prairie, and oak opening restoration sites:

- Where possible, use prescribed fire to invigorate grasses and forbs and suppress the encroachment of woody species, and in some cases to control invasive plants.
- Use cutting, mowing, brushing, and herbicides (when necessary) to remove invading trees and shrubs. Bio-fuel harvest could be used as markets develop.
- On prairie and savanna reconstruction sites, plant a diversity of native prairie grassland and savanna species.

- Wherever possible, remove hedgerows, fence lines, small conifer plantations, and small low quality forest patches to increase the size of unbroken grassland/prairie area. Retain oak that may be present at the appropriate density for savanna. (While these activities may have minimal effects on increasing grassland acreage on the landscape, they will effectively improve the size and functional quality of the habitat). Management should recognize that virtually all grassland species will tolerate a small amount of woody vegetation and limited brush patches benefit early successional species such as Bobwhite, Bell's Vireo and Brown Thrasher.
- Follow DNR Grassland/Savanna Protocol to minimize impact on sensitive species.

Agricultural Crops and Food Plots

MANAGEMENT PRESCRIPTIONS

- Plant food plots or leave agricultural crops (share crop acreage) standing to provide winter food and cover for wildlife.
- Utilize sharecrop agreements to prepare a site for reconstruction of native habitat.
- On agricultural lands maintained over a period of time, allow a brushy edge to develop to transition from forested to open lands.

Forested Habitats

All forest management activities, except for southern tamarack swamp, follow the guidelines in the DNR Silviculture and Forest Aesthetic Handbook. The prescriptions listed below are for the primary forest types found on the LCRP. The prescriptions include an overview of the general management methods and guidance from the Silviculture Handbook as well as some additional considerations to be applied to this group of properties. Consult the Silvicultural Handbook for additional details and management considerations. Where management prescriptions alter or eliminate harvest rotations, the forest reconnaissance data base (WISFRS) should be adjusted accordingly.

GENERAL MANAGEMENT PRESCRIPTIONS FOR ALL TYPES OF FOREST STANDS

- Retain snags and coarse woody habitat whenever their retention does not conflict with other management objectives.
- Follow Wisconsin's Forestland Woody Biomass Harvesting Guidelines when conducting forest management.
- Leave long-lived reserve trees as individuals or in groups to provide timber, wildlife, and aesthetic value when their retention does not conflict with regeneration and other forest management objectives. Such trees provide denning/nesting sites, cover and a food source (depending on species) for wildlife.
- Salvage trees damaged by wind, ice, fire, insects, and disease as long as the salvage meets the overall objectives for the area.
- Where appropriate, the rotation age for some stands of oak and central/northern hardwoods may be extended in order to increase the abundance of older-age forest habitat.

- Intermediate forest treatments, such as release or crown thinning, may be used where appropriate to develop young stands and improve composition and timber quality.

CENTRAL HARDWOODS

Central hardwood tree species, such as black cherry, American elm, black walnut, bitternut hickory, and shagbark hickory tend to grow in partial shade to full sun. This variation in shade tolerance means that either even-aged or uneven-aged regeneration systems may be used depending upon the tree species being favored. Even-aged silvicultural methods, such as overstory removal or shelterwood, tend to keep all the trees approximately the same age by harvesting the entire stand at 80-150 year intervals. Uneven-aged methods, such as single-tree or group selection, tend to create a stand with trees of three or more distinct age classes.

Management Prescriptions:

- Consider the forest conditions on the surrounding landscape when planning stand level management prescriptions, as a variety of age classes and stand sizes across the landscape is beneficial for wildlife and aesthetics.
- Assess the degree of succession to central hardwoods prior to prescribing a regeneration system for the stand.
- Natural regeneration systems of central hardwoods can utilize both even and uneven-aged methods, including overstory removal, shelterwood, group selection, single-tree selection, coppice(root sprouting), and clearcut. Follow the DNR Silviculture and Forest Aesthetics Handbook guidance on selecting the appropriate regeneration system based on stand composition, advanced regeneration, site, and other factors.
- Use intermediate treatments, such as release or crown thinning, to develop young stands and improve composition and timber quality.
- Artificial regeneration from seed or seedlings may be used to establish desirable trees where seed source and advanced regeneration is lacking.
- Other management techniques that may be used to help regenerate stands include soil scarification, herbicide treatments, and prescribed fire where feasible and safe.

OAK

Oak forests historically developed or regenerated following significant disturbance, such as the prairie and oak savanna fires that were once common to this area prior to European settlement. Oak is highly valuable for a wide variety of game and non-game wildlife species for mast production, cover and denning/nesting sites.

Generally, site disturbance is required to regenerate existing stands and to maintain an oak component in mixed stands. Management will typically involve even-aged harvest practices of various types and sizes occurring at intervals of 100-150 years.

Management Prescriptions:

- Maintain oak stands through management techniques appropriate for the stand and site conditions. Natural regeneration systems of oak include even-age management techniques, clearcutting, and shelterwood harvesting techniques. Artificial regeneration from seed or

seedlings may be used to establish oak reproduction prior to or after timber harvests when natural regeneration is not adequate. Other management techniques that may be used to help regenerate oak stands include soil scarification, herbicide treatments, and prescribed fire where feasible and safe. Use intermediate treatments, such as release or crown thinning, to develop young stands and improve composition and timber quality.

- Assess the degree of succession to central hardwoods and advanced regeneration density prior to prescribing oak regeneration harvests. Natural conversion to these species may be prescribed if oak regeneration seems unlikely. If successful regeneration of an existing oak stand is questionable, retain the stand as long as possible and allow the stand to convert, as it may be more feasible to reestablish the stand on a new site through planting.
- On non-forested sites that are naturally succeeding into oak, passively manage the site (use fire where appropriate) and allow it to convert to oak woodland or oak savanna. If a more rapid conversion is desired, additional oak seedlings may be planted. Oak acreage may also be expanded by planting suitable sites on current or former agricultural fields adjacent to forested uplands.
- Research prescriptions are allowed and they may vary somewhat from the standard silvicultural practices.

ASPEN

Aspen provides cover for early successional wildlife species, including Woodcock, and Ruffed Grouse which have had declining numbers in the southwest part of the state in the last 40 years as the forest stands have matured. This early successional forest type requires disturbance and abundant sunlight to regenerate. It is typically managed using complete even-aged harvests at intervals of 45-60 years.

Management Prescriptions:

- Achieve natural regeneration of aspen primarily through coppice (i.e. root sprouts)
- Where the objective is to develop or maintain a stand of mixed tree species, retain individual longer-lived trees, such as oak. These trees can improve stand structure, wildlife habitat, aesthetic beauty, and increase the diversity of the stand.
- Natural conversion to other forest types, such as central hardwoods, may be prescribed if adequate aspen regeneration is unlikely or other hardwood goals are in place. Harvest aspen and other short-lived species, leaving the long-lived species to develop.

NATIVE CONIFER TYPES

Limited stands of jack and white pine are present in the plan area. They provide wildlife cover/food and cover type diversity. Jack pine requires fire and/or scarification or clear cutting for successful regeneration. Deer browsing can severely limit white pine regeneration. On sites with potential, existing Jack Pine will be managed to preserve or create barrens.

Management Prescriptions:

- Follow forestry handbook prescriptions for native pine species.

CONIFER PLANTATIONS

Red pine, white pine and other conifers were planted 25 to 70 years ago in various small plantations or shelter belts on a number of the wildlife areas. These plantations are typically monotypic stands with little ground cover and provide very little benefit to wildlife species.

Management Prescriptions:

- Naturally or artificially convert pine plantations to another forest or other suitable habitat type. While these stands are retained, use even-aged management practices to maximize the stands health, vigor, and quality.

BOTTOMLAND HARDWOODS AND SWAMP HARDWOODS

The bottomland hardwood and swamp hardwood forest types are associated with wet soils in floodplains, depressions, and stream/river bottoms. The major commercial tree bottomland hardwood species are eastern cottonwood, green ash, river birch, swamp white oak, and silver maple. The major components of the swamp hardwood type include black ash, American elm, and red maple. Wildlife that utilize this habitat include common species such as raccoon, white-tail deer and turkey and SGCN such as Cerulean Warbler, Red Shouldered Hawk and Yellow-billed Cuckoo.

Management Prescriptions:

Bottomland hardwood forests are ever-changing, intricate ecological systems. Their species richness and variability is due to many natural forces, such as annual flooding and ice impacts, complex drainage patterns, and the continual deposition and development of soils. Given the almost infinite variability of bottomland hardwood site conditions, as well as the species mix and silvicultural characteristics, no single regeneration prescription will function adequately on most bottomland sites. This is true for swamp hardwood stands as well.

- Selection of the most appropriate silvicultural system to use on these stands is very site-specific and it must be determined based on the judgment and experience of management personnel.
- The riparian zones typically found in these forest types makes adherence to BMP's especially important. Management should consider measures to protect the scenic and aesthetic qualities bordering waterways.
- Silvicultural and other management activities must attempt to avoid the introduction and/or spread of invasives (especially reed canary grass) in the understory of this community.

SOUTHERN TAMARACK SWAMP

Tamarack is found on moist organic soils, peats and mucks of swamps and muskegs, especially in the southern limits of its range. Because of its rarity in this landscape, this habitat is valuable for species such as American Woodcock and Black Billed Cuckoo and provides escape cover for white-tail deer.

Management of relict southern tamarack swamp communities requires a thoughtful approach. Currently, many of these stands appear to be dwindling, possibly as a result of the altered hydrology caused by ditching, and/or the deposition of upland sediment/nutrients from adjacent agricultural practices, and/or invasive species. Thus, while some management is necessary to insure the perpetuation of this forest type, there probably won't be a consistent management approach within, or between, nearby sites.

Management Prescriptions:

- Where feasible, manage this forest type in conjunction with other complimentary forest and wetlands communities. Isolated sites should be buffered from land uses that can degrade them.
- Use management practices that limit soil damage, erosion, sedimentation, and hydrologic changes on these sites and adjacent lands. Convert adjacent upland crop land to grassland cover whenever possible.
- Periodically monitor for and eradicate non-native plant species. Glossy buckthorn is a known problem, and other possible problem species include purple loosestrife, narrow-leaved cattail, giant reed-grass, and reed-canary grass. Reports elsewhere indicate that native red maple can invade these areas as well, virtually eliminating any regeneration potential of tamarack.
- Salvage will generally not occur within the wetlands. In the case of a catastrophic natural disaster the best management response should be determined after consultation with managers from affected programs.

Use the following management activities or management tools as appropriate for the site:

- Ditch filling or dike removal.
- Prescribed burning in fire-dependent plant communities such as the sedge meadow and adjacent uplands, and if deemed appropriate, parts of the southern tamarack swamp for regeneration purposes.
- Converting adjacent upland agricultural lands to grassland cover to reduce erosion.
- Control invasive species using mowing, brushing, hand cutting, or herbicides. Bio-control methods may be used for purple loosestrife, or other species as deemed appropriate, safe, and effective.

Wetland Habitats (non-forested)

SEDGE MEADOW, WET PRAIRIE, AND WET-MESIC PRAIRIE

Sedge meadow, wet prairie, and wet-mesic prairie habitats support many species such as Bobolink, Blue-winged Teal, Willow Flycatcher and rare herptiles. Today, these open wetlands are much less abundant than they once were. Historically, fire played a key role in maintaining these open habitats. The lack of fire in the present landscape has allowed the encroachment of woody species. Many of these grasslands have been lost or severely degraded by drainage, flooding, lack of fire, or invasive species.

Degraded sedge meadow/wet prairies can be described as dominated by reed canary grass as a result of grazing and/or ditching, or as areas are being invaded by woody vegetation due to the lack of disturbance e.g. fire on the site. Canary grass is not desirable for wildlife because it replaces native plant species and creates a monotype with lower habitat value. Especially in the case of reed canary grass dominated sedge meadows, restoration can be a monumental task given the tools currently at hand. Continuing research on cost-effective, environmentally safe methods for removing canary grass from sedge meadows may provide future tools to accomplish these restorations.

Management Prescriptions:

- In areas undergoing conversion from open sedge meadow/wet prairie to shrubs and brush use prescribed fire, mechanical mowing, and herbicide to remove the woody vegetation.
- On sites dominated by monotypic stands of reed canary grass, where feasible use prescribed fire, mowing, and herbicide treatment to reduce competition to the native vegetation.
- Restore the site's original hydrology, where possible and compatible with the other primary objectives.

EMERGENT MARSH

Emergent marsh areas have persistent to permanent water typically with low flow. The habitat type is dominated by both emergent and submergent vegetation. Some of the common species present often include wild rice, cattail, Bulrush, burr reed and water lilies. These deep water marshes can be permanent wetlands or maintained through the use of a combination of berms, dams, or other water control structures for the flexibility to artificially manipulate seasonal water levels. Emergent marshes, alone or in conjunction with adjoining upland habitat, provide critical habitat for wildlife species such ducks, beaver and numerous songbirds, shorebirds and marshbirds. Periodic reduction of water levels is important in providing mudflats for shorebirds and increases the amount of submergent and emergent vegetation once water levels are restored.

Management Prescriptions:

- Remove invasive and woody species through the use of mowing, cutting, burning, herbicide, bio-control or a combination thereof.
- Maintain or restore the original hydrology of wetlands where applicable.
- Where possible, use prescribed fire to maintain the health of vegetative communities.
- On wetlands where water level management is possible, seasonally manipulate water levels to improve and enhance waterfowl use, to improve shorebird habitat, to benefit wetland floral and faunal communities, and to facilitate vegetative management practices. In particular, as needed, conduct periodic partial and/or complete drawdowns to promote the resurgence of desirable wetland species like smartweeds, arrowheads, and bidens.
- Planting wetland vegetative species is not normally necessary but should be done if needed.

SHRUB-CARR

Shrub-carr wetlands provide important wildlife habitat, especially as winter cover for ring-necked pheasants and white-tailed deer. Typical shrub-carr wetlands are habitat types that are in a state of succession due to a lack of fire. Historically, shrub-carr rarely formed in the presence of periodic fire events. In the absence of this natural disturbance, maintenance of this habitat type requires periodic management treatments.

Management Prescription:

- Use prescribed fire, tree cutting, chemical treatments, and mowing to maintain shrub-carr.

General Authorized Management Activities or Tools

All activities listed above in the management prescriptions and those listed below are authorized on LCRP as may be appropriate, unless restricted by a general habitat type prescription or any property-specific management prescription.

- Prescribed Fire
- Chemical Application
- Mechanical/mowing
- Hand cutting – chainsaw
- Bio-fuel harvest
- Timber harvest – even aged and uneven-aged silvicultural systems, including clear-cutting
- Water level manipulation – in impounded wetland restoration sites
- Agriculture practices
- Placement of nest boxes, platforms or similar devices to enhance reproduction of desired wildlife species
- Construction of dikes and ditch plugs

CHAPTER THREE

BACKGROUND AND SUPPORTING INFORMATION

Material for this chapter is taken from the *Regional & Property Analysis, Lower Chippewa River State Wildlife Areas and State Natural Areas* (WDNR Pub LF-049). It may be viewed on the web at dnr.wi.gov/org/land/wildlife/plan/lowerchipmpra.pdf, or a paper copy is available by request. Refer to this document for additional data and analysis on these properties and their ecological and socio-economic context.

INTRODUCTION TO THE PROPERTIES

The Lower Chippewa River plan group includes the following properties:

- Tiffany Wildlife Area
- Dunnville Wildlife Area
- Big Swamp Wildlife Area
- Rock Falls Wildlife Area
- Caryville Savanna State Natural Area
- Nine Mile Island State Natural Area
- Lower Chippewa River State Natural Area
- Waterville Extensive Wildlife Habitat Area*

* *The Extensive Wildlife Habitat Program (when active), allowed the acquisition of scattered wildlife lands without the establishment of a specific project boundary. One such property, known as the Waterville tract, located in the Town of Rock Creek, Dunn County, is included in this plan.*

The Lower Chippewa River State Natural Area is a landscape-scale project that contains all the other properties, essentially there are seven smaller projects within a larger project. The Lower Chippewa River State Natural Area project was designed to complement the existing properties and other state ownership in the area by acquiring and protecting additional key tracts of land with natural area value. Each property of the group retains their own boundaries and acreage goals.

Wildlife Areas are acquired and managed under the authority of Sec. 23.09 (2) (d) 3 Wis. Statutes and Administrative Code NR 1.51. Natural Areas are defined and authorized in State Statute 23.27-23.29 and Administrative Code NR 1.32.

ANALYSIS OF THE REGIONAL CONTEXT

The properties in this plan group lie within the four West-Central Wisconsin counties of Eau Claire, Dunn, Buffalo and Pepin, but mostly within Pepin and Buffalo Counties. This region is characterized by a rugged landscape having a mix of agricultural and forest land with the valley bottoms and ridge tops farmed and the steeper hillsides forested. Most of the floodplain river corridors are also forested with bottomland hardwood. While the region retains a largely rural character, there is a trend toward more ownership of land for recreational and residential use.

The region has an excellent network of roads including major national thoroughfares. Interstate '94' bisects the region passing through both Eau Claire and Menomonie and connecting the larger metro areas of the Midwest (Twin Cities, Madison, Milwaukee and Chicago). State, county and most local roads in the region are well maintained, hard surface roads.

Land Use and Trends

The Twin Cities metropolitan area, with a combined population of more than 2.6 million, is less than 1.5 hours to the northwest. The cities of Menomonie (population 15,000) and Eau Claire (population 63,000) are the main population centers in the region and have seen steady growth over the last 20 years. The proximity of the plan area to the Twin Cities metropolitan area, regional population centers, and a well developed highway infrastructure have resulted in significant population growth and development over the past 25 years. This is especially apparent in the Menomonie and Eau Claire/Chippewa Falls urban areas. Commercial, urban, and rural residential development is expected to continue over time.

The number of farms in the plan area has decreased in the last few decades and is projected to remain constant or decrease slightly over the next few decades. Agriculture and forested lands have been and are increasingly being sold for recreational purposes. Many of these sales have taken large acreage, single owner farmsteads and broken them down to small acreage (40-120 acre) recreational parcels.

Ownership or leasing of land for hunting has become common. Trespass and competition, especially during deer season, has become an issue. The area, Buffalo County in particular, has become well known nationally for producing large whitetail deer. There are local outfitters whose livelihood is guiding hunters, primarily on leased private land. In some areas hunting is the use that drives real estate values. As leasing and private ownership of land for hunting increases, public lands are in ever increasing demand for the public to hunt and recreate.

Although the vast majority of lands in the region are privately owned, there are significant public holdings with diverse purposes. Federal Lands include the Upper Mississippi Wildlife Refuge and Waterfowl Production Area lands in both Dunn and Pepin Counties. The federal refuge is primarily to benefit migratory waterfowl while the Dunn/Pepin County holdings are primarily to provide nesting areas for waterfowl. The State of Wisconsin has Park/Trail lands, Wildlife Areas and Natural Areas. State Trails include an extensive bicycle/hiking trail system, snowmobile/ATV trails and cross country ski trails. Wildlife Areas were purchased and are maintained to benefit wildlife for the enjoyment of the

public. Natural Areas were purchased and are maintained to preserve biological diversity across the state. Eau Claire County has large County Forest holdings that are managed for timber production and multiple use recreation. Dunn County owns and manages two large islands on the Chippewa River.

The Mississippi River/Lake Pepin is the primary water resource in the region. Lake Pepin is a natural impoundment of the Mississippi caused by massive natural sand deposits at the mouth of the Chippewa River. As a major tributary to the Mississippi, the Chippewa River is important regionally, as is the Red Cedar River as a major tributary of the Chippewa. There are also numerous cold water streams of varying size and quality. Having missed the most recent glaciation, this part of Wisconsin does not have natural lakes of glacial origin. Map B shows the major public land holdings and water resources in the region and surrounding area.

Regional Recreation Resources, Use and Demand

The region has a multitude of outdoor recreational opportunities. Deer hunting, waterfowl hunting, birding and biking are the premier activities attracting not only local and regional users but also statewide and out of state users. Other prevalent land based recreation in the region includes camping, cross country skiing, snowmobile/ATV riding, horse riding and hiking/walking. Rural, private lands are all important to these pursuits but they are also supported by the public lands in the region.

While boating, fishing, swimming, waterfowl hunting and trapping are popular on the Mississippi River, the smaller, more shallow Chippewa and Red Cedar Rivers are most popular for canoeing, kayaking, tubing and fishing. Water levels on the Chippewa are often too low for dependable power boating with conventional watercraft. Specialized, shallow draft motor boats are becoming increasingly prevalent. Air boats have also become more common on the Lower Chippewa as they are able to avoid problems that low water presents for prop driven boats. Based on public comments during the planning process, many consider air boats incompatible with other uses on the Lower Chippewa River. The legislature has granted limited authority to counties and towns for regulation of boat use on local waters. While beyond the scope of this master plan, air boat use is an issue of significance and would benefit by documentation of impacts and exploration of possible ways to control impacts. Airboat use is not allowed within the wildlife properties adjacent to the river.

The region is a destination for bicyclists due to the developed and maintained trail system that connects Menomonie, Durand and Eau Claire. The bicycle trails are an important part of the regional recreational picture but will not be a focus of this planning effort.

The region is considered to offer excellent hunting, particularly for whitetail deer, turkey and waterfowl. Grouse, woodcock, pheasant, squirrel, rabbit and raccoon hunting are also popular. The public lands are heavily used for hunting. Competition/crowding can be a problem especially for deer and waterfowl hunting. In addition to the recreation value, the high participation rate in hunting contributes to the local economy.

Bird watching is growing rapidly as an outdoor pursuit and the region is considered an excellent location

due to the variety of habitats and bird species present. The region is prominently featured in two recently established/published birding trails: the Audubon Great River Birding Trail and the Great Wisconsin Birding/Nature Trail (Mississippi/Chippewa River Region). Much of the Lower Chippewa corridor and surrounding lands have been identified as an Important Bird Area, a designation reserved for select areas that have extreme importance to bird life. As many as 30 species of warbler may be present in the Lower Chippewa floodplain during spring migration (personal communication, R. Hoffman).

Riding horses is an activity that takes place on private lands but many riders also are interested in an established trail experience. The Eau Claire County Forest is open to horseback riding and has two established horse trails located just east of Eau Claire. Riders also make use of lesser traveled public roads throughout the region. Tom Lawin Wildlife Area near Chippewa Falls has a designated horse trail that is near but not connected to a portion of the Old Abe State Trail that also allows horses. Corps of Engineers lands near Spring Valley also allows recreational horseback riding.

There are private campgrounds in the region that primarily cater to travel trailer style camping although tent camping is also accommodated. Lake Wissota State Park is a popular destination for campers with drive up sites that accommodate tents and travel trailers alike. The Eau Claire County Parks system maintains 2 campgrounds in the County Forest. The Eau Claire County Forest also allows primitive camping by permit. During deer season this is a common use in the county forest. Pepin County manages a basic campground at Silver Birch Lake, and the City of Durand manages a campground with limited amenities. Tiffany SWA also has a policy of allowing camping by permit. State Wildlife and Natural Area lands are typically not open to camping. The Dunn County owned islands allow primitive camping. There is also camping offered in eastern Pierce County at Nugget Lake County Park and on Federal Corp of Engineers Lands at Spring Valley. St. Croix County also maintains a campsite in the eastern part of the county at Glen Hills County Park.

Cross country skiing, snow shoeing and hiking/walking are low impact recreational activities that are popular and commonly pursued on private lands and are also permitted on most public lands. There are well laid out and maintained cross country ski trails at Hoffman Hills State Recreation Area, the Chippewa River and Red Cedar State Trails, Lowes Creek Park (Eau Claire County) and Tower Ridge (Eau Claire County Forest). Participation in cross country skiing has leveled off in recent years. Hiking and skiing (un-groomed trails) are allowed on Wildlife and Natural Area properties.

The primary source of information on outdoor recreation in Wisconsin is the Statewide Comprehensive Outdoor Recreation Plan (WDNR 2006). These plans are completed periodically to determine status, trends and needs for outdoor recreation in the State. The current plan is for the period 2005-2010. Information for the document is obtained through public surveys, listening sessions and interviews. For purposes of evaluation, the State is broken into 8 regions of similar size. The subject region is primarily in the part of the state referred to as the Mississippi River Corridor.

Relative participation rates (percent of population participating) is fairly consistent across the state for most outdoor recreational uses. Exceptions for the Upper Mississippi River region include higher participation rates for all forms of hunting, especially big game and upland bird hunting.

The SCORP report identified the following regional nature-based recreational supply shortages or needs:

- Carry-in boat launches
- Trails (cross country ski, horse, ATV and water)
- Camping (with electricity)
- Additional fishing opportunities

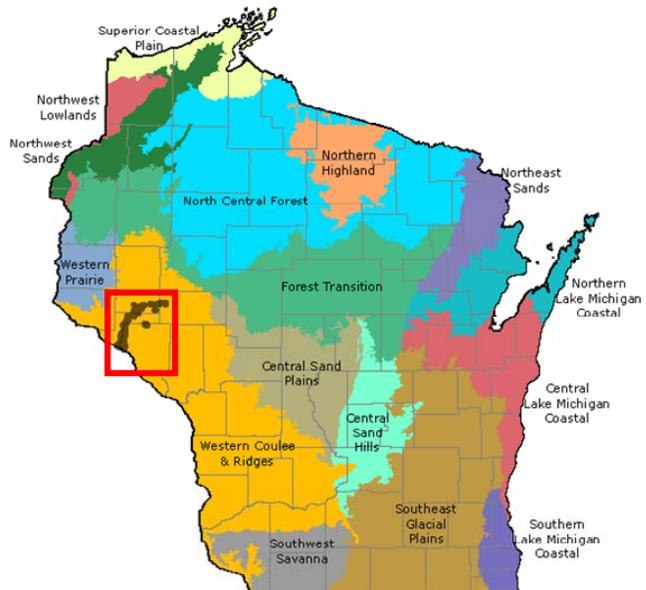
One of the major recommendations in the SCORP report is the preservation and protection of the larger areas that provide space for popular regional outdoor recreational activities. Specific recommendations are based primarily on information from the Land Legacy Report (WDNR 2006a). The Land Legacy Report was completed in 2006 to identify the most important remaining sites in the state that warrant protection for their natural resource and outdoor recreational values. The SCORP report lists the Lower Chippewa River and Prairies as being one of the top 15 sites in Wisconsin for protection.

Regional Biological Resources and Ecological Capability

Ecological characteristics of the region are defined using the Ecological Landscape (EL) classification system. This planning area is within the Western Coulee and Ridges Ecological Landscape.

The Western Coulee and Ridges Ecological Landscape covers a large area in southwestern and west central Wisconsin with the Mississippi River forming the western boundary. This Landscape is characterized by highly eroded, driftless (unglaciated) topography and relatively extensive forested cover.

Historical vegetation consisted of southern hardwood forests, oak savanna, scattered prairies, and floodplain forests and marshes along the major rivers. With Euro-American settlement, most of the land on ridge tops and valley bottoms was cleared of oak savanna, prairie, and forest for agriculture. The steep slopes between valley bottom and ridge top, unsuitable for raising crops, grew into oak-dominated forests after the frequently occurring pre-settlement wildfires were suppressed. Current vegetation is a mix of forest (40%), agriculture, and grassland with some wetlands in the river valleys. The primary forest cover is oak-hickory (51%) dominated by oak species and shagbark hickory. Maple-basswood forests (28%), dominated by sugar maple, basswood and red maple, are common in areas that were not subjected to repeated pre-settlement wildfires. Bottomland hardwoods (10%) are common in the valley bottoms of major rivers and are dominated by silver maple, ashes, elms, cottonwood, and red maple.



This region of Wisconsin has historically been and still is an area of concentrated and diverse natural resources. Early explorers attested to the area’s wealth of resources. Jonathan Carver’s writing in 1767 stated “the area was filled with stag, bear, deer, and bison that we shot every day in one form or another”. The importance of the area to species conservation is emphasized by their persistence. The last location for elk (stag) in the state prior to reintroduction efforts was in Dunn County. The last big herds of bison were seen in Buffalo County. One of the last significant nesting sites of the now extinct passenger pigeon occurred in this area.

Management needs and opportunities for any landscape are often described in terms of “natural or native communities”. These are assemblages of native plants and animals that consistently occur together under similar conditions. The Ecosystem Management Planning Handbook (WDNR 2002, Online: <http://dnr.wi.gov/landscapes/opportunity/>) describes the best opportunities for sustaining certain natural communities in each of the 16 Ecological Landscapes. “Sustaining natural communities” means ensuring that a given natural community type will be present and has high potential to maintain its characteristic composition, structure, and ecological function over a long period of time (e.g. 100 years).

The Western Coulee and Ridges Ecological Landscape has an opportunity to manage for 45 natural communities. Of these, 24 are considered “major” opportunities and are listed below. A “major” opportunity indicates that the natural community can be sustained in the Ecological Landscape, either because many significant occurrences of the natural community have been recorded in the landscape or major restoration activities are likely to be successful in maintaining the community’s composition, structure and ecological function over a longer period of time. An additional 13 natural communities are considered “important” in this Ecological Landscape.

Major Natural Community Restoration Opportunities In the Western Coulees and Ridges Ecological Landscape			
Algific Talus Slope	Surrogate Grasslands	Southern Dry Forest	Shrub Carr
Bedrock Glade	Dry Cliff	Southern Dry-mesic Forest	Emergent Marsh
Cedar Glade	Moist Cliff	Southern Mesic Forest	Submergent Marsh
Sand Prairie	Oak Barrens	Pine Relict	Warmwater Rivers
Dry Prairie	Oak Opening (savanna)	Hemlock Relict	Coolwater Streams
Dry-mesic Prairie	Oak Woodland	Floodplain Forest	Coldwater Streams

The Wildlife Action Plan (WDNR 2006b) also identifies the Species of Greatest Conservation Need associated with each landscape. The statewide Wildlife Action Plan presents priority conservation actions to protect species and their habitats (you may read the full report at: <http://dnr.wi.gov/org/land/er/wwap/>). Species of Greatest Conservation Need (SGCN) are defined as having low and/or declining populations that are in need of conservation action. They include various birds, fish, mammals, reptiles, amphibians, and invertebrates (e.g. dragonflies, butterflies, and freshwater mussels) that are:

- Already listed as threatened or endangered;
- At risk because of threats to their life history needs or their habitats;
- Stable in number in Wisconsin, but declining in adjacent states or nationally;
- Of unknown status in Wisconsin and suspected to be vulnerable.

As would be expected, with the large number of natural communities (45) in the Western Coulee and Ridges Ecological Landscape, there are a large number of associated SGCN. There are a total of 174 species (plants excluded) identified as SGCN for the Western Coulee and Ridges Ecological Landscape.

Of these, 74 are considered to be “significantly” associated with the Western Coulee and Ridges Ecological Landscape. This means that the species is (and/or historically was) significantly associated with the natural community and that restoration of this natural community would significantly improve conditions for the species. The list includes 40 birds, 14 fish, 19 reptiles/amphibians and 1 mammal (see full list at <http://dnr.wi.gov/landscapes/>).

While plants are not included in the Wildlife Action Plan, the Working List of WDNR’s Natural Heritage Inventory (WDNR 2006c) presently includes 125 species of rare vascular plants that are known to occur within the boundaries of the Western Coulees and Ridges Ecological Landscape. Of these, 18 are WI Endangered, 28 are WI Threatened, and 79 are WI Special Concern (WDNR in Prep.).

In addition to the numerous occurrences of rare habitats and species, the region is also highly regarded for more common habitats and associated species. The mix of agricultural land, grassland and forestland provide ideal habitat for deer and turkey. The area is widely known for the quantity and quality of hunting opportunity for these species. Backwaters and wetlands associated with the Mississippi and Lower Chippewa are highly regarded for waterfowl habitat and hunting. The area is well known for birding. People come from long distances to observe tundra swan, pelicans and other waterfowl associated with the Mississippi flyway during migration. As many as 30 species of warbler can be present during spring migration. Since the recovery of the Bald Eagle in the Midwest, large numbers over winter along the river systems as long as the water remains open. When conditions are right, as many as 100 eagles can be observed in one location during the winter months. Just across the river at Wabasha, Minnesota, The National Eagle Center was established in recognition of the importance of the Mississippi and surrounding area for the Bald Eagle.

DESCRIPTION AND ANALYSIS OF THE LOWER CHIPPEWA PLAN AREA AND STATE PROPERTIES

This section describes the areas and properties’ land/water/biological resources, recreational use/developments and historical/cultural resources. The section begins with an overview of resources in the entire 312,000 acre plan area (LCRPA) (the project boundary for the Lower Chippewa River State Natural Area-LCR SNA) followed by additional information specific to individual properties that are covered in this plan. Material for this section is taken from two Department publications: the *LCR SNA Feasibility Study* (WDNR 2000) and the *Rapid Ecological Assessment for the Lower Chippewa River System Planning Group* (WDNR 2008). The following material was also reported in the *Regional and Property Analysis (Regional & Property Analysis: Lower Chippewa River State Wildlife Areas and State Natural Areas, WDNR 2009)*.

The LCR SNA Feasibility Study was prepared to support establishment of the state natural area project.

The Rapid Ecological Assessment report was prepared by the Bureau of Endangered Resources in preparation for this planning effort. It is a summary of biodiversity values focusing on rare plants, selected rare animals, and high quality natural communities done in preparation for the development of a new property master plan.

Overview of the Land/Water Resources of the Plan Area

SURFACE GEOLOGY AND SOILS

The surface geology across the region has been shaped by many factors. This area lies at the interface of the central plain and western upland geographical provinces. The central plain is characterized by flat to rolling topography as in the Dunn and Eau Claire County portions of the planning area. The topography of the central plain has been influenced by the abrasion and drift deposition associated with “old” glacial activity of Early-Wisconsin or Pre-Wisconsin Age. The narrow, steep-walled valleys and broad ridges in Buffalo and Pepin counties characterize the western upland region. While earlier glacial advances did leave a thin cap of drift on northern portions of the western uplands, much of this area has been in a driftless (un-glaciated) condition for at least the past 500,000 years. Ridge tops in the study area, especially those in northwest Buffalo County, are capped with a layer of fine, wind-blown material called loess. The depth of this material varies with topography from a few inches to several feet.

The bedrock underlying the area consists of Cambrian age sandstone formations in the central plain, and Ordovician age limestone and sandstone formations in the western upland. Dolomitic limestone formations of the Prairie du Chien group cap the sandstone in the southern portions of the plan area. The thickness of these dolomites varies considerably, with deposits up to several hundred feet south of the Chippewa River, and thinner deposits of a few feet to the north in eastern Pepin County.

Dissecting this landscape in a broad valley is the Chippewa River. The valley of the Chippewa is filled with thick glacial outwash deposits. This glacial debris from a large portion of northern Wisconsin was flushed by the Chippewa River as melt water when the glacier receded. In the expanse of time following the deposition of the glacial outwash, the river has cut into the material to its present position approximately 100 feet below the terrace level. The natural meandering of the river continues to erode the terraces in areas referred to as “yellow banks”.

Soils within the plan area vary widely from heavy and poorly drained to light and droughty. Many ridge-top areas have a wind deposited silt cap ranging from 6" to 48" in thickness. Soils are generally excessively drained or well drained throughout the study area. Moderately well drained and somewhat poorly drained soils are found more in the southeastern sections of the study area. Alluvial soils are found in the floodplain corridors.

WETLANDS

Some wetlands have been lost, and many others degraded, in the study area. The losses have occurred more in the northern and eastern portions of the study area where topography has facilitated drainage. These wetlands were mostly wet prairie, sedge meadow, or conifer swamps drained for agricultural

purposes. Many remaining wetlands are located in the floodplain of the large rivers. These backwater areas have been degraded by a variety of land use practices such as grazing, elimination of vegetative buffers, changes in ground water flow, stabilized stream flow resulting in increased siltation and fertility, and reductions in desirable emergent and submergent aquatic vegetation. While these wetlands are degraded, their value for wildlife habitat and water quality protection is very high.

SURFACE WATERS

Surface Waters within the plan area are made up of over 60 miles of free flowing river (between the Chippewa and Red Cedar), numerous sloughs, terrace-base lakes, oxbows, ponds, springs, tributary streams, and intermittent drainage ways. The majority of the plan area is within the lower Chippewa watershed with the southeast portion of the plan area lying within the Buffalo River watershed. Each of these basins contains numerous dry runs and other surface drainage features which carry water during spring runoff or during extreme storm events. All of these features have the ability to transport sediment and pollutants, and are greatly affected by land use practices in their watersheds. Center Creek, Little Bear Creek, and Shoe Creek are classified as Class II trout streams. Bear Creek is classified as a Class III trout stream. Two water bodies in the plan area are included on the Federal Environmental Protection Agency's list of impaired surface waters. Little Bear Creek is classified as impaired due to habitat destruction and excessive sedimentation. The Red Cedar River is classified as impaired due to high nutrient levels and eutrophication.

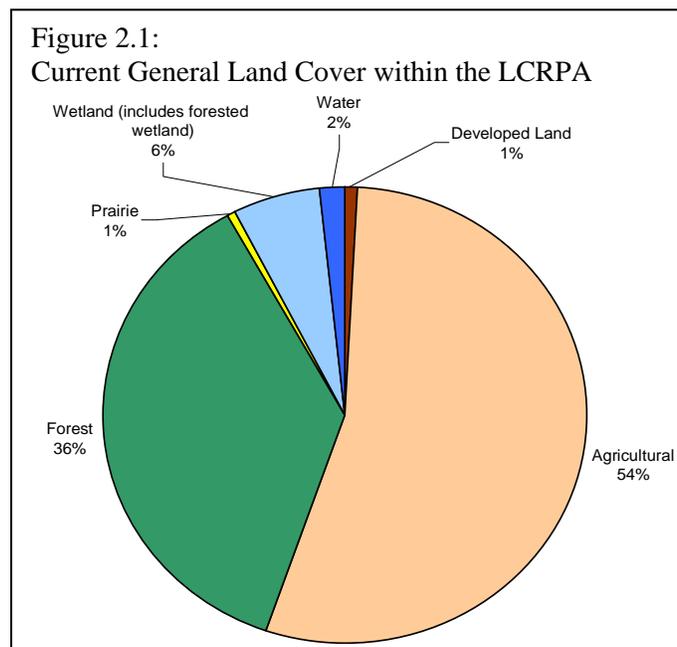
THE VEGETATIVE LANDSCAPE

A very good representation of the original (Pre-European settlement) vegetative cover in the plan area is depicted on a map Finley (See Map C) developed from original land surveyor notes (ca 1840's). Oak forest is identified as being the most predominant natural community followed by oak openings (savannas), upland prairies, floodplain forest, sugar maple/basswood forest, oak barrens, open water, swamp conifers, sedge meadows and wet prairie, jack pine forest and barrens, white pine/aspen forest.

Over the last 150+ years there have been significant changes in the natural landscape. The current relative abundance of general

cover-types of the area is shown in the chart in Figure 2.1. Today the native vegetation is dominated by mixed forests rather than the oak forests and savannas or prairies of past.

The extensive floodplain forest that flanks the Chippewa River up stream from its confluence with the Mississippi River to just south of Durand contains the largest, intact floodplain forest in the entire upper Midwest. This delta formation contains numerous microhabitats primarily influenced by the flooding of the Chippewa River. The extent of the forest (over 14,000 acres) and the numerous microhabitats



provides ideal habitat for many rare “area sensitive” bird species including six state-threatened species; Acadian Flycatcher, Cerulean Warbler, Hooded Warbler, Kentucky Warbler, Red-Shouldered Hawk, and Yellow-crowned Night-Heron. The backwaters and marshy areas provide abundant food for migrating birds. The Upper Mississippi River National Wildlife and Fish Refuge along with the adjacent lower Chippewa River area has been given status as a national Important Bird Area (IBA) by the National Audubon Society and by the American Bird Conservancy due to the numerous rare bird species and the concentration of migrating birds (WDNR 2007).

Upstream from Durand, the landscape along the Chippewa River changes to a more open forest with floodplain savanna occurring on islands and low floodplain ridges among the river channels. The phenomenon of savanna development along large rivers is rare not only in Wisconsin, but in North America. Oak savannas are one of the rarest natural communities remaining in the state and these floodplain savannas are even rarer. The best and largest examples occur on river islands and peninsulas between Durand and Caryville.

Upland forests within the LCRPA plan area are primarily oak/hickory, southern mesic hardwood and aspen. Along the Dunn County portion of the terrace are stands of white pine-oak forest and nearly pure stands of jack pine forest. Some of these forests are likely former oak savanna or prairie that were allowed to fill in with trees once fire and grazing were no longer frequent occurrences on the landscape.

Within the plan area, pockets of smaller habitat often are important for endangered and threatened species. Examples of these small tracts of jack pine barrens, white pine forest, forested seeps, springs, open cliffs, and wet cliffs. In addition, the state-threatened Henslow’s sparrow and Bell’s vireo have consistently been recorded nesting in fallow fields, brushy pastures, and CRP acres within the plan area.

Currently, the most dominant natural community of the LCRPA is the floodplain forest of the lowlands along the Chippewa and Red Cedar rivers and their smaller tributaries, including Rock Creek. The floodplain forests are interspersed with emergent marsh, oxbow lakes, shrub-carr, southern sedge meadows, oak barrens, and dry-mesic prairies. On the rugged hills above the river floodplain are oak dominated southern dry-mesic forests, often with dry prairies on steep, south-facing slopes. Outcrops of sandstone (and sometimes dolomite) along the rivers and on the bluffs form moist and dry cliffs. Pine-dominated northern dry-mesic forests are often associated with sandstone. Other cover types associated with the LCRPA are surrogate grasslands, pine plantations, and agricultural fields.

The slough and terrace topography of the floodplain leads not only to a diversity of natural community types, but a diversity of dominants within each community type. The dominant canopy trees in the floodplain forests vary from swamp white oak with basswood and river birch on the more upland terraces to silver maple with green ash, American elm, and cottonwood in the lower areas. Floodplain forests dominated by swamp white oak, with river birch and basswood as canopy associates, have a mesic assemblage of herbaceous species. Herbaceous species within these stands include sessile bellwort, Gray’s sedge, blue phlox, downy yellow violet, meadow garlic, and calico aster. Invasive species cover is very low and includes European honeysuckle. Reed canary grass, moneywort, and garlic mustard were not located within the surveyed stands.

Undisturbed floodplain forests dominated by silver maple generally have a dense canopy, with trees averaging 12-24" in diameter and some up to 48" in diameter. The canopy associates are diverse and include hackberry, bitternut hickory, green ash, white ash, black ash, swamp white oak, river birch, and basswood. American elm and cottonwood are also present in the canopy, but sparse. The subcanopy and sapling layers within these stands are also diverse with many of the canopy species present. Silver maple was noted to be within both the sub-canopy and sapling layers in a majority of areas visited in the southern half of Tiffany WA. The current low level of tree regeneration, even in gaps and opening, may be the result of extensive deer browsing (Jay Jordan pers. comm.) or due to the presence and spread of reed canary grass. The shrub layer is sparse with prickly ash and mountain holly among the common species. Vines present include wild yam, river bank grape, moonseed, common groundnut, and bristly greenbrier. The herbaceous layer is dense and generally dominated by Canadian wood-nettle with other common species including reed canary grass, cut-leaved coneflower, stinging nettle, moneywort, ostrich fern, and small-spike false nettle.

Interspersed within the extensive floodplain forests are upland and non-forested wetland natural communities and features such as oxbow lakes. Wetland natural communities include emergent marsh, shrub-carr, and southern sedge meadows. Oak barrens and dry-mesic prairies occur on sandy linear terraces. The quality of the oak barrens vary, with some overgrown and some that are managed with prescribed burning and maintain a diverse native prairie herbaceous layer. The dry-mesic prairies are generally of good quality, with scattered patches of shrubs and a dense herb layer dominated by big bluestem, switch grass, and Kentucky bluegrass with lesser amounts of Indian grass, white sage, Culver's root, and stiff goldenrod.

Southern dry-mesic forests occur on the rugged bluffs bordering the floodplain. These forests are dominated by red and white oaks (8-15" diameter and up to 30" diameter) with red maple, shagbark hickory (at the north edge of its range), and big-tooth aspen among the canopy associates. Prominent shrubs include gray dogwood, American hazelnut, and common buckthorn. Representative herbs are hog peanut, lady fern, wild sarsaparilla, pointed tick-trefoil, wild geranium, interrupted fern, American lopseed, and false Solomon's-seal. Stands of young aspen created by patch clearcuts are present within the southern dry-mesic forest in the Tiffany WA.

Dry Prairies occur on steep, south-facing bluffs within the southern dry-mesic forests. The dry prairies are small and generally open with scattered sapling big-tooth aspen and red cedar. The herbaceous layer is dense with little bluestem, big bluestem, prairie drop-seed, porcupine grass, side-oats grama, sweet clover, purple prairie clover, and stiff goldenrod.

Twenty to thirty foot sandstone cliffs along the rivers support both moist and dry cliff assemblages. The cliffs vary from sparsely vegetated with sand cress to moss and lichen covered. Pine-dominated northern dry-mesic forests are often associated with these sandstone bedrock exposures and have a dense canopy dominated by 8-15" diameter and up to 36" diameter red oak with red maple, white pine, basswood, black oak, bur oak, and white oak. Subcanopy red oak and red maple are present with white pine, basswood, red maple, white oak, and big-tooth aspen. The sapling layer is moderately dense and dominated by red maple with red oak, basswood, big tooth aspen, white oak, and bitternut hickory. The shrub layer is

sparse with hornbeam. The herb layer is moderately dense with common polypody, Pennsylvania sedge, wild sarsaparilla, and Canada mayflower.

INVASIVE SPECIES

The current level of invasive plant infestation varies greatly throughout the plan area. Although many areas remain free of invasive plants, many have large populations that threaten the diversity of the natural communities and the plants and animals they support.

Upland forests, prairies, and grasslands of the area have been heavily impacted through past disturbances including agriculture, grazing, timber harvest, and the alteration of natural disturbance regimes. This disturbance history has contributed to the presence of various invasive plants, including common buckthorn and European honeysuckles, garlic mustard, smooth brome, Kentucky bluegrass, and prickly ash.

Riverine systems, such as those found within the area are unusually susceptible to invasions by exotic plant species because of their linear shape, the high ratio of edge to interior, and the frequent disturbance from flooding. Preemptive measures to minimize the impacts of invasive plants include maintaining a mature floodplain forest, minimizing and eliminating trails and roads through floodplains, and buffering riparian areas with mature, continuous uplands. Examples of invasive plants found within the riverine systems of the LCRPA include dame's rocket, garlic mustard, reed canary grass, moneywort, and glossy buckthorn and European honeysuckles. Riverine systems are also highly susceptible to aquatic invasives. Current threats include zebra mussel, viral hemorrhagic septicemia (VHS) and carp species. Significant forest threats include Dutch elm disease, butternut canker, Emerald ash borer, and Gypsy Moth.

Opportunities for Biodiversity Conservation in the Plan Area

NATURAL COMMUNITIES

Large Rivers

The Chippewa and Red Cedar rivers, below the Dells Dam, provide habitat for 70% of the state's fish species, including 18 rare species (WDNR 1999). This species list includes 5 state Threatened fish and the state Endangered crystal darter which occurs in the Lower Chippewa (where it's most common in WI) and Red Cedar Rivers but is known from only 4 other river systems in the state. The crystal darter is one of four Wisconsin species being reviewed for possible listing by the US Fish & Wildlife Service.

The Chippewa River, a prime example of a large river system in WI, has a very diverse aquatic invertebrate community. This river community (both upstream and downstream of the Dells Dam) includes 20 Endangered, Threatened, Special Concern, or Watch List species, which are mussel, dragonfly, or mayfly species. Significantly, two of these species are currently under review for Federal listing as Endangered or Threatened (also known as candidate species), the *Cumberlandia monodonta* and *Cyclonaias tuberculata* and a third species the *Simpsonaias ambigua*, is being considered for candidate status under the Federal Endangered Species Act.

The Lower Chippewa River watershed was identified by The Nature Conservancy as one of 327 Critical Watersheds for conservation in the United States. Other important aquatic features associated with the main channels of the Chippewa and Red Cedar rivers are side channels, backwaters, cut-off sloughs, oxbow lakes, terrace-based seepage lakes, tributary streams, and springs (WDNR 1999). The sixty-one miles of the Chippewa River below the Dells Dam to its confluence with the Mississippi River represent some of the last remaining non-impounded large riverine habitat in the Upper Midwest (WDNR 2001).



The Chippewa River by Dunnville SWA. Photo by Armund Bartz.

Floodplain Forests

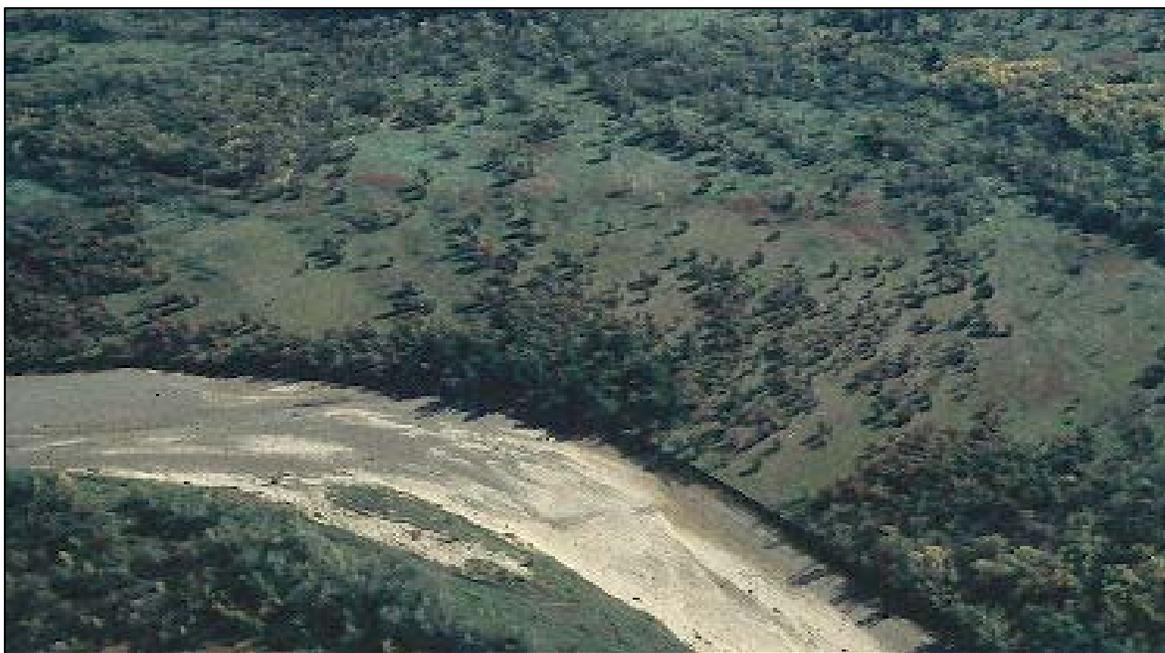
Floodplain forests are lowland hardwood forests that occur along large rivers and are adapted to periodic flooding (WDNR 2006b). Silt deposition from flooding creates micro-habitats that allow for a diverse assemblage of wetland communities including southern sedge meadow, shrub-carr, alder thickets, and hardwood swamps.

The floodplain forests of the LCRP, part of the largest river delta system in the Midwest, provide habitat for numerous rare birds. One of Wisconsin's best populations of the State Threatened Red-shouldered Hawk is found in these bottomland forests along the Lower Chippewa River. This uncommon forest raptor requires an intact, mature, closed canopy (>60% canopy cover) for breeding. The major threat that has led to low numbers has been the loss of large blocks of contiguous forest habitat and fragmentation which allows competitors like the Red-tailed Hawk and Great-horned Owl to move into areas and out-compete Red-shouldered Hawk adults for productive nesting locations. Maintaining and connecting the large blocks of intact, mature floodplain forest and the gradient from lowlands to uplands would increase breeding habitat for Red-shouldered Hawks, as well as a large number of area-sensitive rare and Species of Greatest Conservation Need (SGCN) birds including the state Threatened Kentucky and Cerulean Warblers and Yellow-billed Cuckoo, all of which are known to breed within the LCRP. In addition, the bottoms provide nesting area for no less than 30 pairs of Bald Eagles from the confluence of the Mississippi River up to the Eau Claire area.

The large blocks of floodplain forest on the LCRP are vital for numerous migratory birds as well. This area falls within the Mississippi flyway which supports vast numbers of birds that nest north of here and into Canada. This includes huge numbers of passerines that rest in the protection the wooded cover the floodplain forest and connected bluffs provides, allowing them to replenish fuel reserves. There are also excellent spring raptor migrations here where raptors can use the winds off the bluffs to slope soar or rest in the bottoms to hunt and save energy for the remainder of their long flight. Large numbers of waterfowl use the river and the wetlands and marshes within the floodplain forest for stopover sites especially during the fall migration. Hundreds of waterbirds including several species of herons and egrets have been documented here in late summer.

Floodplain Savannas

Floodplain savannas are found on floodplain terraces and have an open tree canopy dominated by large diameter bur oak or swamp white oak. Currently, NHI does not have a natural community type that represents a floodplain savanna, although they are recognized by NatureServe as an ecological community. This habitat type is listed as being Critically Imperiled globally because across its very restricted range of Wisconsin, Illinois, and Missouri, most stands of this type have been destroyed or converted to closed-canopy forests. Curtis (1959) noted that historically, fires starting in the uplands adjacent to floodplains may have swept across the floodplain creating newly exposed ground that could be invaded by swamp white oak. Within the LCRP, high quality examples of this habitat occur on river islands, peninsulas, and low floodplain ridges between Durand and Caryville (WDNR 1999).



Floodplain Savanna along the Lower Chippewa River (TNC 2001).

The floodplain savannas of Tiffany WA provide habitat for some rare and declining species including one that is a Candidate for Federal listing under the Endangered Species Act. Management for rarer species has included creating small openings or savanna areas within the forest, as well as expanding existing openings. Research suggests that this management, within the context of a very large intact floodplain

forest to upland forest continuum may also be beneficial for some bird species of conservation concern. The state Threatened Kentucky Warbler and SGCN Wood Thrush and Veery utilize these areas where a dense shrub layer is present for nesting and nest cover. In addition, research has shown that small openings do not negatively impact Cerulean Warblers, which are also found in these bottomland forests, as long as large deciduous trees and structural complexity are retained. Red-shouldered Hawks will utilize these openings for hunting amphibians, reptiles, and small mammals when they occur within the context of large forested areas with remaining high canopy coverage that prevent competitors like Great-horned Owl and Red-tailed Hawks from invading (WDNR 2008).

To protect this habitat, efforts to prevent the spread of reed canary grass should continue. Where the canopy has been opened up (including timber management and prescribed fire) this species can dominate and simplify the herbaceous layer and inhibit the germination or growth of tree seedlings. These reed canary grass-dominated areas appear to be less suitable for native species and could alter forest composition, structure, and suitability for nesting birds. Management opportunities exist for cavity nesting birds, such as Prothonotary Warblers and Pileated, Red-headed, and Red-bellied Woodpeckers when forest management is taking place by leaving large dead standing trees.

Because floodplain savannas are rare, at state and global levels, more research is needed to determine the historic disturbance regimes that allowed the forest canopy to remain partially open, as well as the impacts of current management on all species that occupy this habitat. Careful management planning is required to balance the habitat requirements of the forest-interior bird species which utilize this area and other native species, which need more open sedge dominated areas at least a part of their habitat requirements.

Riverine Terrace Prairies and Surrogate Grasslands

Prairies found in the floodplains of large rivers form a complex of dry-mesic prairies on sandy terraces intermixed with wet-mesic and wet prairie in low swales and together can be called riverine terrace prairies. Tree density is very low and shrub cover is patchy within these prairies. Riverine terrace prairies were historically found widely throughout the central United States but are now listed as being globally imperiled because they have been nearly eliminated due to their conversion to agriculture and the suppression of fire. Currently, NHI does not have a natural community type that specifically describes the riverine terrace prairie.

Riverine terrace prairies, along with the surrogate grasslands that are found throughout the LCRP, provide opportunities for several assemblages of grassland birds over various moisture regimes and with differing amounts of woody cover. Grassland bird species are exhibiting one of the most significant declines of any suite of bird species found in Wisconsin and nationwide, and today many species associated with prairies use surrogate grasslands such as planted prairies, old fields, and pastures for their survival (WDNR 2006b).

Promoting good nest success and the persistence of viable populations of area-sensitive grassland birds requires maintaining patch sizes of greater than 100 hectares (247 acres) (personal communication D.

Sample). The context of the surrounding landscape should be assessed to determine whether larger areas of grass could be connected through appropriate management.

Expanding grassland acreage near Rock Falls Wildlife Area, which supports many conservative grassland obligate species like the Henslow's Sparrow, Eastern and Western Meadowlark, Bobolink, and Dickcissel (all Species of Greatest Conservation Need-SGCN), would likely increase density of these species and potentially equate to improved nest productivity. The Rock Falls Wildlife Area has a diverse mix of grassland and shrub habitats at varying vegetation densities and heights that provide nesting areas for at least 14 Species of Greatest Conservation Need. This area also supports a healthy naturally reproducing population of ringneck pheasant.

Additional important grassland habitats on the LCRP vary from xeric sand prairies to wet prairies and emergent marsh. This diversity of open habitats adds to the impressive avian richness and diversity of the Lower Chippewa River valley.

Protecting the diversity of sand prairies by controlling invasive species like spotted knapweed and maintaining shrubby patches at appropriate locations along the sandy river terraces and bluffs will benefit SGCN such as Field, Lark, and Vesper Sparrows;

Brown Thrasher, and Bell's Vireo. Maintaining the hydrological function and connectivity of existing wet prairies, meadows, and marshes on the LSCRSPG will continue to provide nesting habitat for uncommon species like King Rail, American Bittern, Least Bittern, Black Tern, and Willow Flycatcher.



Dry-mesic prairie along the Chippewa River in Dunnville SWA.
Photo by Armund Bartz.

Driftless Area Upland Forests and Prairies

Steep, rugged hills support a mosaic of southern dry-mesic forests, dry prairies, and oak woodland that provide habitat for the most diverse assemblage of rare breeding birds on the LCRP. The forests and prairies have the potential to support numerous rare plants, including Hill's thistle, dotted blazing star, Carolina anemone, and potentially prairie bush-clover.

A continuum of intact natural communities, from the dry upland forests on the bluffs to the lowland hardwoods in the floodplain occurs at some locations within the study area and at relatively few other places within the Western Coulee and Ridges Ecological Landscape. Such connected habitats are critical for genetic exchange and the efficacy of forest interior for birds and other species.

Maintaining or expanding large blocks of upland forest is vital for area-sensitive species like the Worm-eating Warbler, Acadian Flycatcher, Yellow-billed Cuckoo, Wood Thrush, and Veery - all of which are known to breed in the upland forests along the Lower Chippewa River. Management to retain mature

oaks and other large diameter hardwoods that form high canopy closure with outstretching branches would continue to provide ideal nesting habitat for the persistently declining (Link and Sauer 2002) Cerulean Warbler. Maintaining vertical structural diversity within intact forest stands is important for conservative species like the state threatened Kentucky and Hooded Warblers. A mix of more open shrubby areas or dry prairies that transition with gentle “feathered edges” into oak woodland and southern dry-mesic forest promote the growth of an appropriate shrub layer that SGCN birds like Black-billed Cuckoo, Blue-winged Warbler, and Field Sparrow require, while providing a diversity of open to closed canopy forest. The Five Mile Bluff Prairie State Natural Area and surrounding southern dry-mesic forest provides an excellent example of the habitat diversity, structure, and composition necessary to support nearly all of these bird Species of Greatest Conservation Need.

SIGNIFICANT, SITE-SPECIFIC OPPORTUNITIES FOR NATURAL COMMUNITY MANAGEMENT

Four Primary Sites for biodiversity conservation are identified on the Lower Chippewa River Properties in the *Rapid Ecological Assessment for the Lower Chippewa River System Planning Group* (WDNR, 2008) and are also fully described in the *Regional & Property Analysis, Lower Chippewa River State Wildlife Areas and State Natural Areas* (WDNR 2009). These primary sites are:

Floodplain Terrace Prairie and Wetlands

This site is primarily on Dunnville SWA and provides an example of the globally imperiled riverine terrace prairie and associated terrace based seepage lakes, floodplain forests, oak savanna, and gravel bars along the Chippewa River. The riverine terrace prairie is a complex of dry-mesic prairies on sandy terraces intermixed with wet-mesic and wet prairie in low swales.

Red Cedar River Cliffs and Forests

This site is primarily, but not entirely, on Dunnville SWA and the Lower Chippewa River State Natural Area. This site contains important examples of northern dry-mesic forests, moist and dry cliffs, unique lowland forests, and the plants and animals these natural communities support. This site provides important nesting habitat for a number of Threatened, and Special Concern Species. They include Yellow-billed Cuckoo (SC), Red-shouldered Hawk (THR), Hooded Warbler (THR), Acadian Flycatcher (THR), and Bald Eagle (SC).

Five Mile Bluff Prairie and Woods

This site is mostly contained on Tiffany WA lands. The site contains good examples of southern dry-mesic forest and dry prairie. It provides important habitat for a variety of rare animals, birds, and plants. Most notable are, Cerulean Warblers (THR), Worm-eating Warblers (END), Kentucky Warblers (THR) Hooded Warblers (THR), Yellow-billed Cuckoos (SC), Red shouldered Hawks (THR), Smooth Coil, a snail (SC) and dotted blazing star (END) and yellow gentian (THR).

Chippewa River Floodplain Forests and Wetlands

This site encompasses most of the Buffalo County portion of Tiffany SWA but contains some private lands as well. This site is part of the largest intact floodplain forest in the upper Midwest. It serves as an important stopover site for migratory birds. The site has an exceptionally large variety of vegetation types including floodplain forest, southern sedge meadow, emergent marsh, shrub-carr, alder thickets, hardwood swamps, oxbow lakes, and dry-mesic prairie. These provide important habitat for a broad array of rare species, including one that is a candidate for federal listing. Examples of rare species found here include; Red-shouldered Hawk (THR), Cerulean Warbler (THR), Kentucky Warbler (THR), Bald Eagle (SC), Yellow-billed Cuckoo (SC), a leafhopper (SC), brittle pricklypear (THR), water-purslane (SC), and prairie fame-flower (SC).

These focus sites were delineated to be considered for protection and/or restoration because they generally encompass the best examples of 1) both rare and representative natural communities and 2) rare species populations that have been documented to date within the LCRP. These sites have been included within the Native Community Management Areas designated by the master plan. Refer to the documents referenced above for a description and location for these focus sites. Special management for these sites is provided by the master plan in Chapter 2.

Rare Species and High Quality Natural Communities of the Lower Chippewa River Properties

Numerous rare species and examples of important, high-quality natural communities have been documented on the LCRP. Table 2-1 shows those that are currently mapped in the Natural Heritage Inventory (NHI) Database on the LCRP by property. There may be more than one element occurrence of the species or natural community per property. See Appendix A for summary descriptions for each of the rare species and natural communities that occur on the LCRP. Species listed on Table 2-1 without a State Rank or State Status are Species of Greatest Conservation Need which are not on the NHI Working List. Species of Greatest Conservation Need are discussed further in a section following Table 2-1.

For an explanation of state and global ranks, and state status, see dnr.wi.gov/org/land/er/wlist/key.htm. Species with an observation date of *2007 were seen nesting between 1992 and 2007. Species that are documented on the LCRP but are not yet mapped in the NHI Database are: Black Tern, Great Egret, Hooded Warbler, Osprey, Prothonotary Warbler, and Water Purslane on Tiffany SWA (including adjoining SNAs) and Cerulean Warbler, Acadian Flycatcher, and Lark Sparrow on Nine Mile Island.

Table 2-1: High Quality Natural Communities and Rare Species of the LCRP

Property	Common Name	Scientific Name	Year Last Observed	State Rank	Global Rank	State Status	USA\ ESA Status
Caryville Savanna State Natural Area							
	Gorgone Checker Spot	<i>Chlosyne gorgone</i>	1995	S3	G5	SC	
	Oak Barrens		1989	S2	G2	NA	
Chippewa River							
	A Cleft-footed Minnow	<i>Metretopus borealis</i>	1993	S1	G5	SC	
	Mayfly						
	A Flat-headed mayfly	<i>Macdunnoa persimplex</i>	1992	S1?	G4	SC	
	A Flat-headed mayfly	<i>Pseudiron centralis</i>	1991	S3	G5	SC	
	American Eel	<i>Anguilla rostrata</i>	1977	S2	G4	SC	
	Blue Sucker	<i>Cycleptus elongatus</i>	1995	S2	G3 G4	THR	
	Buckhorn	<i>Tritogonia verrucosa</i>	1998	S2	G4 G5	THR	
	Bullhead	<i>Plethobasus cyphus</i>	1988	S1	G3	END	C
	Butterfly	<i>Ellipsaria lineolata</i>	2001	S2	G4	END	
	Crystal Darter	<i>Crystallaria asprella</i>	1989	S1	G3	END	
	Cyrano Darner	<i>Nasiaeschna pentacantha</i>	1970	S3	G5	SC	
	Elktoe	<i>Alasmidonta marginata</i>	1998	S4	G4	SC	
	Greater Redhorse	<i>Moxostoma valenciennesi</i>	1977	S3	G4	THR	
	Goldeye	<i>Hiodon alosoides</i>	1977	G5	S2	END	
	Lake Sturgeon	<i>Acipenser fulvescens</i>	1976	S3	G3G4	SC	
	Monkeyface	<i>Quadrula metanevra</i>	1988	S2	G4	THR	
	Mud Darter	<i>Etheostoma asprigene</i>	1927	S3	G4 G5	SC	
	Paddlefish	<i>Polyodon spathula</i>	2003	S2	G4	THR	
	Pecatonica River Mayfly	<i>Acanthametropus pecatonica</i>	1991	S1	G2 G4	END	
	Pugnose Minnow	<i>Opsopoeodus emiliae</i>	1977	S3	G5	SC	
	River Redhorse	<i>Moxostoma carinatum</i>	1977	S2	G4	THR	
	Round Pigtoe	<i>Pleurobema sintoxia</i>	1998	S3	G4	SC	
	Salamander Mussel	<i>Simpsonaias ambigua</i>	1998	S2S3	G3	THR	
	Silver Chub	<i>Macrhybopsis storeriana</i>	1977	S3	G5	SC	
	Smoky Shadowfly	<i>Neurocordulia molesta</i>	1998	S2S3	G4	SC	
	Western Sand Darter	<i>Etheostoma clarum</i>	1993	S3	G3	SC	
Dunnville Wildlife Area							
	Acadian Flycatcher	<i>Empidonax virescens</i>	2008	S3	G5	THR	LT/PD
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	2002	S4,S2	G5	SC	
	Blue-winged Warbler	<i>Vermivora pinus</i>	2008	--	G5	--	
	Hooded Warbler	<i>Wilsonia citrina</i>	2008	S2S3	G5	THR	
	Red-shouldered Hawk	<i>Buteo lineatus</i>	2008	S3S4,S1	G5	THR	
	Dry-mesic Prairie		2008	S2	G3	NA	
	Emergent Marsh		2008	S4	G4	NA	

Table 2-1: High Quality Natural Communities and Rare Species of the LCRP

Property	Common Name	Scientific Name	Year Last Observed	State Rank	Global Rank	State Status	USA\ ESA Status
	Floodplain Forest		2008	S3	G3?	NA	
	Moist Cliff		2008	S4	GNR	NA	
	Northern Dry-mesic Forest		2008	S3	G4	NA	
Lower Chippewa River State Natural Area							
	A Leafhopper	<i>Attenuipyga vanduzeei</i>	1999	S1	GNR	SC	
	Arctic Shrew	<i>Sorex arcticus</i>	2005	S3S4	G5	SC	
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	2002	S4,S2	G5	SC	LT/PD
	Bell's Vireo	<i>Vireo belli</i>	2008	S2	G5	THR	
	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	2005	--	G5	--	
	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1897	S2	G5	SC	
	Blue-winged Warbler	<i>Vermivora pinus</i>	2008	--	G5	--	
	Canada Warbler	<i>Wilsonia canadensis</i>	2006	S3	G5	SC	
	Cerulean Warbler	<i>Dendroica cerulea</i>	2005	S2S3B	G4	THR	
	Field Sparrow	<i>Spizella pusilla</i>	2008	--	G5	--	
	Lark Sparrow	<i>Chondestes grammacus</i>	2008	S2	G5	SC	
	Least Flycatcher	<i>Empidonax minimus</i>	2008	--	G5	--	
	Nashville Warbler	<i>Vermivora ruficapilla</i>	2008	--	G5	--	
	Pygmy Shrew	<i>Sorex hoyi</i>	2005	S3S4	G5	SC	
	Red-shouldered Hawk	<i>Buteo lineatus</i>	2008	S3S4,S1	G5	THR	
	Sedge Wren	<i>Cistothorus platensis</i>	2008	--	G5	--	
	Veery	<i>Catharus fuscescens</i>	2008	--	G5	--	
	Vesper Sparrow	<i>Poocetes gramineus</i>	2008	--	G5	--	
	Willow Flycatcher	<i>Empidonax traillii</i>	2008	--	G5	--	
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	2008	S3B	G5	SC	
	Brittle Prickly-pear	<i>Opuntia fragilis</i>	1999	S3	G4 G5	THR	
	Prairie Fame-flower	<i>Talinum rugospermum</i>	1995	S3	G3 G4	SC	
	Sand Prairie		1995	S2	GNR	NA	
	Shrub-carr		2007	S4	G5	NA	
	Southern Sedge meadow		2007	S3	G4?	NA	
	Southern Tamarack Swamp (Rich)		2007	S3	G3	NA	
Nine-Mile Island State Natural Area							
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	2008	S4,S2	G5	SC	LT/PD
	Blue-winged Warbler	<i>Vermivora pinus</i>	2008	--	G5	--	
	Field Sparrow	<i>Spizella pusilla</i>	2008	--	G5	--	
	Least Flycatcher	<i>Empidonax minimus</i>	2008	--	G5	--	
	Nashville Warbler	<i>Vermivora ruficapilla</i>	2008	--	G5	--	
	Red-shouldered Hawk	<i>Buteo lineatus</i>	2008	S3S4,S1	G5	THR	
	Wild Indigo Dusky Wing	<i>Erynnis baptisae</i>	1995	S2S3	G5	SC	
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	2008	S3B	G5	SC	

Table 2-1: High Quality Natural Communities and Rare Species of the LCRP

Property	Common Name	Scientific Name	Year Last Observed	State Rank	Global Rank	State Status	USA\ ESA Status
	Beak Grass	<i>Diarrhena obovata</i>	2008	S2	G4 G5	END	
	Floodplain Forest		2008	S3	G3?	NA	
	Oak Barrens		2008	S2	G2?	NA	
Red Cedar River							
	American Eel	<i>Anguilla rostrata</i>	1975	S2	G4	SC	
	Black Buffalo	<i>Ictiobus niger</i>	2000	S2	G5	THR	
	Blue Sucker	<i>Cycleptus elongatus</i>	1975	S2	G3 G4	THR	
	Crystal Darter	<i>Crystallaria asprella</i>	1995	S1	G3	END	
	Lake Sturgeon	<i>Acipenser fulvescens</i>	1972	S3	G3 G4	SC	
Rock Falls Wildlife Area							
	American Woodcock	<i>Scolopax minor</i>	*2007	--	G5	--	
	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	*2007	--	G5	--	
	Blue-winged Teal	<i>Anas discors</i>	*2007	--	G5	--	
	Blue-winged Warbler	<i>Vermivora pinus</i>	*2007	--	G5	--	
	Bobolink	<i>Dolichonyx oryzivorus</i>	*2007	--	G5	--	
	Dickcissel	<i>Spiza americana</i>	*2007	S3	G5	SC	
	Eastern Meadowlark	<i>Sturnella magna</i>	*2007	--	G5	--	
	Field Sparrow	<i>Spizella pusilla</i>	*2007	--	G5	--	
	Grasshopper Sparrow	<i>Ammodramus savannarum</i>	*2007	--	G5	--	
	Henslow's Sparrow	<i>Ammodramus henslowii</i>	*2007	S3	G4	THR	
	Northern Bobwhite	<i>Colinus virginianus</i>	*2007	S3	G5	SC	
	Sedge Wren	<i>Cistothorus platensis</i>	*2007	--	G5	--	
	Vesper Sparrow	<i>Poocetes gramineus</i>	*2007	--	G5	--	
	Western Meadowlark	<i>Sturnella neglecta</i>	*2007	S2	G5	SC	
	Willow Flycatcher	<i>Empidonax traillii</i>	*2007	--	G5	--	
Tiffany Wildlife Area							
	Acadian Flycatcher	<i>Empidonax virescens</i>	1990	S3	G5	THR	
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	2008	S4,S2	G5	SC	LT/PD
	Black Tern	<i>Chlidonias niger</i>	1991	S3	G4	SC	
	Blue-winged Warbler	<i>Vermivora pinus</i>	2008	--	G5	--	
	Cerulean Warbler	<i>Dendroica cerulea</i>	2008	S2S3B	G4	THR	
	Fawnsfoot	<i>Truncilla donaciformis</i>	1988	S1S2	G5	SC	
	Hooded Warbler	<i>Wilsonia citrina</i>	1997	S2S3	G5	THR	
	Kentucky Warbler	<i>Oporornis formosus</i>	1997	S1S2B	G5	THR	
	Least Flycatcher	<i>Empidonax minimus</i>	2008	--	G5	--	
	Pugnose Minnow	<i>Opsopoeodus emiliae</i>	2002	S3	G5	SC	
	Red-shouldered Hawk	<i>Buteo lineatus</i>	2008	S3S4,S1	G5	THR	
	Smooth Coil	<i>Helicodiscus singleyanus</i>	1986	S3	G5	SC	
	Veery	<i>Catharus fuscescens</i>	2008	--	G5	--	
	Wood Thrush	<i>Hylocichla mustelina</i>	2008	--	G5	--	

Table 2-1: High Quality Natural Communities and Rare Species of the LCRP

Property	Common Name	Scientific Name	Year Last Observed	State Rank	Global Rank	State Status	USA\ ESA Status
	Worm-eating Warbler	<i>Helmitheros vermivorus</i>	2008	S1	G5	END	
	Brittle Prickly-pear	<i>Opuntia fragilis</i>	1980	S3	G4 G5	THR	
	Dotted Blazing Star	<i>Liatris punctata v nebraskana</i>	1988	S2S3	G53 T5	END	
	Prairie Fame-flower	<i>Talinum rugospermum</i>	1978	S3	G3G4	SC	
	Slender Bulrush	<i>Scirpus heterochaetus</i>	1927	S1	G5	SC	
	Yellow Gentian	<i>Gentiana alba</i>	1992	S3	G4	THR	
	Dry Prairie		2008	S3	G3	NA	
	Emergent Marsh		2008	S4	G4	NA	
	Floodplain Forest		2008	S3	G3?	NA	
	Lake - Oxbow		2008	SU	GNR	NA	
	Lake-Shallow, Hard, Drainage		1985	SU	GNR	NA	
	Shrub-carr		2008	S4	G5	NA	
	Southern Dry-mesic Forest		2008	S3	G4	NA	
	Southern Sedge meadow		2008	S3	G4?	NA	
Waterville Wildlife Area							
	Red-shouldered Hawk	<i>Buteo lineatus</i>	2008	S3S4,S1	G5	THR	

Additional information on Vertebrate Species of Greatest Conservation Need (SGCN) of the LCRP and the habitat associated with each species may be found in Appendix B.

LCRP SPECIES OF GREATEST CONSERVATION NEED (SGCN) - WISCONSIN WILDLIFE ACTION PLAN

The Wisconsin Wildlife Action Plan (WDNR 2006b) identifies vertebrate SGCN. They include endangered, threatened, special concern, and other species that are rare or may be in decline if action isn't taken to secure their habitat. Many of the SGCN known from the LCRP along with the natural communities they inhabit represent "Ecological Priorities" for the Western Coulee and Ridges Ecological Landscape.

Appendix B contains a matrix with the vertebrate SGCN and associated ecological opportunities (natural communities) for this landscape. Note that these Ecological Priorities include all of the natural communities that have been determined to provide the best opportunities for management on the LCRP from an ecological/biodiversity perspective.

The LCRP offer opportunities to help address several Ecological Priorities of the Wisconsin Wildlife Action Plan (WDNR 2006b). These priorities highlight both the ecologically important natural communities and vertebrate animal species for a given landscape, along with their relationships to each other.

Priority Conservation Actions Identified by the Wisconsin Wildlife Action Plan for the LCRP:

- Protect the ecological river corridor gradients from lowlands to uplands, along with protection of the floodplain corridor. This will enlarge the amount of habitat available, allow for the movement of species upslope and down-slope as environmental conditions change over time, provide migratory bird stopover habitat, and provide suitable habitat for species that require large areas or are dependent upon a mosaic of interconnected habitats, including a full range of seral stages, for their long-term survival.
- Maintain and connect large blocks of older floodplain forests to provide habitat for the large number of SGCN that utilize this habitat while addressing the regeneration difficulties associated with dense stands of reed canary grass.
- Manage appropriate native sand prairie and sand prairie restoration sites for nesting turtles.
- Conduct inventories to improve delineation of Cerulean Warbler populations on public and private lands.
- Monitor long-term population status and trends for rare herptiles.
- Initiate long-term monitoring and protection of rare species nest sites.

RARE REPTILES AND AMPHIBIANS

Rare herptiles occur within some or all of the LCRP. For some species, the Lower Chippewa represents the best site for potential long-term viability in the state. Poaching can be a threat to herptile populations and for this reason references to specific species are omitted from the plan.

All species listed as rare and considered SGCN are significantly associated at certain times of the year with dry prairie, sand prairie, and oak barrens vegetation as identified within Wisconsin's Wildlife Action Plan (WDNR 2006b). Protecting and managing known areas where these SGCN have been documented, along with the best examples of potential habitats, provides an excellent opportunity to implement the Wildlife Action Plan and contribute to the conservation of several rare animal and plant species.

Recreational Use/Facilities/Issues of the Plan Area

The traditional outdoor pursuits of hunting and fishing are the predominant forms of recreation within the plan area. This area is considered statewide and nationally as a premier location for whitetail deer hunting. A growing interest in the concept of "Quality Deer Management" has led to leasing or outright purchasing of private lands in the area by hunters, many times exclusively for deer hunting. This phenomenon has decreased the amount of private lands traditionally available for hunting which has increased the demand on public lands for deer hunting.

Turkey hunting is a very popular activity during the spring turkey season and to a lesser extent during the fall turkey hunting season. The upland forest, bottomland forest and floodplain terraces provide ideal turkey habitat. The spring turkey season structure spreads out hunting pressure by issuing limited permits for designated time periods.

Waterfowl hunting is popular on the lower end of the plan area near the base of Lake Pepin and along backwaters of the Mississippi River. The area also provides ample opportunity for "jump shooting"

during years of higher water levels in the backwater sloughs and small lakes found throughout the properties.

Small game hunting is very common within the plan area. The oak-hickory uplands in the area provide ideal squirrel habitat. Cottontail rabbits are also pursued by many hunters as well as ruffed grouse and woodcock in areas with early successional habitat.

Trapping for muskrat, beaver, otter, mink, fox, coyote and raccoon is pursued within the plan area on public and private lands. Trapper numbers vary depending upon the year, but the numerous sloughs, streams and small lakes provide ample opportunity.

In addition to providing hunting opportunity, abundant wildlife provides viewing enjoyment to many. Bird watching is the most prominent wildlife viewing pastime with scheduled commercial bus trips during waterfowl migration coming from the Twin Cities area to Riecks Lake near the mouth of the Buffalo River (within the plan area). At Riecks Lake overlook, volunteers are present during migration to assist in identification of birds present. Mammals can be less predictable to observe, but also have high sight value for many. In addition to the more common species, this part of the State provides the possibility to see species usually associated with more remote areas of northern Wisconsin. Although not common, in recent years, fisher, black bear, bobcat and timber wolf have occasionally been known to be present in or near the plan area. Although the chance of observing some forms of wildlife can be low, the knowledge of their presence has value to those that enjoy this type of recreation.

Fishing within the project area on the Chippewa and Red Cedar Rivers is both by watercraft and bank fishing. Species pursued include walleye, northern pike, catfish, small mouth bass and panfish. Some oxbow lakes/sloughs associated with the rivers also contain fish populations that are pursued recreationally.

The lower Chippewa River has long been a popular water trail for canoeing/kayaking and sandbar camping. Numerous public access points are located along the river from Eau Claire to the Mississippi. They are shown on Map I. Camping currently is not an allowed activity on these State Wildlife Areas and State Natural Areas. More information specific to recreational use on each property is provided in Chapter 2.

Cultural Resources - Archaeological and Historic Sites of the Plan Area

Native Americans first came to this area about 11,000 years ago. Evidence from archaeological sites indicates a growing population over subsequent centuries, with establishment of large villages by A.D. 1000. Here, people found abundant fish and game, and fertile soils suitable for cultivation, and rivers that allowed travel to distant natural resources and social groups with whom they could trade. As descendants of earlier residents moved to other areas, newcomers arrived. In historic times the Chippewa and Sioux Tribes alternated occupancy of the area through the mid-1800s and then were displaced by Euro-American settlers.

The plan area contains archaeological sites from all of these groups. There are a number of known sites and others likely remain to be discovered. Most archaeological sites in this area lie on fairly level ground within a short distance of a significant water source such as the Mississippi River, Chippewa River, Buffalo River, Red Cedar River, or Bear Creek. Management policy requires that any activities with potential to disturb archeological sites will only be undertaken after consultation with the Department Archeologist.

In addition to archaeological sites, the area contains historic structures such as houses, barns, churches, schools, bridges, and town halls. These too, are considered cultural resources and some are eligible for listing in the National Register of Historic Places.

Where available, additional archeological site information is included in the following section specific to each property.

Property Description, Use, and Management History by Property

See the individual property sections in Chapter 2.

FINDINGS AND CONCLUSIONS OF THE REGIONAL & PROPERTY ANALYSIS

A Regional and Property Analysis (RPA) is prepared before property planning begins. An RPA provides a baseline analysis of the properties to be planned and how they fit into or relate to the larger ecological and social context. This document, and the Findings and Conclusions in particular, have a strong role in the planning process as they help focus the planning effort on the most important planning issues and relationships.

For a full analysis of the Lower Chippewa Properties and the region see: *Regional & Property Analysis, Lower Chippewa River State Wildlife Areas and State Natural Areas* (WDNR 2009). It may be viewed on the web at <http://dnr.wi.gov/org/land/wildlife/plan/lowerchipmprpa.pdf>. The ecological and biological data in the RPA was developed by Departments Natural Heritage Inventory Program and presented in a document titled, *Rapid Ecological Assessment for the Lower Chippewa River System Planning Group* (WDNR 2008).

The Properties' Ecological Significance and Capability

The subject assemblage of Wildlife and Natural Areas has outstanding biological diversity and ecological significance. The combination of prairie/woodland, extensive floodplain/steep slopes and large river systems/backwaters in this part of the state and on the subject properties creates outstanding richness in species composition and numbers. This richness was first recorded in the writings of the earliest explorers documenting the reputation of the area for its abundance of game. That reputation continues to this day.

The Lower Chippewa River State Natural Area was initiated in recognition of this ecological significance, to compliment the existing State Projects and help fill in the ecological gaps in the surrounding landscape. There are 125 known rare (endangered, threatened or special concern) species within the area (more than any other location of comparable size in Wisconsin). Of 37 native communities identified in the Wildlife Acton Plan as being major or significantly associated with the Western Coulee and Ridges ecological unit, 15 were identified in the plan area. There are 87 vertebrate Species of Greatest Conservation need that are significantly or moderately associated with these 15 native communities with 41 of these currently documented on the subject properties. These Native Communities and Species of Greatest Conservation Need are documented in Appendix B. Resources present include native communities and species that are globally imperiled.

It should also be emphasized that the properties have great importance for common wildlife species. The historical record and the continued reputation of this area for game species are an indication of the importance and productivity of the habitat to produce common wildlife. The subject planning area is included in one of North America's major bird migration routes, the Mississippi River Flyway, and has great importance for migrant waterfowl, songbirds and raptors both as spring and fall stopover areas. The variety of native communities in this area is the reason for the presence of so many Species of Greatest

Conservation Need but is also the basis for the abundance of many of the common wildlife species. These native communities have been managed to benefit both rare and common species.

The properties being planned for currently secure a combined total of over 40 miles of frontage on the Lower Chippewa and over 5 miles on the Red Cedar Rivers. These are free flowing sections of large river systems and they not only provide habitat for a wide variety of aquatic species (including 38 rare species) but also created and maintain the adjacent terrestrial native communities (floodplain forest/savanna) through periodic flooding and meandering. These rivers contain 70% of the fish species present in Wisconsin (including 18 rare species).

The Rapid Ecological Assessment identifies the following management considerations and opportunities for biodiversity conservation for the properties being planned: floodplain forests, floodplain savannas, large rivers, river terrace prairies/surrogate grasslands, driftless area upland forests/prairies and rare reptiles/amphibians. Large and small tracts of these habitats are present across these properties. Four important tracts, identified by the report as “primary sites” present the greatest opportunity in the area for biodiversity conservation. These four sites warrant consideration for special management or protection because of their richness in native communities and Species of Greatest Conservation Need:

- Floodplain Terrace Prairie and Wetlands – located primarily on the Dunnville WA
- Red Cedar River Cliffs and Forests – located primarily on the Dunnville WA and the Lower Chippewa State Natural Area
- Five Mile Bluff Prairie and Woods – located primarily on the Tiffany WA
- Chippewa River Floodplain Forests and Wetlands – located primarily on the Tiffany WA

The Rapid Ecological Assessment and other studies/reports indicates that this assemblage of Wildlife and Natural Area properties may have as great a value ecologically as any in the State of Wisconsin. It should be pointed out that some of the same features (steep slope, floodplain, large river systems, poor access) that have created and maintain the rich biological diversity on these properties also present limits to the capability of these properties for management and use. Some of the native communities present are rare because they can be sensitive to disturbance and require specific management.

The analysis of high conservation value lands in the project area shows that important ecological and habitat management benefits may be realized if the drained wetland adjacent to the Big Swamp WA were restored. If these lands were acquired and restored, they would significantly enhance the ecological integrity of the wildlife area and provide much needed access from public roadways. An existing federal program (Wetland Reserve) could be used to restore and protect this site at minimal additional cost.

As is true on many State properties, invasive species are a current and growing threat to native communities/habitats/species on all these properties.

The Properties' Recreational Significance and Capability

These properties contribute greatly to the outdoor recreational opportunities, scenic/rural character and quality of life to those living in and visiting the surrounding area. All the properties being planned for are open to public hunting; it is by far the most common recreational use. This is true of both the Wildlife Areas and Natural Areas. The three named Wildlife Areas were, in fact, all purchased at the urging of local sporting groups to protect wildlife habitat and provide hunting opportunity. Management of the Wildlife Areas has been and continues to be funded primarily by hunters through licenses, stamps and federal excise taxes on hunting equipment (supporting the Pittman-Robertson fund). Although the Natural Area properties have a different primary purpose, hunting is a compatible use and it serves to help curb wildlife populations (primarily deer) that can be detrimental to native communities/vegetation. Trapping and fishing are also common pursuits. There are a number of other compatible recreational uses that occur but at a much lower prevalence: bird watching and other wildlife observation, canoeing/kayaking, hiking, skiing and berry picking.

The plan area has been identified as part of an Important Bird Area which is a designation for select areas having the greatest value to bird life. The area is also noted on two regional birding routes. Birding is a growing outdoor activity and the SCORP report indicates it is a high demand recreational activity in surveys of Twin City residents. With greater awareness, this area has potential to become a destination for bird enthusiasts. Birding/wildlife viewing is a completely compatible form of recreation for both Wildlife and Natural Areas and could be encouraged.

Canoeing/kayaking and camping on the river are common. The state properties being planned for contribute to the appeal of the river for this use by providing access points and preserving undeveloped frontage as well as providing abundant public stopping points for river travelers. The SCORP report lists carry-in boat launches as a shortage for the region, but the public access to these sections of the Red Cedar and Lower Chippewa River are believed to be adequate for current uses.

Wildlife and Natural Area lands are typically closed to camping, however camping is allowed by permit on the Tiffany WA. Campers, usually hunters, generally access the camping areas by boat. Unauthorized camping is known to occur on lands bordering the river but it has not generated significant problems. Littering and crowding are occasional complaints. One site with easy access at Dunnville WA has received extremely high day use as a beach area to the point of overcrowding. Water levels on the river limit recreational motor boat use but with airboats and the development of low draft outboards this use could grow. While most recreational use on the river is compatible with the goals of the properties, with increased use there is potential for crowding/overuse problems to also increase on these public lands. Most uses on the river itself will be beyond the scope of this planning effort.

State Wildlife and Natural Areas are generally closed to motorized vehicles and horses. These properties are no exception although limited, crossing snowmobile trails are allowed when they are part of a regional network (Dunnville WA, Rock Falls WA and Nine Mile Island SNA). Illegal ATV use is an issue at times. While the SCORP report indicates some demand for snowmobile/ATV and horse riding, these uses are undertaken by a relatively low number of people compared to other forms of recreation. There are opportunities for these forms of recreation on other public lands in the region. They are uses that are

generally incompatible with the purpose of State Wildlife and Natural Areas due to disturbance of soil, wildlife and other recreational users and the potential to introduce or spread invasive species.

The larger of these properties also fills a niche for the recreational user that seeks a semi-wilderness experience. Although for many individuals actual visits may be infrequent, these properties have value because they are secure in the knowledge that they will continue to be protected/managed as native communities for wildlife and compatible recreational use.

While most non-hunting recreational uses on these properties are relatively light, there is potential to increase some uses without negative impacts. Birding, wildlife viewing, day hiking, skiing and snowshoeing have little impact on the property or other users. Use, however, may be further limited by the somewhat remote location of these properties. They are far enough from population centers that they are not likely to be frequent destinations for most recreationists. Birding would seem to provide the greatest potential as it is a growing recreational pursuit and the area has birding opportunity that could make it a destination for that purpose especially during peak migration periods.

Recreational use and management is significantly limited on these properties by physical conditions. The two major rivers are central to these properties but also limit practical access to large portions of the bordering properties to watercraft only. Interior sloughs, wetlands and steep slopes further restrict access and use.

Some of the more rare native communities and associated species present likely persist due to the remoteness of the site and physical limitations on access and use. Public or management travel corridors can introduce invasive species that can do irreparable damage to native communities/species.

Conclusions

The lower Chippewa River area has long been recognized for its abundant wildlife and high quality, hunting, trapping and fishing opportunities and the related strong traditions shared by area residents and frequent visitors. From an ecological perspective, this area also stands out in the upper Midwest as one of the most ecologically diverse and rich areas providing critical habitat for many rare and special concern species.

ECOLOGICAL RESOURCES AND HABITATS

State Wildlife Areas were the first properties established in the Lower Chippewa River area at the urging of sportsman that recognized the natural richness and diversity in game and non-game wildlife it supported. The high value for rare species and communities was further recognized by the designation of several State Natural Areas.

This collection of properties continues to provide a unique opportunity to support rich and diverse fish and game populations and serve as a cornerstone for more of the state's rare and special concern species than any other similarly sized area.

While rare species habitats and important native communities are present in many locations on these properties, four “primary sites” that present the greatest opportunity for biodiversity conservation are identified by the Biotic Inventory Report.

Important ecological and habitat management benefits may be realized if the drained wetland adjacent to the Big Swamp WA is restored. Additionally, if these lands were acquired they would provide much needed access from public roadways. The Federal Wetland Reserve program could be used to restore and protect this site at minimal additional cost.

Invasive species are a current and growing threat to native communities/habitats/species. If not controlled there is the potential for significant harm to the high habitat values on these properties. Future plans should place a priority on control and preventing the spread of invasive species.

Past management of these properties has preserved/enhanced these ecological values. Managing for these native communities can continue to benefit game species and enhance hunting opportunity in keeping with the intent of Wildlife Areas.

PUBLIC USE

These state wildlife and natural areas provide significant benefits for both game and non-game wildlife species. These properties are especially important for providing the permanent cornerstone of essential habitat for a rich variety of rare or endangered species, particularly birds. For public recreation, these properties have high value for a variety of hunting, trapping, fishing, bird watching and other compatible uses.

In addition to maintaining a strong focus on traditional uses like hunting and fishing, these properties offer opportunities for expanded, compatible non-motorized uses, particularly the potential to become a birding and watchable wildlife destination area, which is a growing demand activity within the region. As access to large parts of these properties is limited physically and some habitats are highly sensitive to disturbance, the manner in which such uses are supported would need to be carefully planned and balanced with other management objectives.

The Chippewa River and Red Cedar River are a significant regional recreational resource for canoeing/kayaking, fishing and camping. They also serve as important routes for people to access and enjoy many of the state properties. Future management must consider the interplay between river recreation and these properties to help support high quality recreation while preventing unwanted impacts on natural resources.

During the planning process air boat use on the Lower Chippewa was cited as having significant negative impacts. Documentation of these impacts would be beneficial to guide any possible control measures. The legislature has given counties and towns limited authority for boating regulations on specific navigable waters that could be applied.

While there is a regional need for more motorized recreational trails and horse trails, these uses are generally incompatible with these properties due to disturbance of soil, wildlife and other recreational users and the potential to introduce or spread invasive species. There are opportunities for these forms of recreation on other public lands in the region.

Several properties, especially Tiffany WA, due to size and difficult access, currently provide opportunity for a more remote recreational experience, a commodity that is rare in the region.

In summary, opportunities exist to expand or enhance both the traditional and other compatible recreational uses through continued management that balances needs, with special consideration for the strengths and limitations of each property as well as what the properties offer collectively. Carefully planned management will continue to protect and enhance the outstanding natural and recreational values of this assemblage of State properties.

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APPENDIX A

Rare Species and Natural Communities

The following paragraphs give brief summary descriptions for each of the rare species and natural communities documented on the Lower Chippewa River Properties and mapped within the NHI Database. More information can be found on the Endangered Resources Web site (dnr.wi.gov/org/land/er/) for several of these species and natural communities.

RARE ANIMALS

A Cleft-footed Minnow Mayfly

No information is available.

A Flat-headed Mayfly

A Flat-headed Mayfly (*Macdunnoa persimplex*), an aquatic insect, has been located from only a few locations in Wisconsin, the St. Croix, Chippewa, and Lower Wisconsin Rivers (Lillie 1995).

A Flat-headed Mayfly

A Flat-headed Mayfly (*Pseudiron centralis*), a large predaceous mayfly, is found in sand or silt substrates in numerous rivers in Wisconsin (Lillie 1995).

A Leafhopper

A Leafhopper (*Attenuipyga vanduzeei*) is a rare prairie-dependent species known from only a few locations in Wisconsin. Little is known about host plants, life history, and behavior. Possible host plants include prairie dropseed and side-oats grama (Sauer and Maurer 2001).

Acadian Flycatcher

Acadian Flycatcher (*Empidonax virescens*) prefers lowland deciduous forests and heavily wooded hillsides in large blocks of southern forests. The breeding season extends from mid-May through late July.

American Eel

American eel (*Anguilla rostrata*), a fish, prefers large streams and lakes with muddy bottoms and still waters. To reach these waters the eel has to traverse swift-flowing, medium-sized streams over a wide variety of bottoms. Spawning occurs in the Sargasso Sea.

Arctic Shrew

Arctic Shrew (*Sorex arcticus*) is found in tamarack and spruce swamps. Sometimes in alder or willow marshes, rarely in leatherleaf-sphagnum bogs.

Bald Eagle

Bald Eagle (*Haliaeetus leucocephalus*) prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland, and shrub communities. Large lakes and rivers with nearby tall pine trees are preferred for nesting. The breeding season extends from February through August. Favored wintering and roosting habitat includes wooded valleys near open water and major rivers from December through March.

Bell's Vireo

Bell's Vireo (*Vireo bellii*) prefers dense shrubby areas within an open prairie landscape. The breeding season extends from late May to mid-July.

Black Buffalo

Black Buffalo (*Ictiobus niger*), a fish, prefers strong currents of large rivers, sloughs, backwaters, and impoundments. Spawning occurs from mid-May through mid-June.

Black-crowned Night Heron

Black-crowned Night-heron (*Nycticorax nycticorax*) prefer freshwater wetlands dominated by bulrush and cattail with small groves of alder, willow, or other brush. Their breeding season occurs from mid-April through mid-September.

Black Tern

Black Tern (*Chlidonias niger*) prefers large shallow marshes with abundant vegetation adjacent to open water. Nesting occurs from May through the end of July.

Blue Sucker

Blue Sucker (*Cyprinus elongatus*), a fish, prefers large, deep rivers with moderate to strong currents over substrates of gravel or cobble. Spawning occurs from mid May through mid June.

Buckhorn

Buckhorn (*Tritogonia verrucosa*), a mussel, is found in medium to large-sized rivers, with a moderate to swift current, and clean, firm substrates. The known host fish are yellow and brown bullheads and flathead catfish.

Bullhead

Bullhead (*Plethobasus cyphus*), a mussel, is found in large rivers with a rapid current where it lives on mud, sand or gravel bottoms in water 1-2 m. deep. It occurs in the upper and lower reaches of the Wisconsin River as well as the Chippewa and the Flambeau Rivers.

Butterfly

Butterfly (*Ellipsaria lineolata*), a mussel, is found in large rivers in the western and southern parts of the state. It prefers a stable substrate containing rock, gravel and sand in swift current. The known host organisms include three common fish; drum, green sunfish, and sauger.

Canada Warbler

Canada Warblers (*Dendroica cerulea*) are typically most abundant in moist, mixed coniferous-deciduous forests with a well-developed understory. In Wisconsin they occur in spruce, hemlock, and balsam fir forest types in the northern counties. Important components of breeding habitat include conifers and often creeks and streams. The Canada Warbler nests in dense vegetation, often in areas with mosses, ferns, and decaying stumps or logs. The breeding season occurs from early June to early July.

Cerulean Warbler

Cerulean Warbler (*Dendroica cerulea*) prefers lowland deciduous forests dominated by mature stands of American elm, cottonwood, and green ash and large upland blocks of mature dry-mesic to mesic forests. The breeding season extends from late April through mid-July.

Crystal Darter

Crystal darter (*Ammocrypta asprella*) prefers clear to slightly turbid waters over sand substrates. The darter is most often found in moderate to strong currents in large rivers. They occupy sandy riffles, bars, and pools. Spawning occurs from mid May through mid-June.

Cyrano Darner

Cyrano darner (*Nasiaeschna pentacantha*), a southern species, breeds in swampy warm streams and lake coves and ponds with roots or branches in the water. The flight period is from early June to early July.

Elktoe

Elktoe (*Alasmidonta marginata*) is found in various-sized streams with flowing water and stable sand, gravel or rock substrates. The known host fishes include five widespread species including redhorse and sucker species and rockbass.

Fawnsfoot

Fawnsfoot (*Truncilla donaciformis*) have a small shell that is elongate, somewhat oblong, relatively thin, and compressed to moderately inflated. Habitat preferred is large rivers or the lower reaches of medium-sized streams in sand or gravel.

Goldeye

Goldeye (*Hiodon alosoides*), a fish, prefers the quiet, turbid waters of large rivers and their connecting lakes ponds and marshes. Spawning occurs from May through early July.

Gorgone Checker Spot

Gorgone checker spot (*Chlosyne gorgone*) is found in barrens, dry fields and prairies, sandy ridges, glades in woodlands, and open pine forests. This species has two flight periods, one from late May through June and again in early August to early September.

Greater Redhorse

Greater Redhorse (*Moxostoma valenciennesi*), a fish, prefers clear water of medium to large rivers, over bottoms of sand, gravel, or boulders. Spawning occurs in May or June.

Henslow's Sparrow

Henslow's Sparrow (*Ammodramus henslowii*) prefers old fields, open grasslands, wet meadows, unmowed highway right-of-ways, undisturbed pastures, timothy hay fields, and fallow land grown up to tall weeds. The breeding season extends from mid-May through mid-July.

Hooded Warbler

Hooded Warbler (*Wilsonia citrina*) is found in large upland forest tracts in southern Wisconsin, where they occur in pockets of dense understory near small or partial canopy openings. Breeding occurs from late May through mid July.

Kentucky Warbler

Kentucky Warbler breeds in large tracts of unfragmented hardwood forest in southern Wisconsin, especially along the Mississippi and Wisconsin rivers, as well as in the Baraboo Hills. They nest in moist thickets with heavy undergrowth and lush ground vegetation, building their nests on or near the ground. The breeding season extends from mid-May through July. Based on information from the Wisconsin Wildlife Action Plan (WDNR 2006b) the

habitats of highest Ecological Priority for this species in the Western Coulee and Ridges Ecological Landscape are large stands of southern dry-mesic forest, southern mesic forest and floodplain forest.

Lake Sturgeon

Lake Sturgeon (*Acipenser fulvescens*) prefers large rivers and lakes. It also lives in the shoal waters of the Great Lakes. Inland it shows a preference for the deepest mid-river areas and pools. Spawning occurs from late April through early June in cold, shallow fast water.

Lark Sparrow

Lark Sparrow (*Chondestes grammacus*) prefers old field, prairie and upland shrub-carr areas. The breeding season extends from early May through late June.

Monkeyface

Monkeyface (*Quadrula metanevra*) is found in the western part of the state in swift, clean water in larger rivers in gravel or mixed sand and gravel. Three common host fishes have been reported; bluegill, green sunfish, and sauger.

Mud Darter

Mud Darter (*Etheostoma asprigene*) prefers moderate currents in sloughs, overflow areas, riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock. Spawning is from mid-May through June.

Northern Bobwhite

Northern Bobwhite (*Colinus virginianus*) nest on the ground, preferring grassy cover near agricultural or weedy old-fields, brushy forest edges, hedgerows, and open woods. Breeding has been observed in Wisconsin from late May through early August.

Paddlefish

Paddlefish (*Polyodon spathula*) prefers large rivers and their lakes over gravel or cobble bottoms. Spawning occurs late April to early June during high flows.

Pecatonica River Mayfly

Pecatonica River Mayfly (*Acanthametropus Pecatonica*) are known only from nymphal specimens. The mature nymph is about 0.8 inches (20 mm) long, creamy white with three short tail filaments densely fringed on the margins, a small head with lateral eyes, and abdominal segments one through seven each bearing a distinctive pair of plumelike gills. Paired spines of the head, thorax, and a row of dorsal abdominal spines distinguish this nymph. There is no information known about the adult mayfly and repeated attempts to rear Wisconsin nymphs to adulthood have been unsuccessful. The species habitat requirements include sand-bottom rivers with little water pollution. The specimens found in Wisconsin have been collected from large, sand-bottomed rivers with wide channels, in water a meter or less deep. Records from Illinois are from moderately sized, fast, shallow streams with sand and rock bottoms.

Pugnose Minnow

Pugnose Minnow (*Opsopoeodus (Notropis) emiliae*) prefers quiet, weedy lakes, sloughs, and low-gradient rivers over bottoms of mud, sand, rubble, silt, or clay. Spawning occurs from mid-June through mid-July.

Pygmy Shrew

Pygmy Shrew (*Sorex hoyi*) is found in among debris and heavy vegetation in woods, clearings, and meadows, particularly those grown to high grass. Avoiding swampy or excessively wet areas, though can be found in cold sphagnum or tamarack bogs.

Red-shouldered Hawk

Red-shouldered Hawk (*Buteo lineatus*) prefers larger stands of medium-aged to mature lowland deciduous forests, dry-mesic and mesic forest with small wetland pockets. Breeding occurs from mid-March through early August.

River Redhorse

River Redhorse (*Moxostoma carinatum*) prefers moderate to swift currents in large rivers systems, including impoundments and pools. River bottoms of clean gravel are preferred. Spawning occurs from mid May through June when water temperatures reach 68 to 74 degrees Fahrenheit.

Round Pigtoe

Round pigtoe (*Pleurobema sintoxia*) prefers various habitat types. It occurs only in clean water of small streams to large rivers on stable substrate. The known host fish include a number of cyprinid species.

Salamander Mussel

Salamander mussel (*Simpsonia ambigua*), a mussel presently listed as a Federal Species of Concern, prefers mud, silt or sand substrates beneath medium to large-sized rocks and undercut ledges, where its host, the mudpuppy frequents. It occurs in both the Mississippi River drainage and Lake Michigan drainage. It is often very abundant locally, but very rare otherwise.

Silver Chub

Silver Chub (*Macrhybopsis (Hybopsis) storeriana*) prefers large, low gradient rivers. This species is found in moderate to strong currents, riffles, pools and sloughs with or without vegetation over substrates of sand, mud, silt or gravel. Spawning occurs in June and July.

Smoky Shadowfly

Smoky shadowfly (*Neurocordulia molesta*) has been found in rocky segments of medium to large rivers. The flight period is from late May to early July.

Smooth Coil

Smooth Coil (*Helicodiscus singleyanus*) is a terrestrial snail that has been documented in Wisconsin among grasses and forbs on south or southwest-facing slopes, often with dolomite outcrops.

Western Meadowlark

Western Meadowlark (*Sturnella neglecta*) are found in dry, open grasslands, including pastures and hayfields. Breeding has been recorded from early May to early August.

Western Sand Darter

Western Sand Darter (*Etheostoma clarum*) prefer clear to slightly turbid waters with moderate to strong currents. They are often found in medium to large rivers over extensive sand flats. Spawning occurs from late June through July.

Wild Indigo Dusky Wing

Wild indigo dusky wing (*Erynnis baptisiae*) has been recorded in dry open woods, prairie including wet prairie, pine/oak barrens and more recently, along highways and railroad right-of-ways with crown vetch (*Coronilla varia*). This is a bivoltine species, with flight periods the first three weeks of July and in late August to early September. Eggs are laid singly on the hostplant, which include wild indigos, lupine, and crown vetch. Larvae feed from a shelter of leaves and fully-grown larvae from the second brood hibernate in a leaf shelter.

Worm-eating Warbler

Worm-eating Warbler (*Helmitheros vermivorus*) is found in southern counties, often on steep west- or south-facing slopes dominated by mature oaks and a dense understory, in large forest tracts such as the Baraboo Hills and Wyalusing State Park. Breeding occurs from June to early July.

Yellow-billed Cuckoo

Yellow-billed Cuckoo (*Coccyzus americanus*) prefer open deciduous woodlands with dense shrubby undergrowth, especially along the backwaters of a major river or slow moving creek. Breeding occurs most often in early June, but can be found as late as mid-August.

RARE PLANTS

Beak Grass

Beak Grass (*Diarrhena obovata*) is found in moist woods and floodplain forests. Forest cover can include silver maple, green ash, American elm, hackberry, and swamp white oak. Blooming occurs from early August through mid-September. Optimal identification period is from early August to mid-October.

Brittle Prickly-pear

Brittle prickly-pear (*Opuntia fragilis*) prefers sand prairies and thin dry soil over rock. Flowering occurs from early June through late July. Optimal identification period is year-round.

Dotted Blazingstar

Dotted blazing star (*Liatris punctata* var. *nebraskana*) prefers sandy and gravelly prairies, and is often found on roadsides. Wisconsin is on the eastern edge of this plant's range. Blooming occurs from early July through late August. Optimal identification period is from mid-July to late August.

Prairie Fame-flower

Prairie fame-flower (*Talinum rugospermum*) prefers open sandy prairies in barrens and pockets of thin poor soil between rocks, often where there is little competition from other forbs. Flowers bloom from mid-June to mid-August, with the unusual habit of appearing only on bright days between 4 and 6 p.m. Optimal identification period is from early July to late August.

Slender Bulrush

Slender bulrush (*Scirpus heterochaetus*) is found along the margins of freshwater sloughs, marshes, ponds, and roadside ditches.

Yellow Gentian

Yellow gentian (*Gentiana alba*) has been observed in thin soil in dry, open woodlands, ridges and bluffs (often with dolomite near the surface), moist sand prairies and roadside ditches, and clay soils of wooded ravines. Blooming occurs from mid-August through mid-October. Optimal identification period is throughout the month of September.

Water-purslane

Water-purslane (*Didiplis diandra*), an aquatic plant, has been located in the shallow water and muddy shores of Mississippi River sloughs, and in the sandy-peaty shores of cranberry reservoir ponds. Blooming occurs from mid-June through mid-September. Optimal identification period is from early July to mid-September.

NATURAL COMMUNITIES

Dry Prairie

This grassland community occurs most frequently on dry, steep, south- or west-facing slopes, or at the summits of river bluffs with sandstone or dolomite near the surface. Most occurrences are in the Driftless Area. Soils are often wind-deposited loess, mixed with bedrock residuum. The community dominants typically include short to medium-height grasses: such as little bluestem (*Schizachyrium scoparium*), side-oats grama (*Bouteloua curtipendula*), hairy grama (*B. hirsuta*), and prairie dropseed (*Sporobolus heterolepis*). Common shrubs and forbs may include lead plant (*Amorpha canescens*), silky aster (*Aster sericeus*), flowering spurge (*Euphorbia corollata*), purple prairie-clover (*Petalostemum purpureum*), cylindrical blazing-star (*Liatis cylindracea*), and gray goldenrod (*Solidago nemoralis*). Stands on gravelly knolls in the glaciated Kettle Moraine region of southeastern Wisconsin, and along the St. Croix River on the Minnesota-Wisconsin border, need additional study. These geographic outliers may warrant recognition by being split out from the type described above, at least at the “subtype” level.

Dry-mesic Prairie

Historically, this grassland community was common in parts of southern Wisconsin, occurring on slightly less droughty sites than dry prairie. Today, this community type is rare because of conversion to agricultural uses or the encroachment of woody vegetation due to the lack of wildfire. Dry-mesic prairie has many of the same grasses as dry prairie, but taller species such as big bluestem and Indian-grass dominate. Needle grass and prairie drop-seed may also be present. The herb component is more diverse than in dry prairies, as it may include many species that occur in both dry and mesic prairies. Composites and legumes are particularly well-represented in relatively undisturbed stands. Soils are often somewhat sandy, either loamy sands or sandy loams. The landscape associations that can support this type include terraces on the margins of large river valleys, sandy outwash deposits, gravelly moraines, and the lower slopes of Driftless Area bluffs. As with the other tallgrass prairie communities (mesic prairie and wet-mesic prairie), well over 99% of this prairie type has been destroyed.

Emergent Marsh

These open, marsh, lake, riverine and estuarine communities with permanent standing water are dominated by robust emergent macrophytes, in pure stands of single species or in various mixtures. Dominants include cat-tails (*Typha* spp.), bulrushes (particularly *Scirpus acutus*, *S. fluviatilis*, and *S. validus*), bur-reeds (*Sparganium* spp.), giant reed (*Phragmites australis*), pickerel-weed (*Pontederia cordata*), water-plantains (*Alisma* spp.), arrowheads (*Sagittaria* spp.), and the larger species of spikerush such as (*Eleocharis smallii*).

Floodplain Forest

This is a lowland hardwood forest community that occurs along large rivers, usually stream order 3 or higher, that flood periodically. The best-development occurs along large rivers in southern Wisconsin, but this community is also found in the north. Canopy dominants may include silver maple (*Acer saccharinum*), river birch (*Betula nigra*),

green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), swamp white oak (*Quercus bicolor*), and cottonwood (*Populus deltoides*). Northern stands are often species poor, but balsam-poplar (*Populus balsamifera*), bur oak (*Quercus macrocarpa*), and box elder (*Acer negundo*) may replace some of the missing “southern” trees. Buttonbush (*Cephalanthus occidentalis*) is a locally dominant shrub and may form dense thickets on the margins of oxbow lakes, sloughs and ponds within the forest. Nettles (*Laportea canadensis* and *Urtica dioica*), sedges, ostrich fern (*Matteuccia struthiopteris*) and gray-headed coneflower (*Rudbeckia laciniata*) are important understory herbs, and lianas such as Virginia creepers (*Parthenocissus* spp.), grapes (*Vitis* spp.), Canada moonseed (*Menispermum canadense*), and poison-ivy (*Toxicodendron radicans*) are often common. Among the striking and characteristic herbs of this community are cardinal flower (*Lobelia cardinalis*) and green dragon (*Arisaema dracontium*).

Moist Cliff

Moist Cliff communities are vertical bedrock exposures that exhibit groundwater seepage through pores or fractures in the rock. Moist Cliffs are often associated with cool eastern or northern aspects, and may be shaded by overhanging trees. In the Driftless Area the most common rock types are sandstones and dolomites. Common plant species include columbine (*Aquilegia canadensis*), bulblet fern (*Cystopteris bulbifera*), fragile fern (*C. fragilis*), wood ferns (*Dryopteris* spp.), rattlesnake-root (*Prenanthes alba*), and harebell (*Campanula rotundifolia*). Many rare plants are associated with Moist Cliff habitats.

Northern Dry-mesic Forest

In this forest community, mature stands are dominated by white and red pines (*Pinus strobus* and *P. resinosa*), sometimes mixed with red oak (*Quercus rubra*) and red maple (*Acer rubrum*). Common understory shrubs are hazelnuts (*Corylus* spp.), blueberries (*Vaccinium angustifolium* and *V. myrtilloides*), wintergreen (*Gaultheria procumbens*), partridge-berry (*Mitchella repens*); among the dominant herbs are wild sarsaparilla (*Aralia nudicaulis*), Canada mayflower (*Maianthemum canadense*), and cow-wheat (*Melampyrum lineare*). Stands usually occur on sandy loams, sands or sometimes rocky soils.

Oak Barrens

Black oak (*Quercus velutina*) is the dominant tree in this fire-adapted savanna community of xeric sites, but other oaks may also be present. Common understory species are lead plant (*Amorpha canescens*), black-eyed susan (*Rudbeckia hirta*), round-headed bush clover (*Lespedeza capitata*), goat's rue (*Tephrosia virginiana*), june grass (*Koeleria cristata*), little bluestem (*Schizachyrium scoparium*), flowering spurge (*Euphorbia corollata*), frostweed (*Helianthemum canadense*), false Solomon's-seals (*Smilacina racemosa* and *S. stellata*), spiderwort (*Tradescantia ohioensis*), and lupine (*Lupinus perennis*). Distribution of this community is mostly in southwestern, central and west central Wisconsin.

Sand Prairie

This dry grassland community is composed of little bluestem (*Schizachyrium scoparium*), junegrass (*Koeleria macrantha*), panic grass (*Panicum* spp.), and crab grass (*Digitaria cognata*). Common herbaceous species are western ragweed (*Ambrosia psilostachya*), the sedges (*Carex muhlenbergii* and *C. pensylvanica*), poverty-oat grass (*Danthonia spicata*), flowering spurge (*Euphorbia corollata*), frostweed (*Helianthemum canadense*), common bush-clover (*Lespedeza capitata*), false-heather (*Hudsonia tomentosa*), long-bearded hawkweed (*Hieracium longipilum*), stiff goldenrod (*Solidago rigida*), horsebalm (*Monarda punctata*), and spiderwort (*Tradescantia ohioensis*). At least some stands are Barrens remnants now lacking appreciable woody cover, though extensive stands may have occurred historically on broad level terraces along the Mississippi, Wisconsin, Black, and Chippewa Rivers.

Shrub-carr

This wetland community is dominated by tall shrubs such as red-osier dogwood (*Cornus stolonifera*), meadow-sweet (*Spiraea alba*), and various willows (*Salix discolor*, *S. bebbiana*, and *S. gracilis*). Canada bluejoint grass (*Calamagrostis canadensis*) is often very common. Associates are similar to those found in Alder Thickets and tussock-type Sedge Meadows. This type is common and widespread in southern Wisconsin but also occurs in the north.

Southern Dry-mesic Forest

Red oak (*Quercus rubra*) is a common dominant tree of this upland forest community type. Common associates may include white oak (*Q. alba*), basswood (*Tilia americana*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), and white ash (*Fraxinus americana*). Elms (*Ulmus* spp.) were formerly common in this type prior to the era of Dutch elm disease, but their presence has now been reduced to saplings and an occasional small tree. Characteristic understory plants may include jack-in-the-pulpit (*Arisaema triphyllum*), enchanter's-nightshade (*Circaea lutetiana*), large-flowered bellwort (*Uvularia grandiflora*), interrupted fern (*Osmunda claytoniana*), Lady Fern (*Athyrium filix-femina*), tick-trefoils (*Desmodium glutinosum* and *D. nudiflorum*), and hog peanut (*Amphicarpaea bracteata*). At many locations in the Driftless Area, the oaks are being replaced by more mesophytic tree species, the combined result of current management practices and long-term fire suppression.

Southern Sedge Meadow

Widespread in southern Wisconsin, this open wetland community is most typically dominated by tussock sedge (*Carex stricta*) and Canada bluejoint grass (*Calamagrostis canadensis*). Common associates are water-horehound (*Lycopus uniflorus*), panicked aster (*Aster simplex*), blue flag (*Iris virginica*), Canada goldenrod (*Solidago canadensis*), spotted joe-pye-weed (*Eupatorium maculatum*), broad-leaved cat-tail (*Typha latifolia*), and swamp milkweed (*Asclepias incarnata*). Reed canary grass (*Phalaris arundinacea*) may be dominant in grazed and/or ditched stands. Ditched stands can succeed quickly to Shrub-Carr.

Southern Tamarack Swamp (Rich)

This forested wetland community type is a variant of the Tamarack Swamp, but occurs south of the Tension Zone within a matrix of "southern" vegetation types. Poison-sumac (*Toxicodendron vernix*) is often a dominant understory shrub. Successional stages and processes are not well understood but fire, windthrow, water level fluctuations, and periodic infestations of larch sawfly are among the important dynamic forces influencing this community. Groundwater seepage influences the composition of most if not all stands. Where the substrate is especially springy, skunk cabbage (*Symplocarpus foetidus*), marsh marigold *Caltha palustris*), sedges, and a variety of mosses may carpet the forest floor. Drier, more acid stands may support an ericad and sphagnum dominated groundlayer.

APPENDIX B

Species of Greatest Conservation Need

The following are vertebrate Species of Greatest Conservation Need (SGCN) associated with natural community types that are present on the Lower Chippewa River System Plan Group in the Western Coulee and Ridges Ecological Landscape. Only SGCN with a high or moderate probability of occurring in the Western Coulee and Ridges Ecological Landscape are shown. Communities shown here are limited to those identified as “**Major**” or “**Important**” management opportunities in the Wisconsin Wildlife Action Plan (WDNR 2006b). Letters indicate the degree to which each species is associated with a particular habitat type (S = significant association, M = moderate association, and L = low association). Animal-community combinations shown here that are assigned as either “**S**” or “**M**” are also Ecological Priorities, as defined by the Wisconsin Wildlife Action Plan (see dnr.wi.gov/org/land/er/wwap/ for more information about these data). Shaded species have been documented for the Lower Chippewa River System Plan group.

Major											Important			
Dry Cliff	Dry Prairie	Dry-mesic Prairie	Emergent Marsh	Floodplain Forest	Moist Cliff	Oak Barrens	Sand Prairie	Shrub Carr	Southern Dry-mesic Forest	Surrogate Grasslands	Warmwater rivers	Northern Dry-mesic Forest	Southern Sedge Meadow	Southern Tamarack Swamp (rich)

Species that are Significantly Associated with the Western Coulee and Ridges Landscape

Acadian Flycatcher					M					S				
American Woodcock					L		L		S		L		L	M
Bald Eagle					L						S			
Bell's Vireo		M	M					M	M		M			
Black Buffalo											M			
Black Rat Snake	S	S	M		M			L		S				
Black-billed Cuckoo					M		M		S				L	M
Blanchard's Cricket Frog					S						S		S	
Blue Sucker											S			
Blue-winged Teal		L	M	S	M			L			M	L		M
Bluntnose Darter											S			
Bobolink			S								S			M
Brown Thrasher		M	M				S	S			M			
Canvasback					L						S			
Cerulean Warbler					S					S				
Crystal Darter											S			

	Major											Important			
	Dry Cliff	Dry Prairie	Dry-mesic Prairie	Emergent Marsh	Floodplain Forest	Moist Cliff	Oak Barrens	Sand Prairie	Shrub Carr	Southern Dry-mesic Forest	Surrogate Grasslands	Warmwater rivers	Northern Dry-mesic Forest	Southern Sedge Meadow	Southern Tamarack Swamp (rich)
Dickcissel		L	S				L				S				
Eastern Meadowlark		M	S					M			S			M	
Field Sparrow		S	M				M	S			M				
Four-toed Salamander				S	S	L			S					M	M
Goldeye											M				
Grasshopper Sparrow		S	S				M	S			S				
Great Egret				S	M						M				
Henslow's Sparrow			S								S			L	
Hooded Warbler										S					
Kentucky Warbler					S					M					
Lake Sturgeon											S				
Lark Sparrow		M					S	S							
Least Flycatcher					M				L	L			M		
Lesser Scaup				L							M				
Louisiana Waterthrush										S					
Midland Smooth Softshell Turtle											S				
Northern Bobwhite		M	M					L			S				
Northern Harrier		M	M	L			M	L	L		S			M	
Northern Long-eared Bat				M	M		M		M	M		M	M	M	
Northern Prairie Skink	M	S	M				S	S		M			M		
Ornate Box Turtle		S	M					S		S					
Paddlefish											M				
Pallid Shiner											S				
Peregrine Falcon	S														
Pickering Frog				S	M				M		S			S	
Prairie Racerunner		S					S	S							
Prairie Ringneck Snake		S	S				M	M		M					
Prothonotary Warbler					S										
Red-headed Woodpecker					M		M			M			L		
Red-shouldered Hawk					S					M			M		L
River Redhorse											M				
Rusty Blackbird				M	S				M						M
Shoal Chub (Speckled Chub)											S				
Short-billed Dowitcher				S											
Starhead Topminnow											S				

	Major											Important			
	Dry Cliff	Dry Prairie	Dry-mesic Prairie	Emergent Marsh	Floodplain Forest	Moist Cliff	Oak Barrens	Sand Prairie	Shrub Carr	Southern Dry-mesic Forest	Surrogate Grasslands	Warmwater rivers	Northern Dry-mesic Forest	Southern Sedge Meadow	Southern Tamarack Swamp (rich)
Veery					M				S	M			M		L
Vesper Sparrow		S	M				S	S			L				
Western Meadowlark		M	S				M	M			S				
Western Sand Darter												M			
Western Slender Glass Lizard		S	S				S	S							
Western Worm Snake		S								M					
Whip-poor-will					L		M			S			M		
Willow Flycatcher		L	M		L			L	S		M			M	L
Wood Thrush					M					S			L		L
Worm-eating Warbler										S					
Yellow-bellied Racer	M	S	M				M	S		M					
Yellow-billed Cuckoo					S				M	M					L
Yellow-crowned Night-Heron				M	S				M			M			

Species that are Moderately Associated with the Western Coulee and Ridges Landscape

American Golden Plover			M	M							M			L	
Black Tern				S										L	
Buff-breasted Sandpiper			M	M							M				
Eastern Red Bat				M	M		M		M	M		M	M	M	L
Franklin's Ground Squirrel		L	S				S	S			M				
Gilt Darter												S			
Hoary Bat				M	M				M	L		M	M	M	L
King Rail				S										M	
Osprey												S			
Prairie Vole		S	S				M	S			M				
Short-eared Owl		M	M	L				L	M		S			M	
Silver-haired Bat				M	M				M	L		M	M	M	L
Solitary Sandpiper				S	S				L					L	
Upland Sandpiper		S	S				M	M			S			L	
Whooping Crane				S										M	
Woodland Vole					L		L			S					
Yellow-throated Warbler					S					M					

APPENDIX C

State Natural Area Designation Process and Management Standards

STATE NATURAL AREAS

Master Plan Designation Process for State Natural Areas

Generally, natural areas are tracts of land or water harboring natural features that have escaped most human disturbance and that represent the diversity of Wisconsin's native landscape. They contain outstanding examples of native biotic communities and are often the last refuges in the state for rare and endangered plant and animal species. State Natural Areas may also contain exceptional geological or archaeological features. The finest of the state's natural areas are formally designated as State Natural Areas. The Wisconsin State Natural Areas Program oversees the establishment of SNA's and is advised by the Natural Areas Preservation Council. The stated goal of the program is to locate, establish, and preserve a system of SNA's that as nearly as possible represents the wealth and variety of Wisconsin's native landscape for education, research, and to secure the long-term protection of Wisconsin's biological diversity for future generations. SNA's are unique in state government's land protection efforts, because they can serve as stand alone properties or they can be designated on other properties, such as a State Wildlife Area. By designating SNA's within the boundary of Tiffany and Dunnville State Wildlife Areas, we are helping to accomplish two different, legislatively mandated Department goals. This arrangement makes abundant fiscal sense because the state does not have to seek out willing sellers of private lands to meet the goals of multiple Department programs. This avoids duplicating appraisal and negotiation work and provides dual use of land that is already in public ownership. Sites are considered for potential SNA designation in one or more of the following categories:

- Outstanding natural community
- Critical habitat for rare species
- Ecological reference (benchmark) area
- Significant geological or archaeological feature
- Exceptional site for natural area research and education

SNA Management Activities

State Natural Areas are not exclusively passive management. Within the past five years, over 200 SNA's all over Wisconsin have had some type of active management. Examples of management activities include exotic species removal, burning and fuel reduction, brushing, trail development, ditch filling and planting. Timber harvesting is not a primary focus of an SNA, but it is often necessary to achieve the desired ecological goals of a specific habitat. Regardless of designation, wildfires on state natural areas will be actively suppressed, safety measures will occur in developed areas and insect and disease outbreaks will be considered for control.

Portions of the Lower Chippewa River and Nine Mile Island State Natural Areas contain land adjacent to the high quality natural communities and are need to enhance the long-term viability of the primary feature. Many times these buffer lands can be managed less intensive, for less diverse prairie plantings, and more activities while still achieving the goals of augmenting the protection needed to keep the quality on the core. These areas are given habitat management designations in the plan to indicate the different levels and standards for management.

Recreational Impacts

Impacts would be minimal because the recreation opportunities for any given area were determined before consideration as an SNA. State Natural Areas are not appropriate for intensive recreation and such areas were automatically ruled out as potential sites. However, SNA's can accommodate low-impact activities such as hunting, bank fishing, bird watching, and nature study.

Management for State Natural Areas

State statute 23.28 (2) states the Department is responsible for stewardship of designated State Natural Areas unless a written stewardship agreement specifies otherwise. Furthermore, 23.28 (3) directs the Department to not permit of any use on a designated state natural area which is inconsistent with or injurious to its natural values. The "natural values are articulated above from 23.27 (2). Stewardship means the continuing obligation to provide the necessary maintenance, management, protection, husbandry, and support for a natural area and natural values associated with that area.

Management Classification

Prior to development of a management sheet for an individual SNA the sites are classified into different categories to be in agreement with state statute 23.27. The categories are further defined in manual code (in development). Each site is classified as Research Natural Area, Ecological Reference Area, Critical Species Area, Geological or Archaeological Area. They are further classified into subcategories for public use – suitable for public visitation with extensive public facilities, suitable for public visitation with minimal public facilities, public is welcome to participate in non-destructive uses, and closed to public use. The land management is divided into management units determined by ecological characteristics with each unit being assigned a maintenance, restoration, or buffer category.

Ecological Reference Areas

Ecological reference areas are critically important to the Department's mission and the forest certification. These reference areas are:

- Primary locations, and for several natural communities the only locations, to recognize, share knowledge, and attain decision-making responsibility regarding natural ecosystems for individuals, businesses, and organizations.
- The only places to provide a comprehensive array of sites for ecological research, adaptive management benchmarks and science-based management.
- The only places to provide a system of sites that capture the ecological diversity of the state and

- keep them to assess long-term implications of Department management decisions.
- Places where specialized natural communities are specifically sought and protected to maintain the full array of terrestrial, wetlands, and aquatic systems in the state. Examples are natural communities such as floodplain savannas, terrace-base lakes, and gravelly terrace prairies, which other programs do not actively attempt to protect.
 - Places where rare plant habitat is primary purpose for protection.

Management Standards

State Natural Areas that are also designated Ecological Reference Areas must maintain the natural values for which the site was established. They must not permit activities that are injurious to those values. These natural values are articulated for every site in a management sheet to address site specific issues and situations. The purpose for research, critical species and geological/archaeological sites are site specific with no known general natural community type standards.

Oak Savannas and Woodlands: The primary goal for all the oak savanna State Natural Areas is to protect, manage and enhance the best remaining oak savannas to serve as ecological reference areas. Since these natural communities along with mesic prairie are most altered natural community types in the state, examples of pure functioning savannas are non-existent. Science knowledge on savanna composition and ecological processes provides a template for developing a reference area. These identified sites will serve as restoration and enhancement reference areas from which we can utilize the information gathered to help make decisions on other natural resource management activities regarding savanna restoration elsewhere on Department properties.

It is understood that through accelerated understory management and application of frequent prescribed fire some forest species that are of conservation concern would be locally reduced in numbers. Although statewide the available habitat for other enhancement activities would cover over 1 million acres. Habitat for savanna dependent species is virtually non-existent. To manage for the full range of biodiversity in the state, we need to focus some portion of the forested lands towards savanna management. These savanna SNAs will provide the guidance for other savanna management activities.

Permitted management activities: Removal of invasive exotic plant species, non-manipulative research, educational activities, low-impact recreation, active fire management program, brushing and timber cutting to assist in achieving structural characteristics, augmentation of ground layer composition after careful review, and maintenance of any existing facilities.

Prohibited activities: use by motorized vehicles (except for management purposes), mountain bike use, horse-based recreation.

Prairies and Sedge Meadows: The primary goal for all the native prairie and sedge meadow State Natural Areas is to protect, manage and enhance the best remaining prairies and sedge meadows to serve as ecological reference areas. Since these natural communities are a minute fraction of their former extent in the state, examples of largest and best functioning prairies and sedge meadows must be managed to maintain their diversity and ecosystem function to the best of our ability. Science knowledge on Native

American land use practices indicates nearly three millennia of similar land management provided the natural prairie diversity we inherited upon European settlement. This information provides a template for our prairies' ecological processes. However, due to the incredible reduction in extent of our prairie systems we cannot apply landscape patchiness on small sites.

Sites designated as maintenance will always leave a small proportion (10 to 25% of any management area) as unburned patches during RxBurn application. For prairie SNA classified as restoration, it is understood that through accelerated brush and timber removal and application of frequent prescribed fire some shrub land species that are of conservation concern would be locally reduced in numbers. For sedge meadows classified for restoration hydrology is more important than fire for maintenance and mechanical cutting of shrubs in winter is a primary tool. Shrubland habitat availability for those species covers well over 1 million acres. Habitat for native prairie dependent species is less than 10,000 acres. To manage for the full range of biodiversity in the state, we need to focus some portion of the grasslands emphasis towards maintain our native prairies. These prairie and sedge meadow SNAs will provide the guidance for other restorations and prairie plantings.

Permitted management activities: Removal of invasive exotic plant species, non-manipulative research, educational activities, low-impact recreation, active fire management program, brushing and timber cutting to assist in achieving open characteristics, augmentation of ground layer composition after careful review, and maintenance of any existing facilities.

Prohibited activities: use by motorized vehicles (except for management purposes), mountain bike use, horse-based recreation.

Barrens: The primary goal for all the pine and oak barrens (including bracken grasslands) State Natural Areas is to protect, manage and enhance the best remaining barrens to serve as ecological reference areas. Since these natural communities are a minute fraction of their former extent in the state, examples of largest and best functioning barrens must be managed to maintain their diversity and ecosystem function to the best of our ability. Science knowledge the extent of barrens indicates Wisconsin is uniquely responsible for providing the natural pine-oak barrens diversity for planet earth.

It is understood that through accelerated understory management and application of frequent prescribed fire some forest species that are of conservation concern would be locally reduced in numbers. Although statewide the available habitat for other enhancement activities would cover over 1 million acres. Habitat for barrens dependent species is proportionally small and ever shrinking. To manage for the full range of biodiversity in the state, we need to focus some portion of the forested lands towards barrens management. These barrens SNAs will provide the guidance for other barrens management activities.

Permitted management activities: Removal of invasive exotic plant species, non-manipulative research, educational activities, low-impact recreation, active fire management program, brushing and timber cutting to assist in achieving structural characteristics, augmentation of ground layer composition after careful review, and maintenance of any existing facilities.