Hixon Forest Comprehensive Plan

City of La Crosse Planning Department
La Crosse, Wisconsin

Adopted May, 2005

HIXON FOREST COMPREHENSIVE PLAN
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Acknowledgements

This plan is a product of the combination of a wealth of research and an extended public input process that consisted of numerous public meetings, a focus group session, stakeholder interviews, emails, phone calls, and other conversations. A special thanks goes to those that participated during the scheduled public input process.

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Betsy Morgan – Focus Group Facilitator, University of Wisconsin – La Crosse
Cynthia Olmstead – Mississippi Valley Conservancy
Armund Bartz – Ecological Assessment of Hixon Forest
Craig Thompson, et al – Breeding Bird Survey of Hixon Forest
Peter Harrison – Public Input Plan, Hixon Forest Comprehensive Plan

EXECUTIVE SUMMARY

Late in 2003, the City of La Crosse Planning Department was approached about the possibility of making an overall policy guideline for Hixon Forest, the City's premier nature based park. The result of these discussions was the drafting of the *Hixon Forest Comprehensive Plan*. This is the first overall management document for the park in its 92 year history.

The major impetus for the writing of this plan came from a number of concerns/issues that had developed. One of the major issues came up following a 2003 forest assessment conducted within Hixon Forest for the Hixon Forest Nature Center (HFNC). While the survey proved valuable in identifying the tree composition within the forest, it also brought up the question of how this resource should be managed. Opinions ranged from absolutely no timber harvest, to actively managing the forest for particular species.

Another concern that led to the writing of this plan was simply the fact that over the 92 year history of the park, there had been no overall policy guide for the management of the resource. Questions were raised about the appropriateness of activities such as the construction of new trails; however, there was no established method for addressing these questions.

An additional stimulus for the writing of this plan is the changing nature of resource use and opinion. The Wisconsin Department of Natural Resources has identified a gradual change in the nature of recreational use, related in part to the changing demographics of the country. The popularity of activities such as mountain biking, snowmobiling and all-terrain vehicle use continues to expand, while many other activities seem to be decreasing in popularity. This in turn affects how public lands are managed. Anecdotal evidence suggests that use of the park is increasing.

The purpose of the Hixon Forest Comprehensive Plan is to serve as the policy document that guides the management of natural resources and recreational use of the property for the City of La Crosse Board of Park Commissioners and the Hixon Forest Nature Center. The plan was developed by combining sound natural resource management techniques with identification of the limitations of the resource, and included input garnered from the public at large, as well as specific stakeholder groups. While this plan is intended to guide management of the forest over the next 15-20 years, the plan is intended to be flexible and to allow for additions of new lands, changes in budgets, and development of new management techniques. The plan should be evaluated on a regular basis of at least once every five years by the Board of Park Commissioners to determine whether revisions are necessary. This plan was written with these factors in mind. Following are summaries of some of the major policy recommendations found within the plan:

- Actively manage (reduce) the deer herd within Hixon Forest
- Continue to manage invasive species within the forest
- Manage much of the forest for old forest (80-120 years) and old growth forest (120 year old forest and older)
- Restore and retain existing remnant prairie sites
- Limit the development of additional recreational facilities

HISTORY OF HIXON FOREST

Hixon Forest lies along the bluffs on the east side of the City of La Crosse. The forest occupies much of section 34, as well as portions of sections 33 and 35 of Township 16 North, Range 7 West. At present, the Hixon Forest/Grandad Bluff area consists of more than 800 acres. The forest is largely oak-hickory forest, with maple/basswood becoming more prevalent in certain locations. Public Land Survey System notes made by Uriah Biggs in November of 1845 and Alfred L. Brown in November and December of 1846 indicate that the area now occupied by Hixon Forest was indeed different than current conditions. Biggs noted the presence of burr oak, that the land was "broken and hilly, but little timber," with Prairie La Crosse consisting of land that was "mostly dry, sandy, level prairie," and was considered "2nd Rate" for the exterior survey of Township 16 N, Range 7 West, Section 34 (Biggs, 1845). Brown noted that there were high bluffs, burr oak, with "no other trees near" in one location, and on other locations he found the presence of black oak, white and burr oak, and some birch between section 33 and 34. Between sections 27 and 34, Brown noted the presence of sandstone cliffs 30 feet tall, as well as the presence of black and white oak, hickory, and some birch. Both surveyors' remarks indicate that the area was much more open than present conditions, and had more shade intolerant plant communities. This was likely due to a combination of lack of fire suppression, grazing, and logging.

In 1911, noted landscape architect John Nolen wrote the first park plan for the City of La Crosse. In this plan, Nolen recommended the area around Grandad Bluff and Miller's Coulee (current day Hixon Forest) as the site for the City's largest and most beautiful park, with the goal being a park of more than 400 acres when complete. Nolen considered the site "as good an illustration of ready made park as could be found, and except for road making, the cost of its improvement will be slight" (Nolen, 1911). By 1912, Hixon Forest had come under the stewardship of the City as a natural resource based park. It was at this time that civic activists raised money to purchase the park and annex it into the City in an effort to prevent this portion of the City's eastern skyline from being quarried and logged. Over time, as a result of fire suppression and conservation efforts, Hixon Forest has turned into a predominantly Oak-Hickory forest, with small remnant prairies located on some of the steeper sites.

A timeline of some of the more major events affecting the forest over the past 92 years can be found below.

- 1909 – Joseph and Irene Hixon acquire Grandad Bluff from Ellis Usher to protect bluff from quarrying until it can be transferred to the City.
- 1911 – John Nolen completes plan for City Park System. Grandad Bluff and Miller's Coulee (current day Hixon Forest) planned to be the largest park in the system.
- 1912 – Hixon's convey land (300 acres) to the City. Local citizens led by Ellen Hixon raised $15,000 for purchase of land and building of a road. The land was transferred with a stipulation that it was to be used for park purposes and for locating a reservoir. The land was also to have the option of being used for forestry or pasturage subject to approval by the Board of Park Commissioners.
- Depression era – black locust planted to stop soil erosion.
- World War II – "Victory Gardens" Level areas in Hixon used for truck farms.

- 1948 – Marksmanship Range built.
- 1962 – Experimental Farm (160 acres - Upper Hixon) transferred to City.
- 1976 – City takes ownership of USFS Watershed Lab (now used as the Hixon Forest Nature Center).
- 1976 – Dedication of Bicentennial Trails (La Crosse Chamber of Commerce and Parks Department joint project).
- 1983 – Hixon Forest Nature Center opens.
- 1986 – Prairie restoration efforts begin.
- 1995 – Addition of former Northern Engraving parcel (43 acres) from La Crosse Country Club.
- 1996 – Wisconsin Farmland Conservancy transfers 17 acres to City. Stry Foundation tracts also added (~13 acres).
- 1999 – Miller-Peterson property acquired (56 acres).
- 2002 – Fitzpatrick property acquired (12 acres).
- 2002 – 'This is Not a Trail' trail opens, mountain bike trails on Upper Hixon open.
- 2003 – Black Locust and Box Elder removal project begins.
- 2003 – *Assessment of the Hixon Forest* conducted.
- 2004 – Preparation of first comprehensive plan for Hixon Forest begins.
- 2004 – *Ecological Assessment of Hixon Forest* conducted.
- 2004 – *Breeding Bird Survey of Hixon Forest* conducted.

PUBLIC INPUT

The first step in the overall planning process for Hixon Forest was to develop a public input process. The mission of the public input process for the comprehensive plan for Hixon Forest is as follows:

Recognizing the importance of public opinion and desiring a process of impartial public involvement, it is the intent of the City of La Crosse to design and implement a public participation process that addresses current issues and public concern through educational programs and interactive workshops so that public knowledge and insight can be utilized to assist in the formulation of a Comprehensive Plan for Hixon Forest.

A number of entities participated in the creation of this plan. This included a working committee, which consisted of technically oriented persons from a variety of different organizations, including the Wisconsin DNR, Mississippi Valley Conservancy, Hixon Forest Nature Center, a University of Wisconsin – La Crosse Recreational Management Master's Degree Candidate and advisor, and City Staff from the public works, parks and recreation, and planning departments. The purpose of this group was to make recommendations and provide alternatives to the Steering Committee.

The Steering Committee consisted of three members of the Board of Park Commissioners (a.k.a. Park Board), and two members of the Hixon Forest Nature Center Board. The purpose of the Steering Committee was to provide direction to the Working Committee, as well as make policy recommendations and recommend the plan to the Park Board, which oversees all City parks. This board is then responsible for recommending the final plan to the Mayor and Common Council for final adoption.

Numerous stakeholders were contacted during this planning process, including representatives from the following: adjacent landowners, Audubon Society, Forest Hills Golf Course, Hixon Forest Nature Center, Human Powered Trails, the Mississippi Valley Conservancy, the National Weather Service, Nordic Ski Club, La Crosse Park and Recreation Department, Prairie Enthusiasts, River City Running Club, School District of La Crosse, Sierra Club, Wisconsin DNR, Neighborhood Associations, the Wild Ones, Army ROTC, the Botanical Club of Wisconsin, the Mississippi Valley Archaeology Center, and the general public. These stakeholders were invited to the public input meetings, and also asked to share their input via stakeholder interviews, focus group meetings, and comment forms.

Summary of Input

Input was gathered through a variety of methods. On May 5, 2004, the first of three public input meetings was held to gather input on appropriate uses of Hixon Forest. More than 40 people attended, representing a variety of interests including: *adjacent landowners, arborist, Army ROTC, Audubon Society, former naturalist, Hixon Forest Nature Center Board, Human Powered Trails, La Crosse School District, Marsh Coalition, Mississippi Valley Conservancy, Natural Areas Committee, Prairie Enthusiasts, Sierra Club, Wild Ones, etc.* In addition to holding a presentation and question and answer session, members of the working and steering committees facilitated two round-table discussion sessions, with tables focused on recreation, forest management, and wildlife. Comments gathered and issues identified during these discussions are as follows:

Recreation Issues
- Trail erosion (can improve on design, minimize damage)
- Carrying capacity of forest (how many users can it accommodate)
- User conflicts
- Use of the "This is Not a Trail" (a.k.a. TNT) trail by bikers and hikers
- Horses can be considered; if allowed, should only be on the upper forest
- Dogs off leash
- Off-trail use – can be allowed, but need to encourage minimal environmental impacts
- Hikers consider themselves to be the principle users of Hixon
- Signage for educational purposes could be increased
- Consideration of wildlife/forest health with respect to recreation

Forest Issues
- Regeneration
- Invasive Species – need to be controlled (questions re: native vs. non-native invasive species)
- Stage of succession preference
- Keep controlled burns as an option

- Involve forestry professional once goal is identified
- Forest serves as: home for wildlife, place for spiritual experience, recreation, education, etc.

Wildlife Issues
- Impacts of deer herd
- Awareness of rattlesnakes
- Changing species diversity and composition, esp. birds (interior vs. fringe, specialist vs. generalist)

Miscellaneous Issues
- Where will funding come from?
- Consider school district

Areas of Consensus
- Absolutely no motorized uses of forest
- Need healthy ecosystem
- Education about shared use

Areas of Contention
- Management of the forest (cutting vs. no cutting)
- Use of forest – bikers especially, horses somewhat.

In general, there was consensus that motorized uses within the forest were inappropriate uses of the forest, and should be prohibited, with the exception of maintenance vehicles. A majority of those providing public input also indicated that they felt that the deer herd should be managed because of their detrimental impacts on the forest resource.

Stakeholder Interviews

In addition to the first public input meeting, 14 face-to-face interviews and one telephone interview were conducted from May through July with more than 20 people representing 11-12 different participating interest groups. This included representatives from the following: *Alpine Inn, arborist, Audubon Society, forestry professional, former naturalist, Human Powered Trails, La Crosse School District, Mississippi Valley Conservancy, Nordic Ski Club, Prairie Enthusiasts, River City Running Club, Sierra Club, and Velo Club*. In addition, staff sought more in-depth input from several adjacent landowners, and the ROTC; but only the ROTC expressed interest, and they ultimately did not schedule a meeting. Other parties deferred because of schedule conflicts. The stakeholder meeting provided opportunities for expanded dialogue with numerous groups. General recommendations, comments gathered, and issues identified from these meetings are as follows:

General Feedback
- Enforcement issues
- Need to balance recreation, preservation, and education
- Might need two different time frames, one for recreation and the other for resource management. 10-20 years isn't a very long time from a resource standpoint.
- Accommodate school district. Use the forest as classroom.
- Continue educational purpose of forest. Could also use for research/test plots.
- Land uses surrounding the forest affect the forest. Need to address those.

- Need to look at bigger picture, how forest fits into the bluffland preservation efforts.

Recreation
- Hixon Forest is part of park system, doesn't have to be everything for everyone. Other facilities in the City can be used.
- Continue to accommodate cross-country teams.
- No motorized uses
- Use trail design standards.
- How does ADA figure into building of future trails?
- Recreation is inevitable. Need compromise. No motorized uses though.
- Promote more shared-use mentality. Horses could probably be ok on upper prairie.
- Trails can help to keep people within certain areas; view as a positive rather than always a negative.
- Would like to build additional trail south of the golf course on the north facing slope below Bliss Road.
- Some of original trails were not built like they should have been. Newer trails are more site sensitive.
- Some current trails are too close together, can degrade experience. Probably have almost maxed out on the number of trails.
- Don't want paved trails.
- Forest is probably overused already in some areas.
- Encourage people to stay on trail.
- Important for cycling community to have access to the forest (running and skiing also). Should be human uses.
- Horses could be allowed if they are used to help maintain the trails.
- Horses can be hard on trails. Talk to Wildcat Mountain and Kickapoo Reserve.
- Need improved maintenance on some of the lower trails.
- Could possibly allow dogs off-leash on the upper grassland.
- Prefer that people stay on trail.

Forest Management
- Keep in mind that there may be no "natural state" to return the forest to. Our environment has been manipulated by humans for hundreds of years.
- Need to clarify what should be managed: opportunistic natives vs. exotics. Chemical treatment vs. mechanical treatment might be an issue.
- Need forest management.
- DNR has an invasive species management book
- Any management of exotics should be done slowly in order to maintain overall function of forest.
- Need to protect sensitive areas.
- Don't manage for timber production (can manage for health though)

Wildlife
- Need to protect snake hibernaculums – are sensitive.
- Prairie restoration seems appropriate. The Prairie Enthusiasts are interested in helping.
- Need food, shelter, and nesting area to provide healthy habitat.
- If there is timber harvest, proceeds should go back into the park.
- Could manage for Oak Savanna
- What are regulations for harvest of plants, mushrooms, etc within the forest?

- Not opposed to deer management.
- If you have a deer hunt, control numbers of people.
- Educate about presence of rattlesnakes.
- Could manage for cerulean warblers.

Specific Issues/Recommendations

- Restroom facilities
- Water facilities (upper and lower)
- Chicane near railroad tracks is too tight, students bunch up
- Erosion problems between Milson Court and railroad tracks. Should create better trail. Part of problem is bikers using numerous spots because nothing is provided for them.
- Road to trailhead is not maintained very well. Should be graded.
- Could add warming house for skiers
- Would like the City to dedicate personnel to winter grooming
- Viewing platforms/vistas
- Have UW-L do another user survey
- Storage facility for trail maintenance tools.

Focus Group Meetings

A focus group meeting was also held in May, with six attendees representing four to five interest groups, including *Equestrian Interests, Human Powered Trails, Hixon Forest (former naturalist), Nordic Ski Club, and the River City Running Club*. The focus group was facilitated by Dr. Betsy Morgan, staff member at UW-La Crosse. The following are areas of consensus from this meeting:

- No motorized vehicles
- Forest must remain under Parks and Recreation department – they are accountable. Continue HFNC as advisory entity.
- Need to continue education within the forest
- Maintain natural setting.
- No commercial development should take place on the forest.
- Continue trail maintenance, but none should be blacktopped.
- Uses should primarily be nature observation, hiking, running, skiing, and education
- Problems are being identified, but can't address in a timely manner. Could develop better relationship between the City and the HFNC.
- Need education about trail courtesy, etc. Could use signage to do that.
- Need emergency response plan for forest.
- Should discuss which trails can be improved and which should be abandoned. Some of the original trails were not designed that well, could be better.
- Can allow horses back on top
- Could leave exotics unless they are invasive
- Controlled burns acceptable
- Should manage deer. Too many. Would have to have limited time period, etc. Safety is most important consideration.

The use of chemicals within the forest for management purposes was not a point of agreement, with several feeling any use was inappropriate, while others felt it was an appropriate management tool.

Two additional public input meetings were held in order to obtain additional input, and present proposed policy recommendations. The second Public Input Meeting was held on September 23, 2004. This meeting was attended by more than 20 participants. Discussion focused largely on deer management, trails, and forest management options.

Some of the questions and answers given at this meeting can be found below:

LAND ADDITIONS

- Manage for wildlife, then multiple-use. Some future additions could be better suited to mixed use.
- Can't have everything for everyone in existing Hixon, but can add things onto new parcels if they lend themselves to it.
- Will additions become part of Hixon? Depends on where it is. If it is near it, probably. Don't know.
- Who will be the lead manager? City probably. Want to clarify who is in charge. Might do a memorandum of understanding. Also have to make sure that there is enough staff and resources to manage the park as it grows.
- Could look at how the addition lends itself to different uses, keep pristine areas pristine, and allow more uses in less pristine areas.

FOREST MANAGEMENT

General:

- Need control and elimination of invasive species.
- Locust management – pockets within the forest can probably be left alone. Locust on the fringe needs to be managed. They have limited commercial value except as firewood. Need to look at the cost of managing it.
- Can use chemicals in some cases, when other efforts don't work.
- Opposed to logging due to increased fragmentation.
- Agree with management for old growth
- Recommend leaving unfettered areas unfettered.
- Need to manage the goat prairie areas before they are lost to succession.
- Use the forest as a classroom: Timber Management is part of a forest experience. Want people to know what it is. Small size precludes some things. Timber management should not be ruled out.
- Important that kids learn about multiple uses, but it is small. Have the Coulee Experimental Forest. Kids don't get to see unmanaged forest very much any more. Natural state is ever changing.
- Would like to see restoration to Oak Savanna and prairie. Would like some savanna. Could have some thinning, some revenue generation, etc. Get rid of the Locust, have old growth, etc.
- Harvest with the health of the forest in mind, manage for a lot of different natives, and get rid of the exotics.

- Preserve the old oak openings. Could manage to keep some of that.
- Other areas have designated pristine areas. Could identify special use areas.
- Give consideration to areas that shouldn't be used at all.
- Does old growth need a certain size (acreage) to maintain itself?
- Old growth is a climax species, will stay basically the same until a catastrophic event comes along. The oak will eventually disappear over time. Could manage to keep the oaks. Can use harvest to rejuvenate the oak, and also generate revenue. Did a forest assessment, not a timber survey.
- The forest is not old growth yet. Would become a northern hardwood forest over time if nothing is done.
- Many forests in the area are going from oak dominant to maple dominant.
- Difference between old growth landscape and old individual trees.

Prescribed Fire

- Fire concerns seem to be more of a practical thing than philosophical. In favor of fire as a tool.
- For promotion of old growth forest. For some burning. For a limited archery hunt, but should leave some deer. For expansion of the forest boundaries.
- Ground and shrub nesting birds may go elsewhere with fires.
- Can't burn everything at once, need to have rotations. Savanna and prairie have resources for different bird species too.
- Would we burn to keep the forest safe? (reduce the fire load).
- Fires were important along the Mississippi River prior to the 1930s.
- Use fire whenever possible.

General Consensus: fire is an acceptable management tool.

DEER MANAGEMENT

- The deer issue is bigger than Hixon Forest alone. Safety needs to be addressed for it to be acceptable. Need special hunt procedure. No firearms unless they are professional sharpshooters. Need to work with the surrounding jurisdictions (Medary and Shelby). Donate meat to the hunger task force.

General Consensus: Deer herd management is warranted and acceptable

RECREATION

Trails:

- Trails – appropriate amount depends on the number of users. Probably at capacity.
- Bikers may need more because they cover more territory.
- Too much trail in the lower forest.
- Could close some of them to space it out.
- As a woman, feel more comfortable if others can see me.
- If you had a healthier forest, the number of trails might be less noticeable, and less of a problem.
- Should promote more of a multi-use concept.
- Bike trails are well designed for biking, but people might try to cut the switchbacks.

- Mileage is adequate, but the quality of some of the trails is lacking.
- Trail maintenance is voluntary for the most part. If you add trails, will there be enough manpower to maintain them.
- Some of the old trail design is poor.
- Need education about use of the trails (cutting switchbacks, etc).
- Could redesign trails in lower Hixon to minimize conflict. Look at sustainable building with proper design.
- Could say no net growth with some leeway allowed.
- Think if you stop building, will reduce maintenance and redesign.
- Addition of lands could relieve pressure on some of the more popular trails, especially in the lower area. Could close and redesign them. Shift demand as the size of the park increases.
- Erosion – identify problem spots every year, close the trail and fix the problem. If there is weed growth on a trail, it shows a lack of use. Let natural selection take place and close those trails.
- ADA accessibility needs to be considered.
- Try to not fragment any more forest. Can add trails on the new additions.
- HPT would not agree with keeping trails limited because trail design is different.
- Different parcels are suited to different uses.
- Different parts of the park could have different uses based on their quality.
- Seem to be fewer bikers on prohibited trails since the TNT was put in. Also seem to be fewer conflicts.
- Has providing the TNT and other trails reduced problems? In part. Seems to be less hazardous now. If forest is added, think you should provide some walking-only trails. This would allow for a more natural experience.
- Potential for conflict by creating walking-only trails.
- Trail designated solely for walking is not a good idea on upper Hixon.
- Educational benefit to different types of trails. Walking trail on Thompson Prairie could be beneficial.

Horses

- Can't share trails with horses.
- Enforcement of horse use would be an issue.
- Mountain biking and hiking trails are very dense right now. If the forest grows, could look into adding additional land.
- Horses and bikes don't mix well.
- Can consider horses if the forest expands, Yellow River Forest has horse trails that are in pretty good shape.
- Safety issue of horses sharing trails with bikes
- Horses spread weed seeds, let them use private property.

Consensus: do not allow horses in existing Hixon Forest

The third Public Input Meeting was held roughly a month later, on October 27, 2004. This meeting was attended by more than 30 people. This meeting was largely focused on presentation of the draft policy recommendations, followed by a question and answer session. Discussion covered topics such as use of herbicides for treatment of invasive species, forest management, and construction of trails. Based on that meeting, the draft policy recommendations were changed to reflect the public input obtained, and have been included in this plan.

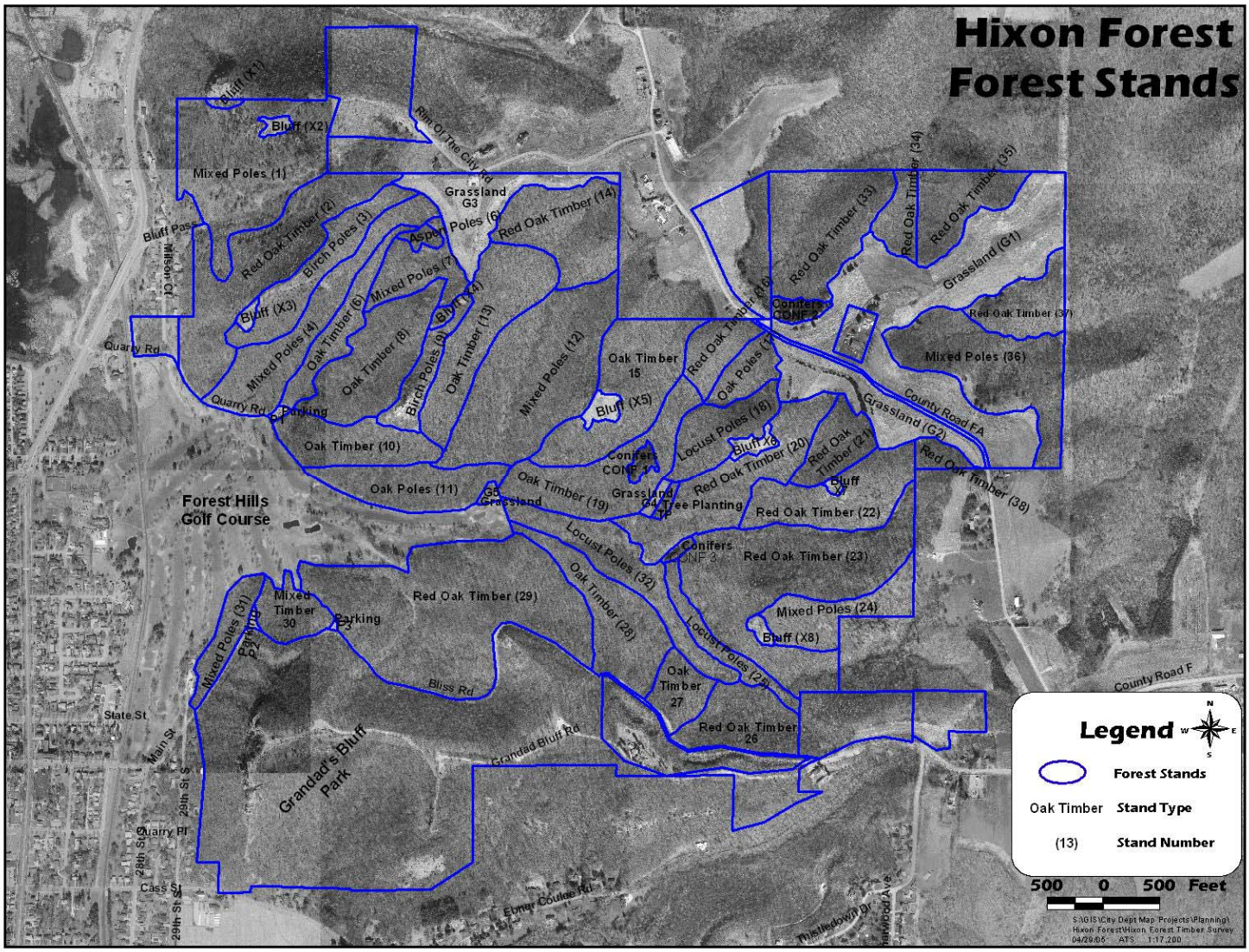
HIXON FOREST SURVEYS

In addition to gathering public input for the preparation of the plan, information about the natural resources within Hixon Forest was gathered, largely based on three surveys conducted within the last two years. This included the *Assessment of the Hixon Forest, Ecological Assessment of Hixon Forest*, and *Breeding Bird Survey of Hixon Forest*. In addition to these surveys, a recreational survey "An Analysis of Recreational Use of Hixon Forest Nature Center and Hiking Trail System" conducted in 1999 and other existing documents were consulted. The results from these surveys are summarized below.

Assessment of the Hixon Forest

In late winter and early spring of 2003, a forest assessment was conducted in Hixon Forest by Hutchinson Resource Management. The purpose of this assessment was to determine the condition of the forest as a whole. The assessment is available in the City Planning Department.

(Figure 1 - Cover Type Map)



Below is a brief synopsis of the main points from the assessment.

- Preservation has resulted in a unique area.
- The recreational and educational programs that have been developed could not exist without the forest.
- Over 200 inventory plots were taken, resulting in 38 areas (stands) being designated with eight different cover types. Information gathered included the tree species, diameter, height, age, basal area, regeneration density, and volume of cords and board feet per acre. Due to the highly dissected character of the terrain, stands were limited to four plus acres in size. In addition to the 38 stands, there were eight rocky bluffs, grass areas, parking areas, planted conifers, and a tree planting sight identified.
- There are approximately 356 acres of oak forest, 137 acres of mixed hardwood (hickory, elm, maple, basswood), 21 acres of birch and aspen, 34 acres of black locust, and 5 acres of mixed conifer(white and red pine, Norway and white spruce) within Hixon Forest.
- The assessment concluded that a vast volume of mature oak is present, with tree ages varying from 50 to 100 years; fire damage dating back to the 1930s exists; there was less black locust, birch, and pole (pulp sized) timber than expected; most understories are hickory and elm; and oak wilt is absent.
- The assessment recommended managing portions of the forest for wood fiber production with revenues funding Nature Center programs. Doing nothing will result in tree mortality and succession away from oak towards hickory elm. Prescribed burns could result in oak regeneration, but a fire professional must be consulted before taking action.
- Many trails are not shown on the official brochure.
- The assessment recommends that a forest inventory take place on 10 year intervals.

The assessment concluded that the health of Hixon Forest is good, but there is a worrisome situation due to the abundance of invasive plants (trees & shrubs). It was noted that the use of chemicals to control black locust or other invasives should be discouraged, but may be required (Hutchinson, 2003). To address black locust specifically, the inventory recommends a locust timber sale, followed by replanting. It did caution that the deer population would likely limit replanting efforts, as the deer herd may be on threshold of the forest's carrying capacity. Exclosures could be used to demonstrate recovery from deer browsing. It was noted that the boundaries of the forest are unmarked, which can cause problems because of inadvertent trespass. The assessment also found that there is a substantial amount of wood fiber within the forest that will soon reach the end of its life cycle.

To address these opportunities and concerns, the assessment recommended taking the following actions: 1) limit the spread of invasive species; 2) control the deer herd; 3) identify and mark external boundaries; and, 4) prevent the waste of wood fiber through proper timber harvest.

Ecological Assessment of Hixon Forest

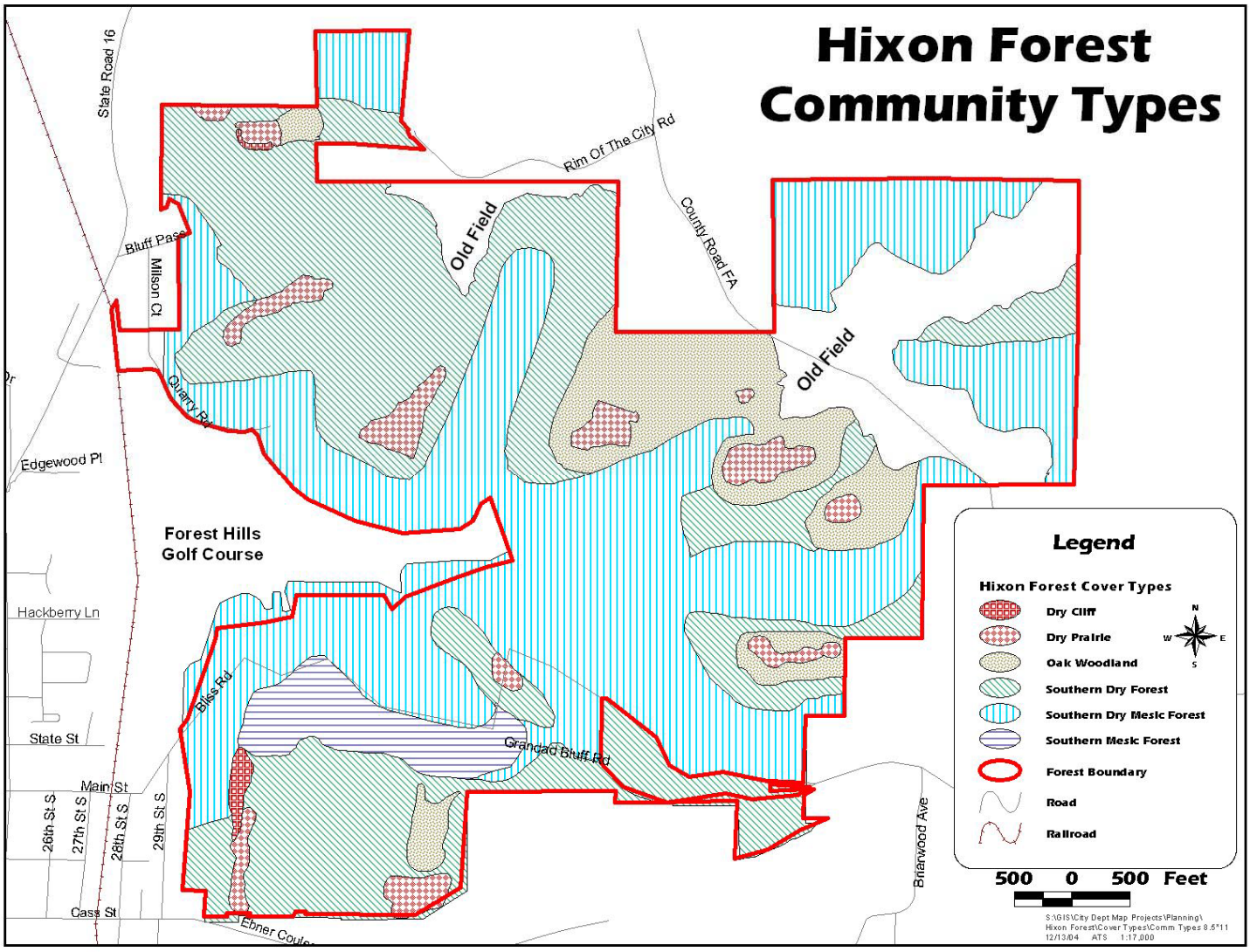
During the month of May, 2004, a natural resource inventory was conducted by staff of the Mississippi Valley Conservancy. The Ecological Assessment of Hixon Forest is available in the City of La Crosse Planning Department. The purpose of the inventory was to determine the type and quality of natural communities as well as plant species diversity within the forest. The

presence of dry prairies, and oak woodlands within the forest (and possibility of old growth management) were noted in the survey as areas of significant management potential. The impacts of deer and invasive exotic species on the forest were noted as the two areas of greatest concern for the future of the forest.

The following is a summary of some of the main points of this survey:

The survey found six relatively distinct natural communities, including: (1) Southern Mesic Forest (SMF), (2) Southern Dry Mesic Forest (SDMF), (3) Southern Dry Forest (SDF), (4) Oak Woodland (OW), (5) Dry Prairie (DP), and (6) Dry Cliff (DC) (see figure 2).

Figure 2 (Natural Communities)



These natural communities contained 239 vascular plant species.

- It was noted that approximately one quarter of the forest was assigned its natural community based on edaphic (soil) features because of the impacts caused by disturbance, exotic species,

and impact of white tailed deer herd. Many areas were void of even common species because of these factors.

- Approximately 40 acres of Southern Mesic Forest were identified (located on north slopes with rich, well drained soils, and dominated by sugar maple and basswood). This community has been severely degraded and is in poor condition.
- Southern Dry Mesic Forest was the most common community (found on northeast, north, and northwest facing slopes and lower portions of south facing slopes, with red and white oak dominant). This community lacks species diversity and density when compared to other sites within the region.
- Southern Dry Forest was the second most common community (south, southwest, and southeast slopes). Black oak dominant.
- Oak Woodland – very dry sites often adjacent to dry prairie. Dominant trees are burr and black oak. Severely infested with buckthorn.
- Dry Prairie – native grassland community found on steep, thin soiled south, southwest, and southeast facing slopes. Tree species generally lacking. The 12 identified sites together contain the full spectrum of species typically occurring on high quality sites in Southwest Wisconsin. The sites range from somewhat to severely degraded, however.
- Dry Cliff – vertical bedrock community, appears on two sites in Hixon. Tree species limited.

Hixon Forest Ecological Assessment
Natural Community Totals

Community	Approximate Acreage	Percent of SubTotal	Percent of Total
Dry Cliff	2.60	0.3%	0.3%
Dry Prairie	30.69	4.1%	3.7%
Oak Woodland	71.51	9.5%	8.5%
Southern Dry Forest	278.31	37.0%	33.2%
Southern Dry Mesic Forest	341.18	45.3%	40.7%
Southern Mesic Forest	28.79	3.8%	3.4%
SUBTOTAL	**753.08**	**100.0%**	**89.9%**
Fallow Field East of FA	57.20	67.7%	6.8%
Fallow Field West of FA	13.52	16.0%	1.6%
Fallow Field South of Rim of the City Rd	13.83	16.4%	1.7%
SUBTOTAL	**84.55**	**100.0%**	**10.1%**
TOTAL*	**837.63**		**100.0%**

**For the purposes of this plan, the area of Hixon Forest, including Grandad's Bluff park, is ~814.13 acres. Overrun in total acreage is due to inclusion of communities within Forest Hills Golf Course.*

Outstanding Features/Opportunities identified within the assessment are as follows:

- Dry prairie - Of the eight state listed species identified in the forest, five are restricted to prairie (dry prairie), and the other three are closely associated to prairie. It was noted that only four of the 12 sites have been managed, and all of the sites will likely disappear within 10-30 years absent management efforts.

- Oak woodland/southern dry forest – closely associated with globally imperiled oak opening (oak savanna). The assessment identified an opportunity to increase numbers of these light dependent species which are becoming increasingly rare in Wisconsin and the upper Midwest.
- Near old growth and old growth potential. The assessment noted that almost no near old growth or old growth forest exists in southern Wisconsin. In addition, timber harvest is often based on economic rotation of timber, which is 50-100 years, while the biologic rotation is closer to 150-250 years. The author felt that there are numerous benefits to managing for old growth, including aesthetics, uniqueness, potential for tourism as a function of being unique, rarity, distinct animal communities benefit, and value as a scientific benchmark.

Ecological Assessment Recommended Management Areas

Management Areas	Approximate Acreage
Near Old Growth Conditions	110.16
Potential Oak Mgmt Areas	221.26
Dry Prairie Mgmt Areas	30.69

The report concluded that the greatest threats to the health of the forest are exotic species, an uncontrolled deer herd, and the lack of prescribed fire. To that end, the report recommended controlling the abundance of exotics by utilizing an integrated combination of herbicide use, prescribed fire, and hand pulling. The report also suggested investigating the control of the deer herd within the forest. The final recommendation was to re-incorporate fire as a vector of natural disturbance for the forest. It was noted that without the use of prescribed fire, the forest will continue to lose the rare species currently found, and will likely reduce the density and diversity of native species now common. Evidence of past fires within the forest is extensive, and prescribed fire is probably the best, most cost effective method to maintain and enhance prairie and light dependent woodland species. Hixon's Oak Woodland, Dry Forest, and Dry Mesic Forest developed with fire, and their continued existence, including the oak component, will be enhanced with its use (Bartz, 2004).

Breeding Bird Survey

A breeding bird survey was conducted in the first two weeks of June, 2004. The survey is available in the City of La Crosse Planning Department. A summary of the results of the survey is listed below:

- There were 66 bird species recorded within the forest boundaries. This compares to 65 species recorded in 1999. Of the 66 species identified, 29 (or 44%) are neotropical migrants.
- There was one state-threatened species identified within Hixon Forest.
- There was one species of special concern identified within Hixon Forest.
- There were 13 species identified as conservation priorities.

- The bird survey identified three distinct habitat types: (1) mature deciduous forest, (2) forest edge, and (3) successional old fields. It was noted that mature deciduous forest is the largest habitat type within the forest boundary, and associates of this habitat type are well represented.
- The survey concluded that the large block of relatively unfragmented, mature deciduous forest provides important habitat for a substantial number of forest-dependent bird species, including 16 species considered area-sensitive forest-interior species.
- The successional fields are not large enough or of sufficient quality to play a significant role in regional bird conservation efforts. In combination with the edge habitat, they do support priority conservation species and are thus important from a local perspective (Thompson, 2004).

Survey Recommendations:
- Maintain existing forest cover. Reforest the area near the restrooms.
- Allow field on west side of County Highway FA (CTH FA) to succeed to forest.
- Soften the forest edge where possible. Plant shrubs along golf course.
- Continue prairie restoration efforts east of CTH FA.
- Minimize construction of new trails.

Other Surveys

In addition to these surveys, a number of historical inventories and surveys were obtained from various parties. These historical documents have been helpful in allowing comparison to recent inventories. They are also helpful in comparing the changes in the plant and animal communities over time.

RECOMMENDATIONS & PLAN ALTERNATIVES

NATURAL RESOURCE MANAGEMENT

The goal of this comprehensive plan is to foster management of Hixon Forest as a natural resource first, protecting significant natural areas, restoring natural habitats, providing opportunities for education as well as low impact recreation, and promoting the overall health of the forest. To that end, natural resources management has been broken out into several separate, yet overlapping, categories, including prairie management, forest management, invasive species management, and wildlife management (which includes deer, bird, and reptile and amphibian management). Because of the inherent complexity and constantly changing environment, monitoring should be considered a needed part of all management efforts. Based on these monitoring efforts, management strategies can be changed to best carry out the recommendations for the management of Hixon Forest.

Prairie Management

In pre-settlement times, the Mississippi River Bluffs within the La Crosse area most likely consisted of prairie and oak savanna habitats. These communities were dominant due to frequent disturbance caused by large grazers that once inhabited the area (elk and bison), as well as the occurrence of fire (natural and those set by Native Americans). Since European settlement, the elk and bison have been driven out, much of the flatter land has been developed or converted to agricultural uses, and fires have been suppressed. This has resulted in much of the remaining prairie and oak savanna that once was found in this area, including Hixon Forest, succeeding to forest.

Although much of this area has succeeded to forest cover types, there still are prairies present within Hixon Forest. The "Ecological Assessment of Hixon Forest" identified 12 remnant prairie sites, encompassing approximately 31 acres within the current boundaries of Hixon Forest. These sites are considered prairie remnants because they contain native seed stock. Since 1988, three of the 12 remnant sites (Lookout Point, Middle, and Birch Point prairies) have been managed through a combination of cutting and burning, in an effort to curb growth of woody species such as sumac, and restore overall health to the sites. Because of the unique and fragile status of these sites, herbicides or pesticides should be used sparingly and judiciously when needed to control invasive species.

In addition to the remnant sites, there are also several old field sites, totaling approximately 84.5 acres (including Thompson Prairie) located in Hixon Forest. These old fields have been managed since 1994, when the HFNC received grant money to plant prairie on the old county farm. This planted prairie (Thompson Prairie) is around 1 acre in size. The remaining old fields have been managed through burning, plantings, mowing, and herbicide application. These old field sites should continue to be managed for the promotion of native vegetation.

While the prairie sites within Hixon Forest are probably not significant enough at a landscape level to warrant conversion of significant amounts of the surrounding forested area back into prairie, they are of significance at the local level. As noted in the ecological assessment, the 12 prairie remnant sites are host to or are closely associated with the eight state-listed species identified within the boundaries of Hixon Forest. The assessment noted that only four of the 12

sites have been managed, and all of the sites will likely disappear within 10-30 years absent management efforts (Bartz, 2004).

In general, the prairie remnant sites within Hixon Forest should be considered fairly sensitive. They also are the areas most in need of management efforts within the forest. One of these prairie remnant sites, the Gillis Prairie, has been identified as a State Natural Area (SNA). A management plan has already been developed for this site, with one of the overlying goals being to protect the site in a natural condition with little human disturbance. Because this site is intended to be managed in a natural condition, extensive public use is not encouraged. In addition, pesticides, including herbicides, insecticides, fungicides, and biological controls are not to be used for plant or animal control on this site without approval from the DNR, with review by the Natural Areas Preservation Council. This management plan can be used as a useful template for developing individual management plans for the other prairie remnant sites within the Forest. The entire management plan can be found in the appendix.

As noted in the *Ecological Assessment of Hixon Forest*, the prairie remnant sites are in danger of disappearing as the sites are invaded by woody vegetation in the absence of fire and grazing. Prior to undertaking any management efforts on the prairie sites, a resource professional should be consulted to determine type of management tool, and timing (early spring, late spring, fall, etc.). For example, burning is typically used to control woody vegetation over time, reduce litter build-up, and stimulate grass and forb production. Grazing results in a more diverse vegetation structure than either mowing or burning because of the uneven grazing patterns of cattle, which is related to factors such as the distribution of preferred and unpalatable plants and dung piles within pastures. Prickly and thorny shrub species, however, are actually encouraged by grazing (Sample and Mossman, 1997). Chemicals can be effective, but all of their impacts are not known. If chemicals are used, those that biodegrade quickly should be used in preference to those that do not. In general, efforts should be made to continue restoring fire back into the natural cycle. Because of potential harm to some of these remnant site dependent species, management efforts such as burning should be confined to the cooler months. This will prevent direct mortality to nesting birds, emerging snakes, certain insects, etc. When using fire for prairie management, no more than one half to two thirds of any individual remnant should be burned in any given year. This is due to the small size of these sites, and the need to provide some biological refuge areas.

Due to the impact that a prescribed burn can have on the types of flora (and fauna) that benefit or are disadvantaged based on the time of the year in which the burn is performed, prescribed burns should be developed with assistance from a resource professional to make sure that goals of fire will be met (frequency, areas, timing [season], and intensity and duration affect different plants in different ways). Monitoring of the site should be conducted prior to and after burns to determine effects of the burn. There are numerous resources available that provide information about prescribed burns, including the Prairie Enthusiasts, The Nature Conservancy, and the USDA Forest Service Fire and Aviation Management unit. In addition, the University of Wisconsin at Stevens Point has a student fire crew that conducts burns and burn training, which could prove valuable.

Prairie Management Policies

In order to retain and restore the prairie communities within Hixon Forest, the following policies are recommended:

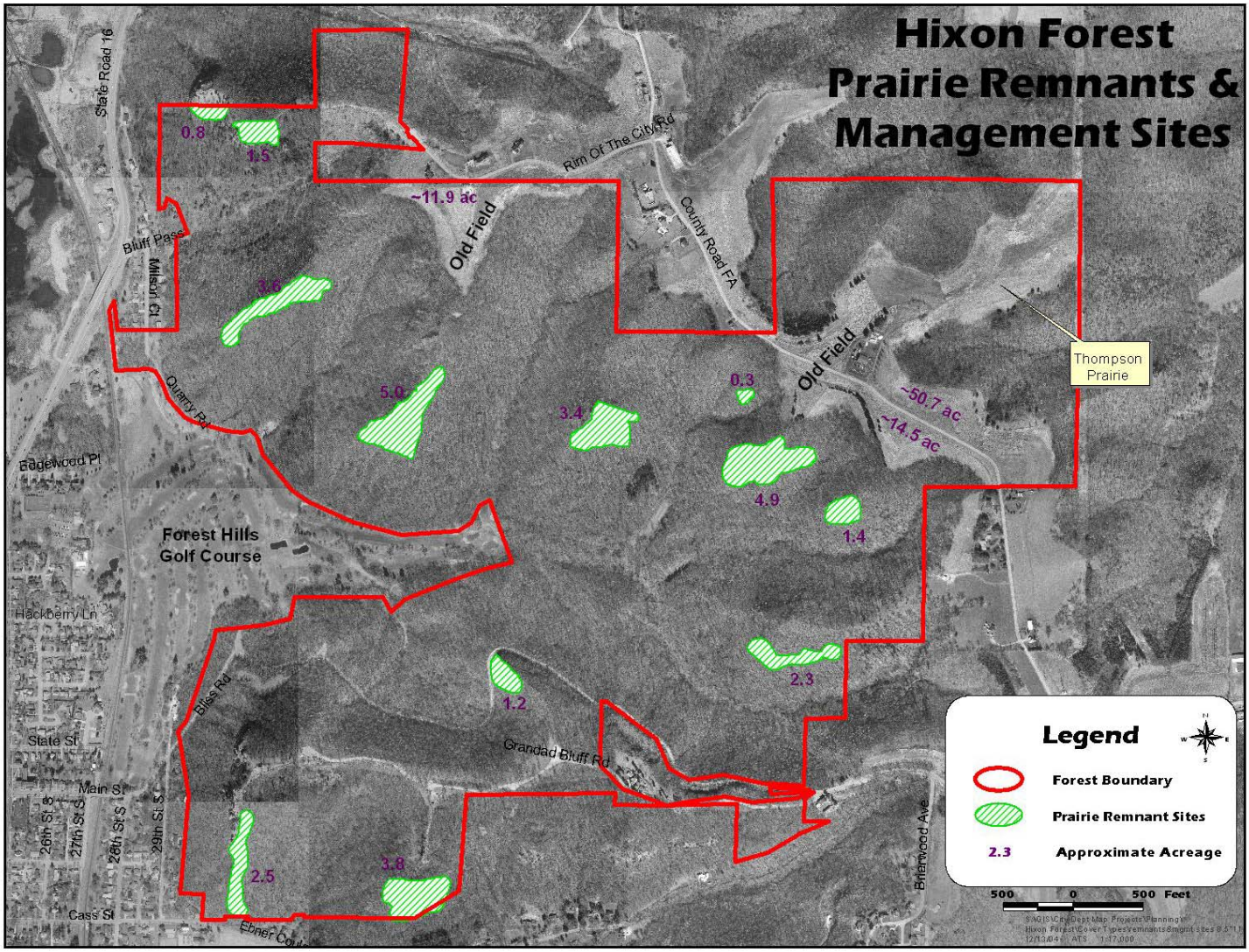
A. Prairie remnants found on scattered sites throughout the forest shall be protected and restored to remain as prairie remnants. Management priority shall be placed on those remnants most threatened by succession.

B. The use of fire, as well as selective cutting and tree girdling may be used in order to carry out these management objectives, as well as to enhance biodiversity, attempt to restore natural processes to the forest, and reduce potentially hazardous situations.

C. Prairie establishment efforts on the east side of CTH FA shall continue to be encouraged.

D. Herbicides should be used sparingly, and spraying avoided in sensitive areas.

Figure 3 – Prairie Management Sites



Forest Management

As noted previously, pre-settlement conditions in the area around La Crosse likely consisted of prairie and oak savanna. Since that time, as fire and grazing have been significantly reduced, a fairly contiguous, predominantly oak-hickory forest has developed. Absent management efforts or significant disturbance, succession will eventually convert the forest to a maple-basswood dominant forest.

Five harvest techniques were reviewed during the writing of this plan. These techniques included clearcutting, seed tree cuts, shelterwood cuts, selective cuts, and no timber harvesting. When practiced, each of these harvest techniques results in certain species of plants being benefited over other species, varying from intolerant species (clearcutting) to tolerant species (selective cutting, no timber harvest). Of the active management techniques; such as clearcutting, seed tree cuts, shelterwood cutting (typically used for oak regeneration), and selective harvest, only selective harvest was deemed to be a viable option. The other three options were deemed to be too invasive in nature, and not suited to Hixon Forest.

Selective cutting, which consists of the removal of selected trees throughout the range of merchantable sizes at regular intervals, either singly or in small groups, leaving a uniformly distributed stocking of desirable trees and size classes, favors shade-tolerant trees such as maple and basswood over less tolerant tree species such as oak and aspen. Of the active management techniques evaluated, only selective cutting results in an uneven aged stand. These stands tend to be more resistant to insects and disease, but they can also perpetuate the existence of a pest. In forests where selective cutting is used, harvests are commonly performed at 10 year intervals to minimize harvest costs and residual stand damage. Of the active management options, selective cutting tends to be more difficult and expensive than other types of logging (Huebachmann & Martin, 1995).

Not harvesting timber was also considered as a management option for Hixon Forest. Not harvesting timber in Hixon Forest would benefit area-sensitive birds including woodpeckers, warblers, thrushes, and tanagers, as well as salamanders, certain insects, and other old growth dependent species. It is estimated that only about 1% of Wisconsin's old growth forests remain intact (Martin, Kassulke, & Rinaldi, 2004). Old growth forests generally have developed over at least 120 years without experiencing severe, stand-replacing disturbance – a fire, windstorm, or logging (Manolis and Wendt, 2002). Most of Wisconsin's forests were harvested in the mid to late 1800s for lumber, or cleared for agricultural purposes. As a result, most of the mature trees seen today are second growth forest or younger, and are less than 125 years old. These forests tend to have increased species diversity, age structure (young, middle aged, and old trees), and dead standing and downed wood (woody debris) than more actively managed forests. Considered a very complex and productive ecological system, with natural disturbances – wind, fire, and insects – at work, old-growth forests are places of rebirth as well as death (Martin, Kassulke, & Rinaldi, 2004).

Forests can be more actively managed, while still retaining old growth characteristics; however, large stands and long harvest rotations are required. An example of this is the 220,000 acre Menominee Indian Reservation in northeast Wisconsin. This forest was not cleared and burned as was most of Wisconsin, so the management starting point on the Menominee Indian

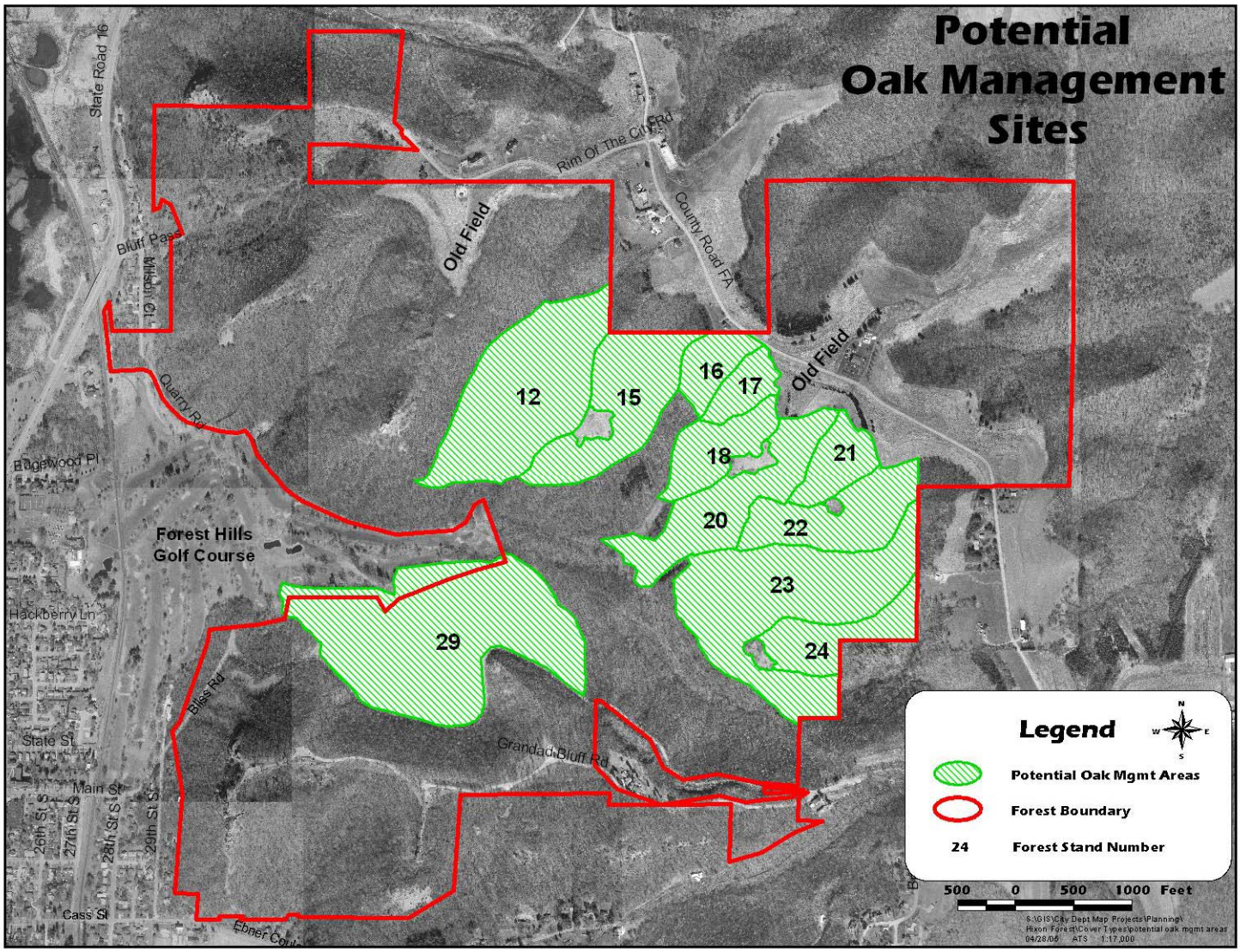
Reservation was much different than elsewhere. Another difference is that these tribal lands have lower numbers of deer relative to other areas, which in part accounts for abundant Canada yew and hemlock in the forest understory (Martin, Kassulke, & Rinaldi, 2004).

While there was not complete consensus, the majority of the steering committee felt that much of Hixon Forest could be managed for old growth forest, with fire being the main management tool, where suitable. The *Ecological Assessment of Hixon Forest* identified a number of areas that could be promoted for old growth forest, and for oak forest. These areas will receive priority for management. In order to promote an old growth oak forest, some kind of disturbance is necessary to allow regeneration. Fire can help to clear away leaves, shrubs, and saplings of non-fire resistant species, creating more favorable conditions for oak regeneration (Manolis and Wendt, 2002). However, it should be noted that fire alone does not guarantee oak recruitment. Research has found that while prescribed fire promotes oak regeneration in some oak dominated communities, it can be detrimental to sprouting of northern red oak saplings in mixed hardwood stands. Furthermore, prescribed fire in the presence of large deer populations prevented all commercial species from producing vigorous, tall sprouts, except red maple. These findings illustrate that prescribed fires in the presence of high deer populations may prevent forest regeneration and likely shift successional trajectories (Collins & Carson, 2003). This again shows the need for gaining control over Hixon Forest's deer herd concurrently with or prior to engaging in other management efforts.

In addition to benefiting individual tree species, various plants and fauna also will benefit from the use of prescribed fire. Recent research in savanna woodland habitats in Illinois indicated that 10 of 12 species of birds experience greater nesting success in woodlands that were restored by prescribed burning than in undisturbed closed canopy forests, although size of tract had little effect (Knutson, et al. 2001). In a study of oak savanna, Apfelbaum & Haney noted that in all instances, controlled fire reduced the number of exotic or mesic species and favored occurrence of prairie and savanna associates. As shrubs and mesic trees are reduced, the herbaceous ground cover layer increases in cover and species richness. In addition, periodic fire appeared to favor richness of birds, insects, and spiders (1987).

Leaving standing and fallen dead wood, perch trees, and nest trees should be encouraged because of its favorable impacts on birds, amphibians, and reptiles. For the same reason, fragmentation should be minimized, because of the potential for negative impacts. Because of the abundance of steep slopes within Hixon Forest, disturbance on the slopes should be minimized. For evaluation and monitoring purposes, plant communities should be surveyed prior to and following burns and other management efforts. In addition, deer exclosures should be built throughout the property to compare recovery from browsing versus browsed sites.

Figure 4 – Oak Management Sites



Forest Management Policies

In order to retain and restore the health of Hixon Forest, the following policies are recommended:

A. The existing forest canopy of Hixon Forest shall be maintained to the extent possible. Fragmentation of the interior forest canopy shall be discouraged.

B. Those stands noted in the Ecological Assessment of Hixon Forest as being suitable for old growth, shall be managed for old growth forest conditions. This includes, but is not limited to Stands 8, 23, and 29.

C. The management for intolerant communities (such as oak woodland or savanna) shall be focused upon existing edge and open areas, excluding native prairie remnants. This includes, but is not limited to Stands 12, 15-18, 20-22, and portions of 23, 24, and 29.

D. Remnant oak opening sites shall be restored to or remain as oak openings.

E. The use of fire, as well as selective cutting and tree girdling may be used in order to carry out these management objectives, as well as to enhance biodiversity, attempt to restore natural processes to the forest, and reduce potentially hazardous situations.

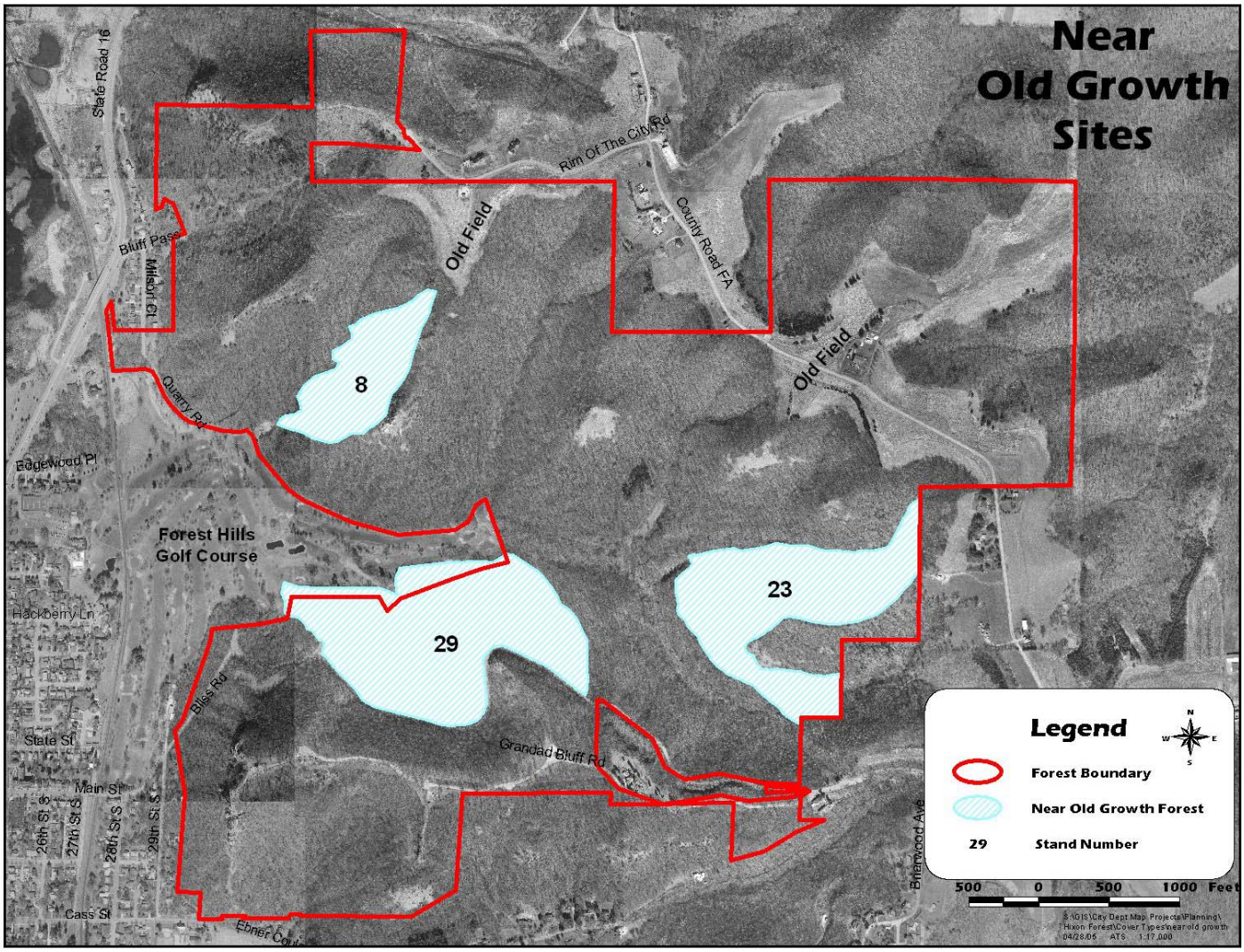
F. Commercial logging of native tree species shall be prohibited except in the case of salvage operations. Any revenues generated from the sale of lumber from the forest shall go back into the forest for habitat management.

G. The former McBain Property and the old field located along the west side of CTH FA shall be managed for establishment of oak savanna or oak forest or for opportunities to allow natural succession to occur. Additional openings within the forest that consist of non-native vegetation shall be evaluated for opportunities to add to the existing closed canopy.

H. The reforestation project located in the central portion of the lower forest shall continue to be promoted and evaluated.

I. Oak trees are most susceptible to overland spread in the springtime, from bud swelling until 2 to 3 weeks past full leaf development. During the period of April 15 to July 1, **do not prune, cut or injure oaks! If an oak is wounded during this time, cover the wound immediately with tree wound paint. Note:** Tree wound paint can actually slow the natural wound closure process; limit the use of wound paint to the situation described above

Figure 5 – Near Old Growth Sites



Invasive Species Management

Hixon Forest is home to a number of "invasive species", or species that do not naturally occur in a specific area and whose introduction does or is likely to cause economic or environmental harm or harm to human health. This includes plants such as Buckthorn, Honeysuckle, Black Locust, Japanese Barberry, and Japanese Knotweed to name a few.

The presence of these plants is significant for a number of reasons. Exotic, invasive species tend to have few natural enemies, and can dominate natural plant communities. Because native plants and animals have co-evolved, the presence of exotic and invasive species can result in animals not getting the right foods at the right times of year. They also may not provide the right kinds of feeding and nesting cover, making them less valuable to a number of other plants and animals. Exotic species often compete with native plant species for available resources, thus decreasing the number of native species and rendering the community 'unhealthy' (Campbell & Gibson).

Management techniques vary from using biological control (natural enemies), to mechanical control (burning, mowing, cutting, girdling), and chemical control. Where possible when using chemical applications, broadcast spraying should be avoided in favor of methods such as banding or spot treatments. The specific tool used will depend on the invasive species present, management objectives, and the resources present. In the short term, the goal for management of Hixon Forest should be to control exotic invasive species within the forest. The long term goal should be to restore natural habitat.

Invasive Species Management Policies

In order to retain and restore the health of Hixon Forest, the following policies are recommended.

A. Removal of invasive exotic tree species (such as black locust) shall be focused primarily on the forest edges.
B. Removal of invasive tree species within the interior of the forest shall be a secondary priority due to potential negative impacts on forest interior species as well as the potential for regrowth from root shoots, or more rapid growth of other invasive species once the canopy is removed.
C. Removal of invasive tree species shall take place in an incremental fashion, and be coordinated with replanting efforts prior to or following any invasive tree species removal efforts.
D. The removal of invasive woody shrub species (such as buckthorn, honeysuckle) is a management priority. Efforts should focus on those areas where the invasive species have not yet become dominant in the under-story.
E. The use of herbicides shall be allowed for the management of invasive species when fire or mechanical removal methods are ineffective. Herbicides should be biodegradable and used in the smallest doses possible to still be effective.
F. The *Wisconsin Manual of Control Recommendations for Ecologically Invasive Plants* shall be used to guide exotic invasive species management.

Wildlife Management

Deer Management

The white-tailed deer is the State's wildlife animal. It is enjoyed by many, both those interested in viewing wildlife, as well as the hunting population. Over the last century, it has gone from an animal that was rare in many parts of the state, to one which is extremely abundant throughout the state. While it is generally viewed favorably, the white-tailed deer is also capable of causing significant problems. Large deer herds have been associated with limited regeneration of certain plant species (e.g. red oak, white cedar, hemlock, and trillium) which can limit the species of birds and other animals present within an ecosystem. The loss of cover may increase avian predation on small mammals (as well as mammal predation on bird nests), driving population declines. By reducing the density of the shrubs and saplings, browsing can reduce vertical complexity in the forest. Such reduced vertical complexity reduces the abundance and diversity of shrub nesting birds and the densities of migrant birds (Rooney & Waller, 2003). They can also cause damage to landscaping and agricultural products, and are a vector for Lyme's disease.

The 2003 carrying capacity established by the Department of Natural Resources for metropolitan deer unit 59m, which includes Hixon Forest and the area immediately surrounding the City of La Crosse, is 12 deer per square mile (640 acres). In the deer management unit surrounding the metropolitan unit (59d), the capacity is 27 deer per square mile (WDNR, June 2004). The lower density recommended within the metropolitan deer unit is a result of socially defined carrying capacity (the number of deer that people will tolerate). Anecdotal evidence suggests that there are far more than the recommended 12-15 deer living within the forest, and it is quite probable that there are more than 27 deer within the forest. Heavy deer browsing is evident within the forest. There are also homeowner reports of deer damage to gardens and landscaping in areas surrounding the forest. In addition, every year there are numerous reports of car-deer crashes on Highway 16 adjacent to Hixon Forest. According to the Wisconsin Department of Transportation, between 1999 and 2003 there was an average of almost 10 reported car/deer crashes per year (total of 49) on the two-mile stretch of Highway 16 closest to Hixon Forest between La Crosse Street/Losey Boulevard and the intersection of Gillette Street and Highway 16 (Wisconsin Department of Transportation, District 5).

Part of the reason for the large population of deer residing in Hixon Forest is that the forest acts as a refuge where deer are protected. In a natural ecosystem, predators would help to keep the deer population in check, and in the process minimize the negative impacts caused by deer. However, absent large predators, the deer population can expand unchecked, until starvation or disease reduces the population. This type of herd management is less desirable for the overall health of the forest. In the absence of large predators, hunting has typically been relied upon to prevent these types of die-offs from occurring. However, there is currently no hunting allowed within Hixon Forest, and much of the land surrounding the forest is private, with hunting permission difficult to obtain.

A deer population exceeding its carrying capacity is detrimental to its habitat for numerous reasons. As population increases, limited regeneration of desirable species takes place. In addition, herds over their natural carrying capacity are more susceptible to stress and disease than those living within the biological carrying capacity of their range. Absent control, herds are subject to large cyclical fluctuations, with large die offs. Overpopulation has been linked to the

loss of plants, shrubs, and young trees, and possible destruction of some plant communities (Maryland DNR). A recent study by the University of Wisconsin has correlated areas losing the most biodiversity in the northwoods between 1950s and today were those where hunting is restricted (Wisconsin State Journal, June 2004).

Based on this knowledge, and the negative impacts that the deer herd is having on the health of Hixon Forest, numerous control methods were investigated. These methods included hands off (let nature take its course), the use of repellants, contraception and sterilization, capture and relocate, scare devices, fencing, supplemental feeding, the release of predators, sharpshooters, and hunting. Many of these were deemed to not be feasible, because of a number of factors, including the cost per deer, size of the forest, effectiveness of the proposed technique, durability, presence of receiving areas for deer, etc. Based on these factors, the two most viable management options for the deer herd within Hixon Forest are sharpshooting and hunting.

The Wisconsin Department of Natural Resources has indicated that hunting is probably the best way to control deer populations (WDNR) due to efficiency and lack of public expense. Harvest of does is critical in order to reduce and/or manage the deer herd, and there are problems with real and perceived safety issues, conflicting social attitudes, liability, public relations, etc. Above all, management hunts must be tightly controlled to ensure safety. Sharpshooting is an effective method for controlling deer herds, but can be fairly expensive, costing anywhere from $90 to $400 per deer removed (Maryland DNR, UWSP).

The Cities of Mankato and New Ulm, Minnesota have had success using urban deer archery hunts to minimize deer damage, reduce car accidents, and reduce the overall size of their urban deer herds. These Cities established their hunts after extensive coordination between city staff, DNR staff, and volunteers. The process that they have established, outlined below, should be evaluated to determine feasibility within Hixon Forest.

- DNR staff conducts annual aerial surveys over the areas in question to develop herd estimates.
- Based on those herd estimates, staff developed a multi-year plan for herd reduction and maintenance.
- A public hearing regarding the proposed hunt was held prior to going forward with the proposed hunt.
- The public is informed of the hunt through advertisements, news releases, and signs at entry points to the parks.
- Hunters are required to be 18 years old or older and are required to pass a proficiency test prior to being eligible to apply. A $5 fee is charged for the test. All hunters are required to take this test annually.
- From the applicants, 30 hunters and two alternates are selected.
- Hunters that qualify for the hunt but do not hunt are prohibited from future hunts.
- Signage announcing the dates of the hunt is posted on the property.
- Hunters are restricted to identified elevated stand sites, at least 120 feet from established trails. Stands are required to be removed within two weeks after the hunt was closed, and contact information is required to be posted on all hunters' stands.
- Hunters are required to sign in and out, and digital photos of the hunters' arrows are taken for recording purposes.
- A doe must be harvested prior to hunters being able to harvest a buck.

- Hunters are provided with a cart and tarp for the removal of deer from the hunt area. Hunters are instructed to be aware and sensitive to other users when transporting deer.
- Field dressing is not allowed on the properties.
- Hunters are required to provide hunt data regarding the number and sex of deer seen.
- Biological data is collected from the animals removed during the hunt.
- Surrounding landowners are asked to contact the City if they would be willing to host a hunter on their property.

In addition to this process, it may be beneficial to establish exclosures on various sites throughout the forest to compare recovery from browsing over time. It would also be beneficial to distribute educational materials about how to live with deer to adjacent owners. Any revenues generated by holding a deer hunt within Hixon Forest should go back to Hixon Forest for management purposes.

Deer Management Policies

The goal of any management efforts should be to maintain a healthy deer herd while minimizing biotic damage to the forest. To this end, the following policies are recommended.

A. The deer herd must be actively managed in order to restore balance within the forest and promote overall forest health. **Failure to control the deer herd will limit opportunities for the success of other management activities, and thus should be considered a top priority**.

B. Use of sharpshooters for deer herd management is a preferred management option. However, due to budgetary constraints, the use of strictly controlled archery hunts is also to be considered an acceptable management alternative.

C. The City shall consult with the DNR and the Cities of Mankato and New Ulm prior to any active management of the herd in order to estimate deer population, develop harvest management goals, etc.

D. Prior to any hunt, a public hearing involving the community shall be held in order to educate the public about deer damage. All abutting property owners will be contacted for additional input prior to any hunt. Notice will be posted in the La Crosse Tribune.

E. Deer exclosures shall be established throughout the forest in order to evaluate/demonstrate deer herd impacts in differing habitat types. Cooperation should be sought with the UW-La Crosse Biology Department or similar entity for assistance in evaluation.

Bird Management

Hixon Forest provides important habitat for a variety of birds, including one state threatened species, one species of special concern, and thirteen conservation priority species (Thompson, 2004). While there are many different types of birds utilizing different habitat types in Hixon Forest, almost half of the known breeding birds in Hixon Forest are considered neotropical migrants, many of which are also sensitive forest interior species. These birds face a number of threats as they overwinter in South or Central America, ranging from deforestation to unregulated pesticide use. They are also subject to numerous dangers during their annual migration, including collision with radio towers. While these threats have a significant impact on populations of neotropical migrants, land use and forest management practices in temperate

North America also profoundly influence the breeding success of forest birds (Barker, et al. 1999).

Because of the existing characteristics of Hixon Forest, there is a very good opportunity to help local populations of neotropical migrants by managing with these types of birds in mind. As noted in the Breeding Bird Survey of Hixon Forest, Hixon's large block of relatively unfragmented, mature deciduous forest provides important habitat for a substantial number of forest-dependent bird species, including 16 species considered area-sensitive interior species (Thompson, 2004). For these reasons, it is important to manage Hixon Forest in such a manner that as much of a continuous canopy remains intact as possible. Overall forest management should focus on retaining the existing forested areas, continuing to encourage development of old growth uneven aged stands with vertical diversity, and converting old field sites into forest.

Much of Hixon Forest has developed over the past 92 years into a desirable habitat for sensitive forest interior species. While managing for edge or earlier successional stages might attract a greater variety of wildlife and bird species, the amount of time that it would take to recreate the habitat already in place makes it much more logical to retain and encourage as older growth uneven-aged forest than to manage for those earlier stages. Where opportunities present themselves, non-native grasslands (e.g. the old field sites west of CTH FA) should be allowed to succeed to forest in order to connect existing forest stands. In addition, allowing snags and cavity trees to remain standing where they do not pose an immediate threat to visitors of the forest should be encouraged because of the value they provide as nest trees, food sources, etc.

The main disturbance mechanism for management of the forest will be fire. The use of fire, which has been suppressed in the forest, will hopefully encourage the regeneration of native plant species. Because of the potential negative impacts associated with disturbance, activities such as mowing and burning should be conducted before or after the breeding season (May to Mid-July), as it can destroy nests and nestlings and have a severe and negative effect on annual reproductive output (Knutson, 2001).

An issue that needs to be addressed when managing for birds in Hixon Forest is recreational trails and their impacts. There are currently numerous multi-use trails in Hixon Forest. However, trails can fragment forest stands, increase the amount of edge present, increase disturbance, and can lead to increased predation and nest parasitism by cowbirds. In addition to parasitic cowbirds, nest predators such as jays, crows, raccoons, and domestic and feral cats that are not usually found in extensive forests gain access to the interior of forest patches via roads, power line cuts, and other openings. Studies consistently show that nest predators have a greater affect on the reproductive success of forest birds in forest fragments than in contiguous forest (Barker, et al. 1999). Because of these potentially harmful impacts to neotropical migrant bird populations, ideally no additional trails should be built. In addition, due to the sensitivity of these types of birds to disturbance, fragmentation, etc., recreation based activities should be focused more along the forest edges, rather than in the interior of the forest. Trails should be evaluated on a regular basis to determine if closing trails, especially those that have erosion or other maintenance problems, is warranted.

Another goal that can help local populations of neotropical migrant birds is to continue efforts to control and eradicate invasive exotic species. Birds nesting in weedy shrubs like buckthorn and honeysuckle are more likely to fall victim to predators such as cats and raccoons than are birds

nesting in native forests. This is due to lower branches, lack of thorns, and other characteristics of non-native shrubs (Nowak, 2003). However, care must be taken when removing invasive exotic species so that native species are more likely to re-establish themselves at the site, and so that the canopy is not opened up too much. Options such as planting shade-tolerant species like sugar maple several years prior to cutting to allow establishment and better chance to compete once canopies are opened should be considered. As exotics are removed, native plants should be replanted on the site. Native vegetation has been associated with more bird species and greater numbers of birds in areas with native vegetation than in areas with exotic, or non-native, vegetation. Part of the reason for this may be the co-evolution of bird and plant species, allowing the birds the right types of food (size, nutrition) when the birds need them (Nowak, 2003).

Deer management also plays a role in the health of the local bird community. Studies have shown that deer can have a very significant impact on the forest understory, which can affect breeding success, habitat desirability, etc. Much of the current forest lacks a healthy native understory. In order to address this, deer population levels should be managed to allow growth in the understory.

The recommendations provided in the Breeding Bird Survey of Hixon Forest should be promoted as management tools to promote healthy bird populations within Hixon Forest. Those include: Maintaining existing forest cover, allowing the old field on the west side of CTH FA to succeed to forest, soften the forest edge where possible, continue efforts to establish prairie on the east side of CTH FA, and minimized development of new trails to reduce disturbance to breeding birds. Additional policy recommendations for the management of birds in Hixon Forest are provided below.

Bird Management Policies

In order to promote the health of the bird community within Hixon Forest, the following policies are recommended.

A. The existing forest canopy of Hixon Forest shall be maintained to the extent possible. Fragmentation of the interior forest canopy shall be discouraged.

B. Commercial logging of native tree species shall be prohibited except in the case of salvage operations. Any revenues generated from the sale of lumber from the forest shall go back into the forest for habitat management.

C. Impact on interior bird species habitat shall be a consideration when evaluating any proposed activities within the forest.

D. Removal of invasive tree species within the interior of the forest shall be a secondary priority due to potential negative impacts on forest interior species as well as the potential for regrowth from root shoots, or more rapid growth of other invasive species once the canopy is removed.

E. The removal of invasive woody shrub species (such as buckthorn, honeysuckle) is a management priority. Efforts should focus on those areas where the invasive species have not yet become dominant in the under-story.

Reptiles and Amphibians

Reptiles and amphibians, also known as herpetofauna, or herps, are often overlooked members of the forest community. However, they play a role in the balance of nature, eating insects and rodents, and also serving as a food source for other predators. Many populations of herps are declining across their range, making it all the more important that management efforts made do not hurt existing populations.

In order to promote healthy herp populations, downed wood should be left on site, as it creates habitat for herps. Hibernaculums (den sights) and suspected hibernaculums should be protected. Recreation should be directed away from these sensitive sites, and their locations should not be disclosed.

Vegetative management can also play a role in the health of herp populations in the forest. Fire should only be used before and after emergence. Also, due to unknown impacts of herbicides, their use should be greatly discouraged. If herbicide use is necessary, direct application should be preferred to broadcast spraying.

Paved roads account for a significant amount of mortality for herps, both because they attract herps seeking to thermoregulate, and because many are unable to cross these barriers quickly. Studies have shown that populations of large snake species are reduced by 50% or more to a distance of 450m from roads with moderate use. Reptiles, including snakes, are particularly vulnerable to mortality associated with roads due to their slow locomotion, their propensity to thermoregulate on road surfaces, and intentional killing by humans when observed on road surfaces. (Rudolph, D.C., 1999) Because of this, efforts should be made to maintain non-paved roads as non-paved.

One of the most recognizable herps in Hixon Forest is the Timber Rattlesnake. The Timber Rattlesnake is a State designated "protected wild animal."

> This designation makes it illegal to take or kill this species except under the following conditions: A timber rattlesnake may be killed in an immediate life-threatening situation involving human life or domestic animals. This species or its parts may not be possessed. This snake is also listed as a "species of special concern" because of its low numbers. There is sentiment that current population trends warrant a federal listing. (WDNR)

Humans are the dominant predators of adult timber rattlesnakes, although raptors, turkeys, badgers, skunks, and raccoons also prey on them. The presence of this species provides both opportunities and concern. While the snake is poisonous, and capable of causing harm, in general it is fairly docile unless provoked or while molting. One rattlesnake bite fatality has been documented in Wisconsin since 1900 (WDNR).

Because timber rattlesnakes are a species of special concern, the following precautions should be taken.

- Active management on potential rattlesnake sites should take place during the cold months in order to prevent direct mortality. Burning should not be conducted once snakes have begun to emerge from their hibernacula in the spring, or when they are staged around their hibernaculum in the fall.

- Snakes need to thermoregulate (control their body heat by moving to different locations). Because paved roads heat up and retain heat more so than gravel roads, they can attract snakes seeking to thermoregulate. This can lead to increased direct mortality, as well as increased exposure to humans. Because snakes can become more vulnerable to mortality when exposed on paved roads, areas such as the Milson Court Trailhead and Quarry Road should retain their gravel surfaces in an effort to discourage thermoregulation by snakes. Speed bumps to slow traffic and warning signs may also be useful in the prevention of direct mortality to reptiles and amphibians within Hixon Forest.
- Active recreation should not be encouraged in areas of known rattlesnake habitation.
- Educational information regarding the presence of rattlesnakes should be posted at the trail head.

Herp Management Policies

In order to promote the health of the herp community within Hixon Forest, the following policies are recommended.

A. Rattlesnake awareness and education shall be promoted to visitors of the forest.

B. Trails should not be routed near hibernaculums or other sensitive areas

C. The location of hibernaculums should not be made public

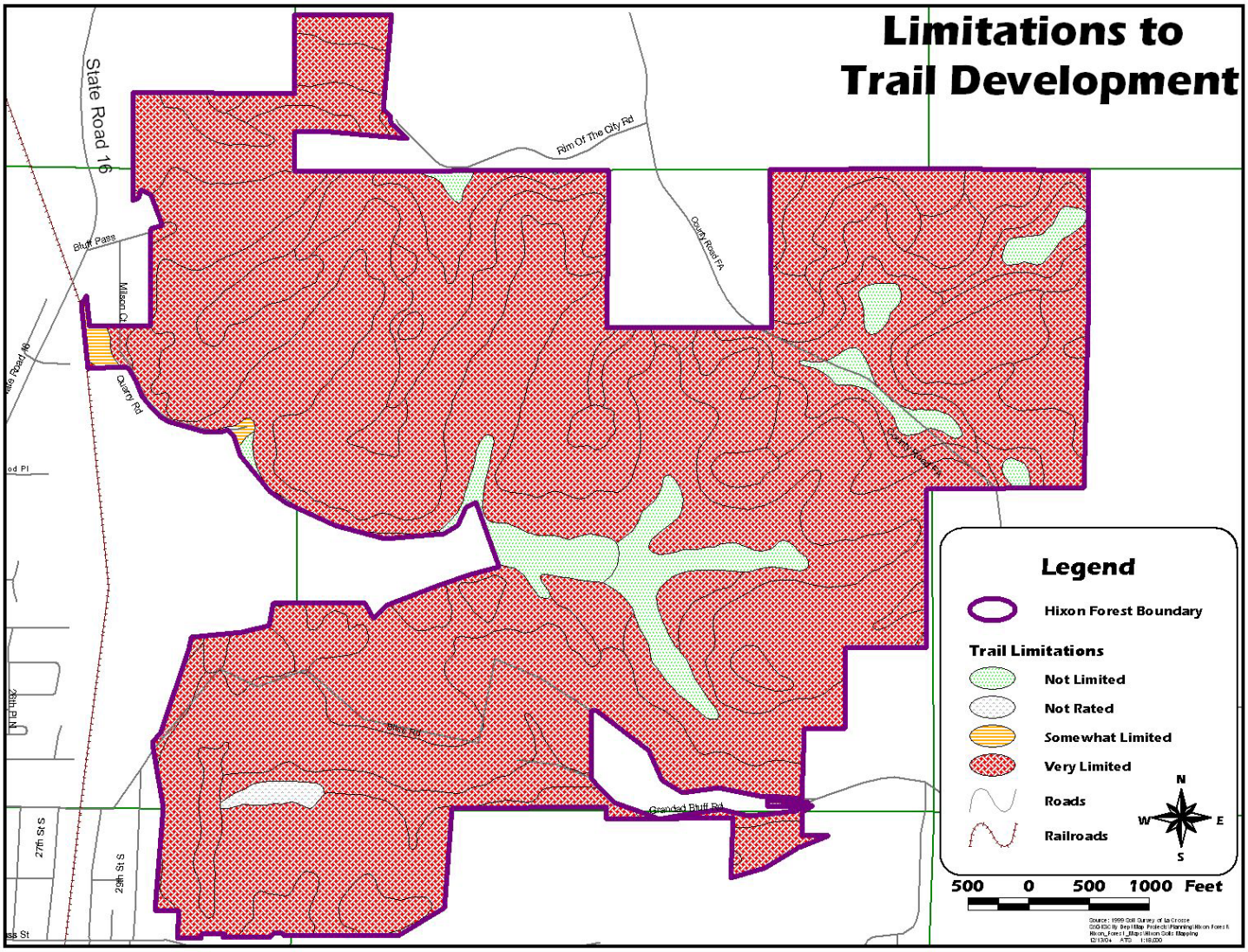
D. Parking lots, trail heads, access roads, and trails should not be paved

E. Forest management activities should take place during the cool months when herps are not active in order to minimize mortality.

RECREATION

Hixon Forest, at over 800 acres, provides many opportunities for people to engage in active and passive recreation. Due to the characteristics of Hixon Forest, recreation activities shall only take place that are not detrimental to the health of the forest. This is an important consideration, considering the slopes present in The Forest. Based on the 1999 La Crosse County Soil Survey, 91.6% of Hixon Forest (~740 acres) is very limited for recreational trail development (La Crosse County Soil Survey, 1999). This means that the soil has one or more features that are unfavorable for trail development. These limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures, and poor performance and high maintenance can be expected. Only 7.7% (~62 acres) is not limited, indicating very favorable conditions where good performance and low maintenance can be expected *(see figure 6).*

Figure 6 – Trail Development Limitations



New trails should not be built in existing Hixon Forest, due to the present abundance of trails, and potential complications because of the slopes. If new trails are ultimately deemed necessary, they should only be developed in disturbed communities. As trails are built or rebuilt over time, reasonable efforts must be made to accommodate accessible facilities in compliance with the Americans with Disabilities Act. Because of slope issues, and the potential damage that can occur when trails are soft, trails in Hixon Forest should be closed during wet conditions, with notices posted at the Milson Court and Weather Station trail heads.

Because of the great potential for negative impact to Hixon Forest, horse riding should also be prohibited. Horse trails may influence species composition and diversity of vegetation, soil properties and stability of a recreation area, and the behavior and population of various wildlife species (as cited in Dehring & Mazotti, 1997). In addition, construction of trails can: open the canopy by vegetation removal; compact the soil; modify existing drainage patterns by removal of upper soil horizons; and modify micro-topography, which influences micro-climate (as cited in Dehring & Mazotti, 1997).

Existing trails should be evaluated on a regular basis to determine whether or not they should be closed or rerouted to minimize negative impacts. Education of trail users should be encouraged at the trail heads in order to minimize user conflict.

Recreation

A. No motorized recreational vehicles shall be allowed within Hixon Forest. Motorized vehicles shall not be permitted for recreational purposes within Hixon Forest. Motorized vehicles shall be permitted for emergency purposes and maintenance authorized by the Parks and Recreation Department.

B. Addition of new trails within Hixon Forest is highly discouraged; however, ultimate authority rests with the Park Board. Parties requesting new trails shall be required to consult with representatives from the Hixon Forest Nature Center prior to approaching the Park Board.

C. Additional trails should not be approved on non-disturbed or relatively non-disturbed lands. Reconstruction, rerouting, and other maintenance activities on pre-existing trails shall be allowed.

D. Trails in identified sensitive areas (such as remnant prairies) shall be evaluated for possibilities to provide access without damaging the resource. Closure and rerouting should be considered in order to protect the resource.

E. Efforts shall be taken to establish the Hixon Forest Nature Center, Human Powered Trails, or other similar entity to act as a trail clearinghouse, posting trail closure and opening information in order to protect the condition of the trails during poor conditions.

F. No overnight camping shall be allowed within Hixon Forest.

G. Recreational activities that significantly increase threats to personal safety or potential for negative impacts on habitat, promote erosion, reduce tranquility, etc. shall be prohibited. This includes activities such as paintball, use of recreational motor vehicles, rock climbing, etc. Any proposed races shall be required to go through the consultation process with the HFNC. Per official City approval, the La Crosse Skyrockers, Inc. shall be allowed to perform their annual New Year's Eve fireworks display from atop Grandad's Bluff.

H. The City shall develop and post signage that clearly identifies boundaries of Hixon Forest.

I. All signage within Hixon Forest shall be of uniform theme and design. All signage other than trail signs shall include the words "Hixon Forest" and shall be approved by the Board of Park Commissioners. Existing signage shall be grandfathered, and shall adhere to this policy as signs are replaced.

J. Management activities which are intended to promote the health of the forest shall have priority over all other activities within the forest.

K. Increasing ADA accessibility within the forest shall be pursued by the City as trails are reconstructed, modified, and maintained. In order to protect herps, accessible routes shall be of natural or other, non-paved surface.

L. Human Powered Trails, Inc. shall enter into a Memorandum of Agreement with the La Crosse Board of Park Commissioners regarding privilege of use of the forest for mountain biking. Said memorandum shall be completed within one year of adoption of the plan.

M. Prior to allowing horseback riding on the old fields on the east side of CTH FA, the equestrian interests desiring to use the forest shall enter into a Memorandum of Agreement with the La Crosse Board of Park Commissioners.

FUTURE LAND ADDITIONS & BLUFFLAND PROTECTION

The City of La Crosse and the Mississippi Valley Conservancy are partners in a bluffland protection program that has already acquired and protected over 110 acres of bluffland property. At the time of this writing, the City of La Crosse contributes $275,000 on an annual basis to the Mississippi Valley Conservancy for the purpose of Bluffland Preservation. The boundaries of the bluffland preservation program are County Highway B on the north, and U.S. Highway 14/61 on the south. Hixon Forest is fairly centrally located within this boundary. As the City continues to add land through the Bluffland Preservation Program, steps need to be taken to ensure that the activities promoted on added lands are complementary to those in the park.

Public input throughout the planning process continued to show strong sentiment that motorized recreational uses would be inconsistent with the promotion of nature-based education and recreation in the bluffs adjacent to La Crosse.

By permanently conserving additional lands on the bluffs, additional opportunities are created for management for neotropical birds, timber rattlesnakes, remnant prairies, etc. The following are policies for any future land additions.

FUTURE LAND ADDITIONS

A. Motorized vehicles shall not be permitted for recreational purposes within future land additions. Motorized vehicles shall be permitted for emergency purposes and for maintenance authorized by the Parks and Recreation Department.

B. Careful evaluation of new properties shall take place by the City, the Wisconsin Department of Natural Resources, Mississippi Valley Conservancy, and Hixon Forest Nature Center representatives to determine need for ecological assessment. Assessments should take place when non-disturbed, unique, or significant resources are suspected or known to be present, or when the size of the parcel warrants additional discovery efforts.

C. If significant natural features are found, a management plan for the parcel in question shall be written prior to hearing proposals for any activities. The level of public involvement sought will vary based on the significance of the addition (with additions of greater significance requiring greater levels of public involvement).

D. Only those activities determined to be non-detrimental to the resource shall be allowed.

E. In those areas identified as being undisturbed, or having greater restoration potential, creation of additional trails shall be discouraged. New trail development in Hixon Forest should be evaluated on an individual area-by-area basis so as to protect sensitive and relatively undisturbed areas.

F. Fragmentation of habitat within new parcels shall be discouraged. Non-remnant prairie openings shall be evaluated for possibility to provide additional contiguous tree canopy.

G. In the case of addition of new land, trails should be evaluated as to whether their presence would contribute to fragmentation by being located on newly formed interior areas.

H. Future trail construction on new parcels shall be located on disturbed lands and edges of the property to minimize associated negative impacts such as fragmentation, etc.

I. Prior to developing trails on any future land additions, an advisory group consisting of interested parties shall be formed to evaluate proposals. Notice shall be posted in the La Crosse Tribune.

J. To the extent possible, land additions should be incorporated into the existing Hixon Forest and managed as a single unit

HIXON FOREST COMPREHENSIVE PLAN
POLICY RECOMMENDATION SUMMARY

GOAL:

The goal of this comprehensive plan is to foster management of Hixon Forest as a natural resource first, protecting significant natural areas, restoring natural habitats, providing opportunities for education as well as low impact recreation, and promoting the overall health of the forest.

NATURAL RESOURCE MANAGEMENT

General Objectives

A. The existing forest canopy of Hixon Forest shall be maintained to the extent possible. Fragmentation of the interior forest canopy shall be discouraged.

B. Those stands noted in the *Ecological Assessment of Hixon Forest* as being suitable for old growth, shall be managed for old growth forest conditions. This includes, but is not limited to Stands 8, 23, and 29 **(see Figure 1)**.

C. The management for intolerant communities (such as oak woodland or savanna) shall be focused upon existing edge and open areas, excluding native prairie remnants. This includes, but is not limited to Stands 12, 15-18, 20-22, and portions of 23, 24, and 29 **(see Figure 1)**.

D. Remnant oak opening sites shall be restored to or remain as oak openings.

E. Prairie remnants found on scattered sites throughout the forest shall be protected and restored to remain as prairie remnants. Management priority shall be placed on those remnants most threatened by succession.

F. The use of fire, as well as selective cutting and tree girdling may be used in order to carry out these management objectives, as well as to enhance biodiversity, attempt to restore natural processes to the forest, and reduce potentially hazardous situations.

G. Commercial logging of native tree species shall be prohibited except in the case of salvage operations. Any revenues generated from the sale of lumber from the forest shall go back into the forest for habitat management.

H. The former McBain Property and the old field located along the west side of CTH FA shall be managed for establishment of oak savanna or for opportunities to allow natural succession to occur. Additional openings within the forest that consist of non-native vegetation shall be evaluated for opportunities to add to the existing closed canopy.

I. Prairie establishment efforts on the east side of CTH FA shall continue to be encouraged.

J. The reforestation project located in the central portion of the lower forest shall continue to be promoted and evaluated.

K. Removing, destroying, or harvesting of native plants shall be prohibited, except for management purposes. The harvest of mushrooms, nuts, and berries shall continue to remain an allowed activity.

L. Oak trees are most susceptible to overland spread in the springtime, from bud swelling until 2 to 3 weeks past full leaf development. During the period of April 15 to July 1, **do not prune, cut or injure oaks! If an oak is wounded during this time, cover the wound immediately with tree wound paint. Note:** Tree wound paint can actually slow the natural wound closure process; limit the use of wound paint to the situation described above

Invasive Species

A. Removal of invasive exotic tree species (such as black locust) shall be focused primarily on the forest edges.

B. Removal of invasive tree species within the interior of the forest shall be a secondary priority due to potential negative impacts on forest interior species as well as the potential for regrowth from root shoots, or more rapid growth of other invasive species once the canopy is removed.

C. Removal of invasive tree species shall take place in an incremental fashion, and be coordinated with replanting efforts prior to or following any invasive tree species removal efforts.

D. The removal of invasive woody shrub species (such as buckthorn, honeysuckle) is a management priority. Efforts should focus on those areas where the invasive species have not yet become dominant in the understory.

E. The use of herbicides shall be allowed for the management of invasive species when fire or mechanical removal methods are ineffective. Herbicides should be biodegradable and used in the smallest doses possible to still be effective.

F. The *Wisconsin Manual of Control Recommendations for Ecologically Invasive Plants* or *Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas* shall be used to guide exotic invasive species management.

Wildlife

A. The deer herd must be actively managed in order to restore balance within the forest and promote overall forest health. Failure to control the deer herd will limit opportunities for the success of other management activities, and thus should be considered a top priority.

B. Use of sharpshooters for deer herd management is a preferred management option. However, due to budgetary constraints, the use of strictly controlled archery hunts is also to be considered an acceptable management alternative.

C. The City shall consult with the DNR prior to any active management of the herd in order to estimate deer population, develop harvest management goals, etc.

D. Prior to any hunt, a public hearing involving the community shall be held in order to educate the public about deer damage. All abutting property owners will be contacted for additional input prior to any hunt. Notice will be posted in the La Crosse Tribune.

E. Deer exclosures shall be established throughout the forest in order to evaluate/demonstrate deer herd impacts in differing habitat types. Cooperation should be sought with the UW-La Crosse Biology Department or, similar entity, for assistance in evaluation.

F. Impact on interior bird species habitat shall be a consideration when evaluating any proposed activities within the forest.

G. Rattlesnake awareness and education shall be promoted to visitors of the forest.

RECREATION

A. No motorized recreational vehicles shall be allowed within Hixon Forest. Motorized vehicles shall not be permitted for recreational purposes within Hixon Forest. Motorized vehicles shall be permitted for emergency purposes and maintenance authorized by the Parks and Recreation Department.

B. Addition of new trails within Hixon Forest is highly discouraged; however, ultimate authority rests with the Park Board. Parties requesting new trails shall be required to consult with representatives from the Hixon Forest Nature Center prior to approaching the Park Board.

C. Additional trails should not be approved on non-disturbed or relatively non-disturbed lands. Reconstruction, rerouting, and other maintenance activities on pre-existing trails shall be allowed.

D. Trails in identified sensitive areas (such as remnant prairies) shall be evaluated for possibilities to provide access without damaging the resource. Closure and rerouting should be considered in order to protect the resource.

E. Efforts shall be taken to establish the Hixon Forest Nature Center, Human Powered Trails, or other similar entity to act as a trail clearinghouse, posting trail closure and opening information in order to protect the condition of the trails during poor conditions.

F. No overnight camping shall be allowed within Hixon Forest.

G. Recreational activities that significantly increase threats to personal safety or potential for negative impacts on habitat, promote erosion, reduce tranquility, etc. shall be prohibited. This includes activities such as paintball, use of recreational motor vehicles, rock climbing, etc. Any proposed races shall be required to go through the consultation process with the HFNC. Per official City approval, the La Crosse Skyrockers, Inc. shall be allowed to perform their annual New Year's Eve fireworks display from atop Grandad's Bluff.

H. The City shall develop and post signage that clearly identifies boundaries of Hixon Forest.

I. All signage within Hixon Forest shall be of uniform theme and design. All signage other than trail signs shall include the words "Hixon Forest" and shall be approved by the Board of Park Commissioners. Existing signage shall be grandfathered, and shall adhere to this policy as signs are replaced.

J. Management activities which are intended to promote the health of the forest shall have priority over all other activities within the forest.

K. Increasing ADA accessibility within the forest shall be pursued by the City as trails are reconstructed, modified, and maintained. In order to protect herps, accessible routes shall be of natural or other, non-paved surface.

L. Human Powered Trails, Inc. shall enter into a Memorandum of Agreement with the La Crosse Board of Park Commissioners regarding privilege of use of the forest for mountain biking. Said memorandum shall be completed within one year of adoption of the plan.

M. Prior to allowing horseback riding on the old fields on the east side of CTH FA, the equestrian interests desiring to use the forest shall enter into a Memorandum of Agreement with the La Crosse Board of Park Commissioners.

MISCELLANEOUS

A. The City and the Hixon Forest Nature Center (HFNC) shall develop a Memorandum of Agreement (MOA) which gives the HFNC consulting authority on proposed activities of significance within the forest. Activities of significance shall include but not be limited to such things as proposed new buildings or trails, proposals for timber harvest, proposals for overnight use of the forest, and proposed special events. The definition of "activities of significance" will be further defined within the MOA between the City and the HFNC. Consultation with Hixon Forest Nature Center shall be required for all proposals requiring approval from the Board of Park Commissioners.

B. The City shall develop and post signage that clearly identifies boundaries of Hixon Forest.

C. All signage within Hixon Forest shall be of uniform theme and design. All signage other than trail signs shall include the words "Hixon Forest" and shall be approved by the Board of Park Commissioners. Existing signage shall be grandfathered, and shall adhere to this policy as signs are replaced.

D. Management activities which are intended to promote the health of the forest shall have priority over all other activities within the forest.

E. The City shall evaluate the possibility of hiring a full time naturalist, biologist, or other resource management professional to manage the forest.

F. The City shall establish a segregated fund dedicated to the management of Hixon Forest. The City shall place the first $20,000 into the fund and accept donations from the public and private community foundations for the purpose of managing Hixon Forest. The City will defer to the Hixon Forest Nature Center regarding the use of these funds.

G. Increasing ADA accessibility within the forest shall be pursued by the City as trails are reconstructed, modified, and maintained. Accessible routes shall be of natural, non-paved surface.

H. Portions of lower Hixon Forest have been identified as potentially archaeologically sensitive. Prior to any activities which include digging into the ground, the Mississippi Valley Archaeology Center (MVAC) shall be contacted to evaluate the site. If any artifacts are found during excavation efforts, the MVAC shall be contacted in order to further evaluate the site. Current City Ordinances shall apply.

I. The City shall evaluate the possibility and location of restroom and water facilities within the forest. Any sites evaluated shall be on edge or developed sites (e.g. the Milson Court trailhead) rather than the interior of the forest.

J. The Hixon Forest Comprehensive Plan shall be revisited by the Board of Park Commissioners on a five year basis, or in the case of significant land additions. At that time it will be determined whether an update is needed or not, or whether an entire plan rewrite is needed.

FUTURE LAND ADDITIONS

A. No motorized recreational uses shall be allowed on future land additions.

B. Careful evaluation of new properties shall take place by the City, the Wisconsin Department of Natural Resources, Mississippi Valley Conservancy, and Hixon Forest Nature Center representatives to determine need for ecological assessment. Assessments should take place when non-disturbed, unique, or significant resources are suspected or known to be present, or when the size of the parcel warrants additional discovery efforts.

C. If significant natural features are found, a management plan for the parcel in question shall be written prior to hearing proposals for any activities. The level of public involvement sought will vary based on the significance of the addition (with additions of greater significance requiring greater levels of public involvement).

D. Only those activities determined to be non-detrimental to the resource shall be allowed.

E. In those areas identified as being undisturbed, or having greater restoration potential, creation of additional trails shall be discouraged.

F. Fragmentation of habitat within new parcels shall be discouraged. Non-remnant prairie openings shall be evaluated for possibility to provide additional contiguous tree canopy.

G. In the case of addition of new land, trails should be evaluated as to whether their presence would contribute to fragmentation by being located on newly formed interior areas.

H. Future trail construction on new parcels shall be located on disturbed lands and edges of the property to minimize associated negative impacts such as fragmentation, etc.

I. Prior to developing trails on any future land additions, a trail advisory group consisting of likely trail users shall be formed to evaluate proposals. Notice shall be posted in the La Crosse Tribune.

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