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A Management plan for Hastings Sci



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A MANAGEMENT PLAN
FOR
HASTINGS SCIENTIFIC AND NATURAL AREA

Portions of
Sections 34, 35, and 23
Township 115 North, Range 17 West
Hastings Quadrangle - T18A
Dakota County
Minnesota

Prepared by
The Scientific and Natural Area Program
Division of Fish and Wildlife
Minnesota Department of Natural Resources
June 1985

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This SCIENTIFIC AND NATURAL AREA was established to protect and perpetuate Minnesota's rare and unique natural resources for nature observation, education and research purposes.

Principal activities which are UNLAWFUL in the use of this area are listed below: Further information is available at Department of Natural Resources Offices.

- °Collecting plants, animals, rocks or fossils.
- °Camping, picnicking and swimming.
- °Horses, dogs and other pets.
- °Snowmobiles and other motorized vehicles.
- °Hunting, trapping, fishing and boating.
- °Entry into restricted areas and sanctuaries.

WALK GENTLY

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

PREFACE

Scientific and Natural Areas are established to protect and perpetuate natural features which possess exceptional scientific and educational value. Nominated areas must substantially satisfy a set of rigorously drawn criteria to qualify for designation. Scientific and Natural Areas serve many purposes. They are places for the quiet appreciation and study of nature. They serve as outdoor classrooms for teachers. They are areas against which the effectiveness of resources management techniques employed elsewhere can be evaluated. They also serve as control areas for scientists engaged in furthering our knowledge of natural processes.

However, acquisition alone does not assure long term preservation of natural areas and their endangered species. Many natural areas are declining in quality because they are not properly managed. Management of vegetation, control of foreign species, and management of visitors are important concerns.

Comprehensive planning is the key to effective and successful management. In 1975 the Minnesota legislature passed into law the Outdoor Recreation Act (86A), establishing the Outdoor Recreation System. This act directed managing agencies to prepare master plans for units of the system. This document is part of a planning effort to satisfy the mandates of that act. The goal of this plan is to coordinate a strategy for stewardship that addresses biological management, obligations of ownership and visitor management.

This plan was prepared by the Department of Natural Resources, Scientific and Natural Areas Program with the assistance of the Commissioner's Advisory Committee on Scientific and Natural Areas. It was based on a resource inventory prepared by the Scientific and Natural Areas Program and the Natural Heritage Program. Funding was provided by the Legislative Commission on Minnesota Resources.

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OVERVIEW

A. Description

Hastings Scientific and Natural Area (SNA) is a 69 acre unit in eastern Dakota County, within the city limits of Hastings. The SNA contains forested limestone bluffs and talus slopes, floodplain forest, marsh and a pond. It occupies a part of the Vermillion River gorge. It is located along the Vermillion River, at the point where the river enters the Mississippi River floodplain.

Hastings SNA is generally divided by roads into two tracts. Tract 1 includes the land south and east of Hwy. 291 and CSAH 54 and is mostly upland. Tract 2 is the land north and west of those roads and is primarily floodplain. The Hastings Veterans Home is located along the southern boundary of the SNA. The western boundary abutts city park land. The remaining property around the SNA is private.

The SNA property was formerly owned by the Veteran's Administration. It was transferred to the DNR in 1973 and designated as an SNA in 1974. The purpose of the transfer was to preserve the hardwood forest community in Tract 1, and to provide an environmental study area for the Hastings School District.

B. Preservation Value

Hastings SNA lies within the Southern Oak Barrens Landscape Region. The DNR's Natural Heritage Program has identified at least one significant natural feature occurring in the unit. The Natural Heritage Program maintains the most comprehensive data base on Minnesota's rare plant and animal species and biotic communities. These biological entities (species and communities) are known as elements and ranked according to their endangerment in the state. The element with the highest preservation value in the SNA is a species of trillium. This species is ranked as special concern under the Minnesota Endangered Species Law (M.S. 97.488).

Trillium sp.

The status of this particular species in Minnesota has not been well established. There are only 5 other verified locations for this species in the state. All the records occur in the major river valleys of southeastern Minnesota or their primary tributaries. The Minnesota locations constitute the northwestern edge of the range for this trillium. It is reported as rare and local wherever it occurs. A population of this species is located in Tract 1. Additional statewide surveywork is necessary to further assess the conservation needs of this species.

The anticipated utilization of the Hastings SNA as an environmental study area by the Hastings School District has not occurred in the 10 years since the unit was established.

C. ORA Classification

The portion of the Hastings SNA south and east of Hwy. 291 and CSAH 54 (Tract 1) meets the designation criteria for a Public Use Scientific and Natural Area as defined in the Outdoor Recreation Act of 1975 (86A.05, Subd. 5). It includes: (1) habitat supporting rare, endangered, or restricted plants, and (2) an area large enough to permit effective research and educational functions and to preserve the inherent natural values of the site. Tract 2 may have locally important recreational and environmental values, but does not meet the criteria for state SNA designation.

D. Management Philosophy

The most important natural attribute of Hastings SNA is its rare plant habitat. The primary management responsibility will be to protect the woodland community from erosion or other impacts arising from offsite activities.

Section 1.

GENERAL MANAGEMENT CONSIDERATIONS

A. Boundary Modifications

Tract 1 -- South and east of Hwy. 291 and CSAH 54 - 17 acres

The primary natural value of Tract 1 is as rare plant habitat. This site is the only protected occurrence of this species on public land. It will be retained and managed by the SNA program to protect this species and its habitat.

Tract 2 -- North of CSAH 54, South and West of CSAH 54 and Hwy. 291 respectively - 52 acres.

a. SNA Considerations:

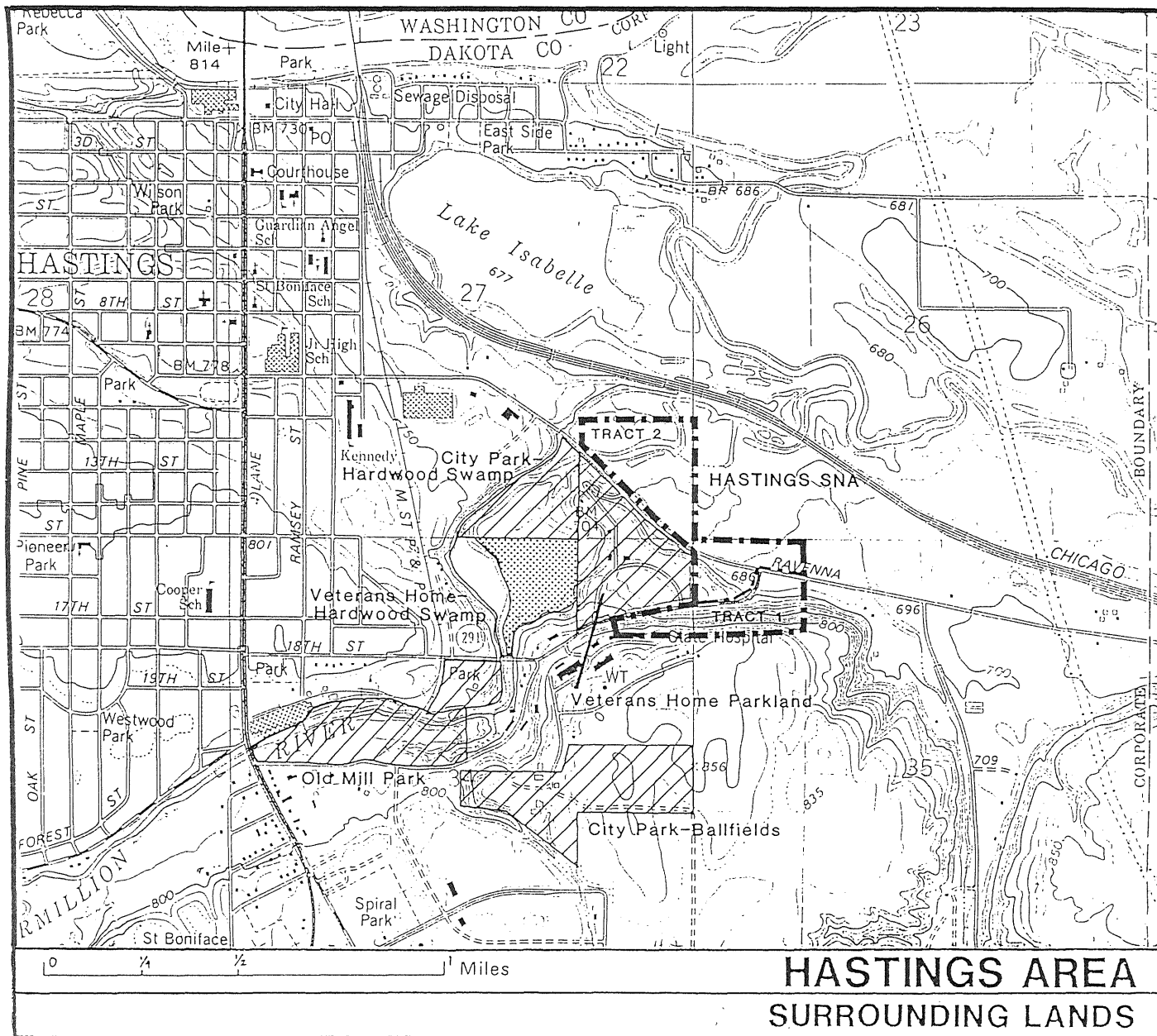
This area includes primarily silver maple floodplain forest, marsh, and open water covertypes. Tract 2 does not have SNA quality resources, nor does it contribute significantly to the management or protection of Tract 1. Tract 2 has required more administrative and management attention than Tract 1, even though it contributes no known statewide SNA goals and objectives. Management needs have included diseased elm removal, gating of an access road to stop trash dumping, county highway realignment, enforcement of trapping prohibition, requests for fuelwood harvesting, and others.

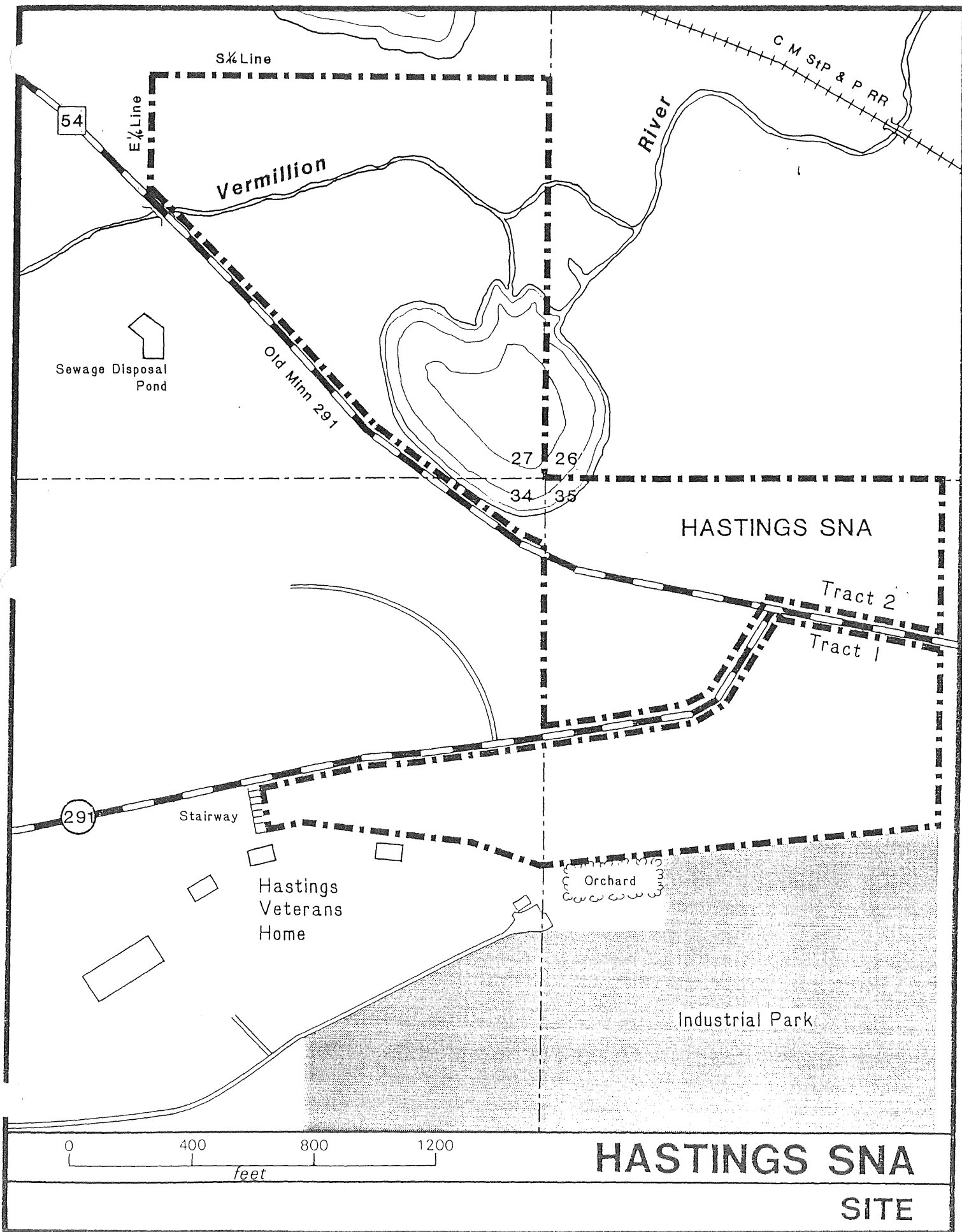
None of the other DNR divisions (Fish and Wildlife, Forestry, Trails and Waterways) have responded to SNA that this property would be valuable for their programs, other than as a potential exchange parcel.

b. City and other Regional Considerations:

Tract 2 does have local value as park land/open space. It is bordered on the east by city park land (Veteran's Home Park land, and 22.5 acres of hardwood swamp along the Vermillion River - administered by the park department). These park lands are part of an openspace system of lands along the "Vermillion River Gorge" which also includes: Vermillion Falls Park, Old Mill Park, 25 acres of Veterans Home land along the river, and potentially Lake Isabell. The 25 acre Veterans Home parcel is scheduled to be surplusd in June 1985. The recreational contribution of the Hastings SNA is incorporated into several sections of the city comprehensive plan, land use plan and the City of Hastings Mississippi River Corridor Critical Area Plan.

In the next 3 to 6 months the City of Hastings will be conducting a systems analysis of its park system. This will assess recreation needs, demands, existing facilities, and needs for additional passive and active recreation facilities. The value of Tract 2 to the city's park and open space system will be addressed in this assessment.





The Vermillion River area, including the SNA, has not been identified for county or regional attention in the Metropolitan Council's 1980-1985 Recreation-Open Space Development Guide and Policy Plan. A 1985-1990 update will be released by June 1985. Any new plans or activities that might include Tract 2 will be guided by recommendations in that plan.

c. Protection via City Zoning and Districts, and Ordinances

All of Tract 2 north of CSAH 54 is in the City's Floodway District. The small portion south of CSAH 54 is partially in the Floodway District and partially in Public Institution. A large portion of Tract 1 and 2 are included in the Mississippi River Corridor Critical Area - Environmental Overlay Ordinance. Collectively these controls limit development, protect steep slopes, restrict cutting, and generally protect the environmental values of those specified lands and waters. Even without SNA designation, the wildlife habitat and other environmental values of Tract 2 will be retained.

Action 1.1 Dedesignate and dispose of Tract 2

Considerations:

Limitations - The wetland in Tract 2 is classified as a public water. State law prohibits public agencies from selling state land on public waters, and exchanges are restricted to other lands on public waters by legislative act.

Disposal Alternatives --

1. Evaluate any recommendations from the City of Hastings Park Systems Plan. If requested, consider exchange or lease to the city for park/open space purposes.
2. Evaluate any recommendations from the Metropolitan Council's 1985-1990 Recreation-Open Space Development Guide and Policy Plan, or any county requests for the land. If requested, consider exchange or lease to the county for park/open space purposes.
3. Use Tract 2 as an exchange parcel to meet other DNR land acquisition needs.
4. Consider leasing for environmental education programs.

B. Management Resources

The amount of management that takes place in an SNA is dependent on both need and the availability of management resources. Some important considerations in this regard are presented below:

1. DNR offices or facilities

The DNR Area Wildlife Manager is located in Shakopee, approximately 35 miles from the SNA. The Area Conservation Officer and District Forestry Office is in Hastings. The St. Paul based SNA staff is approximately 20 miles from the site.

2. Proximity to University and College campuses

The Minneapolis-St. Paul area has several universities and colleges. The SNA program should be able to solicit some research attention to the Hastings SNA from these institutions.

C. Surveillance and Enforcement

Inappropriate uses or overuse can damage natural conditions or features in natural areas. Because of the fragility of these preserves, continued protection requires systematic surveillance and enforcement.

Enforcement is the responsibility of the DNR Conservation Officer along with other DNR staff. People wishing to report problems or who have questions relating to the SNA should contact the DNR Conservation Officer in Hastings, the Area Wildlife Manager, the SNA Office in St. Paul, or other DNR official.

Section 2

STRUCTURES AND FACILITIES

A. Signing

The objectives of SNA signing are (1) to identify the unit, (2) provide basic visitor information, and (3) identify any special use areas. Rules and Regulations signs are needed in the Hastings SNA, as is a unit sign.

Action 2.1 Post rules and regulations signs

Considerations:

Locations - One at the stairway on the western boundary of Tract 1, one at intersection of Hwy. 291 and CSAH 54, and one along CSAH 54 at Bulfrog Pond (tentative - see Action 1.1).

Modifications - The designation order for the Hastings SNA permits boating (including motorized boats) and fishing.

Action 2.2 Post unit sign

Considerations:

Location - South of CSAH 54 near the northeast end of Tract 1. Cars can pull off on the shoulder here and are away from the fragile slopes.

Section 3

VEGETATION MANAGEMENT

A. Hardwood Forest - Tract 1.

Much of Tract 1 is on steep, erodible slopes (18-45%). The SNA only goes up to the crest of the slope and does not include much, if any of the upland. The upland adjacent the slope is owned by the Hastings Veterans Home. Increased overland flow and loss of forested cover are the two major threats to the stability of these slopes and the integrity of the forest community. Minor changes in land-use or construction on the adjacent Veterans Home land could result in accelerated sheet and gully erosion, and causing irreversible damage to the SNA. Approximately one-third of the Veterans Home land on the crest is lawn. The rest is orchard and cropland. The cropland is being surplused to the City of Hastings for use as an industrial park.

Action 3.1 Develop a "slope protection plan"

Considerations:

- SCS - Request the SCS to evaluate slope protection needs ...
 - identify critical factors/conditions that need to be maintained to preserve the present slope condition
 - assess the vulnerability of the slope to changes in these factors or conditions.

Hastings Veterans Home - Develop a joint strategy with H.V.H. to 1) protect the slopes, and 2) consult with each other on projects that would temporarily or permanently change any of the identified critical factors.

B. Rare Plant Management

The conservation of threatened, endangered and special concern species is a primary management objective for SNA's. As a minimum, censusing of those species with the highest conservation priority is necessary. The objective would be to document the size of the population over time. This might provide guidance for future management decisions and practices.

Action 3.2 Monitor Trillium sp.

Considerations:

- Monitoring - Establish monitoring stations or a replicable survey procedure that would permit periodic reverification of the species status in the SNA (i.e. 1 @ 5 years).

Annual check - Because of the vulnerability of this population to loss of overstory, erosion, spraying, competition from exotics (See Action 3.3) and other factors, an annual check of presence or absence should be made (in addition to periodic monitoring).

C. Problem Plant Management

Buckthorn (Rhamnus cathartica)

Present status: It has been reported as scattered in Tract 1 in the hardwood forest.

Threat: Undetermined in the SNA. In some other natural areas this exotic species has formed large, nearly monotypic stands with few other species at shrub height or in the herbaceous understory. The greatest potential threat is in the rare plant habitat sites.

Control: Pulling, or possibly repeat cutting should eliminate the shrub from specific areas. Disturbance and opening of the canopy will favor buckthorn.

Action 3.3 Control buckthorn (Rhamnus cathartica)

Considerations:

Priority - Rare species habitat should be given the highest priority for control.

Frequency - Assess the need for repeated control efforts through the rare plant monitoring program.

Section 4

EFFECTS OF MANAGEMENT ON SIGNIFICANT RESOURCES

A. Trillium sp.

No habitat or population manipulation is proposed. Boundary modifications (Action 1.1) will not affect this species. Slope protection measures (Action 3.1) will preserve the habitat for this plant. Monitoring will establish and track the status of the species in the SNA (Action 3.2). Control of buck-thorn will benefit the plant also (Action 3.3).

Section 5

MANAGEMENT COSTS AND IMPLEMENTATION

Actions recommended in this plan have been separated into two categories: (1) administrative and (2) operational. The costs of administrative actions are difficult to itemize because they are included in an SNA staff member's salary.

Operational actions are on-site activities. These often have both capital and labor costs. Capital costs have been listed. Estimates of labor needs are provided where possible.

Administrative and operational actions are often funded out of different budget sources. This makes it difficult to present an implementation schedule that equates both types of actions. To accommodate budget planning, separate implementation schedules are outlined for each category.

It is important, however, to have a mechanism that does allow comparison between all actions in this plan and between actions from different plans. The system outlined below distinguishes between (a) actions needed to improve or maintain the integrity of a site's most important features called elements, (b) legal or moral obligations of ownership or land management by the Department, and (c) all other actions important for reasons other than above.

Group I Actions: Actions that prevent or reduce the vulnerability of the element to destruction or serious degradation. That is, in the absence of these actions the preservation of the element is threatened on this site. Research, ecological survey and monitoring may be included here if, without such information, it is not known what actions are necessary to maintain the element.

Group II Actions: Actions necessary because they constitute an obligation of land management/ownership by the Department. These may be legal obligations, departmental, or SNA program standard requirements.

Group III Actions: Actions taken for all other reasons. For example, actions taken to provide for public use, acquire supplementary resource information, administrative coordination, etc.

The following chart illustrates the scheduling of actions described in the text, and the immediate and on-going capital costs of implementation. The scope of this plan covers a ten year period. The plan should be reviewed every five years to evaluate progress, reassess priorities, and refine management techniques. Actions listed under the category "Begin Immediately" need immediate attention or are a continuation of an existing program. "Phase I" is the first five year period. "Phase II" is the second five year period. Implementation of many actions depends on availability of materials, equipment and labor. An action may be initiated sooner than scheduled if circumstances so dictate and earlier scheduled actions will not suffer as a result.

ADMINISTRATIVE ACTIONS		Group	Begin immediately	Phase I	Phase II	*Implementor	Person hours	Comments
Action 3.3	Develop slope protection plan	I	X			SNA		SCS to assist
Action 1.1	Dedesignate and dispose Tract 2	III		X		SNA		
OPERATIONAL ACTIONS								
Action 3.2	Monitor Trillium sp.	I		X		SNA	16	
Action 3.3	Control buckthorn (<u>Rhamnus cathartica</u>)	I		X	X	SNA	8 hrs 1st yr. 2 hrs/yr. rest	
Action 2.1	Post Rules and Regulations Signs	II	X	11		W	4	2 signs @ \$3/sign \$2.50/post
Action 2.2	Post Unit Sign	II		150		W	4	Wood routed sign

*SNA = Scientific and Natural Area

*W = Area Wildlife Manager

