WESTERN PRAIRIE SCIENTIFIC AND NATURAL AREA

SOUTH UNIT

MANAGEMENT PLAN

W½ of Section 12
Township 135 North, Range 46 West
Barnesville Quadrangle
Manston Township
Wilkin County, Minnesota

THE NATURE CONSERVANCY, MINNESOTA CHAPTER

and

THE SCIENTIFIC AND NATURAL AREA PROGRAM

April 1983

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 or 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.

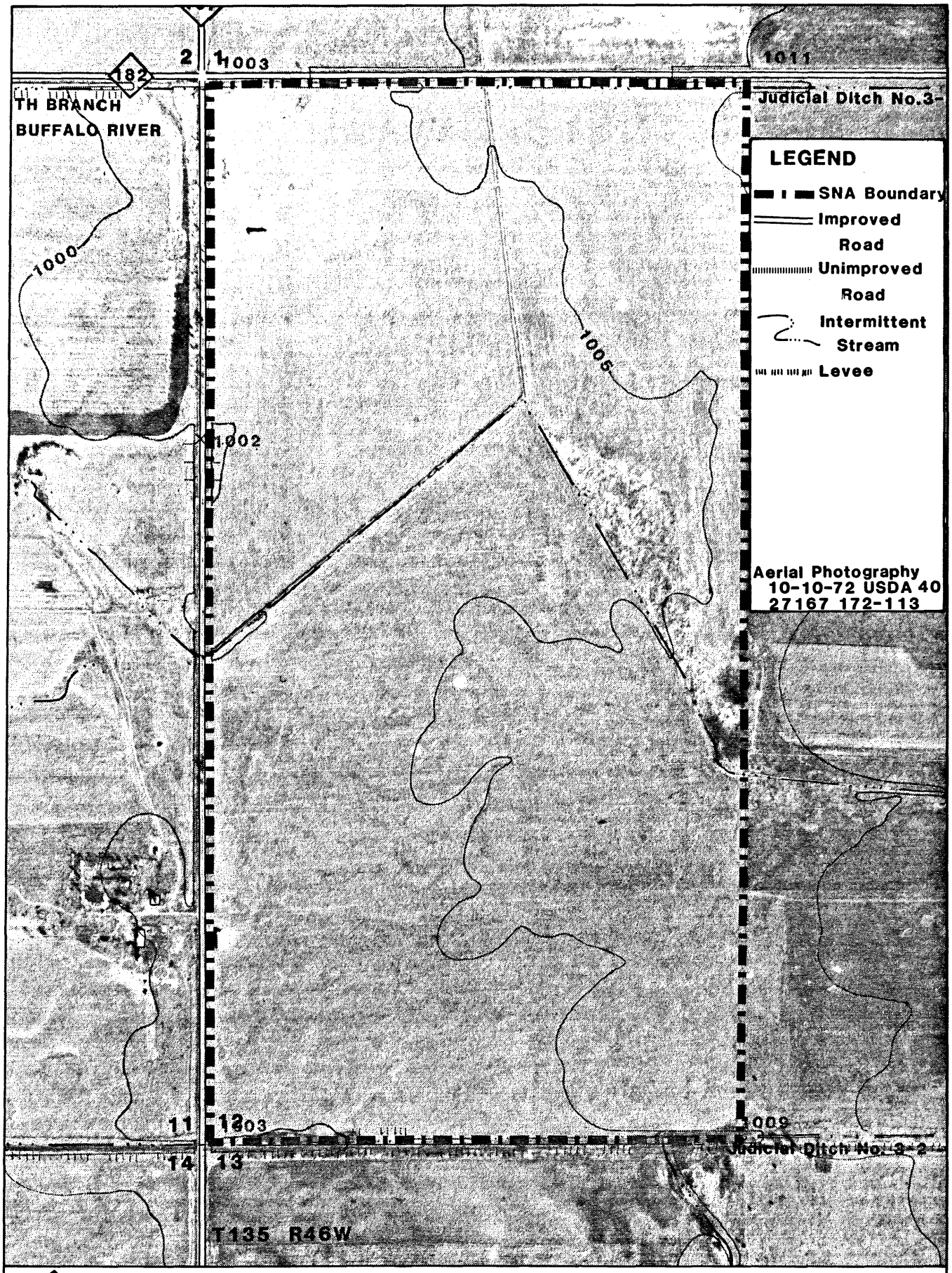
However, acquisition alone does not assure long term preservation of natural areas and their endangered species. Many natural areas are declining in quality because they are not properly managed. Management of vegetation, control of foreign species, and management of visitors are important concerns.

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, and the cooperation of the U.S. Forest Service, Chippewa National Forest. It was based on a resource inventory prepared by the Natural Heritage Program. Funding was provided by the Legislative Commission on Minnesota Resources.

TABLE OF CONTENTS

Support for this project was provided by the Legislative Committee on Minnesota Resources.



WESTERN PRAIRIE SOUTH SNA

Scope and Organization of the Management Plan

Western Prairie South was acquired by The Nature Conservancy because knowledgeable individuals reported that the tract supports undisturbed tallgrass prairie with few alien plants, a vegetation type that is rare in Minnesota and throughout the United States and which is disappearing rapidly. Together with Western Prairie North and nearby federal and state lands, the tract enhances the possibility of maintaining a remnant population of prairie chickens in the area. Western Prairies North and South were dedicated as a state Scientific and Natural Area (SNA) in 1974, under lease from The Nature Conservancy. The 1980 inventory, a cooperative project of the Minnesota Department of Natural Resources (DNR) and The Nature Conservancy (TNC), described and thoroughly documented the physical and biological resources of the sites.

The purpose of this management plan is to describe the specific actions which will be taken in managing Western Prairie South. Within the main body of the plan are a statement of the tract's most significant resources; a concise management goal for the preserve (called the unit goal); summaries of general management objectives and of the specific management actions; and finally the actions themselves. Following the actions are a tentative priority listing for these actions, and appendices concerning policies, procedures, and regulations affecting the management of Western Prairie South. These appendices include a description of the Scientific and Natural Area Program, management guidelines of TNC and the SNA program, applicable state laws, and descriptions of recommended ecological monitoring techniques.

Most Significant Resources

Western Prairie South is one of a small and rapidly diminishing number of native prairie tracts left in Minnesota. Before the intense agricultural development of the 19th and 20th centuries, the rich, diverse tallgrass ecosystem found on this preserve covered much of the western part of the state. These prairies supported large populations of many plants and animals that are now in danger of extinction. Because it is a valuable store of diversity in its own right, and because it is vital to the survival of a number of unusual species, the tallgrass prairie plant community at Western Prairie South is the site's most significant resource. Of the many unique species that live here, the most rare and significant species discovered so far are described below. The glasswort *Salicornia rubra* is found in a calcareous area of the preserve; it is a threatened plant species in Minnesota. Another species found in the same locale is alkali grass, *Puccinellia nuttalliana*. The small white lady-slipper, *Cypripedium candidum*, is a species of special concern because of its scarcity on a nationwide level, although it is relatively common in Minnesota. Of the birds seen on Western Prairie South, several are significant. The sharp-tailed sparrow, *Ammospiza caudacutus*, is a priority animal element in the Minnesota Natural Heritage Program's rare species classification system; other significant birds are the prairie chicken (*Tympanuchus cupido*), a special concern species; the upland sandpiper (*Bartramia longicauda*); and the marbled godwit (*Limosa fedoa*) and Wilson's phalarope (*Steganopus tricolor*), also listed as special concern in Minnesota. In addition, the eastern meadowlark, *Sturnella magna*, is found here on the western edge of its range.

Unit Goal

The unit goal for Western Prairie South is to preserve and enhance the natural flora and fauna of this tallgrass prairie, and to provide research and educational opportunities on the preserve where such use will not impair the quality of the preserve.

Review of the Plan

The actions outlined in this plan must be considered provisional, not definitive, and should be reviewed periodically to see that they are still relevant in light of current conditions. Changes in the site's resources, users, and other management considerations are bound to occur. If warranted, the plan's management actions can and should be modified so that they more effectively and/or efficiently implement TNC guidelines and SNA policies. All proposed actions should be primarily directed at protecting and preserving elements which are a significant part of Minnesota's natural diversity. In any event the plan should be thoroughly reviewed and updated at intervals of no longer than every ten years.

Management Objectives and Considerations

The following management objectives were derived directly from TNC and SNA policy; the policy sources are listed after each objective. The actions that will implement each objective are listed in abbreviated form on the right, along with a number referring to the Management Actions section.

Resource management objectives	Actions and action numbers
1. Re-establish fire	Prescribed burn (2)
2. Minimize damaging human impact	Let-burn policy (1) Ditches (4) Refuse removal (6) Boundary signs (8) Parking (10)
3. Monitor general condition of preserve	Vegetation monitoring (18) Volunteer manager (19) Inspections (24) Annual report (25)
4. Minimize safety hazards to visitors	Refuse removal (6) Parking (10)
5. Complete collection of baseline data	Plant collections (3) Rare plant search (5) Herpetological inventory (7)
6. Inform local citizens of the nature and features of the preserve	Let-burn policy (1) Boundary signs (8) Map (11) Brochure (12) Field walks (13) School use (14) Sign and registration box (15) Volunteer manager (19) Neighbor contacts (26)

Resource management objectives	Actions and action numbers
7. Maintain contact with resource professionals and educators	Encourage educational use (15) Professional contacts (22) C.O. contact (23) Monitor research (25)
8. Monitor populations of species of special concern	Rare plant monitoring (18) Rare animal monitoring (19)

Summary of Management Actions -- Western Prairie South

Resources

1. Implement a wildfire containment plan that will protect the preserve from damage by fire-control equipment.
2. Periodically burn parts of Western Prairie South.
3. Complete collections for inventoried plant species.
4. Avoid modification of the interior ditches.
5. Attempt to locate the rare plants western dock (Rumex occidentalis, Macoun's gentian (Gentiana macounii), Gentiana affinis, ciliate-shethed single-spiked sedge (Carex scirpiformis), and Hall's sedge (Carex hallii) on the tract.
6. Remove refuse from the preserve.
7. Conduct a more thorough inventory of reptiles and amphibians.
8. Experiment mowing a small area for a prairie chicken booming ground in years when no burning is done.

Uses

9. Replace missing or damaged boundary signs as needed.
10. Encourage parking alongside the road that forms the west boundary of Western Prairie South.
11. Develop and distribute a map showing the tract's boundaries and general features of interest.
12. Develop a brochure on Western Prairie South and distribute it to users, potential users, adjacent landowners and other interested parties.
13. Conduct guided field walks on Western Prairie South.
14. Encourage local middle and secondary schools, regional educational institutions, and researchers to use the site if appropriate.
15. Erect a main recognition sign and a registration box and maintain both, keeping the box supplied with information and visitor registry materials.

Monitoring

16. Map and monitor populations of the rare plants Salicornia rubra (a glasswort), alkali grass (Puccinellia nuttalliana), and small white ladyslipper (Cypripedium candidum).

17. Monitor populations of the butterfly Speyeria idalia, marbled godwit (Limosa fedoe), upland sandpiper (Bartramia longicauda), Wilson's phalarope (Steganopus tricolor), sharp-tailed sparrow (Ammospiza caudacuta), and eastern meadowlark (Sturnella magna).

18. Monitor the plant community at Western Prairie South.
19. Recruit a local volunteer manager, preferably living within three to four miles of the tract.
20. Develop and maintain a close relationship with local and regional government officials, natural resource management professionals, and other appropriate individuals.
21. Contact the local DNR conservation officer (CO) and request his or her assistance in managing the site.
22. Improve communication with local residents and promote good neighbor relations.
23. Maintain close contact with all scientists who are using the site for educational and research purposes.
24. Periodically inspect the site.
25. Submit an annual written report to TNC and the SNA program.

Resource Management Actions

1. Implement a wildfire containment plan that will protect the preserve from damage by fire-control equipment.

At Western Prairie South, a wildfire starting on the preserve or spreading onto it from adjacent land could possible move across the property boundary to dry cropland next to the tract. If a wildfire does start to spread across the prairie, and if it appears to threaten adjacent land, or if it is advancing along the ditches at the tract's north and west sides, it should be contained within the preserve's boundaries. However, control techniques can be far more damaging to the prairie than a wildfire, so care should be taken to use the least destructive techniques possible. For example, a fire break could be burned along the preserve boundaries adjacent to the threatened land, or portable backpack-type pump cans could be used to extinguish a small fire. Heavy equipment, vehicles, and plowed breaks must not be used on the preserve. Once the danger of wildfire's spreading onto adjacent property is past, or if there is no such danger to begin with, the fire should be allowed to burn itself out. Generally, wildfires at Western Prairie South should not pose a problem, since the surrounding land is all cultivated.

Local fire authorities should be contacted annually so they are aware of these restrictions on fire control techniques, and neighbors and the local volunteer manager should also be informed of the policy. All of the above people should also be provided with names and telephone numbers of the volunteer manager and the TNC stewardship director and fire boss to speed notification in case of wildfire.

2. Periodically burn parts of Western Prairie South.

Prairies in western Minnesota are thought to have burned regularly before white settlement. After white settlement, however, fire was suppressed. Prescribed burning reinstates a natural ecological process, maintains the

tract's open character by supressing the growth of brush and trees, and restores old fields and other disturbed areas. Fire removes built-up fuel, consequently enhancing nutrient cycling through more rapid breakdown of materials and earlier spring warmup of the soil, and it suppresses non-native plant species. In addition, it perpetuates fire-dependent plants, and improves the habitat for certain animals.

Western Prairie South is divided into three burn units by its interior ditches. These ditches are quite overgrown with brush and would not act as firebreaks by themselves. Still, they do present obstacles to burn crews and break-mowing equipment, and they are therefore convenient burn unit boundaries. Firebreaks should be mowed and raked along the edges of the ditches and at other vulnerable boundaries before each scheduled burn.

Since Western Prairie South is in good condition at present (very few cool-season exotics or weeds are found here), the fire prescription is simple. Early-to mid-spring fires (usually in April) at 3 or 4 year intervals will serve to maintain floral diversity on the prairie. More frequent fires or later fires (May or even summer or fall) will be necessary only if alien species such as sweetclover become a problem, if woody-plant thickets are advancing onto the prairie, or if a particular spring is too wet to allow burning. Fall and summer fires, as well as occasional mowing, are possible alternatives to spring burns under certain conditions. For example, if sweet-clover populations increase, three consecutive spring burns, or an alternative including summer fire, may be necessary to control this species. Another possible modification of the early- to mid-spring fire program is use of follow-up burns in midsummer (June or July) on wetter portions of the preserve that failed to burn in spring. Such burns, preferable done only if birds are done nesting on the areas to be burned, help to simulate natural fires in dry weather -- fires which can seldom occur now with burning bans in effect during most extended dry periods.

At Western Prairie South, emphasis should be placed on initiating a burn program on all burn units of the preserve within a short time. This will remove the heavy litter layer that has built up on the tract through lack of fire, and will increase floral diversity. Of course, no more than two of the three units should be burned in one year, since this would leave prairie animals without a refuge. In addition, back-to-back fall and spring burns which, in combination, cover the entire preserve are not recommended.

Old haystacks are still present at Western Prairie South in the northwest corner and near the old machine trail that crosses the south part of the preserve (at its east and west edges). Burn crews should be careful to extinguish smoldering haybales by breaking them up and in the case of small haystacks, spreading out the bales to allow thorough burning.

Small populations of the threatened species Salicornia rubra (glasswort) and Puccinellia nuttalliana (alkali grass) are found in an alkaline area in the preserve's southwest corner. The effects of fire on these two plant species are unknown, although it seems likely that as prairie plants they are fire-adapted. Because the alkaline area supports only thin vegetation, it may not burn thoroughly. However, if the area does burn, careful monitoring of the Salicornia and Puccinellia populations (Action 16, page 10) will be necessary in the following years to determine the effects of fire management

on the species. If fire has a negative effect on their populations, the burn plan should be modified to exclude the alkaline area from prescribed burning.

The following TNC procedures should be implemented for all prescription burns; 1) a prescribed burning proposal must be prepared and approved by authorized TNC personnel; and 2) all conditions described in the proposal, including the crew, fire boss, equipment, weather, firebreaks, DNR permits, courtesy notifications, and publicity, must be in effect for a burn to occur. Following a burn, a prescribed burning report must be submitted to The Nature Conservancy office and the DNR. Further information can be found in Appendix III of the TNC Stewardship.

Manual for Nature Conservancy Lands in Minnesota.

3. Complete collections for inventoried plant species.

Of the plant species collected by the 1980 inventory team, all but six were deposited as voucher specimens. Vouchers for these six (Aster junciformis, Cirsium arvense, Solidago canadensis var gilvocanascens, Salicornia rubra, Lobelia kalmii, and Argostis scabra) should be collected and deposited at the University of Minnesota herbarium (St. Paul campus). The specimens will be useful for verification of species identification and for systematic placement of the plants in the event of taxonomic revision.

Since Salicornia rubra is a threatened species in Minnesota, the amount of plant material collected will be contingent upon the size of its population. If at the time of collection its population is small, collection should be limited to one sample of those plant parts necessary for species identification -- for instance, one flower or one shoot.

4. Avoid modification of the preserve's interior ditches.

The preserve's three interior ditches were probably constructed between 1915 and 1940 (inventory, page 6). They seem to have been dug by a private landowner, unlike the county-administered judicial ditches at the north and south ends of the preserve and the roadside ditch on the west side. The Nature Conservancy and the DNR may have the legal right to fill, dredge or otherwise alter the ditches. However, over the years the ditches have gradually filled in with soil and vegetation, and have probably reached an equilibrium close to that of the original drainage system on the prairie. Modification would upset this equilibrium. For example, if the ditches were filled or plugged, the tract would probably become drier than under natural conditions, due to the loss of inflowing water from the prairie's watershed. This drying effect would be intensivied by the construction of new ditches on or near the preserve's boundaries, and such ditches would probably have to be built to prevent backup flooding of upstream land once the old ditches on the preserve no longer functioned.

Another potential problem is the possibility of a request by neighboring farmers to dredge the interior ditches. Such an action, like filling the ditches, would probably result in an unnatural drying effect on the prairie. This is because deeper ditches would have the ability to carry away more water than the currently shallower, filled-in ones, and because the heavy vegetation in the ditches slows water outflow and allows moisture to enter the soil.

Besides the direct effects of ditch modification on the water regime of Western Prairie South, filling the ditches would worsen TNC's relationship with the local residents, since neighbors would be forced to dig new ditches to prevent backup flooding on their land. Finally, the heavy equipment that would be used to either fill or dredge the ditches would damage the prairie, and filling in particular would expose large areas of bare soil and encourage week invasion.

Because of the problems described above, modification of the interior ditches should be avoided. If alterations of the drainage system become necessary, alternatives to dredging or filling, such as installation of water control gates (along with new ditches outside the preserve if necessary), should be considered first.

5. Attempt to locate Gentiana affinis, Carex scirpiformis, and Carex hallii on the tract.

These species are classified as special concern (C. scirpiformis, C. hallii, Gentiana affinis) and may be found on Western Prairie North. All are known to occur in similar habitats nearby. Careful visual searches for these species during their flowering periods should serve to determine their presence. If they are found on the prairie, population monitoring should begin in order to delineate their status on the preserve. Choice of monitoring techniques should be based on objectivity, limited observer bias, time requirements, statistical validity, and sensitivity to population variations. Possible contacts for technique recommendations include Gerald Wheeler (University of Minnesota -- St. Paul), Welby Smith (Minnesota Natural Heritage Program) and Mark Heitlinger (The Nature Conservancy, Midwest Regional Office -- Minneapolis).

6. Remove refuse from the preserve.

A 1975 inspection of the tract revealed some old fence wire, sacks and other refuse in the northwest part of the preserve near the haystacks. This rubbish disrupts the visual aesthetic of the prairie, and may be dangerous to visitors as well. It should be removed.

7. Conduct a more thorough inventory of reptiles and amphibians on the preserve.

The 1980 inventory used a drift fence to capture reptiles and amphibians, but it was not set up until July. A spring starting date (late April through early June) is likely to improve results for this study. Amphibians and reptiles breed, congregate, and move about from hibernacula to summer habitat most actively in the early spring, and they are easier to locate and identify by their vocalizations at that time. In early fall, too, herps are active as they move back to hibernation sites. Drift fences would be useful at this time (mid- to late September) as well as in the spring.

Location of drift fences is important. Some of the old haystack sites on Western Prairie South have characteristics of mima mounds (inventory, page 38). There may be hibernation sites for amphibians and reptiles. To increase chances of capturing herps on the preserve, these mounds should be examined by someone who recognizes hibernation sites, and drift fences should

be placed in rings around likely haystack mounds. Openings in the drift-fence circles, and funnel traps below the openings, should be near low, wet areas toward which herps move in the spring. Abandoned ant hills are also used as hibernation sites by herps, and if they can be found on Western Prairie South, they would also make good drift fence locations.

8. Experiment with mowing a small area for a prairie chicken booming ground in years when no part of the tract is burned.

Prairie chickens generally boom on open ground rather than in tall grass; they may use agricultural fields, burned grasslands, mowed areas, or barren ground. A small area could be mowed to provide open ground and encourage the prairie chickens to boom here. An area 30 to 50 meters square on high, dry ground would be suitable; exact size and shape of the mowed area are unimportant. Mowing should be done in the early spring as soon as snow is out, or if possible in the fall before the season when no burning is to be done. Location of the mowed area should be changed from year to year to avoid changing composition of the prairie.

9. Replace missing or damaged boundary signs as needed.

The boundaries of the preserve are marked with Scientific and Natural Area signs. These signs are necessary to prevent encroachment on the prairie by farm equipment or other vehicles, and to inform visitors of the tract's purposes, ownership, and use restrictions; they should be repaired or replaced as necessary.

Use Management Actions

10. Encourage parking alongside the road that forms the west boundary of Western Prairie South.

As long as visitation to the preserve remains light, parking along this road will be adequate. Roadside parking should be encouraged in the Western Prairie South brochure (action 11). If records at the registration box (to be erected; see management action 15) indicate an increase in visitation to the point where roadside parking becomes dangerous or annoying to neighbors, either the pullout in the southwest quarter of the preserve which leads onto the old machine trail, or the haystack access pullout on the tract's northwestern edge could be developed as a parking area. If either of these areas is developed for parking, placement of signs, posts, or fence may be necessary to discourage driving on the rest of the preserve. In any case, parking should not be allowed on the prairie when the ground is saturated, since vehicle use under these circumstances would damage the prairie sod.

11. Develop and distribute a map showing the tract's boundaries and general features of interest.

This map should be distributed to users, potential users, adjacent landowners and interested parties until a Western Prairie South brochure is developed (Action 12). The map can be used to increase visitor appreciation of the area, and answer questions which visitors and landowners may have.

12. Develop a brochure on Western Prairie South and distribute it to users, potential users, adjacent landowners and other interested parties.

The brochure should include an accurate map of the area, a description of Western Prairie South's history, natural features and significance, and a discussion of the impacts caused by people. It might cover several area preserves in order to give visitors an overview of the nearby resources -- for example the brochure might be entitled "Prairie Chicken Country." It shall describe the Nature Conservancy-SNA Program, note conducted tours, promote a "Pack out what you bring in" litter philosophy, identify people to contact for more information about the site, and encourage visitors to register, provide comments, and become involved in managing the area. Finally, the brochure should note Nature Conservancy and/or SNA rules and regulations governing use, including the requirement that all researchers obtain permission prior to conducting research on the area.

13. Conduct guided field walks on Western Prairie South.

The guided walks can be used to educate visitors about the area's resources, inform visitors about the Nature Conservancy-SNA Program, obtain visitor feedback on management, and make visitors feel like land stewards -- involved in managing the site and responsible for its well-being. The number of conducted tours depends on time and money limitations, and the impact of the tours on the area. Late May through October are ideal times to lead walks on the tract; they may be done in combination with visits to other nearby preserves. News releases should be sent to the local media to publicize the walks, and a reporter(s) should be periodically asked to participate in the walks.

14. Encourage local middle and secondary schools, regional education institutions, and researchers to use the site if appropriate.

Bemidji State University, Moorhead State University, North Dakota State University (Fargo), the University of Minnesota (Crookston), the University of North Dakota (Grand Forks), the Minnesota Environmental Education Board's region I coordinator in Appleton, and all middle and secondary schools within the vicinity of Western Prairie South (up to thirty miles away) should be periodically contacted. These groups should know of the site's existence, its potential for teaching such topics as native flora and fauna, ecology and geology,and the names of whom to contact for more information (i.e., the local volunteer manager, SNA program, TNC preserve management coordinator, DNR regional naturalist). An effort should be made to meet with all teachers and researchers who express an interest in the site. Educational and research opportunities can be promoted at these meetings. However, the sensitivity of the resources and user responsibility in caring for the land must also be stressed. Use should only be encouraged if appropriate, ie.e., if such use cannot occur equally well on other less vulnerable areas. All teachers and researchers should be aware of site rules and regulations, such as the need to obtain a permit prior to collecting or conducting research in the area, before they step onto the tract. When the class comes to the site, managers and scientists should, if possible, also be present to assist the teachers.

15. Erect a main recognition sign and a registration box, and maintain both, keeping the box supplies with information and visitor registry materials.

Both of these items are low priority, but in the long run they will be necessary for proper management of the preserve. User registration will be helpful in determining the extent of preserve visitation, and thus the necessity of developing a parking area and other use management practices. The box should be erected approximately fifty feet from the road in the southwest corner of the preserve.

The 1974 lease between TNC and DNR (renewable automatically, currently in effect until 1984) states that "DNR shall erect and maintain a permanent conspicuous sign on each tract demised under this lease [Western Prairies North and South] which shall read substantially as follows: "This area was acquired by The Nature Conservancy and has been designated by the Department of Natural Resources as a Scientific and Natural Area." The sign should be visible from the road once installed.

Monitoring Actions

16. Map and monitor populations of *Salicornia rubra* and *Cypripedium candidum*.

These plants are among the most significant species on the preserve. The glasswort, *Salicornia rubra*, is a threatened species in Minnesota. The small white ladyslipper (*Cypripedium candidum*) is a special concern species and is rare in the U.S. as a whole (40 percent of its total United States populations are found within Minnesota), and it has been considered for federally threatened status. It is found in the interior ditches on the tract.

Monitoring of these species will provide information essential for proper management of the preserve. A preliminary level of monitoring could consist of a visual survey during the species' flowering periods and mapping of the plants' locations. Since *Salicornia rubra* is limited to alkaline soils, which occur only in the calcareous spot in the southwest corner of the tract (inventory, Figure 3), this first level of monitoring will be easy. If time limitations permit, a more intensive monitoring program should begin, consisting of placement of permanent quadrats around individual plants or groups of plants, periodic counts of flowering stalks and/or fruiting stems, and/or records of changes in numbers of stems and amount of cover. Since *Cypripedium candidum* is a rhizomatous species, individual plants may be hard to distinguish, making monitoring more difficult and time-consuming for this species. Because of this, *C. candidum* need only be monitored on a few of the many preserves on which it occurs. It might, for example, be monitored not at Western Prairie South, but at another preserve of similar vegetation type and management practices.

17. Monitor populations of the butterfly *Speyeria idalia*, marbled godwit (*Limosa fedoa*), upland sandpiper (*Bartramia longicauda*), greater prairie chicken (*Tympanuchus cupido*), Wilson's phalarope (*Steganopus tricolor*), sharp-tailed sparrow (*Ammospiza caudacuta*) and eastern meadowlark (*Sturnella magna*).

The butterfly Speyeria idalia is of interest to Minnesota entomologists, and its populations in Minnesota have declined rapidly with the destruction of its native prairie habitat. Monitoring for this species could consist of either or both of two methods. Since butterfly and skipper populations fluctuate greatly from summer to summer, one year's survey is not likely to provide a complete species list for these insects. Repeated surveys, done in the same fashion as that of the inventory, would be useful not only to complete the preserve's butterfly/skipper species lsit, but also to gain an understanding of the population fluctuations of the various species including Speyeria idalia. Such surveys should be repeated for at least two or three summers, and should consist of weekly visits to all plant communities of the preserve between 9 and 11 a.m. or 2 and 6 p.m., on calm sunny days if possible.

Of the bird species mentioned above as significant, the marbled godwit, Wilson's phalarope and the upland sandpiper are listed as special concern and may be breeding on or near the preserve. The prairie chicken, also listed as special concern, has used Western Prairie South as a booming ground for several years; although the center of booming activity moved slightly off the tract during the 1980 season, 1981 found the chickens once more booming on the preserve. The sharp-tailed sparrow, another special concern species, was seen only once on the tract during the inventory and was probably a wandering lone male. The eastern meadowlark is at the western edge of its range at Western Prairie, it was sighted singing twice in June, and its status on the preserve is unknown. Because of the uncertain breeding status of these species on the tract, and because their presence is part of what makes this prairie a valuable preserve, these species should be monitored. However, the prairie chicken, marbled godwit, and upland sandpiper occur on a number of Nature Conservancy preserves, so monitoring for these three species could be conducted on either Western Prairie South or on other tracts representative of its vegetation type and management practices.

For the sharp-tailed sparrow, eastern Meadowlark, and Wilson's phalarope, site records should be kept, consisting of the number of individuals seen, sex if known, activity and date when observed, evidence for nesting (e.g., singing males, nests, adults carrying nesting material), and exact location of sighting. One efficient method of collecting this information in a systematic fashion is the Point Count method. Used in the inventory (see inventory, page), the technique establishes circular stations at which a trained observer stands for ten minutes. Use of this method would allow direct comparison of results with the inventory. To supplement point-count data, information on prairie chickens could be gathered from booming-ground counts in early spring. Finally, if time permits, use of a trained bird dog to flush nesting females during the early part of the nesting season could help investigators locate nests of ground-nesting species, count eggs, and thus estimate reproductive success and confirm breeding species.

Ornithologists (e.g. Dan Dvedarsky at University of Minnesota at Crookston), nongame wildlife specialists (e.g. Carrol Henderson, DNR), and entomologists (e.g. Bob Dana, University of Minnesota at Minneapolis) can help devise other monitoring techniques. Criteria to be used in selection of such techniques are described in action 20.

18. Monitor the plant community at Western Prairie South.

Changes in vegetation can asignificantly affect the quality of a preserve as a whole. Monitoring can help give advance warning of changes and, if the changes are undesirable, allow management action to be taken before the changes become irreversible. A minimal level of monitoring consists of ground photo points to be photographed yearly; such photo points were set up in 1980 on Western Prairie South, and are located at all four corners of each releve plot facing the center of the plot. Aerial color infrared photos should be taken once every five years; the first set was taken in 1976. Time and personnel limitations will determine the extent of further monitoring. Releve plots set up during inventory serve as a basis for developing a more objective and sensitive monitoring system. Criteria for selection of techniques shall include objectivity, limited observer bias, efficiency, sensitivity to changes, and statistical validity.

To evaluate one measure of the success of fire management, a permanent transect should be marked across one of the most dense willow thickets, extending beyond the thicket into grassland. Point-quarter analysis of the willow population should be repeated at intervals of several years to determine the brush-control effectiveness of prescribed burning.

19. Recruit a local volunteer manager, preferably living within three to four miles of the tract.

Volunteer managers must have the time, interest, and willingness to become intimately involved with the protection and management of the site. Their job is primarily to: 1) maintain the registration box supplies and collect registration sheets and comment cards; 2) monitor the tract for signs of misuse of management problems and communicate them to TNC and DNR; 3) facilitate communications between DNR/TNC, local residents, and other parties; 4) aid professional resource managers when requested; 5) be informed of land use plans for the areas near the preserve (e.g. pipeline or powerline corridors, housing developments, and mining activities) and communicate potential problems to TNC and DNR; and 6) orient new managers to the site and the local community.

20. Develop and maintain a close relationship with local and regional government officials, natural resource management professionals, and other appropriate individuals.

Local and regional governmental officials (e.g., the mayor, county assessor, county board members) and resource management professionals (e.g., the county extension agent, DNR area wildlife manager, Soil Conservation Service district conservationist, U.S. Fish and Wildlife Service managers) should be contacted and informed about the site. These individuals are all concerned with natural resources in their respective capacities. They should be aware of the site, its importance, and major management actions which are planned for or being implemented on the tract. This action can help eliminate public suspicions and misconceptions, build trust and rapport, and increase community support. It is also a way of monitoring what the public feels about the site and the managers.

Keeping in close contact with local and regional professional resource managers is also important. These individuals, if they are aware of the site and interested in its preservation, can provide valuable expertise and manpower,

and lend equipment if needed for management. As local residents they can help generate community support for the tract. Cooperative management efforts can also sometimes be used to solve problems which affect (or could affect) several sites in the area, including the preserve.

21. Contact the local DNR conservation officer (C.O.) and request his or her assistance in managing the site.

This action should be taken at least once per year. Since the C.O. is the primary natural resource enforcement officer, it is important to bring the site to his attention and familiarize him with its resources and problems. This action is also necessary to obtain advice on management, such as enforcement activities.

22. Improve communication with local residents and promote tood neighbor relations.

Better public relations are essential to the continued health and existence of Western Prairie. TNC personnel who travel through the area should make an effort to stop by and visit with the neighbors. Meetings could periodically be scheduled for area residents as the need arose. Press releases and individual contacts should be used to publicize the meetings; a reporter might be asked to attend. Meetings can help enlist support for project work (for example, preserve monitoring), serving as a forum to discuss management proposals, actions, and problems, and encourage landowners to adopt practices which could benefit the prairie. Since neighboring landowners and users can have a large impact on the preserve and vice versa, their presence is important. Records of all comments on management and other issues should be kept.

23. Maintain close contact with all scientists who are using the site for educational and research purposes.

Scientists, as trained observers, can provide valuable information and insights on managing the site. Data gathered from scientific studies are also important for monitoring the site. Thus all scientists using the site will be annually contacted and consulted about their studies, data, and conclusions. Researchers should also be consulted about natural changes and human impacts they discover while on the tract, and be encouraged to offer input into managing the tract. Finally, research information should be accumulated, stored in a site file, and shared with interested parties.

24. Periodically inspect the site.

The site should be inspected by the local volunteer optimally at least once per month for human impacts (e.g., vandalism, unauthorized trails, trampling of plants, littering, the disturbance of sensitive resources), signs of violations of rules and regulations (e.g., hunting, snowmobiling, horseback riding), and natural changes in the tract (e.g., insect infestations). If urgent action is required on the site TNC and the SNA program should be contacted immediately. Otherwise, records should be kept of observations for the annual status report.

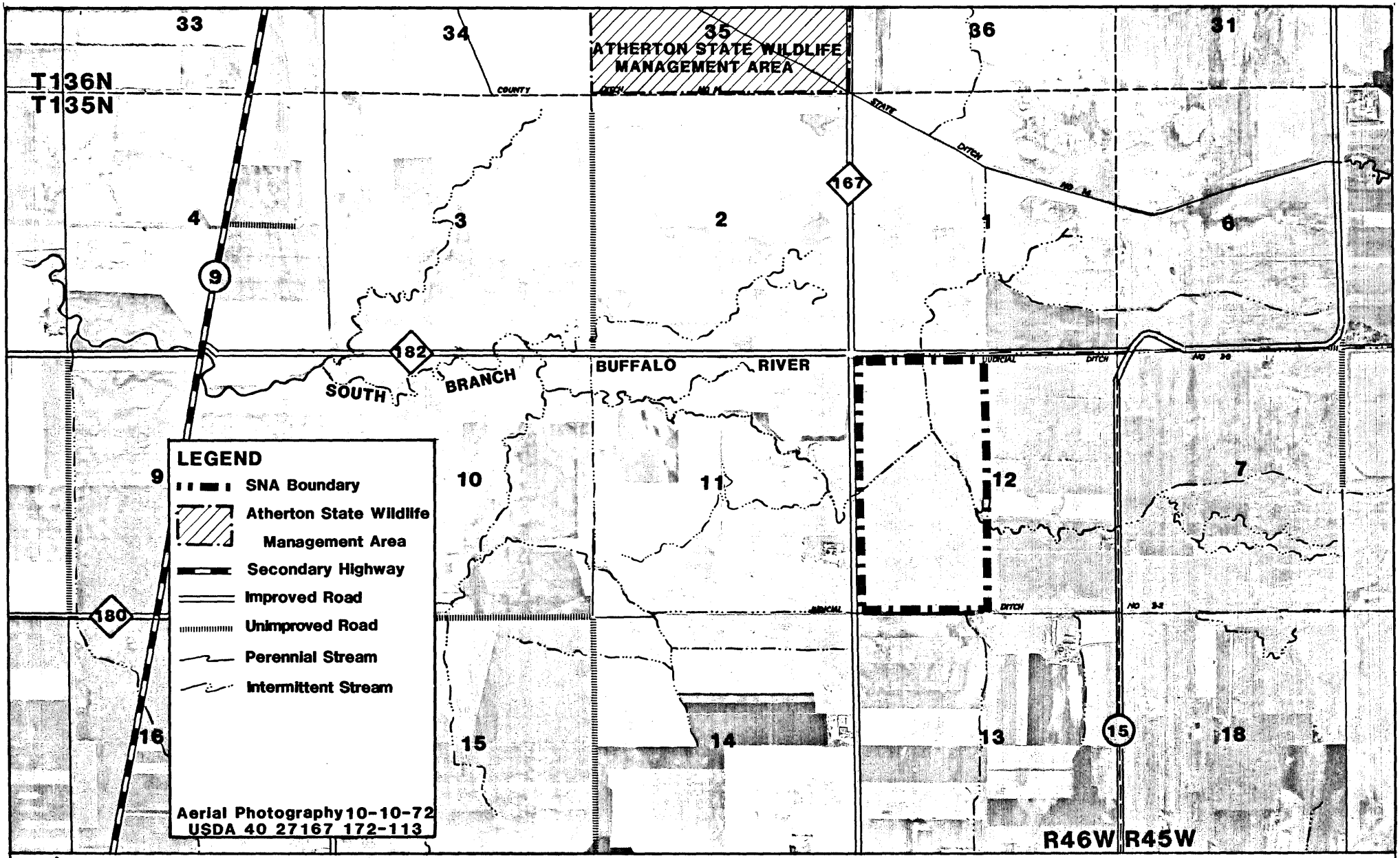
The inspections are also an opportunity to gether feedback from users in the area concerning the site and management actions. Visitors observed violating rules and regulations should be tactfully asked to correct their behavior, e.g., remove rubbish dumped on the site. Serious problems requiring immediate action should be referred to the DNR conservation officer or county sheriff. A report should be submitted to TNC and SNA if further action is advisable.

25. Submit an annual written report to TNC and the SNA Program.

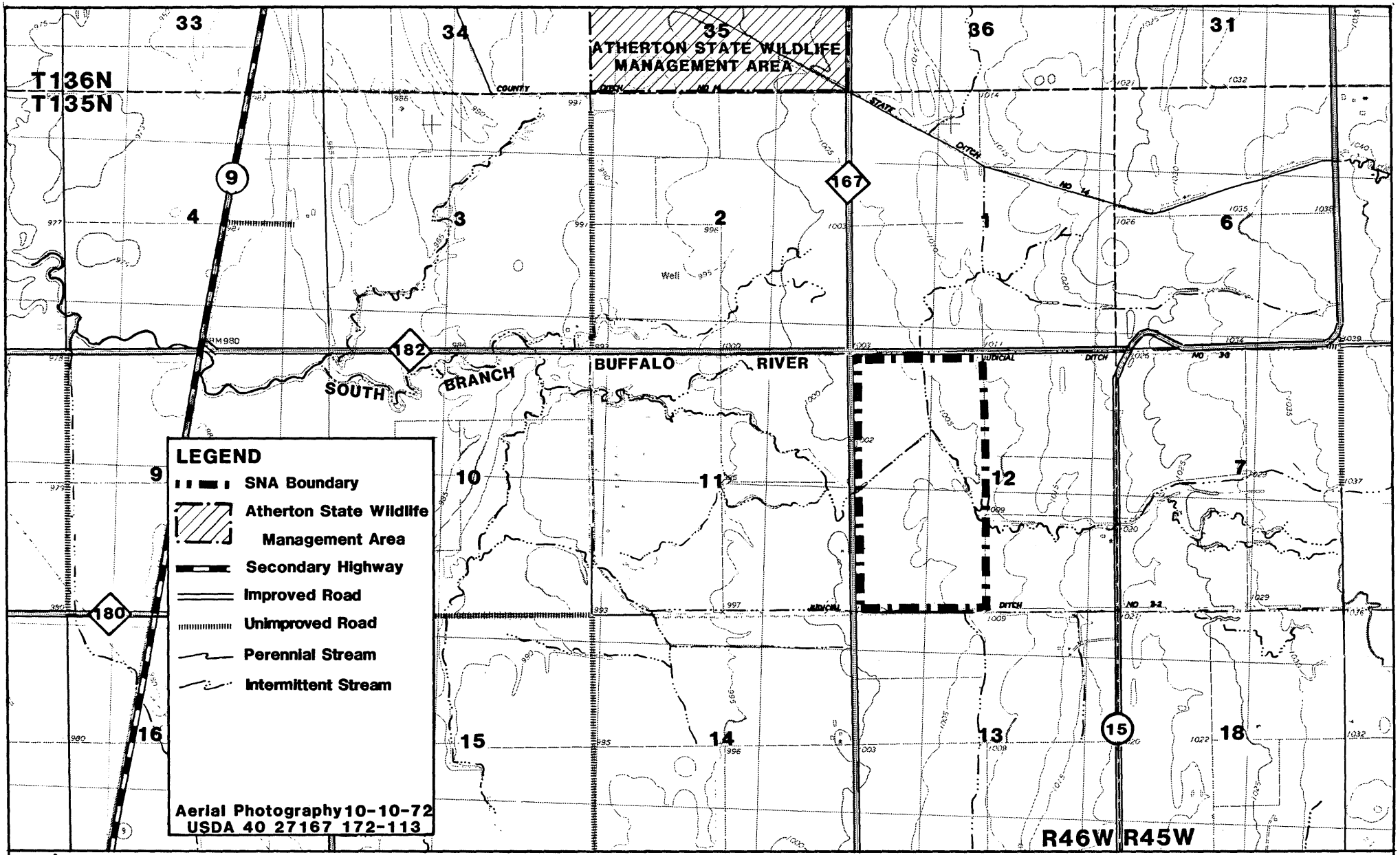
The annual report shall note completed management actions, progress made in implementing other actions, number of users and violations (compared against preceding years), solicited and unsolicited comments regarding management, research proposals and studies underway, changes in the resources, problems identified by managers, local residents and researchers, and recommendations for changes in the management plan.

Boundary Adjustments

Since none of the land adjacent to Western Prairie South supports native grassland, no boundary adjustments are recommended.



WESTERN PRAIRIE SOUTH SNA



WESTERN PRAIRIE SOUTH SNA