

*Wynns*

NATURAL RESOURCES BOARD AGENDA ITEM

Item No. 6B-4

Form 1100-1  
Rev. 11-82

**SUBJECT:** MASTER PLANNING - Approval of the master plan for Brooklyn Wildlife Area, Dane and Green Counties, including an acreage goal increase from 2,500 to 2,760 acres.

**FOR** October **BOARD MEETING**  
(month)

*75.49*

**TO BE PRESENTED BY:** Dave Gjestson

**SUMMARY:**

The Department proposes to manage a state-owned and leased wildlife area to provide public hunting, fishing and other compatible educational and recreational uses. An acquisition goal increase of 260 acres is recommended. No public controversy has been encountered during plan development.

*adjustments made  
75.49 acres from  
Green Co Perm.  
54.51 acres from  
La Fayette Co. Perm.  
130 acres from  
Waukesha State*

**RECOMMENDATION:**

Natural Resources Board approval of the Brooklyn Wildlife Area Master Plan (concept element) including an acquisition goal increase from 2,500 to 2,760 acres.

**LIST OF ATTACHED REFERENCE MATERIAL:**

- No  Fiscal Estimate Required
- No  Environmental Assessment or Impact Statement Required
- No  Background Memo

- Yes  Attached
- Yes  Attached
- Yes  Attached

- cc: James R. Huntoon - ADM/5  
John M. Keener - WM/4  
D. L. Gjestson - WM/4  
Carl Evert - OL/4  
Craig Karr - ADM/5  
Douglas Morrisette - Nevin  
Judy Scullion - ADM/5

**APPROVED:**

*John M. Keener*  
Bureau Director

*James R. Huntoon*  
Administrator

*D. L. Gjestson*  
Secretary

*9/18/84*  
Date

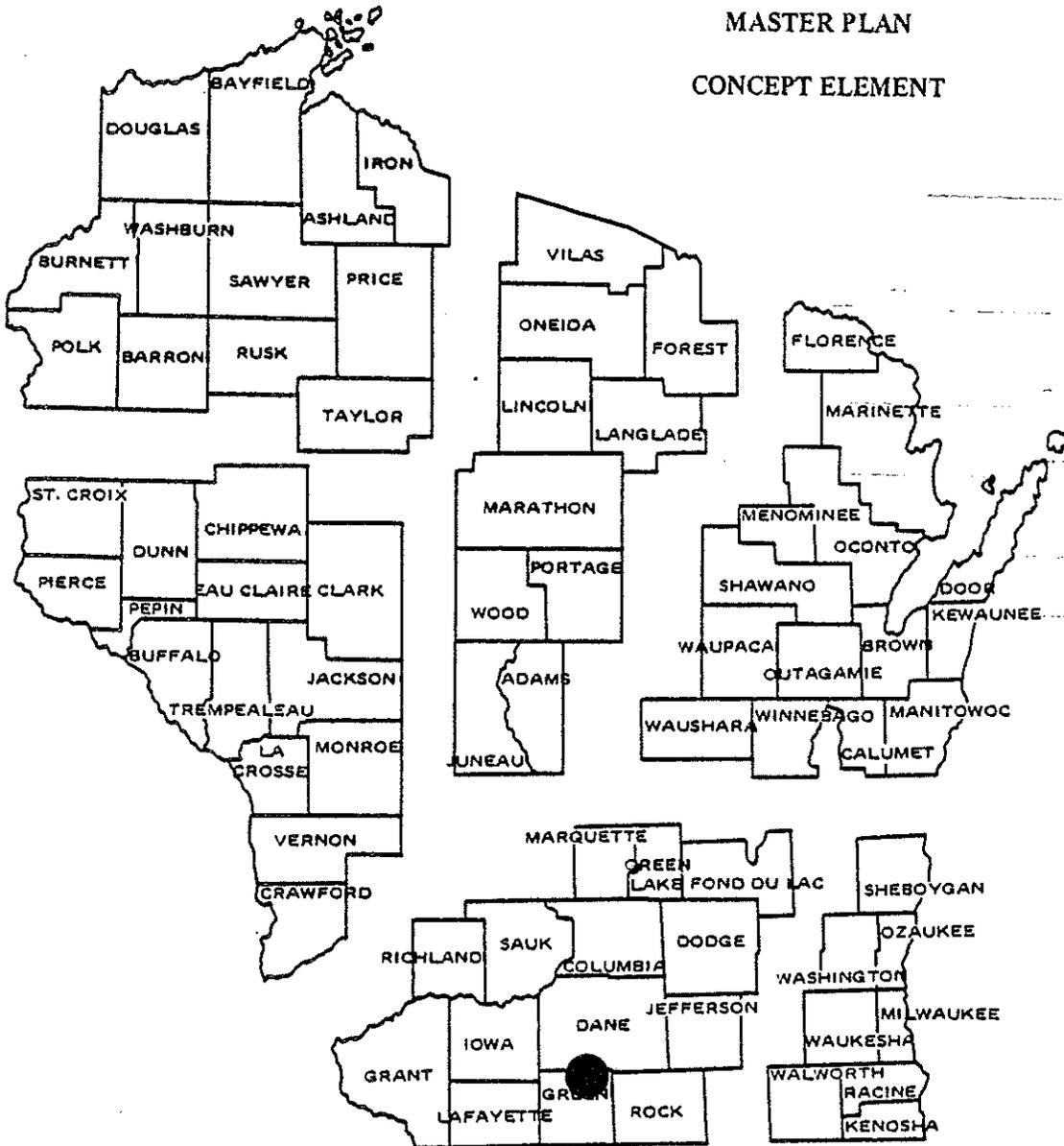
*9/15/84*  
Date

*9-29-84*  
Date

# BROOKLYN WILDLIFE AREA

## MASTER PLAN

### CONCEPT ELEMENT

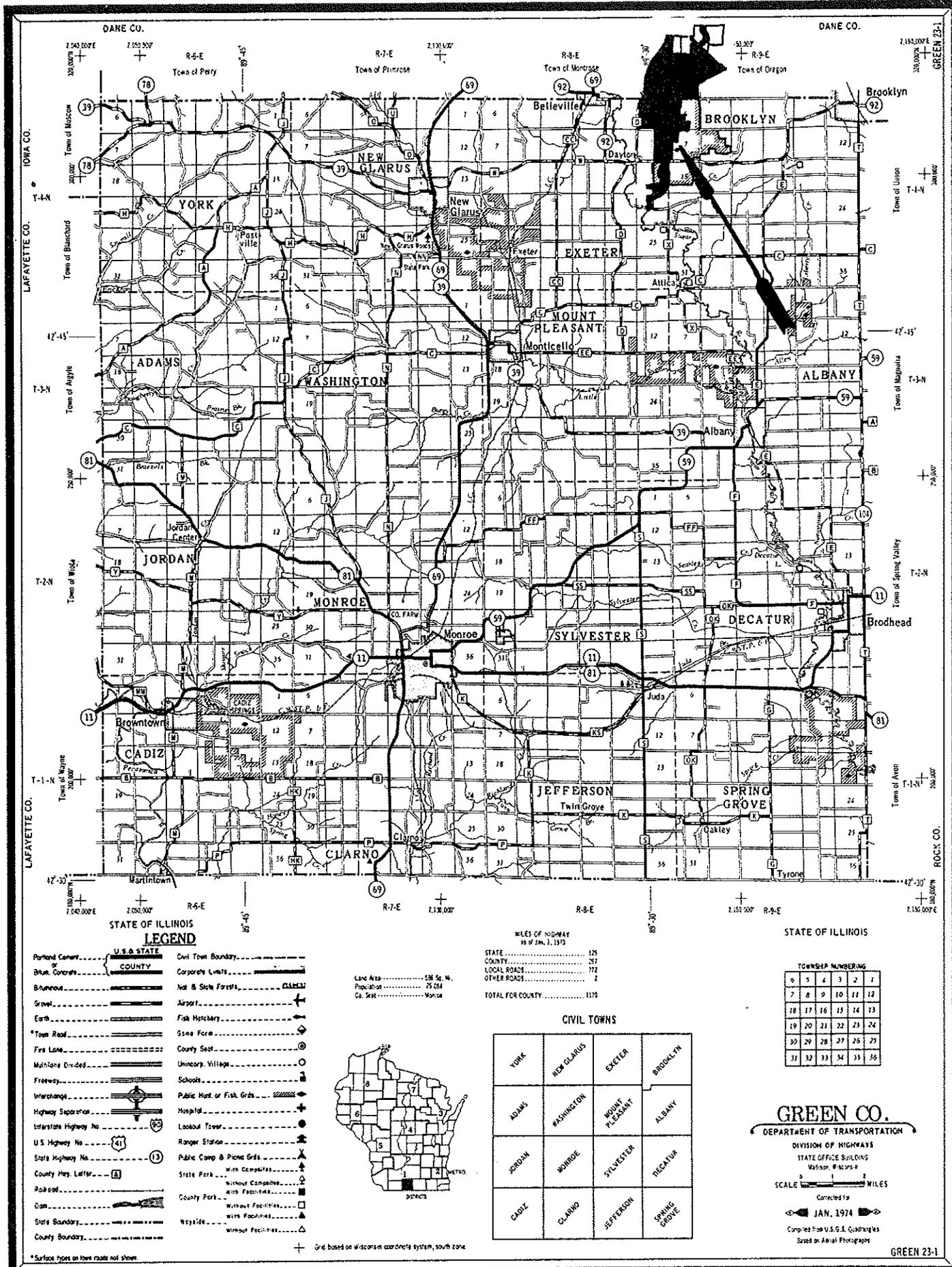


Property Task Force

Approved By: \_\_\_\_\_

Leader: Jon Bergquist - Area Wildlife Manager  
Clifford Brynildson - Area Fish Manager  
Paul Pingrey - Area Forester  
Paul Stone - Area Land Agent  
Reynold Zeller - Parks and Recreation  
David Rasmussen - Conservation Warden

Date: \_\_\_\_\_



**STATE OF ILLINOIS  
LEGEND**

- Portland Cement
- Brum Concrete
- Brumroad
- Gravel
- Earth
- \*Town Road
- Fire Lane
- Multi-lane Divided
- Freeway
- Interchange
- Highway Separation
- Interstate Highway No.
- U.S. Highway No.
- State Highway No.
- County Hwy. Letter
- Railroad
- Dam
- State Boundary
- County Boundary
- Civil Town Boundary
- Corporate Limits
- Nat. & State Forests
- Airport
- Fish Hatchery
- Game Farm
- County Seat
- University Village
- Hospital
- Lookout Tower
- Ranger Station
- Public Camp & Picnic Ground
- State Park
- County Park
- Without Facilities
- With Facilities
- Without Facilities
- With Facilities

Land Area.....586 Sq. M.  
Population.....23,084  
Co. Seat.....Monroe

**MILES OF HIGHWAY**  
as of Jan. 1, 1973

STATE.....129  
COUNTY.....257  
LOCAL ROADS.....772  
OTHER ROADS.....2

TOTAL FOR COUNTY.....1179

**CIVIL TOWNS**

YORK	NEW GLARUS	EXETER	BROOKLYN
ADAMS	WASHINGTON	MOUNT PLEASANT	ALBANY
JORDAN	MONROE	SYLVESTER	DECATUR
CADIZ	CLARNO	JEFFERSON	SPRING GROVE

**TOWNSHIP NUMBERING**

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

**GREEN CO.**

DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
STATE OFFICE BUILDINGS  
Madison, Illinois

SCALE 0 1 2 MILES

Corrected for  
JAN, 1974

Completed from U.S.G.S. Quadrangles  
Based on Aerial Photographs

**FIGURE 1a LOCATOR**

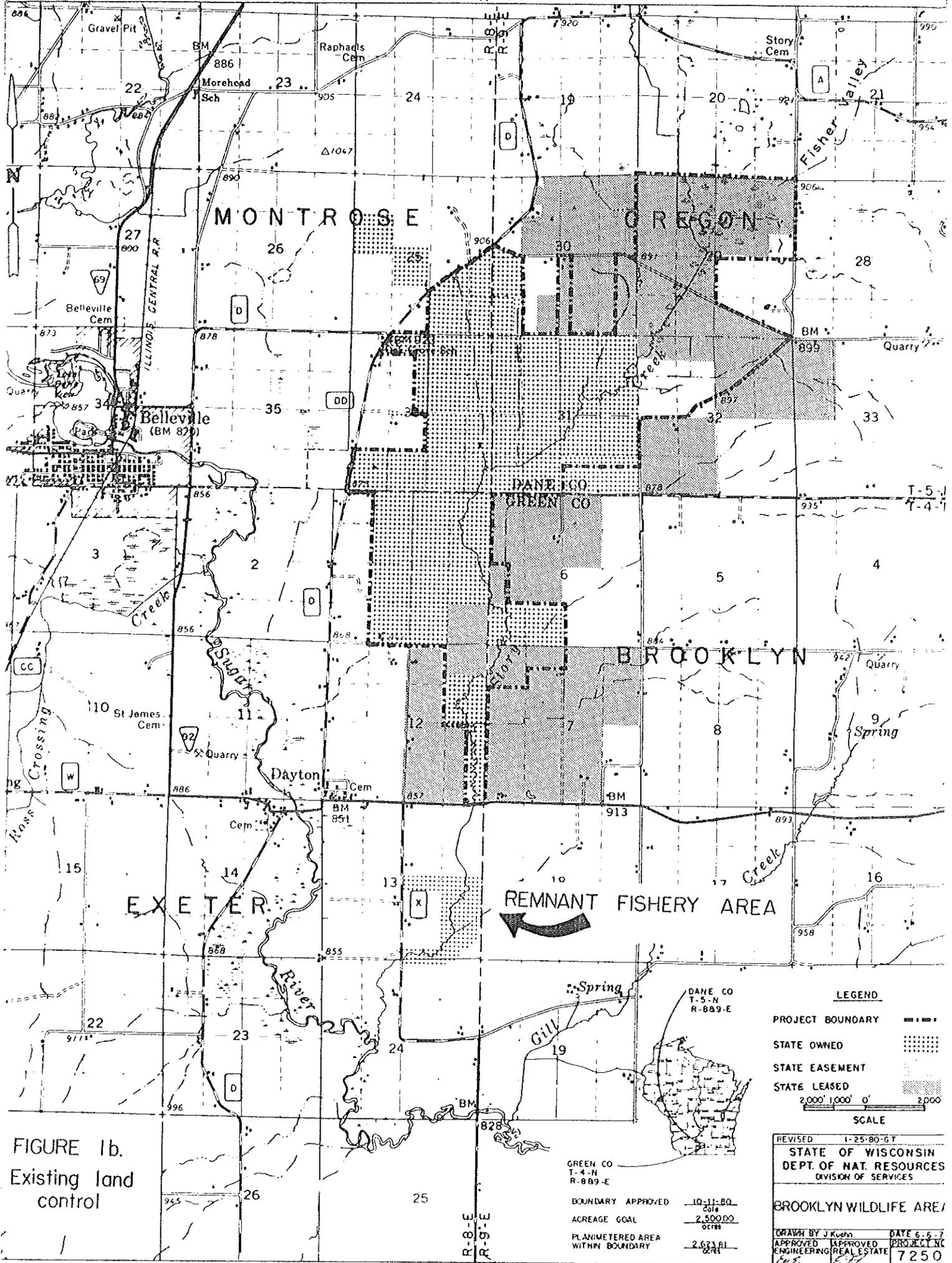


FIGURE 1b.  
Existing land control

DANE CO  
T-5-N  
R-889-E

GREEN CO  
T-4-N  
R-889-E

BOUNDARY APPROVED 10-11-80  
DATE

ACREAGE GOAL 2,300.00  
ACRES

PLANIMETERED AREA WITHIN BOUNDARY 2,623.61  
ACRES

**LEGEND**

PROJECT BOUNDARY

STATE OWNED

STATE EASEMENT

STATE LEASED

2000' 1000' 0' 2000'

SCALE

REVISED 1-25-80-GT

STATE OF WISCONSIN  
DEPT. OF NAT. RESOURCES  
DIVISION OF SERVICES

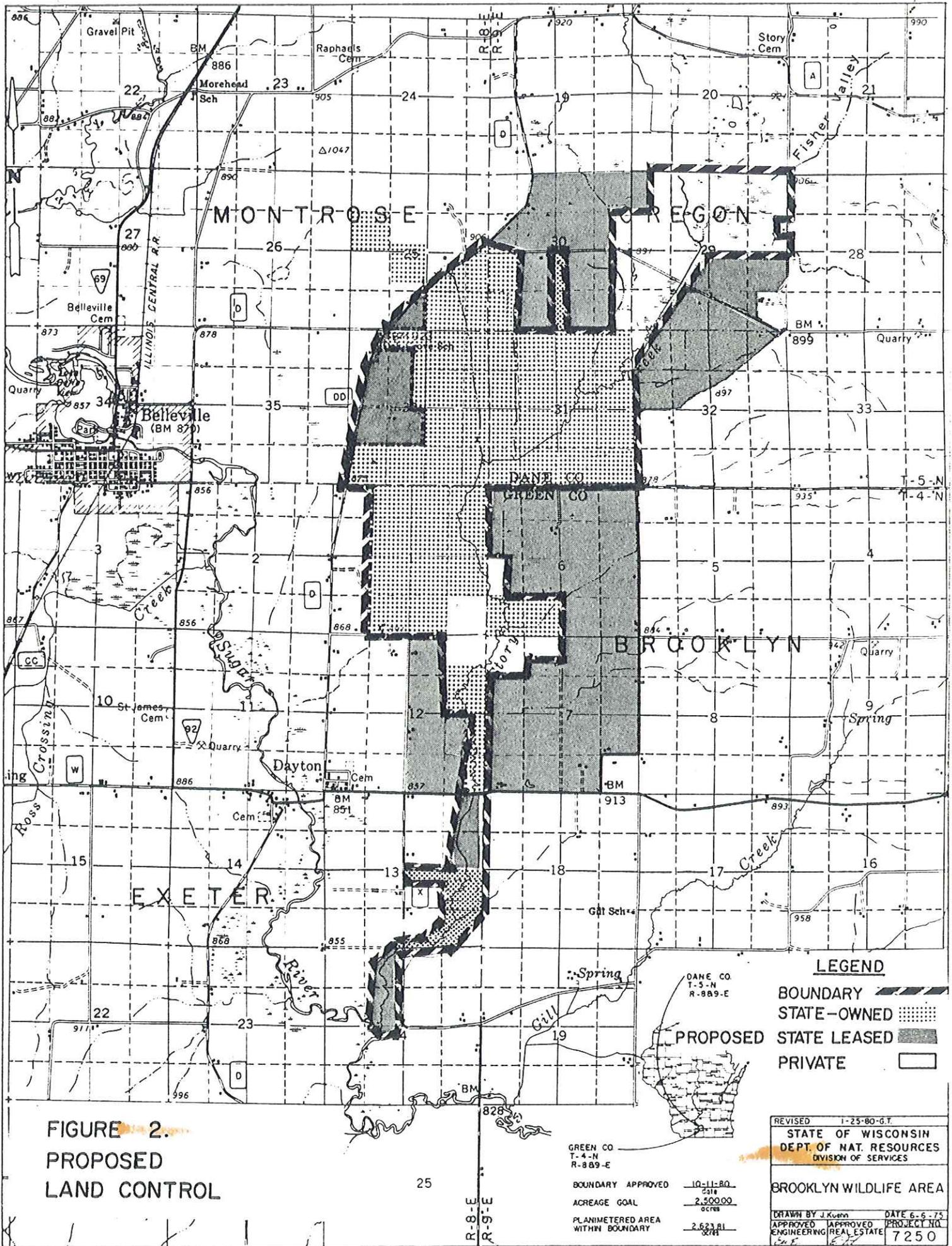
BROOKLYN WILDLIFE AREA

DRAWN BY J. K. Smith DATE 6-5-77

APPROVED APPROVED PROJECT NO  
ENGINEERING/REAL ESTATE 7250

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Brooklyn Wildlife Area

Section I - Actions

GOAL, OBJECTIVES AND OTHER BENEFITS

Goal

To manage a state-owned and leased wildlife area to provide public hunting, fishing and other compatible educational and recreational uses.

Annual Objectives

1. Provide 6,000 participant-days of hunting activity as follows:

<u>Activity</u>	<u>Participant-days</u>
a. Pheasant	4,500
b. Rabbits/Squirrels	750
c. Deer (gun & bow)	375
d. Other game	375

2. Provide 3,000 angler-days of trout fishing.
3. Provide potential nesting sites for 4 pairs of barn owls (endangered species).

Annual Additional Benefits

1. Provide opportunities for 1,500 participant-days of other recreation, including hiking, cross-country skiing, snowshoeing and nature observation.
2. Provide an average harvest of 200 muskrats as well as opportunities to harvest other furbearers including beavers, foxes and raccoons.
3. Contribute to the habitat of migratory, endangered and threatened species as well as benefit nongame species indigenous to the area.
4. Provide opportunities for other fishing recreation.

RECOMMENDED MANAGEMENT AND DEVELOPMENT PROGRAM

The recommended boundary of the property is shown in Figure 2. The proposed acreage goal is 2,760 acres, an increase of 260 acres over the current goal. This recommendation includes a fishery corridor south of the existing boundary which is to be purchased in fee title or easement. This provides for a sound, manageable unit and provide significant public use opportunities. The acreage goal increase will be accommodated by a corresponding decrease of other Fish and Wildlife Management subprogram properties on a 50:50 basis (e.g., 130 acres each).

The limited size and scattered nature of the woodlots preclude intensive forest management. Thus, forestry activities will be directed toward maintaining the oak/hickory type with emphasis on continued mast production for squirrels and other wildlife species.

Fall stocking of rooster pheasants should continue to supplement the harvestable wild population and provide additional hunting opportunity. Once acquisition is complete and the lease program has been expanded, the number of birds stocked annually can be increased to 1,100. Pre-season stocking may be discontinued or reduced to minimize opening day crowding and poor hunter behavior that occurs in crowded situations.

Trout stocking will continue. Annually, 900 yearling brown trout will be stocked in the spring and 5,200 fingerling brown and/or brook trout will be stocked in late August or September.

Trout stream habitat improvement projects will be continued and financed by trout stamp funds. These activities will include stream bank fencing along corridors and private lands, installation of instream devices, riprapping, selective vegetation control, restoration of a channelized portion of the creek and beaver control.

An expanded beaver season should continue in the watershed to keep beaver populations at a minimum to prevent siltation in the stream bed and warming of the water. Contract trapping may be necessary to control beaver populations. Beaver dams will be removed by Department personnel or by licensed dynamite blasters.

If acquired, old silos will be sealed, but kept intact; nesting platforms will be installed for barn owls (endangered species). One state-owned silo is located in the northwest portion of the wildlife area. Other management activities directed at endangered and nongame species will be initiated as funding becomes available and needs are identified.

Facilities development and maintenance will continue (Figure 3). The exterior acquisition boundary will be identified at 0.1 mile intervals with public land signs. Lease property boundaries will be identified with leased property signs. Areas around buildings will be posted with "no discharge of firearm" signs. In addition, an informational sign will be maintained at various locations specifying permitted or nonpermitted uses.

Four parking areas exist on the property and will be improved before 1988. Five additional parking areas are proposed. Parking lot capacities will vary from 5 to 30 cars depending on location. Lots will have gravel bases to provide for all weather parking. The additional lots are needed to reduce the parking that occurs on the road shoulders.

Existing internal maintenance trails will be maintained and improved. These trails will be only open to foot travel. Four miles of additional maintenance trails will be developed. Stream crossings may be necessary. These trails will enable a better distribution of stocked pheasants, aid in trout stocking, provide access for sharecroppers and serve as firebreaks. The maintenance trails will also serve as recreational corridors to be used by hikers, bird watchers, cross-country skiers, etc.

Acquisition will continue on a willing seller basis. Landowners will be contacted periodically to advise them of the Department's interest. Four residences and associated farm buildings are located within the acquisition boundary. At the time of optioning, a decision will be made on the disposition of each set of buildings based on their condition, value and location.

The Bureau of Wildlife Management will be the lead function for both acquisition and development of the property. However, the Bureau of Fish Management will continue to be the funding source for the fisheries corridor acquisition and development. A 72 acre parcel of land north of CTH "D" is surplus to the Department's needs and will be traded or sold.

The public hunting and fishing lease program will be expanded to increase hunting and fishing harvest opportunities, as well as improve hunter access and distribution of hunting pressure. All private in-holdings north of State Highway 92 will be offered a public hunting ground lease. An additional 2,300 acres of private land (Figure 2) should be leased for public hunting from willing landowners.

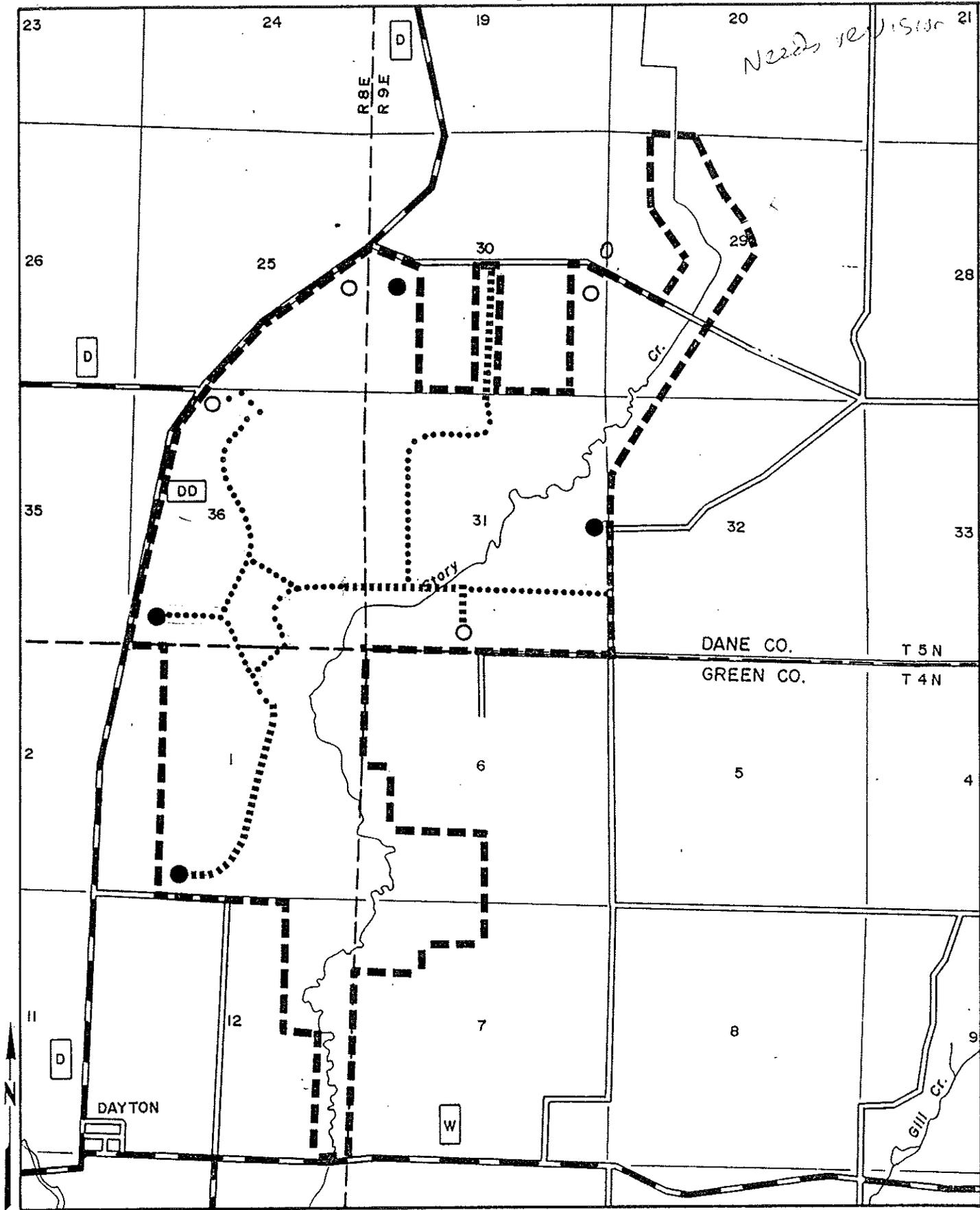
It will be necessary to update lease payments every 4 to 6 years to ensure that the leases are competitive with private hunting leases. If the fall stocking of pheasants is discontinued (a remote possibility), the lease program would be confined to public fishing and private in-holdings within the acquisition boundary.

The entire property is designated a Resource Development Area, Fish and Wildlife Management (RD<sub>2</sub>). Ring-necked pheasant and trout will receive major management emphasis. Production of wild pheasants will be encouraged through the continued sharecrop program, dense nest cover (DNC) establishment, maintenance of winter cover and food patch establishment at strategic locations. These activities will not only benefit the wild pheasant population, but also benefit bobwhite quail, gray partridge and, to a limited extent, ducks. A variety of nongame species will also benefit, especially songbirds like kingbird, bobolink, dickcissel, meadow lark, grasshopper sparrow, clay-colored sparrow, and upland sandpiper.

About 200 acres of DNC will be established on upland sites ranging from 20 to 60 acres. Currently, switchgrass or a mixture of switchgrass and other prairie grass and/or legumes are the recommended cover types for these fields.

Future sharecropping should be restricted to upland sites. From 200 to 300 acres will be cropped annually on the property to provide food and cover diversity for pheasants. Sharecropping agreements must be attractive to the farmer to enable management work to be accomplished as planned. Crops grown under sharecrop agreements will be restricted to field corn, soybeans, small grains and hay. The cutting of hay will not be permitted until after July 1 to protect nesting pheasants. Periodic, short-term grazing by cattle or sheep may be permitted as a means for vegetation manipulation, but will be short-term and not be permitted near springs and the various branches of Story Creek.

Vegetation manipulation will continue, with emphasis placed on prescribed burns and mechanical means. However, limited herbicide use may be necessary to obtain the desired results in a timely manner.



Needs re-division

2000 0 2000 FEET

LEGEND

- ▬▬▬▬ PROJECT BOUNDARY
- EXISTING PARKING LOTS
- PROPOSED PARKING LOTS
- ▬▬▬▬ EXISTING TRAILS
- ..... PROPOSED TRAILS

BROOKLYN WILDLIFE AREA

FIGURE 3.

All areas proposed for development will be examined for the presence of endangered and threatened wild animals and wild plants. If listed species are found, development will be suspended until the District Endangered and Nongame Species Coordinator is consulted, the site evaluated, and appropriate protective measures taken.

The most complete biological inventory of the property can be found in DNR Research Report 108 (Pils et al. 1981). Additional property objectives may be developed following completion of a more comprehensive inventory when funds become available.

All areas of future development will also be investigated for the presence or absence of historical or archaeological sites and appropriate protective measures taken to protect significant sites. Should any sites be found during development, construction will be suspended until the State Historical Preservation Office is consulted.

Land acquisition cost is estimated at \$1,120,000. Other associated costs are shown in Table 1. The estimates are based on 1984 costs.

Table 1 - Cost Projections.

Item	Initial Cost	Annual Maintenance Cost
Leasing <sup>1</sup>	\$ 1,840	\$1,840
Stream Habitat Improvement	\$ 14,500	\$ 300
Stream Channel Restoration	\$ 15,000	---
Boundary Fencing (80 rods)	---	\$ 700
Posting (fee)	\$ 1,800	\$ 300
Posting (lease)	\$ 400	\$ 200
Parking Lots	\$ 24,000	\$ 200
Dense Nest Cover	\$ 20,000	\$ 100
Internal Trails	\$ 40,000	\$ 200
Sharecropping	---	\$ 150
Vegetation Control	---	\$ 500
Endangered & Nongame	\$ 200	---
Miscellaneous	---	\$ 300
Total	\$117,740	\$4,790

<sup>1</sup>Based on 80¢ per acre.

## Section II - Support Data

### BACKGROUND INFORMATION

#### Land Control

The current acreage goal for the Brooklyn Wildlife Area is 2,500 acres. Current ownership in fee title is 1,739 acres (excluding surplus lands lying north and west of County Highway D. In addition, the Department has made 3 easement purchases totaling 0.07 acres.

About 70% of that portion of Story Creek within the exterior boundary of the wildlife area is under state ownership. The longest segment of the stream still in private ownership is found in Section 29, Town of Oregon. This segment was disturbed by agricultural ditching and has undergone extensive alteration for agriculture since 1968.

In 1981, the Department leased an additional 1,580 acres to provide public hunting and fishing. These are yearly leases and subject to cancellation by either party. Current (1984) lease rates on the wildlife area are 80¢ per acre.

Most of the wetlands within the property boundary on the northeast and eastern portions are still in private ownership; many have been drained and are in row crop production. Extensive ditching in these wetlands and some agricultural practices have increased silt and nutrient loading and have reduced the creek's capability to support trout. The remaining private ownership within the boundary is generally upland and is devoted to agriculture.

A 72 acre parcel of land north of County Highway D is surplus to the Department's needs and outside the property boundary. This parcel was acquired in 1967 as part of a larger purchase.

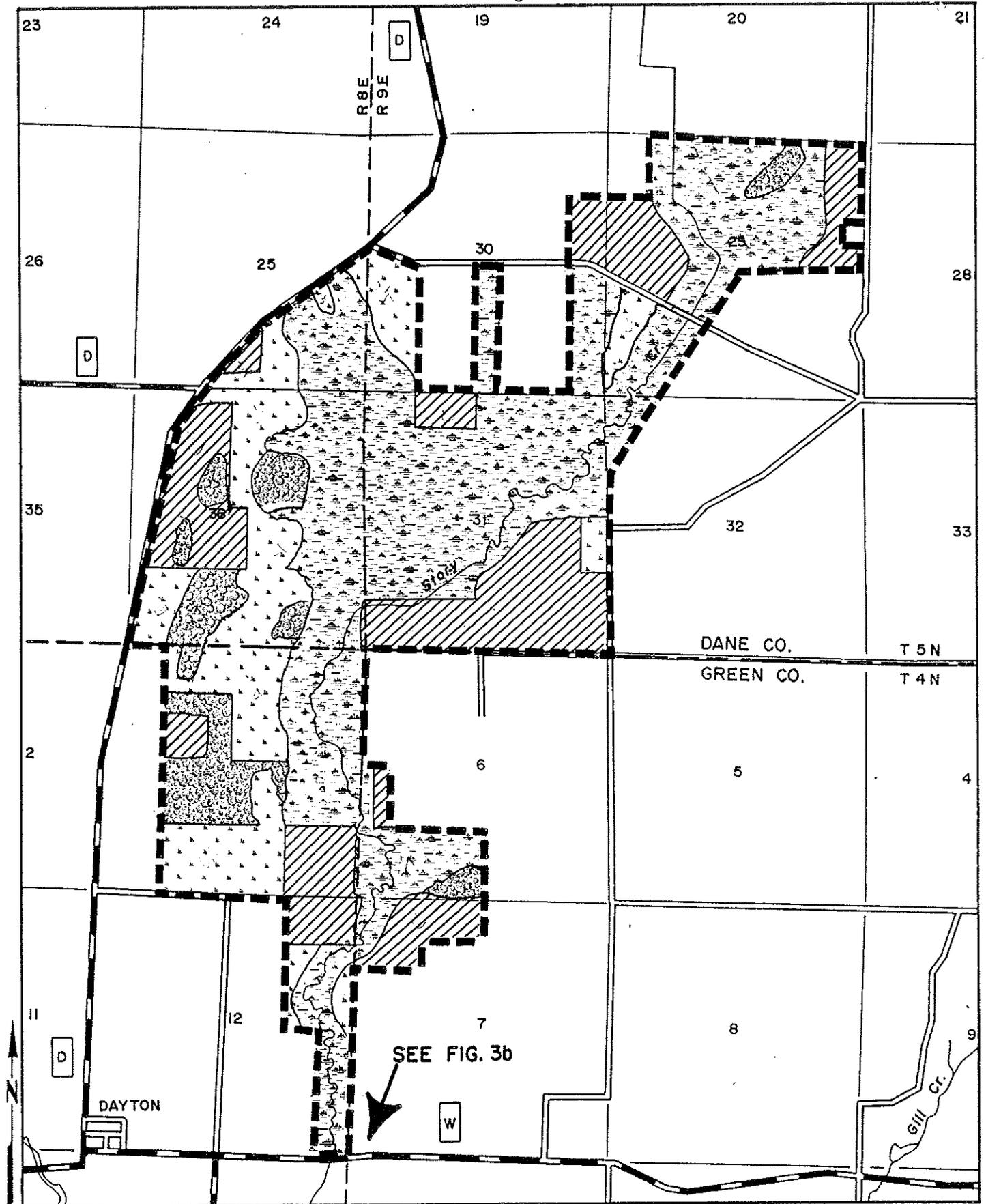
#### Current Use

Currently, the state-owned lands sustains about 2,000 participant-days of pheasant hunting, 400 days of rabbit/squirrel hunting, 225 days of deer hunting, 200 days of other game hunting and 2,000 days of trout fishing. Participant days of other recreation are about 1,000 days.

### RESOURCE CAPABILITIES AND INVENTORY

#### Vegetative Cover (Figure 4)

Original land surveys indicate the predominant vegetation type on the uplands was oak savannahs characterized by bur, white and black oak. These trees were widely scattered, permitting sufficient sunlight to reach the ground so that prairie grasses and forbs dominated the understory (Ellarson 1949). Fire was an important ecological factor in maintaining the scattered nature of the oaks and the prairie understory.

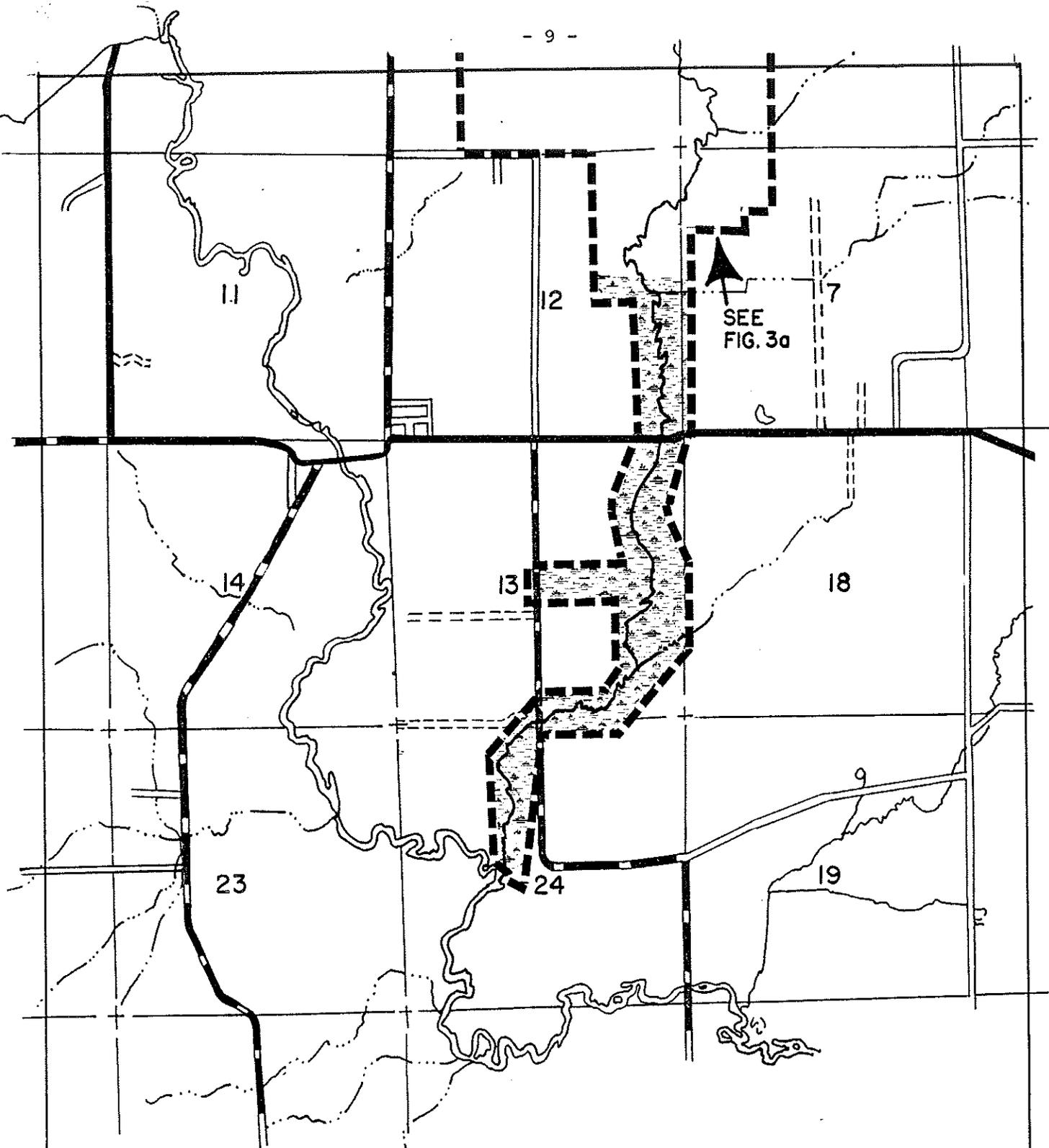


2000 0 2000 FEET

LEGEND

- PROJECT BOUNDARY
- TIMBER
- MARSH
- ▲ GRASS
- /// CROPLAND

BROOKLYN WILDLIFE AREA  
 VEGETATION MAP  
 FIGURE 4a.



2000 0 2000 FEET

**BROOKLYN WILDLIFE AREA**

VEGETATION MAP  
FIGURE 4b.

**LEGEND**

- PROJECT BOUNDARY
- TIMBER
- MARSH
- GRASS
- CROPLAND

STATE OF WISCONSIN DEPT. OF NAT. RESOURCES DIVISION OF SERVICES
<b>BROOKLYN WILDLIFE AREA</b>
DATE

Ellarson (1949) described the vegetation of the wetlands as open marsh dominated by marsh grass, reeds and rushes. No specific plant species were mentioned. Like the oak openings, the open marsh types were probably maintained by fire.

Since settlement, agriculture has dominated the landscape. Many of the scattered oaks were removed and the lands were placed under the plow. Likewise many of the wetlands were drained and attempts were made to convert them to agriculture. Table 2 lists the acres by vegetation/land uses in the proposed boundary. No endangered or threatened plant species have been found on the wildlife area.

Table 2 - Land Use Summary

	<u>Private</u>	<u>Public</u>	<u>Total</u>	<u>%</u>
Lowland Cropland	180	291	471	20
Upland Cropland	205	541	746	32
Wetland	101	709	810	35
Woods	45	238	283	12
Miscellaneous	<u>5</u>	<u>25</u>	<u>30</u>	1
Total	536	1,804	2,340	100

Drained wetlands account for about 35% of the land use within the property boundary. Over 65% of the wetlands are in private ownership and devoted to production of corn and soybeans. The ditch network empties into Story Creek. Periodic maintenance of the ditches is necessary to maintain proper drainage.

An additional 25% represents uplands capable of supporting farming operations. About 205 acres of the uplands capable of agricultural production are still in private ownership. The remainder is under state ownership and is either sharecropped or set aside as unmowed grass cover consisting of quackgrass, bluegrass or brome/timothy. Approximately 20 acres have been seeded to switchgrass DNC. Lack of funding has prevented intensive DNC development.

Wetlands no longer actively drained represent about 28% of the cover. About 90% of this type within the property boundary is in state ownership. Generally, the former ditch networks have been permitted to deteriorate on state lands, allowing wetlands to reestablish. However, the native vegetation type (sedge meadow) has not reestablished itself in many instances. Instead, disturbance vegetation, e.g., goldenrod, aster, nettles, giant ragweed and reed canary grass have invaded. Shrubs and aspen dominate some lowland sites.

Forest cover occupies approximately 12% of the vegetational cover. Approximately 20% of this type with the boundary is still in private ownership. Oak and hickory dominate the woodlots and their understory consists primarily of gray dogwood, hazelnut and various wild berry bushes. Two small conifer plantings also exist.

### Wildlife and Fish

A wide variety of game and nongame wildlife species listed by Pils et al. (1981) occur on the wildlife area. The interspersed wetlands and uplands can be highly productive for farm game species such as pheasants and, to a lesser extent, bobwhite quail. Small wooded areas support populations of rabbits, gray and fox squirrels, and deer. Ruffed grouse and woodcock also occur to a lesser extent.

The wetlands are of a nature that are not highly productive for waterfowl, but mallards, blue-winged teal, wood ducks and Canada geese sometimes utilize the area. Furbearers include the red fox, gray fox, raccoon, muskrat, mink and beaver. Beaver activities could create valuable waterfowl habitat; but because Story Creek is a Class II trout stream, these dams are periodically removed to prevent degradation of trout habitat.

Pheasants are stocked annually on the property to provide additional hunting opportunity. Currently, 820 roosters are stocked prior to the opening of and during the pheasant season. The birds are released on both state-owned and leased lands.

Many nongame species occur including various species of songbirds, hawks, owls, herons, sandhill cranes, rodents, reptiles and amphibians. Although no recent observation of barn owls have been recorded on the wildlife area, barn owls have nested just south of the boundary in 1974 and again in 1981. Bald eagles (endangered) occasionally visit the area during the winter.

Story Creek supports a limited wild brown trout population. Brown trout and brook trout are stocked to meet user demands. The creek produces some large brown trout ranging in total length from 20.1 to 23.8 inches as surveyed in 1977. Intensive management of the stream and adjacent lands could increase its carrying capacity for trout several fold. Story Creek is rated as the best trout stream in Green County and ranks third in Dane County.

Other fish species found in limited numbers in Story Creek include smallmouth bass, northern pike, walleye pike, pumpkinseed, bluegill, white sucker, hog sucker, common shiner, northern creek chub, redbreast dace, carp and northern redbreast.

### Water Resources

Story Creek is the major water source for the wildlife area. Drainage is basically to the south. Fourteen springs with a flow of 910.0 gallons per minute have been located. Twelve of these are in Dane County. The bottom type of Story Creek ranges from long stretches of gravel in the wildlife area to sand, gravel, clay-silt and hardpan in that portion of the stream below Highway 92. About 0.75 miles of the stream near the Dane-Green county line was channelized prior to DNR purchase. The creek empties into the Sugar River in Section 24, Town of Exeter, Green County.

At least 3 branches of the creek originate in Dane County. Two of these originate in the Town of Oregon and unite in Section 31, Town of Oregon. The third branch originates in a springhead located in a barnyard in Section 25, Town of Montrose, Dane County and joins the main stream in Section 36, Town of Montrose. Most of the wetlands associated with the 2 branches of the creek in the Town of Oregon and north of Section 31 are in private ownership and have recently been ditched and are intensively cropped.

Only the springhead and about 300 feet of the branch originating in Montrose is not under state ownership. The wetlands associated with this branch were once ditched and farmed, but the ditch network has been allowed to deteriorate under Department ownership permitting successional advances to occur in the wetlands.

Even though many of the other wetlands associated with Story Creek are still ditched and actively drained, water quality remains fairly good. Ground water flow into the channel is high. Aquatic organisms inhabiting the stream substrate or vegetation are primarily mayflies, caddis flies, freshwater shrimp and crayfish. Watercress is common in the upper part of the stream. The chemistry of the water reflects the basic fertility for aquatic production. Trout spawning grounds are located primarily in that portion of the stream located in the northern half of the wildlife area.

### Soils

Two major soil associations are found on the Dane County portion of the wildlife area. The first is the Basco-Elk mound-Gale association described as moderately well to somewhat excessively drained, shallow to moderately deep silt loams and sandy loams that are underlain by sandstone at a depth less than 40 inches. The other is the Batavia-Houghton-Dresden association described as soils formed in outwash material, well to poorly drained, deep to moderately deep silt loams and mucks that are underlain by silt, sand and gravel (Glocker and Patzer 1978).

The portion of the wildlife area in Green County contains 2 associations: Dunbarton-Whalen association which is described as shallow and moderately deep, gently sloping to moderately steep soils that have a loamy clayey subsoil over loam till, underlain by dolomite; and the Dickinson-Meridan association described as deep nearly level to sloping soils that have a loamy subsoil, underlain by outwash sand or sand and gravel (Glocker 1974).

There are 40 soil phases on the property, varying from mucks to types of loams. Only one of the soil phases present is considered a Class I soil capable of continuous row crop cultivation. The other 39 soil phases have varying degrees of limitation for agricultural purposes, according to soil survey descriptions. Erosion and wetness are the major limiting factors for cropping which require special management.

### Historic or Archaeological Sites

There are 2 potential historical and archaeological sites near the property. They are prehistoric campsites located in the Town of Exeter, Green County. The first site is located on the east bank of the Sugar River, south of its

confluence with a small tributary in the SESENW, Section 24. The second is located on the north bank of the Sugar River, west of the tributary, in the NW, Section 24. Neither site has been evaluated in terms of its eligibility for inclusion in the National Register.

#### Land Use Potential

The entire property is designated a Resource Development Area, Fish and Wildlife Management Area, RD<sub>2</sub>. The area's size and history of wetland drainage and upland farming precludes it from being assigned one of the resource protection area classifications. However, successional changes may result in more stable plant communities, restoring native communities to a limited extent.

### MANAGEMENT PROBLEMS

#### Current Recreation Demands

The wildlife area is well known for its pheasant hunting and trout fishing. Public use is extensive during these seasons and overcrowding occurs on opening weekends of both pheasant season and trout season. The recreational demand for both pheasant hunting and trout fishing exceeds the available wild supply. Stocking of both pheasants and trout are current management practices directed toward meeting this demand/supply imbalance. However, stocking also generates additional demand.

Harvest rates are estimated to be at or above 85%, even with stocking. High demand is a problem for pheasant management on the property because hunter competition is keen and crowding often occurs.

The lack of quality cover limits game production and hunting space. Emphasis on restoring quality cover should receive a high priority if high pheasant hunting demands are to be met.

Management of cottontails may provide an additional source of hunting recreation on state wildlife properties. While Pils et al. (1981) describes techniques for managing cottontails, budget constraints and general interest have not supported active management.

As the available energy supplies for travel decrease and the cost of this energy increases, outdoor enthusiasts may use public lands close to home more frequently, thereby placing even greater demands on this property. Not only will this be true for the hunters and fishers, but the demands of those seeking other recreational experiences will also increase.

Recreational uses, when compatible with the primary objectives of the property, are additional benefits to the public and can be included in future development plans as time and funds permit. They must be regulated both in time and space to ensure the primary goals are obtained and to protect important vegetation types from destruction and wildlife populations during stress periods.

### Habitat Loss

Past drainage and the straightening of Story Creek have resulted in a loss of wetland habitat, an increase in the oxidation rates of wetland soils, increased creek siltation and a lowering of the water table. Allowing ditches to become nonfunctional has reversed this trend on state property, but the situations continue on private lands.

As wetlands are removed from agricultural production and the historical water table is reestablished, the sedge meadow community may develop in 25-50 years. Exotic and disturbance plant species have invaded many disturbed sites and have successfully competed with the native species. Artificial restoration is an expensive proposition and in many cases the lack of technology and funding has precluded the desired restoration attempts.

The recent expanded ditching on the private holdings in the northeast corner of the wildlife area has resulted in the alteration of the head waters of 2 branches of Story Creek. The conversion of the original wetlands to cropland has degraded the quality of the stream and trout habitat. It has also resulted in the loss of the sedge meadow and brush marsh cover types which can be important wildlife habitat components dependent upon the species, size and relation to other habitat types.

### Cottontail Rabbit Management

Habitat management guidelines for cottontails in Wisconsin are lacking despite the fact that cottontails are an important small game species, especially in southern Wisconsin. Experimental cottontail rabbit habitat management was conducted at Brooklyn from 1976 through 1979 by DNR researchers C. M. Pils, M. A. Martin, and L. R. Petersen. The results, which appeared in an 18 page DNR Research Report No 108, published in June 1981 entitled, Experimental Cottontail Habitat Management on the Brooklyn Wildlife Area, suggested that future habitat management practices should include denser concentrations of brush piles and food patches, along with a more accurate assessment of mortality. A current literature summary on cottontail habitat management is included in that report.

### Nest Cover

The lack of secure upland nesting cover is another major management concern. In the 1950's and 1960's, pheasant populations were greater than today, partly because of a better mixture of cover types and less intensive farming. Today, hay cutting is earlier than in the past and generally occurs prior to the peak of the pheasant hatch. Because pheasants utilize upland grass sites for nesting, they sometimes select hay fields and many of the nests are destroyed by farming operations prior to hatching.

While there appears to be an ample amount of grassy cover for pheasant nesting when upland and lowland croplands are combined with the large wetland complex (81% of the total area), conditions prevent this full potential from being realized.

Research has documented a strong preference for pheasants to nest in residual wetland vegetation for their first nesting attempt, with renesting hens preferring new growth alfalfa, retired cropland and strip cover (Gates and Hale 1975, Dumke and Pils 1979). However, about 690 acres of the wetland cover on Brooklyn is either too wet or too sparse. Gates (1970) indicated that wetlands remaining "consistently wet underfoot through mid-May" are of little value to nesting pheasants; he recommended giving management priority to wetlands providing the densest and driest residual cover on April 1.

Lowland cropland can only be utilized by maintaining an artificially lowered water table by using drainage ditches. Without periodic cleaning, ditches on Brooklyn have gradually silted in, the water table has risen, and vegetative types have changed. Gates (1970) and Gatti (1983) recommended preservation of herbaceous (grassy) cover, primarily aster-goldenrod plant communities on dry, formerly cropland organic soils, while avoiding monotypes of sedge and canary grass, sedge-bluegrass or sedge-redtop cover.

Excessive shrub invasion of lowland cover is also occurring on Brooklyn and eliminates nesting cover opportunities--this needs control by prescribed burning or mechanical means. It is estimated that less than half of the current lowland cropland can be effectively managed for quality nesting cover.

Upland cropland on state-owned lands (541 acres) substantially contributes to the quality nesting cover base. However, development and maintenance costs limit the Department's ability to do the work with state personnel and equipment. While sharecroppers could be effectively used, their lack of specialized equipment and interest has hampered the planting of preferred warm season grasses. There is potential for improving their interest and providing state equipment or contracting such work projects, but successes to date have been limited. The options will be explored further.

Altering or influencing farming practices in privately-owned upland cropland also has potential. Land use trade agreements could expand the range of wildlife area influence beyond its current boundaries. Surplus tracts of state-owned cropland could be used by area farmers in exchange for establishing perennial nesting cover on private lands. ACP practices and other USDA-ASCS cost-sharing practices can be used to develop nest cover on private lands.

Warm season grass pastures have been well received by livestock farmers in Iowa and may have potential in Wisconsin. The technique rotates pasturing from cold season grasses to warm season grasses and back to cold season grasses with use patterns designed to allow the warm season grasses to recover to at least a foot in height, thereby offering nesting and brood cover.

Short-term, fast rotational grazing schemes (e.g., savory system) has proven effective for dairy farmers in New England and also has potential in Wisconsin to at least provide pheasant brood cover. Rotational pastures involve grazing small paddocks at high stocking rates for a short time (1-3 days). The advantages for the farmer are an extended grazing season, substantially lower nitrogen fertilizer requirements, controlled weeds without herbicides, improved range conditions and, ultimately, improved pasture productivity.

An effective cooperative effort for private land management whereby landowners are offered incentives by the Department to improve their land for wildlife also has potential for nest cover development and will receive serious consideration as programs become available. Currently, secure nesting cover appears to limit pheasant abundance on the wildlife area.

### Leases

Loss of leased private lands continues. Since 1973, leased acreage has declined from 3,340 to about 1,600 acres. Factors causing this 52% reduction include Department purchase of leased land, a loss of landowner desire to participate in the lease program, elimination of leased lands that are intensively farmed because such lands have little wildlife value, rural development and poor hunter/fishermen conduct.

### Trout Habitat

The past channelization of Story Creek in the southern half of Section 31, Town of Oregon, resulted in a loss of trout habitat. Although this channelized stretch of stream is easy to fish, it is not aesthetically pleasing and will require restoration of the meander to provide quality trout habitat.

Over 2 miles of trout water lies south of the existing property boundary (Figure 2). The Department owns 65 acres along the creek south of Highway 92 to its confluence with the Sugar River. Public trout fishing on this segment of the stream is limited. Providing additional public fishing rights south of Highway 92 would result in a substantial increase in fishing opportunities and provide for better utilization of this resource.

A conflict between wildlife management (beaver) and fish management (trout) occurs on the property. Current Natural Resources Board policy favors trout management on trout waters. Therefore, beaver dams on the stream are removed. Beaver populations at Brooklyn have increased during the late 1970's and the resulting conflict has increased. Although beaver ponds provide excellent duck habitat and aquatic habitat for various aquatic furbearers, the dams are removed to protect the trout habitat at the expense of a potential increase in fur harvest, trapping opportunities, duck production and waterfowl hunting opportunities.

### Law Enforcement Problems

There is one unique law enforcement difficulty associated with this property. The property lies in both Dane and Green counties. Therefore, regulations such as steel shot requirements for waterfowl hunting and season zones for deer hunting cause public confusion because the county line is not easily identified by hunters.

Indiscriminate target shooting has occurred in the past and caused significant littering problems as well as concerns for public safety. This has effectively been eliminated by a regulation which limits this activity.

### Unauthorized Activities

A management problem common to nearly all properties in southern Wisconsin is unauthorized use. Some unauthorized snowmobiling and camping has occurred in the past. However, the most significant problem has been vehicle trespass. Gates have been destroyed and unauthorized use of maintenance trails by vehicles has occurred. Four wheel drive vehicles have left established parking areas and driven cross country, damaging vegetative cover and wildlife habitat.

The unauthorized cutting of trees for firewood has been a problem of increasing intensity in recent years. With energy costs rising, both timber theft and the demand for firewood can be expected to increase. Dead and dying trees provide excellent wildlife habitat and the current policy of permitting firewood removal will be continued only when consistent with the property management objectives.

### Socio-Economic Concerns

Local residents have or perceive that they have socio-political and socio-economic concerns. The concerns mainly involve tax base, removal of cropland from production and an influx of "city people" into their area. Many residents recognize the value of open space and acknowledge the state contributions to the townships involved in terms of "payments in lieu of taxes" and school aid.

## RECREATIONAL NEEDS AND JUSTIFICATION

The Brooklyn Wildlife Area is located in south central Dane County and northeastern Green County. It is located about 15 miles south of Madison, the capital of Wisconsin. The greater Milwaukee area is located about 75 miles to the east and the cities of Janesville and Beloit are located 25 to 30 miles to the southeast respectively. Over 500,000 residents of Wisconsin reside within a 30-minute drive of the property. Over 2.5 million residents reside within one and one-half hour's driving time of the property (Population Census, Wisconsin Blue Book, 1980). Nonresidents use the property as the Chicago metropolitan area is within 120 miles of the property.

Rising transportation costs, restricted energy supplies and a diminishing land base on which to pursue hunting and other compatible outdoor recreation has recently increased the demand on state-owned lands in southern Wisconsin. This rate of increase can be expected to rise more rapidly in the next few years because of the factors cited above. Hunting and fishing participant days are expected to reach 66 million in Wisconsin by 1990.

The amount of nonharvest use of fish and wildlife, such as observation and photography, has not been adequately documented in Wisconsin, but studies in Colorado indicate these nonharvest uses represent 1.5 times the number of harvest or recreational days spent in harvesting fish and wildlife resources (Fish and Wildlife Comprehensive Plan 1979, Wisconsin DNR). Increased acquisition and management efforts are required to meet the anticipated hunting and fishing recreational demand. Meeting the general public's recreational needs locally will significantly reduce the use of semiprecious fossil fuel.

## ANALYSIS OF ALTERNATIVES

### Status Quo - Alternative A

The Brooklyn Wildlife Area would retain the acreage goal of 2,500 acres and the property boundary as approved by the Natural Resources Board in October 1979 (Figure 5). Estimated acquisition cost to complete, based on 1984 land costs, is \$1,000,000. Annual objectives would be as follows: Pheasants, 3,000 days; rabbits/squirrels, 600 days; deer, 350 days; other game, 300 days; and trout fishing, 2,400 days. Participant-days of other recreation would be 1,300 days.

Maintaining current boundaries and acreage goals does not address the current high use nor the anticipated increase in public use or demand. As travel costs increase, it is possible that recreational uses may increase substantially on public properties close to large urban areas. The wildlife area offers a variety of recreational opportunities only 15 miles south of Madison and therefore will receive increased use in the future.

### Reduce Property-Alternatives B, C and D

#### Alternative B

This alternative deletes that portion of the wildlife area north of Bellbrook Road (Figure 6). The new acreage goal would be 2,200 acres. Estimated cost to complete acquisition, based on 1984 land costs, is \$650,000.

Overall hunting participation would be reduced by up to 1,000 participant-days. The opportunity to harvest furbearers would be reduced by 25%. Trout angling-days would be reduced by 500 participant-days. In addition, other compatible recreation would be reduced by 200 participant-days.

The area north of Bellbrook Road consists of about 43% ditched wetlands, 32% upland cropland, 16% wetlands and 9% woods. The ditched wetlands were converted to cropland within the past 10 years. This ditching is believed to have reduced the quality of Story Creek.

#### Alternative C

This alternative would be to delete all lands in the northeast corner of the wildlife area (Figure 7). The acreage goal would be reduced to 1,980 acres. Estimated cost to complete acquisition for this alternative, based on 1984 land costs, is \$250,000.

Hunting opportunities would be reduced by approximately 1,500 participant-days. Pheasant stocking opportunities would also be reduced. This entire block is still in private ownership and about 75% of the wetlands have been drained. Over 50% of the land is owned by one owner.

Alternatives B and C are not acceptable because they fail to adequately address the problems of increasing demand for public hunting and recreation space, the deterioration of water quality of Story Creek and the loss of wildlife habitat. Further, it is not consistent with the recommendations for management of the area prepared for the Dane County Regional Planning Commission (Bedford, et al. 1974).

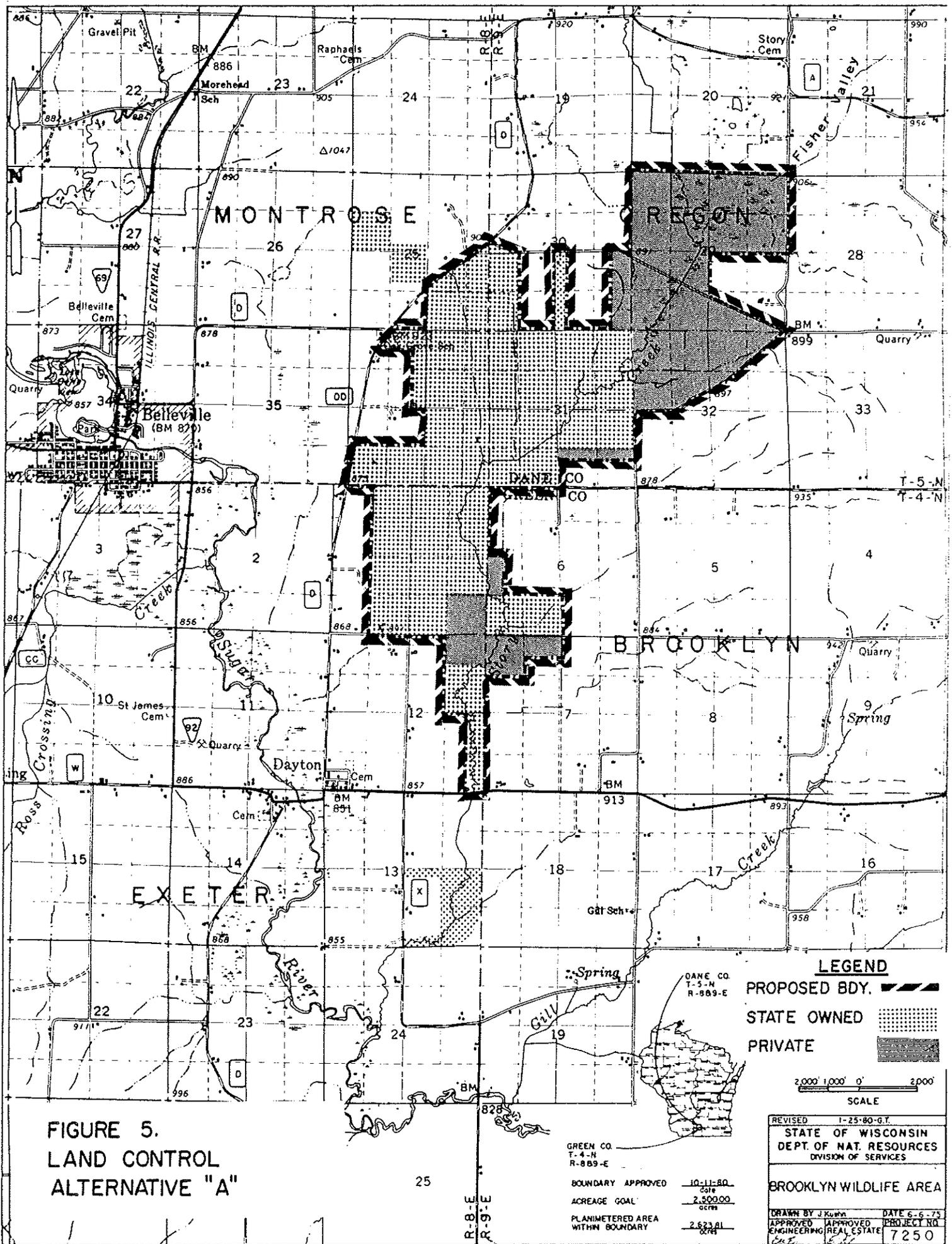


FIGURE 5.  
LAND CONTROL  
ALTERNATIVE "A"

**LEGEND**

PROPOSED BDY.

STATE OWNED

PRIVATE

2,000' 1,000' 0' 2,000'

SCALE

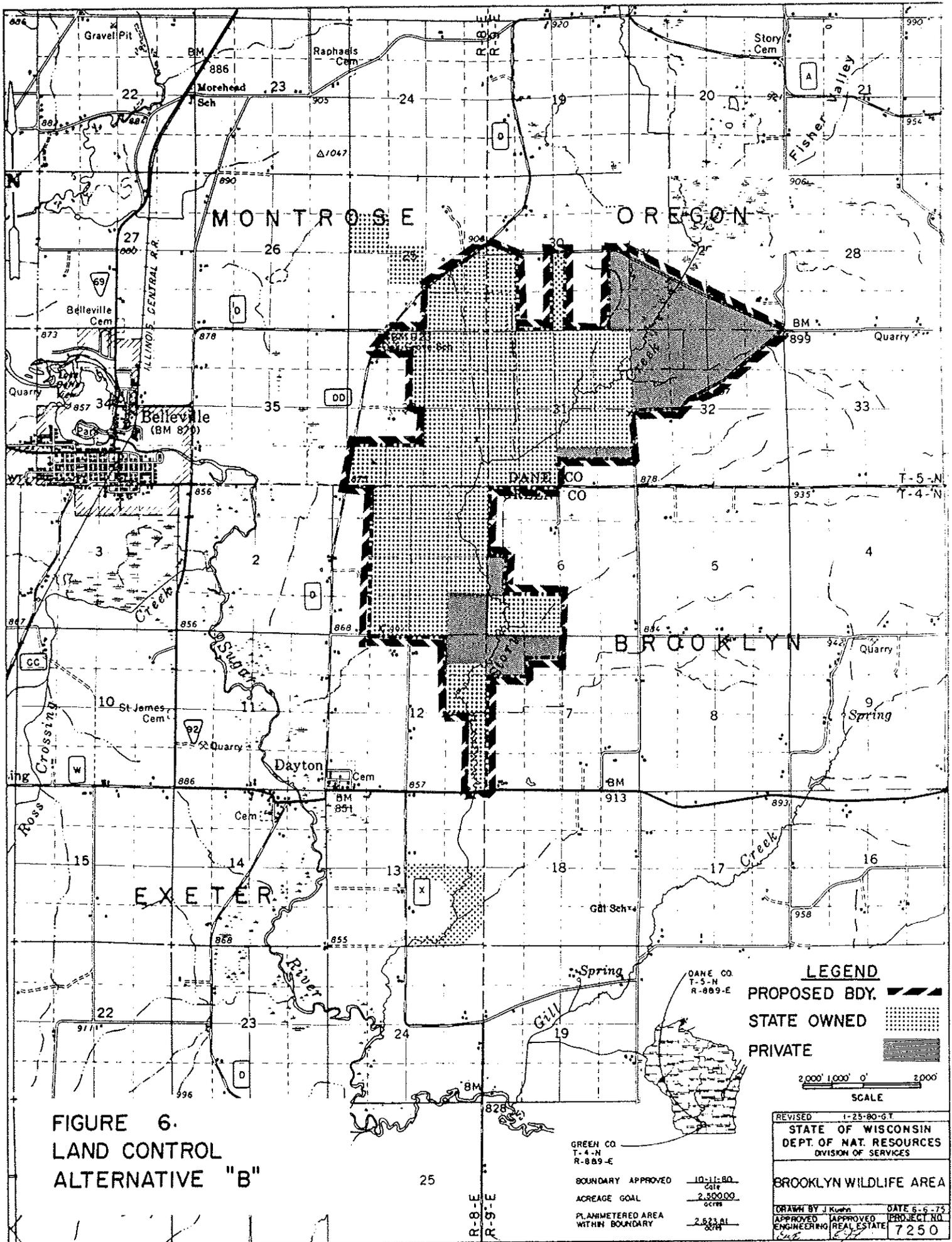
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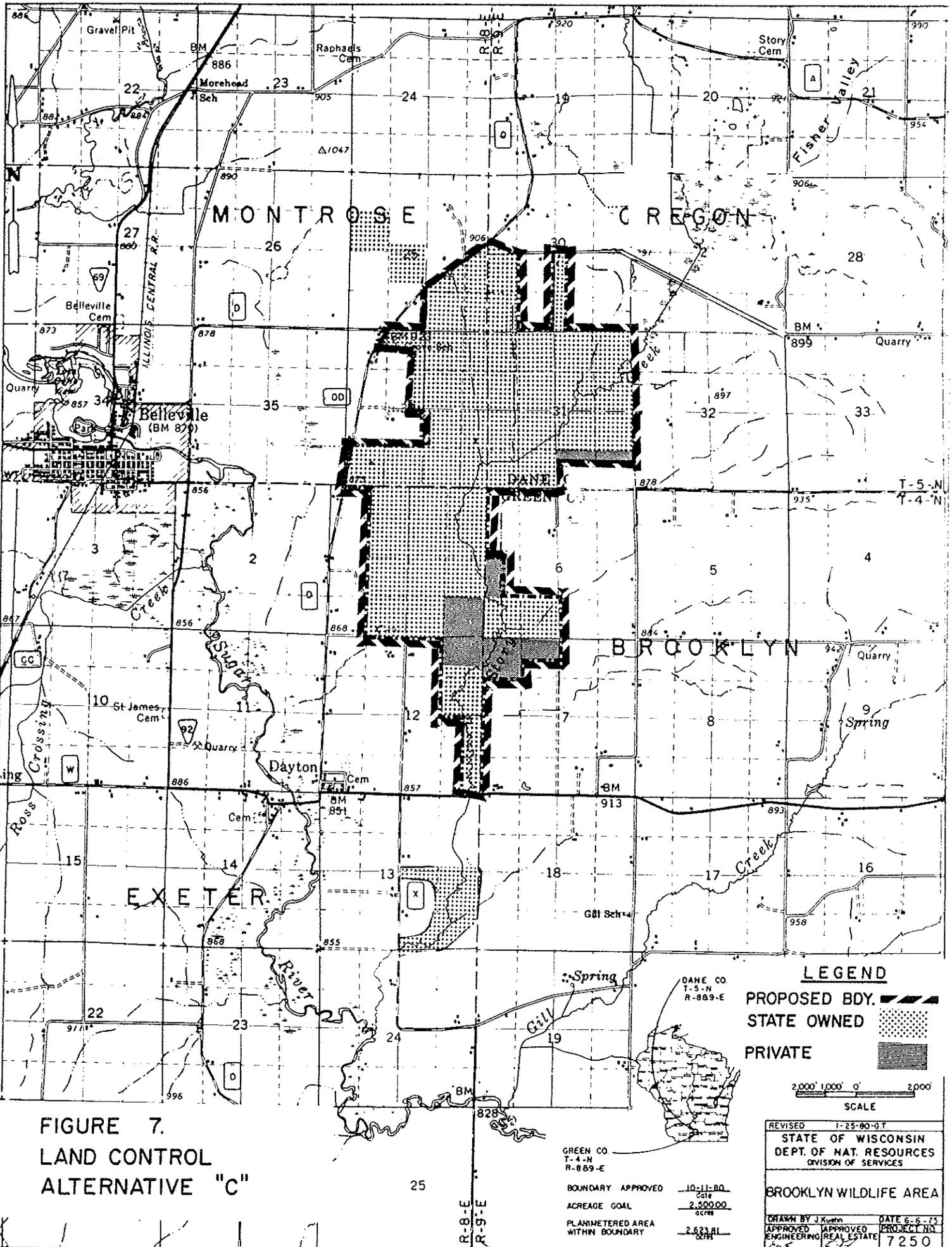
STATE OF WISCONSIN  
DEPT. OF NAT. RESOURCES  
DIVISION OF SERVICES

BROOKLYN WILDLIFE AREA

DRAWN BY J. Kuehn DATE 6-6-75  
APPROVED [signature] PROJECT NO.  
ENGINEERING (REAL ESTATE) 7250

GREEN CO. T-4-N R-889-E	BOUNDARY APPROVED	10-11-80 Date
	ACREAGE GOAL	2,500.00 acres
	PLANIMETERED AREA WITHIN BOUNDARY	2,623.81 acres





**FIGURE 7.  
LAND CONTROL  
ALTERNATIVE "C"**

25

U  
L  
O  
C

GREEN CO.  
T-4-N  
R-889-E

BOUNDARY APPROVED 10-11-80  
DATE 2516

ACREAGE GOAL 2,900.00  
ACRES

PLANNED AREA WITHIN BOUNDARY 2,823.81  
ACRES

**LEGEND**

PROPOSED BDY. 

STATE OWNED 

PRIVATE 

2,000' 1,000' 0' 2,000'

SCALE

REVISED 1-25-80-G.T.

STATE OF WISCONSIN  
DEPT. OF NAT. RESOURCES  
DIVISION OF SERVICES

**BROOKLYN WILDLIFE AREA**

DRAWN BY J. Kuehn DATE 6-6-75

APPROVED PROJECT NO. 7250

ENGINEERING REAL ESTATE

#### Alternative D

This alternative would result in a modification of the current property boundary (Figure 8). The new boundary would also exclude lands in the northeast portion of the wildlife area. Four areas would be added to the property: 1) 80 acres in Section 31, Town of Oregon, 2) 20 acres in Section 25, Town of Montrose, 3) 150 acres in Section 36, Town of Montrose, and 4) 100-acre fisheries corridor along Story Creek.

The fisheries corridor acreage would come from the Green County fisheries remnant program. The Department already owns 65 acres in this corridor. The acreage goal for this alternative would be 2,200 acres. The estimated cost to complete acquisition for this alternative, based on 1984 land costs, is \$750,000.

The additions would improve the diversity of habitats on the property, provide for greater flexibility in upland habitat management, provide additional lands for public hunting and trapping and prevent the continuation of rural development encroachment.

The deletions would save money for the Department, but would preclude the restoration of wetlands, subsequent improvement of the water quality of Story Creek and protection of the headwaters of one branch of Story Creek.

Participant-days of pheasant hunting would be approximately 3,000 days and other hunting would be 1,500 participant-days. Participant days of fishing would be 2,800. However, the number of participant days could be increased by at least 15% if the Department secured long-term public hunting and fishing leases on the lands to be deleted. Participant-days of other recreation would be about 1,500 under this alternative, even if public hunting and fishing leases were secured on the deletions in Sections 29, 30 and 32, Town of Oregon. With or without public hunting leases, a reduction in pheasant stocking from its present level would be required.

This alternative will not maximize the use of the property both in terms of wildlife management and public use. Further, this alternative does not correct the continuing deterioration of water quality of Story Creek, nor does it address fully the problems of increased demand for public fishing, hunting, trapping and other recreation close to major population centers. Finally, it is not consistent with the recommendations for management of the area prepared for the Dane County Regional Planning Commission (Bedford, et al., 1974). The securing of long-term public hunting and fishing leases would mitigate some of the negative aspects of this alternative.

#### Alternative E

Alternative E would result in a property as shown in Figure 9, with an acreage goal of 2,990 acres. This alternative includes the 100-acre fisheries corridor to the south of Highway 92. Estimated cost to complete acquisition for this alternative, based on 1984 land costs, is \$170,000. The acreage

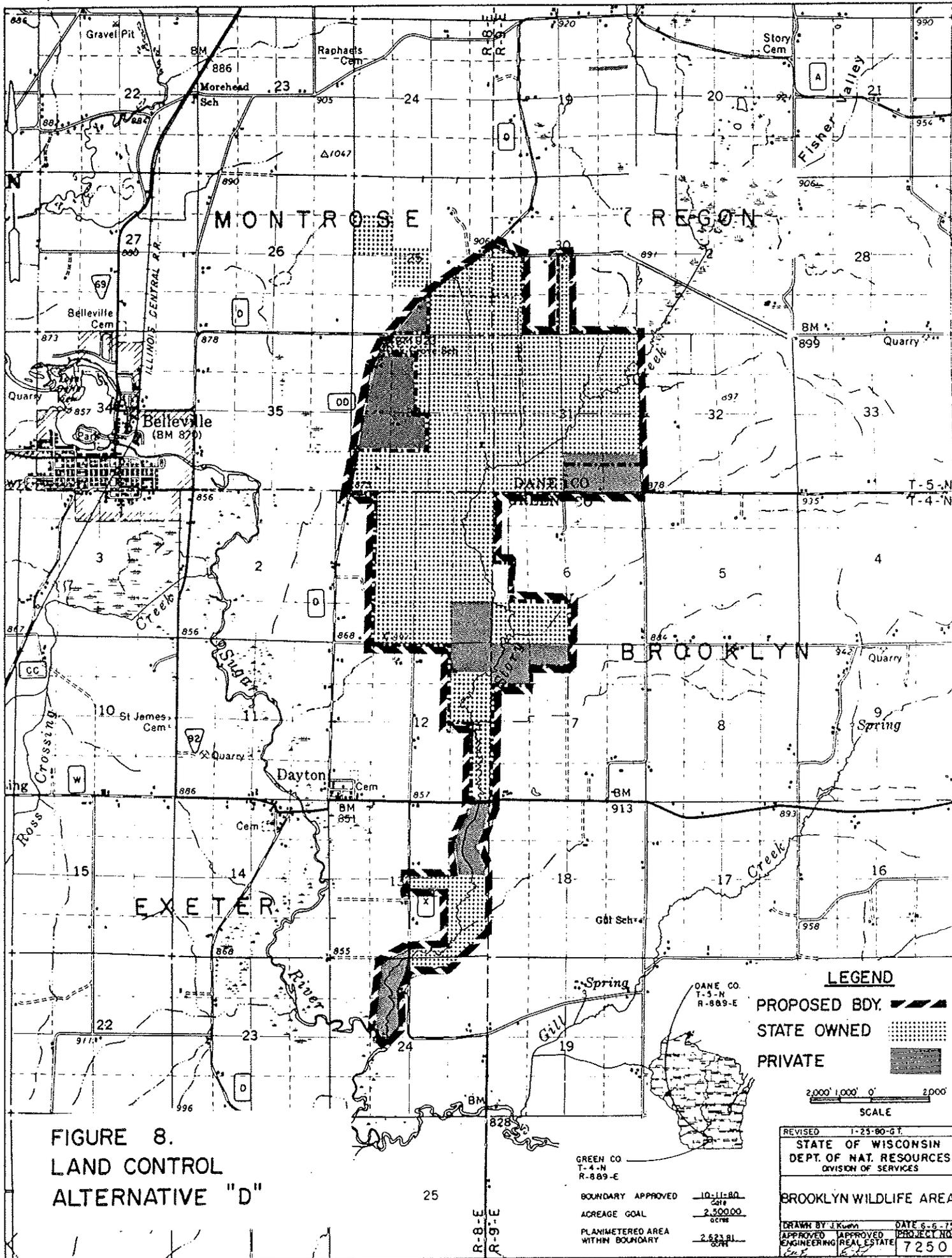


FIGURE 8.  
LAND CONTROL  
ALTERNATIVE "D"

25

GREEN CO.  
T-4-N  
R-889-E

BOUNDARY APPROVED 10-11-80  
2419  
ACREAGE GOAL 2,300.00  
ACRES  
PLANIMETERED AREA  
WITHIN BOUNDARY 2,523.81  
ACRES

**LEGEND**

- PROPOSED BDY.
- STATE OWNED
- PRIVATE

2,000' 1,000' 0' 2,000'  
SCALE

REVISED 1-25-80-G.T.  
STATE OF WISCONSIN  
DEPT. OF NAT. RESOURCES  
DIVISION OF SERVICES  
BROOKLYN WILDLIFE AREA  
DRAWN BY J. Kuehn DATE 6-6-75  
APPROVED APPROVED PROJECT NO.  
ENGINEERING REAL ESTATE 7250

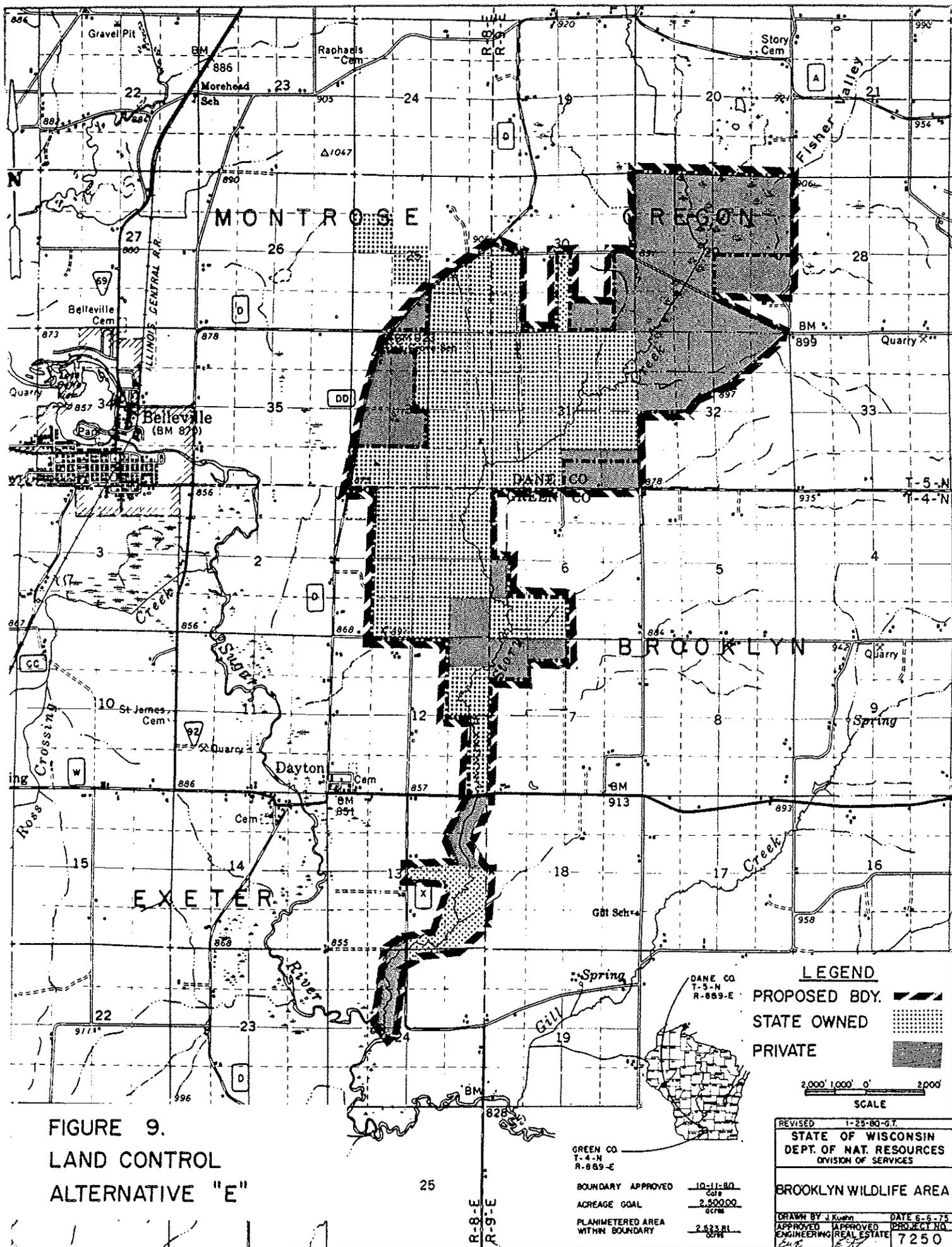


FIGURE 9.  
LAND CONTROL  
ALTERNATIVE "E"

**LEGEND**

PROPOSED BDY. 

STATE OWNED 

PRIVATE 

2,000' 1,000' 0' 2,000'

SCALE

REVISED 1-23-80-G.T.

STATE OF WISCONSIN  
DEPT. OF NAT. RESOURCES  
DIVISION OF SERVICES

**BROOKLYN WILDLIFE AREA**

DRAWN BY J. Kuehn DATE 6-5-75  
APPROVED BY [Signature] PROJECT NO. 7250  
ENGINEERING REAL ESTATE

GREEN CO	10-11-80
T-4-N	acre
R-889-E	2,500.00
BOUNDARY APPROVED	10-11-80
ACREAGE GOAL	2,500.00
PLANNIMETERED AREA	2,522.81
WITHIN BOUNDARY	acre

25  
R-8-E  
R-9-E

for the fisheries corridor would also come from the fisheries remnant program in Green County. This alternative includes the addition of 390 acres of wetlands and uplands needed to optimize protection of the water quality of Story Creek and provide additional nesting cover for pheasants and nongame species of wildlife, thus optimizing wildlife production of the property.

This alternative addresses the current and projected demand for public hunting, fishing, trapping and other compatible recreational activities. Further, it recognizes the need for expanded recreational facilities close to population centers resulting from the spiraling cost of energy.

This alternative requires the largest investment in terms of acquisition dollars and future maintenance costs. Funding may not be available during periods of economic stress, priorities may have to be modified or purchases may have to be delayed if this alternative is chosen.

#### Selected Alternative

This alternative is presented in Figure 2 and has an acreage goal of 2,760 acres and is a compromise between alternatives D and E. Cost to complete acquisition for this alternative, based on 1984 land costs, is \$1,120,000.

This alternative permits intensive management of the property. It provides a mixture of vegetation and land use which benefit farm game species of wildlife. It also affords protection to the trout waters and the headwaters.

Public hunting leases will continue to provide important hunting opportunities for the wildlife area. However, because of the short-term nature of the lease period (one year) and unpredictability of landowner participation, retaining existing and obtaining additional leases will be difficult. If the lease objective cannot be achieved, pheasant stocking levels would be reduced, posting expenses would decrease, and a decline in hunting quality would occur because of crowding on a more limited hunting area.

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