



# Leidy Lake State Game Area Master Plan :



Photo of Leidy Lake State Game Area January 16, 2004 from north looking south

---

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES**

**WILDLIFE DIVISION**

**KENNETH S. KESSON**

12/03/2015

## Intended Purpose and General Management Direction

In 1947 the State of Michigan purchased what is now known as Leidy Lake State Game Area (SGA). The 107-acre property was originally designated as a wildlife sanctuary. At that time up to 5,000 geese were reported using the lake as a stop-over area during spring migration. Given this fact, it was determined that this parcel in association with the private land around the lake would make a suitable wildlife sanctuary and on Sept. 15, 1955, Gerald E. Eddie, Director of Conservation signed an order stating "in order to prevent disturbance of the geese... State-owned land adjacent to Leidy Lake... shall be posted against entry by any person."

Authority for establishing wildlife sanctuaries was given to the Natural Resources Commission in Act 184 of Public Act of 1929 with sanctuaries being dedicated for a period of 5 years, and then these areas are reviewed for renewal. The last time Leidy Lake SGA was dedicated as a sanctuary was 1984 by Acting Director of the Department of Natural Resources, John A. Scott. On August 31, 1989, the sanctuary status of the area expired and an attempt to rededicate the property as a sanctuary was unsuccessful in the late 1990's.

Since the sanctuary status no longer applies, the area is now managed as a State Game Area. Therefore, subsequent management of the area was changed to fulfill the Wildlife Division mission statement; that mission being, to enhance, restore, and conserve the State's wildlife resources, natural communities, and ecosystems for the benefit of Michigan's citizens, visitors, and future generations.

The goal for the area will be to manage for pheasants and other game species such as deer, woodcock, waterfowl and rabbits; as well as restoration of oak savanna. Therefore much of the area will be maintained in native grasslands and restored to oak savanna similar to the site's presettlement conditions. Since fire was historically the major ecological factor maintaining these communities, it will be considered the tool of choice for maintaining the vegetation on this Area. The Game Area will remain open to public use and there are no plans to expand facilities beyond their current state or to reapply for sanctuary status.

This master plan has been prepared for two purposes. It provides overall management direction for the Game Area and assures that the legal obligations for wildlife restoration and management are, or will be met, on the Area. Public input was considered in developing the plan, but this is not a consensus document.

## Background

At a local level, this plan helps fulfill goals and objectives of other higher level Department and Wildlife Division plans and initiatives. The Department goals (protect natural resources, sustainable recreation, strong natural resource-based economies, and strong relationships and partnerships), the Wildlife Division's Guiding Principles and Strategies (Goal 2-Manage habitat for sustainable wildlife populations, Goal 4-Increase public participation in hunting and trapping), More Bang For Your Buck concepts (outstanding pheasant, woodcock and turkey hunting, create outstanding small game hunting, and promoting high quality waterfowl

hunting), the Division's Southwest Regional Operational Plan, Southwest Region Habitat Guidance documents, and the Southwest Region Land Management Plan are all reflected in this master plan.

## Wildlife Species

Management efforts will focus on featured species and habitats that help meet our goals to provide quality hunting opportunities and our other public trust responsibilities such as restoring and managing high quality habitats that support biodiversity and improved wildlife viewing opportunities.

**Table 1.** A list of species or projects to be worked on during this planning period, reflecting opportunities for habitat or recreational management.

<b>Common Name</b>	<b>Featured Species</b>	<b>T&amp;E, SC Species</b>	<b>Climate Change Vulnerable</b>	<b>Management Opportunities</b>
Eastern Cottontail rabbit	<b>X</b>			<b>Brush piles, firebreak plantings &amp; shrub plantings</b>
Canada Goose	<b>X</b>		<b>X Moderate</b>	<b>Lake transitional zones, short grass savanna &amp; lake habitat</b>
Ringed-necked Pheasant	<b>X</b>			<b>Grassland and savanna management &amp; shrubs</b>
Eastern Bluebird	<b>X</b>			<b>Grassland and savanna management</b>
Eastern Meadowlark	<b>X</b>			<b>Grassland and savanna management</b>
White-tailed deer	<b>X</b>			<b>Grasslands management and shrub plantings</b>
Wild Turkey	<b>X</b>			<b>Grassland and savanna management &amp; shrub plantings</b>
Woodcock	<b>X</b>			<b>Transitional zone management &amp; short savanna plantings</b>
Wood duck	<b>X</b>			<b>Mast tree release &amp; shrub plantings</b>

Canada geese are the only featured species, listed in Table 1, which are predicted to be possibly climate change vulnerable; and the models suggest this may be moderate (Wildlife Division Report 3564). Canada goose use of the Leidy Lake complex has changed dramatically over the last few decades. Habitat management efforts at the SGA will continue to benefit this species; however, recreational opportunities for goose hunting are limited given there is not a public boat launch to the lake. Geese will likely use the surrounding crop fields for loafing and feeding

areas. Geese will continue to nest on Leidy Lake and stop over on the lake during migration periods.

### Existing Conditions

Most of the landscape around Leidy Lake SGA is in active agricultural production; primarily row crops resulting in large open areas with very little winter cover for wildlife. The St. Joseph River is located approximately 1 mile north of Leidy Lake. Here the river bottoms contain lowland hardwoods comprised of red maple, ash, and elm. Small woodlots and fencerows are scattered across the countryside consisting of mixed forests of sugar maple, American beech, cherry, hickory and oak species.

Current upland landcover at Leidy Lake consists mainly of native grass fields with approximately 70 acres being planted to tall grass prairie (Figure 1). The first planting was the field in the northwest corner of the property which was planted to a monoculture of switch grass in the 1990s; the remaining fields were gradually planted to native grasses after the turn of the century. The large central field historically was broken into hedge rows which were removed to reduce fragmentation for grassland birds; however, this footprint still exists and now consists of overgrown stumps and briars which provides good habitat for rabbits and other small game species. Swamp hardwoods and lowland brush are located along the shoreline and ditch with a small stand of hardwoods along the road on the west end of the property. The State ownership also includes 14 acres of the lake and about 10 acres of adjacent brush and marshland in the southwest corner of the lake.

Compared to other southern Michigan game areas, Leidy Lake SGA is quite small (only 107 acres) yet still consists of some unique cover types (Table 2) which provide valuable habitat for the species we are managing for (Table 1). Given the size and composition of the area, management goals are aimed at maintenance of existing prairie plantings and invasive species control.

**Table 2.** Current cover types on the Leidy Lake SGA.

<b>Cover type</b>	<b>Acres</b>	<b>Percent of Game Area</b>
Grassland	70	65
Brush	10	9
Forested	10	9
Marsh	3	3
Open Water	14	14
<b>Total</b>	<b>107</b>	<b>100</b>

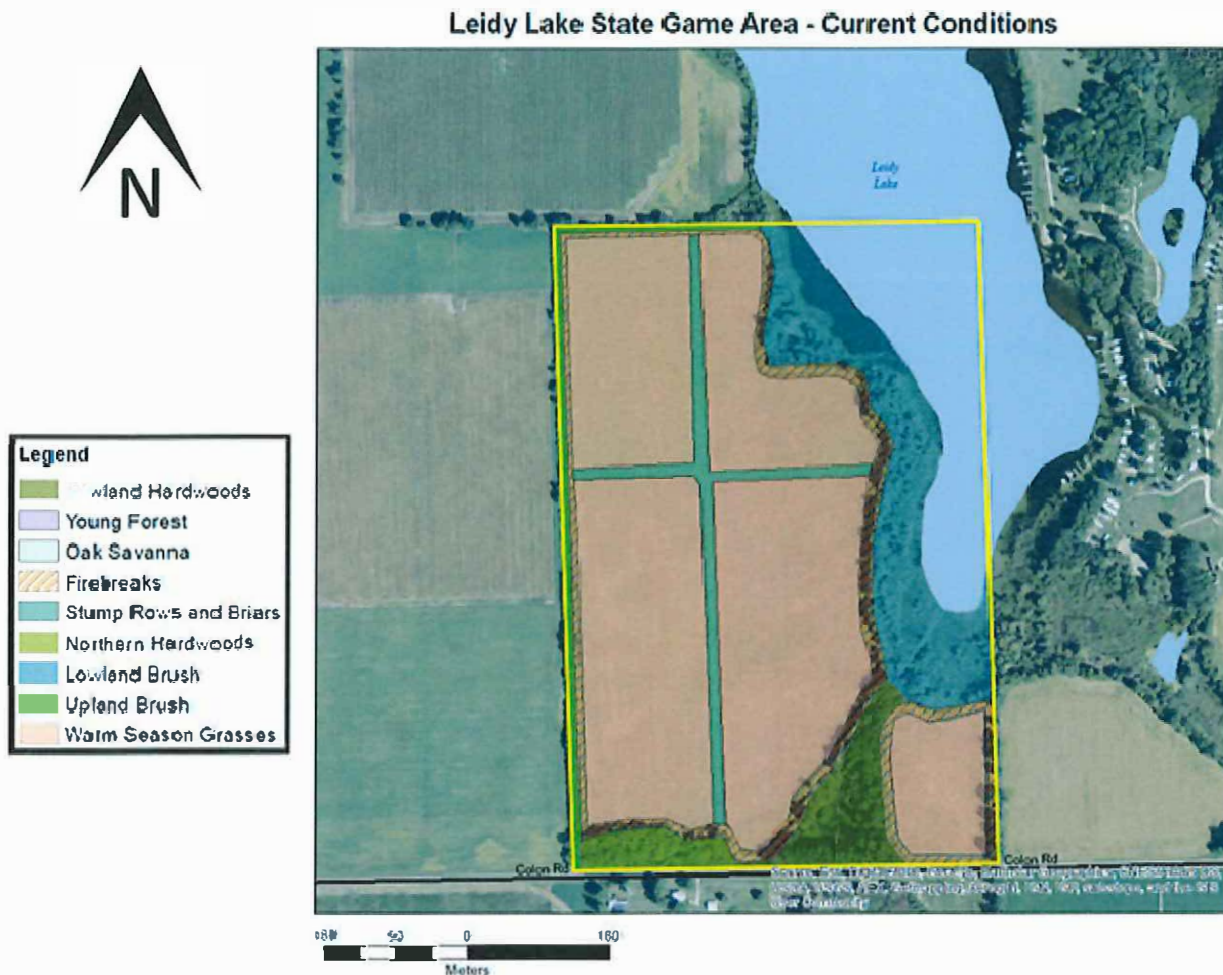


Figure 1. Map representing the major habitat cover types in the SGA.

## Recreational Use

Leidy Lake SGA provides a host of recreational opportunities for local residents and visitors alike, including hunting, trapping, bird watching and wildlife viewing. State game areas in southern Michigan are under continual pressure for other uses, however under Federal and State regulations, recreational and commercial uses on the area that are not incidental to our management for the purposes described above are generally not allowed. Some of these uses can be allowed, under the following circumstances:

1. The uses do not interfere or conflict with the wildlife conservation purposes of the area described above.
2. The Department has no obligations to determine if requested uses would conflict or interfere; the burden of determining must remain with those requesting the uses.
3. The requested uses cannot be exclusive of other allowable uses and must not result in the Department losing management control of any portion of the area.

4. A lack of a specific prohibition in rules and regulations for the area does not constitute approval of the activity.
5. The Department always reserves the ability to disallow activities previously allowed as wildlife conservation needs dictate.

Additionally, the Department will continue to monitor any existing commercial and recreational uses for interference with the intended purposes of the area as described in this plan. There are no plans to develop access sites, trails, a boat launch or other public use facilities on the Game Area.

## Impacts on the Local Economy

Contributions to the local economy result from hunters which provide a direct boost to local restaurants, sporting goods stores and convenience stores and gas stations.

## Management Direction

The desired future conditions for the Leidy Lake SGA are outlined in the following table (table 4) and illustrated in Figure 2.

**Table 4. Desired future condition of cover types and habitat issue direction on the Leidy Lake SGA.**

<b><i>Cover type and Habitat Issues</i></b>	<b><i>Desired Future Condition</i></b>
Oak forest component	Maintain
Northern Hardwoods	Maintain
Acres of Warm Season Grass	Slight Decrease
Oak Savanna with native grasses	Increase
Lowland Hardwoods	Maintain
Upland Brush	Maintain
Lowland Brush	Decrease

## Goals/Objectives/Actions

(listed as highest priority to lowest)

What follows is the strategic direction for the Leidy Lake SGA. This plan describes the **goals** or desired future condition for the area, the **objectives** under each goal, and the **actions** associated with each objective. For the purposes of this master plan, the following definitions will be used:

**Goal** A desired future condition of the area.

**Objective** A management approach or strategy that the best science suggests can be used to move the area toward the Goal. An objective is a quantifiable input to be completed within a defined timeframe that contributes towards accomplishing the goal.

**Action** An operational means to accomplish an objective. An action is a step needed to complete an objective and is described in sufficient detail to inform planning. An action is a quantifiable input to be completed within a defined timeframe that contributes towards accomplishing the objective.

## Desired Future Conditions

**Goal I:** Maintain a pheasant population on the property and enhance recreational opportunities for this species.

**Rationale:** Leidy Lake SGA is in a focus area for the Michigan Pheasant Restoration Initiative (MPRI). Ring-necked pheasants are a highly sought after game species and managing for this species' habitat needs will benefit numerous other wildlife species. Wild Turkeys and white-tailed deer are examples of game species that will benefit from actions taken under this goal. Meadowlark, grasshopper sparrow and prairie voles are examples of non-game species that will benefit from management implemented by actions under this plan.

**Metrics:** Staff observation, bird surveys, and user feedback.

**Objective A.** Enhance, manage and diversify existing grassland cover types for the benefit of pheasant and other upland gamebirds by 2025.

**Action 1.** Eradicate invasive Canada thistle from all grassland areas and reintroduce native forbs once eradication efforts are complete.

**Action 2.** Implement prescribed disking and prescribed fire to manage succession of the grassland areas on a rotational basis.

**Action 3.** Treat old fence line areas that bisect the prairie units to remove any secondary tree growth as needed over the life of the plan.

**Action 4.** Coordinate rotational prescribed burns on grassland stands on an annual basis. If a prescribed burn cannot be completed within a 4 year period, disk 1/3 of the burn units in the late fall, and continue this practice of disking 1/3 of the grassland burn units on a 4 year rotational basis (a rest on year 4) until such time as prescribed fire can be implemented into the management regimen. Fall disking may include over seeding of forbs, may vary in intensity, will be based on site conditions, and will be supplemented with early spring mowing and herbicide application as needed. Develop a proposed burn timetable /

disking schedule by fall of 2016, and update the management schedule annually.

**Objective B.** Increase brood rearing habitat and maximize habitat suitability for pheasants on a minimum of 10% of grassland acres per year. Certain practices may be sufficient for multiple years depending upon the treatment, and professional observations. This objective will be reviewed and implemented on an annual basis as needed.

**Action 1.** Install firebreaks and brood rearing strips around perimeter of the grassland areas and in areas in the middle of grass cover in strategic locations. Warm season food plot plantings such as corn, sunflowers, and sorghum will be primarily used to achieve this objective. Such plantings may be fallowed for up to three years depending upon continued suitability for brood rearing habitat.

**Action 2.** In dense grass stands with less than 15% bare soil, offset disking will be used, and may be substituted for crop plantings when feasible. This practice will be used to encourage forb regeneration and increase bare soil components. Broadcasting of wildflower seed may supplement disking practices where forbs are not present within the existing stand.

**Objective C.** Enhance winter cover for game birds and provide increased mast foraging opportunities using native species by 2025.

**Action 1.** Hedgerows lining the area will be treated to remove and eliminate invasive autumn olive, bush honeysuckle, buckthorn and multiflora rose as needed. Areas with thick invasive brush may need to be treated for multiple years to ensure sufficient levels of control.

**Action 2.** Shrub lines that are eliminated through treatment to eradicate invasive species will be replanted into native shrubs and corridors to provide food and cover for wildlife. Only native, soft mast producing, shrubs will be used to develop these areas, with a minimum of four native species being used to provide diversity, sustainable mast production and minimize the impacts of possible disease.

**Action 3.** In select locations soft edge enhancement via, hinge cutting, downed tree practices and strategic cut back practices may be used to enhance winter cover and create brushy transitional zones.

**Goal 2:** Restore and manage for oak openings and savanna complex in the southeast portion of the Game Area. Restoration plantings and initial management actions will take place by 2025.

**Rationale:** Oak savannas are globally rare ecosystems and have been identified as a priority for restoration and management in the SW Michigan Region. Many game and non-game wildlife species use savanna type habitat for survival. Featured savanna species that will likely benefit from this type of management include: red-headed

woodpecker, wild turkeys, whitetail deer, prairie vole, cottontail rabbit and eastern fox squirrel.

**Metrics:** Staff observation, bird surveys, plant surveys, and user feedback.

**Objective A.** Restore native savanna vegetation in the 10 acre unit in the SE corner of the SGA (see figure 3). Site will be planted and will be managed for savanna by 2025.

**Action 1.** Eradicate invasive Canada thistle and non-native plants from 10 acre savanna management area in preparation for future seeding. Use cover cropping and food plot practices for 3-4 years to prepare the site for seeding of high quality restoration mix.

**Action 2.** Plant the savanna management area following site preparation (see action 1 above). Restoration mix shall consist only of native Michigan savanna species and be from great lakes region genotype seed.

**Action 3.** Identify and release large, open grown white and burr oak by removing competing trees and adjacent saplings.

**Action 4.** Plant central island area to sapling burr and white oak.

**Action 5.** Install a fire break around the perimeter of the savanna unit and the central island to protect the area from fire. Fire breaks will be managed as outlined in Goal 1, Objective B.

**Action 6.** Implement a prescribed fire management schedule to manage savanna vegetation 5 years post establishment of the restoration plantings. Use strategy as outlined in Goal 1, Objective A, and Action 4 with a strong preference for fire.

**Goal 3:** Conduct targeted enhancements on the SGA for game species such as deer, woodcock, waterfowl, small game and turkeys. Progress will occur on an annual basis with all practices being completed by 2025.

**Rationale:** Leidy Lake SGA historically was an important waterfowl area. Over time thick brush around the edge of the lake has reduced suitability for some types of waterfowl nesting and use. Deer, turkey and small game will benefit from focused management practices and by implementing such practices, we will increase user satisfaction and maximize recreational opportunities.

**Metrics:** Staff observations, bird surveys, and user feedback.

**Objective A.** Increase habitat suitability for waterfowl by enhancing transitional cover between the lake and the prairie area. Practices will be completed by 2025.

**Action 1.** Clear two, 50 foot wide strips of brush down to the lake's edge. This will provide easier transition for geese and puddle ducks and create valuable woodcock habitat. These areas will be installed in 2020 and

renewed every 5 years thereafter for the life of the plan to encourage an early successional state.

**Objective B.** Increase habitat suitability for rabbits and other small game species on the SGA (see figure 3). Practices will be completed by 2025.

**Action 1.** Plant 2-3 acres of perennials food plots such as clover and alfalfa along the old stump hedgerow areas which run through the middle of the grassland units. This will provide shooting lanes for hunters, valuable forage for rabbits and other wildlife and serve as a semi-permanent firebreak between the grassland units.

**Action 2.** Create a series of brush piles every 100 yards along the perimeter of the SGA through a series of workdays with volunteers and staff. Brush piles will enhance cover components and provide valuable shelter for rabbits and other small game species.

**Objective C.** Increase forage opportunities for deer, turkeys and waterfowl by enhancing mast producing potential of SGA. Practices will be completed by 2025.

**Action 1.** Plant 10-20 fruit trees along the transitional areas between forest and grassland on the SGA. There is a lack of soft mast in the area and this will enhance use by featured species.

**Action 2.** Identify and release 25-50 large, open grown white and burr oak, and encourage regeneration and maintenance of mast producing tree and shrub species in woody habitat throughout the SGA. This action item will be addressed in previous actions.

## Leidy Lake State Game Area - Future Desired Conditions



Figure 2. Leidy Lake desired future conditions.

## Project Location and Boundary

Leidy Lake State Game Area (SGA) is located in north east St. Joseph County, Colon Township (T6S, R9W), in Sections 5 and 6 (Figure 3). The Game Area is located approximately 5 miles from the towns of Mendon to the northwest, Leonidas to the northeast and Colon to the southeast. The larger cities of Kalamazoo and Battle Creek are within 25 miles of the area.

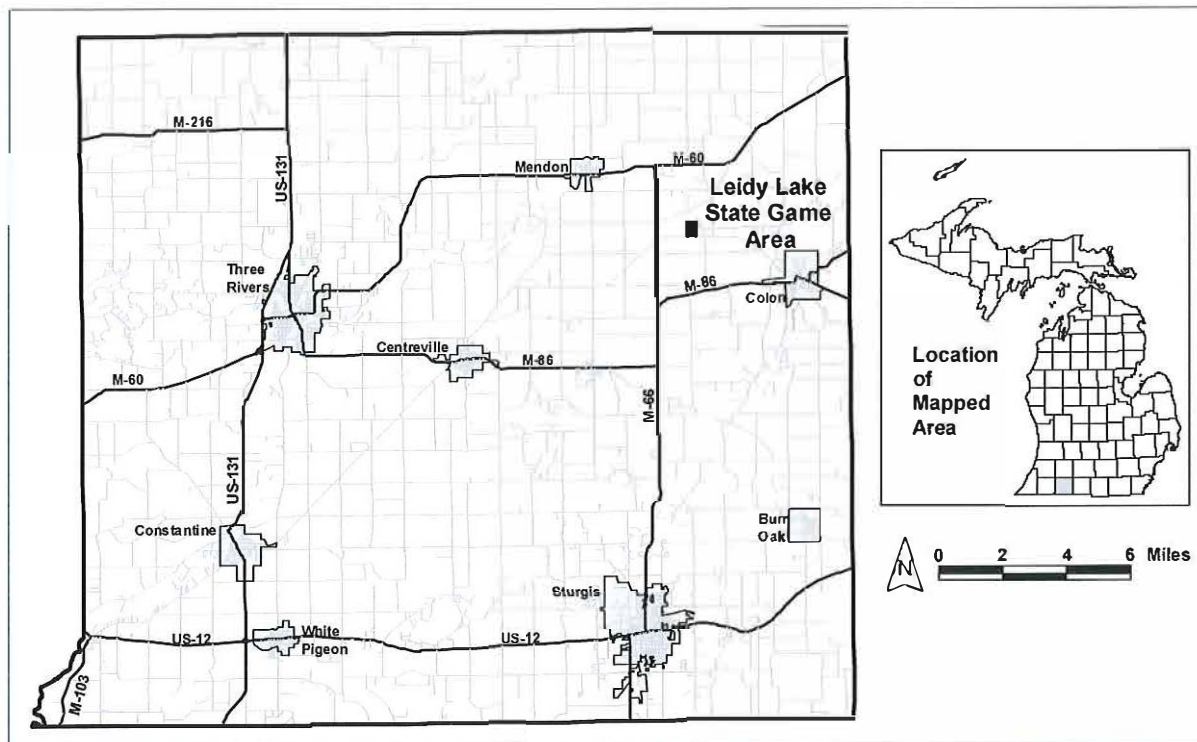


Figure 3. Location of Leidy Lake State Game Area

The project boundary for Leidy Lake SGA was updated in 2003 and approved by the Natural Resources Commission in 2004 (Figure 4). The new boundary identifies land that might be desirable for increasing the size of the current Game Area should the opportunity present itself for acquisition. The Wildlife Division draft Southwest Region land acquisition plan identifies Leidy Lake as a priority for expansion. Acquisitions are achieved on a willing buyer-willing seller basis. Acquiring the property within the proposed boundary would fully enclose the lake and associated wetlands. In addition, upland habitat could be protected and in some instances restored providing a sizeable amount of nesting and winter cover for wildlife.

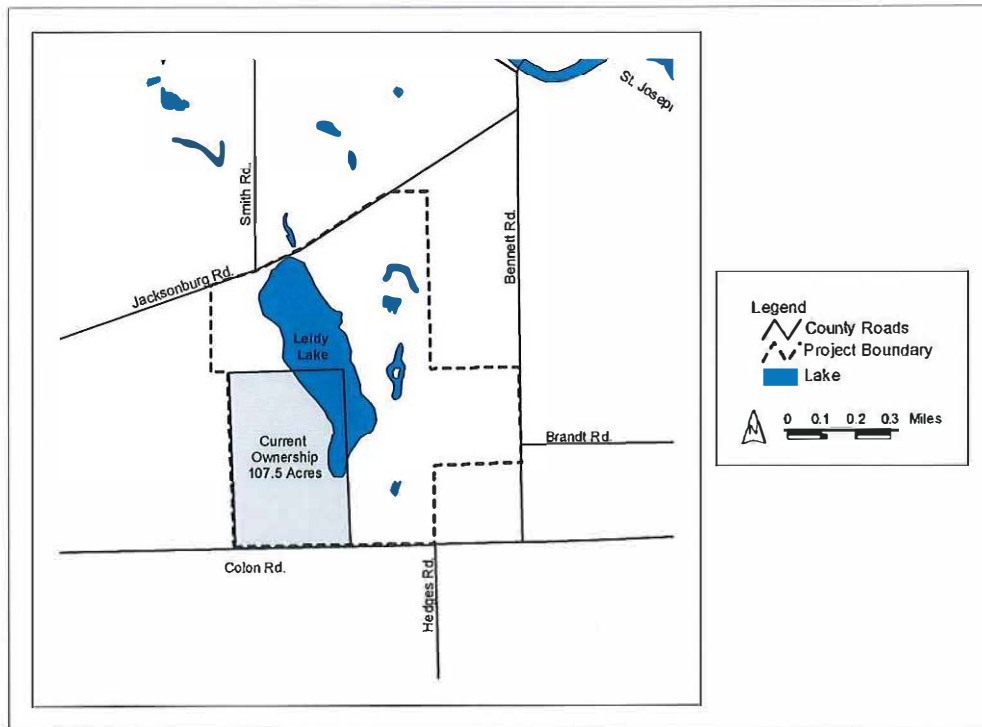


Figure 4. Leidy Lake SGA project boundary and current DNR land ownership

### ***Acquisition and Disposal of Land***

This is an important game area that provides a host of recreational opportunities for local resident and visitors. Our overall goal is to continue to provide these opportunities. Since the Leidy Lake SGA is located in southern Michigan, a part of the State where the DNR desires to expand recreational opportunities to public land, the land acquisition strategy for the Leidy Lake SGA is to expand State ownership by acquiring available parcels located within the acquisition boundaries. Parcels will be evaluated as they become available and will be acquired on a willing seller basis only.

### ***Public Input***

This plan was available for public review and comment on the DNR website between January 6, 2016 and February 6, 2016. During this period, 8 comments were received and considered before finalizing this plan. The final plan was approved on February 18, 2016 and will be reviewed within 10 years of the approved date.

# LEIDY LAKE STATE GAME AREA

ST. JOSEPH COUNTY, MICHIGAN



R. 10 W.

R. 9 W.

T. 6 S.

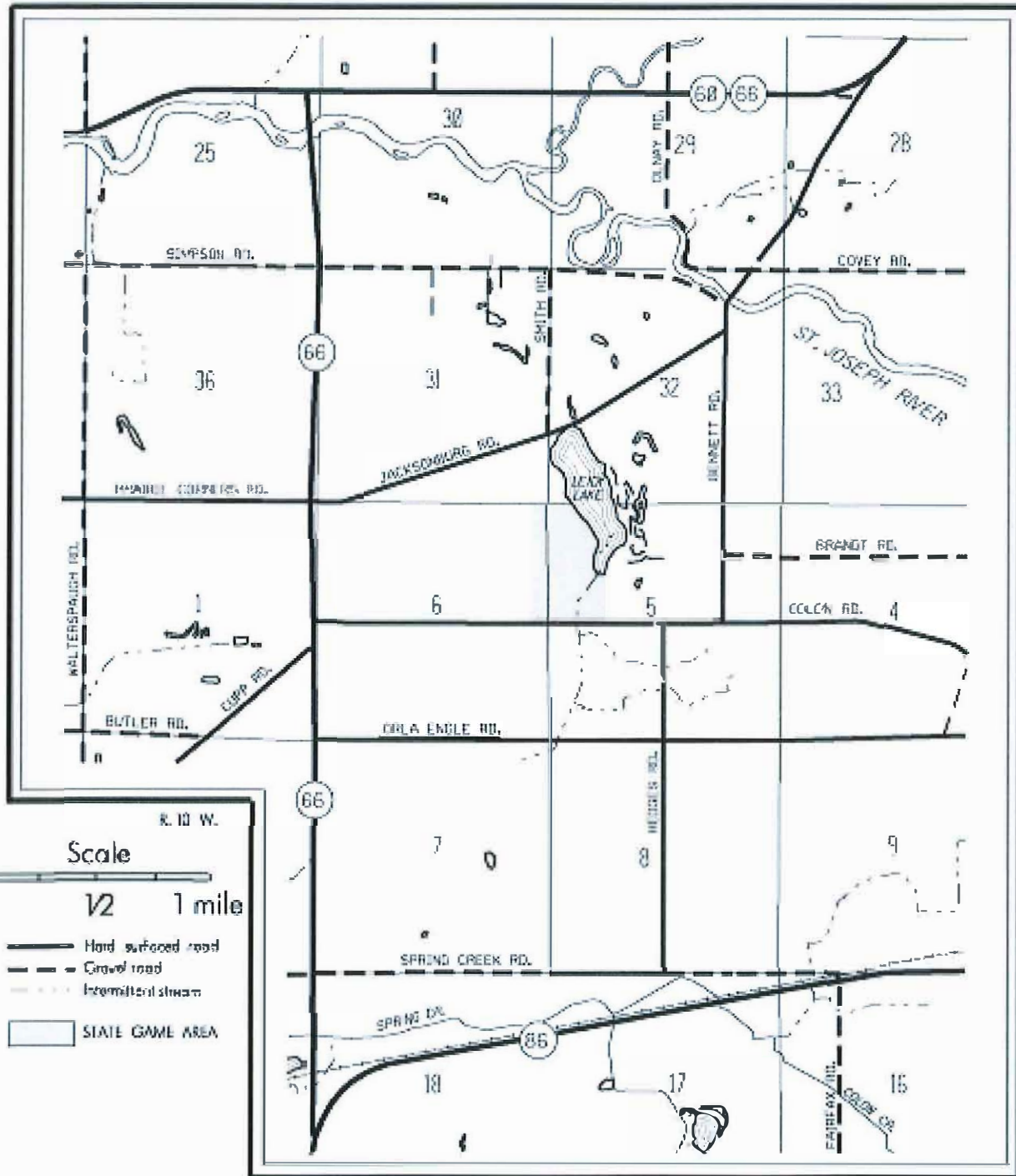
T. 5 S.

T. 6 S.

T. 6 S.

R. 10 W.

R. 9 W.



## Hunter Monies Made This Area Possible

LWH - Rev. 5/97 MAP 1209



## Approvals

	
(Mark Sargent), Field Operations Manager	Date
	
(John Nieuwoonder), Acting Regional Supervisor	Date