

Shiawassee River State Game Area Master Plan  
Michigan Department of Natural Resources



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**MICHIGAN**  
**DEPARTMENT OF NATURAL RESOURCES**  
**WILDLIFE DIVISION**  
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## Intended Purpose and General Management Direction

The historic intended purpose and general management direction of Shiawassee River State Game Area (SRSGA; hereafter, game area) has not changed compared to prior long-term management plans. As a result, the game area's historical information that follows in this section and in subsequent sections is adopted from the Shiawassee River State Game Area Strategic Plan (2003–2013; *author*: B. Avers):

The SRSGA was dedicated as a game area on May 9, 1951 with the acquisition of the 1,574 acre Sheldon tract in a Memorandum to the Michigan Conservation Commission (Appendix 1). Justifications for the purchase were given as flood storage under the Saginaw Valley Flood Control Plan (with the game area falling into the *Shiawassee Flats Critical Flood Storage Area*, DEQ<sup>1</sup>), exceptionally good wildlife habitat, and suitability for wildlife restoration and public use. The Michigan Department of Conservation (renamed Department of Natural Resources, DNR) and the U.S. Fish and Wildlife Service (USFWS) signed a cooperative agreement on July 19, 1955 for the Shiawassee Flats Wildlife Management Area that outlined acquisition of land, public hunting, joint cooperation on planning, development, operation of the project area, and flood control (Appendix 2). Because the Shiawassee Flats is a historically important waterfowl concentration area, the primary objective stated when the area was established was to provide a major refuge for waterfowl in the northern Mississippi Flyway and expand waterfowl hunting opportunities. The cooperative agreement stated that there would be "major efforts directed to waterfowl" and that "various other small game and deer must necessarily play a lesser role" but could "be encouraged on the upland periphery". Prior to its signing, the Conservation Commission approved this cooperative agreement October, 23, 1953.

Currently, 9,758 acres are under State ownership at the Shiawassee River State Game Area. Pittman-Robertson funds (PR) were used to purchase at least half of the acreage on the area. Other funds have included State Game Fund, a combination of Recreational Bond/PR, Michigan Land Trust Fund, special legislation or multiple funding sources. Because major portions of the game area were purchased for the purpose of wildlife restoration and management (i.e., with PR funds), restoration and management of wild birds and mammals, and provision for public use of wildlife resources are the primary management goals. Multiple use of the area is encouraged, provided it does not interfere with this primary purpose of wildlife management and habitat restoration. The USFWS is the agency responsible for the oversight of the PR Program.

<sup>1</sup>The entirety of the game area falls within the Shiawassee River 100-year floodplain, lying at the confluence of the Shiawassee, Flint, Cass, Bad, and Tittabawassee Rivers.

Each state receives an allotment or apportionment from these funds based on the size of the state and the number of licensed hunters within the state. PR funds are generated from taxes paid by hunters and shooters.

The game area has, through various land transactions, grown in size and currently spans 9,852 acres. Related to its intended purpose, the game area has special focus for the featured species that guide its habitat management (see *Wildlife Species* section); management for these species effectively addresses management for myriad species without jeopardizing the historic intended purpose of the area.

Since the establishment of the game area new Wildlife Division programs and priorities have understandably been put in place, with some expanding upon the game area's intended purpose. To fully exploit the historic intended purpose of the game area, managed waterfowl hunting was initiated in 1967, with a permit-only draw system instituted in 1975. While not setup during the establishment of the game area, managed hunting extended the game area's purpose and continues to ensure regulated, high-quality waterfowl hunting opportunities.

An example of the game area's expanded purpose is the incorporation of the [Michigan Pheasant Restoration Initiative](#) (PRI) goals into the area's purpose and value. Started in 2011, PRI is a collaboration between DNR and several partner conservation agencies to address declining pheasant habitat in priority regions of the state. Saginaw County, and thus the game area, falls within PRI's 'Pilot Focus Area'. Grassland restoration, and the retiring of some of the game area's agricultural acres, are a focus of PRI. Grassland management work does not fall outside of the intended purpose of the game area; expansive and diverse grasslands are dually beneficial to pheasants and ducks, providing high-quality nesting sites for upland nesting waterfowl. These grasslands directly support habitat management for two of the game area's featured species (mallard and American bittern, both upland nesters) and thus do not conflict with the game area's intended purpose.

This master plan is intended to be a 'step down' of management and operational plans that begin at the Department level. The Department is guided at the highest level by its mission statement:

*"The Michigan Department of Natural Resources is committed to the conservation, protection, management, use and enjoyment of the state's natural and cultural resources for and future generations"*

Which it achieves through the following goals (Evergreen Goals):

- Protect natural and cultural resources
- Ensure sustainable recreation use and enjoyment
- Enable strong natural resource-based economies
- Improve and build strong relationships and partnerships
- Foster effective practices and good governance.

Stepping this down and guiding the Wildlife Division are the Division's [Guiding Principles and Strategies](#) (GPS), an over-arching document that proactively prioritizes wildlife and habitat management while remaining adaptive in the adjusting of programs and priorities throughout

the plan's five-year cycle. Given the plan's five-year update cycle, compared to the ten-year master plan update cycle, this master plan will additionally remain adaptive to shifting Divisional and Departmental priorities while remaining true to the game area's intended purpose and management direction.

Stepping down from the GPS are regional operation plans; Shiawassee River State Game Area, being wholly contained within the jurisdictional bounds of Saginaw County (Figure 1), is a part of the Southeast Region and thus is guided by the Southeast Region Operation Plan. Parallel to the Southeast Region Operation Plan are regional habitat guidance documents that identify and prioritize habitat management needs at the regional level. These habitat guidance documents also highlight habitat deficiencies and challenges in the region that may be inhibiting successful management for game and/or wildlife area featured species at the game area level (*note: Southeast Region habitat guidance documents are currently being updated and will be linked to this master plan once they are completed*).

It is hoped that 50 to 100 years from now the game area will continue to be managed in fulfillment of its intended purpose. To ensure this, management will need to remain adaptive in scope as climate change impacts lead to more frequent and severe rainfall and drought events. To negate possible impacts of these events, and over the course of this master plan, the DNR will prioritize and proactively update water control infrastructure to increase resiliency towards increased occurrences of high watershed river flows. Conversely, this updated infrastructure will allow DNR to actively hold water and/or move water into marshes depending on objectives of management during times of summer drought. Properly functioning marshes will ensure that the game area continues to provide flood water storage for the greater Saginaw area and high-quality waterfowl hunting opportunities to ensure the continued fulfillment of the game area's historic intended purpose.



Figure 1. Location of Shiawassee River State Game Area (Saginaw County) in the State of Michigan.

## Background

At a local level, this plan helps fulfill goals and objectives stepped-down from higher-level Department and Wildlife Division plans and initiatives. Reflected in this plan, following this top-down hierarchy, are the Department's Evergreen goals, as previously listed above:

- Protect natural and cultural resources
- Ensure sustainable recreation use and enjoyment
- Enable strong natural resource-based economies
- Improve and build strong relationships and partnerships
- Foster effective business practices and good governance

Which are reflected in the Wildlife Division's Guiding Principles and Strategies, namely,

Goal 2 – Manage habitat for sustainable wildlife populations and wildlife-based Recreation.

Goal 4 – Enhance sustainable wildlife-based recreation use and enjoyment;

That it will achieve through priorities outlined in More Bang for Your Buck (initiatives that are an extension of a five-year hunting and fishing license fee increase that began on April 1, 2014) items of:

- Making Michigan regionally known for our great diversity of high-quality waterfowl hunting
- Bringing back quality pheasant hunting to Michigan,

and through the Division's Southeast Regional Operational Plan and Southeast Region habitat guidance documents. This master plan will be further stepped down to subsequently guide the game area's five-year and annual operation plans.

This plan acknowledges the game area's master and strategic plans that precede it; this plan is not meant to supplant the goals of those plans. This plan is meant to be an update to the game area's management direction as Department and Division priorities adapt to emerging issues, as the game area's user group composition changes, and as new habitat management information, especially as it relates to climate change impacts and invasive species, becomes available.

This master plan also acknowledges, and suitably steps down, species and habitat goals that occur in partner agency national, statewide, and regional plans. While this plan is not setup to directly address priorities included in partner-agency plans, the game area's management that is completed through this master plan can justifiably be linked to meeting priorities of higher-level partner agency plans. For example, wetland habitat management completed on the game

area fulfills goals set forth in the Southeast Region habitat guidance document focused on wetlands (in development), which itself addresses portions of the Upper Mississippi River and Great Lakes Region Joint Venture Waterfowl Habitat Conservation Strategy (2007) and Michigan’s North American Waterfowl Management Plan Implementation Strategy (Figure 2), which is the state-level step-down of the North American Waterfowl Management Plan (2012).



Figure 2. North American Waterfowl Management Plan – Michigan Implementation Strategy primary focus areas in the state of Michigan.

## Wildlife Species

The game area will use a ‘Featured Species’ approach to guide habitat management; the selected featured species (Table 1, below) not only provide recreational value to diverse recreational users but managing habitat for these species provides ideal habitat for myriad other game and non-game wildlife species.

The resilience of the game area’s managed habitats to climate change is currently unknown; structural and functional changes to these habitats could have negative impacts on the game area’s featured species. As a result of the unknown effects of climate change, the adaptability of featured species to possible habitat changes is also unknown. The Division will work with the



latest data and projections to adapt management practices to negate, to the degree possible, any negative effects that climate change may have on existing habitats.

Table 1. Shiawassee Rive SGA Featured Species.

<b>Featured Species</b>	<b>SGCN<sup>1</sup></b>	<b>CCV<sup>2</sup></b>	<b>Beneficial habitat</b>
<a href="#">Mallard</a>	No	No	Diverse wetlands adjacent to grassland
<a href="#">Wood duck</a>	No	No	Mature floodplain forests
<a href="#">Canada goose</a>	No	Yes	Emergent wetlands
<a href="#">White-tailed deer</a>	No	No	Hard mast forests adjacent to agriculture
<a href="#">Pheasant</a>	No	No	Diverse grassland complexes
<a href="#">American bittern</a>	Yes	Yes	Diverse wetlands adjacent to grassland

<sup>1</sup>Species of Greatest Conservation Need (from MDNR Wildlife Action Plan)

<sup>2</sup>Climate Change Vulnerable

The game area provides habitat for endangered species and species of special/greatest conservation need. Eastern fox snakes do occur on the game area. While not specifically managed for DNR takes caution when excavating and/or completing habitat improvement projects aimed at benefiting a featured species; this is because fox snakes will exploit areas where past habitat improvement projects have taken place (e.g., rip-rap placed as an erosion control measure provides ideal hibernacula and thermoregulation sites).

In managing for featured species the DNR will actively survey for, treat, and complete post-treatment monitoring of occurrences of invasive species found on the game area. Best management approaches for invasive species require early detection and rapid response. Priority invasive species that are found on the game area include common reed (*Phragmites*), flowering rush, buckthorn, garlic mustard and purple loosestrife. Purple loosestrife is not actively treated with herbicide; a host-specific beetle, *Galerucella sp.*, is used for biological control. As a result, occurrences of purple loosestrife on the game area, and in the region, ebb and flow with the *Galerucella* population (i.e., purple loosestrife will increase in prevalence when *Galerucella* populations are low, *Galerucella* populations will then increase and effectively reduce loosestrife prevalence, and *Galerucella* populations will then decline to track the decline in loosestrife). This population cycling occurs over several years but allows DNR to target treatment efforts on those species that do not yet have biological control mechanisms.

# Land Use/ Cover

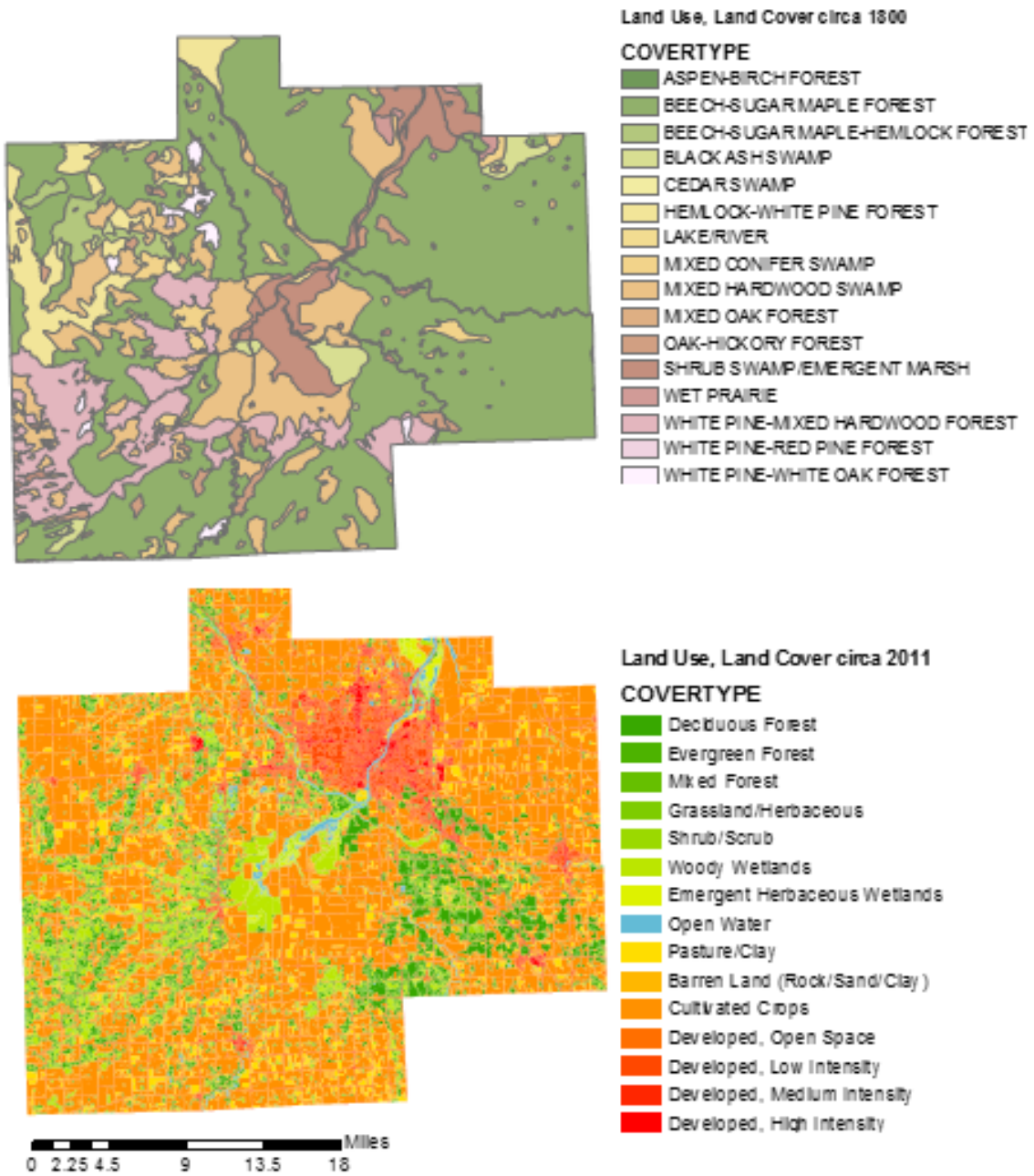


Figure 3. Historic (circa 1800) versus current (circa 2011) land use/land cover for Saginaw Co

The state of Michigan has experienced large, landscape-level changes in land use and land cover due to industrialization and advances in agricultural production. Figure 3 (pg. 9) illustrates the change in land use cover type over the last two hundred years; the game area is increasingly impacted by these changes. Management direction provided in this master plan is purposeful to ensure that these impacts do not negatively affect the game area, to the degree possible.

Habitats that comprise the game area can be generally lumped into four categories: 1) wetland, 2) floodplain forest, 3) upland/grassland, and 4) agriculture.

### ***Wetlands***

The game area contains roughly 3,000 acres of natural wetlands and numerous constructed wetland impoundments with management largely achieved through artificial water control. Those constructed and/or impounded wetlands that do not have the ability to be actively managed with water control act as ephemeral or semi-permanent pools, their status being dependent on seasonal snowmelt and rainfall. All of these wetlands provide for portions of the life cycle of four of the game area's featured species: mallard, wood duck, Canada goose, and American bittern.

### ***Floodplain Forest***

The game area contains about 3,400 acres of mixed-species forest. Active management outlined in this master plan will be address through the development of a forest management plan that will identify timber stands for harvest to aid in achieving mast-bearing tree retention and regeneration. Timber harvest promotes increased herbaceous food sources, cover, and an uneven-aged forest composition that maximizes usage by game species. Mature timber stands found in river bottoms on the game area directly support wood duck nesting cavities and will be maintained largely as-is with no active management; Appendix A contains a breakdown of acreage by forest cover type and age of stand.

### ***Upland/Grassland***

The game area contains roughly 650 acres of grassland made up of tall warm season plantings, short cool season plantings, and switchgrass plantings to provide robust winter cover. Due to a lack of active management over the past 10 years these grassland complexes have begun to exhibit succession with woody brush encroachment, with some also becoming invaded with invasive species, namely *Phragmites* and autumn olive; Appendix E shows the priority grassland blocks that occur on the game area and where DNR will focus management efforts over the course of this master plan.

## ***Agriculture***

Sharecropping is an important component of the annual operation of the game area. Sharecropping allows local farmers the ability to plant for-profit crops in upland portions of the game area in exchange for completing field preparation and planting of crops that are left as food plots in the portion of the game area that is flooded in the fall for waterfowl hunting. Over 1,000 acres of crops are planted annually through a sharecropping program; there are no major changes planned for the game area's sharecropping program.

## ***Recreational Use***

The game area incorporates a multitude of recreational use opportunities for hunters, fisherman, and non-consumptive recreational users alike:

- Hunting: waterfowl, deer, turkey, pheasant, other small game when they do not interfere with waterfowl or deer seasons.
- The game area's advisory group, the Shiawassee Flats Citizens and Hunters Association, annually contributes hundreds of volunteer hours towards maintenance activities; individuals interested in becoming more vested in the game area and its history are encouraged to join this important group on one of their numerous workdays. Association information can be found on their Facebook page by searching the organization's name.
  - This organization also hosts a mentored youth waterfowl hunt for the September youth waterfowl season. Youth hunters are hosted to educational programs, prize giveaways, and a lunch cookout.
- Trapping: after the conclusion of the general waterfowl season, the game area is open to furbearer trapping; interested individuals must acquire a free trapping permit from the Wildlife Division St. Charles Field Office.
- Due to the game area's juxtaposition at the confluence of several waterways, potamodromous species (i.e., those fish species that migrate from freshwater lakes into rivers and streams for spawning purposes), namely walleye and white sucker, offer ample fishing opportunities during appropriate times of the year.
- Boat Launches: the game area maintains three boat launches for direct access into the Bad River (two of three launches; one located at the Wildlife Division field office in St. Charles and one located south of the town of St. Charles off of Hulien Rd.) and Marsh Creek north of the game area off of Miller Rd.
- Portions of the regional Saginaw Valley Rail Trail bisect the game area and offer users an opportunity to exit the trail and explore several miles of levees that pass by grasslands, forests, and emergent wetlands. The game area is closed from Sept. 1 to Jan. 1 without proper hunting licenses or permit(s).
  - Over the next several years, continued regional trail development will connect the Saginaw Valley Rail Trail to the State-maintained Iron Belle Trail, which

extends from Detroit to the western U.P. on two routes, one eastern and one western.

- The game area, along with adjacent Shiawassee River National Wildlife Refuge, is a regionally important spring migration area for myriad waterfowl and neotropical migrants; Wildlife Division staff annually hold spring migration open house tours of the area. Interested parties should follow DNR press releases for information.

### ***Impacts on the Local Economy***

During a given year's hunting seasons, namely deer and waterfowl, the local economic impact that the game area contributes is substantial. Local restaurants and sporting goods stores document a month-over-month revenue increase of up to 25% during these hunting seasons, compared to when these hunting seasons are closed. While not directly measured, many hunters come from across the state, or even out of state, and stay at local hotels and motels, many of which are small family-run operations.

In addition to direct retail impact, and due to the game area's wildlife-focused management, there is an indirect economic impact through sharecropping over 1,000 acres of upland and impounded agricultural food plots. At the end of a given hunting season the resultant standing crops that are left as food plots in waterfowl hunting fields are placed out for bid harvest, with a local farmer being able to share in harvest revenues; the state's share of harvest revenues are ear-marked for habitat improvement projects on the game area.

To achieve Goal 5 of this plan, a timber management plan will be established that largely focuses on mast tree retention and regeneration. As a result, we will become more aggressive with timber harvest across the game area's 3,405 acres of forest. This will be accomplished through various timber sales that will add not only a direct financial contribution to the local economy but also improved ecosystem services to the communities that surround the game area.

## Management Direction

The desired future of cover types and habitat issues on Shiawassee River SGA are found in Table 2, below.

Table 2. Desired future condition of cover types and habitat issues located on Shiawassee River SGA

Cover type/habitat issue	Desired future condition
Intensively managed wetlands	Maintain/Increase
Emergent wetland openings	Increase
Passively managed wetlands	Maintain
Warm season grasslands	Maintain/Increase
Cool season grasslands	Maintain/Decrease
Agriculture	Maintain
Lowland forest	Maintain
Mast-bearing timber component	Increase
Softwood timber component	Decrease
Northern hardwood timber component	Increase

## Goals, Objectives, and Management Actions

**Goal** – A desired future condition or result for the area.

**Objective** – A management approach or strategy that can be used to move the area toward the goal. An objective is a **quantifiable** approach to be used within a defined timeframe, and often with geographic bounds, that contributes to accomplishing the goal.

**Action** – An operational means to accomplish an objective (i.e., what we are actually going to do on the ground). An action is a step needed to complete an objective and is described in sufficient detail to inform implementation in operational and annual work plans. It is expected to take approximately ten years to complete all the objectives.

**Goal I** is to manage existing, non-agricultural wetland complexes to ensure maximum productivity and associated year-round waterfowl value.

**Rationale:** 1) Impounded emergent and semi-permanent wetlands provide valuable nesting and brood rearing areas for local-nesting waterfowl and waterbirds; 2) appropriately managed diverse wetlands provide for all life cycle stages of game area featured game species wood duck and mallard and non-game featured species American bittern; 3) Michigan Natural Features Inventory lists several species of special concern for Saginaw County that, while not specifically managed for, will benefit from the game area’s wetland management (e.g., black tern, tundra swan, northern harrier, American bittern, Blanding’s turtle, bald eagle); 4) large-scale

infrastructure improvements over the past decade, with significant grant matching contributions coming from partner conservation agencies, namely the Shiawassee Flats Citizens and Hunters Association, have expanded the ability to appropriately and actively manage existing impounded emergent wetlands.

**Metrics:** Waterfowl usage during the non-hunting season (i.e., use for brood-rearing and spring migration stopover), waterfowl harvest and hunter trips during the hunting season, and element occurrences of non-game special concern species.

**Objective A** is to manage existing wetlands to maximize productivity of native emergent and moist soil plant species (i.e., hemi-marsh) and to provide important brood-rearing habitat for local nesting waterfowl and to increase fall usage by waterfowl and associated waterfowl hunting potential.

**Action 1.** Develop and finalize a draw-down schedule for all impounded marsh units by 2017 (required infrastructure maintenance will be scheduled to coincide with drawdowns).

**Action 2.** Annually draw down a portion (with a target of 1/3 of the non-agricultural wetland acreage) of the game area's impounded wetland with timing dependent on management object at a rate of no more than 4 inches per day. Begin re-flooding units no sooner than 15 August and no later than 15 September at a rate of 2-4 inches per day, taking into account seed maturity of desirable moist soil plant species, with a goal of reaching 'full pool' stage by the end of October.

**Action 3.** Collaborate with DNR aquatic invasive species strike teams and the Saginaw Bay Cooperative Invasive Species Management Area to annually survey units for presence and/or persistence of non-native animal and vegetative invasive species that may be displacing native species; treat accordingly.

**Action 4.** Replace aging and/or failing water control/conveyance structures (i.e., replace screw-gate structures with stop-log structures) to maintain and enhance water management capability.

**Action 5.** Mow and herbicide all woody encroachment in uplands, non-impounded emergent and ephemeral wetlands by 2018.

**Action 6.** In 2017, implement [Integrated Waterbird Management and Monitoring](#) protocols to track annual waterfowl and waterbird usage, correlated to annual presence and changes in emergent and submerged aquatic vegetation.

**Objective B.** Reclaim existing impounded marsh openings that have become overgrown with monoculture stands of non-native, narrow-leaved cattail to increase likely waterfowl use and associated high-quality waterfowl hunting potential.

**Action 1.** Identify and focus marsh openings efforts on areas that historically contained openings, especially where those openings identify specific waterfowl hunting zones.

**Action 2.** Where possible, annually adjust water levels to aid in management geared towards promoting and maintaining marsh openings.

**Action 3.** Annually identify areas for aerial herbicide application to expedite openings creation.

**Action 4.** When and where possible utilize prescribed fire to reduce standing dead biomass; follow with water level manipulation to drown cattail when possible.

**Goal II** is to maximize high-quality, diverse waterfowl hunting opportunities.

**Rationale:** 1) Shiawassee River State Game Area is one of the Michigan Department of Natural Resources–Wildlife Division’s seven Managed Waterfowl Hunt Areas in Southern Michigan. This area supports thousands of waterfowl hunter user trips annually and supports Michigan’s Waterfowl Legacy program; 2) Due to the Game Areas’ 1,325 acres of waterfowl refuge, and proximity to the 9,800 acre Shiawassee National Wildlife Refuge, the Game Area is a regionally-important spring and fall migration stopover area for tens of thousands of waterfowl and migratory waterbirds; 3) the Game Area offers diverse waterfowl hunting opportunities in impounded emergent marsh, upland agriculture fields and impounded flooded agriculture fields.

**Metrics:** Trends in annual hunter trips, waterfowl harvest and weekly waterfowl refuge counts completed annually from 1 September to 31 December.

**Objective A** is to work collaboratively with sharecroppers to ensure high-quality grain food plots are planted, maintained and harvested in a timely manner in fall-flooded and upland agricultural units.

**Action 1.** Annually complete detailed sharecrop agreements that meet DNR and sharecropper objectives while acknowledging agricultural crop and soil health best practices.

**Action 2.** Limit unneeded and/or redundant plowing practices to promote soil and crop health and reduce sediment runoff potential.

**Objective B** is to maintain water conveyance infrastructure to ensure timely flooding of impounded agricultural hunting units, to allow for appropriate de-watering capability prior to spring planting activity and to mitigate and/or reduce flood-related infrastructure damage.

**Action 1.** Strategically review aging and redundant infrastructure (e.g., levees, pumping stations and tube and stop-log water control structures) and develop a prioritized replacement schedule by the end of 2017.

**Action 2.** Pursue and/or apply for adequate funding sources to replace large-scale water control structures and infrastructure (e.g., pumping stations, flood gates, water supply and drainage ditches).



**Action 3.** Critically address flooding potential of spring melt and large rainfall runoff events and proactively adjust water control infrastructure as needed (i.e., allow marsh and, if needed, impounded agricultural field inundation) to mitigate, to the degree possible, flood-related damage.

**Action 4.** Annually inspect 40+ miles of levee and repair sloughing and/or collapses in a timely manner, remove woody vegetation, maintain grades and mow to promote and ease recreational access.

**Objective C** is to evaluate effective and efficient permit drawing procedures to allow for equitable hunting opportunities for single and party hunters

**Action 1.** Work with area stakeholders to review and update, if needed, area- and region-specific regulations and drawing procedures every three years.

**Goal III** is a sustainable, healthy deer herd, cooperatively managed with Shiawassee National Wildlife Refuge that provides ample hunting opportunity without negatively impacting habitat.

**Rationale:** 1) White-tailed deer are the most pursued and managed game species in the state of Michigan; 2) White-tailed deer are a featured species for the Game Area; 3) State and Federal public land that comprise Shiawassee River SGA and Shiawassee NWR, respectively, form the boundaries of Deer Management Unit 273, an area of intensive deer management that seeks to balance hunter satisfaction while reducing crop damage in this agricultural-dominated region; 4) managing the deer herd in balance with available habitat will benefit myriad game and non-game wildlife species, especially [wild turkey](#).

\*Deer Management Unit 273 is a special hunt available by pre-application only; application and regulation information associated with DMU 273 hunts can be found on the DNR website's [deer hunting information page](#) by selecting [Shiawassee deer hunt information \(DMU 273\)](#) under the Special Information section.

**Metrics:** Hunter satisfaction and harvest quantified through an annual post-hunt harvest survey, deer herd numbers estimated through a twice-annual winter aerial survey, amount of summer crop damage and fall deer management assistant permits issues regionally.

**Objective A:** Manage the DMU 273 post-hunt deer population to between 600 and 800 animals, a level that minimizes impacts of crop damage and over-browsing on desirable forest species regeneration while still allowing ample harvest opportunities for those hunters drawn for Deer Management Unit 273.

**Action 1.** Twice per winter, after a given year's deer seasons have concluded and dependent upon snow cover, complete aerial surveys to estimate deer population size and tie to previous season's available hunting permits, summer crop damage and deer management assistance permits.

**Action 2.** Periodically evaluate deer browse on tree regeneration in strategic locations that hinder long-term, priority mast-producing tree species (oak, hickory) regeneration.

**Objective B.** Maintain year-round deer-focused, diverse upland food plots.

**Action 1.** Identify upland locations that can be converted from State-share sharecropping plans to diverse food plots that provide nutritional spring and summer fall forage.

**Action 2.** Initially seed a portion (50%) of upland food plots with perennial browse species (e.g., alfalfa, clover); seed resultant food plot area (50%) with annual forage species (e.g., brassicas, wheat, rye) to provide diverse food sources year-round.

**Goal IV** is an abundant, self-sustaining population of ring-necked pheasants through active management of large, connected and diverse grasslands.

**Rationale:** 1) Ring-necked pheasants are a featured species for Shiawassee River State Game Area; 2) the Game Area lies wholly within the boundaries of the collaborative [Pheasant Restoration Initiative, Pilot Focus Area program boundary](#); 3) Grassland habitat geared towards Pheasant Restoration Initiative priorities is dually beneficial to local populations of upland-nesting dabbling ducks species (e.g., mallard, blue-winged teal); 4) diverse grasslands provide crucial habitat for myriad additional Southeastern Lower Peninsula featured species for at least part of the specie's life cycle requirements (e.g., [wild turkey](#), eastern cottontail, American bittern [upland nester], [bobolink](#), [eastern fox snake](#), and [meadowlark](#)); 5) Grasslands are an early successional stage and require active management through prescribed burning and/or mowing to prevent woody plant establishment.

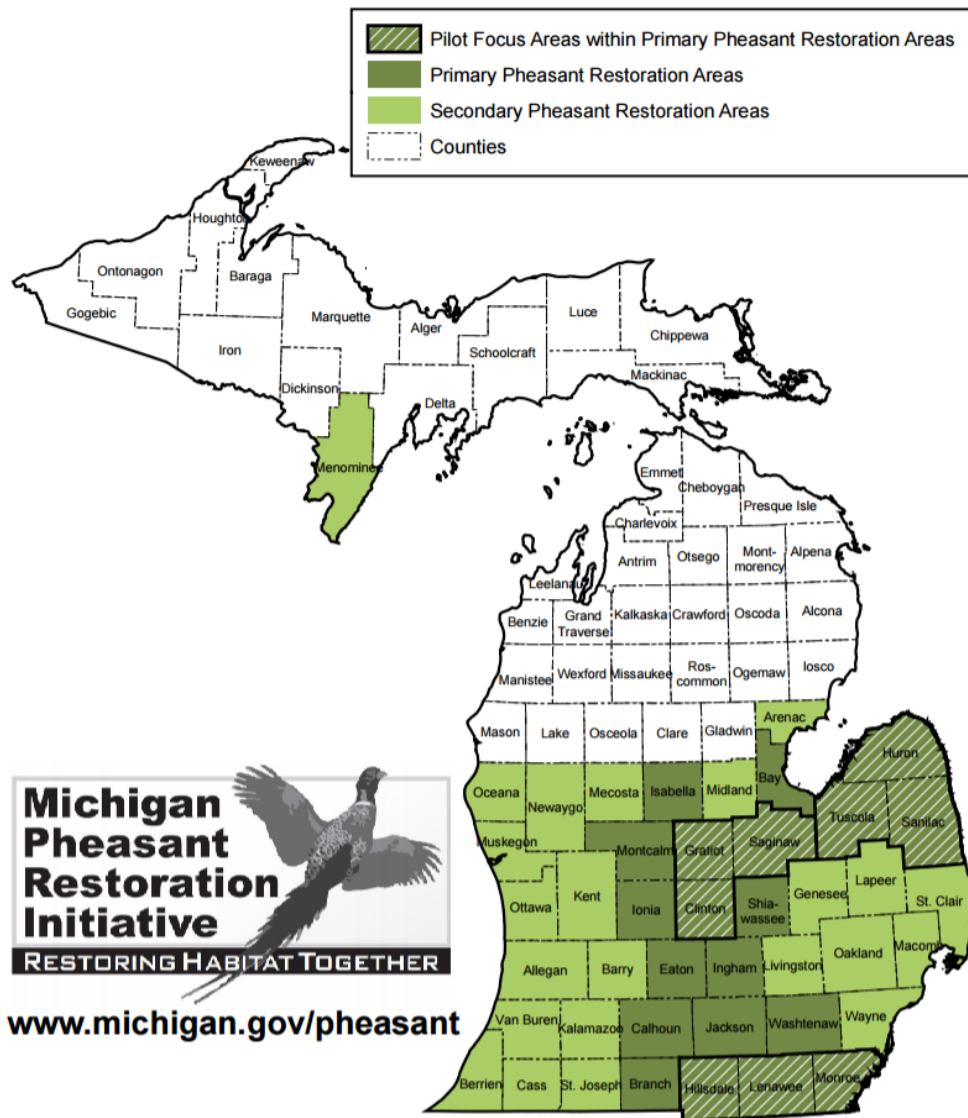
**Metrics:** Crowing and visual observations of pheasants, especially hens with broods, on the Game Area, diversity of wildlife species utilizing the Area's grasslands, success of hunters pursuing pheasants on the Area gained/achieved through hunter contact.

**Objective A.** Develop a rotational prescribed burning schedule so each of the identified high priority grasslands (Appendix E) is burned once every 3-5 years to set back plant species succession and prevent non-fire tolerant woody species encroachment. No more than 25% of the Game Area's grasslands are to be prescribed burned in a given year, this will allow for and promote an average four-year rotational burn/mow schedule.

Figure 4.  
Michigan  
Pheasant

# Priority Pheasant Restoration Areas

Map of



Restoration Initiative focus areas.

**Action 1.** Develop a rotational prescribed burn schedule by 2017.

**Action 2.** In the event that a prescribed burn is not completed, mow grassland no sooner than 15 July to avoid nest destruction of grassland nesting bird species and no later than 15 August to allow sufficient time for winter cover (e.g., switchgrass) regrowth.

**Objective B.** Connect existing grassland complexes through removal of barriers (e.g., woody species encroachment along levees between existing grasslands) and/or through establishment of habitat corridors to promote large, contiguous grassland blocks.

**Action 1.** Identify existing disconnected grasslands and lands that can be utilized, with appropriate habitat manipulation, as travel corridors to other existing grassland(s) without negatively affecting the Game Area's sharecropping plan.

**Action 2.** By 2017 identify and develop a plan to strategically remove woody encroachment barriers between adjacent existing grasslands; implement and complete plan by 2019.

**Objective C.** Establish species- and structurally-diverse grasslands with ample year-round food resources.

**Action 1.** Annually monitor and evaluate grasslands to gauge species diversity and identify where species diversity is lacking or declining; re-seed or inter-seed as needed with native species that meeting that grassland's target management direction (i.e., tall or short warm season, switchgrass winter cover, mixed grass/forb brood rearing area, etc.).

**Action 2.** Identify grasslands that are deficient in, either within or adjacent to, appropriate winter cover; establish switchgrass stands and/or native species shelterbelts to address these deficiencies by 2019.

**Action 3.** Establish soft mass food plot strip (e.g., crabapple, high-bush cranberry, gray dogwood) and annually plant diverse food plots (e.g., corn, sunflower, grain sorghum, buckwheat, millet, etc.) next to winter cover; food plots should comprise 10-15% of the grassland's area.

**Action 4.** Identify and treat all occurrences of invasive species establishment, with targeted efforts towards eradication of *Phragmites*, teasel, and reed canary grass.

**Goal V** is a healthy, productive, structurally age- and species-diverse floodplain forest system with early-successional transitions into adjacent grasslands.

**Rationale:** 1) Shiawassee River SGA had a comprehensive forest inventory completed in 2014; 2) the Game Area lacks a dedicated, wildlife-focused forest management plan; 3) the Game Area lacks a coniferous component that once dominated the area prior to extensive logging took place throughout the region; 4) current timber stands meet adjacent habitats at 'hard', distinctive edges, limiting the amount of early successional habitat on the game area; 5) Mature, mast producing trees provide beneficial food resources and natural cavities that aid Game Area featured species during various stages of their life cycle.

**Metrics:** Amount of browse availability in the understory; number of wood duck broods observed on Game Area wetlands; successful regeneration of desired forest cover types, tree age and species composition trends between successive forest inventories (post-harvest structural diversity).

**Objective A.** Work with regional support staff (Planners, Forester, etc.) and develop a comprehensive forest management plan by early 2018. (reference current tree species composition table, Appendix A)

**Action 1.** Prioritize oak and other mast-producing tree species management to maintain and increase their presence in appropriate places over the SGA.

**Action 2.** Actively increase the coniferous component in strategic areas, and thus winter thermal cover of existing forest stands through long- and short-needle pine plantings.

**Action 3.** Promote natural cavities for cavity nesting waterfowl species.

**Action 4.** Maintain, but do not increase the number of forest openings (increasing forest openings increases the amount of forest edge and reduces the amount of forest interior, reducing habitat for area-sensitive forest-dependent species).

**Action 5.** Strategically reduce existing 'hard' transitions between grasslands and forested stands in appropriate places (e.g., those areas where grasslands abut mature timber stands).

**Action 6.** Implement invasive species surveillance and management techniques to mitigate their negative effects on prioritized forested cover types.

**Action 7.** Maintain, update, and track forested inventory and treatment information via MiFi to ensure data is accurate, documented, and available for present and future.

## Acquisition and Disposal of Land

While not a specific goal of this plan, the Department will strategically review land as it becomes available for purchase within the game area's acquisition boundary (Appendix D). Available land will be reviewed based on the value that it would add to the game area and the direction(s) set forth in this master plan. Land that is largely not usable by the public, due to safety zones, etc., will likely not be pursued for acquisition unless it moves a current safety zone and expands available acres that can be opened to hunting. Lands that can be restored to provide valuable featured species habitat will be reviewed against other regional parcels under consideration for purchase and pursued based on priority ranking criteria.

There are currently no parcels of land on the game area that are being considered for disposition.

## Review and Approval

This plan will be available for public review and comment on the DNR website between March 13, 2017 and April 10, 2017. Changes will be made, as necessary, based on public feedback. Once the plan is approved, it will be placed on the DNR website and will be reviewed again within 10 years of the approved date. Send comments to Jeremiah Heise

[HeiseJ1@michigan.gov](mailto:HeiseJ1@michigan.gov)

## Approval

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Nathan Levitte, Field Operations Manager

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Timothy Payne, Southeast Region Supervisor

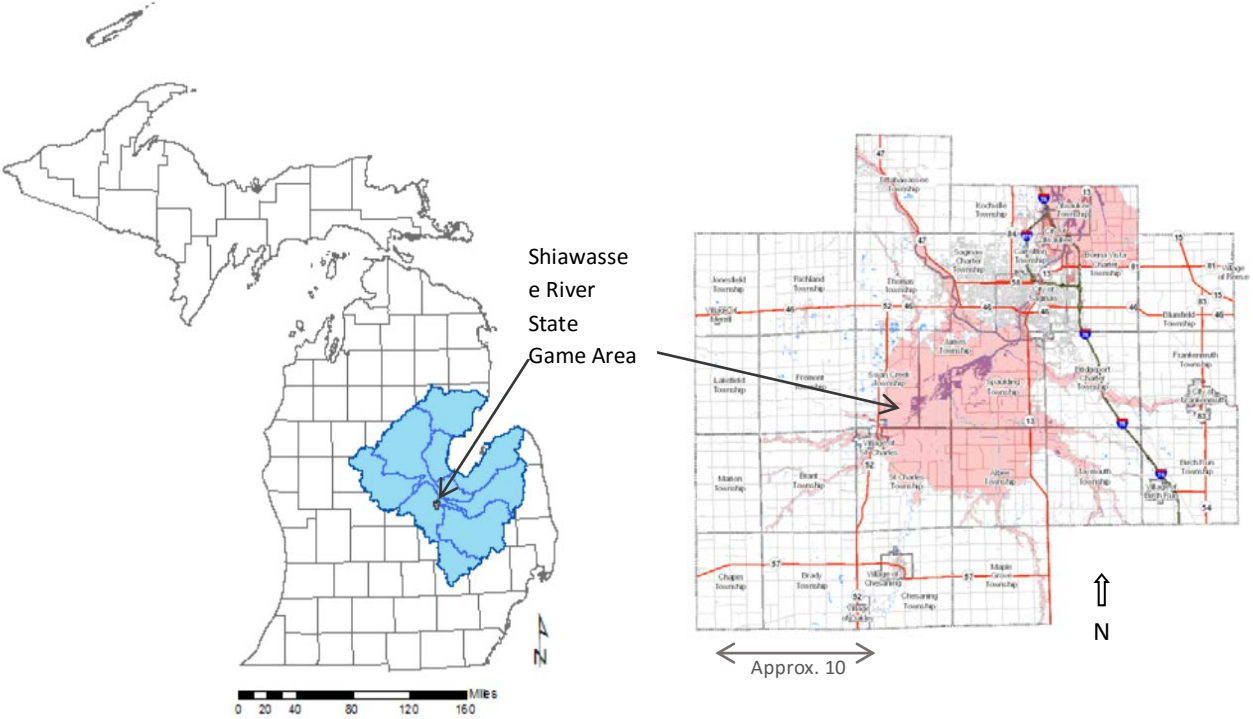
## Appendix A

Cover Type	Total	% Coverage	Age 0-9	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-69	Age 70-79	Age 80-89	Age 90-99	Age 100-109	Age 110-119	Age 120-129
Lowland Deciduous	3,182	31.3	0	32	73	150	80	135	179	1,255	794	456	30	0
Northern Hardwood	102	1.0	0	0	0	0	0	0	0	0	102	0	0	0
Mixed Upland Deciduous	74.0	0.7	0	11	7	0	22	33	0	0	0	0	0	0
Oak	34.5	0.3	0	0	0	0	0	0	0	0	0	34	0	0
Lowland Aspen/Balsam Poplar	8.6	0.1	0	9	0	0	0	0	0	0	0	0	0	0
Upland Mixed Forest	4.0	0.0	0	0	0	4	0	0	0	0	0	0	0	0
	<b>3,405</b>		<b>0</b>	<b>52</b>	<b>80</b>	<b>154</b>	<b>102</b>	<b>168</b>	<b>179</b>	<b>1,255</b>	<b>896</b>	<b>490</b>	<b>30</b>	<b>0</b>

Table: Acreage of forest by general forest type and stand age class, Shiawassee River State Game Area (mapped by Michigan Natural Features Inventory, 2014).

# Appendix B

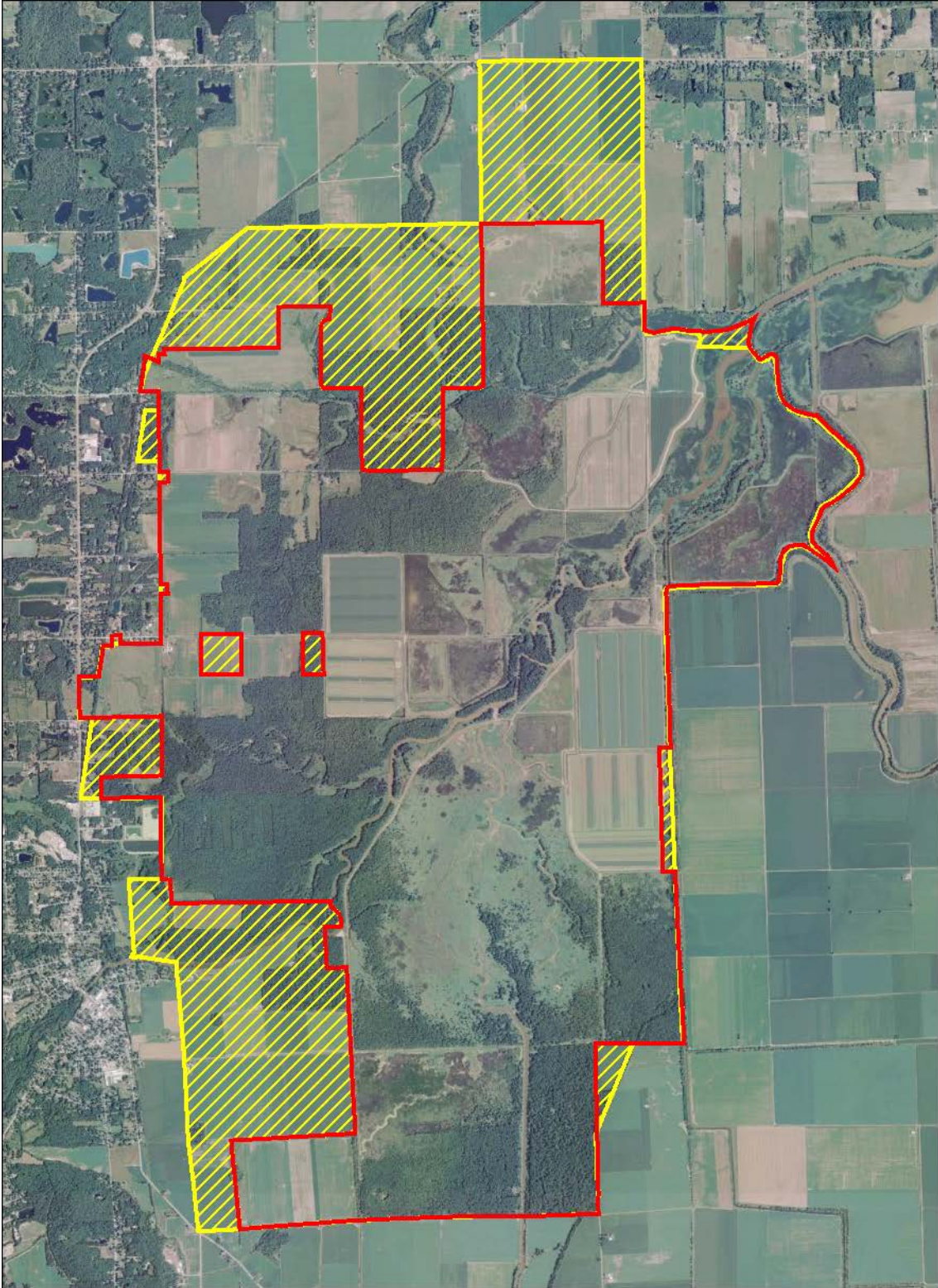
Location of Shiawassee River State Game Area in Saginaw Bay watershed (left) and Saginaw River 100 year floodplain in Saginaw County (right, red shaded area). Eight sub-basin watersheds shown on the map (Au Gres-Rifle, Kawkawlin-Pine, Pigeon-Wiscoggin, Tittabawassee, Cass, Shiawassee, Saginaw, Flint and Pine) occur in the greater Saginaw Bay watershed.





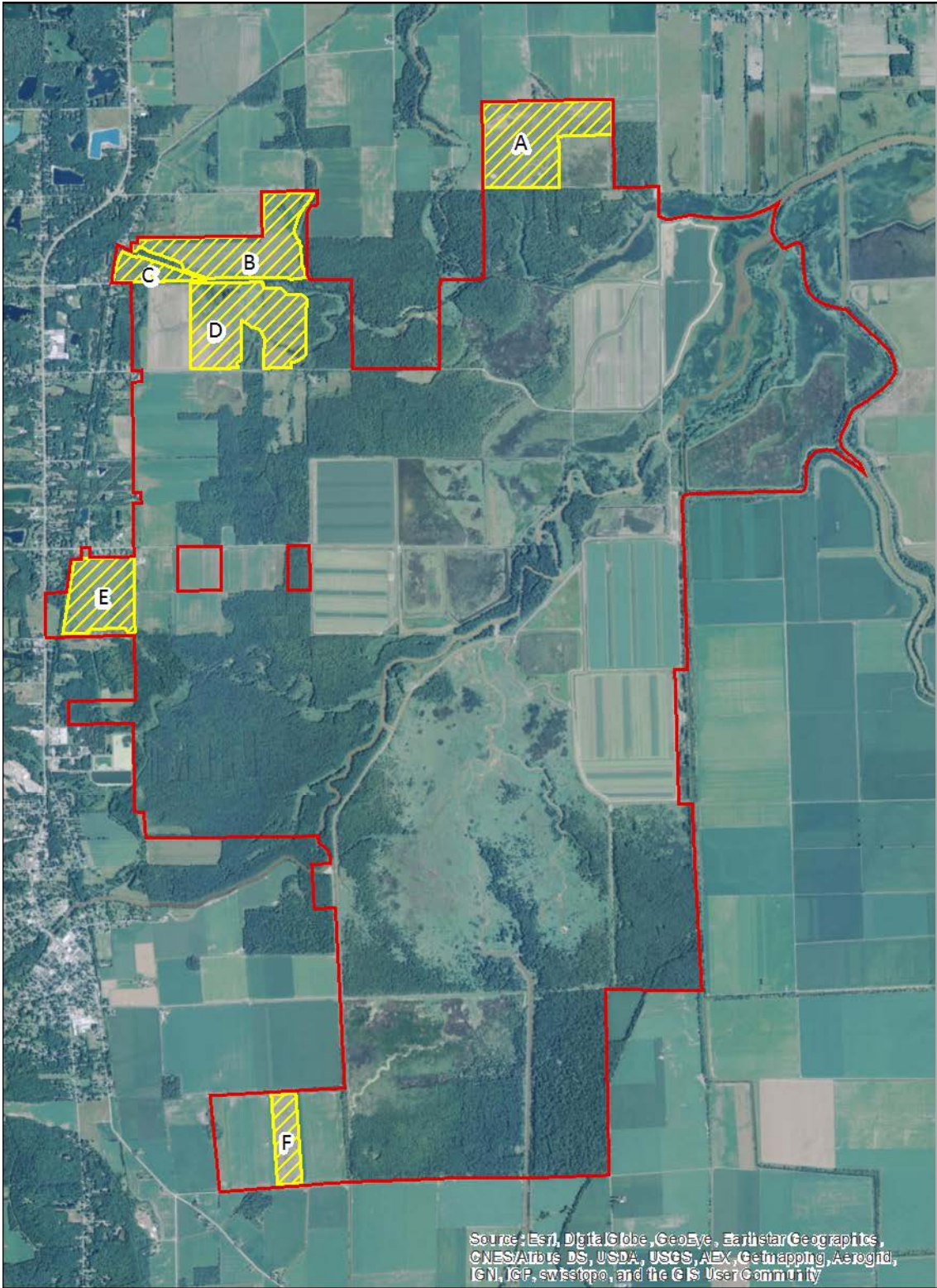
# Appendix C

Figure: Acquisition Boundary Map- The areas shaded in yellow are the approved acquisition boundary for Shiawassee River SGA, whose current boundary is outlined in red.



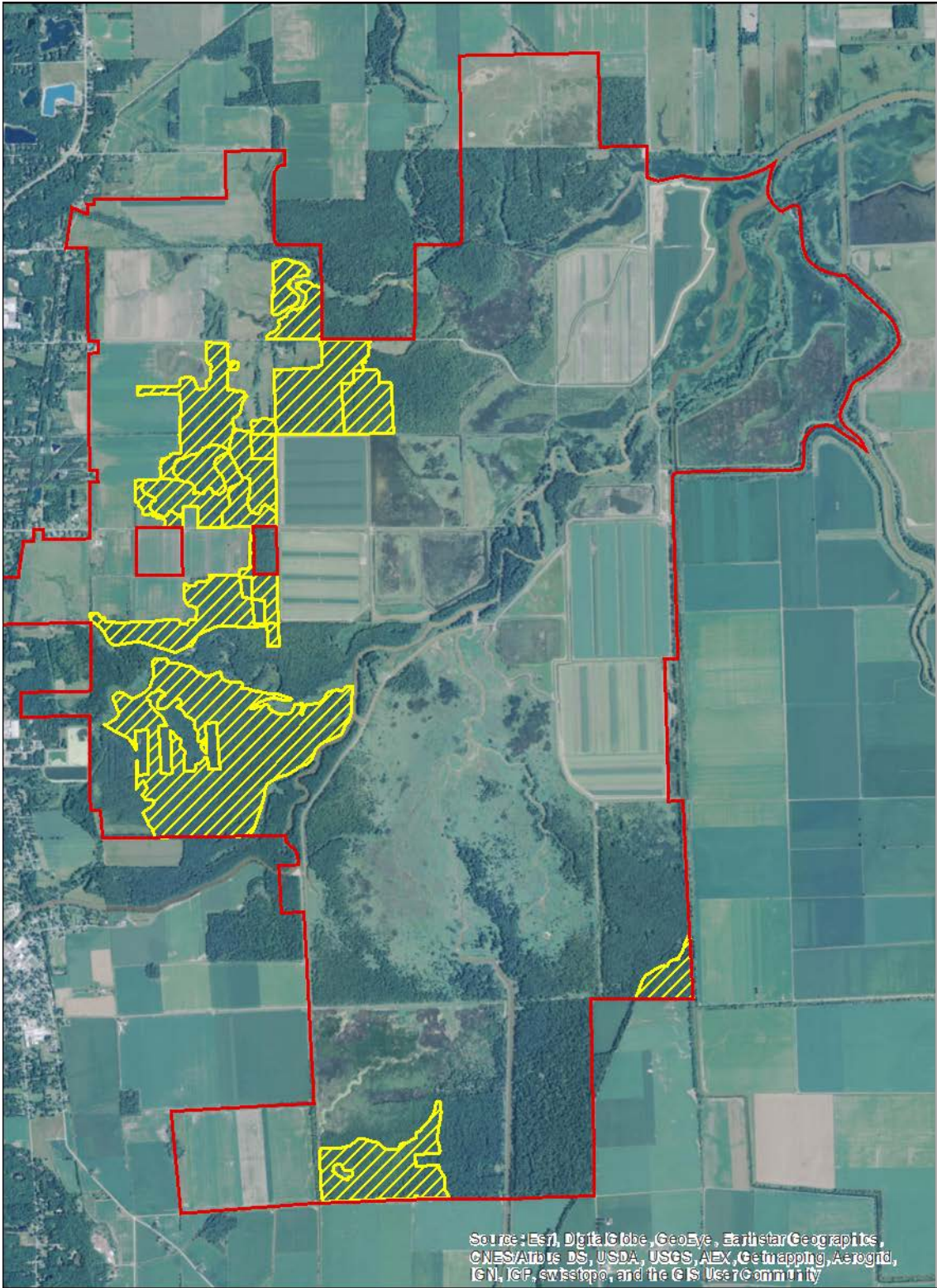
# Appendix D

Figure: Priority Grassland Management Blocks- Shiawassee River SGA contains roughly 650 acres of grassland; the highlighted blocks will be rotationally burned to maintain their grassland status and to prevent encroachment of woody species.



# Appendix E

Figure: Priority Oak Timber Management Stands- The timber stands highlighted in yellow have an oak component that makes up 15% or more of the stand's composition. These stands will be managed in a way to retain and/or increase mast-bearing tree species component.



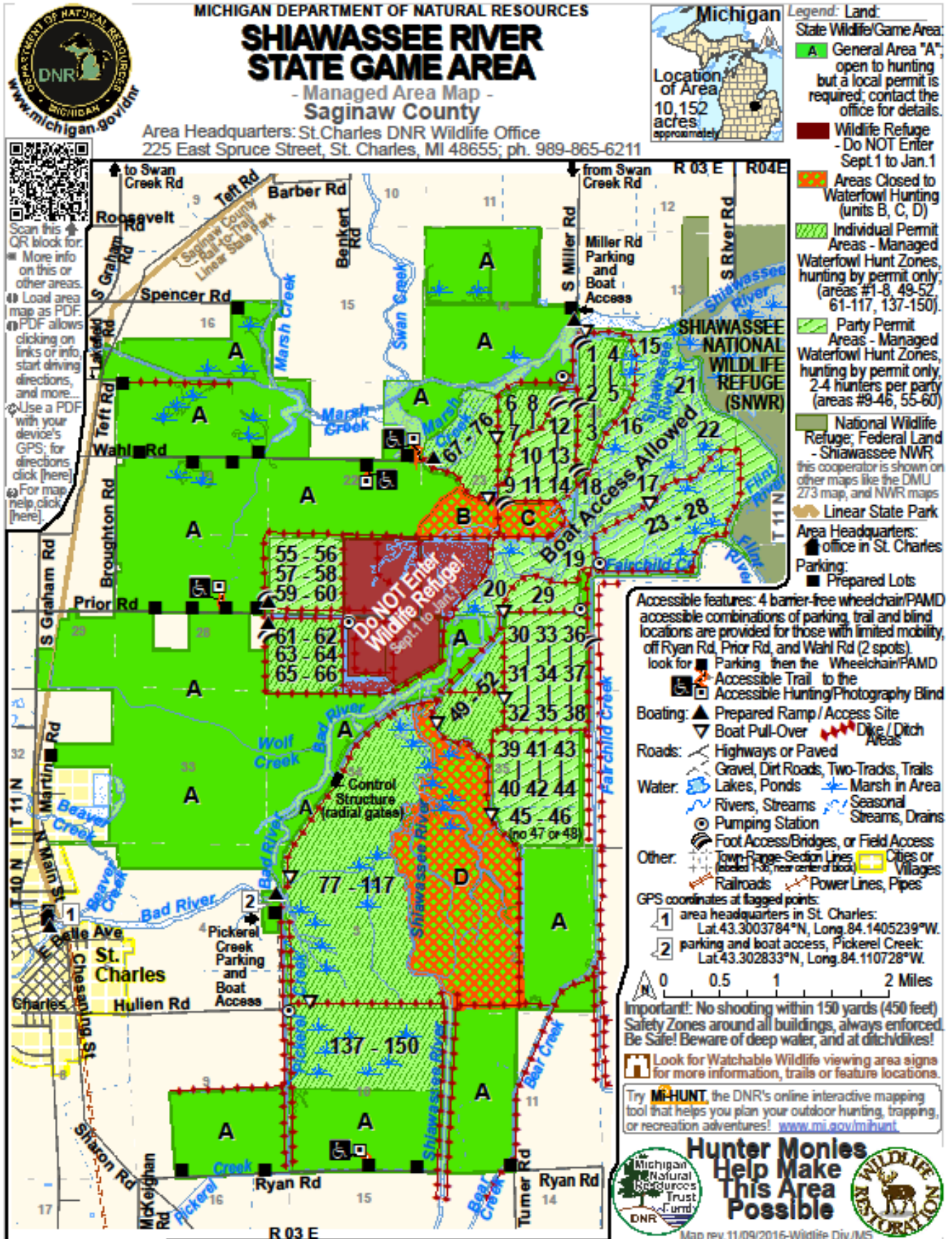
# Appendix F

Figure: Historical Aerial Image Circa 1938- Historic aerial image showing land cover types prior to construction of Shiawassee Flats Critical Flood Storage Area.



# Appendix G

Figure: Shiawassee River State Game Area map.



# Appendix H

Figure: Map of Deer Management Unit 273

## DMU 273 Hunt Units (See Figure 1, Color-Keyed Map)

Hunt Area	Hunt Unit	Description of Area Open to Hunting
SRSGA	1	<b>State Game Area - Managed Waterfowl Hunting Areas :</b> Excludes general hunting areas (Hunt Unit 2) and all non-huntable / restricted areas, such as the SRSGA/State Wildlife Refuge, safety zones, etc.
	2	<b>State Game Area - General Hunting Areas :</b> Excludes managed waterfowl hunting areas (Hunt Unit 1) and all non-huntable / restricted areas, such as the SRSGA/State Wildlife Refuge, safety zones, etc.
SNWR	3	<b>National Wildlife Refuge :</b> Excludes closed tracts of land and all non-huntable / restricted areas. View detailed area maps online, at <a href="http://ShiawasseeNWR.Hunting">Shiawassee NWR Hunting</a> .

