

# APPENDIX A

## Supporting Analysis

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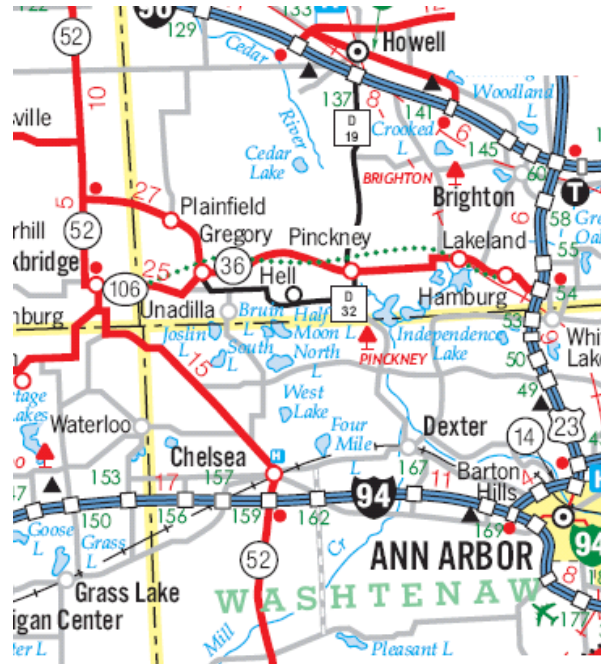
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## A.1 PARK LOCATION

Pinckney Recreation Area is located in the northwestern corner of Washtenaw County, and the southwestern corner of Livingston County. Its geographic coordinates approximate 42°42" latitude and 84°04" longitude. The park spans three townships in Washtenaw County, with the majority of Pinckney's area lying within Lyndon and Dexter Townships and a small portion of the park in Sylvan Township. In Livingston County, Pinckney RA is part of two townships: Unadilla and Putnam.

The Recreation Area is confined to the north by M-36 and by Roepke Road to the west. From the intersection of Roepke Road and M-52, the western boundary extends south along M-52 until Werkner Road. At this point the boundary line follows Werkner Road northeast. Territorial Road is the southern boundary for the east side of Pinckney, while Cedar Lake Road and Toma Road are the parks eastern most boundary.

Pinckney Recreation Area is easily accessed from the north and south by way of M-52, and on the east and west via I-94, exits 162 and 167.



## A.2 DEMOGRAPHICS

Census data from the surrounding counties is listed below. Census data from the surrounding counties is listed below. The U.S. Census Bureau estimates the 2009 population of Washtenaw County at 347,563, a 7.7% increase since 2000. Livingston County had an estimated population of 183,118, a 16.7% increase since the 2000 census. The population densities are 454.8 and 276.3 people per square mile in Washtenaw and Livingston Counties respectively. Both county populations exceed the state average of 175 people per square mile.

### **2009 U.S Census Estimates for Washtenaw County**

<b>People QuickFacts</b>	<b>Washtenaw County</b>	<b>Michigan</b>
Population, 2009 estimate	347,563	9,969,727
Population, percent change, April 1, 2000 to July 1, 2009	7.7%	0.3%
Population estimates base (April 1) 2000	322,770	9,938,492
Persons under 5 years old, percent, 2009	5.7%	6.2%
Persons under 18 years old, percent, 2009	20.7%	23.6%
Persons 65 years old and over, percent, 2009	9.8%	13.4%
Female persons, percent, 2009	50.2%	50.8%
White persons, percent, 2009 (a)	77.1%	81.2%
Black persons, percent, 2009 (a)	12.4%	14.2%
American Indian and Alaska Native persons, percent, 2009 (a)	0.4%	0.6%
Asian persons, percent, 2009 (a)	7.8%	2.4%
Native Hawaiian and Other Pacific Islander, percent, 2009 (a)	0.1%	Z
Persons reporting two or more races, percent, 2009	2.2%	1.6%
Persons of Hispanic or Latino origin, percent, 2009 (b)	3.5%	4.2%
White persons not Hispanic, percent, 2009	74.1%	77.4%
Living in same house in 1995 and 2000, pct 5 yrs old & over	43.0%	57.3%
Foreign born persons, percent, 2000	10.3%	5.3%
Language other than English spoken at home, pct age 5+, 2000	13.2%	8.4%
High school graduates, percent of persons age 25+, 2000	91.5%	83.4%
Bachelor's degree or higher, pct of persons age 25+, 2000	48.1%	21.8%
Persons with a disability, age 5+, 2000	39,902	1,711,231
Mean travel time to work (minutes), workers age 16+, 2000	22.2	24.1
Housing units, 2009	147,576	4,541,680
Homeownership rate, 2000	59.7%	73.8%
Housing units in multi-unit structures, percent, 2000	34.7%	18.8%
Median value of owner-occupied housing units, 2000	\$174,300	\$115,600
Households, 2000	125,327	3,785,661
Persons per household, 2000	2.41	2.56
Median household income, 2008	\$59,126	\$48,606
Per capita money income, 1999	\$27,173	\$22,168
Persons below poverty level, percent, 2008	13.7%	14.4%

<b>Business QuickFacts</b>	<b>Washtenaw County</b>	<b>Michigan</b>
Private nonfarm establishments, 2008	8,132	229,310 <sup>1</sup>
Private nonfarm employment, 2008	140,524	3,636,241 <sup>1</sup>
Private nonfarm employment, percent change 2000-2008	-10.8%	-10.7% <sup>1</sup>
Nonemployer establishments, 2008	25,667	640,719
Total number of firms, 2002	28,184	735,531
Black-owned firms, percent, 2002	5.0%	6.0%
American Indian and Alaska Native owned firms, percent, 2002	0.4%	0.7%
Asian-owned firms, percent, 2002	4.2%	2.1%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	0.0%
Hispanic-owned firms, percent, 2002	1.5%	1.3%
Women-owned firms, percent, 2002	28.0%	29.6%
Manufacturers shipments, 2002 (\$1000)	7,622,597	221,433,262
Wholesale trade sales, 2002 (\$1000)	3,024,340	165,958,945
Retail sales, 2002 (\$1000)	4,071,538	109,350,139
Retail sales per capita, 2002	\$12,247	\$10,889
Accommodation and foodservices sales, 2002 (\$1000)	511,840	12,248,269
Building permits, 2009	253	6,884 <sup>1</sup>
Federal spending, 2008	2,996,279	82,933,158 <sup>1</sup>
<b>Geography QuickFacts</b>	<b>Washtenaw County</b>	<b>Michigan</b>
Land area, 2000 (square miles)	709.94	56,803.82
Persons per square mile, 2000	454.8	175.0
FIPS Code	161	26

## **2009 U.S Census Estimates for Livingston County**

<b>Population Quickfacts</b>	<b>Livingston County</b>	<b>Michigan</b>
Population, 2009 estimate	183,118	9,969,727
Population, percent change, April 1, 2000 to July 1, 2009	16.7%	0.3%
Population estimates base (April 1) 2000	156,951	9,938,492
Persons under 5 years old, percent, 2009	5.5%	6.2%
Persons under 18 years old, percent, 2009	24.8%	23.6%
Persons 65 years old and over, percent, 2009	11.2%	13.4%
Female persons, percent, 2009	49.4%	50.8%
White persons, percent, 2009 (a)	96.6%	81.2%
Black persons, percent, 2009 (a)	0.8%	14.2%
American Indian and Alaska Native persons, percent, 2009 (a)	0.4%	0.6%
Asian persons, percent, 2009 (a)	1.0%	2.4%
Native Hawaiian and Other Pacific Islander, percent, 2009 (a)	0.1%	Z
Persons reporting two or more races, percent, 2009	1.1%	1.6%
Persons of Hispanic or Latino origin, percent, 2009 (b)	1.8%	4.2%
White persons not Hispanic, percent, 2009	95.0%	77.4%
Living in same house in 1995 and 2000, pct 5 yrs old & over	55.0%	57.3%
Foreign born persons, percent, 2000	3.0%	5.3%
Language other than English spoken at home, pct age 5+, 2000	3.7%	8.4%
High school graduates, percent of persons age 25+, 2000	91.4%	83.4%
Bachelor's degree or higher, pct of persons age 25+, 2000	28.2%	21.8%
Persons with a disability, age 5+, 2000	18,635	1,711,231
Mean travel time to work (minutes), workers age 16+, 2000	31.0	24.1
Housing units, 2009	72,862	4,541,680

Homeownership rate, 2000	88.0%	73.8%
Housing units in multi-unit structures, percent, 2000	7.9%	18.8%
Median value of owner-occupied housing units, 2000	\$187,500	\$115,600
Households, 2000	55,384	3,785,661
Persons per household, 2000	2.80	2.56
Median household income, 2008	\$72,090	\$48,606
Per capita money income, 1999	\$28,069	\$22,168
Persons below poverty level, percent, 2008	6.5%	14.4%
	<b>Livingston County</b>	<b>Michigan</b>
<b>Business QuickFacts</b>		
Private nonfarm establishments, 2008	4,239	229,310 <sup>1</sup>
Private nonfarm employment, 2008	47,935	3,636,241 <sup>1</sup>
Private nonfarm employment, percent change 2000-2008	7.7%	-10.7% <sup>1</sup>
Nonemployer establishments, 2008	13,253	640,719
Total number of firms, 2002	14,600	735,531
Black-owned firms, percent, 2002	F	6.0%
American Indian and Alaska Native owned firms, percent, 2002	S	0.7%
Asian-owned firms, percent, 2002	F	2.1%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	0.0%
Hispanic-owned firms, percent, 2002	0.8%	1.3%
Women-owned firms, percent, 2002	29.0%	29.6%
Manufacturers shipments, 2002 (\$1000)	2,884,263	221,433,262
Wholesale trade sales, 2002 (\$1000)	1,122,666	165,958,945
Retail sales, 2002 (\$1000)	1,812,089	109,350,139
Retail sales per capita, 2002	\$10,720	\$10,889
Accommodation and foodservices sales, 2002 (\$1000)	142,146	12,248,269
Building permits, 2009	93	6,884 <sup>1</sup>
Federal spending, 2008	590,152	82,933,158 <sup>1</sup>
	<b>Livingston County</b>	<b>Michigan</b>
<b>Geography QuickFacts</b>		
Land area, 2000 (square miles)	568.40	56,803.82
Persons per square mile, 2000	276.3	175.0
FIPS Code	093	26

### **A.3 GENERAL HISTORY OF PINCKNEY RECREATION AREA**

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The Potawatomi Indian tribe initially inhabited and developed a trail system within the Hell, Michigan area. After European inhabitation, Hell became a stopping place along the trail from Lansing to Dexter. However, real growth in Hell is largely due to a man by the name of George Reeves.

In 1841, Reeves purchased a sawmill with one thousand acres of land on Hell Creek. He erected a flour mill, powered by a dam he placed on Hell Creek, to grind the wheat of farmers throughout Livingston County. Reeves also built a general store to service the local people. Several homes grew around the general store as well as a local school that could educate 70 students.

The rich soils of the areas produced ample supplies of wheat and Reeves's mill was soon producing over 100 barrels of flour a day, creating prosperity for the local people. With the surpluses of flour, Reeves decided to construct a distillery to produce whiskey. His whisky sales were plentiful and after the Civil war he build a ballroom above his tavern and a racetrack around the millpond. Reeves passed away in 1877.

The family decided to sell the one thousand acre farm to a group of Detroit investors who increased the size of the millpond by raising the level of the dam. The enlarged pond is now known as Hi-land Lake. Over time, the vicinity became known as a resort area for those who loved swimming and fishing. Today Hell's population remains near its 1940's level, around 260 people.

Nearby, the village of Pinckney was first settled in 1827, by New York resident William Kirkland and his brother-in-law James Stansbury. They bought their land from the Sanford Marble Company. Kirkland, along with Stansbury as his business manager, began the William Kirkland Company, which organized the village of Pinckney. Kirkland decided to name the community after his brother, Charles Pinckney Kirkland. The village was platted and recorded in 1837 and incorporated as a village in 1883.

By 1860 the Village of Pinckney was a thriving rural agricultural community with aspirations of growing. They were able to persuade the Grand Trunk Railroad Company to lay tracks in the village in 1883. This led to a minor business boom for the community and led to the development of a grain elevator and lumber yard near the railroad. However, Pinckney's fortune of landing a rail line had negative impacts on several surrounding communities, such as Unadilla and Pettysville. By 1910 the community had reached its height of economic prosperity.

Farming began to decline as an economic driving force in the Pinckney area by the 1940s. As a result much land was sold to be developed for other purposes, such as the development of summer homes, camps, and cottages. The state

bought land during this time period for the development of recreation and hunting.

Pinckney RA officially became a State Park in the mid- 1940's. The property was obtained piece by piece, not in one large tract. Over time Pinckney RA has grown as a function of popular use, meaning that often public use of an area has preceded its development. Most development of Pinckney RA took place in the 1940's and 1950's.

## **A.4 LAND OWNERSHIP ISSUES**

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The following funding sources have been used for acquisition of land in Pinckney Recreation Area:

### **Michigan Natural Resource Trust Fund (MNRTF)**

The MNRTF has provided financial assistance to protect natural resources and open space, purchase lands for outdoor recreation, and acquire land for its environmental importance or scenic beauty. The Fund's Board of Trustees and the Grants Administration Division of the DNR administer the program. Only state and local governments may apply to the fund to acquire property. Annual revenue from oil, gas, and mineral leasing supports the fund.

There are eleven evaluation criteria for grant funding: the protection and use of significant natural resources, use of inland waters, population served, economic benefits, hunting, fishing and other wildlife-related values, need for proposal, capability of applicant, site and project quality, special initiatives of the Fund board, financial need of the applicant, and local match contribution. Development projects have a minimum grant amount of \$15,000 and a maximum of \$500,000. There is neither a minimum nor a maximum amount on land acquisition grants. Since 1976, the Fund has purchased more than 135,000 acres of land in Michigan.

### **Pittman-Robertson**

The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson Act, was approved by Congress on September 2, 1937. The purpose of this Act was to provide funding for the selection, restoration, rehabilitation and improvement of wildlife habitat and wildlife management research. Funds are derived from an 11 percent Federal excise tax on sporting arms, ammunition, and archery equipment, and a 10 percent tax on handguns. Each state's apportionment of funds is determined by a formula which considers the total area of the state and the number of licensed hunters in the state.

Below is a portion of the agreement between PRD and Wildlife concerning the management of Pittman – Robertson Lands.

This agreement is an update revision of the original agreement document dated on August 26, 1957, between Parks and Recreation Division and Game Division and recognizes certain changes which have occurred.

Since the Parks Division is responsible for the administration of the southern Michigan recreation areas, and since the Wildlife Division is responsible for the planning and supervision of wildlife interests on these state lands, this agreement will define the responsibilities of each.

PARKS DIVISION AGREES:



1. To furnish up to date maps designating areas of intensive use or other dedicated uses which are not compatible with a wildlife management program.
2. Review the maps at least every five years and make any changes necessary.
3. Maps will be furnished to Wildlife Division, Regional Parks and Wildlife supervisors, District Wildlife Supervisor and local Parks Manager of recreation area involved.
4. On areas other than those designated as not compatible with the wildlife management program the Parks Division will confer with Wildlife Division before undertaking any activity which will damage wildlife habitat improvements or interfere with the wildlife program.
5. To cooperate with Wildlife Division to prevent destruction or developments made under this agreement by fire or other adverse land uses.

#### WILDLIFE DIVISION AGREES:

1. To prepare plans and maintain records for wildlife development projects and to provide same to Parks Division upon request.
2. To provide nursery stock, lime, fertilizers, seeds, gates, fencing, or other barricades as may be needed to complete developments and protect the lands.
3. To supervise and do the wildlife habitat development work, including arrangements for labor supply, furnishing equipment, or negotiating contracts for privately owned equipment, negotiating sharecrop agreements, and supervision of field operations.
4. To keep the Park Manager informed of work currently being done in the recreation area for which he is responsible.
5. To provide the Park Manager three months in advance with a proposed work plan for projects to be done in the following fiscal year.
6. All work will be carried out according to approved plans.

#### **Special Legislation**

Public Act 27, 1944, appropriated \$5,000,000 for acquisition of land for recreation facilities. \$1,500,000 was dedicated to purchasing lands in southeastern Michigan.

Public Act 50, 1944, appropriated \$632,500 for the purposes of purchasing land, construction of state parks, and repairing/remodeling the State Capitol and office buildings. Of the \$632,500, \$450,000.00 went to the Department of Conservation.

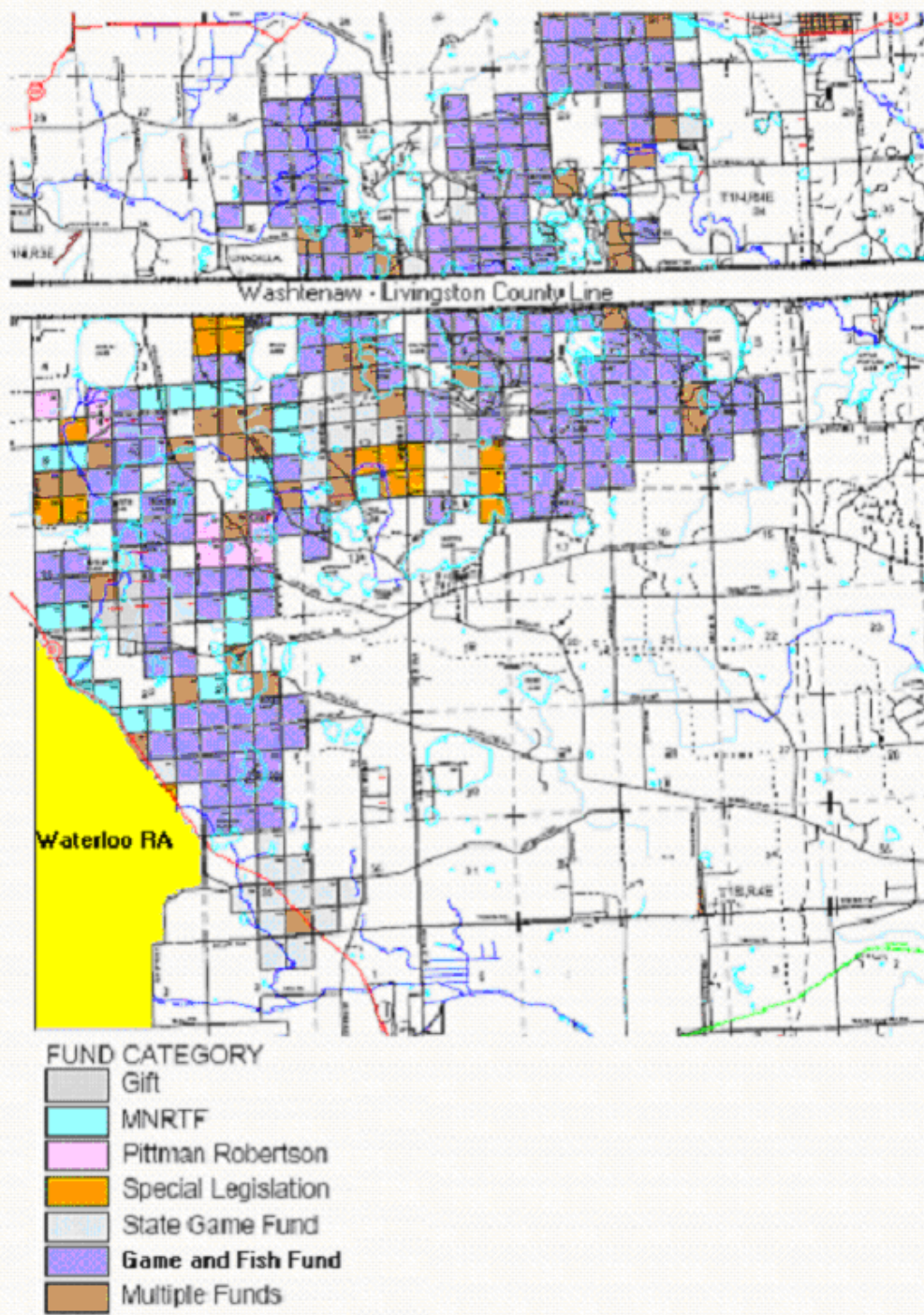
#### **State Game Fund**

Revenue from this fund is raised through a \$1.50 tax on deer hunting licenses.

**Other sources available for land acquisition include:**

- Dingell Johnson  
The Federal Aid in Sport Fish Restoration Act, commonly referred to as the Dingell-Johnson act, was passed on August 9, 1950. It was modeled after the Pittman-Robertson Act to create a parallel program for management, conservation and restoration of fishery resources.
- Game and Fish Fund  
The Game and Fish Protection Fund provides revenues for the operation of the Fish, Wildlife, and Law Enforcement programs. Management, research, enforcement of fishing and hunting laws and acquisition of lands to be used for hunting and fishing purposes are examples of uses of this fund.
- Other Funds  
Land purchased with any of the following: Recreation Bond, Waterways, LEFF, Harbor Development Fund, Environmental Settlement Fund, General Fund, and Swamp Tax Fund

# Pinckney Land Acquisition Map



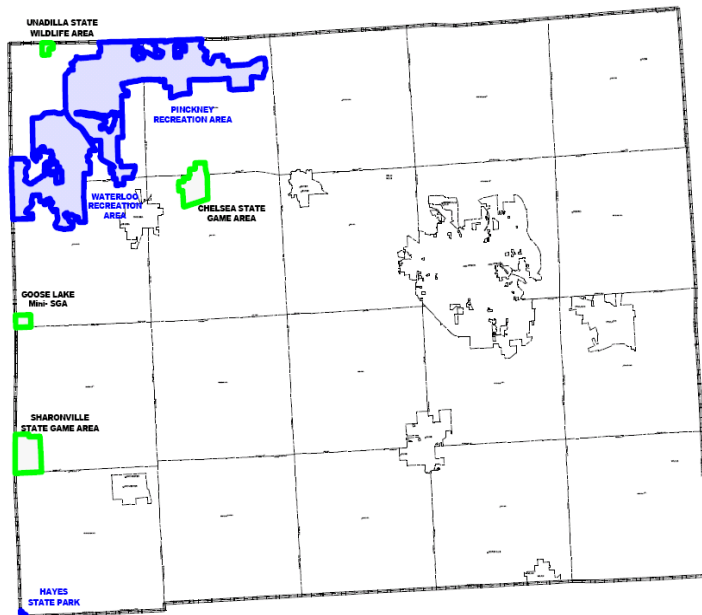
## A.5 RELATIONSHIP OF PINCKNEY RA TO OTHER PARK RESOURCES

### State Owned Resources in Washtenaw County

In addition to Pinckney RA, State recreational resources in Washtenaw County include four State Game Areas, Waterloo RA, and a portion of Hayes State Park,

Waterloo Recreation Area is closely tied to Pinckney Recreation Area, due to their proximity. The main trail system, known as the Waterloo-Pinckney Hiking Trail, is common to both Recreation Areas and spans 29 miles through both parks. Similar activities are common to both Recreation Areas, such as camping, hiking, biking, horse riding, camping, fishing, and hunting.

The State Game Areas in Washtenaw County are Unadilla, half a mile to the north; Chelsea State Game Area, half a mile to the east; Goose Lake, two miles south; and Sharonville State Game Area, six miles south.



### County Owned Resources in Washtenaw County:

12 parks and 6 nature preserves are located in Washtenaw County. Many parks share activities similar to those found at Pinckney RA, such as swimming, hiking, fishing, and picnicking. Both state and county have historical resources within their parks. Two county owned facilities offer water parks.

### County Parks and their significant features:

- Sharon Mills Park: Sharon Mill is a historic building built in 1835, formerly owned by Henry Ford in the 1930's
- Cavanaugh Lake Park: lakeside picnic area, no swimming
- Pierce Lake Golf Course and Park: 18 holes, with pro shop and picnic pavilion
- Park Lyndon: trail system that ties into the Waterloo-Pinckney Trail

- Osborne Mill Park: maintained as a natural area, no services
- Independence Lake Park: a feature similar to a water park called a “Spray Zone”, boat rental, and swimming beach.
- Northfield Park: roadside park with restroom and playground
- Parker Mill Park: Parker Mill is a historical building built in 1873, scenic fishing setting where Fleming Creek joins the Huron River
- County Farm Park: community garden
- Meri Lou Murray County Recreation Center: swimming pool, gymnasium, workout facilities
- Rolling Hills Park and Water Park: water park, trail system, sledding, 18 hole disc golf, fishing
- Superior Center: 1 acre, picnic pavilion

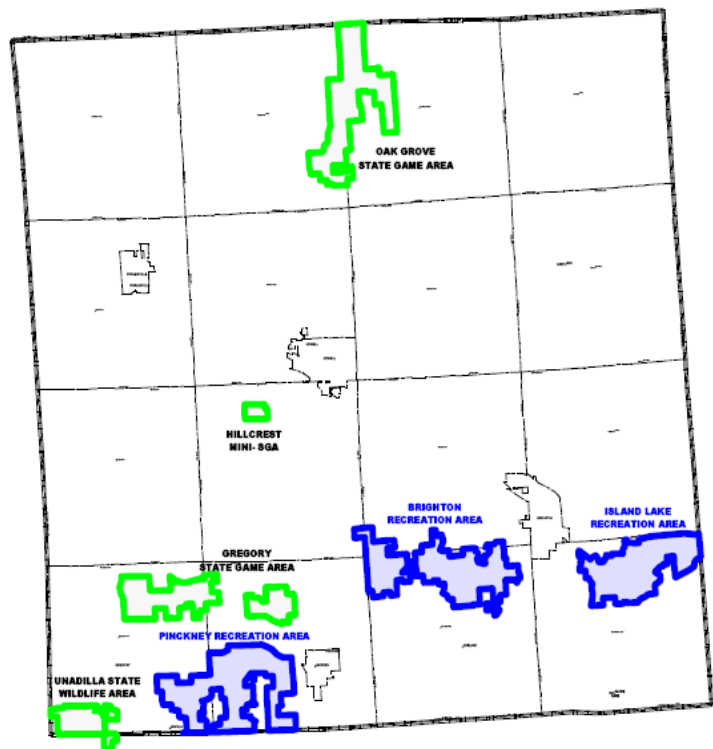
There are also six county nature preserves: Leonard Preserve, Ervin-Stucki Preserve, Brauer Preserve, DeVine Preserve, Burns-Stokes Preserve, and LeFurge Woods Preserve.

**State Owned Resources in Livingston County**

There are three Recreation Areas, three State Game Areas, and a Wildlife Area within Livingston County.

Brighton RA is located to the northeast of Pinckney RA. With almost 5,000 acres its recreational activities are similar to those found at Pinckney. The recreation area offers a number of lakes. It also offers trails for horseback riding, hiking, and mountain biking. Hunting and fishing are allowed.

Island Lake RA is northeast of Pinckney and Brighton. It contains 4,000 acres of wilderness. Recreational activities include hunting, fishing, hiking, biking, and canoeing on the Huron River. There are two campsites that can be accessed from the river. Hunting and fishing are allowed.



Oak Grove State Game Area is at the northern edge of Livingston County in Cohoctah and Deerfield Townships. Hillcrest mini State Game area is centrally located in Livingston County in Marion Township. Gregory State Game Area is

just north of Pinckney in Unadilla and Putnam Townships. Unadilla Wildlife Area is west of Pinckney in Unadilla Township and partially extends into Washtenaw County, Lyndon Township.

### **Metro Park Owned Resources in Livingston County**

- Huron Meadows Metro Park – 1,500 acres containing an 18 hole golf course, walking trails, fishing area, baseball diamond, and volleyball court.
- Kensington Metro Park – includes an 18 hole golf course, softball diamonds, disc golf course, volleyball courts, playgrounds, trails for hiking, biking, and horseback riding, fishing, swimming, boating, and boat rentals. In the winter sledding, cross country skiing, ice skating, and tobogganing are available.

### **Southeast Livingston County Recreation Authority Owned Resources in Livingston County (SELCRA)**

Brighton

- Meijer Park “Recreation on Wheels” Skate Park – includes a hockey rink, a half mile skating trail, and a skate park.

### **Municipal Owned Resources in Livingston County**

Howell

- Howell City Park – activities include a playground, a boat launch, a swimming area, fishing, softball, and volleyball. Daily vehicle permit required, \$1 for residents, \$3 for non-residents.

Brighton

- Mill Pond Area – located in downtown Brighton, with a wooden playground and the “Mill Pond Walkway.” Free concerts are held on Sundays in July and August.

Note: Hell Creek Ranch is a private riding stable located on Cedar Lake Road. It offers one or two hour horseback tours through Pinckney RA’s equestrian trails.

### **University of Michigan**

U of M owns two tracts of land adjacent to Pinckney RA. The northern tract is enclosed by a 12 ft. high fence to contain and study white tail deer. The eastern tract is known as Stinchfield Woods. This 770-acre property was formerly owned by the DNR. The trails tie into Hudson Mills Park.

**Table #1: Summary of Regional Recreational Resources**  
**Sources: Livingston County, Washtenaw County, State of Michigan**

Recreational Resource	County	Municipality	Features																	
			Picnic Area	Hiking	Hunting/ Trapping	Biking	Play-ground	Equestrian	Swimming	Boat Launch	Snow Mobil	XC Skiing	Concession/ Vending	Camping	Drinking Water	Rest Rooms	Showers	Sport Field/Ct	Fishing	Wildlife Viewing
<b>State Resources</b>																				
Waterloo Recreation Area	Jackson, Washtenaw	Multiple	X	X	X	X	X	X	X	X	X	X	X		X		X		X	X
Hayes State Park	Washtenaw, Jackson, Lenawee	Multiple	X				X		X	X					X		X		X	
Unadilla State Game Area	Washtenaw, Livingston	Unadilla, Lyndon			X															
Chelsea State Game Area	Washtenaw	Dexter, Lima			X															
Goose Lake State Game Area	Washtenaw	Sylvan			X															
Sharonville State Game Area	Washtenaw, Jackson	Multiple			X															
Brighton Recreation Area	Livingston	Brighton, Howell	X	X	X	X	X	X	X	X					X			X	X	
Island Lake Recreation Area	Livingston	Brighton, Green Oak	X	X	X	X			X		X	X			X			X	X	
Oak Grove State Park Area	Livingston	Cohoctah, Deerfield			X															
Gregory State Game Area	Livingston	Unadilla, Putnam			X															
Hillcrest Mini State Game Area	Livingston	Marion Twp			X															
<b>County Resources</b>																				
Sharon Mills Park	Washtenaw	Sharon	X																X	
Cabanaugh Lake Park	Washtenaw	Sylvan	X				X												X	
Pierce Lake Golf Course and Park	Washtenaw	Chelsea	X																	
Park Lyndon	Washtenaw	Lydon	X	X			X								X					
Osborne Mill Park	Washtenaw	Ann Arbor																		
Independence Lake Park	Washtenaw	Whitmore Lake	X	X					X										X	

County Resources	County	Municipality	Picnic Area	Hiking	Hunting/ Trapping	Biking	Play-ground	Equestrian	Swimming	Boat Launch	Snow Mobil	XC Skiing	Concession/ Vending	Camping	Drinking Water	Rest Rooms	Showers	Sports Field/Ct	Fishing	Wildlife Viewing
Northfield Park	Washtenaw	Northfield	X	X			X									X		X		
Parker Mill Park	Washtenaw	Ann Arbor		X											X	X			X	
County Farm Park	Washtenaw	Ann Arbor																		
Meri Lou Murray County Recreation Center	Washtenaw	Ann Arbor							X						X	X	X			
Rolling Hills Park and Water Center	Washtenaw	Ypsilanti	X	X			X		X			X						X	X	
Superior Center	Washtenaw	Superior	X																	
Lutz County Park	Livingston	Howell	X	X																
<b>Municipal Resources</b>																				
Howell City Park	Livingston	Howell	X				X		X	X								X	X	
Mill Pond	Livingston	Brighton					X								X					
<b>SELCRA</b>																				
Meijer Park (Skate Park)	Livingston	Brighton																		
<b>Metro Parks</b>																				
Huron Meadows Metro Park	Livingston		X									X						X	X	
Kensington Metro Park	Livingston	Milford	X	X		X	X	X	X			X						X	X	
<b>Privately Owned Resources</b>																				
Hell Creek Ranch								X												



## A.6 CURRENT LAND USE

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Pinckney Recreation Area is a multi-use park with a variety of outdoor recreational opportunities including camping, day-use areas, hunting, fishing, and use of the trail system. One of the most important features of Pinckney is its untarnished natural state in a region that is swiftly being developed into urban communities. Thus, development has been restricted and concentrated into a few areas of the park. The three most developed areas within the park are Bruin Lake Campground, Silver Lake day use area, and Halfmoon Lake day use area.

- Bruin Lake Campground – A modern campground featuring 186 campsites and two restroom facilities, multiple access sites for potable water, a sanitation station, and a campground office. Recreational resources include horseshoe pits and volleyball courts, plus access to Bruin Lake for swimming and boat launching.
- Silver Lake Day Use Area – Recreational resources include concessions, access to the trail system, a playground, volleyball courts, horseshoe pits and a fishing pier. There are seasonal modern toilet facilities. From Memorial Day to Labor Day boats, kayaks, and canoes can be rented at the concession store.
- Halfmoon Lake Day Use Area - A boat launch, two picnic shelters, trail access, volleyball court, horseshoe pits, and playground are available at Halfmoon Lake Day Use Area.

There are other developed areas within the park:

- Blind Lake Campground – Blind Lake is a rustic campground with five campsites. It is located along the Pinckney-Waterloo Trail, and serves as an excellent pit stop for anyone hiking the entire trail. A vault toilet and potable water are available in the campground.
- Crooked Lake Campground – Crooked Lake Campground is rustic with 25 sites and a boat launch. A vault toilet and potable water are available in the campground.
- Pickerel Lake – This site was completely re-constructed and opened to the public in 2005. Use of the site is primarily for swimming, with carry-down launching and retrieval of boats allowed. There is a special land use order that prohibits the launching of any boat with a gasoline motor from the shores of Pickerel Lake, although gasoline motor boats can access Pickerel Lake from Crooked Lake through a connecting channel. Fisheries Division used to plant trout in Pickerel Lake, but no longer does. A fishing pier that used to be located here was removed because of safety concerns.

- Boat Launches - There are developed boat launches on Bruin, Halfmoon, South, North, Joslin and Portage lakes. Unimproved ramps are located on, Crooked, Gosling, and Hiland Lakes. There are hand-carry access sites onto Sullivan Lake and Pickerel Lake. The chain of seven lakes can be accessed from Bruin Lake and Halfmoon Lake.
- Trail Resources - Pinckney RA has miles of multi-use trails. For a map and description of the trails refer to “Recreational Resources.”

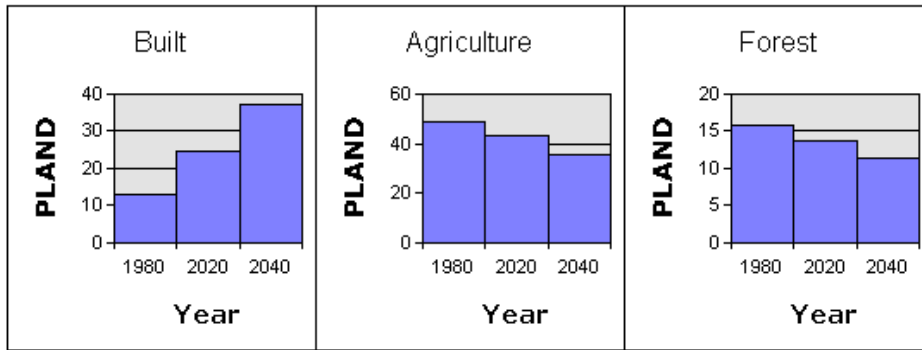
## A.7 PROJECTED LAND COVER (1980 – 2040)

Both Washtenaw and Livingston counties continue to experience urban development over the next 40 years. As such, agricultural and forested land around the Ann Arbor area will be developed into urban land.

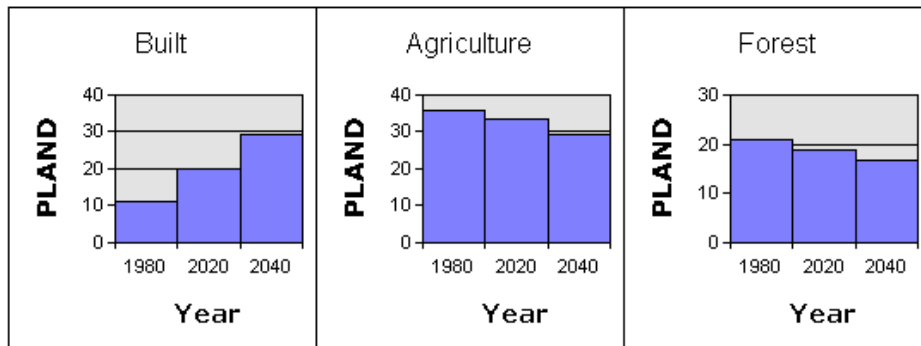
Currently forest cover makes up about 20% of land cover in Livingston County, while less than 20% of Washtenaw County is forested. Agricultural land covers about 45% of land in Washtenaw County and about 36% in Livingston County. Urban built environment covers approximately 10% of both counties.

It is projected that by the year 2040 the built environment in Washtenaw and Livingston Counties will at least triple. As a result forests and agricultural lands will decline greatly. For this reason it is important to maintain state parks in areas where they may be the only natural landscape available for recreational purposes.

Washtenaw County: Built Environment, Agriculture, and Forest as a Percentage of Total Land Use

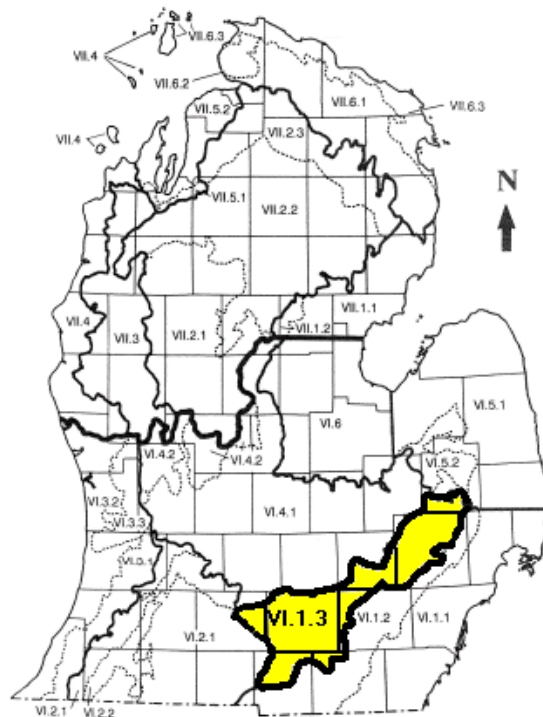


Livingston County: Built Environment, Agriculture, and Forest as a Percentage of Total Land Use



## A.8 NATURAL RESOURCES

Information contained in this section was obtained from: Regional Landscape of Michigan and Wisconsin, A Working Map and Classification. Dennis Albert. September 20, 1995.



Map excerpted from Michigan Natural Features Inventory (MNFI) Report, page 22

Pinckney Recreation Area is located in section 6, subsection 1.3, known as the Jackson Interlobate. It contains coarse textured end moraine, outwash, and ice contact topography; oak savannah and oak-hickory forest, hardwood swamps, prairie fens, and bogs.

### **Geology and Topography**

The underlying Mississippian and Pennsylvanian bedrock, primarily sandstone, is locally exposed at the surface in the southwestern end of the subsection. Drift thickness is generally less than 100 feet. In the northeastern part bedrock is overlain by 250 to 300 feet of glacial drift.

There are broad expanses of outwash sands that surround sandy and gravelly end moraines and ground moraines. End and ground moraines remain as island-like hills surrounded by flat outwash. Larger linear segments of end moraine, broken by only narrow outwash channels are typically located along the margins of the subsection.

The Jackson Interlobate region includes areas of ice contact topography. Kettle lakes, kames, eskers, and segments of outwash channels are predominant features of the ice contact areas. At the west edge the topography is more gentle; broad coarse textured ridges are surrounded by deposits of outwash land.

**Soils**

Soils found in the moraine areas of the park are either well drained or excessively drained. In the outwash regions drainage ranges from excessively well drained to poorly drained. Ice contact areas are excessively well drained on upland kames and eskers, and are poorly drained in the kettles and outwash channels. Sandy loam is the most prevalent soil type in the moraine ridges, while sand is most prevalent on the outwash plains. The glacial drift that forms the moraine ridges is made up of local limestone bedrock. Illuviation is responsible for the clay rich horizon in many of the soils on the moraines, providing a good water holding capacity. Ice contact areas contain sand and gravel.

**Climate**

Growing season is 140 to 150 days. Danger of late spring frosts is great due to numerous lowland depressions, including outwash and kettle lakes. Average snowfall is 40 to 50 inches. Annual precipitation is 30 to 32 inches. Extreme minimum temperatures range from -22 F to -28 F.

<b>LIVINGSTON COUNTY CLIMATE</b>		
<b>MONTH</b>	<b>AVG. MIN TEMP</b>	<b>AVG. MAX TEMP.</b>
January	14F./-10C.	28F./-2C.
July	60F./16C.	81F./27C
<b>PRECIPITATION</b>	<b>RAINFALL</b>	<b>SNOWFALL</b>
Average Annual	32in./81cm.	45in./114cm.
<b>GROWING SEASON</b>	<b>DAYS ABOVE 90F/32C</b>	<b>DAYS BELOW 0F/-18C</b>
158	7	11
Source: NOAA Climate Summary, 1995		

Note: Due to Pinckney Recreation Area’s southern location in the Jackson Interlobate Region, the climate data for Livingston and Washtenaw Counties will vary slightly from the averages recorded for region VI.1.3. Only the Livingston County data is shown here.

**Water Resources**

Many kettle lakes and ponds can be found on the outwash, end moraines, and ice contact areas. Extensive wetlands surround many of the lakes and occupy entire ice-block depressions. Both marl and peat deposits were extensively mined in the past. The headwaters of many major rivers originate in the extensive wetlands. These are the Huron, Grand, Kalamazoo, and St. Joseph Rivers. Pinckney is a part of two major watersheds, the Grand and the Huron. The Huron is represented by the unique “chain of lakes” which forms the

downstream headwaters for the Portage drainage system (the Portage River is a major tributary of the Huron River).

Pinckney RA contains more than twenty major lakes, ranging in size from a few acres to over two hundred acres. Most of the lakes are primarily spring fed. The depth of the lakes ranges from two- to eighty feet. Due to the irregular glacial topography of the terrain, lakes in this region are also irregularly shaped. The bottoms of the lakes are generally made up of sand, gravel, marl, or muck. Shores are sometimes marshy, with pond lily, arrowhead, cat tails, reeds, marsh grasses, and shrubs such as dogwood, elderberry, buttonbush and willows. Occasionally, tamarack is found in the flat swamps that make up former lakebeds.

### **Major Lakes in Pinckney RA**

- Crooked Lake: 113 acres, maximum depth 20 feet, natural lake.
- Bruin Lake: 145 acres, maximum depth 48 feet, natural lake with an outlet.
- Joslin Lake: 180 acres, maximum depth 20 feet. Natural lake with an inlet to the lake on the southern shore and an outlet on the northeastern shore, flowing into Portage Creek.
- South Lake: 193 acres, maximum depth 70 feet. Natural lake, inlet at the southern shore and an outlet at the western shore that flows into Joslin Lake.
- Sullivan Lake: 18.5 acres, maximum depth 22 feet. Natural lake with an outlet on the northern shore,
- Canfield Lake: 3.5 acres, maximum depth 24 feet. Natural lake with an inlet and an outlet.
- Clarke Lake: 15 acres, maximum depth 19 feet. Inlet and outlet.
- Patterson Lake: 15 acres, maximum depth 19 feet. Inlet and outlet.
- Bass Lake: 67 acres, maximum depth 26 feet. Inlet and outlet.
- Mud Lake: 33 acres, maximum depth unknown.
- Hi-Land Lake: 123 acres, maximum depth unknown. Artificial lake with an inlet and an outlet.
- Blind Lake: 68 acres, maximum depth 80 feet. Natural lake with an outlet.
- Silver Lake: 175 acres, maximum depth 47 feet. Natural lake with a dam, inlet, and outlet.
- Gosling Lake: 12.2 acres, maximum depth unknown. Inlet.
- Beaver Lake: 9.4 acres, maximum depth unknown. Natural lake with an outlet.
- Pickerel Lake: 23.7 acres, maximum depth 56 feet. Natural lake with an inlet and an outlet.

- Losee Lake: 13 acres, maximum depth unknown. Inlet.
- Gorman Lake: 52 acres, maximum depth 31 feet. Natural lake.
- Island Lake: 100 acres, maximum depth unknown. Natural lake with a dam.
- Snyder Lake: 12 acres, maximum depth unknown. Natural lake with an inlet and an outlet.
- Watson Lake: 30 acres, maximum depth unknown. Natural lake with an inlet and an outlet.

There are also many smaller lakes in Pinckney Recreation Area with no supporting information available.

Information on water resources was obtained from “State of Michigan Environmental Assessment – Pinckney RA”

### **Topography and Soils**

The highest point in Pinckney is Stofer Hill at 1,150 feet. Other high points are Shanahan Hill (1050 feet) and Prospect Hill (1,053 feet). The Fort Wayne branch of the Erie Lobe of moraines runs diagonally from the southwest to the northeast across Pinckney RA.

Within Pinckney RA there are several soil types. Usually each soil boundary encloses an association of soils rather than one definite soil. The association is made up of one dominant soil. Information on the soil make up was obtained from “State of Michigan Environmental Assessment – Pinckney RA”

- Bellefontaine: This soils system consists of well drained soils with a loamy surface layer over sandy clay loam or clay loam. Runoff is slow in the nearly level areas and rapid in the more sloping areas.
- Coloma: Well drained soils with a sandy surface layer over alternate layers of sand and loamy sand or light sandy loam over sand. It consists of low dunes, lake plains, and moraines. The soil is droughty and susceptible to erosion.
- Miami: The Miami series consist of light cooler, well drained soils formed in highly calcareous glacial till made up of loam to light clay loam.
- Kerston: The Kerston soils consist of alternate layers of black muck and alluvial sands and silts. The layers of mineral material are generally thinner than the layers of muck. The soils are poorly drained and have a high water table, which causes frequent flooding.
- Rifle: The Rifle series consists of organic soils mainly formed from slightly decomposed woody plants including tamarack, red maple, elm, and white birch. The soils are similar to Carlisle and Houghton soils, but the surface layer of the Carlisle soils consist of much more decomposed muck and the Houghton soils have formed mainly from fibrous plant remains.

- **Houghton:** The Houghton series consists of organic soils that have formed from fibrous plant remains deposited in wet depressions. In the uppermost few inches, the sedges and grasses from which these soils formed are partly or completely decomposed. They are successively less decomposed at increasing depths. These soils occur mainly in marshy areas, some of which are bordered by lakes. They differ from Carlisle muck, which has formed mainly from woody plants rather than from fibrous materials. The thickness of organic deposits ranges from five to twenty feet. The degree of decomposition varies; in a few areas the surface is somewhat woody.
- **Carlisle:** The Carlisle series consists of black to very dark brown, well decomposed organic soils. The soils take form from mixed woody and fibrous materials under a swamp-timber type of vegetation. The organic soil materials are generally more than 42 inches thick. The Carlisle soils occur in old lakebeds and in drainage ways, but the most extensive areas are in closed depression in the uplands. A few areas occur in bottom lands, outwash plains, and in old glacial valleys.

### **Flora – Presettlement**

Prior to European settlement, mixed oak forests dominated the hilly upland areas of ice contact. Soils of these forests were dry and supported a dominance of white oak and black oak but also contained significant amounts of pignut hickory, black cherry, and sassafras. Black oak was an especially important component of dry and dry-mesic southern forests in this region of the state.

Wetland communities surrounded many lakes and ponds, in some cases occupying the smaller ice block depressions in their entirety. Wet prairie, mixed conifer swamp, and mixed hardwood swamp were most common, but emergent marsh – shrub swamp also occurred. Conifer swamps were dominated by tamarack in southern Michigan, and southern hardwood swamps contained elms, ashes, and maples. Emergent marsh – shrub swamp was found along lake margins and included areas of emergent sedges that graded into dogwood, willow, and buttonbush shrub swamp.

The northern boundary of Pinckney RA extends slightly into outwash plain, where large areas of wet prairie occurred prior to settlement. In fact, all of Woodburn Lake was once wet prairie. Most of what was documented as wet prairie included wet prairie, wet meadow, emergent marsh, shrub swamp, and prairie fen. Prairie fens are globally rare and in Michigan they are known almost exclusively from the Interlobate region.

\*Information on pre-settlement flora was obtained from: "Inventory and Management Recommendations for Pinckney and Waterloo State Recreation Areas' Natural Communities, Rare Plants, and Rare Wildlife." Prepared by: Jeffrey L. Cooper, Phyllis J. Higman, Jodi Spieles, Michael R. Penskar, David L. Cuthrell, Yu Man Lee, Dennis A. Albert, and Lori Peltz-Lewis



## **Flora – Current Land Cover**

The forested sections of Pinckney RA are confined to many small woodlots, the largest of which would not exceed 100 acres in size. Stands are irregular in outline and mostly in areas where the topography is too sloped for agricultural use. The woodlots are composed of unevenly aged, deciduous stands of trees.

Much of the level upland is old agricultural land that is now open fields. Many of these fields contain a dominance of non-native plants including spotted knapweed, white sweet clover, timothy grass, Kentucky bluegrass, and quack grass. However, native plants also common to these openings include tall goldenrod, hairy aster, black-eyed susan, common cinquefoil, and wild strawberry. Non-native, autumn olive is a dominant component along the edges and spreading into most of these open fields. On uplands where steep slopes occur, there is second growth dry or dry-mesic southern forest. Dry southern forests are dominated by white oak and black oak, and dry-mesic southern forests are dominated by white oak, black oak, red oak, and hickory. Non native plants, including garlic mustard and multiflora rose, are common in most of these forests. Patches of the non-native black locust are scattered throughout upland areas, mostly on edges of oak forests.

There are many different types of wetlands in Pinckney RA. Kettle depressions most often contain inundated shrub swamp or a ring of emergent marsh surrounding relict conifer (tamarack) swamp. Southern wet meadow, cat-tail marshes and southern shrub swamp are also common in kettle depressions. In lowlands around lakes and drainage streams, emergent marsh, southern shrub swamp, relict conifer swamp, southern wet meadow, and prairie fen occur. A notable change is the significant amount of shrub swamp at present that was not evident in pre-settlement times. It is clear that some of the present day shrub swamp has resulted from succession due to fire suppression. Several areas of prairie fen degraded by the encroachment of woody shrubs were identified during surveys. Since prairie fens are rare Pinckney RA is providing conservation for several of these communities. Pinckney RA also contains small areas of wet mesic and mesic sand prairie, globally rare natural communities.

\*Information on flora – current landcover was obtained from: “Inventory and Management Recommendations for Pinckney and Waterloo State Recreation Areas' Natural Communities, Rare Plants, and Rare Wildlife.” Prepared by: Jeffrey L. Cooper, Phyllis J. Higman, Jodi Spieles, Michael R. Penskar, David L. Cuthrell, Yu Man Lee, Dennis A. Albert, and Lori Peltz-Lewis

## **Fauna - Common**

Animal populations in Pinckney RA are typical of the region. Common animals include: deer, rabbit, fox, raccoon, opossum, squirrels, and coyotes. Avian species include swans, snow and blue geese, Canada geese, mallards, black ducks, blue wing teal, wood ducks, bitterns, great blue herons, black terns, coot, egrets, pheasant, quail, ravens, crows, red winged blackbirds, and a number of songbird species. One bird of note is the sandhill crane, which attracts bird watchers from all across the nation to Pinckney RA. Unfortunately, many

domestic animals, such as dogs and cats, have been abandoned in the park and are now part of the habitat.

Special Concern, State Threatened, or State Endangered Species

Hairy angelica (*Angelica venenosa*)  
Dwarf hackberry (*Celtis occidentalis*)  
Horsetail spike-rush (*Eleocharis equisetoides*)  
Umbrella-grass (*Fuirena squarosa*)  
Dwarf-bulrush (*Hemicarpha micrantha*)  
Bald-rush (*Psilocarya scirpoides*)  
Rose-pink (*Sabatia angularis*)  
Prairie dropseed (*Sporobolus heterolepis*)  
White lady's-slipper (*Cypripedium candidum*)  
English sundew (*Drosera Xanglica*)  
Mat muhly (*Muhlenbergia richardsonis*)  
Bog bluegrass (*Poa paludigena*)  
Clinton's bulrush (*Scirpus clintonii*)  
Tall nut-rush (*Scleria triglomerata*)

\*list taken from "Inventory and Management Recommendations for Pinckney and Waterloo State Recreation Areas' Natural Communities, Rare Plants, and Rare Wildlife"

Special Concern, State Threatened, State Endangered and Federally Endangered Species

Blanding's turtle (*Emydoidea blandingii*)  
Blazing star borer (*Papaipema beeriana*)  
Cerulean warbler (*Dendroica cerulean*)  
Eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*)  
Hooded warbler (*Wilsonia citrine*)  
Poweshiek skipper (*Oarisma powesheik*)  
Red-legged spittlebug (*Prosapia ignipectus*)  
Spotted turtle (*Clemmys guttata*)  
Tamarack tree cricket (*Oecanthus laricis*)  
Woodland vole (*Microtus pinetorum*)

\*list taken from "Inventory and Management Recommendations for Pinckney and Waterloo State Recreation Areas' Natural Communities, Rare Plants, and Rare Wildlife"

## Michigan Natural Features in Washtenaw County\*

Scientific Name	Common Name	Federal Status	State Status
<i>Acris crepitans blanchardi</i>	Blanchard's cricket frog		T
<i>Acronicta falcata</i>	Corylus dagger moth		SC
<i>Adlumia fungosa</i>	Climbing fumitory		SC
<i>Alasmidonta marginata</i>	Elktoe		SC
<i>Alasmidonta viridis</i>	Slippershell		T
<i>Ambystoma texanum</i>	Smallmouth salamander		E
<i>Ammodramus henslowii</i>	Henslow's sparrow		E
<i>Ammodramus savannarum</i>	Grasshopper sparrow		SC
<i>Angelica venenosa</i>	Hairy angelica		SC
<i>Anguispira kochi</i>	Banded globe		SC
<i>Aristolochia serpentaria</i>	Virginia snakeroot		T
<i>Artemisia ludoviciana</i>	Western mugwort		T
<i>Asclepias purpurascens</i>	Purple milkweed		T
<i>Asclepias sullivantii</i>	Sullivant's milkweed		T
<i>Aster praealtus</i>	Willow aster		SC
<i>Astragalus canadensis</i>	Canadian milk vetch		T
<i>Astragalus neglectus</i>	Cooper's milk vetch		SC
<i>Baptisia lactea</i>	White or prairie false indigo		SC
<i>Battus philenor</i>	Pipevine swallowtail		SC
<i>Betula murrayana</i>	Murray birch		SC
Bog			
<i>Botaurus lentiginosus</i>	American bittern		SC
<i>Bouteloua curtipendula</i>	Side-oats grama grass		E
<i>Bromus nottowayanus</i>	Satin brome		SC
<i>Buteo lineatus</i>	Red-shouldered hawk		T
<i>Calephelis mutica</i>	Swamp metalmark		SC
<i>Carex davisii</i>	Davis's sedge		SC
<i>Carex festucacea</i>	Fescue sedge		SC
<i>Carex lupuliformis</i>	False hop sedge		T
<i>Carex seorsa</i>	Sedge		T
<i>Carex squarrosa</i>	Sedge		SC
<i>Carex trichocarpa</i>	Hairy-fruited sedge		SC
<i>Castanea dentata</i>	American chestnut		E
<i>Celtis tenuifolia</i>	Dwarf hackberry		SC
<i>Chelone obliqua</i>	Purple turtlehead		E
<i>Cistothorus palustris</i>	Marsh wren		SC
<i>Clemmys guttata</i>	Spotted turtle		T
<i>Clinostomus elongatus</i>	Redside dace		E
<i>Clonophis kirtlandii</i>	Kirtland's snake		E
<i>Coregonus artedii</i>	Lake herring or Cisco		T
<i>Cryptotis parva</i>	Least shrew		T
<i>Cyclonaias tuberculata</i>	Purple wartyback		T
<i>Cygnus buccinator</i>	Trumpeter swan		T
<i>Cypripedium arietinum</i>	Ram's head lady's-slipper		SC
<i>Cypripedium candidum</i>	White lady slipper		T
<i>Dendroica cerulea</i>	Cerulean warbler		T
<i>Dendroica discolor</i>	Prairie warbler		E
<i>Dichanthelium leibergii</i>	Leiberg's panic grass		T
<i>Discus patulus</i>	Domed disc		SC
<i>Dorydiella kansana</i>	Leafhopper		SC
Dry Southern Forest	Well Drained Forest, Central Midwest Type		
Dry-mesic Prairie	High Prairie, Midwest Type		
Dry-mesic Southern Forest			
<i>Eacles imperialis pini</i>	Pine imperial moth		SC
<i>Echinacea purpurea</i>	Purple coneflower		X
<i>Eleocharis equisetoides</i>	Horsetail spike rush		SC
<i>Eleocharis geniculata</i>	Spike-rush		X
<i>Eleocharis radicans</i>	Spike rush		X
<i>Emydoidea blandingii</i>	Blanding's turtle		SC
<i>Epioblasma triquetra</i>	Snuffbox	C	E
<i>Eragrostis capillaris</i>	Love grass		SC
<i>Eragrostis pilosa</i>	Small love grass		SC

Scientific Name	Common Name	Federal Status	State Status
<i>Erynnis baptisiae</i>	Wild indigo duskywing		SC
<i>Etheostoma spectabile</i>	Orangethroat darter		SC
<i>Euonymus atropurpurea</i>	Wahoo		SC
<i>Eupatorium sessilifolium</i>	Upland boneset		T
<i>Euphyes dukesi</i>	Dukes' skipper		T
<i>Falco peregrinus</i>	Peregrine falcon		E
<i>Fuirena pumila</i>	Umbrella-grass		T
<i>Galearis spectabilis</i>	Showy orchis		T
<i>Gallinula chloropus</i>	Common moorhen		T
<i>Gentiana flavida</i>	White gentian		E
<i>Gentiana puberulenta</i>	Downy gentian		E
<i>Gentianella quinquefolia</i>	Stiff gentian		T
<i>Geum virginianum</i>	Pale avens		SC
Great Blue Heron Rookery	Great Blue Heron Rookery		
<i>Helianthus hirsutus</i>	Whiskered sunflower		SC
<i>Hemicarpha micrantha</i>	Dwarf-bulrush		SC
<i>Hemileuca maia</i>	Barrens buckmoth		SC
Hillside Prairie	High Prairie, Midwest Type		
<i>Hybanthus concolor</i>	Green violet		SC
<i>Hydrastis canadensis</i>	Goldenseal		T
Inundated Shrub Swamp	Shrub Swamp, Central Midwest Type		
<i>Isotria verticillata</i>	Whorled pogonia		T
<i>Ixobrychus exilis</i>	Least bittern		T
<i>Jeffersonia diphylla</i>	Twingleaf		SC
<i>Justicia americana</i>	Water willow		T
<i>Lampsilis fasciola</i>	Wavyrayed lampmussel		T
<i>Lechea minor</i>	Least pinweed		X
<i>Lepisosteus oculatus</i>	Spotted gar		SC
<i>Lepyronia angulifera</i>	Angular spittlebug		SC
<i>Ligumia recta</i>	Black sandshell		E
<i>Linum virginianum</i>	Virginia flax		T
<i>Liparis liliifolia</i>	Purple twayblade		SC
<i>Lithospermum latifolium</i>	Broad-leaved puccoon		SC
Mesic Sand Prairie	Moist Sand Prairie, Midwest Type		
Mesic Southern Forest	Rich Forest, Central Midwest Type		
<i>Microtus pinetorum</i>	Woodland vole		SC
<i>Morus rubra</i>	Red mulberry		T
<i>Muhlenbergia richardsonis</i>	Mat muhly		T
<i>Myotis sodalis</i>	Indiana bat	LE	E
<i>Myrica pensylvanica</i>	Northern bayberry		T
<i>Neonympha mitchellii mitchellii</i>	Mitchell's satyr	LE	E
<i>Nicrophorus americanus</i>	American burying beetle	LE	X
<i>Notropis anogenus</i>	Pugnose shiner		E
<i>Notropis photogenis</i>	Silver shiner		E
<i>Noturus miurus</i>	Brindled madtom		SC
<i>Noturus stigmosus</i>	Northern madtom		E
Oak Barrens	Barrens, Central Midwest Type		
<i>Oarisma poweshiek</i>	Poweshiek skipperling		T
<i>Obovaria olivaria</i>	Hickorynut		E
<i>Oecanthus laricis</i>	Tamarack tree cricket		SC
<i>Panax quinquefolius</i>	Ginseng		T
<i>Pantherophis spiloides</i>	Gray ratsnake		SC
<i>Papaipema beeriana</i>	Blazing star borer		SC
<i>Papaipema silphii</i>	Silphium borer moth		T
<i>Paronychia fastigiata</i>	Low-forked chickweed		X
<i>Penstemon pallidus</i>	Pale beard tongue		SC
<i>Phoxinus erythrogaster</i>	Southern redbelly dace		E
<i>Platanthera ciliaris</i>	Orange- or yellow-fringed orchid		E
<i>Platanthera leucophaea</i>	Prairie white-fringed orchid	LT	E
<i>Pleuroberma sintoxia</i>	Round pigtoe		SC
<i>Poa paludigena</i>	Bog bluegrass		T
<i>Polemonium reptans</i>	Jacob's ladder		T
<i>Pomatiopsis cincinnatiensis</i>	Brown walker		SC
Poor Conifer Swamp			

Scientific Name	Common Name	Federal Status	State Status
<i>Populus heterophylla</i>	Swamp or Black cottonwood		E
Prairie Fen	Alkaline Shrub/herb Fen, Midwest Type		
<i>Prosapia ignipectus</i>	Red-legged spittlebug		SC
<i>Ptychobranthus fasciolaris</i>	Kidney shell		SC
<i>Pyrgulopsis letsoni</i>	Gravel pyrg		SC
<i>Rallus elegans</i>	King rail		E
<i>Ranunculus rhomboideus</i>	Prairie buttercup		T
<i>Rhynchospora scirpoides</i>	Bald-rush		T
Rich Tamarack Swamp	Forested Bog, Central Midwest Type		
<i>Ruellia humilis</i>	Hairy wild petunia		T
<i>Sabatia angularis</i>	Rosepink		T
<i>Sanguisorba canadensis</i>	Canadian burnet		E
<i>Scirpus clintonii</i>	Clinton's bulrush		SC
<i>Scleria triglomerata</i>	Tall nut rush		SC
<i>Seiurus motacilla</i>	Louisiana waterthrush		T
<i>Silphium integrifolium</i>	Rosinweed		T
<i>Silphium laciniatum</i>	Compass plant		T
<i>Silphium perfoliatum</i>	Cup plant		T
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	C	SC
Southern Hardwood Swamp			
Southern Wet Meadow	Wet Meadow, Central Midwest Type		
<i>Speyeria idalia</i>	Regal fritillary		E
<i>Spiranthes ovalis</i>	Lesser ladies'-tresses		T
<i>Spiza americana</i>	Dickcissel		SC
<i>Sporobolus heterolepis</i>	Prairie dropseed		SC
<i>Strophostyles helvula</i>	Trailing wild Bean		SC
<i>Stylurus laurae</i>	Laura's snaketail		SC
Submergent Marsh			
<i>Terrapene carolina carolina</i>	Eastern box turtle		SC
<i>Tradescantia virginiana</i>	Virginia spiderwort		SC
<i>Trillium sessile</i>	Toadshade		T
<i>Utterbackia imbecillis</i>	Paper pondshell		SC
<i>Valeriana edulis</i> var. <i>ciliata</i>	Edible valerian		T
<i>Venustaconcha ellipsiformis</i>	Ellipse		SC
<i>Villosa iris</i>	Rainbow		SC
Wet Prairie	Wet Prairie, Midwest Type		
Wet-mesic Prairie	Tallgrass Prairie, Central Midwest Type		
<i>Wilsonia citrina</i>	Hooded warbler		SC
<i>Zizania aquatica</i> var. <i>aquatica</i>	Wild rice		T

\*Current as of 12/10/2010 according to the Michigan Natural Features Inventory Website.  
<http://web4.msue.msu.edu/mnfi>

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T = Threatened  
SC = Special concern  
X = Presumed extirpated  
(legally 'threatened' if rediscovered)

#### Federal Protection Status Code Definitions

LE = Listed endangered  
LT = Listed threatened  
LELT = Partly listed endangered and partly listed threatened  
PDL = Proposed delist  
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## Michigan Natural Features in Livingston County

Scientific Name	Common Name	Federal Status	State Status
<i>Acris crepitans blanchardi</i>	Blanchard's cricket frog		T
<i>Alasmidonta marginata</i>	Elktoe		SC
<i>Alasmidonta viridis</i>	Slippershell		T
<i>Ammocrypta pellucida</i>	Eastern sand darter		T
<i>Ammodramus henslowii</i>	Henslow's sparrow		E
<i>Ammodramus savannarum</i>	Grasshopper sparrow		SC
<i>Amorpha canescens</i>	Leadplant		SC
<i>Angelica venenosa</i>	Hairy angelica		SC
<i>Asclepias purpurascens</i>	Purple milkweed		T
<i>Astragalus canadensis</i>	Canadian milk vetch		T
<i>Botaurus lentiginosus</i>	American bittern		SC
<i>Bouteloua curtipendula</i>	Side-oats grama grass		E
<i>Buteo lineatus</i>	Red-shouldered hawk		T
<i>Calephelis mutica</i>	Swamp metalmark		SC
<i>Carex richardsonii</i>	Richardson's sedge		SC
<i>Carex squarrosa</i>	Sedge		SC
<i>Celtis tenuifolia</i>	Dwarf hackberry		SC
<i>Cistothorus palustris</i>	Marsh wren		SC
<i>Clemmys guttata</i>	Spotted turtle		T
<i>Coregonus artedi</i>	Lake herring or Cisco		T
<i>Cryptotis parva</i>	Least shrew		T
<i>Cypripedium arietinum</i>	Ram's head lady's-slipper		SC
<i>Cypripedium candidum</i>	White lady slipper		T
<i>Dendroica cerulea</i>	Cerulean warbler		T
<i>Draba reptans</i>	Creeping whitlow grass		T
<i>Drosera anglica</i>	English sundew		SC
<i>Eleocharis equisetoides</i>	Horsetail spike rush		SC
<i>Eleocharis radicans</i>	Spike rush		X
<i>Emydoidea blandingii</i>	Blanding's turtle		SC
<i>Epioblasma triquetra</i>	Snuffbox	C	E
<i>Erynnis persius persius</i>	Persius dusky wing		T
Floodplain Forest			
<i>Geum virginianum</i>	Pale avens		SC
Great Blue Heron Rookery	Great Blue Heron Rookery		
<i>Hemileuca maia</i>	Barrens buckmoth		SC
<i>Hetaerina titia</i>	Smokey rubyspot		SC
<i>Hydrastis canadensis</i>	Goldenseal		T
<i>Justicia americana</i>	Water willow		T
<i>Kuhnia eupatorioides</i>	False boneset		SC
<i>Lampsilis fasciola</i>	Wavyrayed lampmussel		T
<i>Ligumia recta</i>	Black sandshell		E
<i>Linum virginianum</i>	Virginia flax		T
<i>Liodessus cantralli</i>	Cantrall's bog beetle		SC
<i>Liparis liliifolia</i>	Purple twayblade		SC
<i>Microtus pinetorum</i>	Woodland vole		SC
<i>Morus rubra</i>	Red mulberry		T
<i>Muhlenbergia richardsonis</i>	Mat muhly		T
<i>Myotis sodalis</i>	Indiana bat	LE	E
<i>Nicrophorus americanus</i>	American burying beetle	LE	X
<i>Notropis photogenis</i>	Silver shiner		E
<i>Noturus miurus</i>	Brindled madtom		SC
Oak Barrens	Barrens, Central Midwest Type		
<i>Oarisma poweshiek</i>	Poweshiek skipperling		T
<i>Oecanthus laricis</i>	Tamarack tree cricket		SC
<i>Papaipema beeriana</i>	Blazing star borer		SC
<i>Papaipema speciosissima</i>	Regal fern borer		SC
<i>Phoxinus erythrogaster</i>	Southern redbelly dace		E
<i>Platanthera ciliaris</i>	Orange- or yellow-fringed orchid		E
<i>Platanthera leucophaea</i>	Prairie white-fringed orchid	LT	E
<i>Pleurobema sintoxia</i>	Round pigtoe		SC
<i>Poa paludigena</i>	Bog bluegrass		T
Poor Conifer Swamp			

Scientific Name	Common Name	Federal Status	State Status
Prairie Fen	Alkaline Shrub/herb Fen, Midwest Type		
<i>Prosapia ignipectus</i>	Red-legged spittlebug		SC
<i>Ptychobranthus fasciolaris</i>	Kidney shell		SC
<i>Pyrgulopsis letsoni</i>	Gravel pyrg		SC
<i>Rallus elegans</i>	King rail		E
Rich Tamarack Swamp	Forested Bog, Central Midwest Type		
<i>Scirpus clintonii</i>	Clinton's bulrush		SC
<i>Scleria triglomerata</i>	Tall nut rush		SC
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga	C	SC
Southern Wet Meadow	Wet Meadow, Central Midwest Type		
<i>Speyeria idalia</i>	Regal fritillary		E
<i>Spiza americana</i>	Dickcissel		SC
<i>Sporobolus heterolepis</i>	Prairie dropseed		SC
<i>Terrapene carolina carolina</i>	Eastern box turtle		SC
<i>Valeriana edulis</i> var. <i>ciliata</i>	Edible valerian		T
<i>Venustaconcha ellipsiformis</i>	Ellipse		SC
<i>Villosa iris</i>	Rainbow		SC
Wet-mesic Prairie	Tallgrass Prairie, Central Midwest Type		
<i>Wilsonia citrina</i>	Hooded warbler		SC

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## **A.9 HISTORIC/CULTURAL RESOURCES**

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### PHYSICAL ENVIRONMENT

The physical environment was shaped by two major human forces in the past. The first force to change the landscape of the Pinckney RA region was Native Americans, who used fires to clear large sections of land. Later, farmers would use these same techniques to clear land for their crops, but also had the use of better technology such as saws, animals, and eventually machinery to clear vegetation and plow the soil. Areas with the oldest tree growth are those too steep to be used for farming or structure building, and consequently were never cleared.



## **A.10 EDUCATION AND INTERPRETATION**

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State park explorer programs are offered to campers and day visitors at Pinckney RA. State park explorer guides lead informal programs and hikes that feature natural, cultural, and historic resources. Program topics include forests, insects, night hikes, pond studies, and other topics covering the variety of plants, animals, and natural features found within Pinckney RA. These programs are designed for children and adults, often in a family setting.

## A.11 RECREATIONAL RESOURCES

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Pinckney Recreation Area offers a diverse array of recreational opportunities with both day-use activities and camping. Following are the recreational features of this park:

- Hunting: The majority of Pinckney RA is open to hunting during the normal season for each species. There are seasonal restrictions on shooting from April 1 to September 14. Hunting is prohibited in “Hunting Safety Zones,” located around developed day use areas, camp grounds, and park offices. Target shooting is prohibited.
- Swimming: Developed swimming areas are available at Half Moon Lake, Bruin Lake, Pickerel Lake, and Silver Lake. Bruin Lake beach is open only to campers.
- Fishing: Pier fishing is available at Silver Lake and Crooked Lake. All accessible lakes within Pinckney can be fished.
- Picnic Area at Silver Lake: Located near the beach at Silver Lake, this picnic area has picnic tables, grills, fire pits, and seasonal modern toilet facilities. Recreational opportunities include access to the trail system, a playground, volleyball courts, horseshoe pits, and a fishing pier. From Memorial Day to Labor Day row boats, canoes, kayaks, paddle boats, and your-motor-on boats can be rented. A concession building is located at Silver Lake Picnic Area as well. Alcohol is prohibited from April 1 through September 30 without the written authorization of the park manager at Silver Lake.
- Picnic Area at Halfmoon Lake: The picnic area at Half Moon Lake includes a boat launch, access to the Potawatomi Trail, a volleyball court, horse shoe pits, and a playground. There are two picnic shelters which can be reserved. Alcohol is prohibited from April 1 through September 30 without the written authorization of the park manager at Halfmoon Lake.
- Trail System: Hiking, mountain biking, equestrian, and cross country ski trails criss-cross the entire park. Hikers and mountain bikers will have access to the extensive trail system that begins at Silver Lake Beach. Trailside camping is allowed within designated campgrounds. Equestrian trails are located in the northern section of Pinckney RA. Snowmobiling in designated areas is allowed if 4 inches of snow are on the ground. Hiking trails are closed to snowmobiling.
  - Pinckney-Silver Lake trail: 2 miles. Hiking, mountain biking, cross country ski
  - Pinckney-Crooked Lake trail: 5 miles. Hiking, mountain biking, cross country ski

- Pinckney-Potawatomi trail: 17 miles. Hiking, mountain biking, cross country ski
- Pinckney - Waterloo trail: 29 miles. Hiking, cross country ski
- Pinckney equestrian trails: 8 miles. Equestrian
- Pinckney - Losee lake trail: 3.3 miles. Hiking
  
- Boat Access/Launch Site: Improved boat launches can be found at Bruin Lake, Half Moon Lake, South Lake, North Lake, Joslin Lake, and Portage Lake. Unimproved boat ramps are located on Crooked Lake, Gosling Lake, and Hiland Lake. There are hand carry access site into Sullivan Lake, and Pickerel Lake. The chain of seven lakes can be accessed through Bruin Lake and Half Moon Lake.
  
- Metal Detecting: Any items found must be checked with the park staff and may be held for further investigation. Areas open to metal detecting are Halfmoon Lake Beach, Bruin Lake Campground, and Silver Lake Beach. Note: only the un-vegetated area of Halfmoon Lake Beach is open to metal detecting.

## **A.12 AREAS OF CONFLICT**

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No areas of conflict reported.

## A.13 PARK USE STATISTICS AND ECONOMIC IMPACTS

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### Economic Impacts

Michigan State University (Dr. Dan Stynes) developed an economic analysis model known as “MGM2”. This model is an update of the MGM model developed by Dr. Ken Hornback for the National Park System in 1995. The purpose of the updated MGM2 model is to estimate the impact of park visitor spending on the local economy. These economic impacts are reflected in terms of sales, income, employment, and value added.

This analysis tool relies on three primary factors in the common equation:

Economic Impact of Tourism Spending = Number of Tourists (x) Average Spending per Visitor (x) Multiplier (to estimate extended effects of direct spending).

For our purposes of conducting a very basic review of impacts, we have utilized the “MGM2-Short Form” version of the program, which simplifies the extent of analysis required for input, and utilizes more generalized multipliers for spending outputs. For the non economist, this provides an excellent tool for establishing a baseline assessment of the economic impacts of our parks.

Following are the relative economic impacts (based on 2009 data) of Pinckney RA to the economy of Livingston/Washtenaw County.

### DIRECT ECONOMIC EFFECTS TO THE COMMUNITY

- Direct spending attributable to Pinckney RA visitors totaled \$8,095,000 of which \$5,301,000 came from Day-Use, and \$2,794,000 from Camping.
- Jobs totaled 255, with 167 related to Day-Use activity and 88 to Camping. (Note...jobs are not full-time equivalent. They include part-time and seasonal positions.)
- Personal Income total is \$2,753,000 with \$1,802,830 associated with Day-Use of the park and \$950,260 associated with Camping.
- Value added (total income plus business taxes) totaled \$4,156,000. Day-Use accounted for \$2,721,800 and Camping accounted for \$1,434,640.

### TOTAL ECONOMIC EFFECTS TO THE COMMUNITY

(NOTE...this reflects ‘Direct Effects’ plus the ‘Secondary Effects’ of visitor spending on the local economy. Secondary Effects (sometimes called ‘Multiplier Effects’) capture economic activity that results from the re-circulation of money spent by the park visitors in the community.

- Total spending = \$10,702,000 (32% over direct spending)
- Jobs = 298 (17% over direct job impacts)
- Personal Income = \$3,621,000 (32% over direct spending)
- Value added = \$5,763,000 (39% over direct value added)

NOTE....for purposes of updating economic values, the Consumer Price Index (CPI) is often used to adjust values over time. Through the following link, [\[http://www.bls.gov/home.htm\]](http://www.bls.gov/home.htm) a CPI Inflation Calculator is located in the category of "Inflation and Consumer Spending".