

Office of Resource Conservation

State of Illinois

Grant Segment/Proposal

Project Number: T-61-M-1

Project Title: Sand Community Restoration in the Kankakee Sands Opportunity Area

Purpose:

The Kankakee Sands Macrosite is a bi-state project located near the state line between Illinois and Indiana within the Kankakee Sands Section of the Grand Prairie Natural Division. This remarkable landscape contains one of the greatest concentrations of the globally rare black oak sand savanna ecosystem left anywhere in the nation. According to the National Biological Service, Midwest Savannas are a critically endangered and threatened ecosystem and according to the Fish and Wildlife Service the Kankakee Sands contains the largest concentration of high quality black oak sand savanna landscape surviving in the Midwest.

Currently, over 23,000 acres of high quality natural areas, restoration areas, and buffer habitat are owned and managed by the Illinois and Indiana Departments of Natural Resources, The Nature Conservancy, and private conservation buyers. Within Illinois, The Kankakee Sands Macrosite contains over 4,000-acres of INAI quality land and provides habitat for at least 30 state-listed species (Table 1).

The bi-state working group, initiated by The Indiana and Illinois Nature Conservancy, determined 7 critical conservation targets within the macrosite. These include Sand Savanna (Black Oak), Sand Flatwoods (Pin Oak), Sand Prairie/Sedge Meadow (blue joint grass and tussock sedge), Red-headed woodpecker, Regal fritillary, Plains pocket gopher, and the Henslow's sparrow.

To remain long term viability of these targets and this sand ecosystem, the following conservation goals were made.

1. Protect and restore 10,000 acres of sand savanna ecosystem
2. Protect and restore 6,000 acres of sand prairie ecosystem
3. Protect all remaining sand flatwoods.
4. Protect and sustain 3 source populations of 2,000 regal fritillaries
5. Protect and sustain 500 breeding pairs of red-headed woodpeckers
6. Protect and sustain 500 pair of breeding Henslow's sparrows
7. Protect and sustain 40,000 plains pocket gophers (4/acres)

The bi-state group shares the responsibility for meeting conservation goals. And the area is partitioned nicely to meet specific goals. For example, very little sand savanna remains in Indiana so much of the management is completed to restore and reconstruct various sand prairie habitat in accordance with pre-settlement notes. Restoring sand prairie of various moisture regimes will directly meet several conservation goals. Similarly, there are very few remaining presettlement sand prairie tracts in Illinois. Instead, the remaining intact communities in Illinois are sand savanna communities. Therefore we can directly work towards protecting and restoring 10,000 acres of sand savanna ecosystem, protecting all remaining sand flatwoods, protecting and sustaining 500 breeding pairs of red-headed woodpeckers, and protecting and sustaining 40,000 plains pocket gophers.

The Kankakee Sands (Pembroke Savannas/Kankakee River/Momence Wetlands Area) is one of 32 Conservation Opportunity Area within Illinois and is part of the larger Grand Prairie Natural Division, see Section IV. B. pages 130-140. The Illinois Wildlife Action Plan lists objectives for the Kankakee Sands to “restore and manage an additional 10,000 acres of black oak sand savanna, sand prairie and sand flatwoods within the section”, Section IV. B. pages 138-139. This opportunity area provides habitat for approximately 80 species in greatest need of conservation, including a minimum of 40 insects, 5 fish, 3 reptiles and amphibians, 20 birds, 4 mammals, and 5 mollusks. Twenty seven state listed species are known from the area. Several of these are found only in the Kankakee Sands ecosystem. In addition, the biogeographic uniqueness of the Kankakee Sands is stunning; More than 30 species of plants and animals reach the limits of their distributions here including the regal fritillary, sweet fern, plains pocket gopher, ornate box turtle, and western glass lizard. Moreover, a study done by the Illinois Natural History Survey reports that the bobwhite quail and red-headed woodpecker, whose populations are plummeting nation-wide, are doing remarkably well in the Kankakee Sands. Thirteen different biotic communities are represented within the opportunity area.

Need:

In Illinois, the main focus of work has been that of protecting the globally significant oak savanna landscape which remains largely intact and viable. However, the sites are not without stewardship needs. Many suffer from overgrazing, fire suppression, hydrological changes, and invasion by exotic woody and herbaceous vegetation.

The need for restoration of these protected and/or public lands for wildlife habitat far exceeds available funding. Funds approved through this grant will be used to: Expand the restoration and stewardship of high quality wildlife habitats detailed in the Forest Campaign and the Farmland & Prairie Campaign of the Illinois Wildlife Action Plan, found in Section III. E. pages 66-70 and 71-76 respectively.

Objectives

Over the grant’s duration (July 1, 2009 – December 31, 2011), 13 prescribed fires will be completed on more than 1000 acres to “maintain or restore open woodland habitat and stimulate the germination and production of native ground layer plants and control invasive species” per the Illinois Wildlife Action Plan’s, Forest Campaign, recommendations to maintain and enhance

the composition of Illinois' forested habitats, Section III. E. pages 67-70. In addition, invasive woody vegetation control, exotic woody and herbaceous vegetation control, and/or habitat restoration will be completed on at least 100 acres on permanently protected sites in the Kankakee Sands Macrosite to "protect and restore remnant savannas and sand prairies," Section IV. B. page 138. This invasive vegetation, exotic woody and herbaceous vegetation control falls under the Illinois Wildlife Action Plan's recommendations to "restore and manage native prairie and forest communities and populations of imperiled and extirpated prairie and forested wildlife" from both the Forest Campaign and the Farmland and Prairie Campaign, Section III. E. pages 68 and 74 respectively. Table 2 outlines the sites to receive prescribed fire and the approximate dates. Table 3 outlines the sites to receive woody and exotic invasive species control and the approximate control dates.

Expected Results or Benefits:

The project will assist in meeting the overall proposed management goals of focusing restoration efforts around 7 targets, including sand savanna, sand flatwoods, sand prairie /sedge meadow, red-headed woodpecker, regal fritillary, plains pocket gopher, and the Henslow's Sparrow. Meeting these targets will provide additional quality habitat in the Kankakee Sands, an area rich in species in greatest need of conservation, state listed species, and species with unusual or rare distributions. The results from this grant will be an increase in habitat for state threatened and endangered species, improved quality of sand savanna and sand prairie communities, increased habitat for grassland birds, increase host plant diversity for prairie insects, and increased ecosystem function.

Approach:

DNR and its partners will use Prescribed Fire, Invasive Woody Plant Control, Invasive Exotic Species Control, Erosion/sedimentation control, Boundary Protection/Fence Repair, Habitat Creation/Restoration: Planting, and Hydrology Restoration to increase and maintain high quality habitats. All vegetation management will follow the Illinois Nature Preserve Commission's Vegetation Management Guidelines. Specific guidelines are listed below.

- **Prescribed Fire**

Details - Prescribed fire involves the planned application of fire to meet specific management goals. Prescribed fire may be used to control the invasion or spread of exotic invasive species, control succession, maintain herbaceous habitats including prairies and some wetlands, and promote the regeneration of some woodland species. The prescribed burning activities include planning, preparation, implementation and evaluation of the prescribed burn and its impacts. Planning includes the development of a written prescription by the IDNR's District Heritage Biologist or TNC's Burn Boss in a form and format consistent with IDNR prescribed burning policy. IDNR Plans are reviewed and approved by the Regional Forester and submitted to the Illinois Environmental Protection Agency for air quality related open burning permits. TNC permits are written by the burn boss and then approved by the State Burn Manager. Planners will acquire any other open burning permits or authorizations required within the jurisdiction appropriate to the site. Preparation includes the maintenance of fire equipment, assembly, training and briefing of crews, construction of control lines and notification of

neighbors. Implementation includes all activities related to the actual burning of the site. Prescribed burns will be conducted by a district resource manager or contractor that meets the IDNR qualifications as a burn boss. Only persons who have received the minimum training standards under IDNR policy for participation prescribed burning will assist in conducting the burn. Evaluation includes the preparation of a burn report as per IDNR prescribed burning policy and procedures and any systematic review of impacts of the fire on a site. All prescribed fires on state owned property will be approved through the annual site resource planning process and included on the site's annual plan of work.

- Invasive Woody Plant Control

Details - Invasive woody plant control is the planned mechanical removal, elimination or thinning of woody plant material that has invaded a project area. Invasive woody plants may also be controlled by the use of prescribed fire (see above). Invasive woody plant control is used in prairies, particularly hill prairies where surrounding native woody vegetation is encroaching. In savanna and wetland habitats, woody vegetation control can be used to control shrubs and trees that have increased in density and are shading out rare species found in these habitats. It may also be used to restore sand savanna and sand forest habitats where native mesophytic vegetation (such as cherry) is replacing sand savanna or forest vegetation due to a long history of fire suppression. Control methods will include removal or thinning of target invasive woody plants depending on the management goals. The control methods applied in a site shall be those that will be effective in meeting the desired goal, have a minimal adverse impact on non-target species, and are cost efficient. Those methods will include mechanical cutting or removal of brush with tractor mounted mowers, bulldozer, hand operated brush cutters, and chainsaws; Application of appropriate herbicides using cut stem, injection, basal bark and foliar methods, or a combination of methods. All methods of control of invasive woody plants will be done in ways consistent with methods described in the Illinois Nature Preserves Commission's Vegetation Management Guidelines. All activities, supplies and equipment needed to plan, implement and evaluate a woody plant control effort at a project site will be included. All invasive woody plant control on state owned land will be approved through the annual site resource planning process and included on the site's annual plan of work.

- Invasive Exotic Species Control

Details - Invasive exotic species are species not native to a region which invade native habitats, disrupting the function of these habitats and causing the elimination of or stress to native species populations. Invasive exotic species control is the planned removal, elimination or reduction in these populations of invasive exotic species. Invasive exotic species include woody and herbaceous plants, and animals. The control methods applied in a project site shall be those that will be effective in meeting the desired goal, have a minimal adverse impact on non-target species, and are cost efficient. Invasive exotic woody plant species will be controlled using the methods outlined above for woody plant control. Herbaceous plant species will be controlled using mechanical methods such as pulling or mowing as appropriate, or by the application of herbicides in accordance with state and federal law by licensed applicators. Control of invasive exotic animal populations will include lethal methods such as: trapping; shooting; plus, trap & euthanasia. All methods of control of invasive exotic species will be done in ways consistent with methods described in the Illinois Nature Preserves Commission's Vegetation Management Guidelines. All activities, supplies and equipment needed to plan, implement and evaluate an

invasive exotic species control effort at a project site will be included. All invasive exotic species control will be approved through the annual site resource planning process and included on the site's annual plan of work.

Habitat Creation/Restoration: Planting

Details - Native habitats required to support target species have been lost or degraded. By restoring and increasing the amount of habitat at a project site, we can improve the viability of populations in those locations. In addition to the use of prescribed burns, woody plant control and invasive exotic species control mentioned above, planting is an effective way to restore habitats. Where elements of a particular native habitat exist, seeds may be collected on site and replanted within the project site. If there are sites with insufficient reproduction of desirable native species or where important species components are missing, then habitat may be recreated using plant material from off site. All habitat creation/restoration projects will comply with the IDNR, INPC and Endangered Species Protection Board joint policy on translocation of plant materials. Species planted shall be native to the region where the project site is located. Habitats should be established only on areas where there are appropriate soils. Existing high quality habitats shall not be adversely impacted by habitat creation projects. Collection for restorations shall be from sites where landowners have given their permission and there will be no adverse impact on native populations. Restorations for prairie habitats may include native grasses and forbs. Restorations for forest, savanna, and barren habitats may include appropriate native trees, shrubs, grasses and herbs. Restorations for wetland, riparian and aquatic habitats may include appropriate native trees, shrubs, grasses, herbs and aquatic plants. All activities included in planning, obtaining plant material, planting and evaluating the success of habitat creation/restoration: planting will be included in this practice. All invasive woody plant control will be approved through the annual site resource planning process and included on the site's annual plan of work. All planting projects will be approved through the annual site resource planning process and included on the site's annual plan of work.

Project Duration: July 1, 2009 – December 31, 2011

Location:

The Sand Community Restoration in the Kankakee Sands Conservation Opportunity Area will be within the Kankakee Sands Macrosite (Figure1) on sites within Iroquois and Kankakee Counties, Illinois. They include land owned by IDNR (Iroquois County State Wildlife Area Land and Water Reserve, Hooper Branch Savanna Nature Preserve), TNC (Mskoda Land and Water Reserve, Tallmadge Flatwoods Land and Water Reserve, Pembroke Savanna Nature Preserve, Carl N. Becker Savanna Nature Preserve, and Guiding Star Savanna INAI), as well as property protected in perpetuity by conservation partners (Sweet Fern Savanna Land and Water Reserve, Iroquois Sands Land and Water Reserve).

Kankakee Sands Macrosite 2009

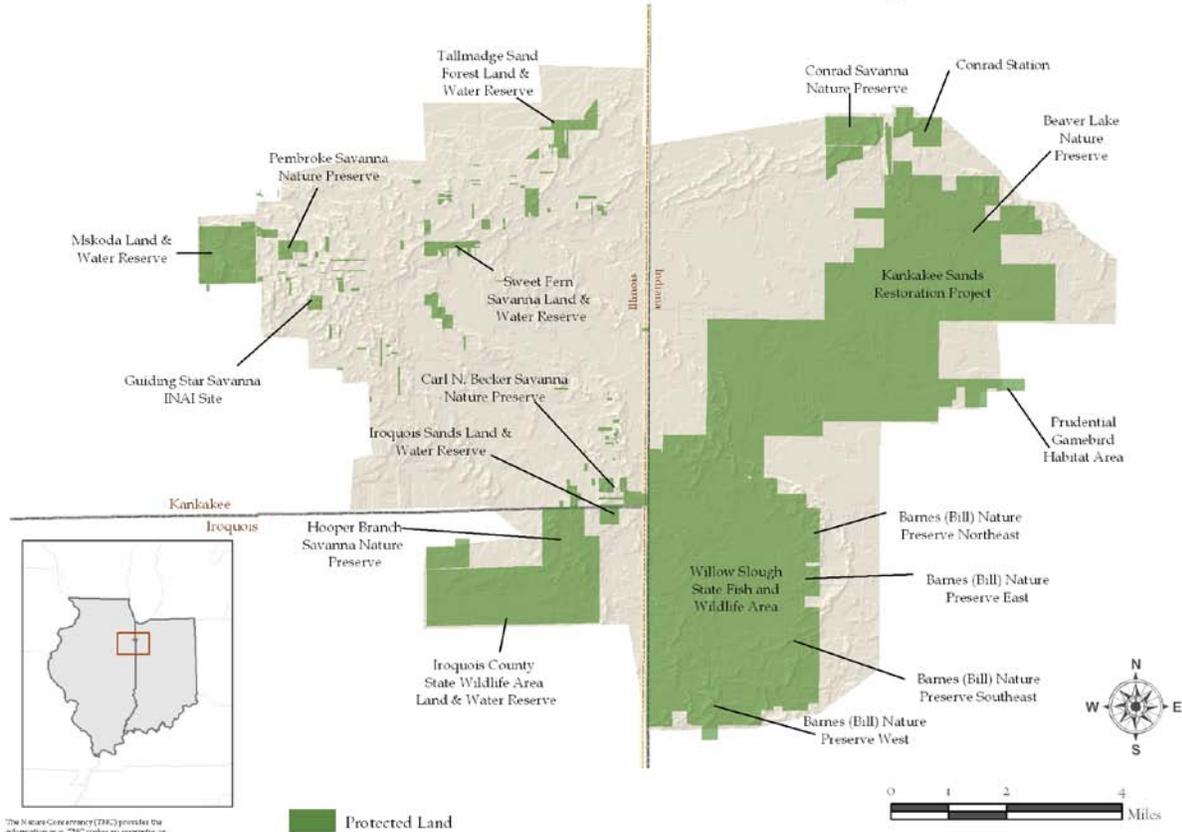


Figure 1. The Kankakee Sands is located within the Kankakee Sands Section of the Grand Prairie Natural Division.

APPENDICES:

- A. Iroquois County State Wildlife Area Land and Water Reserve and Hooper Branch Savanna Nature Preserve map
- B. Mskoda Land and Water Reserve map
- C. Tallmadge Flatwoods Land and Water Reserve map
- D. Carl N. Becker Savanna Nature Preserve/Leesville Savanna map
- E. Guiding Star Savanna INAI map
- F. Sweet Fern Savanna Land and Water Reserve map
- G. Iroquois Sands Land and Water Reserve map

Related Grants:

Iroquois SWA Land & Water Reserve and Hooper Branch Savanna Nature Preserve are currently included with SWG T-28-M-1 (programmatic code 3379). However, funds from T-28-M-1 are being used exclusively for hydrology restoration. Therefore, there will not be any overlap between that grant and this grant that will be used for prescribed burning and native woody vegetation control, and exotic species control.

In-kind match will primarily occur during prescribed burning and woody invasive vegetation control at Hooper Branch Savanna. Through programmatic timekeeping we will accurately reflect time spent on the project so the corresponding match from salaries will be go to the project.

Compliance

The IDNR will use its CERP (Comprehensive Environmental Review Process) as a tool to aid the Department in meeting NEPA compliance for the project outlined under this grant proposal. It is the Department's policy to require CERP applications for all land disturbing activities unless those activities are covered by CERP exemptions.

All planned activities will also be in compliance with the Endangered Species Act. All determinations and documentation will be in accordance with the current established U.S. Fish and Wildlife Service protocols for section 7.

All planned activities will be in compliance with the National Historic Preservation Act and the Council on Historic Preservation Act. All determinations and documentation will be in accordance with the terms of the Programmatic Agreement, as amended, effective September 23, 2002.

When applicable, those planned activities which involve a floodplain and/or jurisdiction wetlands will be done in accordance with Presidential Executive Orders 11988 and 11990.

When applicable, those planned activities which involve programs and/or site improvements will be done in accordance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act.

When applicable, those planned activities which involve the use of pesticides, herbicides or other comparable chemicals will be done in accordance with current state and federal regulations to assure the safe and legal application of those chemicals. All chemicals will be applied in accordance with the manufacturers label instructions. All persons applying chemicals will be licensed by the Illinois Department of Agriculture as a chemical operator along with a licensed applicator, in accordance with Illinois state law.

Grant Proposal Support Documentation:

The following documents are attached in support of this grant proposal:

1. Application for Federal Assistance (Standard Form 424)
2. Grant Agreement - Budget Information
3. Federal Aid Section 7 Evaluation Form
4. Illinois Clearinghouse Response per Federal Executive Order 12372
5. NEPA Compliance Checklist and Environmental Assessment
6. Location Map (See Figure 1).

Project Budget - Total

	Federal Share	State Share	Total
Contractual	\$105,000.00	\$95,000.00	\$200,000.00
Commodities	\$5,000.00	\$5,000.00	\$10,000.00
Personnel	\$0.00	\$10,000.00	\$10,000.00
Total	\$110,000.00	\$110,000.00	\$210,000.00

Contractual Services:

\$200,000.00 will be spent to hire contractor(s) to complete prescribed burning, woody invasive vegetation control, exotic invasive species control, and habitat creation/restoration: Planting.

Commodities:

\$10,000.00 will be used to purchase herbicides.

Personnel:

\$10,000.00 will be in-kind match by IDNR personnel through prescribed burning, woody invasive vegetation control, exotic invasive species control, habitat creation/restoration: Planting, and grant administration.

There will not be any in-kind match by TNC personnel, despite the fact that they do have a full time Project Director working in Illinois.

Personnel:

The following IDNR/INPC, and TNC personnel will be the primary staff implementing the K-Sands habitat restoration project. They will be doing the administration and direct contact with landowners and contractors. Other Office of Resource Conservation and Land Management staff may be involved in limited site specific project implementation.

Eric L. Smith - Project Manager
District Natural Heritage Biologist
301 South Date Street
Gibson City, IL 60936
217-784-4730 EXT 225
Eric.L.Smith@illinois.gov

Kim Roman
Illinois Nature Preserve Commission Field Representative
James "Pate" Phillip State Park
2050 West Stearns Road
Bartlett, IL 60103
(847) 608 - 3100, ext. 2038
Kim.Roman@illinois.gov

Rob Littiken
The Nature Conservancy
Illinois Kankakee Sands Project Director
3294 North US 41
Morocco, IN 47963
219-285-2184
rlittiken@tnc.org

Literature Cited:

Data source-IDNR. 1996. Critical Trends Assessment project Phase II. Inventory of Resource Rich Areas in Illinois. An Evaluation of Ecological Resources. Springfield, IL. 167pp.

Johnson, K. C. and J. E. Ebinger. 1992. Effects of prescribed burns on the wood vegetation of a dry sand savanna, Hopper branch Nature Preserve, Iroquois County, Illinois. Transactions of the Illinois State Academy of Science. Vol. 85:105-111.

Johnson, K. C. and J. E. Ebinger. 1995. Effects of fire regimes on the ground layer vegetation of a dry sand savanna, Hooper Branch Savanna Nature Preserve, Iroquois County, Illinois. *Eriginea* 14:37-40.

Illinois Department of Natural Resources. Illinois Comprehensive Wildlife Conservation Plan. 2005. <http://dnr.state.il.us/orc/wildliferesources/theplan/>

Illinois Steward Magazine. Summer 2007. The Greater Kankakee Ecosystem. 37pp. University of Illinois -Extension. Urbana, IL.

Mauger, D. 2002. A survey of the herpetofauna of Sweetfern Savanna, and the Greater Pembroke Savanna Complex, Kankakee County, Illinois. Report 5pp.

Noss, R. F., E. T. LaRoe III and J. M. Scott. 1995. Endangered Ecosystems of the United States: A preliminary assessment of loss and degradation. US Dept of the Interior. Biological report 28.

Phillippe, L. R., D. T. Busemeyer, P. B. Marcum, M. A. Feist, C. J. Carol, K. J. Hunter, G. R. Spyreas, and J. E. Ebinger. 2002. Vascular flora of the Pembroke Savannas, Kankakee Illinois. Final report to the Illinois Department of Natural Resources. 129 pp. with maps.

Schwegman, J. E. Annotated checklist of the vascular plants of Iroquois County Conservation Area, Illinois. 14pp.

USFWS. 1998. Proposal to create the Grand Kankakee Marsh National Wildlife Refuge.

White, J. 1978. Illinois Natural Areas Inventory technical report, Vol 1. Survey methods and results. Illinois Natural Areas Survey, Urbana IL.

Table 1. A partial list of threatened and endangered species that occur in the Kankakee Sands Macrosite.

Common Name	Species Name	Description	IL	IN	US
PLANTS					
Blazing star	<i>Liatris pycnostachya</i>	Plant		T	
Bristly blackberry	<i>Rubus setosus</i>	Shrub	T	E	
Carey's heartsease	<i>Polygonum careyi</i>	Plant	E	T	
Carolina whipgrass	<i>Carex cumulate</i>	Plant	E		
Crowded oval sedge	<i>Scleria pauciflora</i>	plant	E		
Eastern blue-eyed grass	<i>Sisyrinchium atlanticum</i>	Plant	T		
Grass pink orchid	<i>Calopogon tuberosus</i>	Plant	E		
Ground pine	<i>Lycopodium dendroideum</i>	Fern ally	E	E	
Marsh arrowgrass	<i>Triglochin palustris</i>		T	T	
Marsh speedwell	<i>Veronica scutellata</i>	Plant	T		
Narrow-leaved sundew	<i>Drosera intermedia</i>	Carnivorous Plant	E	SR	
Northern Cransbill	<i>Geranium bicknellii</i>	Plant	E		
Old Plainsman	<i>Hymenopappus scabiosaeus</i>	Plant	T	E	
Orange fringed orchid	<i>Platanthera ciliaris</i>	Plant	E	E	
Prairie fame-flower	<i>Talinum rugospermum</i>	Plant		T	
Prairie white-fringed orchid	<i>Platanthera leucophaea</i>		E	X	FT
Primrose violet	<i>Viola primuifolia</i>	Plant	E	T	
Shore St. John's wort	<i>Hypericum adpressum</i>	Plant	E	E	
Small sundrops	<i>Oenothera perennis</i>		T	T	
Sweetfern	<i>Comtonia peregrine</i>	Plant (not a fern)	E	WL	
Tuberclad orchid	<i>Platanthera flava var. herbiola</i>	Plant	T	WL	
Eared foxglove	<i>Tomenthera auriculata</i>		T	E	
Yellow wild indigo	<i>Baptisa tinctoria</i>	Plant	E	WL	
Western silvery aster	<i>Aster sericeus</i>	Plant		SR	
White lady's slipper orchid	<i>Cypripedium candidum</i>		T	SR	
Wood orchid	<i>Platanthera clavellata</i>	Plant	E	WL	
BIRDS					
American Bittern	<i>Botanus lentiginosus</i>	Bird	E	E	
Henslow's sparrow	<i>Ammodramus henslowii</i>	Bird	T	E	
Least bittern	<i>Ixobrychus exilis</i>	Bird	T	E	
Loggerhead shrike	<i>Lanius ludovicianus</i>	Bird	T	E	
Marsh wren	<i>Cistothorus palustris</i>	Bird		E	
Northern Harrier	<i>Circus cyaneus</i>	Bird	E	E	
Sandhill crane	<i>Grus Canadensis</i>	Bird	T	SSC	
Sedge wren	<i>Cistothorus platensis</i>	Bird		E	

T= State Threatened E =State Endangered SR =State Rare WL = Watch List SSC = Species of special concern
 US = Federally listed FE=Endangered , FT= Threatened, X=Extirpated

Table 1. cont'd. A partial list of threatened and endangered species that occur in the Kankakee Sands Macrosite.

Common name	Species name	Description	IL	IN	US
INSECTS					
Bunchgrass skipper	<i>Problema byssus</i>	Butterfly		E	
Eryngium stem borer	<i>Papaipema eryngii</i>	Moth	E		
Indian skipper	<i>Hesperis sassacus</i>	Butterfly		T	
Mottled duskywing	<i>Erynnis martialis</i>	Butterfly		T	
Regal fritillary	<i>Speyeria idalia</i>	Butterfly		E	
SNAKES					
Smooth green snake	<i>Liochlorophis vernalis</i>	Snake		E	
TURTLES					
Blanding's turtle	<i>Emydoidera blandingii</i>	Turtle	T	E	
Ornate box turtle	<i>Terrapene ornate</i>	Turtle		E	

T= State Threatened E =State Endangered SR =State Rare WL = Watch List SSC = Species of special concern US = Federally listed FE=Endangered , FT= Threatened, X=Extirpated

Table 2 Estimated completion dates for listed management goals. Any burn not completed in the Spring can be completed the upcoming fall season.

BURN SITE		Acres	Fa2009	Sp2010	Fa2010	Sp2011	Fa2011
Leesville Savanna							
Unit A (IDNR)	Figure D1	63 Acres		X			
Unit B	Figure D1	19.3 Acres	X			X	
Unit C	Figure D1	20.3 Acres	X			X	
Sweet Fern Savanna LWR							
Unit A	Figure F1	80 Acres	X			X	
Iroquois Sands LWR							
Unit A	Figure G1	71 Acres	X				
Tallmadge LWR							
Unit A	Figure C1	33 Acres	X				
Unit B	Figure C1	58 Acres		X			
Unit C	Figure C1	36 Acres				X	
Mskoda LWR							
Unit A	Figure B1	235 Acres		X			
Unit B	Figure B1	310 Acres				X	
Hooper Branch Savanna Nature Preserve							
South ½	Figure A1	310 Acres		X			
North ½	Figure A1	250 Acres				X	
		Total: 1,486 Acres					

Table 3. Approximate schedule and associated sites for completing woody exotic and invasive vegetation control.

Woody exotic and invasive Vegetation Control		Acres					
			Fa2009	Sp2010	Fa2010	Sp2011	Fa2011
Carl N Becker Nature Preserve							
Unit B and C	Figure D2	22 Acres		X	X		
Iroquois Sands LWR							
Unit A	Figure G2	22 Acres		X	X		
Tallmadge LWR							
Unit A	Figure C2	3.85 Acres			X	X	
Mskoda LWR							
Unit A	Figure B2	10.5 Acres		X	X		X
Unit B	Figure B2	19 Acres	X	X	X		X
Unit C	Figure B2	10.5 Acres			X		X
Guiding Star Savanna							
Unit A	Figure E1	1.5 Acres			X		
Hooper Branch Savanna Nature Preserve							
Old Fields	Figure A2	10 Acres	X		X		X
		Total: 100 Acres					

The table was set up so that control did not conflict with prescribed fire.

APPENDIX A: HOOPER BRANCH SAVANNA NATURE PRESERVE



Figure A1. Both the N ½ and S ½ of Hooper Branch Savanna Nature Preserve will be burned under this contract. It's also possible that one or more units at Iroquois SWA LWR will receive prescribed fire.

Hooper Branch Savanna Nature Preserve- Old Fields

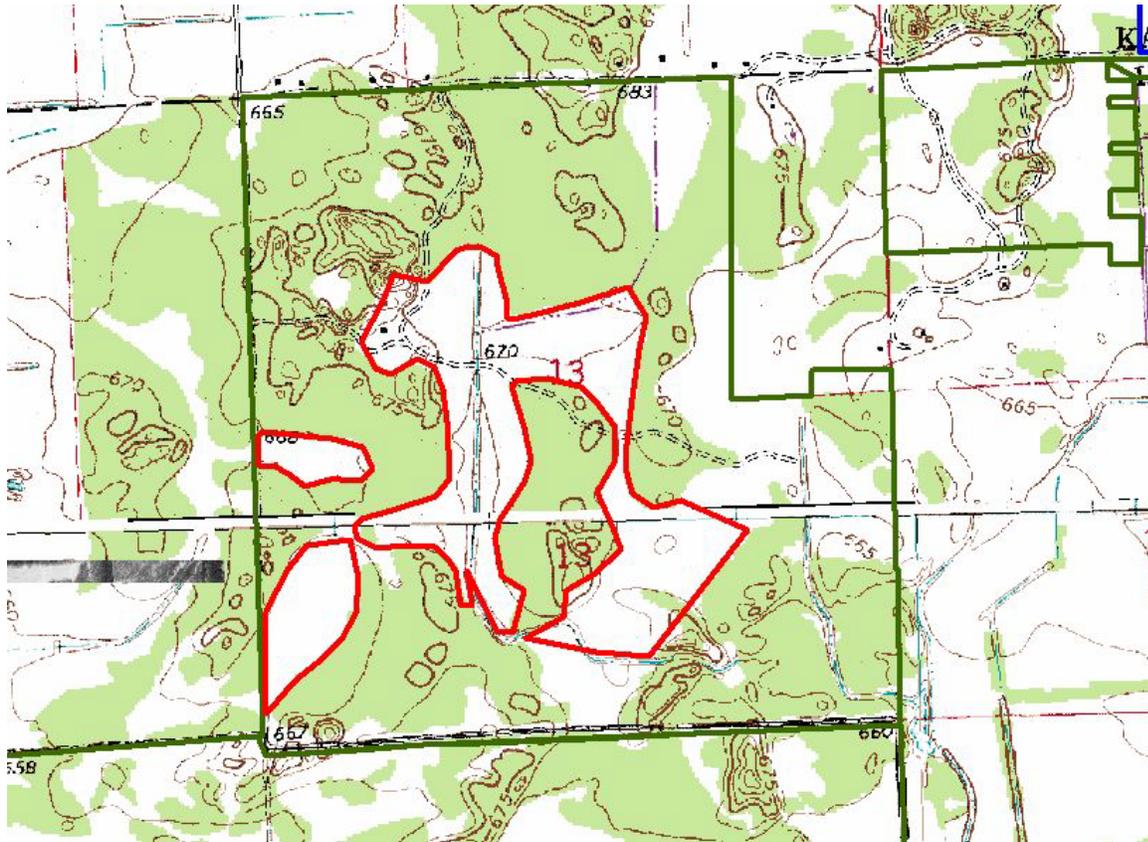


Figure A2. Woody and herbaceous vegetation needs to be controlled from several prairie restorations within Hooper Branch Savanna Nature Preserve Old Fields outline in red.

APPENDIX B: MSKODA LAND AND WATER RESERVE

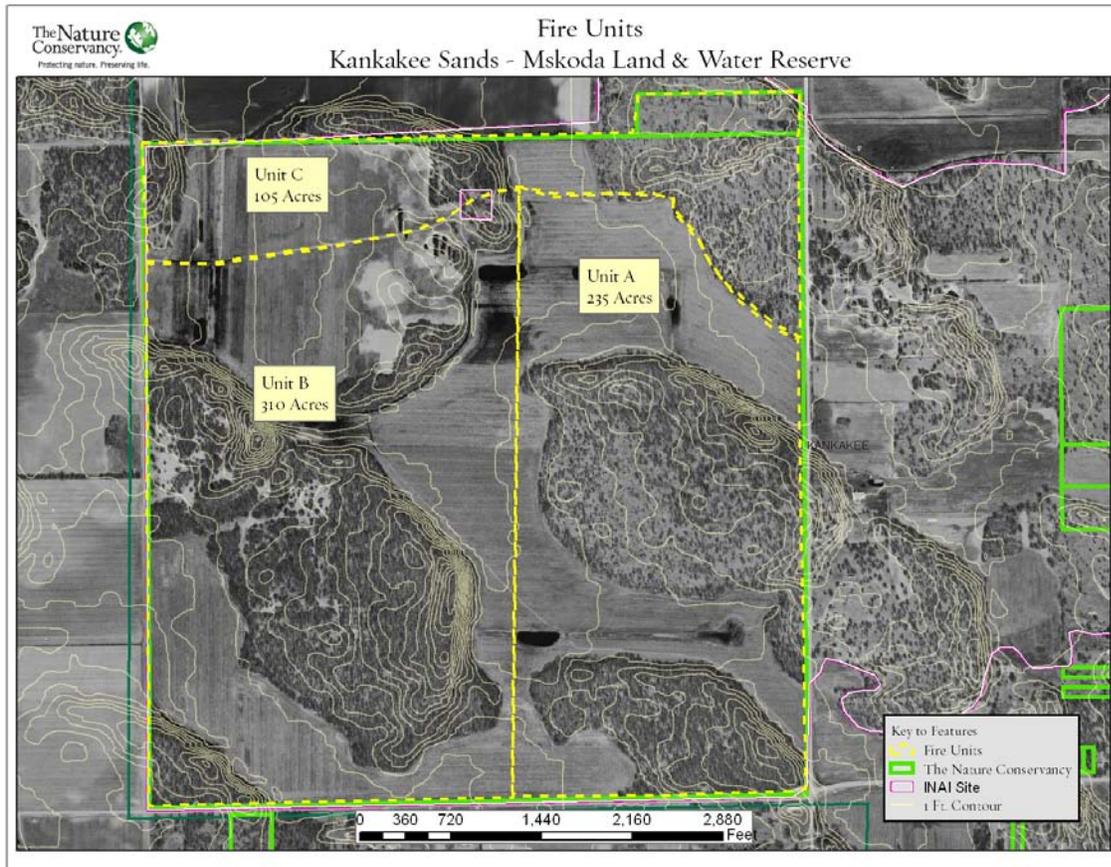


Figure B1. Units A and B will be burned at Mskoda Land and Water Reserve.

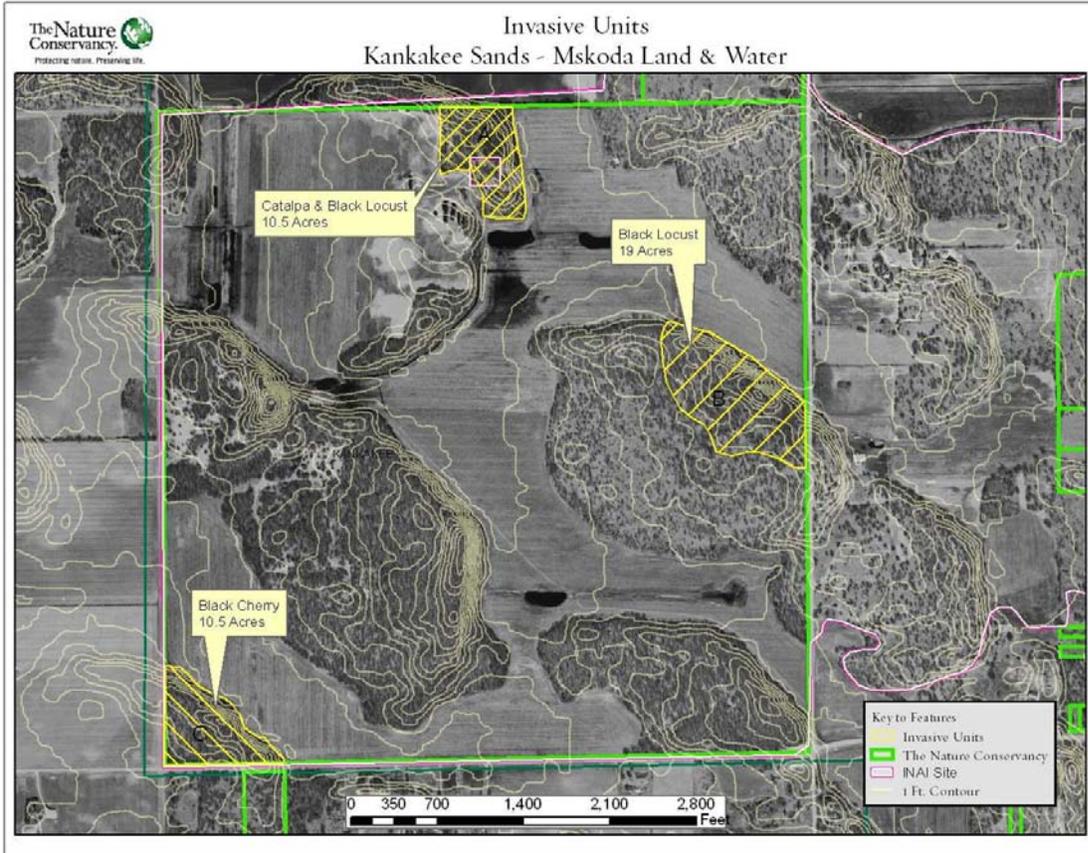


Figure B2. Native and exotic species requirement treatment in three units at Mskoda Land and Water Reserve.

APPENDIX C: TALLMADGE LAND AND WATER RESERVE

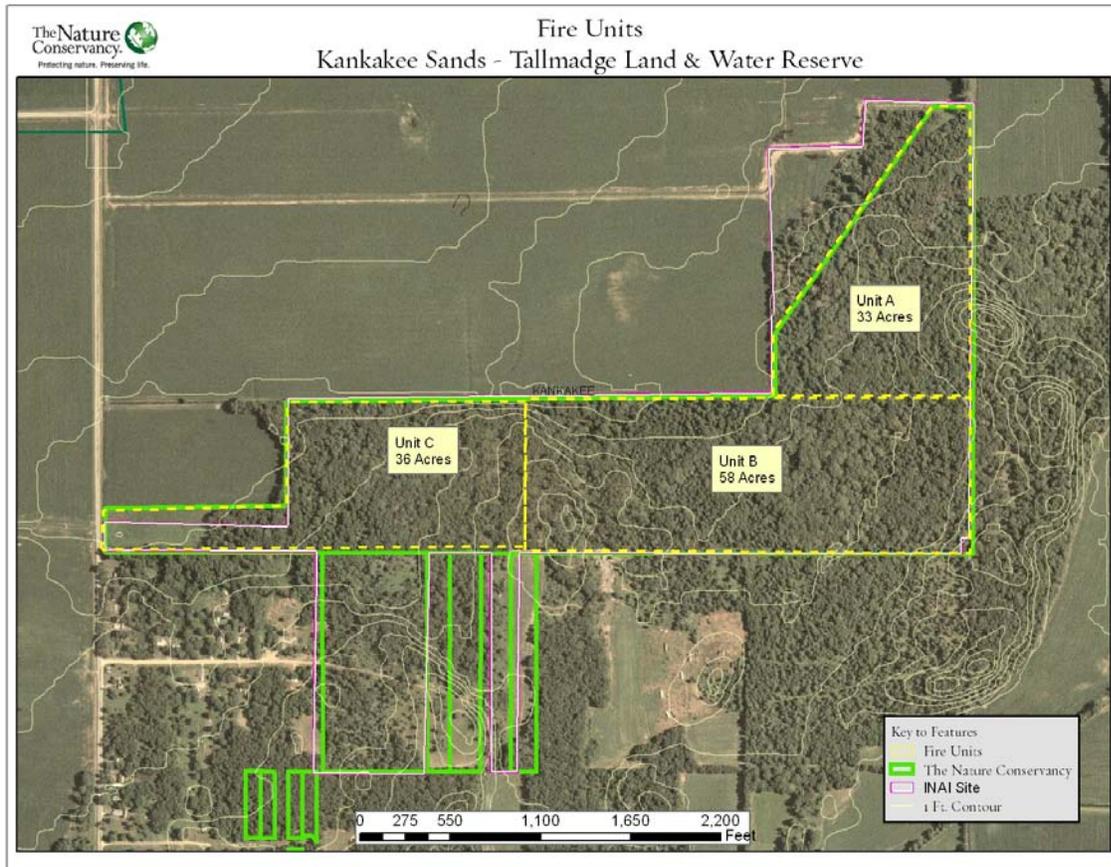


Figure C1. Tallmadge Flatwoods Land and Water Reserve is an INAI quality sand forest. It contains three separate burn units that will each be burned.

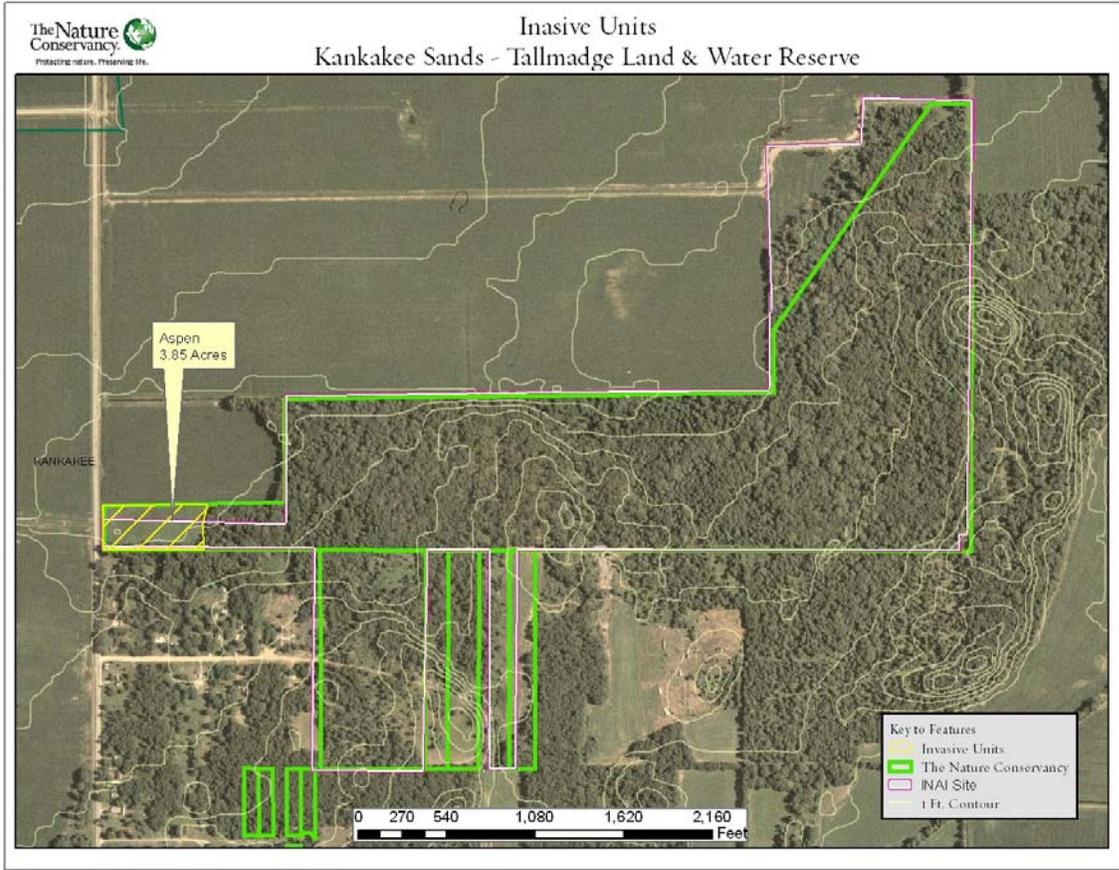


Figure C2. Approximately 4 acres of aspen require treatment at Tallmadge Land and Water Reserve.

APPENDIX D: CARL N BECKER NATURE PRESERVE

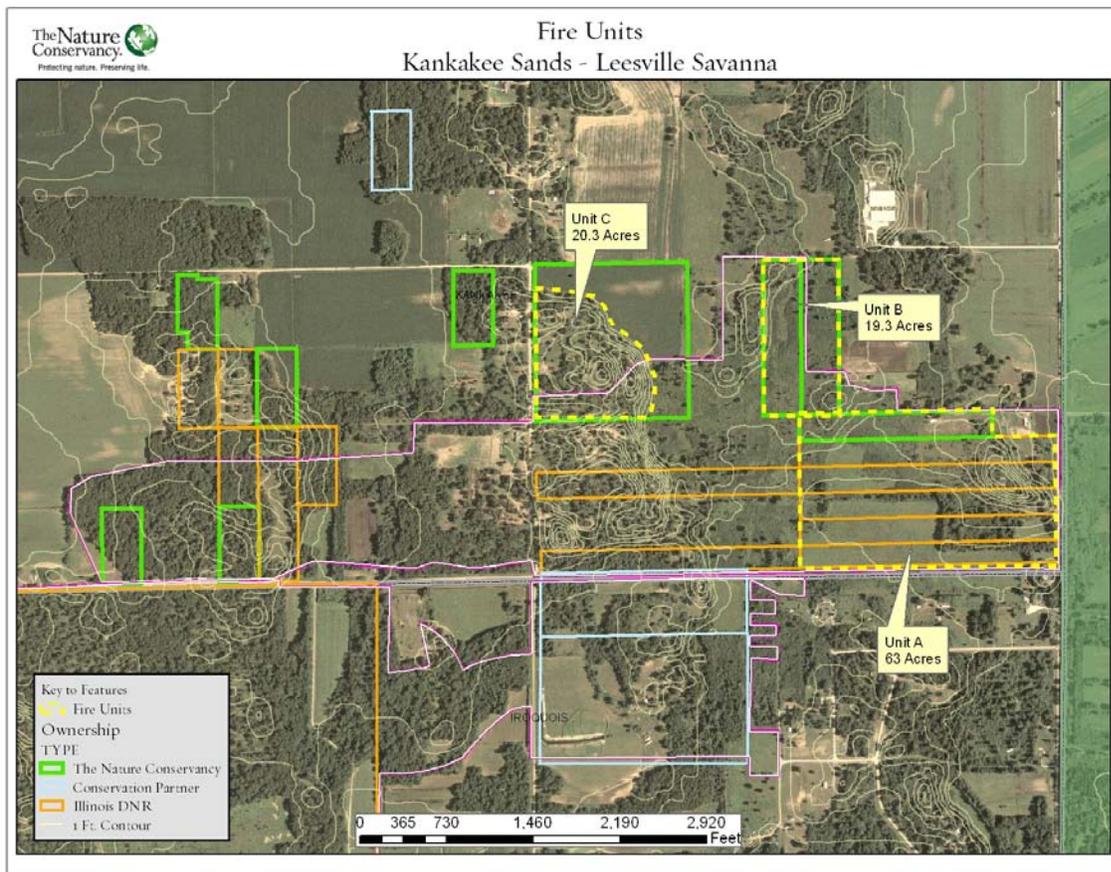


Figure D1. Three fire units will be burned in the Leesville Savanna INAI. Unit A is owned by the IDNR; Units B & C are owned by the Nature Conservancy and dedicated as the Carl N. Becker Nature Preserve.

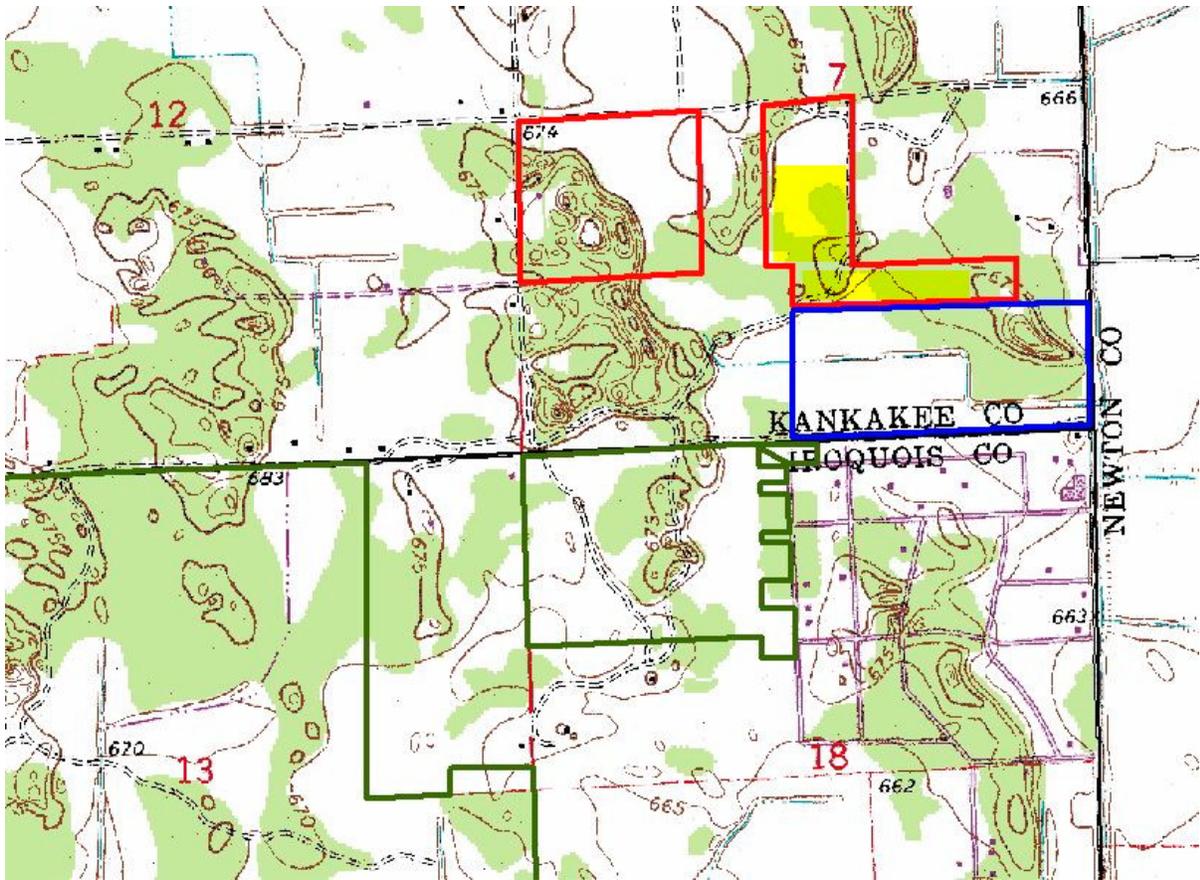


Figure D2. Approximately 22 acres of woody invasive species (highlighted in yellow) will be burned within the Carl N. Becker Nature Preserve.

APPENDIX E: GUIDING STAR SAVANNA



Figure E1. Approximately 2 acres of black locust will be treated at Guiding Star Savanna INAI, Unit A.

APPENDIX F. SWEET FERN SAVANNA

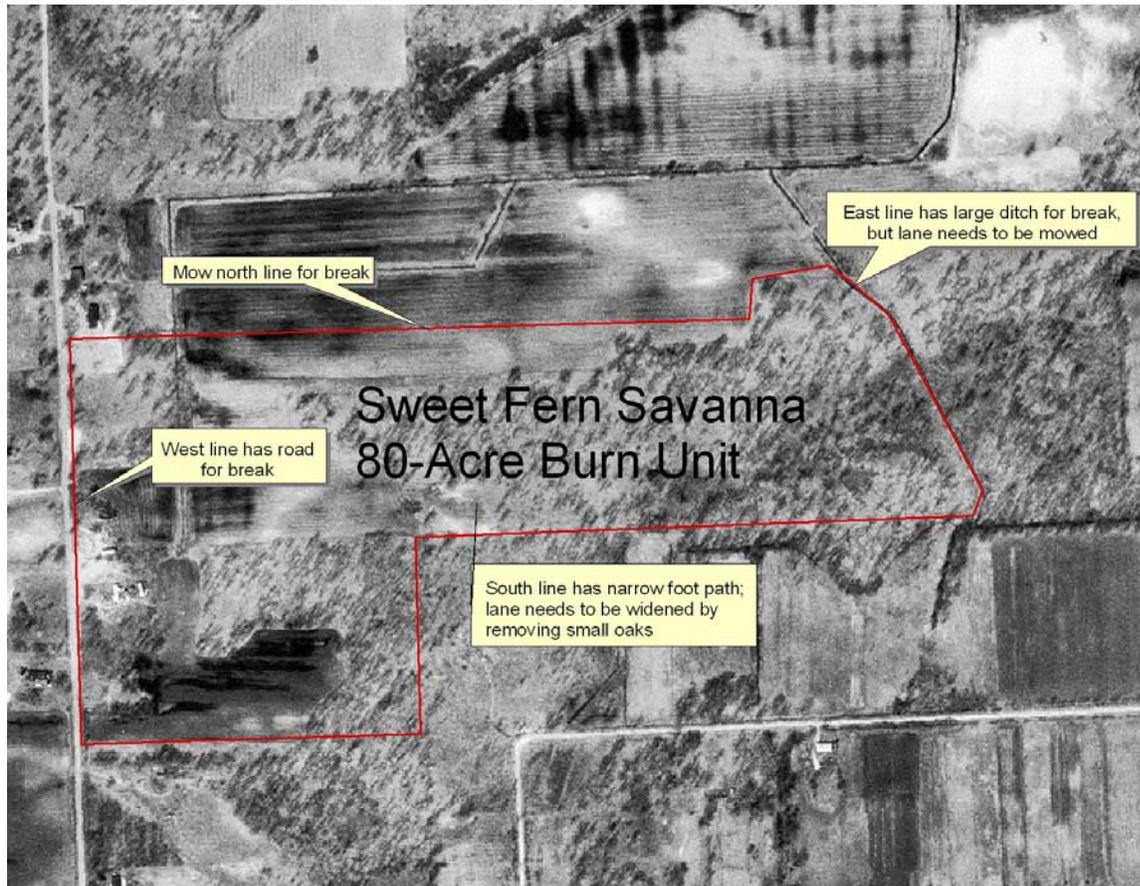


Figure F1. An 80 acre burn unit at Sweet Fern Savanna Land and Water Reserve will be conducted as part of this State Wildlife Grant.

APPENDIX G: IROQUOIS SANDS LAND AND WATER RESERVE



Figure G1. The contractor would be responsible for installing firebreaks prior to prescribed burning at Iroquois Sands Land and Water Reserve.



Figure G2. Bush honeysuckle and autumn olive are the primary exotics that need to be removed in Unit A at Iroquois Sands Land and Water Reserve, owned by the Friends of the Kankakee.