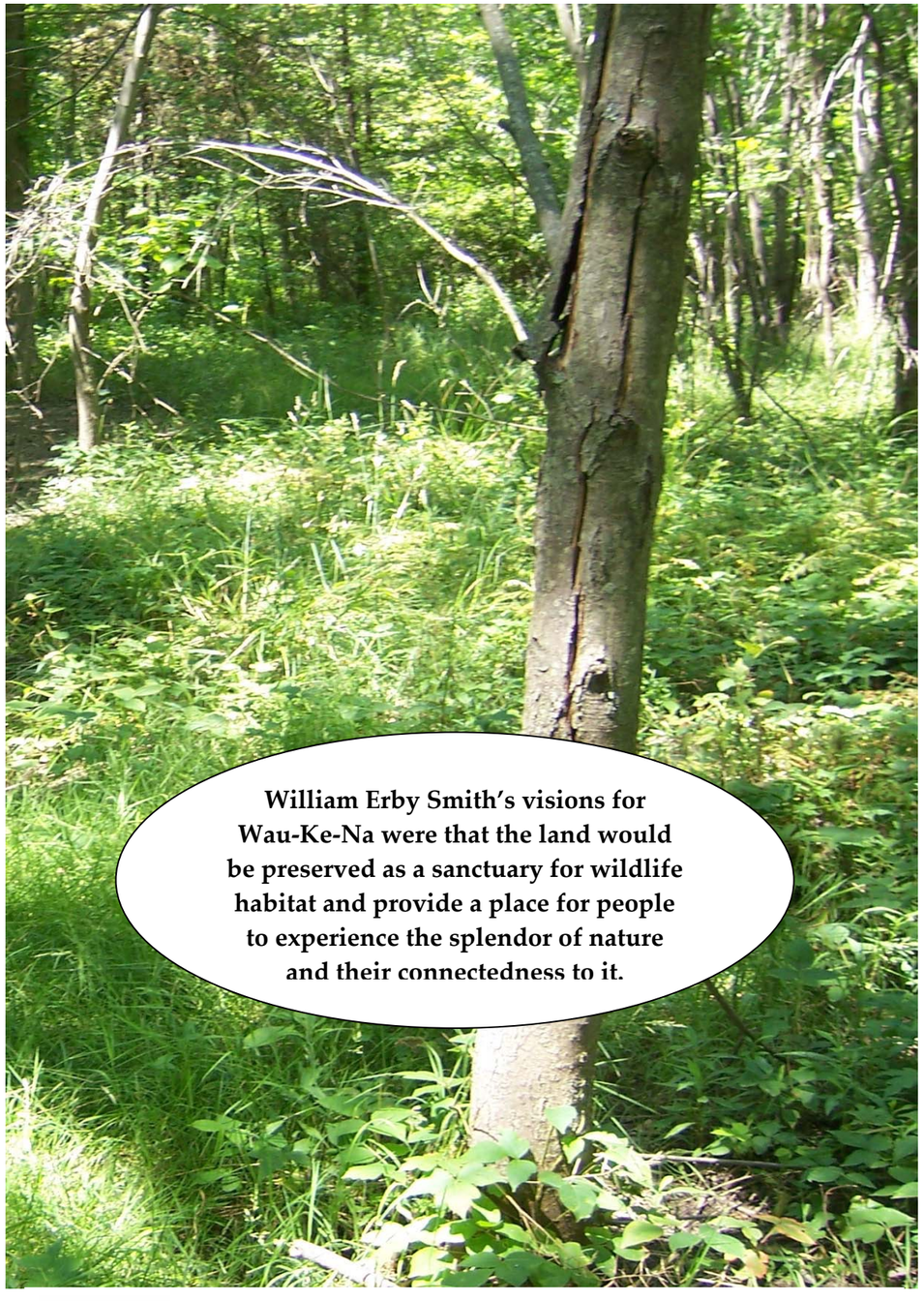


William Erby Smith's visions for Wau-Ke-Na were that the land would be preserved as a sanctuary for wildlife habitat and provide a place for people to experience the splendor of nature and their connectedness to it.

This project was funded in part by the Michigan Coastal Management Program, Michigan Department of Environmental Quality and the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The statements, findings, conclusions, and recommendations in this report are those of Southwest Michigan Land Conservancy and do not necessarily reflect the views of the MDEQ and the NOAA.

Conservation Master Plan

Wau-Ke-Na Nature Preserve

EXECUTIVE SUMMARY

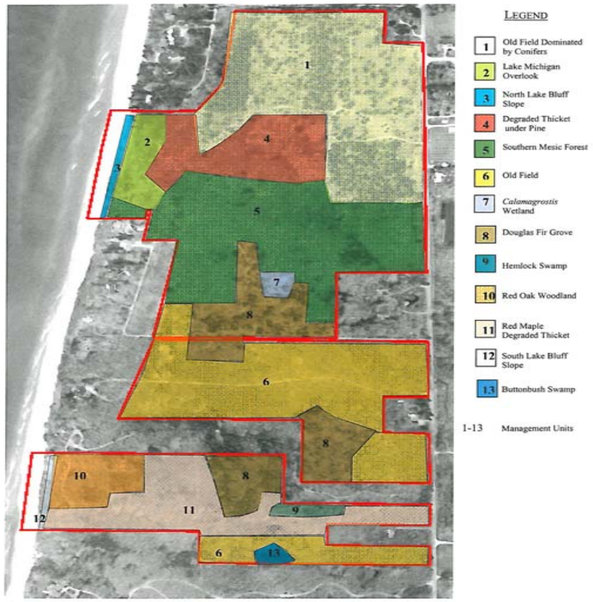
JUNE 2008

Wau-Ke-Na Nature Preserve

- **Primary Management Goal: Management of the preserve to restore and create habitats that support a rich diversity of native species.**
- **Secondary Management Goal: Provide public access to the preserve in order to provide environmental education opportunities and promote conservation values that support Southwest Michigan Land Conservancy's mission and the sustainability of its assets.**

Habitat Restoration Goals

1. **Manage the landscape in a manner that achieves the greatest diversity of native flora and fauna while at the same time offering passive-use recreation opportunities to the public.**
2. **Manage the noted remnant plant communities to promote the recovery and long-term sustainability of these ecosystems.**
3. **Transform landscapes that have irreversibly been altered to another type of sustainable habitat.**



Thirty management units have been identified for the Wau-Ke-Na Nature Preserve. Specific management techniques for each unit have been recommended as part of the CMP – Action Plan.

A summary of short-term management activities and their estimated costs are provided as Table 1. As discussed in the CMP, the timeframe of implementing various management tasks will be dependent on the availability of funds.

Table 1 Summary of Short-term Restoration Goal Activities & Estimated Costs

Restoration Goal	Management Priority Level	Management Unit	Approx. Acreage	Management Activity	Estimated Cost/Acre	Time period	Cost for Activity	Cost per Year
1	1	Agricultural land (Unit 15)	55	Seed to native grassland	$2,100	2008-2012	$115,500	$23,100
	1	North Tract (Units 5 &11)	---	Disable drainage ditches	---	2008	---	
	2	NE Disturbed Woods (Unit 14)	35	Clearing/seed grassland	$4,500	2009-2013	$157,500	$31,500
	3	South Tract Disturbed Woodland (Units 23 & 24)	45	Selective clearing	$2,650	Long-term (10 yrs)	$119,500	$11,950
2	1	Lake plain prairie (Unit 29)	2	Selective clearing/re-sprout	NA	Annually	NA	NA
	1	Red Oak Woodland & Red Maple Degraded Thicket (Units 10 &11)	15	Selective clearing	$1,700	2008-2010	$25,500	$8,500
	1/2	Southern Mesic Forest (Unit 5)	25	Selective clearing/seeding	$3,050	2009-2013	$76,500	$15,250
	1	Hedgerow & treeline (Unit 21)	5	Clearing all trees & brush	NA	2008	NA	NA
	1/2	North lake bluff slope (Unit 3)	2	Selective clearing	NA	2008-2009	NA	NA
3	1/2	Old field &landscaped fields (Units 26 & 27)	2	Removal of conifers & native grassland seeding within new parking area & trailhead	$4,300	2008-2009	$8,600	$4,300
	2/3	Old field &landscaped fields (Units 1 &18)	63	Removal of conifers & native grassland seeding	$4,300	Long-term (10 yrs)	$279,500	$27,900
	2/3	Sassafras Old Field (Unit 6)	20	Selective clearing/seeding	$2,700	5-yr period	$54,000	$10,800
	2	Degraded Thicket under Pine (Unit 4)	10	Selective clearing/seeding	$2,700	2-yr period	$27,000	$13,500
4	3	Existing & Created habitats	varies	Enhancement seeding	$100	After 3-5 yrs; 10 yrs; etc.	Varies	Varies
	3	Woodland units	115	Enhancement shrub/tree	Varies	After 3 yrs burning	Varies	Varies

Wau-Ke-Na Action Plan

Priority Level 1:

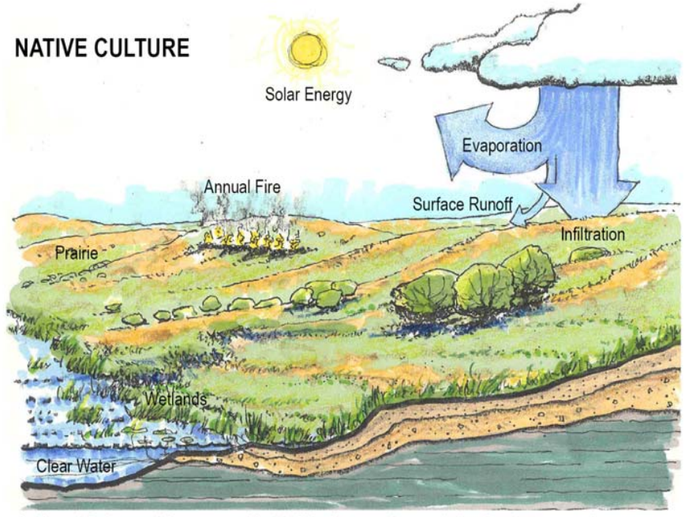
1. **Transform agricultural land (Unit 15), which is contributing to damaging sheet flow entering the west side of South Tract parcel, into native grassland.**
2. **Disable interior drainage ditches that are dewatering the North Tract habitats (Units 5 & 11).**
3. **Selective clearing/ re-sprout control in and around lake plain prairie (Unit 29).**
4. **Selective clearing in Red Oak woodland (Unit 10) & Red Maple thicket (Unit 11) to promote native groundcover for rainwater infiltration to sustain lake bluff seeps.**
5. **Removal of hedgerow & treeline (Unit 21) to enhance grassland bird habitat.**

Priority Level 2:

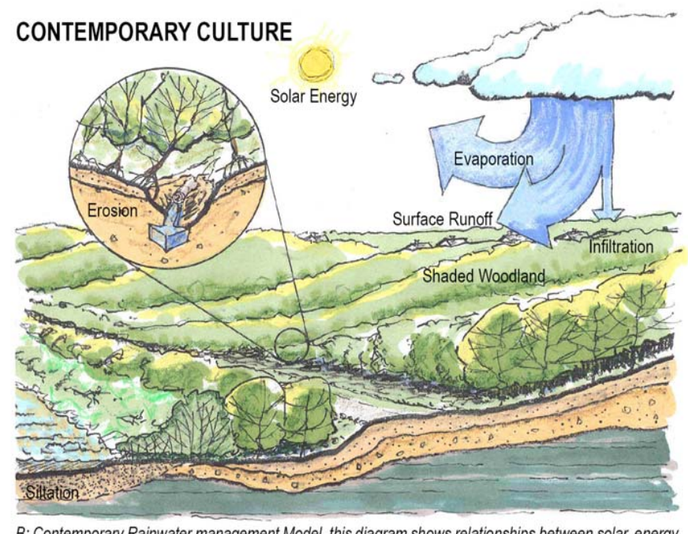
1. **Selective clearing and seeding of native woodland grasses in southern mesic forest (Unit 5); install deer browse exclosure fencing to protect Ginseng populations.**
2. **Remove trees & invasive brush in South Tract northeast disturbed woodland (Unit 14), which are contributing to destructive sheet flows onto west side landscape, and transform to native grassland.**
3. **Selective clearing of undesirable tree species on north lake bluff slope (Unit 3) to increase light to groundplain and promote slope stability.**
4. **Selective removal of Sassafras and Red Maple trees and removal of conifer trees within North Tract disturbed woods/old fields (Units 4 & 6); seed with native grasses.**
5. **Removal of planted conifers within old fields and landscaped fields (Units 1, 18, 26 & 27) and transform to native grassland to expand grassland bird habitat.**

Priority Level 3:

1. **Selective clearing in South Tract west disturbed woodland (Units 23 & 24).**
2. **Implementation of enhancement seed/shrub/tree program**



A: Natural Rainwater Management Model. This diagram shows relationships between solar energy, precipitation, vegetation, annual fire and clean water. Note the proportion of precipitation that is evaporated, infiltrated through native vegetation and the insignificant amount of surface water runoff.



B: Contemporary Rainwater management Model. this diagram shows relationships between solar, energy, precipitation, vegetation, fire suppression, erosion, deposition and siltation. Note the proportion of significantly less rain that is infiltrated through the woodland vegetation and contemporary development, and the significant amount of surface runoff and siltation as a result.

The diagram provides a comparison of how native versus contemporary cultural land practices, or lack there of, influence the hydrologic cycle. Since the amount and quality of water are critical for the restoration of many portions of the Preserve, a first priority of the restoration effort is to deal with on-site influences in order to control rainwater from sheeting offsite.

The main issues resulting in the degradation of Wau-Ke-Na are:

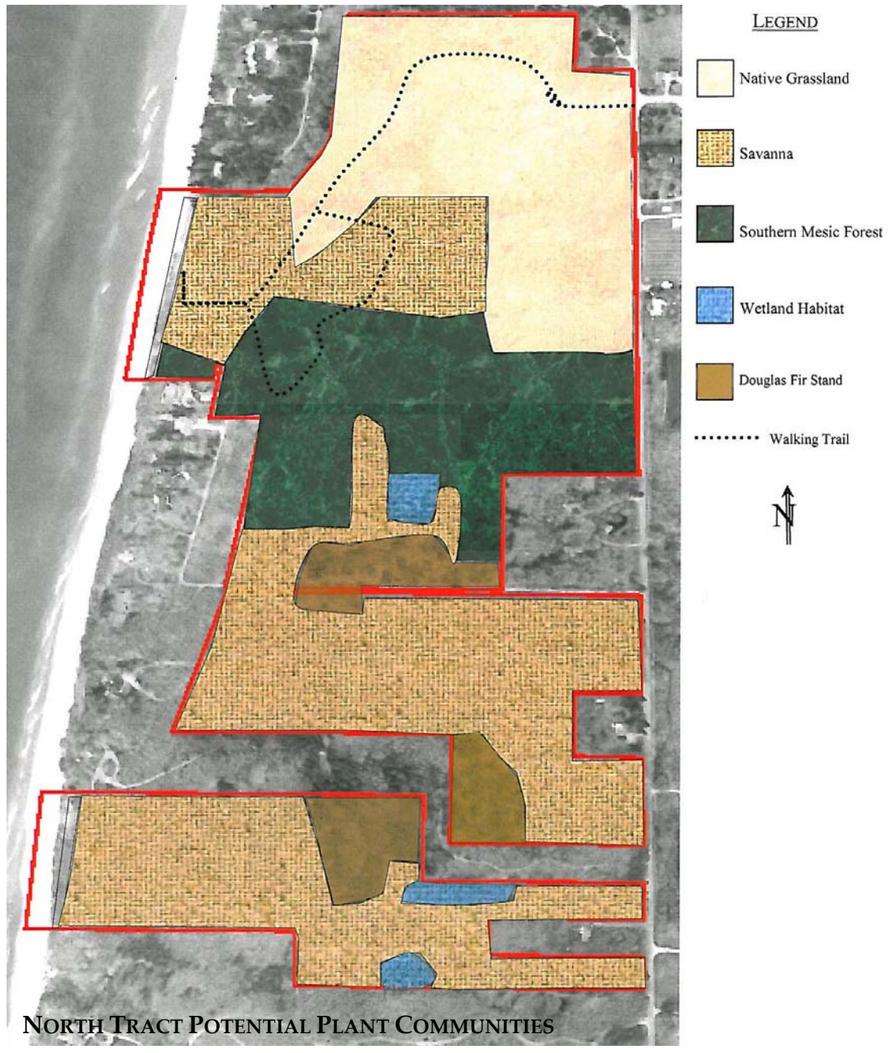
- **hydrology, both on-site and offsite,**
- **presence of invasive species, and**
- **overgrown disturbed woodland resulting in reduced light levels.**

Consequences of the above identified issues result in:

- **loss of soil;**
- **loss of botanic diversity; and**
- **loss of habitat.**

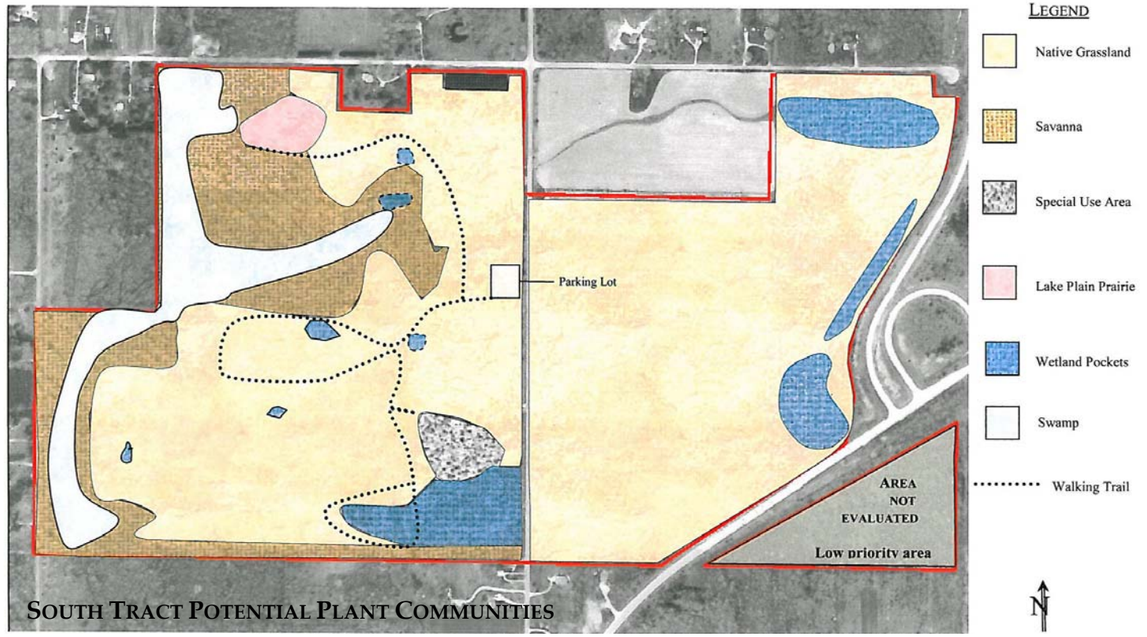
Wau-Ke-Na Restoration Strategies

- **Manage Rainwater Sustainably**
- **Preserve & Restore Native Ecosystems**
- **Ecological Landscape Restoration**
- **Foster Stewardship & Public Awareness**
- **Encourage Sustainable Practices in Ganges Township**



NORTH TRACT POTENTIAL PLANT COMMUNITIES

The illustrated potential plant communities identify the probable outcome for the land after implementing the recommended restoration management practices as outlined in the Conservation Master Plan.



SOUTH TRACT POTENTIAL PLANT COMMUNITIES

Wau-Ke-Na Short-term Restoration Goals

- **Short-term Restoration Goal #1 – Control Rainwater from Sheeting Offsite**
  Measures to be taken include removal of vegetation that is uncongenial to infiltration of rainwater; disable on-site drainage ditches that contribute to dewatering of the landscape; and selective removal of trees and brush within overgrown disturbed habitats.
- **Short-term Restoration Goal #2 – Stewardship of Remnant Habitats**
  Implement stewardship program for long-term sustainability of the remnant lake plain prairie habitats, lake bluff seeps, and southern mesic forest habitats.
- **Short-term Restoration Goal #3 – Transformation of Landscapes into Native Plant Communities**
  Reintroduce native landscapes within areas where native communities have been destroyed.
- **Short-term Restoration Goal #4 – Enrichment of Existing & Created Plant Communities**
  Implement a long-term enhancement planting program to achieve the greatest diversity of native flora & fauna by seeding additional species every few years and adding native shrub and hardwood species within areas that undergo selective clearing.