



City Council Agenda Item Report

FROM: Scott Herbert – Public Works Superintendent

MEETING DATE: December 3, 2025

SUBJECT: Saugatuck Harbor Natural Area Management

DESCRIPTION:

Last year, the Land Conservancy of West Michigan developed management recommendations for the Saugatuck Harbor Natural Area (SHNA). The management plan emphasizes invasive species treatments, trail assessments, and monitoring throughout specific portions of the property.

To assist the City of Saugatuck implement aspects of the management plan for the SHNA, the Parks & Public Works Committee has reached out to PLM Lake Land & Management Corp., the Kalamazoo Nature Center, and the Outdoor Discovery Center Network (ODC). Both the Kalamazoo Nature Center and ODC submitted detailed proposals; however, given the City's strong working relationship with ODC, along with their pricing and project approach, staff and committee members have focused on refining ODC's proposal for council consideration.

The proposal submitted by the ODC closely matches the areas of focus found within the management recommendation provided by the Land Conservancy of West Michigan. The scope of work recommended include for the property include:

Invasive Species Management – This would be conducted during the growing season in 2026 with a total cost of \$20,000 billed this fiscal year.

Trail Assessment – To be completed spring of 2026 with a total cost of \$5,000 billed this fiscal year.

Ecological Evaluation – Final report will be received fall of 2026 with a cost of \$10,000 billed this fiscal year.

Annual Invasive Species Surveying – Surveyed through the 2027 growing season with a cost of \$3,500 billed next fiscal year.

BUDGET ACTION REQUIRED:

This property has an endowment and dollars were budgeted for invasive species treatments for this fiscal year.

COMMITTEE/COMMISSION REVIEW:

N/A

LEGAL REVIEW:

N/A

SAMPLE MOTION:

Discussion only.

Motion to approve the proposal submitted by the Outdoor Discovery Center Network in the amount of \$38,500 for invasive species management, trail assessment, ecological evaluation, and invasive species survey work.



Management Recommendations for Saugatuck Harbor Natural Area

October 2024

INTRODUCTION

Saugatuck Harbor Natural Area (SHNA) is a 173-acre tract of duneland along the Lake Michigan shoreline, just south of the Kalamazoo River mouth. It was permanently protected in 2009 through a partnership between the Land Conservancy of West Michigan (LCWM) and the City of Saugatuck, which now owns and manages the land. Stewardship of the property is guided by a management plan that was developed around the time of acquisition. The City of Saugatuck is in the process of updating the plan to reflect current conditions and management needs.

In September 2024, LCWM staff visited the property to delineate natural communities, generate a cursory plant species list, conduct an ecological assessment, and identify management needs to assist the City of Saugatuck in updating the plan. This document summarizes those findings, along with management recommendations for each of the four natural communities onsite (open dunes, interdunal wetland, mesic northern forest, and Great Lakes marsh; Figure 1), plus trails and monitoring.

MANAGEMENT RECOMMENDATIONS

Open Dunes

The open dunes are the most extensive community type at SHNA and are in excellent condition overall. Natural processes of sand erosion and deposition have generally been allowed to play out unimpeded, a critical factor for sustaining high-quality dune landscapes. Invasive species – most notably Japanese barberry – present a long-term threat, though their abundance is still quite low. Heavy deer browse is apparent throughout the dunes, potentially limiting biodiversity. Off-trail foot traffic, concentrated in the southwest portion of the property, has led to some trampling of vegetation and excessive erosion, although the overall impact to the dunes is fairly minor at this time.

Management Recommendations

- Remove Japanese barberry, which is concentrated in shaded areas under trees. Small individuals can be hand-pulled. Larger individuals and well-established patches will require foliar herbicide treatments for successful removal. Effective control will likely require multiple years of treatment.
- Periodically monitor for other invasive species and take action if they pose a threat to native ecosystems.
- Continue allowing the natural processes of sand erosion and deposition to continue unimpeded. Avoid planting beach grass, installing sand fences, or taking similar measures to “stabilize” the dunes, except to repair areas of unnatural erosion caused by excessive human activity.

- Consider working with local and regional partners to evaluate options for deer population management.

Great Lakes Marsh

A large Great Lakes marsh occupies the area between the open dunes and Oxbow Lagoon. The marsh is quite diverse, with both inundated zones and upland rises occurring throughout. High Lake Michigan water levels in 2020 and 2021 drowned out many trees, causing a shift to a more herbaceous plant community. The newly opened canopy also likely facilitated the establishment of invasive phragmites. While currently confined to a relatively small area of the marsh, phragmites presents a severe risk to ecosystem integrity since it can expand rapidly and decimate native communities.

Management Recommendations

- Remove phragmites using appropriate foliar herbicide applications. Effective management will likely require multiple years of treatment. This may be the highest management priority on the site, and action should be taken as soon as possible.
- Remove Japanese barberry and black locust that occur on upland rises within the marsh. Black locust should be removed by girdling or drill-and-fill treatments, while Japanese barberry is best treated with foliar herbicide applications.

Interdunal Wetlands

Several interdunal wetlands, a globally rare natural community, occur within the open dunes landscape. These sedge- and rush-dominated communities fluctuate with Lake Michigan water levels. Past and ongoing research studies on the interdunal wetlands at SHNA have improved our understanding of the unique hydrology and biology of these ecosystems. The interdunal wetlands at SHNA are generally in very good ecological condition.

Management Recommendations

- No management is recommended at this time beyond periodically monitoring for invasive species and continuing to allow research on the site.

Mesic Northern Forest

A mesic northern forest with a mature canopy of red oak, sugar maple, hemlock, and white pine occurs in the southeast corner of the site. The ground layer is very sparsely vegetated and there is almost no natural regeneration of canopy trees. This is almost certainly a result of excessive deer browse. Japanese barberry is scattered throughout the forest and is likely to expand without management.

Management Recommendations

- Continue treatments for hemlock woolly adelgid to retain hemlock as an important part of the tree canopy.
- Remove Japanese barberry through appropriate mechanical or chemical treatments. Effective control will likely require multiple years of treatment.
- Consider working with local and regional partners to evaluate options for deer population management.

Trails and User Experience

A network of trails winds through the SHNA property (Figure 2). Some of these are official trails that are marked with signposts in the field and/or are shown on the trail map on the City of Saugatuck website. Some of these official trails are well-marked and well-used, while other trails are faint, difficult to follow, and receive little to no use. User-created social trails also occur throughout the property. These are concentrated in the southern part of the site near the parking lot and Oval Beach. Excessive use of this area has caused some damage to natural features, including vegetation trampling and accelerated erosion.

Management Recommendations

- Use signs and/or natural barriers (e.g., logs or brush piles) to decommission social trails that go through the Deam property and those that traverse highly-erodible areas.
- Consider adopting some well-used social trails in the south part of the property as official trails, assuming they do not lead into private property or cause unacceptable damage to natural features.
- Decommission official trails that are unused and unmaintained.
- Ensure all official trails are clearly marked in the field.
- Update trail maps accordingly on the City of Saugatuck website and elsewhere. Consider installing a trail map sign near the parking lot and/or wayfinding signs throughout the property to help visitors navigate the trail system.

Monitoring

Regular monitoring is important to assess the condition of habitats and infrastructure, track management progress, and identify issues that may require intervention. SHNA should be inspected by knowledgeable personnel at least once per year. This inspection should be oriented towards assessing invasive species populations, evaluating trail use and conditions, and detecting any other management concerns. Generating a brief report after each year's monitoring may be useful for sharing findings and detecting changes over time.

Figure 1. Natural Communities at Saugatuck Harbor Natural Area

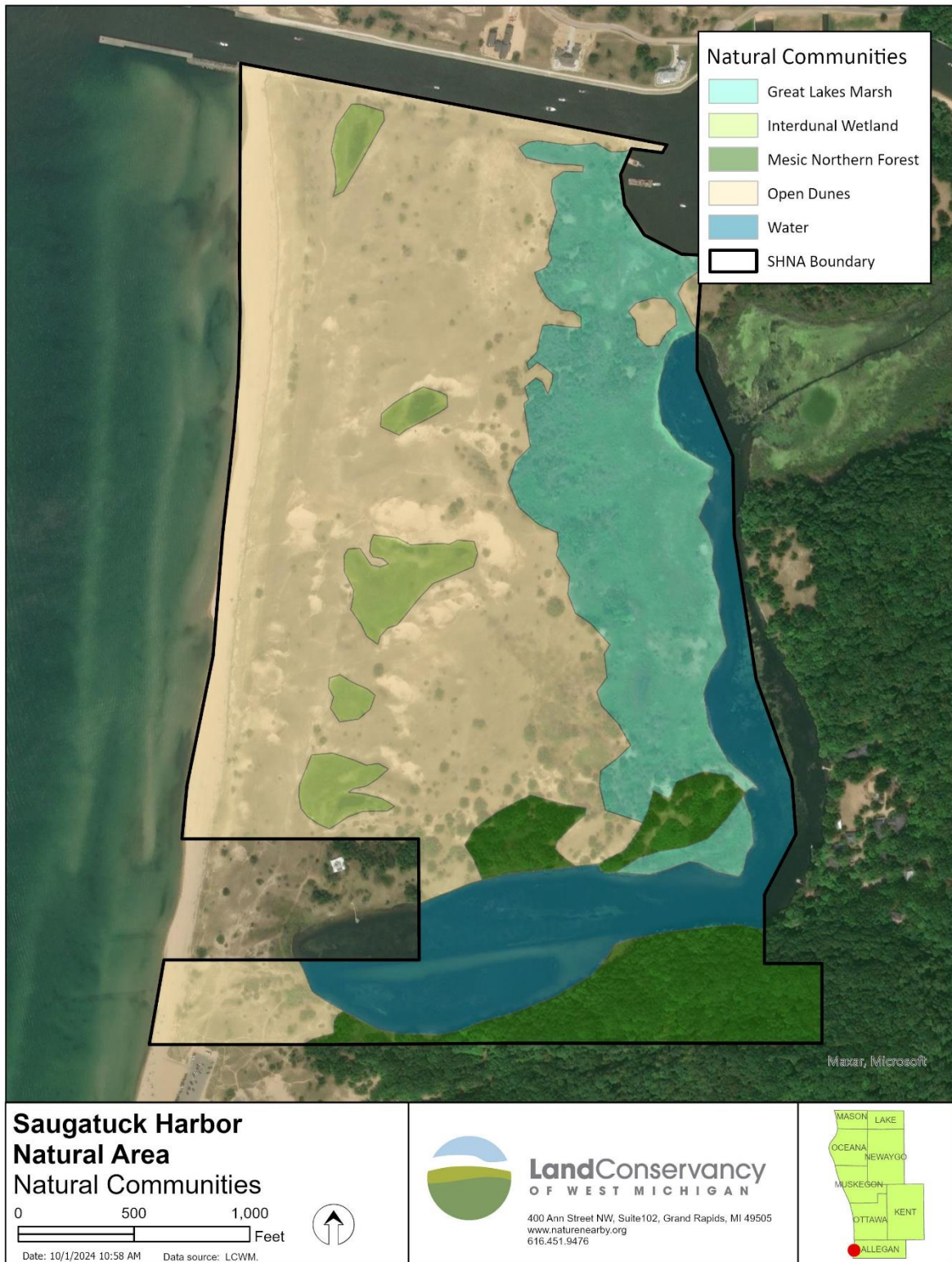


Figure 2. Trail System at Saugatuck Harbor Natural Area



Site: Saugatuck Harbor Natural Area
 Location: Entire Site
 Survey Date: 9.20.24
 Surveyor(s): J. Heslinga

Comments: Plant list is very incomplete, based on a cursory survey done late in the growing season.

FQA Summary

Species Richness:	93
Native Species Richness:	82

Mean C (natives only):	4.9
Mean C (with adventives):	4.3

FQI (natives only):	44.2
FQI (with adventives):	41.5

Mean W (natives only):	-0.4
Mean W (with adventives):	-0.1

Acronym	Scientific Name	Common Name	C	Status	Origin	W	Phys
acesau	Acer saccharum	sugar maple	5		native	3	tree
agapur	Agalinis purpurea	purple false foxglove	7		native	-3	forb
agrhye	Agrostis hyemalis	ticklegass	4		native	0	grass
alninc	Alnus incana; a. rugosa	speckled alder	5		native	-3	shrub
ammbr	Ammophila breviligulata	marram grass	10		native	5	grass
anamar	Anaphalis margaritacea	pearly everlasting	3		native	5	forb
andvir	Andropogon virginicus	broom-sedge	4		native	3	grass
ascysr	Asclepias syriaca	common milkweed	1		native	5	forb
berthu	Berberis thunbergii	japanese barberry	0		non-native	3	shrub
betpen	Betula pendula	european white birch	0		non-native	3	tree
bidfro	Bidens frondosa	common beggar-ticks	1		native	-3	forb
calcan	Calamagrostis canadensis	blue-joint	3		native	-5	grass
callon	Calamovilfa longifolia	sand reed grass	10		native	5	grass
cxhyst	Carex hystericina	sedge	2		native	-5	sedge
cxstri	Carex stricta	sedge	4		native	-5	sedge
cxviru	Carex viridula	sedge	4		native	-5	sedge
cenmac	Centaurea macrocephala	large-headed knapweed	0		non-native	5	forb
cenery	Centaurea erythraea	forking centaur	0		non-native	0	forb
cepocc	Cephalanthus occidentalis	buttonbush	7		native	-5	shrub
chimar	Chimaphila maculata	spotted wintergreen	8		native	5	shrub
cirarv	Cirsium arvense	canada thistle	0		non-native	3	forb
cirvul	Cirsium vulgare	bull thistle	0		non-native	3	forb
clamar	Cladium mariscoides	twig-rush	10		native	-5	sedge
concan	Conyza canadensis	horseweed	0		native	3	forb
corpas	Corispermum pallasii; c. hyssopifolium	bugseed	3		native	5	forb
coramo	Cornus amomum	silky dogwood	2		native	-3	shrub
cypbip	Cyperus bipartitus; c. rivularis	brook nut sedge	3		native	-3	sedge
cypery	Cyperus erythrorhizos	umbrella sedge	6		native	-5	sedge
diccos	Dichanthelium commonsianum; panicum	panic grass	6		native	3	grass
dirpal	Dirca palustris	leatherwood	8		native	0	shrub
eleell	Eleocharis elliptica	golden-seeded spike rush	6		native	-5	sedge
elycan	Elymus canadensis	canada wild rye	5		native	3	grass
elyhys	Elymus hystrix; hystrix patula	bottlebrush grass	5		native	3	grass
erehie	Erechtites hieraciifolius	fireweed	2		native	3	forb
eupper	Eupatorium perfoliatum	boneset	4		native	-3	forb
eupmac	Euphorbia maculata	spotted spurge	0		native	3	forb
fraame	Fraxinus americana	white ash	5		native	3	tree
galtin	Galium tinctorium	stiff bedstraw	5		native	-5	forb
hamvir	Hamamelis virginiana	witch-hazel	5		native	3	shrub
hudtom	Hudsonia tomentosa	beach-heath	10		native	5	shrub
hypkal	Hypericum kalmianum	kalms st. johns-wort	10		native	-3	shrub
irivir	Iris virginica	southern blue flag	5		native	-5	forb

junbal	Juncus balticus	rush	4		native	-5	forb
junbrp	Juncus brachycephalus	rush	7		native	-5	forb
juncan	Juncus canadensis	canadian rush	6		native	-5	forb
jundud	Juncus dudleyi	dudleys rush	1		native	-3	forb
juneff	Juncus effusus	soft-stemmed rush	3		native	-5	forb
junnod	Juncus nodosus	joint rush	5		native	-5	forb
juntcn	Juncus tenuis	path rush	1		native	0	forb
juncoi	Juniperus communis	common or ground juniper	4		native	3	shrub
junvir	Juniperus virginiana	red-cedar	3		native	3	tree
latjap	Lathyrus japonicus	beach pea	10		native	3	vine
litcar	Lithospermum carolinense	plains puccoon	10		native	5	forb
lobkal	Lobelia kalmii	bog lobelia	10		native	-5	forb
lycame	Lycopus americanus	common water horehound	2		native	-5	forb
lycuni	Lycopus uniflorus	northern bugle weed	2		native	-5	forb
monpun	Monarda punctata	horse mint	4		native	5	forb
nyssyl	Nyssa sylvatica	black-gum	9		native	-3	tree
peramp	Persicaria amphibia; polygonum a.	water smartweed	6		native	-5	forb
perlap	Persicaria lapathifolia; polygonum l.	nodding smartweed	0		native	-3	forb
phrauu	Phragmites australis var. australis	reed	0		non-native	-3	grass
pinban	Pinus banksiana	jack pine	5		native	3	tree
pinstr	Pinus strobus	white pine	3		native	3	tree
pinsyl	Pinus sylvestris	scotch pine	0		non-native	3	tree
poacom	Poa compressa	canada bluegrass	0		non-native	3	grass
polart	Polygonella articulata	jointweed	8		native	5	forb
poncor	Pontederia cordata	pickerel-weed	8		native	-5	forb
popdel	Populus deltoides	cottonwood	1		native	0	tree
poptre	Populus tremuloides	quaking aspen	1		native	0	tree
potans	Potentilla anserina	silverweed	5		native	-3	forb
prupum	Prunus pumila	sand cherry	8		native	5	shrub
pruvir	Prunus virginiana	choke cherry	2		native	3	shrub
ptetri	Ptelea trifoliata	hop-tree	4		native	3	shrub
querub	Quercus rubra	red oak	5		native	3	tree
robpse	Robinia pseudoacacia	black locust	0		non-native	3	tree
rospal	Rosa palustris	swamp rose	5		native	-5	shrub
rubhis	Rubus hispidus	swamp dewberry	4		native	-3	shrub
salluc	Salix lucida	shining willow	3		native	-3	shrub
salmyr	Salix myricoides	blueleaf willow	9		native	-3	shrub
sasalb	Sassafras albidum	sassafras	5		native	3	tree
schsco	Schizachyrium scoparium; andropogon s.	little bluestem	5		native	3	grass
schpun	Schoenoplectus pungens; scirpus america	threesquare	5		native	-5	sedge
scugal	Scutellaria galericulata	marsh skullcap	5		native	-5	forb
solcae	Solidago caesia	bluestem goldenrod	6		native	3	forb
solsim	Solidago simplex	gillmans goldenrod	10		native	3	forb
sonasp	Sonchus asper	prickly sow-thistle	0		non-native	3	forb
spitom	Spiraea tomentosa	steeplebush	5		native	-3	shrub
symdum	Symphyotrichum dumosum; aster d.	bushy aster	7		native	0	forb
thepal	Thelypteris palustris	marsh fern	2		native	-3	fern
tilame	Tilia americana	basswood	5		native	3	tree
tsucan	Tsuga canadensis	hemlock	5		native	3	tree
urtdio	Urtica dioica	stinging nettle	1		native	0	forb
vitrip	Vitis riparia	river-bank grape	3		native	0	vine

PROPOSAL FOR CONSERVATION SERVICES



This proposal was created for:

City of Saugatuck - Saugatuck Harbor Natural Area
Oval Dr, Saugatuck, MI 49453

General Background and Scope of Work:

The purpose of this proposal is to address ecological improvement opportunities on the 173-acre Saugatuck Harbor Natural Area property. The property is facing substantial pressure from several invasive species, as well as unmarked trails causing damage to sensitive plant communities. To protect the sensitive habitats on the site and to ensure long-term ecological health, our team recommends the following plan in 2026 and beyond:

1. Invasive Species Management

- Woody invasive species: Japanese Barberry (*Berberis thunbergii*) and European Privet (*Ligustrum vulgare*) are fast-growing invasive shrubs that displace native plants in the wooded areas of the property.
 - Smaller plants will be handpulled, while larger plants will be carefully treated with targeted foliar applications of *Triclopyr* herbicide in **Summer of 2026**.
- Phragmites (*Phragmites australis*) is a common wetland invasive that forms dense monocultures in wetland habitats; including the sensitive interdunal wetlands on the property.
 - Carefully targeted foliar herbicide applications will be conducted with 2% *Aquaneat* herbicide in **Fall of 2026**.
- Spotted Knapweed (*Centaurea stoebe*) is a highly aggressive forb with allelopathic tendencies that quickly overtakes sandy habitats and displaces native vegetation.
 - Hand pulling will be done in areas where off-target impacts are a concern, while foliar applications will be conducted with foliar applications in **Summer of 2026**.
- Includes procurement of all necessary permitting to apply herbicides through EGLE and MDARD.
 - **Note:** Many of the observed invasive species above generally require repeated management efforts over a period of at least 5-7 years to achieve meaningful reduction or eradication. Our team will continue to monitor the population(s) annually and will provide updated pricing and management recommendations each year. The allows for adaptive management strategies based on observed changes in site conditions and treatment efficacy year-to-year.

2. Trail Assessment

- Conduct general survey of the entire property to outline the ideal footprint for the trail system.
 - Deliverables will include a map of recommended trail routes, trails to be decommissioned, alternative routes to avoid impacting sensitive plant communities, and recommendations for interpretive and/or other non-permanent trail signage.
 - The trail assessment will be conducted in **Spring 2026**, with a concise digital report of our recommendations provided by **June 15, 2026**.
- ODC Network's Interpretation team is available to assist with the detailed design and production of interpretive signage upon request.

3. Ecological Evaluation

- In order to assess the current ecological health of the property, our team will identify each distinct natural community observed on the property and outline the following criteria for each:
 - General ecological site description and inventory of natural features.
 - Description of each natural community including:
 - Landscape context and natural processes.

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- General inventory and distribution of native plant communities including the canopy, understory, and forb/graminoid layers (including calculation of overall floristic quality index).
- Documentation of high-quality native plant species (with coefficient of conservatism rankings between 6-10).
- Documentation of both observed and potential wildlife including: state threatened (T), endangered (E), and species of special concern (SC).
- Documentation of invasive species, pests, and potential ecological threats.
- Identification of potential ecological restoration and outdoor education opportunities.
- The ecological evaluation process will help create a framework of the natural communities on the property for preservation, restoration, and management to help guide future management and land-use decisions on the property.
 - Target date for field survey: **April-August 2026**
- Following completion of the evaluation, we will create a digital report summarizing the results.
 - Target date for report submission: **September 15, 2026**

4. Annual Invasive Species Survey

- Conduct annual survey to provide early detection of any new invasive species or expansion of existing populations that could threaten the high-quality natural areas on the site.
 - Deliverables will include a concise report with updated maps documenting the location(s) and spread of invasive species, as well as new concerns to look out for.
 - Surveys will be conducted mid-summer to optimize plant identification and reports will be digitally submitted by **August 15, annually**.

Project Timeline:

- Invasive species management ongoing throughout the 2026 growing season
- Trail assessment conducted in spring of 2026, report submitted by June 15, 2026
- Ecological evaluation conducted between April-August, report submitted by September 15, 2026
- Invasive species survey conducted between May-July 2027, report submitted by August 15, 2027

Project Budget:

- **Invasive Species Management in 2026 - \$20,000** (billed in July 2026) ☐
- **Trail Assessment - \$5,000** (billed in June 2026) ☐
- **Ecological Evaluation - \$10,000** (billed in June 2026) ☐
- **Annual Invasive Species Survey** (starting in 2027) - **\$3,500** (billed in August 2027) ☐

***PLEASE CHECK THE APPROPRIATE BOXES ABOVE TO INDICATE ACCEPTED SERVICES**

Note: This proposal accounts for pricing of all labor, materials, and equipment necessary in order to perform the outlined work plan. If additional work is required beyond the scope of this proposal, we will provide written notification and pricing will be determined on a time and materials basis.

Exclusions: This proposal does not account for:

- Installation or maintenance of new trail systems.
- Removal of standing dead plant material following invasive species control measures.
- Replacement of damaged lawn, landscape plants, trees or shrubs as a result of nearby invasive species control measures.
- Reseeding of native vegetation following invasive species control measures.

We are happy to provide a quote for ongoing trail maintenance and/or replanting of native vegetation following invasive species control measures per request.

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Qualifications:

ODC Conservation Services staff are highly qualified conservation professionals.

- ODC Network, and its subsidiaries, is a fully insured 501c3 and carries an extensive liability policy to conduct habitat improvement services in Michigan
- State licensed herbicide applicators with certifications in Forest Pest, Right-of-Way, and Aquatic pesticide application
- Combined 25+ years experience in invasive species management
- Successfully restored over 250 acres of native prairie
- Successfully installed over 25 native gardens and landscape beds
- Manage 2,000+ acres of high quality natural area
- Experienced Michigan flora and fauna identification
- Advanced wetland delineation certification
- Experienced GIS professionals

We appreciate the opportunity to submit this proposal. We look forward to discussing the opportunity further with you. Please do not hesitate to ask questions or clarifications. If you choose to accept this proposal, please sign and return a copy.



Tanner Bricker, Conservation Services Director
ODC Network
517-398-7800

If you wish to accept this proposal, please initial each page, as well as sign and date below:

Signature of Authorized Property Owner/Manager

Date



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Appendix A: Map of Invasive Species Treatment Area(s)



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Kalamazoo Nature Center
7000 N. Westnedge Avenue
Kalamazoo, MI 49009
Ecological Services
269-978-6872
ecoservices@naturecenter.org

PROJECT WORK PLAN AND ESTIMATE FOR

City of Saugatuck
Scott Herbert
102 Butler St. P.O. 86
Saugatuck MI, 49453
(616)886-8408

Date: 9/2/2025

TOTAL ESTIMATE

\$4,737.50

scott@saugatuckcity.com

Client Name	Project Description	Project #	Estimate good for
City of Saugatuck	Invasive Species Survey + Mapping of SHNA	26001 B	90 days

Day	Description	Qty	Units	Cost	Line Total
	Invasive Species Survey (2 staff/2 days)	16	hours	\$ 165.00	\$ 2,640.00
	Mileage: Truck	220	miles	\$ 2.00	\$ 440.00
	Survey data inventory and reporting time	12	hours	\$ 95.00	\$ 1,140.00
	Mapping time	6	hours	\$ 70.00	\$ 420.00
					\$ -
					\$ -
	Administrative	1.5	hours	\$ 65.00	\$ 97.50

Site Lead: Luke Allison
Site Address: Saugatuck Harbor Natural Area Perryman St. Saugatuck MI
Service Description: 2 survey days of Saugatuck Harbor Natural Area, locating, quantifying, reporting, and mapping of invasive species on property to better understand habitat needs. Reporting and mapping of invasive species and establishing management units will help in prioritizing and understanding future management needs.
Area (acres): 171
of Workers: 2
of Work Days: 2+

Labor	\$ 4,297.50
Mileage	\$ 440.00
Equipment	\$ -
Supplies	\$ -
SUBTOTAL	\$ 4,737.50

GRAND TOTAL	\$ 4,737.50
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This is an estimate, actual invoices will be based on specific costs and quantities of materials purchased and actual labor time spent on the project.

View Full Terms and Conditions in the Client Agreement. The Project must be accepted by signing the Client Agreement before work can begin.

For questions regarding this estimate or to set a work schedule, please contact

Thank you for trusting us with your habitat. By choosing KNC's Ecological Services, you support the broader conservation work of the Kalamazoo Nature Center. Proceeds from our client services ensure the sustainability of KNC's longstanding bird observatory, programs that engage the community in wildlife research, and the stewardship of over 1,500 acres of natural areas. To learn more, please visit naturecenter.org/conservation.