



Lighthouse West Natural Floristic Quality Assessment Results

A Floristic Quality Assessment of Lighthouse West Natural Area was conducted by Greg LaCross during the summer of 2007.

Floristic quality assessments (FQAs) are a useful tool to measure a plant community's conservation value. To perform an FQA, all vascular plant species in a community are quantified and an index representing the rarity of these species is summed to give a ranking that can be compared across different ecosystem types. This information can then be used to identify high-quality species and groupings of species in order to prioritize conservation and management efforts. At Lighthouse West Natural Area the total number of species and native species are:

Native Species	Total Species
33	117

The coefficient of conservation (C) is a value between 0 and 10 assigned to each species, representing the species likelihood to occur in an unaltered, pre-European settlement landscape in the state of Michigan (Herman et al 2001). A C-value of 0 is assigned to species with low fidelity to their natural habitat and the ability to persist in numerous habitat conditions. A C-value of 0 is assigned to invasive species, also called adventives. At Lighthouse West Natural Area the mean C-values are:

Native Mean C	Mean C w/ Adventives
4.2	3.4

The coefficient of wetness (W) is assigned to each species depending on their probability to occur in wetlands, where species with a W-value of -5 are obligatory wetland species, and those with a W-value of +5 are upland species. At Lighthouse West Natural Area the mean coefficients of wetness are:

Native Mean W	Mean W w/ Adventives
-0.2	0.6

FQIs less than 20 have minimal significance, while FQIs greater than 35 represent areas of conservation importance and are floristically significant on a statewide level. Areas with FQIs greater than 50 are extremely rare and represent areas of significant native biodiversity (Herman et al 2001). At Lighthouse West Natural Area the FQI's are:

Native FQI	FQI w/ Adventives
40.8	36.3

May, L. 2012. Floristic Quality Assessment and Habitat Mapping of Belanger Creek Preserve

Herman, K. D., L. A. Masters, M. R. Penskar, A. A. Reznicek, G. S. Wilhelm, W. W. Brodovich, and K. P. Gardiner. 2001. Floristic Quality Assessment with Wetland Categories and Examples of Computer Applications for the State of Michigan – Revised, 2nd Edition. Michigan Department of Natural Resources, Wildlife, Natural Heritage Program. Lansing, MI. 19 pp. + Appendices.



Lighthouse West Natural Area

High Quality Plant Species

This list represents the most ecologically significant and high quality plants found at the Lighthouse West Natural Area during a 2007 Floristic Quality Assessment conducted by Greg LaCross. These plants are the highest quality species found on the property and therefore may be rare, difficult to find, or not be blooming depending on the season.

Please remember to practice Leave No Trace techniques; picking flowers may not seem like a big deal, but it means others won't have a chance to enjoy them. With thousands of people visiting Conservancy properties, the less impact we each make, the longer we will enjoy what we have. If you are interested in conducting a scientific study on the property please contact the Conservancy for written permission.

C	Scientific Name	Common Name
6	<i>Solidago ohioensis</i>	OHIO GOLDENROD
6	<i>Solidago patula</i>	SWAMP GOLDENROD
6	<i>Solidago rugosa</i>	ROUGH GOLDENROD
6	<i>Taraxacum Officinale</i>	COMMON DANDELION
7	<i>Thalictrum dioicum</i>	EARLY MEADOW RUE
7	<i>Thuja occidentalis</i>	ARBOR VITAE
7	<i>Tilia americana</i>	BASSWOOD
7	<i>Tragopogon Pratensis</i>	COMMON GOAT'S BEARD
7	<i>Trifolium repens</i>	WHITE CLOVER
7	<i>Trillium grandiflorum</i>	COMMON TRILLIUM
8	<i>Tsuga canadensis</i>	HEMLOCK
8	<i>Typha angustifolia</i>	NARROW LEAVED CATTAIL
8	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL
10	<i>Ulmus americana</i>	AMERICAN ELM
10	<i>Veronica anagallis-aquatica</i>	WATER SPEEDWELL
10	<i>Veronica Chamaedrys</i>	GERMANDER SPEEDWELL
10	<i>Veronica officinalis</i>	COMMON SPEEDWELL
10	<i>Vinca minor</i>	PERIWINKLE
10	<i>Viola canadensis</i>	CANADA VIOLET
10	<i>Viola pubescens</i>	YELLOW VIOLET

To see pictures or learn more about the plants listed above please visit the Michigan Natural Features Inventory website at <http://mnfi.anr.msu.edu/data/specialplants.cfm> or consult Newcomb's Wildflower Guide by Lawrence Newcomb.

FLORISTIC QUALITY DATA SUMMARY

Site: Lighthouse West Natural Area- 2007
 Locale: Leelanau County
 By: Greg LaCross-Environmental Surveys and Analysis

Summary

Native Species	Total Species	Native Mean C	Mean C w/ Ad	NATIVE FQI	FQI w/ Ad	NATIVE MEAN W	Mean W w/ Ad
93	117	4.2	3.4	40.8	36.3	-0.2	0.6

Native	# of species	%
Tree	17	14.50%
Shrub	12	10.30%
W-Vine	2	1.70%
H-Vine	0	0.00%
P-Forb	39	33.30%
B-Forb	2	1.70%
A-Forb	3	2.60%
P-Grass	6	5.10%
A-Grass	0	0.00%
P-Sedge	6	5.10%
A-Sedge	1	90.00%
Fern	5	4.30%
Total	93	79.50%

Adventive	# of species	%
Tree	2	1.70%
Shrub	2	1.70%
W-Vine	0	0.00%
H-Vine	0	0.00%
P-Forb	11	9.40%
B-Forb	6	5.10%
A-Forb	1	0.90%
P-Grass	1	0.90%
A-Grass	1	0.90%
P-Sedge	0	0.00%
A-Sedge	0	0.00%
Total	24	20.50%

Wetland category definitions and coefficients of wetness (W)

Wetland Category	Symbol	W	Definition
Upland	UPL	5	Occurs almost never in wetlands under natural conditions (<1% probability)
Facultative Upland	FACU	3	Occasionally occurs in wetlands, but usually in non-wetlands (1-33% probability)
Facultative	FACW	0	Equally likely to occur in wetlands & nonwetlands (34-66% probability)
Facultative Wetland	FACW	-3	Usually occurs in wetlands, but occasionally in non-wetlands(67-99% probability)
Obligate Wetland	OBL	-5	Occurs almost always in wetlands (>99% probability)

FACW+ = -4, FACW- = -2, FAC+ = -1, FACU+ = 2, FACU- = 4

W= Wetness Coefficient
 C = Coefficient of Conservatism
 WET= Michigan wetland categories
 Adventive= non-native
 P-Forb= Perennial Forb
 B-Forb= Biennial Forb
 W-Vine= Weedy Vine
 H-Vine = Hardwood Vine
 A-Forb = Annual Forb
 P-Grass= Perennial Grass
 A-Grass = Annual Grass
 P-Sedge= Perennial Sedge
 A-Sedge= Annual Sedge

ACRONYM	SCIENTIFIC NAME	COMMON NAME
ABIBAL	<i>Abies balsamea</i>	BALSAM FIR
ACENEG	<i>Acer negundo</i>	BOX ELDER
ACERUB	<i>Acer rubrum</i>	RED MAPLE
ACESAU	<i>Acer saccharum</i>	SUGAR MAPLE
ACTPAC	<i>Actaea pachypoda</i>	DOLL'S EYES
AGAPUR	<i>Agalinis purpurea</i>	PURPLE GERARDIA
AGRREP	<i>AGROPYRON REPENS</i>	QUACK GRASS
ALLTRI	<i>Allium tricoccum</i>	WILD LEEK
ANDSCO	<i>Andropogon scoparius</i>	LITTLE BLUESTEM GRASS
ARITRI	<i>Arisaema triphyllum</i>	JACK IN THE PULPIT
ASCSYR	<i>Asclepias syriaca</i>	COMMON MILKWEED
ASTLAT	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER
ASTPUN	<i>Aster puniceus</i>	SWAMP ASTER
BETPAP	<i>Betula papyrifera</i>	PAPER BIRCH
CALLPA	<i>Calla palustris</i>	WILD CALLA
CXHYST	<i>Carex hystericina</i>	SEDGE
CXORMO	<i>Carex ormostachya</i>	SEDGE
CXROSE	<i>Carex rosea</i>	CURLY STYLED WOOD SEDGE
CXVIRI	<i>Carex viridula</i>	SEDGE
CENMAU	<i>CENTAUREA MACULOSA</i>	SPOTTED BLUET
CIRLUT	<i>Circaea lutetiana</i>	ENCHANTER'S NIGHTSHADE
CIRPAL	<i>CIRSIUM PALUSTRE</i>	MARSH THISTLE
CIRVUL	<i>CIRSIUM VULGARE</i>	BULL THISTLE
CLAVIR	<i>Claytonia virginica</i>	SPRING BEAUTY
CORCOR	<i>Corylus cornuta</i>	BEAKED HAZELNUT
CYNOFF	<i>CYNOGLOSSUM OFFICINAL</i>	HOUND'S TONGUE
DAUCAR	<i>DAUCUS CAROTA</i>	QUEEN ANNE'S LACE
DRYFIL	<i>Dryopteris filix-mas</i>	MALE FERN
DRYMAR	<i>Dryopteris marginalis</i>	MARGINAL WOODFERN
ELEOBT	<i>Eleocharis obtusa</i>	SPIKE RUSH
ELYCAN	<i>Elymus canadensis</i>	CANADA WILD RYE
EPIPAR	<i>EPILOBIUM PARVIFLORUM</i>	WILLOW HERB
EQUARV	<i>Equisetum arvense</i>	COMMON HORSETAIL
EQUFLU	<i>Equisetum fluviatile</i>	WATER HORSETAIL
EQUHYE	<i>Equisetum hyemale</i>	SCOURING RUSH
ERASPE	<i>Eragrostis spectabilis</i>	PURPLE LOVE GRASS
ERIANN	<i>Erigeron annuus</i>	ANNUAL FLEABANE
ERYAME	<i>Erythronium americanum</i>	YELLOW TROUT LILY
EUPPER	<i>Eupatorium perfoliatum</i>	COMMON BONESET
FAGGRA	<i>Fagus grandifolia</i>	AMERICAN BEECH
FESSUB	<i>Festuca subverticillata</i>	NODDING FESCUE
FRAAME	<i>Fraxinus americana</i>	WHITE ASH
GALVEM	<i>GALIUM VERUM</i>	YELLOW BEDSTRAW
GERROB	<i>Geranium robertianum</i>	HERB ROBERT
HIEAUR	<i>HIERACIUM AURANTIACUM</i>	ORANGE HAWKWEED
HIEUMB	<i>Hieracium umbellatum</i>	NORTHERN HAWKWEED
HYPKAL	<i>Hypericum kalmianum</i>	KALM'S ST. JOHN'S WORT
HYPPER	<i>HYPERICUM PERFORATUM</i>	COMMON ST. JOHN'S WORT
HYPPUN	<i>Hypericum punctatum</i>	SPOTTED ST. JOHN'S WORT
JUNBAL	<i>Juncus balticus</i>	RUSH
JUNNOD	<i>Juncus nodosus</i>	JOINT RUSH

LATJAP	<i>Lathyrus japonicus</i>	BEACH PEA
LEOCAR	LEONURUS CARDIACA	MOTHERWORT
LOBKAL	<i>Lobelia kalmii</i>	BOG LOBELIA
LONBEL	LONICERA XBELLA	HYBRID HONEYSUCKLE
LYCAME	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND
LYCUNI	<i>Lycopus uniflorus</i>	NORTHERN BUGLE WEED
MAICAC	<i>Maianthemum canadense</i>	CANADA MAYFLOWER
MILEFF	<i>Milium effusum</i>	WOOD MILLET
MYOSCO	MYOSOTIS SCORPIOIDES	FORGET ME NOT
OSMCLI	<i>Osmorhiza claytonii</i>	HAIRY SWEET CICELY
OSTVIR	<i>Ostrya virginiana</i>	IRONWOOD; HOP HORNBEAM
PARQUI	<i>Parthenocissus quinquefolia</i>	VIRGINIA CREEPER
PHRAUS	<i>Phragmites australis</i>	REED
POLBIB	<i>Polygonatum biflorum</i>	SOLOMON SEAL
POLAMP	<i>Polygonum amphibium</i>	WATER SMARTWEED
POPALB	POPULUS ALBA	WHITE POPLAR
POPBAL	<i>Populus balsamifera</i>	BALSAM POPLAR
POPGRA	<i>Populus grandidentata</i>	BIG TOOTHED ASPEN
POPTRE	<i>Populus tremuloides</i>	QUAKING ASPEN
POTANS	<i>Potentilla anserina</i>	SILVERWEED
POTFRU	<i>Potentilla fruticosa</i>	SHRUBBY CINQUEFOIL
PRUMAH	PRUNUS MAHALEB	PERFUMED CHERRY
PRUSER	<i>Prunus serotina</i>	WILD BLACK CHERRY
PRUVIR	<i>Prunus virginiana</i>	CHOKE CHERRY
QUERUB	<i>Quercus rubra</i>	RED OAK
RANABO	<i>Ranunculus abortivus</i>	SMALL FLOWERED BUTTERCUP
RIBCYN	<i>Ribes cynosbati</i>	PRICKLY or WILD GOOSEBERRY
RUBALL	<i>Rubus allegheniensis</i>	COMMON BLACKBERRY
RUBPUB	<i>Rubus pubescens</i>	DWARF RASPBERRY
RUBSTR	<i>Rubus strigosus</i>	WILD RED RASPBERRY
SALBEB	<i>Salix bebbiana</i>	BEBB'S WILLOW
SALCOR	<i>Salix cordata</i>	SAND DUNE WILLOW
SALERI	<i>Salix eriocephala</i>	WILLOW
SALEXI	<i>Salix exigua</i>	SANDBAR WILLOW
SALNIG	<i>Salix nigra</i>	BLACK WILLOW
SALPYR	<i>Salix pyrifolia</i>	BALSAM WILLOW
SCHPUN	<i>Schoenoplectus pungens</i>	THREE SQUARE
SCIATR	<i>Scirpus atrovirens</i>	BULRUSH
SECCER	SECALE CEREALE	ANNUAL RYE
SILVUL	SILENE VULGARIS	BLADDER CAMPION
SISMON	<i>Sisyrinchium montanum</i>	MOUNTAIN BLUE EYED GRASS
SMIRAC	<i>Smilacina racemosa</i>	FALSE SPIKENARD
SOLALT	<i>Solidago altissima</i>	TALL GOLDENROD
SOLCAE	<i>Solidago caesia</i>	BLUE STEMMED GOLDENROD
SOLCAN	<i>Solidago canadensis</i>	CANADA GOLDENROD
SOLGIG	<i>Solidago gigantea</i>	LATE GOLDENROD
SOLOHI	<i>Solidago ohioensis</i>	OHIO GOLDENROD
SOLPAT	<i>Solidago patula</i>	SWAMP GOLDENROD
SOLRUG	<i>Solidago rugosa</i>	ROUGH GOLDENROD
TAROFF	TARAXACUM OFFICINALE	COMMON DANDELION
THADIO	<i>Thalictrum dioicum</i>	EARLY MEADOW RUE
THUOCC	<i>Thuja occidentalis</i>	ARBOR VITAE

TILAME	<i>Tilia americana</i>	BASSWOOD
TRAPRA	TRAGOPOGON PRATENSIS	COMMON GOAT'S BEARD
TRIREP	TRIFOLIUM REPENS	WHITE CLOVER
TRIGRA	<i>Trillium grandiflorum</i>	COMMON TRILLIUM
TSUCAN	<i>Tsuga canadensis</i>	HEMLOCK
TYPANG	TYPHA ANGUSTIFOLIA	NARROW LEAVED CATTAIL
TYPLAT	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL
ULMAME	<i>Ulmus americana</i>	AMERICAN ELM
VERANA	<i>Veronica anagallis-aquatica</i>	WATER SPEEDWELL
VERCHA	VERONICA CHAMAEDRYIS	GERMANDER SPEEDWELL
VEROFF	VERONICA OFFICINALIS	COMMON SPEEDWELL
VINMIN	VINCA MINOR	PERIWINKLE
VIOCAN	<i>Viola canadensis</i>	CANADA VIOLET
VIOPUB	<i>Viola pubescens</i>	YELLOW VIOLET
VITRIP	<i>Vitis riparia</i>	RIVERBANK GRAPE