

Date:

Site Name[Twp_ID#_Owner]:

Time spent at site:

Surveyors:

I. INSTRUCTIONS

1. The attached aerial photo is marked to indicate a proposed route and provisional boundaries of different natural area types: Wetlands, Grasslands/Shrublands, Forests, and Creeks.
2. As you walk through the site, fill out a worksheet for each different natural area (wetland vs. grassland vs. forest vs. creek) that you encounter (this may be different from what is indicated on the aerial). Make sure to bring several copies of the each worksheet, since you may find more than one wetland, forest or grassland as you walk the site. **LABEL EACH WORKSHEET**. If there is more than one natural area, **note by a letter on the map** and the worksheets (fill in the blank on both sides of the worksheet: "WETLANDS__").

Make sure to fill out every question on worksheet.

3. Check here how many of each worksheet you filled out.

<input type="checkbox"/> 1) Wetlands Workheet: Area has standing water occasionally or periodically during year. #_____	<input type="checkbox"/> 3) Forests Worksheet: Trees occupy >50% of the area. #_____
<input type="checkbox"/> 2) Grasslands/Shrublands Worksheet: Grasses, forbs, shrubs occupy >50% of the area. #_____	<input type="checkbox"/> 4) Creeks Worksheet: #_____
4. **Sketch the actual boundaries of each natural area** you assess on the aerial. In the office, we will be recording the size of each natural area.
5. Sketch the route you took through the property.
6. After completing all the worksheets, fill out the **SITE OVERVIEW WORKSHEET** on the reverse side of this page and the **SITE SUMMARY WORKSHEET** (the last page).



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II. SITE OVERVIEW WORKSHEET. *Keep these questions in mind as you walk through the site, and answer them considering how they apply to the ENTIRE site. Use additional sheets of paper as necessary.*

II.1. Characterize the landscape and landforms in the site *(check all that apply).*

- | | | |
|---|---|---|
| <input type="checkbox"/> 1) Flat | <input type="checkbox"/> 4) Glacial lake plain | <input type="checkbox"/> 7) Kettle, kame, or esker |
| <input type="checkbox"/> 2) Gently rolling | <input type="checkbox"/> 5) Glacial outwash plain | <input type="checkbox"/> 8) Large boulders (glacial erratics) |
| <input type="checkbox"/> 3) Hilly, occasionally steep | <input type="checkbox"/> 6) Glacial till or moraine | <input type="checkbox"/> 9) Other (describe): |

For characteristics checked off above, CIRCLE those that occupy the largest area of the site.

II.2. Characterize human-caused disturbances that you observe on the site as a whole (listed in order of potential severity/intensity). *Check all that apply. CIRCLE all that appear recent, on-going, or severe.*

- | | | |
|---|--|--|
| <input type="checkbox"/> 1) Bulldozed clearings | <input type="checkbox"/> 8) Dirt roads (graveled) | <input type="checkbox"/> 14) Fences |
| <input type="checkbox"/> 2) Construction | <input type="checkbox"/> 9) ATV or off-road vehicle trails | <input type="checkbox"/> 15) Abandoned homestead |
| <input type="checkbox"/> 3) Commercial buildings | <input type="checkbox"/> 10) Dirt roads (unimproved, two tracks) | <input type="checkbox"/> 16) Rock piles |
| <input type="checkbox"/> 4) Residential buildings | <input type="checkbox"/> 11) Agricultural field (grazed) | <input type="checkbox"/> 17) Logging or tree removal |
| <input type="checkbox"/> 5) Agricultural field (plowed) | <input type="checkbox"/> 12) Abandoned agricultural field | <input type="checkbox"/> 18) Dumping, trash piles |
| <input type="checkbox"/> 6) Paved roads | <input type="checkbox"/> 13) Abandoned tree farm, orchard | <input type="checkbox"/> 19) Footpaths |
| <input type="checkbox"/> 7) Railroads | | <input type="checkbox"/> 20) Other (describe): |

II.3. Characterize the extent of the disturbance(s):

- | | | |
|--|---|---|
| <input type="checkbox"/> 1) Extensive (>50% of site) | <input type="checkbox"/> 3) Moderate (10–25% of site) | <input type="checkbox"/> 5) Uncertain |
| <input type="checkbox"/> 2) Partial (25–50% of site) | <input type="checkbox"/> 4) Mild (<10% of site) | <input type="checkbox"/> 6) None apparent |

II.4. Effects of previous or current land uses on soil (listed by severity). *Check all that apply.*

- | | | |
|---|---|---|
| <input type="checkbox"/> 1) Gravel or debris pile | <input type="checkbox"/> 3) Bare areas with no vegetation | <input type="checkbox"/> 5) Other (describe): |
| <input type="checkbox"/> 2) Erosion (gullies, washouts) | <input type="checkbox"/> 4) Compaction or ruts | |

For soil conditions checked above, CIRCLE all that appear severe or affect more than 10% of site.

II.5. Invasive species overall. After traversing the site, characterize the overall pattern(s) of species invasions. *Check all that apply.*

- | | | |
|--|--|---|
| <input type="checkbox"/> 1) Primarily at roadsides and trail edges (exterior) | <input type="checkbox"/> 3) Isolated pockets within a single community | <input type="checkbox"/> 5) Large monotypic stands in two or more communities |
| <input type="checkbox"/> 2) Pervasive throughout site (interior as well as exterior) | <input type="checkbox"/> 4) Large monotypic stands in one community | <input type="checkbox"/> 6) Other (describe): |

→ **On the aerial photo on the reverse side of this sheet, indicate where major disturbances, soil effects, and species invasions occur.**

II.6. WILDLIFE HABITAT. Small natural areas may provide important wildlife habitat in an increasingly urbanized environment. Check off any of the following wildlife signs or sightings for the entire site.

- | | | |
|--|--|---|
| <input type="checkbox"/> 1) Antler rubs | <input type="checkbox"/> 7) Fish other aquatic vertebrates | <input type="checkbox"/> 12) Small mammals (squirrels, mice, rabbits, raccoons, etc.) |
| <input type="checkbox"/> 2) Bird nests | <input type="checkbox"/> 8) Frogs, toads | <input type="checkbox"/> 13) Small mammal burrows, tracks |
| <input type="checkbox"/> 3) Carcasses or bones | <input type="checkbox"/> 9) Ground-nesting birds (grouse, turkeys, etc.) | <input type="checkbox"/> 14) Songbirds |
| <input type="checkbox"/> 4) Deer | <input type="checkbox"/> 10) Migratory waterfowl | <input type="checkbox"/> 15) Salamanders |
| <input type="checkbox"/> 5) Deer tracks, deer browse | <input type="checkbox"/> 11) Raptors, raptor nests | <input type="checkbox"/> 16) Turtles |
| <input type="checkbox"/> 6) Droppings or scat | | <input type="checkbox"/> 17) Other (describe): |

Additional notes on wildlife (including stories or other anecdotal evidence from land-owner):

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III. WETLANDS __ WORKSHEET

III.1. Hydrological conditions. Wetlands are areas that have standing water periodically, for at least some part of the year, where plants with particular adaptations to wet conditions typically grow, and organic (muck or peat) soils may develop. Characterize the area where this wetland occurs. *Check all that apply.*

- | | | |
|---|--|---|
| <input type="checkbox"/> 1) At margin of river, stream, lake, or pond | <input type="checkbox"/> 5) Appears occasionally flooded (vernal pond, floodplain forests) | <u>If no standing water...</u> |
| <input type="checkbox"/> 2) Kettle lake or pond | <input type="checkbox"/> 6) At base of hill or slope | <input type="checkbox"/> 9) Bare muddy ground |
| <input type="checkbox"/> 3) Standing water | <input type="checkbox"/> 7) Groundwater seepage area | <input type="checkbox"/> 10) Tree trunks buttressed/stained |
| <input type="checkbox"/> 4) In ravine or depression | <input type="checkbox"/> 8) Source of water not apparent | <input type="checkbox"/> 11) Tree roots bare or spreading |
| | | <input type="checkbox"/> 12) Other (describe): |

III.2. Appearance of soil. If there is bare soil in the area from a tree tip-up, animal digging, or human activities, characterize the soil. *Check all that apply.*

- | | | |
|--|---|---|
| <input type="checkbox"/> 1) Sandy | <input type="checkbox"/> 5) Light tan or brown | <input type="checkbox"/> 9) Top 6–12" layered or banded |
| <input type="checkbox"/> 2) Heavy, slippery, loam-clay | <input type="checkbox"/> 6) Dark brown | <input type="checkbox"/> 10) Top 6–12" appear uniform |
| <input type="checkbox"/> 3) Mixed w/ pebble or gravel | <input type="checkbox"/> 7) Mucky (circle: smooth; fibrous) | <input type="checkbox"/> 11) Other (describe): |
| <input type="checkbox"/> 4) Glacial erratics (large rocks) | <input type="checkbox"/> 8) Peaty | |

III.3. Vegetation structure. Observe the features and patterns of the vegetation.

- | | | |
|---|--|--|
| <input type="checkbox"/> 1) Vegetation clumped in distinct areas or patches | <input type="checkbox"/> 3) Open-water area (no plants) | <input type="checkbox"/> 7) Fen area (grasslike & broad-leaved plants; peat/sphagnum moss) |
| <i>or</i> | <input type="checkbox"/> 4) Emergent marsh area (plants rooted under water; some leaves above surface) | <input type="checkbox"/> 8) Bog area (sphagnum moss, low broad-leaved evergreen shrubs) |
| <input type="checkbox"/> 2) Vegetation has no distinct zones | <input type="checkbox"/> 5) Wet meadow or marsh area (dominated by grass-like plants) | <input type="checkbox"/> 9) Dense tall shrub area |
| <i>Check all to right that apply :</i> | <input type="checkbox"/> 6) Forb area (broad-leaved plants) | <input type="checkbox"/> 10) Forest (swamp, floodplain) area |
| | | <input type="checkbox"/> 11) Other (describe): |

III.4. Vegetation types. Check off all species that you recognize in the following vegetation groups.

→ *Within each group of species, CIRCLE any that predominate.*

III.4.1. Native emergent and floating-leaved plants

- | | | |
|--|--|---|
| <input type="checkbox"/> 1) Buttonbush | <input type="checkbox"/> 3) Water-willow | <input type="checkbox"/> 4) Other (list): |
| <input type="checkbox"/> 2) Pickerelweed | | |

III.4.2. Native grasses and grass-like plants (sedges, rushes)

- | | | |
|---|--|---|
| <input type="checkbox"/> 1) Bluejoint grass | <input type="checkbox"/> 4) Tussock sedge | <input type="checkbox"/> 7) Other (list): |
| <input type="checkbox"/> 2) Bulrushes | <input type="checkbox"/> 5) Sedges, uncertain or other | |
| <input type="checkbox"/> 3) Cottongrass | <input type="checkbox"/> 6) Uncertain | |

III.4.3. Native forbs

- | | | |
|---|--|---|
| <input type="checkbox"/> 1) Ferns (cinnamon or royal) | <input type="checkbox"/> 4) Lobelias (<i>except</i> Indian tobacco) | <input type="checkbox"/> 7) Skullcaps |
| <input type="checkbox"/> 2) Gentians | <input type="checkbox"/> 5) Marsh marigold | <input type="checkbox"/> 8) Skunk cabbage |
| <input type="checkbox"/> 3) Joe-pye weed | <input type="checkbox"/> 6) Orchids | <input type="checkbox"/> 9) Other (list): |

III.4.4. Native shrubs

- | | | |
|---|--|---|
| <input type="checkbox"/> 1) Blueberries | <input type="checkbox"/> 4) Dogwoods, shrubby (gray, red-osier, silky) | <input type="checkbox"/> 7) Ninebark |
| <input type="checkbox"/> 2) Buttonbush | <input type="checkbox"/> 5) Leatherleaf | <input type="checkbox"/> 8) Poison sumac |
| <input type="checkbox"/> 3) Cinquefoil, shrubby | <input type="checkbox"/> 6) Michigan holly | <input type="checkbox"/> 9) Willows (shrubby) |
| | | <input type="checkbox"/> 10) Other (list): |

Continue on reverse side

III.4.5. Native trees

- 1) Ashes
- 2) Birch (yellow)
- 3) Cedar, northern white
- 4) Larch (tamarack)
- 5) Maples (Circle: red; silver; other)
- 6) Oaks (Species: _____)
- 7) Spruce, black
- 8) Sycamore
- 9) Other (list):

III.4.6. Native plants of bogs and fens

- 1) Cottongrass
- 2) Leatherleaf
- 3) Pitcher plants
- 4) Sphagnum moss
- 5) Sundews
- 6) Other (list):

III.4.7. Invasive species (grass-like plants, forbs, shrubs, trees)

- 1) Black alder
- 2) Buckthorns
(Circle: glossy; common)
- 3) Cat-tails (dense, extensive)
- 4) Phragmites (common reed)
- 5) Purple loosestrife
- 6) Reed canary-grass
- 7) Other (list):

III.4.8. Estimate the total number of species of all types (even if you can't identify them): _____

III.5. Vegetation cover. Estimate the area covered by each type of plants. (Vegetation types may overlap, so total cover can be greater than 100%).

	None (0%)	A little (1–10%)	Common (10–25%)	Abundant (25–50%)	Dominant (>50%)
III.5.1. Native emergent plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III.5.2. Native grasses, grass-like plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III.5.3. Native forbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III.5.4. Native shrubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III.5.5. Native trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III.5.6. Native bog/fen plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III.5.7. Invasive species (all types)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III.6. Invasive species distribution within wetland area. *Check all that apply.*

- 1) Primarily along trails and wetland edges (exterior)
- 2) Within wetland interior
- 3) Occur in isolated pockets
- 4) Occur in large monotypic stands
- 5) Pervasive throughout wetland (interior and exterior)
- 6) Other (describe)

III.7. Human disturbances to wetland area. If possible, walk around the perimeter of the wetland to look for possible draining or ditching. *Check all that apply, and CIRCLE all that appear on-going or severe.*

- 1) Bulldozed clearings
- 2) Ditches, channels, or tiling (circle one)
- 3) Drainpipes
- 4) Berms, dams to divert H₂O
- 5) Erosion (gullies, washouts)
- 6) Erosion control fencing
- 7) Gravel or rubble fill or piles
- 8) Dirt roads (graveled or unimproved two tracks)
- 9) ATV or off-road vehicle trails
- 10) Fences
- 11) Agricultural use (describe):
- 12) Rock piles
- 13) Evidence of plowing
- 14) Wheel ruts, compacted areas
- 15) Trampled or rutted areas
- 16) Footpaths
- 17) Other (describe):

III.8. Characterize the extent of the disturbance(s) to this wetland area:

- 1) Extensive (>50% of area)
- 2) Partial (25–50% of area)
- 3) Moderate (10–25% of area)
- 4) Mild (<10% of area)
- 5) Uncertain
- 6) None apparent

III.9. Additional notes:

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IV. GRASSLANDS/SHRUBLANDS__ WORKSHEET

IV.1. Appearance of soil. If there is bare soil in the area from a tree tip-up, animal digging, or human activities, characterize the soil. *Check all that apply.*

- 1) Sandy
- 2) Heavy, slippery, loam/clay
- 3) Pebbly or gravelly
- 4) Glacial erratics (boulders)
- 5) Light tan or brown
- 6) Dark brown
- 7) Mucky (Circle: smooth; fibrous)
- 8) Peaty
- 9) Top 6–12” layered or banded
- 10) Top 6–12” appear uniform
- 11) Other (describe):

NOTE: If soil is mucky or peaty, or if there is standing water >24 hours after a rain or >1 week after snowmelt, PLEASE FILL OUT A WETLANDS WORKSHEET (III) FOR THIS AREA.

IV.2. Vegetation structure: Tree and shrub canopy. *Choose a or b for each.*

- 1a) No mature (med-lg) trees
- 1b) Mature trees have low, spreading canopies
- 2a) Mature trees far apart; branches do not touch
- 2b) Mature trees close; branches touch or overlap
- 3a) Trees cast dappled shade
- 3b) Trees cast dense shade
- 4a) Saplings, small trees scattered, occasional
- 4b) Saplings, small trees in dense thickets
- 5a) Sight lines open across area
- 5b) Sight lines blocked by saplings, shrubs

IV.3. Vegetation structure: Tree size distribution. *Estimate the area covered by each of following size classes of trees.* **NOTE: DBH = estimated diameter at breast height; visual estimates based on comparison to this 8.5” by 11” sheet of paper are adequate.**

	None (0%)	A little (1–10%)	Common (10–25%)	Abundant (25–50%)
IV.3.1. Very large (>18 dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IV.3.2. Large (>10” dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IV.3.3. Medium (6–10” dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IV.3.4. Small (2–6” dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IV.3.5. Saplings (<2” dbh, 3–15’ tall) and seedlings (<2” dbh, <3’ tall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV.4. Vegetation types. Check off all species that you recognize in the following species groups.

→ *Within each group of species, circle the one(s) that predominate.*

IV.4.1. Native grasses

- 1) Big bluestem
- 2) Little bluestem
- 3) Bluejoint grass
- 4) Bulrushes
- 5) Tussock sedge
- 6) Uncertain (but grows in clumps)
- 7) Other (name):

NOTE: If 3, 4, or 5 checked, also fill out worksheet III for WETLANDS.

IV.4.2. Non-native grasses (green early & late in season)

- 1) Bluegrass (Ky, Canada)
- 2) Cat-tails in dense stands
- 3) Orchardgrass (grows in clumps)
- 4) Uncertain
- 5) Other (name):

IV.4.3. Native forbs

- 1) Blazing stars
- 2) Butterflyweed
- 3) Goldenrods, short (<chest ht.)
- 4) Lespedezas, ticktrefoils
- 5) Milkweeds (*except* common and whorled)
- 6) Mountain mints
- 7) Other (name):

IV.4.4. Invasive forbs (native and non-native old-field weeds)

- 1) Goldenrods, tall (≥ waist ht.)
- 2) Mullein
- 3) Queen Anne’s lace
- 4) Spotted knapweed
- 5) Swallow-wort, black or white
- 6) Sweet clover (white, yellow)
- 7) Teasels (common, cut-leaved)
- 8) Thistles (bull, Canadian, etc.)
- 9) Other (name):

Continue on reverse side

GRASSLANDS/SHRUBLANDS__, PAGE 2

IV. 4.5. Native shrubs (typically grow in clumps of woody stems)

- 1) Dogwoods, shrubby
- 2) Hazelnut
- 3) Ninebark
- 4) Poison sumac
- 5) Rose (Carolina or prairie)
- 6) Willows, shrubby
- 7) Other (name):

IV.4.6. Native trees. Check off ALL size classes in which you observe each species.

<u>Tree Species</u>	<u>Very Large</u>	<u>Large</u>	<u>Medium</u>	<u>Small</u>	<u>Sapling/Seedling</u>
1) Ashes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Black cherry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Black locust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Box-elder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Maples (circle: red; silver; sugar)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Oaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Species: _____)					
7) Other (name):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV.4.7. Non-native shrubs and trees

- 1) Autumn olive
- 2) Bittersweet, oriental
- 3) Black alder
- 4) Buckthorns (circle: common; glossy)
- 5) Honeysuckles, bush
- 6) Multiflora rose
- 7) Privets
- 8) Other (name):

IV.4.8. Estimate the total number of species of all types (even if you can't identify them): _____

IV.5. Vegetation cover. Estimate the area covered by each type of plants. (Types may overlap, so total may be >100%).

	None (0%)	A little (1–10%)	Common (10–25%)	Abundant (25–50%)	Dominant (>50%)
V.5.1. Native grasses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.2. Non-native grasses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.3. Native forbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.4. Invasive forbs (old-field weeds)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.5. Native shrubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.6. Native trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.7. Non-native shrubs and trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV.6. Invasive species distribution within grassland/shrubland area. Check all that apply.

- 1) Along trails, edges
- 2) Within interior of area
- 3) In isolated pockets
- 4) In large monotypic stands
- 5) Pervasive throughout area
- 6) Other (describe):

IV.7. Evidence of plowing (arranged by increasing likelihood of plowing). Check all that apply.

- 1) Soil feels spongy
- 2) Dense grass clumps
- 3) Thick sod
- 4) Appears unplowed
- 5) Rocks, if present, scattered on surface
- 6) Soil feels hard underfoot
- 7) Rocks in piles
- 8) Ridges and furrows visible
- 9) Soil buildup along fencerows
- 10) Appears plowed
- 11) Uncertain if plowed

IV.8. Human disturbances in grassland/shrubland area. Circle all that appear on-going or severe.

- 1) Bulldozed clearings
- 2) Agricultural field (plowed)
- 3) Paved or gravel roads
- 4) Railroads
- 5) Ditches
- 6) ATV/off-road vehicle trails
- 7) Dirt roads (unimproved, 2-tracks)
- 8) Agricultural field (grazed)
- 9) Abandoned agricultural field
- 10) Abandoned tree farm, orchard
- 11) Fences
- 12) Abandoned homestead
- 13) Rock piles
- 14) Dumping, trash piles
- 15) Footpaths
- 16) Other (describe):

IV.9. Characterize the extent and effects of human disturbance(s) in grassland/shrubland area.

- 1) Extensive (>50% of area)
- 2) Partial (25–50% of area)
- 3) Moderate (10–25% of area)
- 4) Mild (<10% of area)
- 5) None apparent
- 6) Other (describe):

Additional notes (use extra sheets of paper as necessary):

Date:

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V. FORESTS__ WORKSHEET

V.1. General forest structure and appearance. NOTE: DBH = estimated diameter at breast height; for reference, this sheet of paper is 8.5" by 11." (Check all that apply.)

- | | | |
|--|---|---|
| <input type="checkbox"/> 1) Old orchard | <input type="checkbox"/> 8) Large rotting logs | <u>Wetland indicators</u> |
| <input type="checkbox"/> 2) Old tree farm or nursery | <input type="checkbox"/> 9) Fallen trees and branches | <input type="checkbox"/> 13) Water lines on tree bases |
| <input type="checkbox"/> 3) Pine plantation | <input type="checkbox"/> 10) Tree tip-up mounds | <input type="checkbox"/> 14) Bare, muddy areas |
| <input type="checkbox"/> 4) Trees mostly the same size | <input type="checkbox"/> 11) Pits left from fallen trees | <input type="checkbox"/> 15) Buttressed trunks, spreading roots |
| <input type="checkbox"/> 5) Trees are a mix of sizes | <input type="checkbox"/> 12) Extensive tree mortality (e.g., emerald ash borer, oak wilt, larch budworm). Species affected: | |
| <input type="checkbox"/> 6) Open-grown ("wolf") trees | | |
| <input type="checkbox"/> 7) Standing dead trees | | <input type="checkbox"/> 16) Other (describe): |

V.2. Appearance of soil. If there is bare soil in the area from a tree tip-up, animal digging, or human activities, characterize the soil. Check all that apply.

- | | | |
|--|---|---|
| <input type="checkbox"/> 1) Sandy | <input type="checkbox"/> 5) Light tan or brown | <input type="checkbox"/> 9) Top 6-12" layered or banded |
| <input type="checkbox"/> 2) Heavy, slippery, loam/clay | <input type="checkbox"/> 6) Dark brown | <input type="checkbox"/> 10) Top 6-12" appear uniform |
| <input type="checkbox"/> 3) Pebbly or gravelly | <input type="checkbox"/> 7) Mucky (circle: smooth; fibrous) | <input type="checkbox"/> 11) Other (describe): |
| <input type="checkbox"/> 4) Glacial erratics (large rocks) | <input type="checkbox"/> 8) Peaty | |

NOTE: If soil is mucky or peaty, or if there is standing water >24 hours after a rain or >1 week after snowmelt, PLEASE ALSO FILL OUT A WETLANDS WORKSHEET (III) FOR THIS AREA.

V.3. Vegetation structure: Tree sizes. Estimate and circle the overall area covered by each size class of trees. NOTE: DBH = estimated diameter at breast height; visual estimates based on comparison to this 8.5" by 11" sheet of paper are adequate.

	None (0%)	A little (1-10%)	Common (10-25%)	Abundant (25-50%)	Dominant (>50%)
V.3.1. Very large (>18 dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.3.2. Large (>10" dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.3.3. Medium (6-10" dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.3.4. Small (2-6" dbh)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.3.5. Saplings and Seedlings (<2" dbh, under 15' tall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

V.4.1. Vegetation types: Tree species. Check off ALL size classes in which each species appears.

<u>Species</u>	<u>Large to</u>			
	<u>Very Large</u>	<u>Medium</u>	<u>Small</u>	<u>Sapling/Seedling</u>
1) Ashes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Basswood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Beech	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Birch (yellow)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Black cherry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Box-elder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Cedar, Northern white	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Hemlock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Larch (tamarack)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Maples (Circle: red; silver; sugar; other)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Oaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List oak species observed: _____				
12) Sycamore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Invasives (e.g., Norway maple, Scotch pine, white mulberry)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List species observed: _____				
14) Other (list):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Continue on reverse side

V.4.2. Native shrubs and woody vines

- 1) Blueberries, huckleberries
- 2) Hazelnut
- 3) Michigan holly
- 4) Poison sumac
- 5) Spicebush
- 6) Witch-hazel
- 7) Other (name):

V.4.3. Native herbaceous ground cover and spring flora

- 1) Doll’s eyes
- 2) Grasses, sedges
- 3) Hepatica, sharplobe
- 4) Marsh-marigold
- 5) Skunk-cabbage
- 6) Trilliums
- 7) Trout lilies
- 8) Wild ginger
- 9) Other (name):

V.4.4. Invasive species (small trees, shrubs, woody vines, and ground cover)

- 1) Autumn olive
- 2) Bittercress
- 3) Buckthorns (Circle: common; glossy)
- 4) Burningbush
- 5) Dame’s rocket
- 6) Garlic mustard
- 7) Honeysuckles (bush)
- 8) Japanese barberry
- 9) Oriental bittersweet
- 10) Privets
- 11) Other (name):
- Homestead indicators
- 12) Day lilies
- 13) English ivy
- 14) Lilacs
- 15) Lily-of-the-valley
- 16) Vincas (periwinkles)

V.4.5. Estimate the total number of species of all types (even if you can’t identify them): _____

V.5. Vegetation cover. Estimate the area covered by each type of plants. (Vegetation types may overlap, so total cover can be greater than 100%).

	None (0%)	A little (1–10%)	Common (10–25%)	Abundant (25–50%)	Dominant (>50%)
V.5.1. Native trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.2. Native shrubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.3. Native ground cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.5.4. Invasive species (all types)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

V.6. Invasive species distribution within forested area. Check all that apply.

- 1) Along trails, edges
- 2) Within forest interior
- 3) In isolated pockets
- 4) In large stands
- 5) Pervasive throughout area
- 6) Other (describe):

V.7. Human disturbances in this forested area. Check all that apply; circle all that appear on-going or severe.

- 1) Residential/farm buildings
- 2) Bulldozed clearings
- 3) Dirt roads (graveled or unimproved two tracks)
- 4) ATV/off-road vehicle trails
- 5) Drains, ditches
- 6) Rutted, furrowed, or hard, compacted soil
- 7) Abandoned homestead
- 8) Abandoned agricultural field
- 9) Rock piles
- 10) Fences
- 11) Soil buildup along fencerows
- 12) Evidence of plowing
- 13) Cut tree stumps (describe size & number):
- 14) Footpaths
- 15) Other (describe):

V.8. Characterize the extent of human disturbance(s) in this forested area:

- 1) Extensive (>50% of forest)
- 2) Partial (25–50% of forest)
- 3) Moderate (10–25%)
- 4) Mild (<10%)
- 5) None apparent
- 6) Other (describe):

V.9. Additional notes (use extra sheets of paper if needed):

Site Name[Twp_ID#_Owner]:

Has it rained in the past 24 hours?

Date:

Surveyors:

YES

NO

VI. CREEKS __ WORKSHEET

VI.1. Width of creek. Check the average width of waterway as it flows through the site

- 1) < 10 feet 2) 10 – 25 feet 3) > 25 feet

VI. 2. Stream structure and stream banks. Characterize the appearance of any stream or river channels.
Check all that apply, and circle the one(s) that predominate.

- | | | |
|---|---|--|
| <input type="checkbox"/> 1) Water channel has natural meanders and curves | <input type="checkbox"/> 4) Banks have gentle slopes | <input type="checkbox"/> 9) Concrete or dirt levees or berms built along water channel |
| <input type="checkbox"/> 2) Water channel is straight or ditched | <input type="checkbox"/> 5) Banks are abrupt or steep | <input type="checkbox"/> 10) Other (describe) |
| <input type="checkbox"/> 3) Water is channeled through drainpipes | <input type="checkbox"/> 6) Banks eroded, washed out | |
| | <input type="checkbox"/> 7) Banks are undercut | |
| | <input type="checkbox"/> 8) Banks stabilized with rip-rap, concrete slabs, or other materials | |

VI.3. Aquatic habitats. *Check all that apply.*

- | | | |
|---|---|---|
| <input type="checkbox"/> 1) Fallen trees, branches in water | <input type="checkbox"/> 4) Water flow appears uniform. If not, check all that apply below: | <input type="checkbox"/> 6) Some areas with slow-moving water |
| <input type="checkbox"/> 2) Canopy shades creek: 20-50% | <input type="checkbox"/> 5) Some areas with fast-moving water (runs and riffles) | <input type="checkbox"/> 7) Still-water pools |
| <input type="checkbox"/> 3) Canopy shades creek: >50% | | |

VI.4. Water appearance and quality, standing or running water. *Check all that apply.*

- | | | |
|--|---|--|
| <input type="checkbox"/> 1) Clear | <input type="checkbox"/> 6) Muddy | <input type="checkbox"/> 10) Algae absent or moderate |
| <input type="checkbox"/> 2) Turbid | <input type="checkbox"/> 7) Greenish | <input type="checkbox"/> 11) Algae dense, grows on substrate |
| <input type="checkbox"/> 3) Orange | <input type="checkbox"/> 8) Oily sheen (circle: natural; synthetic) | <input type="checkbox"/> 12) Algae dense, floats in water |
| <input type="checkbox"/> 4) Milky | <input type="checkbox"/> 9) Foamy (circle: natural; synthetic) | <input type="checkbox"/> 13) Other (describe): |
| <input type="checkbox"/> 5) Dark brown | | |

NOTE: To distinguish natural from synthetic oily sheens and foaminess in water, take a stick and draw a line through the water. If the oil film or foam dissipates easily, it probably derives from a natural source; if the oil or foam sticks together and does not part easily, the source is likely synthetic.

VI.5. Water odor. *Check all that apply.*

- | | | |
|------------------------------------|---|---|
| <input type="checkbox"/> 1) Sewage | <input type="checkbox"/> 3) Chlorine | <input type="checkbox"/> 5) None |
| <input type="checkbox"/> 2) Fishy | <input type="checkbox"/> 4) Rotten eggs | <input type="checkbox"/> 6) Other (describe): |

VI.6. Human disturbances adjacent to or affecting the waterway. If possible, walk around the perimeter of the waterway (or at least along one side of it) to look for possible drains, ditches, and other disturbances.
Check all that apply, and circle all that appear on-going or severe.

- | | | |
|--|--|--|
| <input type="checkbox"/> 1) Dirt roads (graveled or unimproved two tracks) | <input type="checkbox"/> 4) Bulldozed clearings | <input type="checkbox"/> 7) Erosion control fencing |
| <input type="checkbox"/> 2) Off-road vehicle trails | <input type="checkbox"/> 5) Ditches, channels, or tiling (clay bricks, PVC piping) | <input type="checkbox"/> 8) Gravel or rubble fill or piles |
| <input type="checkbox"/> 3) Berms, dams | <input type="checkbox"/> 6) Drainpipes | <input type="checkbox"/> 9) Other (describe): |

VI.7 Characterize the extent of the human disturbance(s) in floodplains and waterways:

- | | | |
|--|---|---|
| <input type="checkbox"/> 1) Extensive (>50% of area) | <input type="checkbox"/> 3) Moderate (10–25%) | <input type="checkbox"/> 5) None apparent |
| <input type="checkbox"/> 2) Partial (25–50% of area) | <input type="checkbox"/> 4) Mild (<10%) | <input type="checkbox"/> 6) Other (describe): |

VI.8. Additional notes *(continue on reverse side if necessary):*

Date:

Site Name[Twp_ID#_Owner]:

Time spent at site:

Surveyors:

VII. SITE SUMMARY WORKSHEET

Summarize your evaluation of the condition of the site. What are the outstanding characteristics? Would you consider this site, or any parts of it, as a high-quality natural area? Is it worth additional inventory and protection efforts? Why or why not?

Notes on any species of plant or animal that you believe to be rare, threatened, or endangered:

Notes on property owner's comments or intentions (e.g. "owner interested in conservation options;" "owner wants advice of controlling invasives"):

Notes on diversity and habitat type of any of the ecosystems you assessed (e.g. "Wetland b is a very diverse wooded swamp"):

Notes on disturbance you found in any of the ecosystems:

Notes on invasives you found in any of the ecosystems ("reed canary grass pervasive but there is also a great diversity of native species"):

Notes of ecological quality of any of the ecosystems: (e.g. maturity of forest, hydrological characteristics of wetland)

Other comments:

Date:

Site Name[Twp_ID#_Owner]:

Time spent at site:

Surveyors:

VIII. ADDITIONAL SPECIES OR OTHER NOTES

Use this sheet to record species that are not included in the checklists. List in which community you found the species (e.g. Wetlands A, Grasslands A, Forest A, etc.). Then list species by common name. You may also use this sheet for other notes.

	Community (wetland A, Forest A, etc.)	Species name: Latin (if known) or common
1		
2		
3		
4		
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29		
30		

Date:

Site Name[Twp_ID#_Owner]:

Time spent at site:

Surveyors:

VIII. ADDITIONAL SPECIES OR OTHER NOTES, continued

Use this sheet to list additional species observed that do not appear on checklists, or for other notes.

	Community	Species name: Latin (if known) or common
31		
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