

ECS Site Classification Worksheet

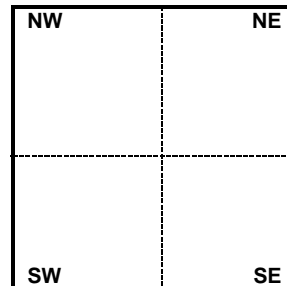
Version 1.3, Jan 2006

Name: _____ Date: ^{mm} ____ / ^{dd} ____ / ^{yyyy} ____

Site Code¹: _____ (8 char) Stand: _____ Photo: _____ T ____ R ____ S ____

Mark "X" at approximate location in quarter-section

GPS Coordinates: Easting: _____ Northing: _____
 Lat: _____ Long: _____



Comments: _____

1. your own reference code for the transect

Native Plant Community & Soil Summary

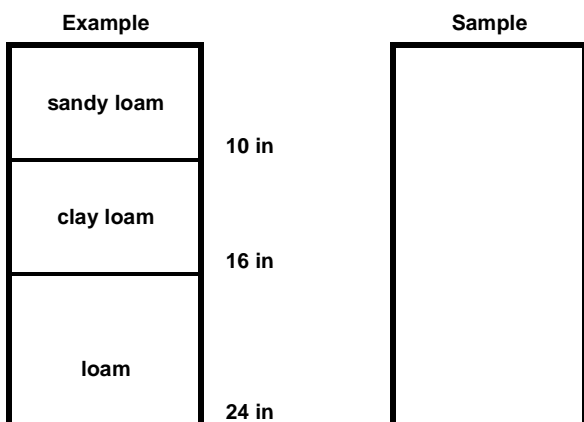
NPC Class¹: _____ (8 char) Soil Map Unit: _____
 NPC Inclusions : _____ Land Type Associaton³: _____ (7 char)
 Potential Crop Trees²: _____ Surface texture: _____
 Growth stage¹: _____ Drainage class: _____
 Operability rating⁴: _____

1. from NPC Field Guide 2. from ECS tree suitability tables 3. from LTA GIS cover 4. from ECS season of operability table

Soil Worksheet

Instructions: Dig a soil pit at least 24" deep and draw soil profile in the box below the text. Indicate changes in soil texture and the depth at which the changes occur. Alternatively, if you have a current Soil Survey for this site you can use it to complete the summary above and record only landscape position, slope, slope length and humus type below.

Landscape position: top/crest – side slope – toe – level – depression (circle one)
 Slope/Az. _____ (%) Length of slope above in chains: 1 – 2 – 3 – 4 – >5 (circle one)
 Depth to gray mottles – matrix – standing water: _____ (circle which, depth in inches)
 Depth to semipermeable layer: _____ (hardpan or clayey texture)
 Humus type: mor – moder – mull – muck – moss peat (circle one)



Comments & Notes: _____

Instructions for ECS Site Classification Worksheets

The *ECS Site Classification Worksheets* were designed to help foresters and other field staff use the *Native Plant Community Field Guides* for Minnesota. The worksheets are designed: 1.) to remind the user of the vegetation and soil features to observe, 2.) to help select appropriate crop trees and season of operation, and 3.) to serve as datasheets for building a GIS cover of known locations of Native Plant Communities.

Getting started – Field forms, what to sample, and where

- Copy front-to-back pages one and two of this document to create a field form OR contact the ECS Program for forms on durable paper.
- Use an air photo and relevant maps, pre-delineate your site into polygons that are likely to be different plant communities. For example, a forest stand or group of stands might have several combinations of cover-types, slope positions, tree heights, etc. that could indicate different communities. In theory, a worksheet could be completed for each of these combinations. In practice, some of these polygons will obviously be the same plant community when seen on the ground and some will prove to be minor inclusions. Focus on the main community or two that will be affected by management or focus on the communities that you want to document.
- When you get to the site determine a path that will take you through all likely community types. For a typical 20 to 40 acre stand, one can usually walk this course to the far end of a stand to get a feeling for the variety of communities that occur in the stand. At that time, decide which communities to sample and where you want to sample them as you re-trace your steps.
- A worksheet should be filled out for each sample location. A sample should consist of a four-chain transect or an area of about 400 square meters. “Flagging out” a transect by putting flags at one-chain intervals before starting can help you to concentrate on searching for indicator plants rather than pacing.

ECS Site Classification Worksheet – General Information Block

- **Name:** record your name
- **Date:** record the date in mm/dd/yyyy format. e.g. 7/16/2004
- **Site Code:** use up to 8 characters to record a code for the sample that will help *you* remember which sample it is. Initials, stand numbers, abbreviated site names, owner names, project codes could be combined with sequential numbers to serve as site codes. The ECS program will assign formal, unique sample identifiers upon entering the information into a database.
- **Stand:** record the MNDNR stand number if it exists
- **Photo:** record the air photo number if it is useful to you (not required)
- **GPS coordinates:** MNDNR extended zone 15 UTM coordinates are preferred and assumed. Alternatively record latitude and longitude, with decimal degrees preferred.
- **T/R/S:** record the PLS township, range, and section. If known, mark the sample location with an “X” on the quarter-section grid below.
- **Comments:** Comments are very useful to people who might want to use the data from the worksheet. Observations about surface water, exposed bedrock, context of the sample, tree mortality, and why the sample was collected are all good things to record.

Native Plant Community & Soil Summary – fill out last, see below

Soil Worksheet

- Soils observations should be collected at the center point along the four-chain transect **OR** derived from soil surveys if available, but remember to identify the map unit AND county.
- See instructions in box.

- **Landscape position:** circle the appropriate landscape position of the sample.
- **Slope/Az:** using a clinometer record the percent slope and general azimuth (N, NE, E, SE, S, SW, W, NW) of the sample site **OR** if using a compass to measure slope be sure to indicate that the slope is in degrees. e.g. 13%NE or 13°NE
- **Length of slope:** circle the length of slope above the sample in chains.
- **Depth to gray soil colors:** record the depth in inches to gray mottles, gray matrix, or standing water (circle one) **OR** indicate that gray colors are deeper than 24 inches. e.g. >24” Do not record a leached surface horizon (E layer) with bright colors below, we are interested in gray colors due to water saturation that should remain gray to the bottom of the hole.
- **Depth to semipermeable layers:** record the depth to the uppermost soil horizon that is a hardpan or with fine texture and firm consistence **OR** indicate the absence of such horizons by recording “none.” Fine textures include: clay, silty clay, sandy clay, clay loam, silty clay loam, and sandy clay loam (consult your *Guide to Texture by Feel*). The field test for a hardpan or firm consistence is to take a natural chunk of soil (ped) a half to one inch in diameter and squeeze it between your thumb and a finger. Peds from a hardpan will disintegrate with considerable pressure or you can’t make it crumble. Firm peds will deform with considerable pressure.
- **Humus type:** circle the appropriate humus type according to the following definitions:
 - Mor: A thick mat of undecomposed to partially decomposed litter that is not significantly incorporated into the mineral soil (FD system).
 - Moder: Partially decomposed remains of broad-leaved deciduous forest-litter that are shallowly incorporated into the mineral soil (MH system).
 - Mull: Well-decomposed organic matter that is mixed deeply into the mineral soils, and nothing but last years leaves on the ground. More common in Prairies (UP System) but in MH System forests with high populations of earthworms.
 - Muck: A dark-colored, soil surface layer composed of highly decomposed plant material in which the original plant parts are not recognizable (WF system).
 - Moss peat: Little-decomposed, brown peat composed of the remains of Sphagnum moss (FP and AP Systems).
- **Soil Profile Sketch:** sketch soil horizons and indicate their main texture and the depths of the boundaries between the horizons. Obvious changes in color and structure are often clues that the texture has changed.
- **Comments & Notes:** use this space to record any observations not covered above **OR** use this space to record assumptions that you have made about the soils if field conditions don’t allow you to make the above observations. e.g. soil frozen.

Native Plant Community Worksheet

- See “Getting Started” above and instructions in box and footnotes.
- **Flag out a 4-chain transect representative of the whole stand or extent of the community within the stand, by placing flags/ribbon at 1-chain intervals.** Actually flagging a transect forces you to slow down and notice plants that you wouldn’t see just cruising and it allows you to concentrate on finding plants rather than pacing. At the end of each chain, it is useful to stop and review the plants in each category as it is easy to miss recording trees/shrubs if you are intent on the ground layer.
- **Working slowly along the transect, record all plants that you know in their appropriate life-form categories.** The purpose of this is to develop a species list typical of the community/stand that you are trying to summarize. Remember to focus on indicator plants that appear in the *Field Guide* keys.
- **Collect or photograph any plants that you feel are important for later identification.** Pressed specimens and photos can be submitted along with the worksheet to the Ecological Land Classification Program for identification. Remember to label the specimens or photos with the **Site Code**.
- **At the end of the transect, estimate the total collective cover of all plants in the same growth-forms category as you remember them being represented in the whole stand/community. Record your estimate using the Cover Codes described at the bottom of the form and below.** The purpose of this is to get an overall estimate of canopy closure, density of the shrub layer, and cover of herbaceous plants. Only the separation of trees into canopy (>33 feet tall) and understory (<33 feet tall) is important in the keys. The community Class fact sheets in the *Field Guide* summarize the vegetation by these categories.
- **At the end of the transect, estimate the abundance and cover of each individual woody plant (canopy trees >33 feet tall and understory trees and shrubs <33 feet tall) as you remember them being represented in the whole stand/community. Record your estimate using the Abundance Codes and Cover Codes described at the bottom of the form.** The purpose of this is to allow for some review of prescriptions with regard to availability of seed trees, advance regeneration, and likely sources of competition with desired crop trees of the future stand.

Native Plant Community & Soil Summary

- **NPC Class:** Using the information on the plant and soil worksheets, use the *Field Guide* to key out the Native Plant Community to the Class level (or lower) and enter the code into this space. e.g. MHn35.
- **NPC Inclusions:** Write in this space the NPC Class codes for communities for which you didn’t fill out a worksheet because of their small size. Most often, these will be small wetland communities like WFn55 ash swales, narrow transition zones between uplands and wetlands, etc.
- **Potential Crop Trees:** List the potential crop trees for the site because of their excellent rank on the *ECS Tree Suitability Table* OR from your observations of good advance regeneration.
- **Growth-stage:** Consult the Natural History section in the *Field Guide* for the NPC Class. Record here the **estimated age of the stand** AND if it seems to be a **young** stand composed of early successional trees, **transitional to mature** stand where initial trees are being replaced by mid- or late successional ones, a **mature stand** composed of mid-successional and late-successional trees, **transitional to old-growth** stand composed only of late-successional species, or an **old-growth** stand composed only of late-successional trees in many layers. There will be instances

where the age and composition do not match the idealized Natural History and stand dynamics presented in the Field Guides.

- **Soil Map Unit:** If you were unable to make direct observations of the soil and a County soil survey exists for the site, write in this space the map unit, likely series if the map unit is a complex, and the County of the survey. e.g. 870c, Goodland, Itasca for: map unit 870 with 2-12% slopes, Itasca/Goodland Complex, Itasca County soil survey. Contact the ECS Program for digital ArcView covers of soil surveys if they are available.
- **Land Type Association:** Record in this space the 7 character code for the Land Type Association. Contact the ECS Program for the statewide ArcView cover of ecological map units.
- **Surface texture:** Record the main texture of the upper 12 inches of mineral soil OR record the texture as “muck” or “peat” if the surface organic layer is greater than 12 inches thick.
- **Drainage class:** Using the information from the soil worksheet, use the ECS Soil Drainage Key to determine the drainage class. Write out the class or use codes as follows: VP=very poor, PD=poor, SP=somewhat poor, MW=moderately well, WD=well, SX=somewhat excessive, EX=excessive. On floodplains or beaver meadows with evidence that they are active use AF=annually flooded. For small vernal pools or closed depressions that pond water, use AP=annually ponded.
- **Operability rating:** Using the information from the soil worksheet, use the *ECS Acceptable Operating Season to Minimize Compaction and Rutting* table to list the acceptable seasons to minimize compaction.

Mail Your Completed Form to the ECS Program!!

- **Photocopy your completed form and file it with the other information/photos for that stand.** Remember that ECS site classification is a one-time inventory. If you have done your job correctly, the forester who follows you need not do it again. This copy is a backup until ECS mapping and databases are available in FORIST. Roughing-out the polygon to which the form applies is encouraged.
- **Mail your original form to:**

John C. Almendinger
ECS Program
413 SE 13th Street
Grand Rapids, MN 55744
218-327-4449 ext. 245
john.almendinger@dnr.state.mn.us

- **Your data will be added to the ECS Program’s growing ArcView cover of Native Plant Community observation points and the species lists entered as a linked attribute to those points.** We will provide those data upon request, but remember that we are just getting started and winter requests are most likely to yield an up-to-date database.