

# Handout

## Upland Contiguous Forest Assessment Data Sheet

Project	Location			
Station #	Investigators			
Latitude	Longitude			
Form completed by	Picture #			
Date _____ Time _____ am pm	Weather			
Ecoregion/ Forest association				
# Of trees in prism & DBH	Number	DBH		
Dominant tree species				
Specimen or rare species	Rank (1-5) 5 being highest Description			
Densiometer reading (# of squares >3/4 filled/total # squares)	North ____/24 = ____ %	South ____/24 = ____ %	East ____/24 = ____ %	West ____/24 = ____ %
	Average of above readings = _____ %			
Wetland?	Soils Y N	Hydrology Y N	Plants Y N	
Understory characterization	Dense, Medium, Sparse Dominant species:			
Habitat complexity	Canopy, Mid Canopy, Understory 3 present 2 present 1 present			
Forbes (herbaceous cover)	Dense, Medium, Sparse			
Evidence of disruption and extent (%)	Natural ( e.g., storm, disease, deer browsing)	Anthropogenic (e.g., clearing, dirt road, timber harvesting , trash)		
	Extent (% site coverage)	Extent (% site coverage)		
Invasives	Species	Dense, Medium, Sparse	Extent (% site coverage)	
Size of tract	Acres			
Watershed. features	Predominant Surrounding Landuse  <input type="checkbox"/> Forest <input type="checkbox"/> Commercial <input type="checkbox"/> Field/Pasture <input type="checkbox"/> Industrial <input type="checkbox"/> Agricultural <input type="checkbox"/> Residential <input type="checkbox"/> Other _____	Local Watershed NPS Pollution <input type="checkbox"/> No evidence <input type="checkbox"/> Some potential sources <input type="checkbox"/> Obvious sources		

### **Explanation of Contiguous Forest Assessment Data Sheet**

This quick and simple method of assessing upland contiguous forest tracts helps identify special habitats in the watershed, documents conditions in the forest tracts, and helps prioritize these tracts for conservation.

Forest areas for assessment, gaps or canopy breaks (typically a few hundred feet), and representative points in each tract should already have been identified through the desktop analysis. Enough points should be chosen to provide a good representative characterization of the land under consideration for protection; this is typically at least 2 points for tracts less than 100 acres and at least 4 points for tracts up to 1,000 acres. Property owners should have been identified, and if the investigators have received permission to assess private forest tracts, the assessment can begin.

**PROJECT:** Project name. Typically refers to the watershed being studied.

**LOCATION:** Station location description (e.g., 100 meters NE of the corner of Rt. 5 and Boon Drive).

**STATION #:** A unique station identifier. Usually refers the subwatershed being studied (e.g., Scotts Level subwatershed Site #1 might be called SL-1).

**INVESTIGATORS:** Initials of investigators assessing the site (useful if clarification of the data sheet is needed).

**LATITUDE/ LONGITUDE:** Use a GPS unit to determine the latitude and longitude of the specific location. If you do not have a GPS unit, an estimate of the location should be made using aerial photos or maps.

**PICTURE NUMBERS:** Roll and photo numbers for any pictures taken at the site.

**FORM COMPLETED BY:** Initials of investigator completing the form (often necessary for deciphering hand writing).

**WEATHER:** Describe the current weather (e.g., sunny, rainy, snowing).

**DATE** the survey is completed

**TIME** \_\_\_\_\_ **AM PM** the survey is completed

**ECOREGION/ Forest Classification:** By pre-identifying the ecoregion and forest association, investigators will have an idea of what to expect and what issues may be facing that region. Ecoregion information is available at [www.natureserve.org](http://www.natureserve.org). In the absence of this information, make note while walking to the site of the dominant tree species. Certain forest associations can be made to determine the type of forest present.

**# OF TREES IN PRISM and DBH:** Number of trees in prism refers to a 10 Basal Area Factor (BAF) prism, which is used to select out the larger trees at a given site. The size of the trees is quantified by DBH, or diameter at breast height. The prism provides a standard and repeatable method of selecting mature trees within the survey area. Be sure to hold the prism by the end with the hole and with an outstretched arm at eye level.

When measuring DBH, use the proper side of a Biltmore stick, which compensates for the curvature of the trunk. Hold the Biltmore stick at arms' length and line up the left edge with the edge of the trunk with one eye closed. Take the reading on the right side of the stick. If the tree is lopsided, take the average of two measurements on different axes.

**DOMINANT TREE SPECIES PRESENT:** Common and/or scientific name of dominant tree species present. Be as specific as possible (e.g., chinquapin oak, loblolly pine).

**SPECIMEN OR RARE SPECIES:** Give each site (*not each individual specimen*) a rank from 1 to 5 (5 being the highest) based on the presence, age, height, location, and health of rare or specimen species present. For example, the presence of old growth trees, rare plant species, or habitat for an endangered species would score a 5. Large mature trees and good quality forest would constitute a score of 3 or 4. A site with only one specimen tree might receive a rank of 2, while a site with young trees and no rare species would score a 1. The ranking system may vary with local conditions and should be set before heading out in the field.

**DENSIOMETER READING:** A spherical densiometer is used to measure the density of the forest canopy. In other words, you are quantifying how much of the sky above you is blocked by trees. To use a densiometer correctly it must be held level about 12-18" in front of you. When looking into the densiometer you can see the trees above you and grid marks on the densiometer mirror. Count and record the number of grid squares that are more than  $\frac{3}{4}$  filled with tree images as well as the total number of squares to calculate the percent coverage. A densiometer reading should be taken at each of the four compass directions. Take the average of the four readings to get a percent canopy coverage or density for the site. If the canopy density is greater than 50%, the canopy is closed. If the density is less than 50%, the canopy is open. Densiometers are available through forestry supply companies. As there may be some variation between types, always follow the manufacturer's instructions.

**WETLAND:** Are there wetlands present? This can be difficult to determine since the time of year and amount of recent rainfall can greatly influence your findings. Knowledgeable personnel and wetland identification guides may be necessary to help determine if wetlands are present, which will indicate that there may currently be a protection status for this area. At a minimum, look for two of the following three conditions:

Soils: Are the soils hydric?

Hydrology: Is there standing water?

Plants: Are there wetland plants?

**UNDERSTORY CHARACTERIZATION:** Understory refers to the trees located entirely below the general level of the canopy that receive little or no sunlight from above or the sides.

These trees should be about 1.5-3" DBH. Indicate if understory is dense, medium, or sparse and identify the dominant species, and be sure to note if invasives are present and/or dominant.

**HABITAT COMPLEXITY:** Circle the number of different habitats (canopy, mid-canopy, and understory/shrubs) present.

**FORBES:** Forbes are herbaceous groundcover, including vegetation such as ferns. Indicate if forbes are dense, medium, or sparse.

**EVIDENCE OF DISRUPTION AND EXTENT:** Describe any evidence of disruption, and indicate whether the disruption is natural or anthropogenic. Be sure to assess an area of 100 meter radius and identify the extent (%) of the site affected.

**INVASIVE SPECIES:** (non-native plants) Invasive species can overrun native species due to lack of natural predators, and often create a monoculture. Identify and describe the type, density (dense, medium, sparse) and extent (% site coverage) of any invasive species present. Invasives typically dominate forest edges.

**SIZE OF TRACT:** (acres) Estimate the size of the tract based on topographical maps or GIS data layers. Keep in mind that a minimum tract radius of 300 feet is needed before adequate interior forest is present.

**WATERSHED FEATURES:** Identify the predominant surrounding land use. Be sure to consider an area with a radius of about 100 meters, and indicate if evidence of nonpoint source pollution exists. Nonpoint source pollution is pollution that cannot be connected to one specific source such as an industrial sewage treatment plant. Examples include runoff from golf courses, commercial development, or residential lawns containing fertilizers, pesticides, sediment, metals and other pollutants. Note: just because you are in a forest does not mean that the dominant land use is forest!

### *Glossary*

*Basal Area* – The cross-sectional area of a tree at breast height (4.5 feet above ground). The basal area of all trees in a given area represents forest stand density and is measured in square feet per acre.

*Biltmore Stick* – A measurement tool resembling a yard stick that is used to estimate the diameter and height of a tree.

*Canopy* – The level of the tallest trees overhanging branches that result in the limitation of sunlight reaching lower levels.

*Contiguous Forest* – Forested land without significant breaks due to roads, power lines or other clearings.

*Critical Habitat Area* – A critical habitat for all endangered species and its surrounding protection area.

*Densiometer* – A monitoring tool used to determine the amount of canopy coverage.

*Dominant Trees* – Trees with crowns extending above the general level of the crown cover and receiving full sunlight from above and partly from the side; typically larger than the average trees in the stand.

*Forest Stand Delineation* – A methodology for evaluating the existing natural features and vegetation on a site proposed for development, taking into account the environmental elements that shape or influence the structure or makeup of a plant community.

*Forest Structure* – A measure of vertical and horizontal structural diversity within a stand, which is related to stand age and habitat.

*Prism* – A piece of precisely angled glass used in large forested areas for estimating basal areas, volumes or number of trees per unit area.

*Specimen Tree* – Trees having a diameter measured at breast height (4.5 feet above the ground) of 30 inches or more, or trees having 75% or more of the diameter of the current state champion tree of that species.

*Understory Trees* – Trees with crowns entirely below the general level of the canopy receiving little or no sunlight from above or the sides.

