


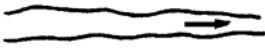
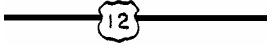

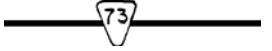








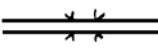



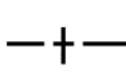

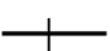


State of Wisconsin
Department of Natural Resources

SUBJECT: **Mapping Terms and Symbols**


REASON FOR CHANGE: Procedural.

This directive contains mapping symbols and definitions that will be standard in the mapping of all lands for which the Department has management responsibility or accountability. They will be used in the mapping of both public and private lands for management and reporting purposes.

MAPPING SYMBOLS

	Interstate Highways		Rivers
	Federal Highways		Creeks and Streams
	State Highways		Intermittent Streams
	County Highways		Ditch
	Town Roads		Dike
	Unimproved Roads		Dam
	Trails		Bridges
	Single Track Railroads		Lakes
	Multiple Track Railroads		Definitely located section corner
	Abandoned Railroads		Approximately located section corner
	Powerlines		
	All fence lines		

FOREST TYPE LINES:

 Natural forest types

 Plantations

(more)

SECRETARY'S DIRECTIVE PSH

Distribution:

Date 6-5-07

All Manual Holders

Special Instructions:

Rescinds and replaces M.C. 8625.2 (12-8-04)

(See highlighting for changes; underlining indicates weblinks)

DEFINITIONS OF TERMS AND SYMBOLS

FARM LAND - Farm land actively used for agriculture including pasture (excludes farm wood lots).

FOREST LAND - Land at least 10 percent stocked by forest trees, afforested lands, and land formerly forested but now less than 10 percent stocked. This land is capable of producing wood products and is not developed for other uses. The minimum area is one acre; minimum width strip is 120 feet.

COMMERCIAL FOREST LAND - Forest land which is capable of producing 20 cubic feet of merchantable timber per acre per year.

NONCOMMERCIAL FOREST LAND - Forest land which is not capable of producing 20 cubic feet of merchantable timber per acre per year.

RESERVED FOREST LAND - Forest land which has been withdrawn from timber utilization through statute, ordinance, or administrative order.

TYPE CLASSIFICATION

COVER TYPE - A tract of forest land characterized by the predominance of one or more key species which make up 50 percent or more of the basal area of saw-timber and pole-timber stands, or of the number of trees in seedling and sapling stands. Forest land less than 10 percent stocked with commercial tree species is classified as upland brush, grass or lowland brush.

Forest Types	Symbol	Definition
Aspen	A	Aspen comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands.
Bottomland hardwoods	BH	Any combination of silver maple, green ash, swamp white oak, American elm, river birch, and cottonwood comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. Hardwood dominated forests occurring on floodplains and some terraces.
White birch	BW	White Birch comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands.
White cedar	C	White cedar comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. In mixed swamp conifer stands, white cedar is predominant.
Central hardwoods	CH	Any combination of oaks, hickories, elms, black cherry, hackberry, red maple, white ash, green ash, basswood, and sugar maple, which does not satisfy the defining criteria for NH, MR, or O cover types. The CH type occurs only on uplands within and south of the Tension Zone (southern Wisconsin).
Balsam Fir	FB	Balsam fir comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. In mixed swamp conifer stands, balsam fir is predominant.
Hemlock	H	Hemlock comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands.

Miscellaneous Conifers	MC	Conifer forests dominated by uncommon or exotic species; e.g. Eastern red cedar, Scotch pine, Norway spruce, European Larch.
Miscellaneous Deciduous	MD	Hardwood forests dominated by uncommon or exotic species; e.g. box elder, honey locust, black locust, Norway maple.
Red Maple	MR	Red Maple comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. If soil is poorly drained, then swamp hardwood.
Northern hardwoods	NH	Any combination of sugar maple, beech, basswood, white ash, and yellow birch comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands.
Oak	O	Oak comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in saplings and seedling stands.
Scrub oak	OX	More than 50% of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands is comprised of oak with site indices ≤ 50 . Typical forest products include only fuelwood and fiber.
Red pine	PR	Red pine comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. In mixed pine stands, red pine is predominant.
White pine	PW	White pine comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. In mixed pine stands, white pine is predominant.
Black spruce	SB	Black spruce comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. In mixed swamp conifer stands, black spruce is predominant.
Swamp hardwoods	SH	Any combination of black ash, green ash, red maple, silver maple, swamp white oak, and American elm that comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. This type occurs on wetlands characterized by periodic inundation (fluctuating water table near or above the soil surface) and nearly permanent subsurface water flow.
White Spruce	SW	White spruce comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands.
Tamarack	T	Tamarack comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands. In mixed swamp conifer stands, tamarack is predominant.
Black Walnut	W	Black walnut comprises 50% or more of the basal area in saw-timber and pole-timber stands, or 50% or more of the stems in sapling and seedling stands.

Non-Forest Types	Symbol	Definition
Upland brush	UB	Upland sites less than 10% stocked with tree species but having 50% or more of the area stocked with taller growing, persistent shrubs. Includes but is not limited to, shrubs such as hazel, gray dogwood, juneberry, sumac, ninebark, prickly ash, etc.
Grass	G	The "G" symbol will be used for upland grass, sweet fern, bracken fern, etc., including abandoned fields less than 10% stocked with tree species.
Grass	GG	Ground cover predominately true grasses such as brome, quack, blue grass, timothy, big and little bluestem, Indian grass, etc.
Herbaceous vegetation	GH	Ground cover predominately herbaceous vegetation species such as bracken fern, sweet clover, giant ragweed, stinging nettle, upland aster, goldenrod, prairie dock, etc.
Low growing shrubs	GLS	Ground cover predominately low growing woody plants such as blueberry, raspberry, etc.
Marsh	K	The "K" symbol should be used for grass or high water table areas.
Muskeg - bog	KB	Bog such as sphagnum moss, cotton grass, leatherleaf, cranberry, Labrador tea, etc.
Emergent vegetation	KEV	Coarse emergent marsh vegetation such as cattails, river bulrush, tall sedges, etc.
Lowland grass	KG	Ground cover consisting of more than 50% of true grasses such as canary grass, bluejoint, reedtop, cordgrass, big bluestem, fire stemmed sedges, etc.
Lowland herbaceous vegetation	KH	Ground cover consisting of more than 50% of herbaceous vegetation, such as lowland asters, stinging nettle, wild sunflowers, etc.
Lowland brush	LB	The "LB" symbol will be used for lowland brush on forest lands less than 10% stocked with tree species.
Alder	LBA	More than 50% alder.
Bog birch	LBB	More than 50% bog birch.
Red dogwood	LBD	More than 50% dogwood, such as silky and red osier.
Willows	LBW	More than 50% shrub willow.
Water	L	Lakes, ponds and flowages in excess of 40 acres in area, or rivers in excess of 1/8 mile in width.
Minor - lake	LM	Water less than 40 acres in area, excluding rivers less than 1/8 mile in width.
Minor - stream	LMS	Streams less than 1/8 mile in width.
Farmland	F	Land actively used for agriculture but excluding farm woodlots.
Heavily grazed	FG	Grazed pastures with fences. Use only as a secondary timber type symbol. Will most often be used in conjunction with GG, KG, and poorly stocked forest types.
Developed use	I	The "I" symbol should be used for general developed uses.
Parking area	IA	An area which is used for parking in conjunction with a recreational facility such as a beach, picnic area, observation tower, public hunting area, etc.
Campground	ICG	Areas designated for either family camping (tent and trailer), group tent camping or indoor group camps.

Picnic area	IP	Maintained day use areas containing picnic tables, toilets, etc., for picnickers.
Nature or Hiking Trail	ITH	Trails used strictly for hiking, skiing, or nature interpretation.
Motorized Vehicle Trail	ITM	Trails used by motorized vehicles (mini-bikes, trail bikes, four-wheel drive vehicles, and all-terrain vehicles-ATVs) excluding snowmobiles.
Snowmobile and/or Horse Trail	ITS	Trails used for snowmobiling and horseback riding.
Recreational	R	An area developed for general recreation use.
Rights-of-way	ROW	Improved roads, railroads or right-of-way for gas, power or telephone lines.
Rock outcrops/ Sand dunes	Z	Rock outcrops including rocky beaches more than 1 acre in extent. Sand dunes including sand beaches, more than 1 acre in extent.

FOREST STAND SIZE CLASSIFICATION

SAW-TIMBER STANDS - Stands of saw-timber trees having a minimum net basal area of 10 sq. ft./acre. Saw-timber trees are 9.0 inches d.b.h.¹ or larger for softwood species and of 11.0 inches d.b.h. and larger for hardwood species (including aspen).

LARGE SAW-TIMBER STANDS (15+)" - Saw-timber stands having more than 50 percent of the basal area in saw timber trees 15.0 inches d.b.h. and larger.

SMALL SAW-TIMBER STANDS (Softwoods 9-15", Hardwoods 11-15") - Saw-timber stands having more than 50 percent of the basal area in saw-timber trees less than 15.0 inches d.b.h.

POLE-TIMBER STANDS (Softwoods 5-9", Hardwoods 5-11") - Stands failing to meet the saw-timber stand specifications, but with a basal area stocking of at least 10 sq. ft./acre in pole-timber and larger trees, at least 50% of which are in pole-timber trees. Pole-timber trees are merchantable trees of softwood species 5.0 - 8.9 inches d.b.h. or hardwood species (including aspen) 5.0 - 10.9 inches d.b.h.

SEEDLING AND SAPLING STANDS (0-5") - Forest stands not qualifying as either saw-timber or pole-timber stands but having a minimum of 200 seedlings or 100 saplings per acre. Seedling and sapling stands are further divided into stocking classes. Stands are considered satisfactorily stocked if 40 percent or more of the growing space is effectively utilized, and poorly stocked when less than 40 percent is utilized. Seedlings and saplings are trees less than 5.0 inches d.b.h. and capable of development into pole-timber trees.

NONSTOCKED AREA - Forest land on which less than 10 percent of the growing space is effectively utilized by trees. It is typed as upland brush, grass, or lowland brush.

SIZE CLASSES - The predominate stand of each classified type is designated according to the following size class chart: (The division between pole-timber and small saw-timber is 9 inches for softwoods and 11 inches for hardwoods.)

<u>Symbol</u>	<u>Class</u>	<u>DBH</u>
0 - 5	Seedling and sapling	0 - 5"
5 - 9 or 11	Pole-timber	5 - 9" or 11"
9 or 11 - 15	Small saw-timber	9" or 11 - 15"
15+	Large saw-timber	15"+

STOCKING CLASSES - Forest land stocking classification is based on basal area or number of trees as shown in the following table.

STAND SIZE AND DENSITY CLASSIFICATION

Size Class	Units Per Acre	Density Classes ³		
		3	2	1
Seedlings ^{1/}	Trees	1,501+ ^{2/}	601-1,500 ^{2/}	200 - 600
Saplings ^{1/}	Trees	901+	301 - 900	100 - 300

Size Class	Units Per Acre ^{3/}	Density Classes				
		5	4	3	2	1
Pole-timber and Saw-timber	Basal area (sq. ft./acre)	180+	131 - 180	81 - 130	41 - 80	10 - 40

1/ Seedlings and saplings should be combined to a reproduction (restocking) class 0-5.
 2/ Primarily for natural stands. With uniform spacing such as plantations approximately 600 trees per acre qualifies as good density of stocking.
 3/ Minimum "medium" density stocking for tax law eligibility differs slightly and can be found in [NR 46.02](#) (24m).

TYPE CLASSIFICATION

Each distinctive forest stand (cover type) will be given a type symbol showing type, size class, and density. The primary condition class will be shown in all cases, and if a secondary condition class is shown, the primary type will be the first type placed in parentheses on the type maps for ready identification.

In typing a stand using basal area, the procedure should initially determine what the primary size class is. In classifying saw-timber stands where both large and small saw-timber are present, it must be determined whether the greatest stocking lies in the large or small saw-timber so as to classify the size class. Then within the size class, determine the primary forest type. Lastly, the density should be determined using all of the forest types in that product class. (Ex. A stand with 30 sq. ft. of large saw oak, 70 sq. ft. of small saw oak, and 90 sq. ft. of northern hardwood poles would be typed as O 11-15³ / NH 5-11³ – the sawtimber density being based on the combined sawtimber basal area of 100 sq.ft.). Overstories are given precedence in primary typing except when the overstory is of poor density and the understory consists of a stand of desirable species. Where two size classes are present, there must be a separation of two density classes before the lower size class becomes the primary type.

SEEDLING AND SAPLING STANDS

As the distinction between seedling and sapling sizes cannot always be distinguished on aerial photos, the two classes have often been combined to form the reproduction (restocking) class (0-5").

TIMBER VOLUME

SAW-TIMBER VOLUME - Net volume of live merchantable saw-timber trees between the stump and a point in the top of the stem at which utilization is limited by large branches, forks, or other defects, or by a diameter inside bark of eight inches. This volume is expressed in terms of board feet by the Scribner log rule.

CORDWOOD VOLUME - Net volume of live merchantable pole-timber trees from stump to a minimum four-inch top of stem inside bark plus volume in the stem of live saw-timber trees between the merchantable saw-log top and the minimum diameter of four inches inside bark. This volume is expressed in unpeeled cords (4x4x8 feet). Each cord contains approximately 80 cubic feet of solid wood.

CULL TREE VOLUME - Sound volume of cull trees to a minimum diameter of four inches inside bark.

CULL TREES - Live trees of saw-timber and pole-timber size with 60 percent or more of their gross volume unusable due to defects or deformities.