FOREST MANAGEMENT NOTES
MARYLAND FOREST SERVICE

FOREST CONSERVATION AND MANAGEMENT AGREEMENT

The Department of Natural Resources, Forest Service has a program that was designed to encourage the people of the State of Maryland to manage their woodlands for productive purposes. The goals for this program are: increase the income of the citizens of the state from the sale of timber, prevent floods and the wasting of the state's soil, provide open and wooded areas for recreational purposes, and promote the welfare of the people of Maryland. This program was developed by authority which is provided in the Annotated Code of Maryland - Natural Resources Title 5, Subtitle 3, Section 301.

Eligibility Requirements for the FCMA Program

The owner of any tract of land in the state which comprises five or more contiguous acres by agreement with the department, may contract to place the tract within the program. As part of the agreement, a Forest Resource Management Plan is prepared by a Registered Professional Forester. All conditions and practices which are included in the plan must be performed according to a predetermined time schedule. The plan must be approved by the Assistant Secretary, Maryland Forest Service. The minimum length of the contract shall be 15 years. Buildings and improvements, agricultural, mineral and other non-forest values cannot be included as part of the agreement.

Tax Savings

For the period covered by the contract, the valuation of the tract of land and, for the purposes of assessment for state, county, special tax district and municipal taxes, may not be increased. Your assessment is locked in for the duration of the contract.

Re-evaluation

At the end of the fifteen period covered by the contract, or at the time all or part of the timber is harvested, if not done according to the management plan, or all or part of the tract is conveyed to a new owner, there shall be a new valuation of all or part of the tract. If only a part of the tract is conveyed, the new valuation shall be only that part of the tract. Consecutive contracts shall be deemed one contract from the date of the original contract.

Fees and Inspections

There are fees associated with the FCMA Program. An entry fee is charged that is not less than $50.0 or approximately 0.55% of the woodland's assessed value. In addition, the woodland must be inspected every five years to determine compliance with the conditions and schedule of practices which have been included in the management plan. A fee will be charged to cover the cost of the inspection. The fee will be based upon current operational costs of the Forest Service, usually around $100.00.

*** * * PLEASE NOTE! * * ***

It is your responsibility to assure that the recommended practices are completed within the time schedule which is included in the Forest Resource Management Plan. Failure to comply with the conditions and schedule of practices will be a breach of contract. The contract will be terminated and the property shall be re-evaluated for payment of taxes. If you enter into an agreement and find that you cannot comply with the schedule of practices, please contact the Project Forester. He/she may be able to assist you in meeting the schedule.

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FORESTRY TERMINOLOGY

Acre: the basic unit for measuring land; 43,560 square feet.

Afforestation: the planting of tree seedlings on areas where forest cover has been absent for many years.

Basal Area (BA): a measurement of the cross-sectional area of a given tree stem in square feet at breast height, 4.5 feet. The basal area (BA) of a forest stand is the sum of the basal areas of the individual trees. It usually is reported as BA per acre.

Best Management Practices (BMP's): any method or practice used to protect water quality during forest harvest operations and other forestry activities. The major purpose of a BMP is to reduce the erosive action and sediment carrying ability of runoff waters. BMP's are included in a Standard Sediment and Erosion Control plan.

Clearcut: a type of regeneration or harvest cut which removes all trees from a stand. A new stand develops from stored seed, seed from adjacent stands, sprouts, advance regeneration or tree planting.

Codominant Tree: a tree which extends its crown into the canopy, receiving direct sunlight from above and limited sunlight on its sides. One or more sides are crowded by crowns of dominant trees.

Crop Tree: a tree of a desirable species, with the potential to grow straight, tall and vigorously for timber, or to produce mast for wildlife.

Crown: the portion of a tree above the main stem, consisting of branches and foliage.

D.B.H.: diameter, breast height; diameter of a tree at 4.5' measured from the base of the tree. Used to standardize measurements and speed up tree measurements.

Dominant Trees: those trees within a forest stand which extend their crowns above surrounding trees and capture sunlight from above and all around the crown.

Even-aged Stand: a stand of trees in which the age difference between the oldest and youngest trees is less than 20

percent of the length of the stand rotation. Even-aged stands are perpetuated by cutting all trees within a relatively short period of time.

Even-aged Forest: an even-aged forest is one that originates over a relatively short period of time. Even-aged forests are generally the result of either a manmade or natural disturbance. The species composition is usually shade intolerant species such as conifers and fast growing hardwoods such as yellow-poplar. Even-aged forests develop with only one age class; subsequently, the dominant trees will generally be of the same height. In forestry terms, it is defined as a stand in which the age difference between the oldest and youngest trees is less than 20% of the rotation.

Forest Type: association of trees species which commonly occur together because of similar ecological requirements, and\or geographic location.

Growth Potential: the capability of the site to produce or sustain the desired forest products i.e., timber, wildlife, etc.. This is determined by factors such as soil, moisture, slope position, aspect, topography, and other environmental influences.

Harvest: a forest harvest, like the harvesting of any agricultural crop, involves cutting and removal of the trees to a location where they can be utilized.

Intermediate Tree: trees with crowns extending into the lower canopy of the dominant and codominant trees. These trees receive little direct sunlight from above and none from the sides. Crowns generally are small and crowded on all sides.

Mast: the nutlike fruits of many trees, such as acorns, beech, and chestnuts. Mast is valuable as a source of food for many wildlife species.

Overstocked: the condition in which trees are so closely spaced that they are competing for sunlight, water and nutrients, resulting in reduced growth for individual trees.

Overtopped: the situation in which a tree cannot extend its crown into the overstory sufficiently to receive direct sunlight. Overtopped trees lacking shade-tolerance are suppressed, lose vigor and die.

Reforestation: the planting or seeding of trees on an area where a recent timber harvest removed the mature stand of trees.

Regeneration: the process of establishing a new forest on an area that is not forested or on areas where timber has been harvested. Regeneration can be from seed, sprouts or planted seedlings. Most timber harvests are called regeneration harvests because they are designed to create the next forest while utilizing wood from the present forest.

Residual stand: trees remaining uncut following any cutting operation.

Silviculture: the art of producing and tending a forest; and/or the theory and practice of controlling forest establishment, composition and growth.

Site Index: the height of tree at 50 years of age; this index measures the quality of the site in terms of height growth. On better sites a given tree will grow taller than on a poorer site. The height growth of a tree is independent of diameter growth which depends on spacing or stocking level.

Snag: a standing dead tree without branches, or a standing portion of a broken-off tree. Snags may provide feeding and/or nesting sites for wildlife.

Stand: a basic forest management unit. A grouping of trees which are uniform in species composition, age, arrangement, and condition, and are distinguishable from the forest and other adjoining stands.

Stand Density: the quantity of trees per unit area. Density usually is evaluated in terms of basal area or percent crown cover.

Stand Structure: the number of trees by species and tree size on a given forested stand. Stand structure is a function of the growth conditions found a given site.

Stocking Level: the number of trees growing in a stand relative to how many trees the site is capable of supporting at an acceptable growth rate. Stocking level may be described as well stocked, understocked or overstocked.

Thinning: the removal of trees to encourage growth of other selected individual trees.

Timber Stand Improvement (TSI): a forestry practice whereby the growth conditions in a stand of trees are improved by altering the spacing and/or composition of the trees growing within the stand. This can include removing exotic weed trees, or cutting vines such as wild grape or japanese honeysuckle.

Tolerance: the ability of a given tree species to grow in shade conditions.

Uneven-aged Forest: an uneven-aged forest is one that develops over a long period of time and will contain many different age classes. Uneven-aged forests tend to be composed of species such as maple, beech, oak, etc. that are more tolerant of shaded conditions. The size of the trees in an uneven-aged forest will usually vary proportionally with age. The exceptions are tolerant to very tolerant trees such as Beech and Hemlock that can exist in the understory for long periods of time before a disturbance such as a blowdown or timber harvest releases them.

Understocked: a stand of trees so widely spaced that, even with full growth potential realized, crown closure will not occur. Understocking indicates a waste of resources, as the site is not fully occupied.

Watershed: a region or area defined by patterns of storm drainage. A watershed includes all the land from which a particular stream or river is supplied.

Well Stocked: the condition in which a forest stand contains trees spaced widely enough to prevent competition yet closely enough to utilize the entire site.

Wetlands: lands that are transitional between terrestrial (land) and aquatic (water) systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands serve an important environmental function by filtering runoff and providing high quality natural habitats.

ON DATA COLLECTION SHEETS

Forest Type	Composition	Height	Crown Closure
	H: Hardwood	0:no trees	0: no trees
	S: Softwood	1: 0- 35 feet	A: 70 - 100 %
	M: Mixed wood	2: 35 - 60 feet	B: 40 - 100%
		3: 60+ feet	C: 0-40%

Tree #: For trees tallied on continuous forest inventory plots (CFI), each tree is marked with a numbered tree tag.

Species: Tree species; abbreviations for species names appear in appendices E and F

DBH: Diameter at breast height, measured to the nearest 0.10 inch.

Crown Position: (Dominant, Codominant, Intermediate, Overtopped/Suppressed)

1 Dominant. Trees with crowns extending above the general level of the crown cover and receiving full light from above and partly from the sides; larger than the average trees in the stand, and with crowns well-developed, but possible somewhat crowded on the sides.

2 Codominant. Trees with crowns forming part of the general level of the crown cover and receiving full light from above, but comparatively little from the sides--usually with medium-sized crowns more or less crowded on the sides. (In stagnated stands, includes trees with small-sized crowns crowded on the sides.)

3 Intermediate. Trees shorter than those in the two preceding classes, but with crowns either below or extending into the crown cover formed by codominant and dominant trees, receiving little direct light from above, and none from the sides; usually with small crowns considerably crowded on the sides.

4 Overtopped. Trees with crowns entirely below the general level of the crown cover, receiving no direct light from above or from the sides.

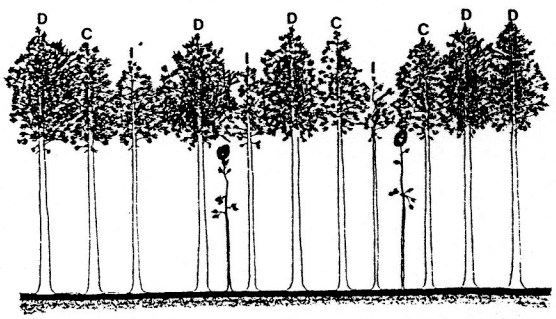

Figure 14.1. Diagram of crown classes in an even-aged stand. D = dominant, C = codominant, I = intermediate, S/O suppressed. (Modified from Kraft, see Dengler, 1944:

Soundness: Tally the number of major and minor defects, and convert the tally to a percentage of soundness for the tree.

Conversion of defects to percentages:

100% perfectly sound tree
97% 1 minor defect (3%)
93% 2 minor defects (7%)
86% 1 major defect (14%)
83% 1 major and 1 minor defect (17%)
79% 1 major and 2 minor defects (21%)
78% 2 major defects (22%)
65% 3 major defects (35%)
50% cull tree

Minor: ingrowth bark, sound burl, slight sweep or crook, small or shallow surface injury; small broken or dead limb (2-4"), or healed swell

Several Minor: small unsound burl, several small dead/broken branches; healed scar and limb swells 4"

Major: several dead limbs or stubs > 4"; small unsound burls; mild butt or heart rot evident; moderate crook or sweep; weak crotch; small cankers; roots slightly defective

2 Major: numerous large dead limbs or holes in trunks; large unsound burl in lower trunk; severe butt or heart rot evident or by sounding; sweep or crook >15%; fruiting bodies present; very weak or low crotch; large open seams, mildly spiral; root defects; large cankers

More than 50% defective = CULL

Vigor:

1: Good growing stock; crown dominant or codominant; long, full dense crowns; no visible mortality risk.

2: Fair growing stock; crown dominant, codominant or high intermediate; fair to good crown with some dead branches; moderate risk of mortality .

3: Poor growing stock; crown low, intermediate or suppressed; crown has yellowing or dieback; high risk of mortality.

4: Culls, diseased trees, injured, "write-off" trees, regardless of crown position

Pests / Disease: Yes - pests or disease apparent
No - no noticeable signs of pests or disease

Wildlife Value: These indicate the relative amount of food and cover provided by a tree species for use by wildlife. If a tree species supplies food and/or cover for a wide range of wildlife, its "wildlife value" will be higher.

VH = very high amount of food and cover for a great number of wildlife species
H = high amount
M = moderate amount
L = low amount

Mortality, New Ingrowth, and Error Columns: During remeasurement of CFI plots in future years, information will be added to these columns as appropriate. For example, if a tree died during the interim, it will be noted in the mortality column. If a tree has grown large enough to be tallied , it will receive a numbered tag, and noted in the ingrowth column.

Notes: 1/10 acre plot has radius of 37.2 feet
1/2500 acre = 4.5 x 3.872 = 17.42 sq.ft.

1/20 acre has radius of 26.3 feet
2 regen. plots = 1/1250 acre = 34.84 sq.ft.

Abbreviations for Tree Species on Tally Sheets and Inventory Tables

Abbreviation	Tree Species	Wildlife Value
AB	American Beech	H
AH	American Holly	M
BC	Black Cherry	VH
BG	Black Gum	M
BL	Black Locust	H
CO	Chestnut Oak	VH
DW	American Dogwood	VH
MH	Mockernut Hickory	M
NRO	Northern Red Oak	VH
OST	Hornbeam	L
PH	Pignut Hickory	M
PP	Pitch Pine	H
RM	Red Maple	H
RP	Red Pine	M
SF	Sassafras	L
SG	Sweetgum	M
SRO	Southern Red Oak	VH
VP	Virginia Pine	M
WL	Willow Oak	VH
WO	White Oak	VH
YP	Yellow Poplar	M

Note: Reference is made to the Native Plant List included in the Appendix for scientific names and other information about each species.

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CONSERVATION EASEMENTS

The conservation of our natural resources demands the active participation of each of us as Maryland citizens. While air and water can often be recycled and cleansed, valuable land resources, once committed to intensive use, may be irretrievably lost if future planning is not done. In Maryland, the Conservation Easement is one method of preserving land.

Maryland's population is one of the fastest growing in the nation. Approximately 2 million acres of farmland, forestland, wetlands, and numerous unique natural and scenic areas have been lost in the past 30 years due to this growth. Legislation alone will not protect all the land that deserves protection, and zoning is unstable and subject to political chance. If significant amounts of open space are to be preserved, it will only be because private landowners have participated actively in the effort.

What can the concerned citizen do? Today, it is easier than ever to make a gift of land, or of an interest in land, to any of a number of state or private land trusts or conservation groups. Both federal and state laws encourage gifts of land to qualified organizations by allowing tax savings for the donor of the land. The Maryland Environmental Trust arranges for the donation of Conservation Easements to ensure the protection of open areas such as farmland, forestland, wildlife habitat, historic sites, and properties with scenic features.

Land placed under an easement remains privately owned and may be lived on and fully enjoyed by the owner. All rights of ownership are retained by the owner except the right to develop the property. Significant property tax advantages are associated with most land conservation projects undertaken by the Maryland Environmental Trust.

Conservation Easements appeal to landowners who are concerned about the quality of their natural surroundings and do not want their properties destroyed by development either in their lifetimes or thereafter. A Conservation Easement can: (1) secure the long-term protection of land for specified conservation purposes; (2) permit continued private ownership, use, and residency; (3) permit the sale of the property in whole or in part, subject to the easement provisions; (4) enable landowners to pass property to their heirs; and (5) afford landowners the opportunity to take advantage of certain tax benefits and other financial incentives.

Occasionally, land holdings in Maryland have had to be broken up or sold after an owner's death in order to pay the estate taxes, even though this may not have been the desire of the deceased or their heirs. With a Conservation Easement, the property owner can minimize or even eliminate future estate taxes, continue to enjoy property use including normal agricultural and forestry activities, and take immediate income tax deductions.

A Conservation Easement is a method of protecting our natural resources and preserving scenic open space and natural lands without placing ownership in the hands of a government or private agency. With willing landowners and imaginative land trusts, Maryland can achieve economic growth even as it protects its natural resources. For more information on Conservation Easements, contact the:

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