

Soil Survey Reports

WOODLAND MANAGEMENT

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Introduction

This bulletin is one of a series dealing with the use of soil survey information for wise resource management. If you are unfamiliar with the type of information included in a soil survey report or with how to locate a parcel of land on the soil maps, refer to *Soil Survey Reports: Using Available Information (E-1586)*, or refer to the inside cover of soil survey reports printed after 1978. Bulletins dealing with soil survey information for other uses are available at your local Cooperative Extension Service office.

The Ingham County Soil Survey Report has been used as an example soil survey report throughout this series of bulletins. Consult the glossary of technical terms included in soil survey reports for definitions of unfamiliar terms.

Soils Limitations

Soils information is useful to woodland owners or forest managers in harvesting and regeneration planning and site evaluation. Tables indicating the degree of limitation that soils have for several factors considered in management are included in soil survey reports.

Ratings of the **erosion hazard** indicate the risk of soil loss. The risk is *slight* if the expected soil loss is small; *moderate* if some measures are needed to control erosion during logging and road construction; and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of the **equipment limitation** reflect the characteristics and conditions of the soil that restrict use of equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, need for special equipment or management, or hazard in the use of equipment. To find the equipment hazards in the construction of roads and trails, consult the section on limitations for local roads and streets in the soil survey report.

Seedling mortality ratings indicate the degree to which the soil affects expected mortality of planted tree seedlings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

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**Retired.

Considered in the ratings of **windthrow hazard** are characteristics of the soil that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate*, that some trees are blown down during periods of excessive soil wetness and strong winds; and *severe*, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

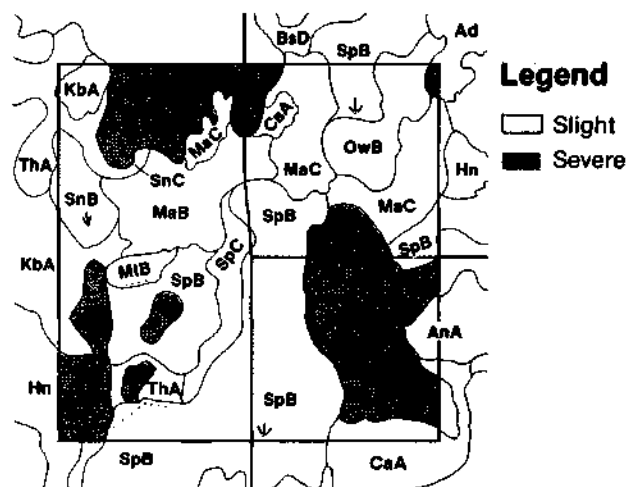
Ratings of **plant competition** indicate the degree to which undesirable plants are expected to invade or grow if openings are made in the tree canopy. The invading plants compete with native plants or planted seedlings by impeding or preventing their growth. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder but not prevent the development of a fully stocked stand of desirable trees; *severe* means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

The **potential productivity** of merchantable or important trees on a soil is expressed as a site index. This index is the average height, in feet, that dominant and codominant trees of a given species attain in 50 years. The site index applies to fully stocked, even-aged, unmanaged stands.

The trees to plant are those that are suited to the soils and are suitable for commercial wood production.

In Table 1-A, an example area has been evaluated for some woodland management concerns. Fill in

this information for your personal example in Table 1-B. An example of a limitation map for equipment limitation is given in Figure 1 for the example area. A color coded map such as this provides a geographic perspective of the location of soils with varied degrees of limitation within a parcel of land.



Winds and Environmental Plantings

Windbreaks are established to protect livestock, buildings, and yards from wind and snow. Windbreaks also protect fruit trees and gardens and furnish habitat for wildlife. Several rows of low- and high-growing, broad-leaved and coniferous species provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific

Table 1-A. Woodland Management and Productivity

Soil Map Symbol	Management Concerns				Potential Productivity		
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Trees to plant
Au	slight	severe	severe	severe	red maple silver maple black ash swamp white oak	46 -- -- --	---
SnB	slight	slight	slight	slight	Northern red oak Yellow poplar White ash American basswood White oak Sugar maple Black walnut Black cherry	70+ -- -- -- -- -- -- --	Yellow-poplar Black walnut, Eastern white pine, White spruce, Norway spruce, Red pine, Black cherry
SpB	slight	slight	moderate	slight	Northern red oak White oak Shagbark hickory Eastern white pine Red pine	65 65 65 65 65	Red pine, Eastern white pine, Jack pine, Scotch pine

intervals across the field. The interval between windbreaks depends on the erodibility of the soil. They protect cropland and crops from wind, hold snow on the fields, and provide food and cover for wildlife.

Environmental plantings reduce noise and help to beautify and screen houses and other buildings. The plants, mostly evergreen shrubs and trees, are closely spaced. Properly planting and maintaining a healthy stock of suitable species on a well-prepared site can insure a high degree of plant survival.

The height locally grown trees and shrubs are expected to reach on various kinds of soil in 20 years is given in soil survey reports. The estimates are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on the subject of windbreaks and screens or the planting and care of trees can be obtained from local offices of the Soil Conservation Service, the Soil Conservation District, the Cooperative Extension Service, or from trained nursery personnel.

**Table 1-B. Woodland Management and Productivity
Personal Example**

Management Concerns					Potential Productivity		
Soil Map Symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common Trees	Site index	Trees to plant

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