W-98

GRANDE PRAIRIE REGIONAL COLLEGE

APPLIED FORESTRY DEGREE PROGRAM

Silviculture I (FO3130)
Course description

Instructor: **Albert Sproule**

Office: **C203**

Phone: **539-2061**

Silviculture is defined as the establishment, development, care and reproduction of stands of timber. Since trees do grow and reproduce naturally, there is the implicit suggestion here that the application of silvicultural techniques by foresters will improve on nature. In other words, by the application of silvicultural techniques we can make trees grow better and more quickly than they would in natural, unmanaged stands.

The two logical divisions of silviculture are:

1. The scientific basis of silviculture, i.e. forest ecology, which we studied in FO2020.
2. The practice of silviculture, i.e. the application of the principles of forest ecology. This is the focus of the present course.

While the decisions and actions of the silviculture forester can, to some extent, affect the growth of a stand at any time during its life, there are occasions when he/she is particularly able to influence its future development. These occasions are sometimes described as "windows of opportunity". In our course we will identify these windows of opportunity and the various ways in which the silviculture forester can influence stand development at these times. In brief, the "windows of opportunity" and the major variables we will consider at each, are:

(i) Harvesting

- importance of the pre-harvest assessment in site classification
- harvesting techniques to influence regeneration
- management of pest problems through choice of harvesting method

(ii) Regeneration

- regeneration method, artificial or natural
- methods of site preparation
- species selection
- stock type

(iii) stand tending

- weeding and cleaning
- release
- thinning
- pruning
- fertilizing

In each situation we will consider the silvicultural options available and their biological, economic and ecosystematic consequences.

Other concepts which will be frequently referred to during our course include:

(a) Silvicultural systems, i.e., the choice, prior to harvest, of a program of silvicultural treatments (the silviculture prescription) which will extend throughout the life of the succeeding stand.

(b) Enhanced Forest Management (EFM), formerly known (and referred to in some texts) as Intensive Forest Management (IFM).

(c) Sustained yield.

(d) Ecosystem management.

The foregoing is a logical and fairly traditional way of looking at silviculture. However, we need to keep in mind that todays silviculture forester is not only concerned with growing trees for fibre, but management plans must often take into account the many other values of the forest. These other values include such things as hydrology, aesthetics, recreational and spiritual values, and maintenance of the forest as a habitat for wildlife, fish and soil microorganisms. In a very real sense, the silviculture forester is the person who has to implement the plans to maintain some, or all, of these different forest values.

We will consider the silviculture forester's job from this aspect and we will see that it need not make his/her job that much more difficult, since the principles of silviculture themselves do not change. It is only their application which, depending on the objective, may be varied.

TEXTS AND REFERENCES

RECOMMENDED FOR PURCHASE

Smith, D.M., Larson, B.C., Kelty, M.J. and P.M.S. Ashton. (1997). The Practice of Silviculture - Applied Forest Ecology. John Wiley & Sons, Inc. Toronto. 537 pp.

TEXTS AVAILABLE IN THE LIBRARY

Compendium of Canadian Forestry Statistics. (1996). Canadian Council of Forest Ministers.

Field Guide to Ecosites of Alberta. (Series of four publications).

Forest Site Interpretation and Silvicultural Guideline for Alberta. (1996). Alberta Environmental Protection.

Matthews, J.D. (1989). Silvicultural Systems. Oxford University Press, Oxford. 284 pp.

Site assesment books

Lavender, D. *******

SCIENTIFIC JOURNALS AND PERIODICALS AVAILABLE IN THE LIBRARY

Canadian Journal of Forest Research

Forestry Chronicle

Northern Journal of Applied Forestry

Silviculture

EXAMINATIONS AND MARK ALLOCATION

Ongoing assessment (test, quiz, assignment)	30%
Mid-term examination	30%
Final examination	40%