

FOREST MEADOWS **MANAGEMENT ALTERNATIVES**

THE FOREST MEADOWS PROJECT

Between 1993 and 1996 the Eastern Ontario Model Forest sponsored a pilot project in Lanark County to field test methods for increasing and enriching the overall wildlife forage base by reclaiming areas, such as logging roads and utility rights-of-way. The intention was to develop practical and economic methodologies that could be used successfully by local organizations and interest groups. The Forest Meadows project was carried out in partnership with Ontario Hydro, the Lanark Fish and Game Conservation Club, the Ministry of Natural Resources, and Pinegrove Biotechnical. The project was documented in a 12 minute video. This report is designed to be a companion pamphlet to that video.

The video: **Forest Meadows Management Alternatives**, gives detailed explanations of the various methods that were tried. It also shows the results and offers recommendations for local organizations and interest groups. This pamphlet provides supplementary information for persons or organizations wishing to try forest meadow enhancement in their areas..

Viewers should note that the project was designed to field test practical management approaches rather than to engage in detailed scientific study. Results can therefore be expected to vary, depending on local soil and climate conditions.

BACKGROUND

Prior to the time of European settlement southern Ontario forests included large tracts of old, fully matured trees, middle aged stands, and young growth. Each part of this diverse ecosystem formed an essential habitat for birds, mammals, insects, reptiles, worms and other forms of life. Wherever a part of the habitat was removed, the species which relied on this particular niche also gradually disappeared.

Scattered throughout this original forest, were natural openings, formed by windthrow, wildfire, or abandoned beaver floods. In the ever changing cycle of growth, known as forest succession, these clearings, for a time, became forest meadows.

Early settlers created extensive agricultural clearings. Many of these were eventually abandoned to become forest meadows, producing a desirable patchwork of open land within a forested area. It was a pattern which favoured wildlife.

Today abandoned farms are often reforested. Forest fire suppression technology has improved. This translates into fewer fires and fewer open areas in the forest. In addition the formerly widespread practice of clear-cut logging has been replaced by ecologically more acceptable timber harvest practices, such as strip cutting, shelterwood cutting, or selective logging. As a result, even fewer open areas are created by traditional means.

Modern timber harvesting practices create roads and landings. These openings are abandoned when the cutting is completed and are rapidly invaded by shrubs and trees. Electric power transmission lines, as well as oil or

natural gas pipelines require that wide rights-of-way be cleared through forested lands.

These areas occupy thousands of hectares and require periodic maintenance to keep them open. Rights-of-way clearings represent opportunities to create managed forest meadows for the benefit of wildlife.



THE ROLE OF MEADOWS IN FOREST ECOSYSTEM

Meadows are the first stage in the successional development of a forest. Their plants produce the network of roots which prevent erosion. Their decomposing organic residue gradually builds up the humus content of the soil which stores moisture and nutrients, and increases productivity.

Forest meadows are critically important. Being open areas, they are first to warm up in the spring. They produce lush grasses and flowering plants and herbs which are rich in protein and vitamins. Many wildlife species utilize the meadows. Grouse, snowshoe hare, woodchuck, black bear and white-tailed deer regularly forage there. Butterflies and bees and numerous other insects frequent the flowering plants, and many bird species rely directly or indirectly on meadow lands.

During the fall, forest meadows supply seeds, berries and clovers, which allow animals and birds to accumulate fat reserves for the coming winter months.

During the winter, protected forest clearings near deer yards, such as dry beaver floods or abandoned log landings, serve as warming spots on sunny days.

ENHANCEMENT OF FOREST MEADOWS: WHAT CAN WE DO?

An ecologically well balanced forest should contain 10% of the total area as open land. Where this is not the case, clearings and openings can be created.

Converting logging roads, log landings and utility corridors into



productive forest meadows improves the forage base for wildlife, and reduces the need for mechanical and chemical maintenance.

Through the enhancement of forest meadows, conservationists, sportsmen's clubs, naturalists, organized hunt camps. Even individual land owners can improve the forage base for wildlife at relatively low cost.

CHOOSING A SITE

Logging roads and landings are normally located on the most level ground available. Here, the soil is normally the deepest, which makes these sites ideal for wildlife meadows. Unless seeded to a clover/grass mixture immediately after completion of a logging operation, old roads and landings are quickly re-invaded by woody plants. By establishing a dense grass cover, this re-invasion is delayed, and the life of these openings extended.

Utility rights-of-way represent a more varied terrain. Here it is important to choose moderately level locations with moderately deep soils. These exist where aspen, pin cherry, service berry, sumac and wild raspberry are found. Other shrubs such as gooseberry or juniper indicate dry, rocky conditions which do not lend themselves to improvement. Wet sites, indicated by cattails or sedges are unsuitable for treatment.

Note: It is imperative to retain the topsoil since the mineral subsoil is largely lifeless.

SITE PREPARATION

Logging roads: After logging and hauling has ceased in the area, the surface of the logging roads should be scarified using discarded caterpillar treads, a drag constructed from heavy chains, or linked parallel iron rails.

Powerlines and pipelines: Young trees and shrubs should be removed with a small bulldozer or tractor, taking care to leave the topsoil in place. This is followed by breaking up the sod with a one-way disc plow and levelling with a chain drag behind an ATV.

SEEDING

Logging roads are protected by the residual timber, on the other hand utility right-of-ways are wide open to wind and sun. To accommodate these different sets of conditions various seed mixes, seeding times and soil preparation techniques should be used.

Logging Roads and Landings:

Winter seeding by means of broadcasting from a snowmobile provides good results at the lowest costs. Seed mixture #1 is recommended for log landings and roads.

Seed mixture #1: @ 25kg/ha

white Dutch clover	15%
alsike clover	25%
meadow fescue	15%
timothy	45%

Utility right-of-ways

Seeding in the spring as soon as the soil has warmed sufficiently to allow germination produces the best results. Immediately after the seed is broadcast it must be covered. This can be done using a chain drag behind an ATV.

For open sites lacking naturally existing nurse plants, mixture #2 is recommended.

Seed Mixture #2: @ 25 to 30 kg / ha

double cut red clover	10%
gunne perennial rye grass	15%
creeping red fescue	20%
white clover	10%
timothy	15%
team brand alfalfa	20%
brome grass	10%



Where wild growing nurse plants, such as milkweed or dogbane are present, the perennial rye grass may be replaced by crown vetch.

The recommended seed mixture for particularly for dry sites is mixture #3.

Seed Mixture #3: @ 25 to 30 kg / ha

creeping red fescue	40%
Canada blue grass	20%
mariposa timothy	20%
white Dutch clover	10%
birdsfoot trefoil	10%

(Note: in all spring and fall seeding enokivation bacteria should be added to the mix to accelerate germination. This is available from seed suppliers.) Although fall seeding established a satisfactory grass cover, it was found to suffer from winter freeze-out and erosion. Fall seeding should be completed no later than August.

Warning: The seeding of utility rights-of-way during the time of snow cover in mid-winter is not recommended, due to the effects of water scouring during break-up, and the danger of drought upon the unprotected seedlings.

HOW MUCH WILL IT COST? (Based on cost per hectare)

Basic site preparation requires, per hectare, approximately six hours machine time (depending on site conditions). Seed bed preparation with ATV's takes an additional two hours per hectare, plus one further hour for covering of the seed.

Seed mixtures cost an average of \$4.00 / kg, which adds up to \$120.00/ha.

In a contract operation, where hourly wages of operators may have to be paid for, total costs per hectare may exceed \$600.00 /ha.

In a volunteer project out of pocket costs (seeds and fuel) would be estimated at \$200.00/ha. Costs of seeding logging roads in winter using snowmobiles, are on average \$140.00/ha.**NOTE:** This pilot project was carried out under extremely difficult conditions. In more favourable terrain, heavy equipment time would not be required.

IN SUMMARY

Seeding logging roads or selected locations on utility rights-of-way will produce protein rich forage for wildlife species. Our test plot meadows showed heavy utilization by wildlife within two months of their



creation. The process reduces the need for chemical and mechanical plant control.

It cannot however, be used in areas such as wetlands or on extremely rocky sites where soils are particularly thin.

RECOMMENDATIONS

- ▶ Fish and Game Clubs and possibly other interest groups such as hunt camps or naturalists, should establish annual programs to seed abandoned logging roads and landings within their areas of interest.
- ▶ Similarly these groups and organizations are urged to up-grade sections of utility rights-of-way for wildlife usage and improve other existing forest clearings.
- ▶ Public utilities, such as pipeline companies or electric power suppliers, are encouraged to include managed forest meadows into their rights-of-way maintenance plans.



Test Site Locations: Lanark County, Lavant Township, Lots 14, Con. 5, 6 & 7.
Lanark County, Darling Township. Lot 13, Con. 4.

Project leader: H.K. von Rosen

NOTE: The video **FOREST MEADOWS MANAGEMENT ALTERNATIVES** is available from:

Pinegrove Productions

RR#1, Lanark, Ontario, K0G 1K0

Tel. (613) 259-2847