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Small Private Woodlands; The Hope of the Future

by Leon S. Minckler

There are more than four million private nonindustrial woodland owners in the lower 48 states of the United States. They own 300 million acres or 59 percent of the potentially productive forest land. In the eastern part of the country the proportion of forest land in small private holdings is 73 percent. In the Northeast and the Lake states 56 percent of these holdings are owned by non-farmers such as teachers, doctors, lawyers, businessmen, hunting clubs, and just plain citizens who love the outdoors. Most of the remainder is owned by farmers. The average holding is small but in all they contain 38 percent of the commercial timber volume. Thus, the small woodland owner controls a major portion of both timber supply and the environmental values such as wildlife habitat, recreation, pure water, and aesthetics. It is time that we realized these facts and promoted an effective partnership between the woodland owners and the public to attain both the timber and the environmental values, while at the same time preserving the forest-soil-site-water ecosystem.

What do most woodland owners want from their forest? Most of all they want a forest environment, or they want an investment. Most also would like money from selling timber if this can be harmonized with the environmental values. But, in general, modern owners will not destroy or unduly mutilate their woodland merely to obtain quick timber dollars. Consequently, many refrain from cutting trees because they do not understand that timber values and environmental values can go hand in hand. Indeed, proper silvicultural practices can usually enhance the diversity and health of a forest, can improve wildlife habitat, and provide a more attractive forest environment. This is why some of us have used terms like "environmental forestry" and "ecological forestry" to stress the fact that integrated multiple uses from forests are possible and practical. It has been a professional failing that so far we have been unable to accomplish much in this regard.

Along with a better understanding and regard for "environmental forestry," woodland owners may need government assistance such as tax incentives, management plans, marketing information, cost-sharing programs, and long-term loans. In the long run the vast areas of privately owned forests will be managed for the benefit of the owners and the people. The small private woodlands are indeed the hope of the future. They should be the top priority for the forestry profession.

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In the past most small woodlands have hardly been managed at all. The better merchantable trees of all sizes have been cut, the poor and cull trees have been left, and no positive measures taken to encourage regeneration. It is a tribute to the recuperative powers of eastern forests (especially hardwoods) that they have recovered so well. For the most part the woodlands now contain an adequate base of "good growing stock" trees from which to start management. This is the crux of our aim of good management without big outlays of money for artificial regeneration, including site preparation and planting.

There are three basic activities in silviculture; modification of existing stands, providing space for new regeneration in existing stands, and establishing new stands by artificially seeding and planting (reforestation). I will not cover reforestation in this report. I will cover management of existing woodlands.

Modifications of existing stands includes thinning to reduce density and stand improvement to eliminate cull and other low quality or undesirable trees (for the objectives of management). Foresters call this intermediate cutting. Other types of modifications include conscious efforts to enhance diversity, wildlife habitat, scenic quality, watershed protection, and sanitation. All these
operations require a high degree of professional skill.

Providing space and suitable conditions for new regeneration are
regeneration cuts; the silvicultural systems are named according to
these methods, for example, group selection and shelterwood. To do
this job correctly requires a knowledge of the forest and the trees
that constitute the forest. This
means the density, diameter distribution, and species com-
position of particular management
units (same ground action and record
keeping). Management also requires
a knowledge of the quality of the
individual trees. This can best be
judged by use of tree classes. I have
used six tree classes as follows: (1)
good growing stock, (2) mature crop
trees, (3) low quality but sound trees,
(4) high risk trees, (5) cull trees, and
(6) wildlife or other special purpose
trees. In small woodlands with
multiple purpose objectives the
owner will want to preserve the
woodland as an existing and stand-
ding forest while at the same time
improving the quality for timber and
the diversity for wildlife and
aesthetics.

The use of tree classes allows a
combined operation to improve the
woodland and provides space for
regeneration at the same time. For
definition, mature trees, low quality
trees, high risk trees (includes
thinning), and most cull trees
would be cut for wood products. The
growing stock trees and the special
trees would be left to grow or to
provide habitat. Such combined
operations allow maximum op-
portunity for increasing stand quality
and providing space for regeneration.
This would usually be some form of
group selection with opening
diameters at least one to two times
the height of surrounding trees.
Openings can be larger, or patch
clearcuts used, if trees in the “cut”
classes indicate this by their number
and distribution on the ground. There
should be a conscious effort to make
openings for regeneration large
enough. If enough good growers are
present to stock a particular place,
do not worry about regeneration on
that spot. Professional help is
required for these rather complex
silvicultural operations.

It is obvious that an inventory of
each management unit (the whole
woodland or a logical part) will be
required before each marking of trees
to cut, or to determine whether a cut
is needed. The inventory should
include the following information:

- species, diameter breast height and
tree class. Species may sometimes
be grouped as, for example, “black
and red oaks.” If tree volume is
desired each merchantable tree
should be tallied by log lengths to the
nearest one-half log. A log length is
16 feet. Volume is then computed
from volume tables; for example, a
22-inch tree with 2½ logs contains
434 board feet International scale.

- Inventories can be made by a
forester using point sampling. A
layman can inventory a small
woodland by estimating diameter to
the nearest 3 inches; i.e., 5-7, 8-10,
11-13, 14-16, 17-19, etc., and tallying
all the trees. This will eliminate
data and give the species
composition, diameter distribution,
and tree quality (tree classes) of the
woodland. Use a lime sack to mark
trees tallied. Two men can inventory
30 acres in a day to a day and a half.
This inventory will tell you whether to
cut now, what trees to cut, and how
much. You will also have a
knowledge of wildlife and other
special trees on the woodland.

- There should also be an appraisal
of seedlings and saplings in
openings which are free to grow; not
overtopped. These will quickly grow
into pole sizes (starting at 4-6 inches)
and be inventoried.

- The size of an operable harvest
depends on local market conditions.

A typical unmanaged upland hardwood forest in the midwest. The forest is uneven-aged
and contains many species and classes of trees. Good growing stock trees should be
left, but mature, low quality, high risk, and cull trees should be cut to benefit the existing
stand and, if enough non-growing stock trees are present, provide group selection
openings for new regeneration.

At least 1000 bd. ft. per acre. A well
managed forest on average sites will
grow 150-200 bd. ft. per acre ann-
ually. Thus, a 10-year cutting cycle
would be easily possible.

All these measures will lead to
sustained yield as it should be un-
derstood. This means a continuous
yield from the woodland of timber,
wildlife, pure water and recreation.
But timber yield will not be annual
and it may not be exactly the same
from cut to cut. The concept is not
one of rigidity but rather of a con-
tinuous flow of the woodland values,
usually of increasing values. Let no
one tell you that sustained yield is
not possible on small private
woodlands.

Following are the essential
management steps required to
properly manage a woodland:

1. Determine in your own mind or
in consultation with a forester
the objectives of management.

2. If indicated, divide the woodland
area into management units
based on the character of the
forest and site quality. For
example, an area recently cut
over and occupied by saplings
and poles would be separated
from an area of old growth. You
will need at least a rough sketch
map. Obtain the approximate
area of each unit.

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3. Inventory the management units.
4. Make a marking plan based on the inventory and objectives of management.
5. Mark the trees to be cut. Use separate marking for timber trees (logs) and trees for pulp or fuelwood, or perhaps to be killed if there are no markets.
6. Harvest the marked trees. This usually involves a timber operator. You should have a Sales Contract with him spelling out the conditions of the sale and penalty for damage to the trees remaining and to streams and roads. The harvesting operation should be regarded as a part of the whole management package. All previous care can be nullified by careless harvesting. The location and construction of roads and skid trails is very important and requires reliable advice.
7. After logging appraise the area for damages and access penalties according to the sales contract.

All the above discussion involves intensive but conservative silviculture usually for integrated multiple uses on the nonindustrial private woodlands. It is management of an existing resource for both private and public benefit. (Therefore the small private woodland owner is justified in asking for government help.) I consider the small private woodlands the hope of the future because they constitute such a large total area, because industrial forests are managed almost exclusively for timber, and because the Forest Service plans the dominant use of clearcutting and even-aged management, even for mixed hardwoods and northern hardwoods. Their "multiple use" tends to become a number of single uses.

The kind of silviculture and management advocated here and in "Woodland Ecology" provides for production of wood along with the environmental values, greater diversity, and sound long term economics which involve a fair appraisal of all values. At the same time wood is produced without forest-water-site damage, without spoiling aesthetics, without the use of monocultures, and without heavy out-of-pocket investments when dealing with an existing woodland.