

# Getting More From Your Woodlot: An Introduction to Integrated Resource Management

Manual HSC 1999-1

## **Preface**

As most surveys (see additional readings) indicate, the number one reason people own woodland is for personal satisfaction and recreation. Woodlot owners use their land for variety of things; therefore, they practice multiple use which is a form of integrated resource management (IRM).

The intent of this introductory home study module is to introduce IRM to landowners in a way that will help them set environmentally sound goals and objectives. It also introduces the ideas and concepts that form the basis of most IRM plans and discusses where to get more detailed information to develop plans further. Words marked in italics are defined in the Glossary on page 24.

Throughout the module reference is made to other home study modules in this series. Each module focuses on different aspects of IRM. The titles and how to order them are listed below.

### **Woodlot Management Home Study Series**

**A series of manuals designed to help woodlot owners help themselves.**

1. Introduction to Silviculture
2. Harvesting Systems
3. Stand Spacing
4. Wildlife and Forestry
5. Stand Establishment
6. Chain Saw Use and Safety
7. Woodlot Ecology
8. Wood Utilization and Technology
9. Woodlot Recreation
10. Managing Woodlot Finances. Part A Planning and Investment Guide  
Part B Tax and Estate Planning

### **Nova Scotia Forest Practice Series**

**A series of 16 brochures introducing aspects of woodlot management.**

The home study modules and Forest Practice Pamphlets can be ordered from:

**N.S. Department of Natural Resources**

**Extension Services Division**

P.O. Box 698

Halifax, Nova Scotia

Canada B3J 2T9

Phone: 902-424-6295

E-mail: [kennedlj@gov.ns.ca](mailto:kennedlj@gov.ns.ca)

**Websites:**

<http://www.gov.ns.ca/natr/extension/woodlot>

<http://www.gov.ns.ca/natr/library.htm>

## **A Word about Safety**

This series is designed to help landowners help themselves. A lot of work can be accomplished by individuals or families working on their properties. However, working in the woods can also be hazardous unless attention is paid to safety. Use appropriate safety equipment and techniques, make sure you have a means of communication should you get hurt, and minimize work during times of high fire hazard. Follow procedures in The Forest Professional: A code of practice for stewards of tomorrow's forest (see suggested readings)

## Table of Contents

List of Illustrations .....	v
List of Tables .....	v
Lesson 1: Introduction to Integrated Resource Management .....	1
Objectives of Module .....	1
What is Integrated Resource Management? .....	1
What Does IRM Mean for Woodlot Owners? .....	2
Lesson One Quiz .....	3
Lesson 2: Goal Setting .....	4
Introduction .....	4
Develop a Wish List .....	4
Resources .....	5
Set Priorities .....	7
Lesson Two Quiz .....	10
Lesson 3: Developing Your Plan .....	11
Things to Consider for Your IRM Plan .....	11
Ecosystem Health .....	11
Recreation and Aesthetics .....	12
Protected Areas .....	12
Minerals and Aggregates .....	12
Roads and Trails .....	12
Wildlife Management .....	13
Certification .....	13
Community Use .....	13
Water Quality .....	13
Code of Practice .....	14
Writing the Plan .....	14
Introduction .....	14
Woodlot Description .....	14
Recommendations .....	15
Lesson Three Quiz .....	17
Lesson 4: Further Information .....	18
Learning from Others .....	18
Jim Bremner .....	18
Phil Clarke .....	18
George Chisolm .....	19
Jim Drescher .....	19
Rex Veinot .....	19
Mary van den Heuvel .....	20

Dave Loughead .....	20
Blaise Moran .....	20
Perry Munroe .....	21
Publications, Video, Organizations, and Software .....	21
Software .....	21
Additional Readings .....	22
Additional Contacts .....	23
Glossary .....	24
Summary .....	25
Suggested Outline for Preparing Your Integrated Management Plan .....	25
Quiz Answers .....	27
Other Notes .....	27

## List of Illustrations

<b>Illustration 1.</b>	Integrated resource management can involve a variety of activities and goals for a property . . . . .	1
<b>Illustration 2.</b>	It helps to think about your woodlot objectives when you are relaxing in your woodlot . . . . .	4
<b>Illustration 3.</b>	Each woodlot contains its own unique combination of resources . . . . .	6
<b>Illustration 4.</b>	Family and equipment can make woodlot work much easier . . . . .	6
<b>Illustration 5.</b>	Harvesting poor quality trees for firewood can result in more valuable trees left on the woodlot in the future . . . . .	7
<b>Illustration 6.</b>	Managing for quality grouse habitat might be difficult if you want to grow softwood logs. However, it is possible to manage for grouse in one area of your lot and sawlogs in another . . . . .	9
<b>Illustration 7.</b>	Trails, streams, stands, and ecosystems do not stop at boundaries. Therefore, cooperation among neighboring landowners is important . . . . .	11
<b>Illustration 8.</b>	Zoning may help establish priorities for your woodlot . . . . .	15

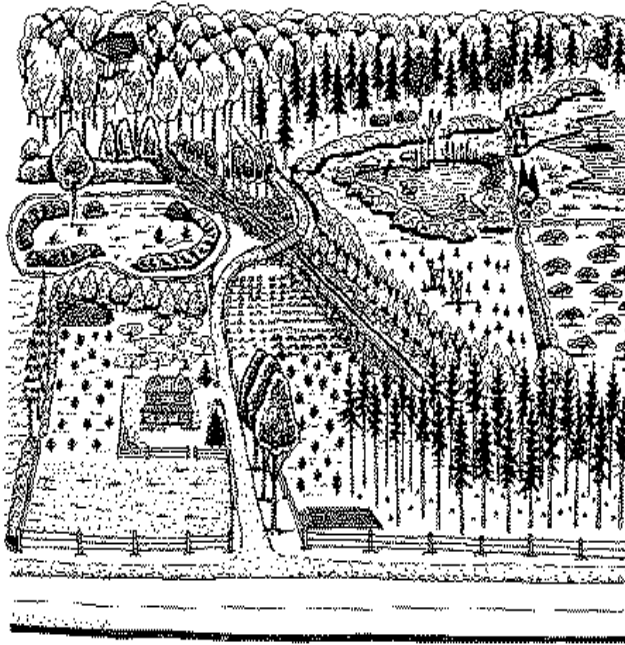
## List of Tables

Table 1.	Potential activities and values that can be obtained from woodlots . . . . .	2
Table 2.	Potential woodlot and personal resources . . . . .	6
Table 3.	Examples of complementary and conflicting goals. (Adapted from Forest Stewardship Planning Guide). c - compatible or complementary to each other, e- effort required to do both, t - two separate areas required . . . . .	8
Table 4.	A sample five-year operating plan . . . . .	16

# LESSON 1: INTRODUCTION TO INTEGRATED RESOURCE MANAGEMENT

## OBJECTIVES OF MODULE

This introductory module is written for anyone who owns woodland or takes an active interest in woodland. It will benefit anyone who has or would like to set *environmentally sound* goals for their land.



*Illustration 1: Integrated resource management can involve a variety of activities and goals for a property.*

The intent of this module is to introduce Integrated Resource Management (IRM) and help you develop your own integrated plan based on your goals, what your woodlot has to offer, and your resources. It also introduces some basic principles behind IRM, offers examples of woodland owners who practice IRM, and provides sources of additional information.

Some basic principles behind IRM are given in Lesson 3 after you have thought about your goals, objectives, and resources in Lesson 2. This was done in order because IRM on a woodlot should be tailored strongly to your wishes. However, if you find it difficult to work through Lesson 2, it might be helpful to do the first half of Lesson 3 first.

## WHAT IS INTEGRATED RESOURCE MANAGEMENT?

Canadians have often been described as hewers of wood and drawers of water. This traditional outlook ignores many other benefits that forests can provide. These benefits include recreational opportunities, wildlife habitat, clean water, soil conservation, carbon storage, and other environmental values. The potential benefits from our forests are numerous.

***Did you know that valuable shiitake mushrooms can be grown on oak logs under a forest canopy? Thus, more than one valuable crop can be grown in the same area.***

IRM is a means of realizing many benefits from forest or other natural area, and making sure the *renewable* benefits are there for future generations. It is a planning and decision making process that maximizes long term *sustainable* benefits while recognizing and minimizing *conflicts*. It examines the relationship between various resource uses and the effects managing one resource has upon other resources. With IRM, all resource values are considered when making forest land use decisions.

IRM also implies that goals or benefits are *integrated* and *environmentally responsible*.



## WHAT DOES IRM MEAN FOR WOODLOT OWNERS?

Practising IRM on a woodlot helps you achieve benefits and goals that are important to you, while you consider other values. It does not necessarily mean more wood, more wildlife, or more money. It could provide more of some of these, but the key is getting more of what **you** want, and doing so in an *environmentally responsible* manner. With IRM, all of your objectives do not have to be met on all sections of your woodlot.

It also implies **sustaining** the things that are important to you and to the health of the forest. These must meet the needs of the present owner without *compromising* the ability of the land to meet the needs of future owners. With ownership comes an obligation to care for one's land for future generations. What we do now can affect forests for several generations. The future is in our hands.

Woodlots offer even more possibilities when combined with the values offered by neighbouring woodlots. For example, trails that connect woodlots can improve hiking, skiing, and other recreational opportunities. Neighbouring landowners can work together to leave more effective (ie. larger) travel corridors for wildlife. Discussing your plans with neighbours (*consultation*) and others who use your property is an important part of IRM.

***Wild ginseng is a valuable, rare plant that can grow under the shade of a hardwood stand. Ginseng roots have been used for centuries as a herbal remedy. For minimal investment woodlot owners can have valuable roots to harvest in four to ten years. For more information contact the Wildseng Co. at 506-756-2380.***

An IRM plan can help you develop and balance goals and reduce conflicts on your land. It brings *compatible* ideas together, instead of isolating them. It allows you to meet several goals at the same time, while minimizing *conflicts*. However, practising IRM may sometimes require *compromises* to meet several goals at the same time. In other words, you can't always have your cake and eat it too.

Thus, IRM usually involves four C's: *compatibility, conflict, compromise, and consultation*. You may discover these four C's often as you develop and implement your IRM plan

<b>Table 1. Potential activities and values that can be obtained from woodlots</b>
Recreation - personal - commercial
Wildlife habitat
Forest products production
Intrinsic or existence value (value for itself - not related to human desires)
Aesthetics
Biodiversity
Soil conservation
Water conservation
Improving for future generations
Gravel pit or mineral extraction
Christmas trees

*Exercise 1. List ways you practice IRM and/or benefits that come from your woodlot.*

---



---



---



---



---



---



---

## LESSON ONE QUIZ

Circle the answer that best fits each statement. (answers on page —)

1. Integrated resource management is:

- a) a planning process that helps forest managers consider as many values and benefits as possible
- b) a way to ensure woodlots are managed in an environmentally sound way
- c) usually involves working with other landowners to achieve common goals
- d) all of the above
- e) none of the above

2. Practising IRM generally involves four C's: conflict, consultation, compromise, and compatibility.

T            F

3. Practising IRM will increase the amount of conflicts on your woodlot.

T            F

4. Most woodlots are too small to think about practising IRM.

T            F

5. To plan for maximum biodiversity, it is best if neighbouring woodlots are managed independently of each other.

T            F

## LESSON 2: GOAL SETTING

### INTRODUCTION

Integrated resource management involves setting realistic goals. First, make a wish list of what you would like from your land. Second, get to know the resources available to you, from your woodlot and yourself (eg. time, expertise, help from others). Third, set priorities.

While working on your goals consider the following three basic principles:

11. A woodlot is not self-contained. It is part of the larger landscape and your actions affect land elsewhere, often in ways you may not understand.
12. Your property includes smaller parts that influence and sustain the larger property.(eg. *Seeps* or bogs purify water, or stone piles, *snags*, or downed trees may provide special habitat that does not occur else where on the property). You should consider all parts of your woodlot.
13. Today's decisions define, limit, or expand future opportunities.

### DEVELOP A WISH LIST

Now is the time to make a wish list. Include things you are already doing (from your list on page 3). What do you want to do with your land? What are your *goals* and *objectives* for the property? What are your *guiding principles*? The list does not have to be realistic at this stage. You will have time to make it realistic when you develop priorities.

Keeping the basic principles in mind, some potential goals might be to:

1. improve woodlot for personal recreation
2. make an annual income from the woodlot
3. improve tree quality and value
4. increase wildlife habitat quality
5. make the woodlot accessible for community use

Some specific objectives to meet the above goals might be to:

- build a pond for fire protection, skating, and wildlife (goals 1 and 4).
- cut and sell 15 cords of firewood per year (goals 2 and 3).
- start a small nursery to help restock the woodlot with hardwood and shrubs to benefit wildlife (goal 4) or to improve the genetic stock of what is already there (goal 3).
- connect wood extraction trail to public road (goals 1, 2, and 5).

*Illustration 2: It helps to think about your woodlot objectives when you are relaxing in your woodlot.*



*Exercise 2. Now list your goals and objectives below. You may wish to consider the goals of other family members and friends at this time or add them later.*

Goal	Priority List (Fill in later)
*	_____
*	_____
*	_____
*	_____
*	_____

Objective
_____
_____
_____
_____
_____

Some landowners may want to group their goals according to specific resource benefits such as timber, wildlife, aesthetics, or recreation.

## **RESOURCES**

A key to practising IRM effectively is getting to know your woodlot and working with what you have. It is important to know both your own and your land's limitations, if only to realize that you have to find other ways to get things done.

Some woodlots offer scenic locations for campsites or cabins; others provide a large quantity of timber; and others offer great wildlife habitat. Some people have lots of time, equipment, and expertise to work with their woodlot while others are limited. Table 2 lists resources to consider as you establish priorities for your goals.

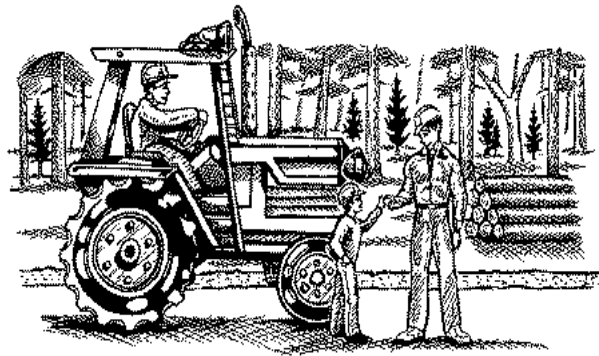
Before walking through your woodlot, obtain some recent aerial photos to locate open water, non-forested areas, wetlands, and softwood and hardwood cover types. Then determine what needs or opportunities there are for your property and possibly for surrounding properties. Consider the following:

- What do the surroundings provide for you? What do you enjoy about them?
- Do you have a stream, spring, pond, or lake?
- Where do you hear or see birds?
- Are there nuts or berries on your woodlot?
- Do you like bright or shady areas?
- What important benefits can your land provide?

<b>WOODLOT RESOURCES</b>	<b>PERSONAL RESOURCES</b>
wildlife habitat quality and quantity	free time
streams, lakes, and ponds	family's, friend's, and neighbour's time
regeneration quality	financial resources
surrounding woodlots (potential for cooperation)	expertise
local markets for various products (location of woodlot)	availability of hired help (eg. someone to cruise your lot)
future opportunities <ul style="list-style-type: none"> <li>• u-cut Christmas trees</li> <li>• u-fish</li> </ul>	house , camp or place to stay
access roads and trails	equipment
timber quality and quantity	
marsh or wetlands	
beaches	
road construction materials (gravel, shale, etc.)	



*Illustration 3. Each woodlot contains its own unique combination of resources and values.*



*Illustration 4. Family and equipment can make woodlot work much easier.*

Exercise 3. List your personal and woodlot resources. You will come back to this list later.

Woodlot	Personal
*	
*	
*	
*	
*	
*	
*	
*	
*	
*	
*	
*	
*	
*	
*	

If your resources are limited, try to find ways to make them go further. You may consider hiring someone to haul or cut wood, setting up an operation that allows customers to help themselves (eg. u-cut Christmas trees), or getting help from the community to build hiking trails.

***Did you know that thinning can improve future wood quality and aesthetics? By cutting small, poor quality trees, the woods look better and allow better visibility between the trees. Leaving large trees will improve the appeal of a woodlot and add to structural diversity. For more information on thinning see home study module 3.***

### SET PRIORITIES

~~Now that you have brainstormed about what you might be able to do with your woodlot and~~ looked at your resources, it is time to make the list more realistic.

Exercise 4. Talk to adjoining landowners to see what their plans are. Are there any opportunities to cooperate? This may also be an opportunity to check your boundary lines.

Opportunities for cooperation  
eg. wildlife travel corridors, trails or roads

*	
*	
*	
*	
*	
*	



Illustration 5. Harvesting poor quality

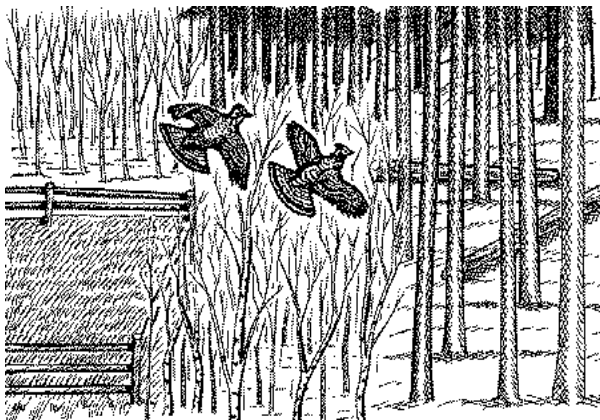
To establish priorities, look for complementary and conflicting goals and objectives. Complementary goals are those that can be achieved at the same time in the same place

(see table 3 for examples), usually by doing one activity. Look back to page 4 for examples where one activity accomplishes more than one goal. The more goals an activity fulfills the more worthwhile the activity becomes.

Table 3. Examples of complementary and conflicting goals (adapted from the Forest Stewardship Planning Guide). C- compatible of complementary to each other, E- effort required to do both, T- two separate areas required.

GOAL	Increase Volume	Increase Early successional Habitat	Maintain or enhance water quality	Maintain an overstorey (canopy)	Minimize insect or disease damage	Produce and sell gravel	Promote old forest conditions
Increase Volume	C						
Increase Early successional Habitat	E	C					
Maintain or enhance water quality	C	C or E	C				
Maintain an overstorey (canopy)	C	E	C	C			
Minimize insect or disease damage	C	C or E	C	C	C		
Produce and sell gravel	T	E or C	E	T	C	C	
Promote old forest conditions	E	T	C	C	T	T	C

Conflicting goals require separate areas or considerable effort to achieve (see Table 3). For example, income from clearcutting a young stand will reduce the potential for income from logs in that same stand in 10 years time. Or a gravel pit may create an area that is less pleasant to look at for a while.



*Illustration 6. Managing for quality ruffed grouse habitat might be difficult if you want to grow softwood logs. However, it is possible to manage for grouse in one area of your lot and sawlogs in another.*

If time is considered, conflicting goals may become more compatible. An area that is clearcut may regenerate and produce logs in 50 years or a gravel pit might be rehabilitated and produce logs in 100 years. Time is more likely to be considered by landowners who do not need to meet several goals from a small area in a short period.

Some goals that appear to be conflicting may not be. For example, harvesting may appear to damage wildlife habitat or recreation potential. However, if forest/ wildlife regulations are followed, habitat quality can often be maintained or even improved for some species. If aesthetics are considered and extraction trails kept clear of debris, recreational opportunities could be improved (for more information on this, see home study module 9).

Consider the resources you have to work with,



complementary and conflicting goals, and neighbouring properties; then go back to the list you developed on page 4 and prioritize the list by placing a number beside each activity. You may want to redo your list at the back of the book and put the higher priority items near the top while eliminating goals that are not realistic.

## LESSON TWO QUIZ

**Circle the answer that best fits each statement.**

1. IRM is easier to practice once you develop a list of things you want to do with your land.

T                      F

2. Conflicting goals

- a) should not be considered on the same woodlot
- b) might be accommodated on two different areas of one woodlot
- c) should each be given equal consideration
- d) all of the above
- e) none of the above

3. If you have conflicting goals you cannot practice IRM.

T                      F

4. Setting priorities will help you

- a) deal with conflicting goals
- b) if you cannot do everything you have on your wish list
- c) decide which activity or goal to do first
- d) all of the above
- e) none of the above

5. Which activity is not readily compatible with the others on a woodlot?

- a) wildlife viewing
- b) long term wood production
- c) real estate development
- d) hiking
- e) fishing

6. Which pair of goals conflict with each other?

- a) hiking and wildlife viewing
- b) maximizing income and woodlot preservation
- c) cutting firewood and improving tree quality
- d) establishing hiking trails and a Christmas tree u-cut operation
- e) none of the above
- f) all of the above

7. Old growth conditions cannot be maintained on a woodlot where an annual income from the woodlot is a priority.

T                      F

8. Considering a 20 year time period, which pair of goals or activities are not achievable in the same stand?

- a) income from harvesting and wildlife viewing
- b) mineral exploration and wildlife habitat

- c) gravel production and harvesting logs
- d) all of the above
- e) none of the above

## LESSON 3: DEVELOPING YOUR PLAN

### THINGS TO CONSIDER FOR YOUR IRM PLAN

To help you further develop your goals and your management plan, a few elements common in IRM plans are given in the first half of this lesson. The second half of this lesson presents one possible layout for an IRM plan.

#### Ecosystem Health

With IRM plans, the primary emphasis is usually on the condition in which an ecosystem is maintained. Healthy forest ecosystem can often be maintained by:

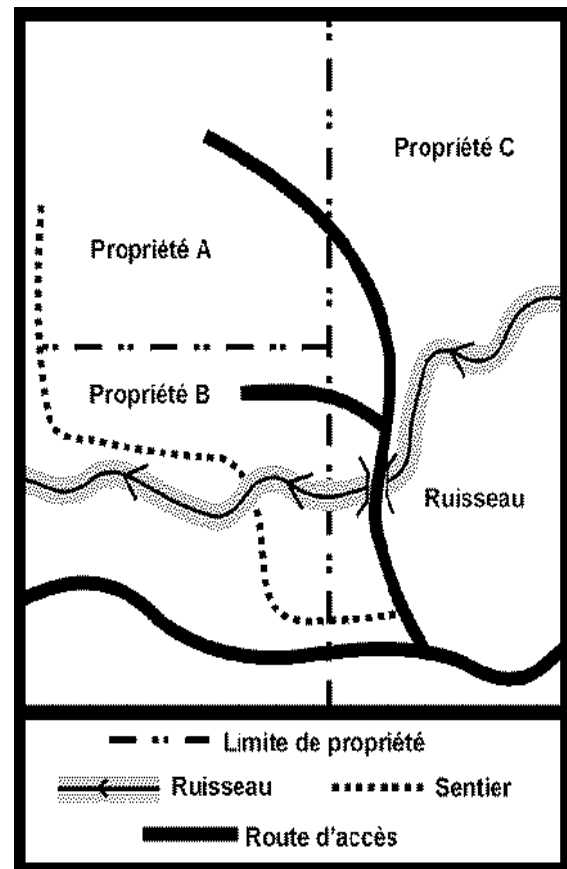
- Harvesting weak or damaged trees while leaving enough cavity trees, snags, and coarse woody debris for wildlife.(see home study module 4.)
- Encouraging a mix of species to reduce risk of damage from insects or disease.
- Spacing trees apart to make sure they have enough growing space (see home study module 3)
- Not making ruts, wounding trees and compacting soil.
- Being aware of insect populations near or on the woodlot.
- Ensuring areas are regenerated (see home study module 5)
- Maintaining wildlife corridors
- Leaving some areas natural or untouched

Since ecosystems do not stop at property boundaries, managing ecosystems requires working with your neighbours to ensure that things such as wildlife habitat or recreational opportunities are maintained in an area. Cooperation among landowners is vital.

#### Recreation and Aesthetics

As stated in the preface, outdoor recreation is important to many landowners. Woodlots provide opportunities for activities such as hiking, camping, hunting, fishing, skiing, photography, etc. Aesthetics usually play a part in the quality of recreation that a woodlot offers.

Trails cut for extracting wood can also be used for hiking, hunting, or skiing, if they are kept clear of slash. For more information on building trails, see homestudy Module 9.



*Illustration 7. Trails, streams, stands, and ecosystems do not stop at boundaries. Therefore, cooperation among neighbouring landowners is important.*

Recreation and aesthetics can be improved by:

- Making cuts and activities blend into the landscape and look pleasing to the eye.
- Considering hills, contours, valleys, and views.
- Leaving a few big trees for a very pleasing look and to add to vertical structure diversity.
- Building trails, camps, campsites, etc.

If you do not live near your woodlot, a camp or cabin makes working on your woodlot much easier. Of course, it is also great for family retreats or personal recreation.

## **Protected areas**

Nova Scotia has a protected areas strategy that preserves almost one-fifth (20 percent) of all provincial Crown lands. These areas will help protect biodiversity by preserving areas that are typical of one of the 77 natural landscapes in Nova Scotia, rare or unique landforms, ecosystems or plants, or wilderness areas.

However, since only one-quarter of the forested area in Nova Scotia is owned by the Crown, not enough of Nova Scotia's forests are officially protected. Therefore, the role of private landowners in preserving natural areas is also important.

- If you discover areas on your woodlot that are unique, or special to you, consider leaving them undisturbed.
- Have someone from the Department of Natural Resources walk your woodlot if you have protection in mind.
- Protect areas informally, or formally through provincial statutes that have provisions for private land protection (see [Land Conservation Opportunities](#) on page 23). More information is also available from the Department of Natural Resources (DNR), the Department of the Environment, or the Nova Scotia Nature Trust.

## **Minerals and Aggregates**

Unlike most other resources on your woodlot, minerals and aggregates are non-renewable resources. Although they are a valuable resource that can be used, they cannot be replenished.

As a Nova Scotia landowner you have surface rights to aggregates, but rights to minerals, oil, and natural gas are owned by the Crown. However, a landowner or anyone else may acquire mineral rights by making application for a mineral exploration license. Similarly, rights for oil and gas exploration are given through a licensing procedure.

Stone, sand, gravel, peat, gypsum, most limestone, and ordinary soil belong to the landowner.

- Include these resources in your IRM plan if you are interested and able to use them. They may be especially useful if you plan to build any roads or trails.

- Store any top soil that is removed.
- Reclaim and seed any disturbed site once aggregate is removed

## **Roads and Trails**

Aesthetically and to prevent ecosystem fragmentation, IRM plans usually call for no more roads than necessary for harvesting.

Roads do not need to be permanent. The roads or access to them can be removed if they are not required for a long period or create problems.

- Because harvesting usually takes place over a short period in the life of a road, plan roads for recreation since that is what their primary use will be following harvest.
- Keep aesthetics in mind.
- Limited use roads or trails can be built by using slab wood or sawdust which create very little disturbance to the soil or roots.

## **Wildlife Management**

All forms of forest management affect wildlife habitat. Forest/wildlife regulations list the minimum standards that must be followed if you harvest. It is a good idea to plan for a range of wildlife habitat requirements by:

- Modifying harvest to minimize the impact on wildlife
- Providing for current and future snags, cavity trees, and coarse woody debris.

Did you know that planting oak will improve wildlife habitat in addition to adding dollar value to your woodlot? For more information on improving wildlife habitat see home study module 4.

Methods to improve wildlife habitat for individual species and a variety of species are described further in home study module 4.

Allowing pockets of your woodlot to regenerate to alder and aspen improves habitat for woodcock and grouse? Cutting small patches can be beneficial for wildlife. For more information see home study module 4.

## **Certification**

Forest products certification lets buyers know that wood products come from a sustainable managed forest. If you intend to sell forest products, manage your woodlot to meet certification standards at a future date. Certification may require meeting specific objectives for:

- Wildlife habitat

- Water Quality
- Protection of ecologically unique areas.
- *Biological diversity* and associated values for water resources, soils, and unique and fragile ecosystems and landscape

### **Community Use**

Do other people use your woodlot? Do you want to accommodate their use? Are their wishes compatible with yours? It is important to know who else uses or crosses your land for hiking or other forms of recreation. Activities you plan may reduce or enhance their ability to enjoy your property. The importance of this varies with individuals.

- Be sure that your woodlot does not contain hazards for which you could be liable if people use your property (for more information on this see home study module 9).
- Allow community access to your trails, etc.

### **Water Quality**

Maintaining water quality is important for many reasons and should be a goal of any IRM plan. It can generally be maintained by:

- Taking care during layout and construction of roads
- Not clearcutting to water edges
- Keeping machines away from streams
- Crossing streams with proper stream crossings
- Careful harvesting

### **Code of Practice**

Many of the above land uses can be practised by following a code of practice or best management practices. Two examples are suggested in the reading section on page 22 that use the latest information to ensure work is completed to high standards.

## **WRITING THE PLAN**

After establishing priorities for your woodlot, you are on your way to writing a management plan that has measurable objectives to fulfill your most important goals.

You can make your plan simple or detailed. Some landowners keep a plan in their head, but it helps to have it on paper to refer to, especially if you run your woodlot as a business. Make it a useful document to guide the management of your woodlot. Do not be concerned with all the details at this point. Your plan will evolve.

The following basic outline may guide you as you develop your plan.

### **Introduction**

- Owner Identification
- Woodlot Location
- Background
- Goals and Objectives

### **Woodlot Description**

- Map
- Boundary line conditions
- Significant feature
- Stand or Ecosystem description

### **Recommendations**

- Zoning
- Activities or action plan
- Operating plans

### **Summary**

### **Sources of Further information**

### **Record keeping information**

## **Introduction**

The introduction should provide more detail on the goals you developed on page 5. It should also include woodlot history, which might be useful or meaningful to you.

## **Woodlot Description**

Use the list of resources you came up with on page 7 to help describe your woodlot. You can do this yourself, with a family member, or hire a forest professional to provide detailed cruise information or recommendations about opportunities for your woodlot.

Next, develop a map. It can be hand drawn, traced from a photo or map, or computer generated. Landowners have sometimes excluded areas from forestry management plans because the land was for development, a farm, or homestead. This is an IRM plan, not a forestry plan. It may be useful to include all lands and zone (see page 15 on zoning) accordingly. For example, if you have land you may eventually sell for real estate purposes, you may be able to harvest wood from it now, possibly

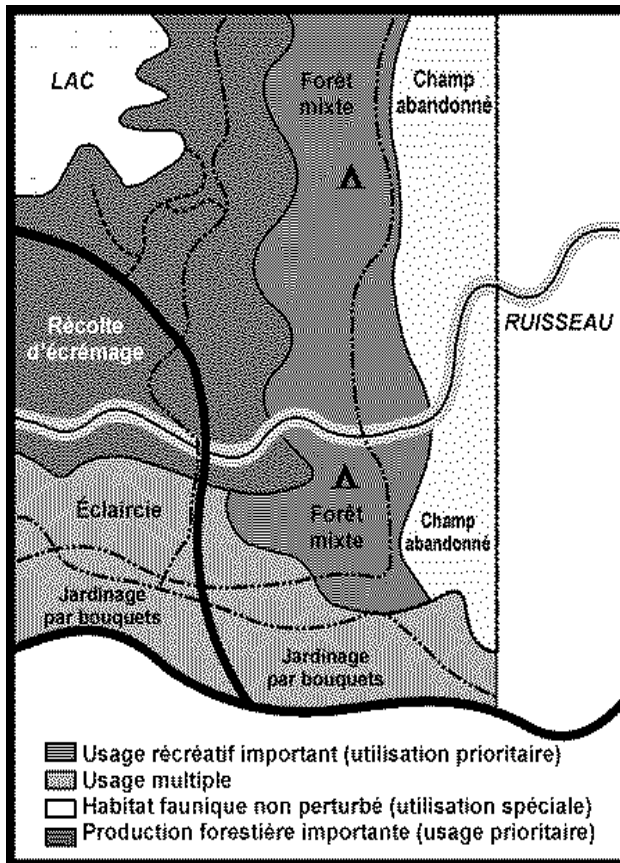
as a thinning to promote quality shade trees.

*Exercise 5. Develop a map with zones identified on woodlot; you can use your own definition of zones if you wish - rough it out, and get more detailed as you learn more.*

## Recommendations

Finally, keeping the fundamental principles in mind, devise activities that will help meet your goals. Listing these activities makes it easy to follow the progress of your management plan. As mentioned earlier, it may take several activities to fulfill a goal, but one objective can also fulfill more than one goal.

If you listed a variety of goals in your introduction, consider breaking the woodlot into different zones that describe activities that can take place. The woodlot can have areas where different activities or goals are given priority.



*Illustration 8. Zoning may help establish priorities for your woodlot.*

your objectives/goals are more easily met by changing your

There are generally three types of zones:

- **Multiple use** where most activities have equal priority
- **Special use** where one use dominates and other uses are avoided
- **Priority use** where one activity takes priority over others, but does not exclude them

Most forests can be zoned as multiple use because they can maintain many activities. A few forest areas require special protection (eg. unique habitat). Some areas fall into the special use category if they are managed intensively for wood production, Christmas trees, or recreation.

Zoning may change over time as priorities change or a stand changes. For example, an area with a mature stand may be priority for wood production. However, once a young regenerating stand is established following harvest, use may change to primarily recreation. Thus zoning can be dependent both on forest cover and time. Once you come up with specific activities, you may find that



---

*Exercise 6. Try to list a few activities below. It will probably be useful to group them according to which goals they meet.*

Goals and Activities

Goal 1.

---

---

---

Goal 2.

---

---

---

Goal 3.

---

---

---

Goal 4.

---

---

---

---

Operating plans provide a clear schedule of when you plan to carry out specific activities. Table 4 shows a simple operating plan. More detailed plans can be found in module 10A. As you develop your operating plan, it will help you develop a time line to meet your goals.

Remember, operating plans are not carved in stone. They are simply guides subject to change as priorities and resources change



## LESSON THREE QUIZ

Circle the answer that best fits each statement. (answers on page 27)

1. Ecosystem management is holistic management that:
  - a) often involves working with neighbouring landowners
  - b) does not allow harvesting on your woodlot
  - c) only considers forested areas of your woodlot
  - d) all of the above
  - e) none of the above
  
2. It is important to preserve land on private woodlots since almost one-fifth of Crown lands in Nova Scotia are protected.

T                      F
  
3. Aggregates are non-renewable resources that landowners in Nova Scotia do not have rights to.

T                      F
  
4. Less damage to wildlife habitat will result from harvesting if the forest/wildlife regulations are followed.

T                      F
  
5. With IRM plans, landowners should build as much road as possible to accommodate a variety of activities.

T                      F
  
6. Certification only needs to be considered by large forest companies.

T                      F
  
7. All IRM plans should follow the same format.

T                      F
  
8. A woodlot description should:
  - a) include a map
  - b) give the number of trees on your woodlot
  - c) show zones outlining your intended uses for different areas of the lot.
  - d) a and c
  - e) all of the above
  
9. Zoning will help you set priorities for different areas of your woodlot.

T                      F
  
10. Operating plans are useful for:
  - a) fixing your equipment
  - b) scheduling your proposed woodlot activities
  - c) building roads
  - d) all of the above
  - e) none of the above

## **LESSON FOUR: FURTHER INFORMATION**

Knowledge leads to confidence, which often leads to action. As you learn more about different aspects of IRM, you will become more comfortable practising it and be able to make better decisions.

### **LEARNING FROM OTHERS**

Attending field days, demonstrations, or tours allows you to meet people and see activities first hand. Field tours are often on woodlots owned by people who practice IRM. Talking to these landowners and seeing their work is a great way to learn.

There are many woodlot owners in Nova Scotia who have practised integrated resource management for years. The following are brief examples of nine of them. They are provided as a source of ideas and potential contacts if you have similar goals. Some of them have been recognized by the Nova Scotia Woodlot Owner of the Year Program. For more information on this program, contact your local Department of Natural Resources office.

#### **Jim Bremner, Hants County**

(902) 798-8073

Jim runs a farm and woodlot business adjacent to Crown land, near Falmouth. He has done a lot of harvesting on Crown land and would like to participate in an IRM plan for the Crown land next to his woodlots that surround his.

Most of the harvesting Jim does is partial cutting (thinning) which encourages natural regeneration while maintaining wildlife habitat and conditions for recreation.

#### **Phil Clarke, Antigonish County**

(902) 863-6776

Phil values his woodlot for recreation for his family and friends. Accordingly, he has set aside a gorge of large white pine and eastern hemlock along a small stream as a special place for his family to enjoy. Friends and family often hike and ski on his woodlot.

In addition, he has a circular mill which he uses to saw wood and to do custom sawing for others. The mill supplements the income he is able to get from his woodlot.

#### **George Chisholm, Digby County**

(902) 467-3096

George has integrated operation his property that allows for hiking, skiing, harvesting, milling, and wildlife. Harvesting forms a big part of his woodlot business, but not at the expense of wildlife. In addition to leaving lots of cavity trees and snags, he intends to maintain 10 per cent of his woodlots in a natural state, particularly to benefit wildlife.

Another of his goals is to maintain and restore long-lived species of the Acadian Forest Region. He is doing this by creating conditions for species that can grow in the shade (eg. red spruce) to regenerate.

**Jim Drescher**, Lunenburg County

(902)543-0122

E-mail: [Windhors@fox.nstn.ca](mailto:Windhors@fox.nstn.ca)

Jim runs the "Ecoforestry School in the Maritimes" which experiments in holistic forestry education. The setting for the school is Windhorse Farm, located near New Germany. It is a 150-year-old example of sustainability. From the time the first Europeans settled this spot, the woodlot has been managed according to a particular set of principles and practices. During that time it has been logged nearly every year without diminishing the standing crop of timber or degrading the functional integrity of the forest.

Jim's forestry and wood working operation includes selection harvesting, sawmilling, kiln drying, and speciality wood products. The "value added" aspect greatly enhances the economic viability of the woodlot.

**Rex Veinot**, Lunenburg County

(902) 644-3358

Rex and his family integrate Christmas tree production, sugar maple management, farming, public tours, hunting, and fishing on the woodlot. He constantly tries to improve the woodlot for wildlife, recreation, and income. Rex is the fourth generation to manage the woodlot and has his children involved in the activities as well.

After winning the 1995 Nova Scotia Woodlot Owner of the Year Award, Rex was featured on the cover of the Harrowsmith magazine. The magazine took an in depth look at how Rex and his family manage their property.

**Mary van den Heuvel**, Antigonish County

(902) 863-3719

E-mail: [maryv@auracom.com](mailto:maryv@auracom.com)

Mary uses integrated pest management to encourage beneficial insects and control insects that damage her Christmas trees. She has even planted companion plants to attract beneficial insects. She is constantly experimenting and trying new techniques to produce better quality trees and is active in the Christmas tree industry.

She manages the remainder of her family's woodlot for timber, wildlife, berries, fishing, and hiking. Their camp provides a place to make Christmas wreathes and is a source of relaxation on the woodlot.

**Dave Loughead, Colchester County**

(902) 893-7019

E-mail: nstn3785@fox.nstn.ca

Dave is a strong supporter of woodlot recreation and has interpretive trails developed on his woodlot to allow the public to walk or ski at their leisure.

A log cabin in Irwin Lake provides a means of personal relaxation and enjoyment for Dave and his family. He also has a fish pond and a covered bridge on his property and may eventually build additional cabins for rent. He thinks these would enhance the use of the trails he has developed.

In addition, Dave operates a sawmill to enhance the value he gets from wood products on his woodlot. Most of his wood for the mill comes from thinnings from his woodlot.

**Blaise Moran, Inverness County**

(902) 787-3085

Blaise's woodlot is on the Southwest Mabou River and provides a setting for a variety of personal recreation, including swimming, fishing, hunting, and snowmobiling. Near the river, Blaise even has a stage and a field that he has used for family reunions. Further in the woods, his log cabin adds to the pleasure his woodlot provides. Blaise is involved with the local snowmobile club which has trails that cross his land and adjacent woodlots.

Blaise also sells wood products and gravel from his woodlot. He has built innovative equipment to get the wood to roadside where he processes much of it into firewood. Following gravel production, the areas are put back into forest production by bringing in top soil and planting.

**Perry Munroe, Kings County**

(902) 542-2658

Perry has developed a year-round business from 340 hectares of woodland. To make a living from that, he had to diversify into several operations. These include Christmas trees, hunting, guiding, and maple syrup production. Perry first used his maple syrup cabin to bunk his guiding clients, but over time the lodge also serves as a dining room for maple syrup products. It is known as Mountain Maple Lodge.

Perry manages his woodlots for wildlife first, but encourages other uses that help meet this goal. He has had a series of patch cuts done that left hardwood and clumps of trees behind to improve habitat for grouse and woodcock. He harvests to create edge and early succession conditions for the benefit of some wildlife species. His woodlot roads are built with aesthetics in mind which is important for his guiding clients.

These dedicated landowners manage their woodlots with the future in mind. They strive to ensure that their operations are sustainable and have a variety of goals for their land. They have a good understanding of how their activities affect the land. As well, they all live on or near their woodlots and are active in the forest community.

## **PUBLICATIONS, VIDEOS, ORGANIZATIONS, AND SOFTWARE**

For some, learning in the comfort of home from books, videos, or the Internet works great. That is the intent of home study modules and books. There are many sources for this information including libraries, government offices, and private companies.

### **Software**

The US Forest Service has produced an excellent software program that helps landowners choose management options to meet their goals. The Forest Stewardship Planning Guide takes you through a process of determining your goals for a variety of values. It then gives you management options that will help you reach those goals. It also produces a matrix that indicates which goals are complementary and those which are conflicting. The Guide also provides lots of information on various topics.

The software can be downloaded at: <http://www.fs.fed.us/ne/burlington/ne4454.htm> or call (802) 951-6771, fax (802)951-6368, or write to USDA Forest Service Northeastern Forest Experiment Station 705 Spear Street, P.O. Box 968 Burlington, VT 05402-0968

*Exercise 8. List some resources that could be useful for you to learn from. (eg. people, library, Internet home pages, etc.)*

---

---

---

---

---

---

---

---

---

---

## **Additional Readings**

The following publications provide additional background information on many of the topics presented in this booklet. The first 6 are available from the address listed in the preface.

Braithwaite, G. 1992. Woodlot Roads. Stream Crossings. Cooperation Agreement for Frestry Development 1991-1995. 34 pages.

Forest/Wildlife Guidelines and Standards for Nova Scotia. N.S. Dept. of Natural Resources. Halifax, Nova Scotia. 19 pages.

Integrated Resources Management Booklet. Canadian Forest Service - Maritimes. 12 pages.

Managing Your Woodlot: A Growing Idea. Maritime Woodlot Extension Committee. 1989. 11 pages.

More Wildlife On Your Woodlot. N.S. Department of Natural Resources. 1993. Halifax, Nova Scotia. 12 pages.

Nova Scotia Woodlot Owner of the Year: Honouring outstanding stewardship on private woodlots. N.S. Department of Natural Resources. Information Circular Ext-1. 1999. Halifax, Nova Scotia.

Selling Standing Timber? Here are some hints. N.S. Department of Natural Resources. Information Leaflet DNR-3. 1999. Halifax, Nova Scotia.

What is the Value of My Woodlot? 1994. Canadian Forest Service-Maritimes Region. Forest Group Venture Association of Nova Scotia and N.S. Department of Natural Resources Leaflet.

\*\*The remaining publications may be found through your local library.

Birch, T. 1996. Private Forest-land Owners of the Northern United States, 1994. USDA Forest Service. 293 pages.

Jones, Geoffrey. 1993. A Guide to Logging Aesthetics. Northeastern Regional Agricultural Engineering Service Cooperative Extension.

Leak, W.B., Yamaski, M., Kittredge, D.B., Lamson, N., and M-L Smith. 1997. Applied Ecosystem Management on Nonindustrial Forest Land. Northeastern Forest Experiment Station. General Technical Report NE-239.

Minckler, L.S. 1980. Woodland Ecology, Environmental Forestry for the Small Owner. 2nd ed. Syracuse University Press. Syracuse, N.Y. 241 pages.

Roberts, S.D. 1998. Ecosystem Management: Opportunities for Private Landowners in the Central Hardwood Region. Northern Journal of Applied Forestry. 15(1), pages 43-48.

Sinclair, B. (ed.) 1996. Eastern Ontario Model Forest: Code of Forestry Practice. First Edition. Gilmore Printing. Ottawa. 61 pages.

Smith, R. Integrating forest and wildlife management. Forest Landowner. March/April 98. 106 pages.

Sutherland, B. 1997. Enhancing Nature Conservation on Private land in Nova Scotia: A Case Study. Thesis Summary. Master of Environmental Studies Thesis. School for Resource and Environmental Studies. Dalhousie University.

Wellstead, A. & P. Brown. 1995. The 1993 Nova Scotia Woodlot Owner Survey Report. N.S. Department of Natural Resources. 106 pages.

Land Conservation Opportunities for Landowners in Nova Scotia. Nova Scotia Nature Trust. 1998. 17 pages.

CAN/CSA-Z808-96. A sustainable forest management system: Guidance document. Environmental Technology. A National Standard for Canada.



FSC Certification Standards for Best Forestry Practices in the Maritimes Forest Region.  
[Http://www.canadian-forests.com/fsc](http://www.canadian-forests.com/fsc).

Introducing Integrated Resource Management. Video, 1994. Canadian Forest Service - Maritimes.  
Can be borrowed from Publications and Communications Services, N.S. Department of Natural  
Resources. P.O. Box 68, Truro, Nova Scotia. B2N 5B8.

The Forest Professional: A code of practice for stewards of tomorrow's forest. N.S. Department of  
Labour. 54 pages.

The River Phillip Demonstration Forest: Integrated Resource Management. Nova Scotia cooperation  
Agreement for Forestry Development.

SNB Best Management Manual for Private Woodlot Owners. Southern New Brunswick Marketing  
Board. Sussex, New Brunswick.

### **Additional Contacts**

#### 1. Look in the yellow pages under:

- ~ Environmental Consultants
- ~ Forestry Consultants
- ~ Landscape Architects
- ~ Tree Service

~ Nova Scotia Forestry Association  
P.O. Box 1113,  
Truro, N.S. B2N 5G9.  
902-893-4653

~ Nova Scotia Trails Federation.  
P.O. Box 3010 South,  
Halifax, N.S. B3J 3J6.  
902-425-5450

#### 2. Private Organizations

- ~ Ducks Unlimited. P.O. Box 61,  
Amherst, N.S. B4H 3Y6.  
902-667-8726

~ Nova Scotia Silviculture Contractors  
Association  
RR 1 St. Andrews,  
Antigonish Co., N.S. B0H 1R0.  
902-386-2657

~ Forest Group Venture Association of  
Nova Scotia.  
RR 2 Oxford, Cumberland Co.,  
N.S. B0M 1P0.  
902-447-3034

~ Nova Scotia Bird Society  
c/o N.S. Museum of Natural History.  
1747 Sumner St.  
Halifax, N.S. B3H 3A5.

- ~ Nova Scotia Nature Trust.  
P.O. Box 2202,  
Halifax, N.S. B3J 3C4.  
902-425-5263

~ Wildseng Co.  
506-756-2380

- ~ Nova Scotia Woodlot Owners Operator  
Directed Services Co-operatives Ltd.  
P.O. Box 823,  
Truro, N.S. B2N 5G6.  
902-893-7165

~ Nova Scotia Federation of Anglers and  
Hunters.

- P.O. Box 654,  
Halifax, N.S. B3J 3J6.  
902-425-5480

## GLOSSARY

*aesthetics* - how the natural environment looks or the beauty of nature

*aggregates* - a mass or body of rock particles, mineral grains, or both: or any of several hard materials such as sand, gravel, slag, or crushed stone

*biological diversity (biodiversity)* - the variety of plants, animals, and other living organisms in all their forms and levels of organization; includes genes, species, and ecosystems as well as the processes that link them

*cavity trees* - living or dead trees with natural or excavated holes or cavities

*complementary* - mutually providing each other's needs; able to do at same time and place

*compatible* - able to exist or do together without causing problems

*compromise* - a method of reaching a solution that involves two or more sides giving up something

*conflicting* - opposing, unable to do at same time

*consultation* - discussion with others to get their ideas

*coarse woody debris* - remains of fallen trees on the forest floor

*cruise* - the systematic measurement of a forested area designed to estimate the volume of timber it contains or other values

*ecosystem* - a complex system of living organisms

*environmentally responsible (sound)* - respectful of natural surroundings, caring for the environment

*field day* - a day organized to visit a location and learn from operations in the woods

*goal* - a broad desire or aim; does not have to be specific or measurable

*gorge* - steep ravine or canyon, usually along a stream

*guiding principle* - a strongly held belief or rationale that guides your actions

*integrated* - fitted or working together

*natural landscape* - a group of different, but interacting ecosystems that are repeated in a similar pattern to form a distinct land unit

*non-renewable resource* - a resource such as gravel or mineral that is unable to grow back once it is used

*objective* - a measurable, concrete plan or activity that will help fulfill a goal

*operating plan* - detailed schedule of activities

*priority* - a ranking in order of importance

*renewable resource* - a resource that will grow back or replenish itself if it is harvested or used

*seep* - an area where the water table comes near or to the surface, usually on a slope

*snag* - standing dead tree

*stand* - a group of trees occupying a specific area sufficiently uniform to distinguish it from surrounding areas

*sustainable* - able to meet the needs of today without sacrificing the ability to meet the needs of

future generations

*vertical structure diversity* - variety of heights and vertical cover in a stand

*wilderness* - a remote area undisturbed by human activity

*zoning* - defining areas of similar use

## **SUMMARY**

Good planning is the key to practising integrated resource management on woodlots. The basic steps required to practice IRM include:

1. setting goals and objectives for your woodlot
2. identifying resources available to you
3. establishing priorities based on available resources, complementary goals, and conflicting goals
4. working with neighbouring landowners
5. learning and following basic sound ecological principles
6. developing a management plan with realistic operating plans.

Following these steps will increase your level of satisfaction, allow you to achieve multiple goals and objectives, help you make better decisions, and should result in ecologically sustainable practices. They will help ensure you get what you want from your woodlot while ensuring that your children will have the same opportunities. The landowners discussed on pages 18-21 are excellent examples of how this can be done.

## **SUGGESTED OUTLINE FOR PREPARING YOUR INTEGRATED MANAGEMENT PLAN**

### **INTRODUCTION**

WOODLOT HISTORY, BACKGROUND, LOCATION, ETC.

---

---

---

GOALS

PRIORITY

---

---

---

OBJECTIVES

---

---

---

WOODLOT DESCRIPTION

RESOURCES

Woodlot

Personal

---

---

---

---

---

---

---

---

MAP

STAND AND OTHER DESCRIPTIONS

---

---

---

RECOMMENDATIONS ( based on priorities)

ZONING

---

---

---

OPPORTUNITIES FOR COOPERATION WITH NEIGHBOURS

---

---

---

ACTIVITIES

---

---

---

OPERATING PLANS

---

---

---

---

---

---

---

---

<b>ACTIVITIES</b>	<b>YEAR1</b>	<b>YEAR2</b>	<b>YEAR3</b>	<b>YEAR4</b>	<b>YEAR5</b>

**SOURCES OF FURTHER INFORMATION**

---

---

---

**RECORD KEEPING INFORMATION**

---

---

---

**QUIZ ANSWERS**

Lesson One Quiz

1.d 2.T 3.F 4.F 5.F

Lesson Two Quiz

1.T 2.b 3.F 4.d 5.c 6.b 7.F 8.c

Lesson Three Quiz

1.a 2.F 3.F 4.T 5.F 6.F 7.F 8.d 9.T 10.b

**OTHER NOTES**