

# Ecology and management of small tenures: Implications for landscape- and estate-level forest management

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## Abstract

This extension note provides small-scale tenure holders with information about the management challenges they might face and how these challenges could be addressed. The use of exemplary management strategies in a collaborative manner with local stakeholders, adjacent licensees, and others through sound ecological principles combined with appropriate conflict resolution techniques are encouraged so that the many benefits available from forested lands are realized.

**KEYWORDS:** *community forests, conflict resolution, integrated planning, sustainable resource management, woodlots.*

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## Introduction

**H**ealthy ecosystems are essential to the realization and fulfilment of human endeavours, the enjoyment of life and, ultimately, global survival. Forested areas situated close or adjacent to communities have the potential to provide enhanced resource benefits (social, environmental, spiritual, recreational, and aesthetic) to these communities. However, such proximity poses unique challenges to the realization of these benefits; these challenges are best addressed through sensitive management involving close collaboration between the forest tenure holders and the local residents.

A current definition, or objective, of today's resource management is the achievement of sustainable resource management. Sustainable resource management may be defined as: the management of all natural resources in a manner ensuring that no single component of those resources incurs significant impairment, loss, or disturbance over time so they may be used in the combination which best meets the needs of society as a whole.

Canada's National Forest Strategy, 2003–2008, supports this perspective:

*The long-term health of Canada's forest will be maintained and enhanced, for the benefit of all living things, and for the social, cultural, environmental and economic well-being of all Canadians now and in the future. (National Forest Strategy Coalition 2003:3)*

*Small forest tenures* are area-based tenures with an area of 2000 ha or less (Forest Stewardship Council 2005). A *forest estate* is a collection of stands of varying types and ages that is administered as an integrated unit and managed for some continuity or flow of harvest volume (i.e., it is synonymous with the sustained-yield unit that includes Timber Supply Areas, Tree Farm Licences, and Woodlot Licences).

This extension note is one in a series of five that deals with different aspects of small tenures in British Columbia. This note provides small-scale tenure holders with information about the various management challenges they might face, particularly those related to the development of sustainable resource management plans and the resolution of conflicts. Although the focus here is on small- and estate-level tenures, the same principles apply to all forest tenures.

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## The Management Plan

The most essential item required to achieve sustainable resource management (SRM) of a forest tenure is a written management plan. The values of a written plan include enhanced monetary return, reduced chances of making mistakes, and improved resource management. These plans need not be overly long, detailed, or complicated.

The following three essential steps are involved in developing a comprehensive SRM plan for a forest tenure:

1. Conducting a comprehensive resource inventory
2. Defining management objectives
3. Developing (writing) the management plan

### Step 1 – Conducting a Comprehensive Resource Inventory

It is essential to determine what resources are present before embarking on any management activities. Such knowledge ensures that:

- the objectives developed are applicable to, and appropriate for, the overall landscape involved;
- management activities are carried out in an appropriate manner and in a logical sequence;
- the types and levels of resource use and (or) extraction are appropriate for the site; and
- due diligence has been exercised to avoid adverse consequences.

The scope of any resource inventory must relate to the size of the area involved and the value of the resources present. Conducting an inventory may entail a simple walk-through of the property; however, more often it will require a detailed examination.

All resource inventories should include the following:

- A determination of the types of resources to be inventoried and (or) measured (e.g., timber, grasses, forbs, wildlife species, water, etc.).
- A search for Web sites providing various types and levels of resource information (e.g., B.C. Ministry of Environment [MOE], the Identified Wildlife Strategy; B.C. Ministry of Forests and Range [MFR] for timber inventories and forest cover maps; topographic maps, etc.).
- A survey of local knowledge (e.g., naturalist clubs, First Nations, local MOE personnel, sportsmens' groups, guides/trappers, MFR or industry employees).
- A topographic map of appropriate scale (1:10 000 or 1:20 000 is best for field work) and the most recent aerial photographs of the property.
- A walk-through of the property with aerial photos and map in hand.

### **Step 2 – Defining the Management Objectives**

The management objectives should be:

- **Philosophical** – State an intention to manage all resources present for sustainability with a light footprint and with a global perspective.
- **Pragmatic** – Strive to ensure that operations are financially viable. Include a list of the desired outputs (stating appropriate amounts) for all resources and associated values. These outputs will likely include: an Allowable Annual Cut (AAC); aspects of wildlife and associated habitat enhancement or protection; harvest of non-timber forest products; and (or) any areas for preservation. The objectives may require the acquisition of additional resource information involving another form or level of inventory.
- **Time Sensitive** – For example, developing 3 km of roads within 3 years to ensure adequate access for fire protection and timely attention to forest health issues. Defining such time frames helps to organize and prioritize all aspects of development and management, which saves time and money, and reduces mistakes.

### **Step 3 – Developing (Writing) the Management Plan**

The written plan explains how the resources present will be managed to achieve the desired objectives; that is, it explains how to get from Step 1 (determining what resources are present) to Step 2 (achieving the desired outputs/objectives).

#### **Information Notes**

Legal plan requirements (i.e., Objectives Set by Government) pertain to the management of Crown tenures, such as Tree Farm Licences, Community Forest Agreements, or Woodlot Licences. Although fulfilling these legal requirements provides some of the elements necessary to develop an acceptable resource management plan, it may not result in a comprehensive plan. Therefore, tenure holders are strongly encouraged to develop a more comprehensive SRM plan for internal use that fills the gaps left by the legal plans. Preparing this plan also allows the tenure holder to include additional detail relative to specific resource objectives; these plans are also more flexible in their implementation.

In addition, owners of private land classified as “Managed Forest Land” (MFL) must fulfill some legal requirements relative to plan content under a “Management Commitment” (Private Managed Forest Land Council 2006). Those whose land is managed under some form of formal forest certification (e.g., Forest Stewardship Council, Sustainable Forestry Initiative, or the Canadian Standards Association) must also meet stated management plan requirements.

All other land classifications have freedom of content and expression relative to what is included in a SRM plan. Examples of management plan outlines are included in the listed references (Federation of British Columbia Woodlot Associations 1997). These can be easily adapted to best suit one's needs.

Most forest tenure holders retain independent assistance (a resource consultant) to advise them in completing parts or even all components of their plans. The adjacent sidebar (“Contact Information for Small Tenures”) contains contact information for several types of resource consultant.

## Contact Information for Small Tenures

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<b>Foresters</b>	Association of BC Forest Professionals, 1030–1188 West Georgia Street, Vancouver, BC V6E 4A2. TEL: (604) 687-8027; EMAIL: <a href="mailto:info@abcfp.ca">info@abcfp.ca</a> ; URL: <a href="http://www.abcfp.ca">http://www.abcfp.ca</a> Society of Consulting Foresters of British Columbia, PO Box 98, Pender Island, BC V0N 2M0. TEL: (250) 656-8818; EMAIL: <a href="mailto:ExecutiveAssistant@cfbc.bc.ca">ExecutiveAssistant@cfbc.bc.ca</a> or <a href="mailto:info@cfbc.bc.ca">info@cfbc.bc.ca</a> ; URL: <a href="http://www.cfbc.bc.ca">http://www.cfbc.bc.ca</a>
<b>Agrologists</b>	British Columbia Institute of Agrologists, 205–733 Johnson Street, Victoria, BC V8W 3C7. TEL: (250) 380-9292; EMAIL: <a href="mailto:p.ag@bcia.com">p.ag@bcia.com</a> ; URL: <a href="http://www.bcia.com">http://www.bcia.com</a>
<b>Engineers/ Geoscientists</b>	Association of Professional Engineers and Geoscientists of British Columbia, 200–4010 Regent Street, Burnaby, BC V5C 6N2. TEL: (888) 430-8035; URL: <a href="http://www.apeg.bc.ca/">http://www.apeg.bc.ca/</a>
<b>Managed Forest Land</b>	B.C. Assessment Authority, 1537 Hillside Avenue, Victoria, BC V8T 4Y2. TEL: (250) 595-6211; EMAIL: <a href="mailto:info@bcassessment.ca">info@bcassessment.ca</a> ; URL: <a href="http://www.bcassessment.ca/">http://www.bcassessment.ca/</a> Private Forest Landowners Association, 205–1208 Wharf Street, Victoria, BC V8W 3B9. TEL: (250) 381-7565; URL: <a href="http://www.pfla.bc.ca/contact_us">http://www.pfla.bc.ca/contact_us</a> Private Managed Forest Land Council, PO Box 1069, Victoria, BC V8N 6J3. TEL: (250) 386-5737; EMAIL: <a href="mailto:execdirec@pmflc.ca">execdirec@pmflc.ca</a> ; URL: <a href="http://www.pmflc.ca/council.html">http://www.pmflc.ca/council.html</a>
<b>Woodlots and Community Forests</b>	Federation of British Columbia Woodlot Associations, 655 N. Mackenzie Avenue, Williams Lake, BC V2G 1N9. TEL: (250) 398-7646; EMAIL: <a href="mailto:gen_manager@woodlot.bc.ca">gen_manager@woodlot.bc.ca</a> ; URL: <a href="http://www.woodlot.bc.ca/">http://www.woodlot.bc.ca/</a> BC Community Forest Association, PO Box 1227, Kaslo, BC V0G 1M0. TEL: (250) 353-234; EMAIL: <a href="mailto:info@bccfa.ca">info@bccfa.ca</a> ; URL: <a href="http://www.bccfa.ca/">http://www.bccfa.ca/</a> Woodlot Product Development Council, PO Box 10033, Prince George, BC V2K 5Y1. TEL: (888) 925-9995; EMAIL: <a href="mailto:cjmclary@shaw.ca">cjmclary@shaw.ca</a> ; URL: <a href="http://www.woodlot.bc.ca/about-the-wpdc.htm">http://www.woodlot.bc.ca/about-the-wpdc.htm</a> WorkSafeBC. TEL: (888) 621-7233; URL: <a href="http://www.worksafebc.com">http://www.worksafebc.com</a>
<b>Forest Certification Organizations</b>	Forest Stewardship Council (FSC): <a href="http://www.fscanada.org">http://www.fscanada.org</a> Canadian Standards Association (CSA): <a href="http://www.csa.ca/Default.asp">http://www.csa.ca/Default.asp</a> Sustainable Forestry Initiative (SFI): <a href="http://www.sfiprogram.org">http://www.sfiprogram.org</a>

## Management Implications, Issues, and Possible Solutions

The actual process of developing the tenure's SRM plan resolves many issues or conflicts. This process also identifies those issues that may require more information or a different approach.

Outlined below are some of the implications and issues that frequently arise with suggested approaches or solutions for resolution. Many of these issues will pose threats or constraints to the attainment of the stated objectives; diligent effort to resolve them is therefore a worthwhile endeavour. The government provides additional assistance (e.g., Forest Stewardship Plan

[FSP] directives, information/guidance bulletins, Forest Practices Code guidebooks, and various workshops) to help resolve these issues.

### Social Issues and Possible Solutions

Many issues involve disagreements or disputes between two or more parties. It is always more productive to identify, address, and resolve any potential conflicts before operations commence rather than react to them afterwards.

If operations will affect another tenure holder, especially one who holds water rights or is located downstream, good communication and an explanation

of how their values will be respected and protected will help to prevent serious problems. Fear of the unknown and the accompanying apprehension are not always conducive to dispute resolution. Good communications make good neighbours!

Holders of Crown tenures must make referrals to and consult with First Nations Bands. The B.C. Ministry of Forests and Range has developed formal policy procedures and information bulletins to guide a forest tenure holder through this process. If feasible, and if local Bands are willing, a personal meeting with Band representatives is best. The involvement of a local woodlot association, representing a group of licensees, will save time and effort for everyone.

### **Rural/Urban Interface Situations and Possible Solutions**

If the tenure is situated within, adjacent, or even close to a community, several harvesting constraints may be in place. Below are some suggestions to help prevent and overcome opposition in such situations.

#### ***Obtain Managed Forest Land Status***

If the tenure is a private land holding, then obtaining MFL status is a good option. Such status conveys significant tax savings and gives confidence to the public that the land will be managed in a responsible manner. Provincial legislation relative to MFLs also conveys and guarantees the right to conduct harvesting operations. If a municipality passes bylaws in an attempt to restrict harvesting on private MFLs, the MFL legislation will override this.

#### ***Obtain Formal Forest Certification***

Obtaining formal forest certification gives further credibility to the integrity of the owner's management intent and subsequent operations (Forest Stewardship Council 2005).

#### ***Develop Good Relationships with the Community***

Developing good relationships with the community may involve formal open houses and (or) meetings with individuals and various groups including governing councils, citizens' groups, and naturalist clubs. Providing news items for the local paper also helps to keep people properly informed—timely, interesting articles can reduce the development and spread of false rumours.

#### ***Host Field Trips***

Visits to forest tenure lands provide a first-hand opportunity for everyone interested to learn about the many aspects of resource stewardship; it may also garner allies and supporters for a tenure holder's plans and operations. Local woodlands often provide excellent opportunities for group field trips (e.g., scouts, schools, youth groups, etc.). These can significantly enhance local residents' knowledge about the forestry operations.

#### ***Provide Jobs for Local People***

Offering skilled local people work on tenure lands, or providing logs to local sawmills (optimally for value-added products), helps to keep revenues and profits within the community.

#### ***Provide Other Opportunities to Local People***

Recreational opportunities, such as walking, viewing wildlife, harvesting non-timber forest products, harvesting Christmas trees, or cutting firewood for personal use, includes people in the use and enjoyment of local resources.

#### ***Convey and Develop a Feeling of Mutual Respect With All Neighbours***

Working with local people develops a willingness to share in the responsibility of protecting, improving, and managing the myriad array of resource values present on the tenure area. Getting people to pull weeds, seed disturbed areas, construct water bars, clean ditches, burn slash piles, plant trees, gather firewood, or take disabled people for outings, allows them to become meaningfully involved in not only the enjoyment of the area, but also in its management. Instead of adversaries, local people become participants and allies.

#### ***Educate People About the Many Values of Woodlands***

The many values associated with the tenure's woodlands can be conveyed in a series of press releases, developed into pamphlets, or discussed during field tours or educational events. Once people become aware of the inherent values of well-managed woodlands, especially those located adjacent or close by, they will likely become strong supporters.

### *Making and Keeping the Peace*

Diligent use of the above practices will allow forest tenure holders to manage their woodlands with considerable freedom and, hence, with lots of enjoyment.

The following steps will help to address, prevent, and (or) resolve any potential disagreements.

- Identify potential problems and write them down so they are clearly stated.
- Identify any other party(s) that may be involved. Be specific, but all-inclusive—avoid identifying those not directly involved in or affected by the matter. Most often, the fewer people involved, the easier it is to resolve a problem.
- Identify possible solutions including the pros and cons of each. Identify several alternatives to the initial solutions in case they are not feasible or acceptable. Include pertinent timelines, if applicable.
- Exercise “due diligence” and ensure all factors causing or related to the problem are understood. Be knowledgeable about relevant legislation and regulations, and the rights and responsibilities of tenure holders and those of others involved in the matter.
- Ask the advice of a respected, independent, third party who is knowledgeable about the matter in question.
- Meet with the other party(s) to discuss the problem and work diligently to reach an amicable resolution. Be open, honest, and share all available information. Sometimes lengthy and repeated meetings are required to bring about an acceptable solution—problems that have developed over time will likely take a while to resolve.
- Retain an independent facilitator who will work with all parties to reach an amicable resolution.
- Always speak to the problem and be committed to reaching an amicable solution.

If resolution is not possible, the dispute may be settled through a tribunal and binding arbitration. The tribunal should include three people: the first two should be chosen by each disputing party (i.e., one on each side of the issue) and the first two members should choose the third member. The tribunal will resolve the dispute through a majority or a unanimous decision. All disputing parties must agree to the binding nature of this decision. If the tribunal requires remuneration, the costs incurred should be shared among the disputants.

### **Operational Considerations and Recommendations**

The following practices are recommended to ensure that tenure operations run smoothly, promote sound resource stewardship, and ensure ecosystem health and integrity.

#### ***Collaborate with Nearby Operators or Tenure Holders***

Working closely and collaboratively with others not only promotes good relations (and hence prevents conflicts from arising), but also provides significant benefits to everyone involved. Some activities lending themselves to such co-operation include:

- **Fulfilling Referral and Consultation Obligations with First Nations** – Collaborative work in fulfilling these obligations helps to reduce concern by, and potential conflict with, involved native bands. This work also saves the bands considerable time, effort, frustration, and expense in reviewing and commenting on the various plans submitted to them for referral. It also shows respect for their concerns and helps to develop a mutually beneficial working relationship.
- **Road Building and Maintenance** – Close collaboration in such work can facilitate scheduling that suits both parties. Cost savings can be realized by reducing equipment moves and machine rates because of increased work for the contractor.
- **Application of Appropriate Silvicultural Systems** – This is especially applicable to patch and clearcutting systems that may place adjacent stands at risk of windthrow or sunscald. Cutblock sizes, shapes, and orientation can often be modified to minimize adverse effects on neighbouring stands.
- **Reforestation** – Acquisition of suitable trees is often much easier for a small operator if done in conjunction with a larger operator. The acquisition of a suitable tree-planting contractor is also easier if a bigger project is involved.
- **Fire Protection, Patrols, and Broadcast Burning** – Co-ordination and co-operation in all of these activities (e.g., collecting Fire Weather Index information, prescribed burning, and fire-suppression work) will benefit everyone involved.
- **Forest Health Factors** – Co-operation in dealing with forest pests, especially weeds and insects, is essential to their effective management and control. Good opportunities for co-operation are pest

surveys, pheromone baiting, trap tree deployment, salvage operations, and biological weed control.

- **Designation of Areas to Meet Biodiversity Objectives** – Co-operatively locating the “best” areas on the landscape for Old Growth Management Areas, Wildlife Tree Patches, or Ungulate Winter Ranges demonstrates a genuine concern for maintaining, protecting, and enhancing biodiversity and promoting the values pertinent to a healthy ecosystem. It also develops good relations with neighbours as it demonstrates the acceptance of a shared responsibility for the application of sound stewardship principles over the broader land base.

***Retain Coarse Woody Debris Across the Landscape***

Coarse woody debris (CWD) includes any dead wood present in the forest, including standing snags, stumps, and downed wood. It is essential for, and the foundation of, successful ecosystem function and the basis for most biodiversity. It provides:

- a source of nutrients for higher organisms;
- a wide variety of habitats for various vertebrates and invertebrates;
- a source of shade for other plants and animals;
- a source of protection to smaller plants and animals from wind, snow, other climatic extremes, and other larger animals (i.e., it provides obstacles to ensure seedling survival); and
- a valuable input to riparian areas as it helps stabilize watercourses, reduces erosion, creates pools and riffles, and serves as an energy source to the water system.

One of the best ways to develop and manage for CWD is by processing (limb and top) trees in the bush. Ninety percent of the nutrients present in trees are contained in the branches and top. Processing trees in the bush retains these nutrients in place where they are recycled and improves the overall productivity of the forest. It also reduces the need for huge landings and eliminates the burning of large debris piles with the associated risks of escape and air pollution.

***Conduct Harvesting Operations During Winter***

Winter harvesting operations provide excellent forage for ungulates, especially if trees are processed in the bush. Lichens and fresh, top-of-the-tree foliage provide essential, high-energy food when these items are most needed and most difficult to obtain. Because the ground is snow-covered or frozen, this practice also significantly reduces ground disturbance.

***Work to Develop Mixed Species Stands***

Mixed-species stands enhance biodiversity, promote complexity, improve site productivity, and significantly reduce the risk of catastrophic loss due to forest pests such as the mountain pine beetle. Mixed-species stands are developed by:

- Using a retention silvicultural system; target, as appropriate, the dominant species for removal and favour the minor acceptable species for retention.
- Using harvesting systems that generate the most favourable conditions for mixed species stands (e.g., those that create ground disturbance or openings suitable for regenerating shade-intolerant species).
- Planting a variety of suitable species when reforesting areas.
- Targeting the poorest trees and dominant species for removal while spacing and retaining the healthiest trees and minor acceptable species.
- Retaining most hardwoods, unless serious competition is evident. Hardwoods provide excellent habitat, add to site and stand complexity, and enrich the site (e.g., alder).

***Mimic Natural Disturbances***

British Columbia’s natural forests and ecosystems are for the most part healthy (except in areas affected by the mountain pine beetle infestation), and are in a very desirable state or condition. This natural state or condition is a desirable objective for management; that is: “. . . the more managed forests resemble natural forests, the more likely it is that all native species and ecological processes will be maintained” (Fenger 1996). Therefore, in most cases, management activities should attempt to mimic natural processes.

***Reforest Areas Immediately Following Stand Removal***

Reforesting immediately after harvesting ensures that site productivity and AAC harvest levels are maintained. It also minimizes the areas that are not satisfactorily restocked and significantly reduces the need for intensive seedling protection (e.g., brushing and weeding), which may involve the use of chemicals.

***Employ the Total Chance Plan Concept When Developing an Area***

Total chance (or resource) planning (B.C. Ministry of Forests 1993) considers all resource values and their long-term development in a manner that ensures the application of the most efficient and best stewardship ethic to the landscape, be it small scale or estate scale.

### Working Safely

Developing and maintaining safe work areas and conducting safe work procedures are the responsibility of all parties involved in tenure operations, including the small-scale tenure holders. WorkSafeBC is responsible for developing and enforcing the province's Occupational Health and Safety regulations. This organization also develops and offers several training manuals and courses to assist people, organizations, contractors, business owners and operators to work in a safe, diligent manner.

All forest tenure holders should familiarize themselves with the WorkSafeBC rules, regulations, licensing requirements, and certification procedures applicable to their operations. WorkSafeBC's well-qualified personnel will assist tenure holders in obtaining the required information, in developing a suitable safety program for their operations, and in reviewing their tenure area and operations. They also provide guidance to ensure that all WorkSafeBC objectives will be met. See sidebar ("Contact Information for Small Tenures") for WorkSafeBC contact information.

### Summary

Developing a worthwhile sustainable resource management plan for a small forest tenure is a task well worth the effort with the realization of dividends (personal, professional, emotional, financial, social, and ecological) almost guaranteed. Following the processes outlined above will help make this undertaking both enjoyable and successful.

Holders of small tenures are encouraged to consult the references cited to guide and support the management activities on their land and to help them achieve their objectives for the many resources present on it. No one should hesitate to ask people in the local community for their advice, expertise, viewpoints, and help in conducting the tenure's operations. If the information or the skills needed are unique or specialized, then tenure holders should contact an expert for assistance.

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## Test Your Knowledge . . .

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### *Ecology and management of small tenures: Implications for landscape- and estate-level forest management*

How well can you recall some of the main messages in the preceding Extension Note?  
Test your knowledge by answering the following questions. Answers are at the bottom of the page.

1. What are the three essential parts to a Sustainable Resource Management Plan?
  - A) Knowledge, expertise, and diligence of and by the tenure holder
  - B) A list of the wildlife species present on the area, a resource inventory, and relevant maps of the area
  - C) A resource inventory, management objectives, and the written plan
  - D) All of the above
2. List three ways biodiversity can be achieved on a forested tenure.
3. List three ways potential conflicts with “neighbours” might be prevented or resolved.

### ANSWERS

1. c  
1. By planting mixed species when reforesting an area; by developing and preserving Wildlife Tree Patches, Old Growth Management Areas or other reserve areas throughout one's tenure; and by reserving all hardwoods from harvesting.  
2. By holding open houses with your proposed operational plans on display; by hosting field trips and educational sessions for nearby residents; by providing opportunities for the local people to use and become involved in your tenure area.