LEARNING PROJECT ON FOREST MANAGEMENT IN RELATION TO THE SIMULTANEOUS DEVELOPMENT OF WILDLIFE, RECREATIONAL TOURISM AND TIMBER RESOURCES

THE LE BOURDON TOOLBOX

Prepared for:

LE BOURDON
Collectivité forestière des Hautes-Laurentides

By:

BPH environnement

January 2009

WORK TEAM

Design and Realization:

Hugues Lapierre, Registered Professional Forester, M.Sc.
Bruno-Pierre Harvey, Biologist

Management and Administration:

Raymond Barette, Head of the Le Bourdon Project
Association des intervenants forestiers des Hautes-Laurentides (AHL)

The information contained in this document was obtained in part thanks to funding provided by Natural Resources Canada under the Canadian Forest Service's *Forest Communities Program*.

This project was also completed thanks to funding received from the Issue Table on Public Land Forest in the Upper Laurentians under the Regional Partnership Program funded by the Quebec Ministère des Ressources naturelles et de la Faune [Ministry of Natural Resources and Wildlife].

LE BOURDON
Collectivité forestière des Hautes-Laurentides

Reference to be quoted:

Lapierre, H. and B.-P. Harvey. 2008. La boîte à outils du Bourdon. Prepared by BPHenvironnement pour l'Association des intervenants forestiers des Hautes-Laurentides. Quebec. 44 p. + 6 attachments + 2 CDs.

TABLE OF CONTENTS

1. BACKGROUND

This report was prepared for the *Le Bourdon* project. That project is one of eleven Forest Communities Program sites that are sponsored by the Canadian Forest Service and Natural Resources Canada. The principal player in the *Le Bourdon* project is the Association des intervenants forestiers des Hautes-Laurentides (the A.H.L.). The A.H.L. is a not-for-profit organization that was legally established in 1985. It brings together eleven companies working in the forest sector, on a volunteer basis, that are involved in forest planning, forest management activities and the production of seedlings, and that get their supply from the public land forest in the Upper Laurentians.

The official name of the *Le Bourdon* [the bumblebee] project was inspired by the attitude that the project's partners took when faced with the extent of the forest crisis they have to deal with. The bumblebee, according to scientific calculations and data, cannot fly, due to its weight. But the bumblebee does not know that, and it flies anyway. So just like that insect, A.H.L. decided to fight in order to build in a hostile environment.

The territory covered by the project is Forest Management Unit (FMA) 064-51. This covers an area of 10,680 km² and corresponds to close to 68% of the territory of the Regional County Municipality (RCM) of Antoine-Labelle, officially designated as one of the three resource RCMs in Quebec. In addition to the Canadian Forest Service, eighteen organizations, ministries and departments are involved in the organization and management of this project. These organizations work in the field of the development and use of natural resources, research, professional training, economic development, territory and resource management, as well as in the cooperative sector.

The partners in the *Le Bourdon* project have various objectives, which they would like to achieve by the year 2012. These objectives are as follows:

- Optimize the production capacity of the territory within the context of sustainable forest management (SFM), while respecting biodiversity at the landscape level;
- Increase the economic effects in relation to the forest and recreational tourism sectors;

- Make the necessary tools available to the project's partners and to the forest communities of the RCM of Antoine-Labelle to allow them to be able to respond to the issues and possibilities related to the forestry sector;
- Participate actively in national and international networks for exchange on sustainable forest management and the development of communities.

To achieve these objectives, they have adopted a new approach for the development of their territory by relying on a "win – win" solution and by promoting the development of economic activities based on the riches of the natural environment in order to create and maintain social prosperity. This model of development sets out a strategic and logical method for achieving sustainable development that will make it possible to create the necessary synergy between the different players, thanks to the development of a truly shared language.

In order to be able to complete this work within the set deadlines, the partners of the Le Bourdon project have developed a Strategic Plan for themselves that is focused on five main areas of activity, one of which is the following:

> **"The development of the Integrated Strategic Plan for the Sustainable Development of Resources and of the Territory (ISPSD), which specifically integrates the objectives of those managers of the territory who have reached a consensus, and which makes it possible to guarantee both the continuation of supply for forest industries and the preservation of the characteristics of the habitats and sites that are necessary for the recreational tourism sector."**

In their reflections on the means to be provided for the development of a sustainable forest management strategy of this type, the participants in the *Le Bourdon* project have identified certain sub-objectives which should be addressed prior to the development of the strategy.

One of these sub-objectives is the following:

- Identify, out of the methods, tools, criteria and indicators that have been developed in Quebec, in neighbouring provinces or in the Northeastern United States, those elements that are relevant to the types of forest in Forest Management Unit 064-51 that could be used as references in order to:
  - Develop sustainable forest management strategies that respect biodiversity, in light of the needs of users and of the different territorial levels that those needs involve;
  - Develop strategic, tactical and operational plans within the framework of the integrated management of forest, wildlife and recreational tourism resources, with a view towards sustainable development and ongoing improvement;
  - Facilitate exchanges between the recipients of timber supply and forest management agreements and the land managers concerning wildlife habitats.

This is the context in which BPHenvironnement was asked to produce this document and in particular to carry out the following mission, depending on the needs of the associations that represent land managers:

1. Identify the methods, tools, criteria or indicators that could meet the objectives described above;

2. Identify the methods, tools, criteria or indicators that are the most relevant for FMA 064-51;

3. Determine the scale on which the planning of these methods, tools, criteria or indicators could be applied (strategic, tactical or operational);

You will therefore find the results of this work in the pages of this report and in the accompanying CD.

2. METHODOLOGY

2.1 Steps Used for the Identification of Problems, Issues or Concerns (PICs)

The very first step of this task consisted of putting what the land managers[1] considered to be the important targets to be considered into proper perspective. In fact, the search for solutions that would make it possible to organize truly integrated management of the forestry sector resources in an area such as the territory covered by the *Le Bourdon* project would have been futile if those targets had not been acknowledged as being important by the main parties involved. To do this, a number of people at the A.H.L. decided to provide their lists of the concerns, issues, conflict situations, etc. that they considered to be items that warrant consideration. The three terms used to describe these items, and which have given rise to the acronym PICs, are the following:

- **P**roblem: situation resulting from some deviation in relation to another situation which would be the desired situation;
- **I**ssues: situations concerning which there is some debate or controversy, and which are assessed in various ways;
- **C**oncern: potential situation or opportunity that has not yet been officially recognized as such.

This exercise of identifying the PICs was achieved by means of meetings and telephone interviews with the people involved, which was an opportunity to inform those people about the work that they would need to do and/or specify the PICs raised by them.

These different lists of PICs were then re-worked (some PICs were re-drafted and then shown to their authors again), refined and then combined together to make a single list for the *Le Bourdon* project. Once that list was compiled, each of the PICs was associated with a planning level and a major PIC theme. The planning levels considered were the following: strategic, tactical and operational, These planning levels correspond

[1] Manager: Person or organization that **administers** the affairs of a community or individual.

to the level of forest planning normally used in Quebec, which are a general plan (based on a 25-year vision), a five-year plan and a yearly plan (actions planned for the coming year).

The “strategic” PICs associated with the general plan therefore have an affect on the process of calculating the allowable cut (example, the reduction in allowable cut surface area). However, the specific location of the items involved is not necessarily known. The “tactical” PICs, associated with the five-year plan, do not have any direct influence on the allowable cut. However, at this level the location of the operations is known. Finally, the “operational” PICs, associated with the yearly plan, imply specific action in the field (for example, leaving fruit trees during precommercial thinning). All of the PICs can be quite easily associated with objective-based management. Finally, some PICs can be related to more than one level of planning, depending on their nature or the means used to respond to them.

The second stage of this work was to divide the accepted PICs into six main groups. The objective of this stage was to summarize the PICs in terms of grouped-together themes in order to facilitate an understanding and the presentation of the results to come. The main themes chosen were the following:

- Production of timber;
- Sustainable development and conservation of wildlife resources;
- Maintaining forest biodiversity;
- Development of recreational tourism resources;
- Effective and efficient management of the forest road network;
- General-type PICs.

The final stage of this part of the work was to have this list of PICs by theme approved by the members of A.H.L.’s committee as comprising important factors to be addressed in the search for solutions. The final list presented in this report is the result of that setting of priorities. It should be noted that this list is still a working tool, which will develop over time.

2.2 Steps Used for the Identification of MTCIs (Methods, Tools, Criteria and Indicators)

In the search for solutions to the PICs, an approach was found for presenting solutions in such a way as to make a better use of their potential. That approach consisted of classifying the solutions based on four categories. That is how the acronym **MTCI** [2] was developed:

- **M**ethod: Approach or way of proceeding that makes it possible to achieve an objective;
- **T**ool: Mechanical or computer-based instrument that makes it possible to complete a task;
- **C**riteria: Element used to determine the nature or size of things or the effects of factors that modify a situation;
- **I**ndicator: A significant and measurable parameter used to evaluate the results obtained, the use of resources, the current state of work or the context.

2.2.1 Sources Consulted

A number of sources of information were consulted in the search for the most relevant solutions to the PICs. The first sources were the libraries of BPHenvironnement and of the Quebec Outfitters Federation. Over the years these two organizations have built up extensive libraries (digital and printed format), and these libraries were therefore the starting point for the bibliographic review. The second important source that was consulted was the sites of organizations accessible on the Internet. The list of the main sites consulted is provided below. This list is not exhaustive, but it does include the sites that have had the most influence on the identification of MTCIs.

[2] The definitions provided below are adapted from the Office de la langue française's Internet site, 'Le grand dictionnaire terminologique'.

Organization	Address of Website
Quebec Ministère des Ressources naturelles et de la Faune	www.mrnf.gouv.qc.ca/forets/index.jsp
Industrial Chair in Sustainable Forest Management	http://web2.uqat.ca/cafd/accueil_e.htm
Mauricie TRIAD Project	www.projettriade.ca/
IQAFF	www.iqaff.qc.ca/
Centre for Forest Research (CFR)	www.cef-cfr.ca/index.php?n=CEF.Accueil
Centre d'expérimentation et de développement en forêt boréale [Northern forest centre for experimentation and development]	www.cedfob.qc.ca/pages_htm/rapports/rapports.htm
Ontario Ministry of Natural Resources	http://www.mnr.gov.on.ca/en/index.html
Eastern Ontario Model Forest	http://sof.eomf.on.ca/index_e.htm
British Columbia Ministry of Forests and Range – Publications	www.for.gov.bc.ca/hfp/meta/publications.htm#028
Canadian Model Forest Network	http://www.modelforest.net/cmfn/en/
Sustainable Forest Management Network	www.sfmnetwork.ca
FERIC	http://www.feric.ca/en/?OBJECTID=13F9E580-E081-222F-A4BEC5B295C890FE
Canadian Forest Service	www.nrcan-rncan.gc.ca
Environment Canada Publications	http://www.ec.gc.ca/default.asp?lang=En&n=ABE0AD52-1http://www.qc.ec.gc.ca/faune/faune/html/publications-informationf.html
Canadian Wildlife Service	http://www.qc.ec.gc.ca/faune/faune/html/contents.html
USDA Forest service	www.fs.fed.us/

2.2.2 Persons Consulted

A relatively large number of researchers and other people involved in integrated resource management projects were consulted during this work. The following is the list of those people, and the organizations to which they belong.

Person	**Organization for Which He or She Works**
Jean Girard	Quebec Bureau du forestier en chef [Chief Forester's Office]
Véronique Desmarais	Forest landscape management consultant
Natacha Lamarche	Coopérative forestière des Hautes-Laurentides [Upper Laurentian Forest Cooperative]
Étienne Lemieux	Quebec Outfitters Federation
Jonathan Leblond	Quebec Outfitters Federation
François Laliberté	Groupe Optivert
Catherine Périé	Quebec Ministère des Ressources naturelles et de la Faune
François Guillemette	Quebec Ministère des Ressources naturelles et de la Faune
Josée Paquet	Quebec Ministère des Ressources naturelles et de la Faune
Louis Ménard	Quebec Ministère des Ressources naturelles et de la Faune
Marcel Prévost	Quebec Ministère des Ressources naturelles et de la Faune
Mathieu Fortin	Quebec Ministère des Ressources naturelles et de la Faune
Michel Hénaud	Quebec Ministère des Ressources naturelles et de la Faune
Patricia Raymond	Quebec Ministère des Ressources naturelles et de la Faune
Paul-Émile Lafleur	Quebec Ministère des Ressources naturelles et de la Faune
Steve Bédard	Quebec Ministère des Ressources naturelles et de la Faune
Vincent Roy	Quebec Ministère des Ressources naturelles et de la Faune
Nadyr Beaulieu	Mauricie TRIAD Project
Miguel Hatin	Régionale des ZECs des Laurentides [Regional Association of Laurentian ZECs]
François Lapalme	Scierie Claude Forget
Marie-Ève Desmarais	Société des établissements de plein air du Québec
Louis Bélanger	Université LAVAL
Luc Bouthillier	Université LAVAL
Luc Lebel	Université LAVAL

3. PRESENTATION OF PICS THAT HAVE BEEN REVEALED

3.1 PICs

This section provides the complete list of the **PICs that have been revealed** during this work. There are 107 of them, and they have become targets for which solutions had to be found. They are presented here, according to main theme. Their "ID" numbers are a unique identification number given to each of them, and make it possible to find them easily in the database that accompanies this report.

Production of Timber

ID	Problem, Issue or Concern Identified
1	Preserve the main attributes of natural landscapes through the implementation of a spatial sharing template for ecologically sound and socially acceptable cuts.
2	Permanently preserve a proportion of ripe and old tree stands and a forest composition that is determined in terms of the regional ecology.
3	Avoid modification of the forest composition and simplification of the structure of tree stands following the uniform application of certain treatments.
4	Avoid the depletion of Eastern white pine, red pine, white cedar and red spruce stocks.
5	Limit the spread of beeches into maple groves.
6	Maintain the presence of companion species of the maple (linden, ash, oak, walnut, black cherry, hemlock, hickory).
7	Preserve investments in PINE plantations.
8	Integrate risk management into forest management.
9	Move towards objective-based management and development of the notion of making forest professionals responsible for their actions.
10	Establish a scale of analysis that responds to the needs of producing the management plan and that makes it possible to take into account the expectations of people and organizations involved in the territory.
11	Develop technical maturity at each station that is applicable to all the planning stages.
12	From the strategic point of view, apply the proper treatment at the right place, at the right time.
13	Limit losses of volume related to senescence.
14	Limit the lost of harvestable volumes related to companion species.

15	Determine the harvest volume at varying levels per five-year period by ensuring that the actual harvest level is kept to a minimum.
16	Intensify the management of certain areas with a low level of regeneration.
17	Develop treatments that will allow the future synchronizing of interventions.
18	Maintain or improve the quality of ligneous matter.
19	Establish the relationship between the cost of supply and the harvestable volume.
20	Maintain a volume harvested/km over time of used roads that is economically viable.
21	Minimize the losses of ligneous matter cue to epidemics of spruce budworm and other insects.
22	Minimize the losses of ligneous matter due to forest fires.
23	The dispersal of worksites across the territory increases the costs of planning them and setting them up.
24	Minimize the losses of ligneous matter due to harvesting activities.
25	Minimize the losses of productive forest surface area.
26	Minimize the impact of forest activities on water quality.
27	Take the synchronization of interventions and the target of m3/km into account when making regulations.
28	Develop a management framework based on the critical elements that are specific to the territory and on the strategy developed by the *Le Bourdon* project.
29	Reduce the costs of supplying wood transformation plants that get their supplies within the territory.
30	Improve the future value of degraded stands (DLC from before 1990).
31	Deliver the correct wood to the correct plant.
32	Develop new uses for under-used volumes.
33	Improve the quality and volume of harvested logs (current).
91	Reconcile the value of current harvests with the value of future stands.
92	Optimize the forest – plant chain by maximizing the revenue from the different species and products generated by means of forest intervention and wood transformation activities.
93	Reduce the number of harvesting areas.
94	Reduce plantations that are 25 – 30 years old by thinning.
95	Reduce the age of maturity of fir trees.
96	Encourage forest sector companies, in public land or private land forests, to obtain certification.

Sustainable Development and Conservation of Wildlife Resources

ID	Problem, Issue or Concern Identified
34	Set up management strategies that make it possible to achieve increased performance in terms of habitat for moose, black bear, small game and game fish (brook trout, wall-eyed pike, pike, etc.) in structured wildlife territories.
35	Preserve structural elements and snags in managed forests.
36	Promote the preservation of standing trees that preserve wildlife during partial cuttings.
37	Carry out precommercial thinning by applying methods that include wildlife values.
38	Achieve increased yield in terms of habitat within hunting areas.
39	Balance the amount of browse available, shelters and coverts within moose hunting areas.
40	The disturbance of catchments could have repercussions on the biological components and hydrological properties of the whole catchment area.
41	There are a number of non-localized spawning grounds in the territory.
42	Reach an agreement on a method for the planning, construction, improvement and maintenance of roads and water crossing structures that will minimize the dumping of fine sediment into spawning areas for brook trout and wall-eyed pike.
43	Protect the habitat of endangered or vulnerable species in the forest environment.
97	Encourage people working in the wildlife and recreational tourism sectors to protect the shoreline.
99	Reduction of the degradation and erosion of riverbanks.
100	Promote asymmetrical forest mosaics with wooded travel corridors to link up the remaining forest.
101	Conserve at least 50% of forest that is more than 30 years old in 10 km^2 sections.
102	Limit the surface area of precommercial thinning (at any one time) to a maximum of 40 ha.
103	Harvesting of remaining forest adjacent to a cutting area should be carried out after regeneration has reached 7 metres high.
104	Protect islands of conifers between 5 and 25 ha in size, in particular during partial cutting in hardwood forest.

Maintaining Forest Biodiversity

ID	Problem, Issue or Concern Identified
44	Identification of forests with high conservation value, as defined by the FSC.
45	Bogs, fens, marshes and swamps are important habitats, and their borders should be kept intact as much as possible in order to maintain their functions and characteristics.
46	Maintaining a proportion of interior forest in ZEC areas (forest located more than 200 metres away from openings due to anthropogenous factors).
47	Apply the precaution principle or delay intervention in the case of insufficient or no information.
48	Evaluate the state of habitats and, in an indirect manner, of the “biodiversity” resource across each of the structured wildlife lands.
49	Conserve the plant diversity across the structured wildlife lands through sylviculture based on natural disruptions.
73	Roads have various types of impact on the habitat: fragmentation, increase of the border effect (and therefore of predation), loss of habitats, etc. Having too many roads in a given territory therefore increases the risk of a loss of biological diversity.
105	Avoid and reduce the surface area of single-species planting.

Development of Recreational Tourism Resources

ID	Problem, Issue or Concern Identified
50	Maintain the aspect surveillance of cottages, main water areas (high-use or individual lakes), sensitive sites, roads and paths in a condition deemed acceptable by their users, at all times.
51	Maintain agreeable landscapes that have a natural appearance to the clientele coming to outfitters by seaplane and minimize the view of roads.
52	Proceed systematically with analyses of landscapes and landscape simulations at the stage of planning harvesting activities in areas classified as sensitive landscapes.
53	The methods for protecting the landscape do not make it possible to use an approach based on new types of housing in the ZECs.
54	Avoid the presence of slash, snag and residual trees along visually sensitive corridors.
55	Protection of the visual quality of crest lines.
56	Vary the size and shape of harvest blocks.
57	Ensure that forest management does not prevent the implementation of plans for development of outfitters.
58	Improve the cartography and include planned development sites in strategic cartography in order to be able to ensure the protection of future development sites.

59	Lack of knowledge concerning the precise location of retirement communities in the territory.
60	Updating of the list of infrastructures in the ZECs that are recognized by the Quebec MRNF.
61	Ensure an adequate spatial division of harvest areas in order to not have a negative impact, beyond a minimum threshold, on the experience of vacationing in an outfitter area.
62	Change the times of forest management activities in order to limit disturbances to other users.
63	Keep other users of the territory informed about the harvesting and management operations that are being planned over the next few years.
64	Taking assignments, uses and methods of active management in the territory into account.
65	Promote the harmonization of forest use by entering into written agreements that are part of the general forest management plan.
66	Preserve the inaccessibility by land to outfitters that are only accessible by seaplane.
67	Paths for all terrain vehicles and snowmobiles on public forest roads constitute a serious problem of harmonization of use.
68	Maintain a structure for management of the territory that provides the possibility of including specific demands raised by outfitters.
69	Retirees would like to be informed about harvesting and forest management activities on an annual, rather than a five-year, basis.
70	Maintain an environment that is favourable to vacations and relaxation for outfitters' clients, at all times.

Effective and Efficient Management of the Forest Road Network

ID	Problem, Issue or Concern Identified
71	Establish a plan for the development of the road network, giving priority to roads of a permanent type (main roads and other roads).
72	Set up procedures for the planning, construction and maintaining of roads and water crossing structures that minimize the dumping of fine sediment into identified brook trout spawning grounds.
74	The management of road closures.
75	Validation of and entering into an agreement with outfitters and ZECs with regard to the planning and development of the road network within or near those areas.
76	Avoid the construction or improvement of roads that are more than 80 m close to an infrastructure.

77	The reopening of old roads (improvement and repair) as part of annual plans will encourage the other people and organizations to share their expectations and problems concerning management.
78	Raise awareness among truck drivers about respect for and the safety of passenger vehicles.
79	Increase the safety of the various groups of users of the main road network.
80	Identification of who is responsible for management of the culverts throughout the road network, which will be identified as high-priority for maintenance.
81	Monitor the maintenance and improvement of water crossing structure infrastructures using the culvert software program developed by the Régionale des ZECs des Laurentides.
82	Determine the current state of the main road network, and in particular of the culverts.
83	Set up a mechanism to ensure effective management of the effects of the presence of beaver on the road network (prevention and emergencies).
84	The repair of the road network following forest activities in the area involved.
85	The *Regulation Respecting Standards of Forest Management for Forests in the Public Domain* does not make it possible to carry out adequate preventative maintenance of the culverts.
86	Reduce the impact of windrows, trimming areas and ligneous debris.
98	Restore water crossing structures that cause erosion in the forest environment.

General PICs

ID	Problem, Issue or Concern Identified
87	The equitable sharing of the costs related to the harmonization of the multiple uses of resources in the forest environment.
88	Importance of ensuring that all the people and organizations involved have the same information and share the same vocabulary.
89	Maintain enough latitude within the IFMP production process to make it possible to take issues that may arise on an operational level into account.
90	Integration of the knowledge of Native Peoples.
106	Maintain and improve the current agreements and the consultation process.
107	Make all ITs responsible during agreements on harmonization.

3.2 PICs with No Associated MTCI

Despite the efforts made during this mandate, it has not been possible to identify specific solutions for all of the PICs. Thus, out of the 107 PICs examined, 64 (60%) have not been associated with any specific method, tool, criteria or indicator. For certain PICs,

this result is the reflection of the time and resources that have been given to this task, the sources of information that were consulted or the current state of our knowledge in general. In the case of other PICs, they were more specific than the solutions that are currently available. In both cases, the following table presents, by PIC theme, those PICs to which additional efforts for finding solutions should be directed in the future.

Production of Ligneous Materials

ID	Problem, Issue or Concern Identified
5	Limit the spread of beeches into maple groves.
7	Preserve investments in PINE plantations.
8	Integrate risk management into forest management.
11	Develop technical maturity at each station that is applicable to all the planning stages.
13	Limit losses of volume related to senescence.
14	Limit the lost of harvestable volumes related to companion species.
15	Determine the harvest volume at varying levels per five-year period by ensuring that the actual harvest level is kept to a minimum.
16	Intensify the management of certain areas with a low level of regeneration.
17	Develop treatments that will allow the future synchronizing of interventions.
18	Maintain or improve the quality of ligneous matter.
20	Maintain a volume harvested/km over time of used roads that is economically viable.
21	Minimize the losses of ligneous matter due to epidemics of spruce budworm and other insects.
22	Minimize the losses of ligneous matter due to forest fires.
26	Minimize the impact of forest activities on water quality.
27	Take the synchronization of interventions and the target of m3/km into account when making regulations.
29	Reduce the costs of supplying wood transformation plants that get their supplies within the territory.
30	Improve the future value of degraded stands (DLC from before 1990).
31	Deliver the correct wood to the correct plant.
32	Develop new uses for under-used volumes.
91	Reconcile the value of current harvests with the value of future stands.
92	Optimize the forest – plant chain by maximizing the revenue from the different species and products generated by means of forest intervention and wood transformation activities.
93	Reduce the number of harvesting areas.

94	Reduce plantations that are 25 – 30 years old by thinning.
95	Reduce the age of maturity of fir trees.
96	Encourage forest sector companies, in public land or private land forests, to obtain certification.

Sustainable Development and Conservation of Wildlife Resources

ID	Problem, Issue or Concern Identified
36	Promote the preservation of standing trees that preserve wildlife during partial cuttings.
43	Protect the habitat of endangered or vulnerable species in the forest environment.
97	Encourage people working in the wildlife and recreational tourism sectors to protect the shoreline.
99	Reduction of the degradation and erosion of riverbanks.
100	Promote asymmetrical forest mosaics with wooded travel corridors to link up the remaining forest.
101	Conserve at least 50% of forest that is more than 30 years old in 10 km^2 sections.
102	Limit the surface area of precommercial thinning (at any one time) to a maximum of 40 ha.
103	Harvesting of remaining forest adjacent to a cutting area should be carried out after regeneration has reached 7 metres high.
104	Protect islands of conifers between 5 and 25 ha in size, in particular during partial cutting in hardwood forest.

Maintaining Forest Biodiversity

ID	Problem, Issue or Concern Identified
46	Maintaining a proportion of interior forest in ZEC areas (forest located more than 200 metres away from openings due to anthropogenous factors).
47	Apply the precaution principle or delay intervention in the case of insufficient or no information.
73	Roads have a number of impacts on the habitat: fragmentation, increase of the border effect (and therefore of predation), loss of habitats, etc. Too many roads in a given territory therefore increases the risk of a loss of biological diversity.
105	Avoid and reduce the surface area of single-species planting.

Development of Recreational Tourism Resources

ID	Problem, Issue or Concern Identified
51	Maintain agreeable landscapes that have a natural appearance to the clientele coming to outfitters by seaplane and minimize the view of roads.
53	The methods for protecting the landscape do not make it possible to use an approach based on new types of housing in the ZECs.
57	Ensure that forest management does not prevent the implementation of plans for development of outfitters.
58	Improve the cartography and include planned development sites in strategic cartography in order to be able to ensure the protection of future development sites.
59	Lack of knowledge concerning the precise location of retirement communities in the territory.
60	Updating of the list of infrastructures in the ZECs that are recognized by the Quebec MRNF.
61	Ensure an adequate spatial division of harvest areas in order to not have a negative impact, beyond a minimum threshold, on the experience of vacationing in an outfitter area.
63	Keep other users of the territory informed about the harvesting and management operations that are being planned over the next few years.
65	Promote the harmonization of forest use by entering into written agreements that are part of the general forest management plan.
66	Preserve the inaccessibility by land to outfitters that are only accessible by seaplane.
67	Paths for all terrain vehicles and snowmobiles on public forest roads constitute a serious problem of harmonization of use.
68	Maintain a structure for management of the territory that provides the possibility of including specific demands raised by outfitters.
69	Retirees would like to be informed about harvesting and forest management activities on an annual, rather than a five-year, basis.
70	Maintain an environment that is favourable to vacations and relaxation for outfitters' clients, at all times.

Effective and Efficient Management of the Forest Road Network

ID	Problem, Issue or Concern Identified
76	Avoid the construction or improvement of road that are more than 80 m close to an infrastructure.
77	The reopening of old roads (improvement and repair) as part of annual plans will encourage the other people and organizations to share their expectations and problems concerning management.

78	Raise awareness among truck drivers about respect for and the safety of passenger vehicles.
83	Set up a mechanism to ensure effective management of the effects of the presence of beaver on the road network (prevention and emergencies).
84	The repair of the road network following forest activities in the area involved.
85	The *Regulation Respecting Standards of Forest Management for Forests in the Public Domain* does not make it possible to carry out adequate preventative maintenance of the culverts.
86	Reduce the impact of windrows, trimming areas and ligneous debris.

General PICs

ID	Problem, Issue or Concern Identified
87	The equitable sharing of the costs related to the harmonization of the multiple uses of resources in the forest environment.
88	Importance of ensuring that all the people and organizations involved have the same information and share the same vocabulary.
89	Maintain enough latitude within the IFMP production process to make it possible to take issues that may arise on an operational level into account.
106	Maintain and improve the current agreements and the consultation process.
107	Make all ITs responsible during agreements on harmonization.

4. THE MTCIS (METHOD, TOOL, CRITERIA AND INDICATOR)

4.1 General Presentation

The approach suggested for integrating and presenting the identified solutions (MTCIs) in an effective manner was to create a database in an Excel document. That database is included in the accompanying CD. It also contains all of the references that were identified and used in this project. This database therefore presents all of the identified MTCIs, broken down by PIC theme. Each of the MTCIs in the database is presented in the following way:

Fields	***Description***
No. of PIC	Sequential number given to each PIC
Level at which PIC is placed	Strategic (1), tactical (2) or operational (3). Each of the PICs is categorized based on the level of planning at which it should be placed. Certain PICs may however have more than one level at which they are placed.
Name of PIC	Description of PICs involved.
"ID" of MTCI	A separate number given to each MTCI that allows the reader to find it in the accompanying CD or associated reference materials.
Level at which MTCI is placed	Strategic, tactical or operational. Each of the MTCIs is categorized based on the level of planning for which it is applicable. Certain MTCIs may however be applied to more than one level at which they are placed.
Name of MTCI	Name or brief description of the MTCI.
Type of MTCI	In order to facilitate the use of this database, each of the MTCIs is distinguished based on which of the following categories it belongs to: a **M**ethod, a **T**ool, a **C**riteria or an **I**ndicator.
Description	Each of the MTCIs is described succinctly, but with enough detail to allow the reader to understand its meaning.

In total, some **115 references** have been used in this work because of their relevance. They are provided on the accompanying CD. They represent almost all the MTCIs that have come to light. This database may be searched in a number of ways. In fact, each of the fields in the Excel document has filters. Among other things, they make it possible to search the tools that deal with a particular PIC, for example according to PIC theme, or according to all the methods that influence the projection of possibilities.

Another way of using the information contained in the database and the references on the accompanying CD is to use the "***Copernic Desktop Search***" application. This application makes it possible to do searches in a large number of document formats, including the PDF documents that are included on the accompanying CD. In order to do this, it is necessary to copy the contents of the CD, including all the references contained in the accompanying CD, onto your computer's hard drive. You then simply have to tell the application where the references are located, follow the instructions and then type in your key words. Copernic will find all the references that deal with the subject being searched. You can download "Copernic Desktop Search" from the following address: http://www.copernic.com/en/products/desktop-search/home/

4.2 Important List of Criteria and Indicators Developed in Quebec and Elsewhere in Canada

While working on finding solutions for the PICs, it was possible to consult some works (or reference materials) that were quite interesting. However, it was difficult to associate them with one or more specific PICs. That was particularly the case with documents dealing with sustainable development criteria and/or indicators that have been developed in the past few years. Therefore, those that are particularly useful for the *Le Bourdon* project have been dealt with differently. They therefore appear in a separate part of the CD, under the heading **Sustainable Development Criteria and Indicators**. These references are the following:

- Criteria and indicators used by the Abitibi-Consolidated Company of Canada in their Sustainable Forest Management Strategy (REF_general_1 et 2)
- Criteria and indicators used by Kruger Inc. in their Sustainable Forest Management Strategy (REF_general_3)
- Practical Guide to Local Indicators in Newfoundland and Labrador developed by the Western Newfoundland Model Forest (REF_general_4)

- Criteria and indicators used in the Lower St. Lawrence Model Forest project (REF_general_5)
- Indicators of sustainable forest management in a project in the Mauricie region (REF_general_6)
- User's Guide to Local Level Indicators of Sustainable Forest Management: Experiences from the Canadian Model Forest Network (REF_general_7)
- User's Guide to Indicators Identified by the Ontario Ministry of Natural Resources (REF_general_8)

4.3 Land Use Planning Models and Simulators

As was the case for the criteria and indicators, some very interesting references dealing with various models and land management simulators were come across during this project. Given the limited amount of time allotted for finding solutions for the PICs and the relative complexity of these tools, it was decided not to process them within the Excel database. A directory specifically devoted to for this topic was created in the accompanying CD, called **Models and Simulators**, in order to provide the references that were found for describing each of the following tools:

- ALCES (A Landscape Cumulative Effects Simulator)
- FEENIX
- LANDIS
- SELES (Spatially Explicit Landscape Event Simulator)

The reader will find useful information for learning about and understanding the nature and scope of these tools within each of these directories.

5. AN IMPLEMENTATION STRATEGY

As we reflected upon and searched for agents that could facilitate the implementation of the solutions that were found, it became obvious that some of them touched on a number of aspects, or PICs, while others were much more specific. That is how the notion of **Umbrella Strategies** was created, in order to highlight the solutions that warrant special attention in *Le Bourdon* project. Just like the notion of umbrella species used in concepts dealing with biodiversity conservation, **Umbrella Strategies** are MTCIs that cover a wide range and whose potential impact seems to be significant. It also seems that their implementation would require less effort compared with the expected results.

The **Umbrella Strategies** are therefore the first MTCIs that should be considered in the framework of activities to promote truly integrated management of the *Le Bourdon* project's resources. The selections presented in this section reflect the interpretation of the authors of this report. These selections are a combination of the influence of those PICs that were most frequently mentioned by the people and organizations spoken with, and the fact that some solutions seemed to provide a particularly useful scope within the context of the implementation of integrated resource management. Although this choice is debatable, in the authors' opinion it is nonetheless a good point of departure for the discussions between the participants in the *Le Bourdon* project, who will be required to implement them.

The following sections provide a brief description of the different MTCIs that make up the proposed umbrella strategies, broken down according to PIC themes. The reference numbers will direct the reader toward the associated documents. Those documents set out in detail all the various aspects of these MTCIs, which are considered to be the most important in the context of the *Le Bourdon* project.

5.1 Umbrella Strategy: Production of Wood Values

5.1.1 Establishment of a portrait of the diversity of the ecosystems in the territory in which *Le Bourdon* carries out its activities (REF_58)

Key Elements to Consider

- The types of ecosystems
- Composition of the forest (potential *versus* actual)
- The distribution of age classes

5.1.2 Setting up a "target-based integrated management" approach for the territory (REF_62)

5.1.3 Evaluate the effects on the possibility of recommendations making it possible to respond to certain PICs involving, for example:

- The phenomenon of increasing the number of deciduous trees in mixed and coniferous forests (REF_43-71)
- The effect of precommercial thinning on the forest profile (REF_70)
- The depletion of red spruce (REF_42-45-47-59-71)
- The development of a model for the spatial distribution of ecologically adequate and socially acceptable cutting (REF_55)
- Management procedures that make it possible to improve habitats of species (REF_7-8-9-10-59-72)
- Procedures for the development of hunting areas (REF_6-57-59)
- Procedures to promote the protection of aquatic environment habitats (REF_10-59)
- The size and distribution of cutting in sites with sensitive landscapes (REF_5-59)
- The complete protection of certain areas
- Reduce the impact of cutting in terms of crest lines (REF_59)

5.2 Umbrella Strategy: Sustainable Development and Conservation of Wildlife Resources

5.2.1 Determine the spatial scale for implementation of the *Le Bourdon* objectives, using the OTU (REF_58) or land use zoning approach (REF_79)

The three main objectives targeted by the deployment of the tool for dividing the territory into OTUs are:

1. promoting the distribution of forest cutting, over space and time;
    a. facilitate taking into account the interests of the territory's managers;
2. promote the taking into account of the impact of forest activities on the catchments and of the factors that affect the water flows.

5.3 Umbrella Strategy: Maintaining Forest Biodiversity

5.3.1 Development of an overall strategy for the conservation of biodiversity in managed wildlife lands

Key Elements to Consider

- Include the activities associated with the objectives for forest protection and development
  - the maintaining of mature and over-aged forests (REF_23-35);
  - the spatial distribution of cuttings;
  - protection of the habitat of endangered or vulnerable forest species;
  - the maintaining of stands of dense thickets during precommercial thinning activities (REF_73);
  - the conservation of deadwood in the managed forests (REf_74).
- Choose characteristic species (REF_32-56)
- Establish objectives in terms of disturbances (cutting, road density, etc.) of the acceptable forest profile by OTU (REF_58)

5.4 Umbrella Strategy: Development of Recreational Tourism Resources

5.4.1 Establishment of a protocol agreement with each of the managed wildlife lands (REF_4-5-36-63)

Key Elements to Consider

- Identify zones with sensitive landscapes (REF_5-24-28-50)
- Identify zones that requires specific procedures (REF_5-24-79)

5.5 Umbrella Strategy: Effective and Efficient Management of the Forest Road Network

5.5.1 Establishment of a protocol agreement regarding the closing and maintenance of logging roads (REF_11-59)

5.5.2 Establishment of different scenarios for the development of the road network, in order to compare impacts and costs (REF_15)

6. BIBLIOGRAPHY OF REFERENCE MATERIALS

6.1 In MTCI Number Sequence

Ref. #	Authors
2	Déry, S. and M. Leblanc, 2005. Lignes directrices pour l'implantation des îlots de vieillissement rattachées à l'objectif sur le maintien de forêts mûres et surannées - Partie 2 : intégration à la planification forestière, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 11 p.
3	Paquet, Josée. 1996. Aménagement visuel des paysages forestiers, un guide de mise en valeur. 33 pages.
4	Anthony Usher Planing consultant. 2002. Protocole d'entente entre les industries du tourisme et de la forêt, Guide des ententes d'intendance des ressources. Produit pour la direction de la gestion forestière, Ontario Ministry of Natural Resources.58 pages. http://www.tourism.gov.on.ca/french/tourism/rsa_user_guide_f.pdf. Exemple of Memorandum of Understanding: http://www.tourism.gov.on.ca/french/tourism/rsa_mou_f.pdf
5	Direction de la gestion forestière, MRNO. 2001. Lignes directrices de la gestion des forêts et du tourisme axé sur les ressources. Min. Rich. nat. Ont.,Queen's Printer for Ontario, Toronto (Ontario). 48 pages. http://www.tourism.gov.on.ca/french/tourism/rbt_management_guidelines-f.pdf
6	Service d'extension en foresterie de l'Est-du-Québec. 1997. Travaux sylvicoles et aménagement Multiressource – Clef d'aide à la décision. 57 pages
7	Darveau, M. and A. Desrocher. 2001. Le bois mort et la faune vertébrée – État des connaissances au Québec. Québec. Ministère des Ressources naturelles, Direction de l'environnement forestier (DEF-0199). 37 pages.
8	Samson, C.,C. Dussault, R. Courtois and J.P. Ouellet. 2002. Guide d'aménagement de l'habitat de l'orignal. Société de la faune et des parcs du Québec, Fondation de la faune du Québec et ministère des Ressources naturelles du Québec, Sainte-Foy. 48 pages
9	Cusson, M. et al. 2001. Utilisation à court terme de trois types de forêts résiduelles par le lièvre d'Amérique (*Lepus americanus*) en forêt boréale. 82 pages.
10	Guillemette, F. 2001. Enjeux faune-forêt : Démarche d'analyse pour une saine gestion du territoire en pourvoirie. Fédération des pourvoyeurs du Québec et fondation de la faune du Québec, Québec. 24 pages
11	Forest Roads and Water Crossings Initiative, MNRO. 2003. Findings and recommendations pertaining to Liability Assessment, Determination of Responsibility, Planning Implications. 59 pages
12	Ministry of Natural Resources. 2004. Water crossing inventory instruction manual, crown forest road and water crossing program. 134 pages.

13	Ministère des Ressources naturelles. 2001. Voirie forestière et installation de ponceau, Saines pratiques. 27 pages
14	Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier. 2003. Méthodologie d'évaluation de la perte de superficie productive associée aux réseaux routiers. 27 pages.
15	Anderson, A.E. and J.Nelson. 2003. Projecting vector-based road networks with a shortest path algorithm. Department of forest Resources Management, University of British-Columbia, 2045–2424. Main Mall, Vancouver, BC, Canada.
16	FERIC 2006. Optimiser la séparation de produits en forêt mixte avec un procédé de récolte par arbres entiers. Réf. Advantage, Vol.7, no.18
17	FERIC. 2005. Effet de l'entretien routier sur les vitesses de déplacement sur les routes de gravier. Réf. Advantage, Vol.6, no.6
18	FERIC. 2002. Avantages du compactage des sols cohérents pour les routes forestières. Réf. Advantage, Vol.3, no.9
20	FERIC. PlaniRoute. FERIC software program
21	FERIC. Provue 2005. FERIC software program
22	Favreau, J. 2005. Interface-Map, un nouvel outil d'aide à la décision pour calculer les coûts d'approvisionnement. 3 p.
22	FERIC. 2004. Estimation de l'impact monétaire des ententes d'harmonisation de la récolte avec les autres ayants droits. 7 p.
22	Favreau, J. 2004. Interface-Map : un nouvel outil d'aide à la décision en développement chez FERIC. 3 p.
23	Leblanc, M. and S. Déry, 2005. Lignes directrices pour l'implantation des îlots de vieillissement rattachées à l'objectif sur le maintien de forêts mûres et surannées - Partie I : intégration au calcul de la possibilité forestière, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 21 p.
24	Ministère des Ressources naturelles et des Parcs, Direction des programmes forestiers. 2003. Outil d'aide à la décision pour classifier les secteurs d'intérêt majeurs et définir les stratégies d'aménagement pour l'intégration visuelle des coupes dans les paysages; Objectifs de protection ou de mise en valeur des ressources du milieu forestier visant le maintien de la qualité visuelle des paysages forestiers. 15 pages.
25	Ministry of Forests, Forest Practices Branch. 2001. Visual Impact Assessment. Guidebook. 2nd ed. For. Prac. Br., Min. For., Victoria, B.C.
26	Ministry of Forests, Forest Practices Branch. 1994. Visual landscape design training manual. For. Prac. Br., Min. For., Victoria, B.C.
27	Pâquet, J. and L. Bélanger. 1998. Stratégie d'aménagement pour l'intégration visuelle des coupes dans les paysages. Réalisé par C.A.P. Naturels dans le cadre du « Programme de mise en valeur des ressources du milieu forestier » du ministère des Ressources naturelles. Charlesbourg. 40 p.
28	Pâquet, J. and L. Deschênes, 2005. Lignes directrices pour la mise en œuvre des objectifs visant le maintien de la qualité des paysages et l'harmonisation des usages, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction des programmes forestiers, Direction de l'environnement forestier, 33 pages.
29	British Columbia Ministry of Forests, Forest Practices Branch. Predicting the impacts of retention cutting. 3 pages

30	British Columbia Ministry of Forests and Range. 2006. The public response to harvest practices in British Columbia at the landscape and stand level. Forest Practices Branch. Victoria, B.C. 54 p.
31	Compagnie Abitibi-Consolidated du Canada. 2005. Analyse de la qualité de l'habitat de l'orignal dans le TFD-Mauricie. 18 pages
32	Druniker P.D. et al. 2000. Biodiversity Assessment Project, report #1: Background and structure. 24 p.
32	Doyon, F. and P.D. Druniker. 2000. Biodiversity Assessment Project, report #2 : The species selection procedure. 14 p.
32	Doyon, F. 2000. Biodiversity Assessment Project, report #3 : Habitat classification. 11 p.
32	Higgelke, P. et al. 2000. Biodiversity Assessment Project, report #6 : Habitat supply models. 15 p.
33	Sturtevant, B. R., A. Fall, D. D. Kneeshaw, N. P. P. Simon, M. J. Papaik, K. Berninger, F. Doyon, D. G. Morgan, and C. Messier. 2007. A toolkit modeling approach for sustainable forest management planning: achieving balance between science and local needs. Ecology and Society 12(2): 7. [online] URL: http://www.ecologyandsociety.org/vol12/iss2/art7/
34	Sougavinski, S. and F. Doyon. 2002. La coupe avec rétention variable de la structure : résultats de recherche, expérience de mise en œuvre et questions opérationnelles. 60 p.
35	Leblanc, M. and S. Déry, 2005. Lignes directrices pour l'implantation des refuges biologiques rattachées à l'objectif sur le maintien de forêts mûres et surannées, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 21 p.
36	Canada Forest Service. 2007. Le processus de planification de l'aménagement des écosystèmes forestiers. Researchers involved: Simon Bell and Tom Murray. 6 p.
37	Pentassuglia, N. and Meek, P. 2004. Essais de coupe avec rétention variable dans l'est du Canada. Rapport Avantage de FERIC. Vol 5 No. 5. 6 pages
38	Schreiber, A., Lafontaine, N. and Jetté, J-P. 2001. Limiter la formation d'ornières dans les parterres de coupe au moyen d'une approche de gestion par objectifs. 2 p.
40	Ontario Ministry of Natural Resources. 2001. Sylvicultural effectiveness Monitoring manual for Ontario. 50 pages
41	MRNF. Méthode pour déterminer la sensibilité à l'orniérage d'une UAF. Software program developed by the MRNF. 7 p.
42	Fortin, M. 2001. Les peuplements mixtes de sapin baumier et d'épinette rouge de la région du mont Tremblant et leur évolution après coupe partielle. 81 p.
43	Lieffers, V. and B. Grover. 2004. Nouveaux régimes sylvicoles pour les forêts boréales mixtes de l'Alberta. 20 p.
44	Arnup, B. 2000. Réduire au minimum le bouleversement du sol dans les opérations forestières : Guide pratique. Édité par la Forêt modèle du Lac Abitibi. 31 p.
45	Fortin et al. 2003. La coupe partielle dans les sapinières à épinette rouge : une option à considérer. Document produit dans le cadre du carrefour de la recherche forestière 2003. 6 p.
46	Gingras, C. Cordeau, J-F. and Laporte, G. 2006. Un algorithme de minimisation du transport à vide appliqué à l'industrie forestière. 13 p.

47	Dumais, D. Prévost, M and Raymond, P. 2007. L'épinette rouge, une espèce à bien connaître…pour une sylviculture mieux adaptée ! Avis de recherche forestière no 7. 2 p.
48	FERIC. 2004. Impact de la dispersion des coupes sur les coûts d'approvisionnement au Québec. 44 pages
49	Leblanc, M. 2004. La CPRS à rétention de bouquets : un nouveau traitement sylvicole à expérimenter. Direction de l'environnement forestier Ministère des Ressources naturelles, de la Faune et des Parcs. 8 p.
50	Lebel, L. et al. 2003. Caractérisation spatiale des mosaïques naturelles et d'intervention afin d'évaluer les coûts d'exploitation. 6 p.
51	Forêt modèle du Bas-St-Laurent et Université du Québec à Rimouski. 2003. Indice de qualité d'habitat, Extension ArcView. 58 p.
52	Courtois, J. H. Sansregret, L. Bélanger. 1999. L'éclaircie précommerciale, un traitement qui inquiète. Tiré des actes du Forum Forêt-Faune, Jonquière, 10-11 novembre 1999. Page 47-55.
53	Forêt modèle du Bas-St-Laurent et UQAR. 1996. « Le Planificateur en gestion faune-forêt » software program Version 1.1
54	DESFOR. 2005. Guide de martelage forêt-faune adapté aux forêts privées. 133 pages
55	Sougavinski, S. and F. Doyon. 2005. Directives de répartition spatiale existantes pour la forêt boréale canadienne aménagée. Directives de Réseau de gestion durable des forêts, Edmonton, Alberta. 116 p.
56	Hannon, S.J. and C. McCallum. 2004. La conservation de la biodiversité des paysages forestiers aménagés au moyen d'une approche axée sur des espèces cibles. Réseau de gestion durable des forêts. 60 p.
57	Desmarais, M. 2004. Plan d'harmonisation faune-forêt-récréation, Réserve faunique Portneuf. SEPAQ. 124 p.
58	Harvey, B.P. and Lapierre, H. 2002. Les unités territoriales opérationnelles (UTO) : un outil favorisant l'implantation d'une gestion intégrée des ressources. Projet pilote des aires communes 31-02 et 31-04 de l'Unité de gestion Portneuf-Laurentides. 36 p.
59	Bois, G and Roy, C. 2008. Guide d'aide à la prise de décisions pour l'harmonisation des différentes utilisations de la forêt. CTRI. 38 p.
60	WWF-Canada and TEMBEC. 2005. A Collaborative Approach between WWF and Tembec on Forest Certification in the Gordon Cosens Forest, A model for Forest Certification in Canada. 10 p.
61	Cheveau, M. 2005. Contribution des connaissances traditionnelles écologiques (TEK) à l'aménagement forestier durable. Rapport de synthèse environnementale présenté comme exigence partielle du doctorat en science de l'environnement. 46 p.
62	Institut québécois d'aménagement de la forêt feuillue. 2004. Mémoire présenté à la Commission d'étude scientifique et technique sur la gestion de la forêt publique québécoise. 19 p.
63	Anthony Usher Planning Consultant. 2002. Exemple de protocole d'entente d'intendance. 7 p.
64	Ministère des Ressources naturelles et des Parcs, division des inventaires forestiers. 2001. Le système hiérarchique de classification écologique. Pamphlet.
65	MRN et al. 2001. Atelier sur les milieux riverains forestiers, Rapport d'atelier. Workshop held in Shawinigan on November 21 and 22, 2001. 56 p.

67	Kneeshaw, D. et al. 2000. Vers une foresterie écologique : proposition d'indicateurs de GDF qui s'inspirent des perturbations naturelles. Réseau sur la gestion durable des forêts. First edition. 60 p.
68	Huggard, D. 2004. L'instauration d'un réseau d'écosystèmes représentatifs dans les paysages aménagés : une approche pour l'évaluation des zones inexploitables. Transfert des connaissances et exploitation des technologies (TCET) Réseau de gestion durable des forêts. 32 p.
69	Groupe de recherche sur l'écosystème de la grande région de Fundy. 1997. Directives d'aménagement forestier pour la protection de la biodiversité indigène dans la forêt modèle de Fundy. 51 pages.
70	Ministère des Ressources naturelles, Direction de la recherche forestière. 2002. Le traitement d'éclaircie précommerciale pour le groupe de production prioritaire SEPM, Avis scientifique. Produced by the Comité consultatif scientifique du Manuel d'aménagement forestier. 139 p.
71	Fortin, M. 2003. Raréfaction de l'épinette rouge, p. 45 to 66. In Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin and A. Cimon, coordinators. Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier. 216 p.
71	Paquin, R. and J. Noël. 2003. Envahissement des érablières par le hêtre, p. 191 to 200. In: Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin et A. Cimon, coordinators Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier.216 p.
71	Majcen, Z. 2003. Raréfaction des espèces compagnes de l'érablière, p. 93 to 102. Dans : Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin et A. Cimon, coordonnateurs. Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier.216 p.
71	Grondin, P., L. Bélanger, V. Roy, J. Noël and D. Hotte, 2003. Envahissement des parterres de coupe par les feuillus de lumière (enfeuillement), p. 131 to 174. In: Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin and A. Cimon, coordinators. Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier.216 p.
72	Drapeau et al. 2006. Les arbres d'intérêt pour la faune et le maintien de la diversité biologique en forêt boréale du Québec. PowerPoint presentation at the Forum de transfert sur la recherche en aménagement et en environnement forestiers. FQRNT
73	Cimon, A. and P. Labbé. 2006. Lignes directrices visant à encadrer la pratique de l'éclaircie précommerciale afin d'assurer le maintien de la biodiversité, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 13 p.
74	Déry, S. and P. Labbé, 2006. Lignes directrices rattachées à l'objectif sur la conservation du bois mort dans les forêts aménagées : sélection de lisières boisées riveraines à soustraire de l'aménagement forestier, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 15 p.

75	Gerardin, V. and J. Bissonnette. 2001. Note sur des indices de diversité écologique théorique ; Le cas des corridors proposés pour le passage d'une ligne de transport d'énergie dans la MRC de Papineau. Direction du patrimoine écologique et du développement durable Ministère de l'Environnement. 24 p.
76	Lapierre, H. and B.-P. Harvey. 2003. Portrait de la diversité des écosystèmes forestiers de l'Unité de gestion Portneuf-Laurentides. Document prepared by BPHenvironnement in collaboration with l'Association forestière Québec métropolitain inc. for l'Unité de gestion Portneuf-Laurentides. Québec. 133 p. + 2 annexes.
77	Hannon S.J. and C. McCallum. 2004. La conservation de la biodiversité des paysages forestiers aménagés au moyen d'une approche axée sur des espèces cibles. Département des sciences biologiques de l'Université de l'Alberta for the Réseau de gestion durable des forêts. 60 p.
78	Lessard, G. and E. Boulfroy. 2001. Processus d'affectation du territoire ; Cas de la pourvoirie du Triton. TechNote CERFO 2001-02. 4 p.
79	Doyon, F. 2003. Synthèse du colloque sur la planification forestière ; L'aménagement intégré des ressources ne milieu forestier : Concept et outils. Seminar held from October 31 to November 1st 2002, at the Université du Québec à Rimouski. 48 p.
80	Turbis, S. 2007. Formation SaMARE,partie application. Ministère des Ressources naturelles et de la Faune. Présentation PowerPoint, 91 acétates.
80	Fortin, M. 2008. Simulateur d'accroissement, mortalité, et recrutement des érablières (SaMARE). Training provided by the Ministère des Ressources naturelles et de la Faune. PowerPoint presentation, 70 acetate sheets
80	Ministère des Ressources naturelles et de la Faune. SaMARE, Simulateur de Mortalité, d'Accroissement et de Recrutement pour les Érablières. 5 p.
81	Hatin, M. 2008. Guide d'inventaire et d'utilisation du logiciel de gestion de ponceaux version 2.0. Régionale des zecs des Hautes-Laurentides. 59 p.
82	Ministère des Ressources naturelles. 1997. L'aménagement des ponts et des ponceaux dans le milieu forestier. 145-page guide.
83	Grondin, P., J. Noël and A. Schreiber. 2005. Analyse des relations entre les ornières et les variables écologiques dans la portion sud de la forêt boréale québécoise. Gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de la recherche forestière et Direction de l'environnement forestier. 74 p.
84	Merrill B.R. and E. Casaday. 2001. Best Management Practices Road-Stream Crossing Removal. Roads Trails and Resources Maintenance Section, North Coast Redwoods District, California State Parks. 23 p.
85	L'Écuyer, H. 2003. Méthodologie d'évaluation de la perte de superficie productive associée aux réseaux routiers. Ministère des Ressources naturelles, de la Faune et des Parcs Direction de l'environnement forestier. 27 p.
86	Langevin, R., H. L'Écuyer, N. Lafontaine, and R. Paré. 2007. Méthodologie d'évaluation des cas d'érosion du réseau routier dans les forêts aménagées du Québec, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier. 19 p.

87	Langevin, R. and A. P. Plamondon. 2004. Méthode de calcul de l'aire équivalente de coupe d'un bassin versant en relation avec le débit de pointe des cours d'eau dans la forêt à dominance résineuse, gouvernement du Québec, ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier et Université Laval, Faculté de foresterie et de géomatique, code de diffusion, 24 p.
87	Renaud, M. and R. Langevin. 2004. Programme informatisé de calcul de l'aire équivalente de coupe d'un bassin versant en relation avec le débit de pointe des cours d'eau dans la forêt à dominance résineuse : guide d'utilisation, version décembre 2004, gouvernement du Québec, ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier et Université Laval, Faculté de foresterie et de géomatique, no publ. DEF-0242. 13 p.
88	Schreiber, A., H. L'Écuyer, R. Langevin and N. Lafontaine. 2006. Lignes directrices rattachées aux objectifs de conservation du sol et de l'eau : plans généraux d'aménagement forestier de 2008-2013, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier. 30 p.
89	Cimon, A. and P. Labbé. 2006. Lignes directrices visant à encadrer la pratique de l'éclaircie précommerciale afin d'assurer le maintien de la biodiversité, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier. 13 p.
91	MNRO. 2001. Forest management guide for natural disturbance pattern emulation, Version 3.1. Ont. Min. Nat. Res.,Queen's Printer for Ontario, Toronto. 40 p.
92	Guillemette, F. and S. Bédard. 2006. Sylviculture des peuplements à dominance de feuillus nobles au Québec. Ministère des Ressources naturelles et de la Faune, Direction de la recherche forestière. 112 p.
93	D'Avignon, H., C. Périé, V. Gerardin and R. Ouimet. 1999. Établissement d'indicateurs d'aménagement forestier durable dans l'aire commune 32-02 : portrait de la richesse floristique. Note de recherche forestière no 96. MRN, Direction de la recherche forestière. 22 p.
94	Ouimet, R., H. D'Avignon, S. Tremblay, C. Périé and V. Gerardin. 2000. Comment calculer les indices de Pielou à partir de données d'inventaire écologique pour évaluer la diversité des écosystèmes forestiers. Note de recherche forestière no 102. MRN, Direction de la recherche forestière. 12 p.
95	D'Avignon, H., C. Périé, V. Gerardin and R. Ouimet. 2000. Utilisation des indices de Pielou pour caractériser la diversité des types de végétation dans une aire commune de la forêt boréale. Note de recherche forestière no 107. MRN, Direction de la recherche forestière. 20 p.
96	Périé, C., Levesque, F., D'Avignon, H., Ouimet, R. and V.Gerardin. 2000. Utilisation d'indicateurs cartographiques dans la caractérisation de la mosaïque forestière à l'échelle d'une aire commune. Note de recherche forestière no 101. MRN, Direction de la recherche forestière. 18 p.
97	Ménard, S., M. Darveau, L. Imbeau and L.-V. Lemelin. 2006. Méthode de classification des milieux humides du Québec boréal à partir de la carte écoforestière du 3e inventaire décennal, Rapport technique No Q2006-3, Canards Illimités Canada - Québec, 19 p.
98	Lebel, L., K. Lowell, S. Théberge, M. Renaud and V. McCullough. Caractérisation spatiale des mosaïques naturelles et d'intervention afin d'évaluer les coûts d'exploitation. PowerPoint presentation, 35 acetate sheets.

Gén_1	Gagnon, P., P. Patry and M. Bédard. 2007. Rapport annuel 2006, Aménagement forestier durable (Version préliminaire). Compagnie Abitibi-Consolidated du Canada, TFD Lac St-Jean. 50 p.
Gén_10	Lindenmayer, D.B., J.F. Franklin and J. Fischer. General management principles and a checklist of strategies to guide forest biodiversity conservation. Biological conservation , vol 131 (2006) p.433-445
Gén_2	Compagnie Abitibi-Consolidated du Canada and COOP Petit-Paris. 2007. Plan d'aménagement forestier durable, TFDLac St-Jean. 79 p.
Gén_3	Compagnie Kruger. 2006. Rapport de performance d'aménagement forestier durable, Suivi des indicateurs - Année 2006, Aire commune 093-20. 42 p.
Gén_4	Comité directeur des critères et indicateurs de la Forêt modèle de l'ouest de Terre-Neuve. 1999. Critères et indicateurs de l'aménagement durable des forêts, Guide pratique des indicateurs locaux à Terre-Neuve et au Labrador. 51 p.
Gén_5	Belleau. P. 2000. Développement du système de surveillance de la forêt modèle du Bas-St-Laurent : Sélection de critères et indicateurs locaux pour une gestion durable des forêts. Prepared for the Forêt modèle du Bas-Saint-Laurent. 25 p.
Gén_6	Munson, A.D., M. Darveau, L. Bouthillier et al. 2003. Indicateurs de la gestion durable des forêts : développement d'un processus de mise en œuvre dans une étude de certification dans la région de la Mauricie, Québec. 34 p.
Gén_7	Programme de forêts modèles du Canada. 2000. Guide d'utilisation des indicateurs locaux de l'aménagement durable des forêts: Expériences du Réseau canadien de forêts modèles. 272 p.
Gén_8	MNRO. 2005. Use of Indicators in Forest Management Planning. FMP Training Material. 57 p.
Gén_9	Vallauri, D., G. Olivier, L. Poncet and C. Schwoehrer. 2001. Références scientifiques sur la Conservation d'un réseau représentatif et fonctionnel de forêts naturelles. WWF et Réserves naturelles de France. 91 p.

Note : Some MTCI have been taken out of circulation after the unique number was assigned, which explains why the numbering sequence is broken.

6.2 In Alphabetical Order

Ref. #.	Authors
15	Anderson, A.E. and J.Nelson. 2003. Projecting vector-based road networks with a shortest path algorithm. Department of forest Resources Management, University of British-Columbia, 2045–2424. Main Mall, Vancouver,BC, Canada.
4	Anthony Usher Planing consultant. 2002. Protocole d'entente entre les industries du tourisme et de la forêt, Guide des ententes d'intendance des ressources. Produit pour la direction de la gestion forestière, Ontario Ministry of Natural Resources.58 pages. http://www.tourism.gov.on.ca/french/tourism/rsa_user_guide_f.pdf. Example of Memorandum of Understanding: http://www.tourism.gov.on.ca/french/tourism/rsa_mou_f.pdf
63	Anthony Usher Planning Consultant. 2002. Exemple de protocole d'entente d'intendance. 7 p.

44	Arnup, B. 2000. Réduire au minimum le bouleversement du sol dans les opérations forestières : Guide pratique. Édité par la Forêt modèle du Lac Abitibi. 31 p.
Gén_5	Belleau. P. 2000. Développement du système de surveillance de la forêt modèle du Bas-St-Laurent : Sélection de critères et indicateurs locaux pour une gestion durable des forêts. Préparé pour la Forêt modèle du Bas-Saint-Laurent. 25 p.
59	Bois, G and Roy, C. 2008. Guide d'aide à la prise de décisions pour l'harmonisation des différentes utilisations de la forêt. CTRI. 38 p.
30	British Columbia Ministry of Forests and Range. 2006. The public response to harvest practices in British Columbia at the landscape and stand level. Forest Practices Branch. Victoria, B.C. 54 p.
29	British Columbia Ministry of Forests, Forest Practices Branch. Predicting the impacts of retention cutting. 3 pages
61	Cheveau, M. 2005. Contribution des connaissances traditionnelles écologiques (TEK) à l'aménagement forestier durable. Rapport de synthèse environnementale présenté comme exigence partielle du doctorat en science de l'environnement. 46 p.
89	Cimon, A. and P. Labbé. 2006. Lignes directrices visant à encadrer la pratique de l'éclaircie précommerciale afin d'assurer le maintien de la biodiversité, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier. 13 p.
73	Cimon, A. and P. Labbé. 2006. Lignes directrices visant à encadrer la pratique de l'éclaircie précommerciale afin d'assurer le maintien de la biodiversité, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 13 p.
Gén_4	Comité directeur des critères et indicateurs de la Forêt modèle de l'ouest de Terre-Neuve. 1999. Critères et indicateurs de l'aménagement durable des forêts, Guide pratique des indicateurs locaux à Terre-Neuve et au Labrador. 51 p.
Gén_2	Compagnie Abitibi-Consolidated du Canada et COOP Petit-Paris. 2007. Plan d'aménagement forestier durable, TFDLac St-Jean. 79 p.
31	Compagnie Abitibi-Consolidated du Canada. 2005. Analyse de la qualité de l'habitat de l'orignal dans le TFD-Mauricie. 18 pages
Gén_3	Compagnie Kruger. 2006. Rapport de performance d'aménagement forestier durable, Suivi des indicateurs - Année 2006, Aire commune 093-20. 42 p.
52	Courtois, J. H. Sansregret, L. Bélanger. 1999. L'éclaircie précommerciale, un traitement qui inquiète. Tiré des actes du Forum Forêt-Faune, Jonquière, 10-11 novembre 1999. Page 47-55.
9	Cusson, M. et al. 2001. Utilisation à court terme de trois types de forêts résiduelles par le lièvre d'Amérique (*Lepus americanus*) en forêt boréale. 82 pages.
93	D'Avignon, H., C. Périé, V. Gerardin and R. Ouimet. 1999. Établissement d'indicateurs d'aménagement forestier durable dans l'aire commune 32-02 : portrait de la richesse floristique. Note de recherche forestière no 96. MRN, Direction de la recherche forestière. 22 p.
95	D'Avignon, H., C. Périé, V. Gerardin and R. Ouimet. 2000. Utilisation des indices de Pielou pour caractériser la diversité des types de végétation dans une aire commune de la forêt boréale. Note de recherche forestière no 107. MRN, Direction de la recherche forestière. 20 p.

7	Darveau, M. and A. Desrocher. 2001. Le bois mort et la faune vertébrée – État des connaissances au Québec. Québec. Ministère des Ressources naturelles, Direction de l'environnement forestier (DEF-0199). 37 pages.
2	Déry, S. and M. Leblanc, 2005. Lignes directrices pour l'implantation des îlots de vieillissement rattachées à l'objectif sur le maintien de forêts mûres et surannées - Partie 2 : intégration à la planification forestière, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 11 p.
74	Déry, S. and P. Labbé, 2006. Lignes directrices rattachées à l'objectif sur la conservation du bois mort dans les forêts aménagées : sélection de lisières boisées riveraines à soustraire de l'aménagement forestier, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 15 p.
54	DESFOR. 2005. Guide de martelage forêt-faune adapté aux forêts privées. 133 pages
57	Desmarais, M. 2004. Plan d'harmonisation faune-forêt-récréation, Réserve faunique Portneuf. SEPAQ. 124 p.
5	Direction de la gestion forestière, MRNO. 2001. Lignes directrices de la gestion des forêts et du tourisme axé sur les ressources. Min. Rich. nat. Ont., Queen's Printer for Ontario, Toronto (Ontario). 48 pages. http://www.tourism.gov.on.ca/french/tourism/rbt_management_guidelines-f.pdf
32	Doyon, F. 2000. Biodiversity Assessment Project, report #3 : Habitat classification. 11 p.
79	Doyon, F. 2003. Synthèse du colloque sur la planification forestière ; L'aménagement intégré des ressources ne milieu forestier : Concept et outils. Seminar held from October 31 to November 1 at the Université du Québec à Rimouski. 48 p.
32	Doyon, F. and P.D. Druniker. 2000. Biodiversity Assessment Project, report #2: The species selection procedure. 14 p.
72	Drapeau et al. 2006. Les arbres d'intérêt pour la faune et le maintien de la diversité biologique en forêt boréale du Québec. PowerPoint presentation at the Forum de transfert sur la recherche en aménagement et en environnement forestiers. FQRNT
32	Druniker P.D. et al. 2000. Biodiversity Assessment Project, report #1: Background and structure. 24 p.
47	Dumais, D. Prévost, M and Raymond, P. 2007. L'épinette rouge, une espèce à bien connaître…pour une sylviculture mieux adaptée ! Avis de recherche forestière no 7. 2 p.
22	Favreau, J. 2004. Interface-Map : un nouvel outil d'aide à la décision en développement chez FERIC. 3 p.
22	Favreau, J. 2005. Interface-Map, un nouvel outil d'aide à la décision pour calculer les coûts d'approvisionnement. 3 p.
18	FERIC. 2002. Avantages du compactage des sols cohérents pour les routes forestières. Réf. Advantage, Vol.3, no.9
22	FERIC. 2004. Estimation de l'impact monétaire des ententes d'harmonisation de la récolte avec les autres ayants droits. 7 p.
48	FERIC. 2004. Impact de la dispersion des coupes sur les coûts d'approvisionnement au Québec. 44 pages
17	FERIC. 2005. Effet de l'entretien routier sur les vitesses de déplacement sur les routes de gravier. Réf. Advantage, Vol.6, no.6

16	FERIC. 2006. Optimiser la séparation de produits en forêt mixte avec un procédé de récolte par arbres entiers. Réf. Advantage, Vol.7, no.18
20	FERIC. PlaniRoute. FERIC software program
21	FERIC. Provue 2005. FERIC softeare program
11	Forest Roads and Water Crossings Initiative, MNRO. 2003. Findings and recommendations pertaining to Liability Assessment, Determination of Responsibility, Planning Implications. 59 pages
51	Forêt modèle du Bas-St-Laurent et Université du Québec à Rimouski. 2003. Indice de qualité d'habitat, Extension ArcView. 58 p.
53	Forêt modèle du Bas-St-Laurent et UQAR. 1996. « Le Planificateur en gestion faune-forêt » software program Version 1.1
45	Fortin et al. 2003. La coupe partielle dans les sapinières à épinette rouge : une option à considérer. Document produit dans le cadre du carrefour de la recherche forestière 2003. 6 p.
42	Fortin, M. 2001. Les peuplements mixtes de sapin baumier et d'épinette rouge de la région du mont Tremblant et leur évolution après coupe partielle. 81 p.
71	Fortin, M. 2003. Raréfaction de l'épinette rouge, p. 45 to 66. In: Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin and A. Cimon, coordinators. Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier. 216 p.
80	Fortin, M. 2008. Simulateur d'accroissement, mortalité, et recrutement des érablières (SaMARE). Training provided by the Ministère des Ressources naturelles et de la Faune. PowerPoint presentation, 70 acetate slides
Gén_1	Gagnon, P., P. Patry and M. Bédard. 2007. Rapport annuel 2006, Aménagement forestier durable (Version préliminaire). Compagnie Abitibi-Consolidated du Canada, TFD Lac St-Jean. 50 p.
75	Gerardin, V. and J. Bissonnette. 2001. Note sur des indices de diversité écologique théorique ; Le cas des corridors proposés pour le passage d'une ligne de transport d'énergie dans la MRC de Papineau. Direction du patrimoine écologique et du développement durable Ministère de l'Environnement. 24 p.
46	Gingras, C. Cordeau, J-F. and Laporte, G. 2006. Un algorithme de minimisation du transport à vide appliqué à l'industrie forestière. 13 p.
83	Grondin, P., J. Noël and A. Schreiber. 2005. Analyse des relations entre les ornières et les variables écologiques dans la portion sud de la forêt boréale québécoise. Gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de la recherche forestière et Direction de l'environnement forestier. 74 p.
71	Grondin, P., L. Bélanger, V. Roy, J. Noël and D. Hotte, 2003. Envahissement des parterres de coupe par les feuillus de lumière (enfeuillement), p. 131 à 174. In: Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin and A. Cimon, coordinators. Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier.216 p.
69	Groupe de recherche sur l'écosystème de la grande région de Fundy. 1997. Directives d'aménagement forestier pour la protection de la biodiversité indigène dans la forêt modèle de Fundy. 51 pages.
10	Guillemette, F. 2001. Enjeux faune-forêt : Démarche d'analyse pour une saine gestion du territoire en pourvoirie. Fédération des pourvoyeurs du Québec et fondation de la faune du Québec, Québec. 24 pages

92	Guillemette, F. and S. Bédard. 2006. Sylviculture des peuplements à dominance de feuillus nobles au Québec. Ministère des Ressources naturelles et de la Faune, Direction de la recherche forestière. 112 p.
77	Hannon, S.J. and C. McCallum. 2004. La conservation de la biodiversité des paysages forestiers aménagés au moyen d'une approche axée sur des espèces cibles. Département des sciences biologiques de l'Université de l'Alberta pour le Réseau de gestion durable des forêts. 60 p.
56	Hannon, S.J. and C. McCallum. 2004. La conservation de la biodiversité des paysages forestiers aménagés au moyen d'une approche axée sur des espèces cibles. Réseau de gestion durable des forêts. 60 p.
58	Harvey, B.P. and Lapierre, H. 2002. Les unités territoriales opérationnelles (UTO) : un outil favorisant l'implantation d'une gestion intégrée des ressources. Projet pilote des aires communes 31-02 et 31-04 de l'Unité de gestion Portneuf-Laurentides. 36 p.
81	Hatin, M. 2008. Guide d'inventaire et d'utilisation du logiciel de gestion de ponceaux version 2.0. Régionale des zecs des Hautes-Laurentides. 59 p.
32	Higgelke, P. et al. 2000. Biodiversity Assessment Project, report #6: Habitat supply models. 15 p.
68	Huggard, D. 2004. L'instauration d'un réseau d'écosystèmes représentatifs dans les paysages aménagés : une approche pour l'évaluation des zones inexploitables. Transfert des connaissances et exploitation des technologies (TCET) Réseau de gestion durable des forêts. 32 p.
62	Institut québécois d'aménagement de la forêt feuillue. 2004. Mémoire présenté à la Commission d'étude scientifique et technique sur la gestion de la forêt publique québécoise. 19 p.
67	Kneeshaw, D. et al. 2000. Vers une foresterie écologique : proposition d'indicateurs de GDF qui s'inspirent des perturbations naturelles. Réseau sur la gestion durable des forêts. First edition. 60 p.
85	L'Écuyer, H. 2003. Méthodologie d'évaluation de la perte de superficie productive associée aux réseaux routiers. Ministère des Ressources naturelles, de la Faune et des Parcs Direction de l'environnement forestier. 27 p.
87	Langevin, R. and A. P. Plamondon. 2004. Méthode de calcul de l'aire équivalente de coupe d'un bassin versant en relation avec le débit de pointe des cours d'eau dans la forêt à dominance résineuse, gouvernement du Québec, ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier et Université Laval, Faculté de foresterie et de géomatique, code de diffusion, 24 p.
86	Langevin, R., H. L'Écuyer, N. Lafontaine, and R. Paré. 2007. Méthodologie d'évaluation des cas d'érosion du réseau routier dans les forêts aménagées du Québec, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier. 19 p.
76	Lapierre, H. and B.-P. Harvey. 2003. Portrait de la diversité des écosystèmes forestiers de l'Unité de gestion Portneuf-Laurentides. Document prepared by BPHenvironnement in collaboration with l'Association forestière Québec métropolitain inc. for l'Unité de gestion Portneuf-Laurentides. Québec. 133 p. + 2 annexes.
50	Lebel, L. et al. 2003. Caractérisation spatiale des mosaïques naturelles et d'intervention afin d'évaluer les coûts d'exploitation. 6 p.

98	Lebel, L., K. Lowell, S. Théberge, M. Renaud and V. McCullough. Caractérisation spatiale des mosaïques naturelles et d'intervention afin d'évaluer les coûts d'exploitation. PowerPoint presentation, 35 acetate sheets.
49	Leblanc, M. 2004. La CPRS à rétention de bouquets : un nouveau traitement sylvicole à expérimenter. Direction de l'environnement forestier Ministère des Ressources naturelles, de la Faune et des Parcs. 8 p.
23	Leblanc, M. and S. Déry, 2005. Lignes directrices pour l'implantation des îlots de vieillissement rattachées à l'objectif sur le maintien de forêts mûres et surannées - Partie I : intégration au calcul de la possibilité forestière, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 21 p.
35	Leblanc, M. and S. Déry, 2005. Lignes directrices pour l'implantation des refuges biologiques rattachées à l'objectif sur le maintien de forêts mûres et surannées, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier, 21 p.
78	Lessard, G. and E. Boulfroy. 2001. Processus d'affectation du territoire ; Cas de la pourvoirie du Triton. TechNote CERFO 2001-02. 4 p.
43	Lieffers, V. and B. Grover. 2004. Nouveaux régimes sylvicoles pour les forêts boréales mixtes de l'Alberta. 20 p.
Gén_10	Lindenmayer, D.B., J.F. Franklin and J. Fischer. General management principles and a checklist of strategies to guide forest biodiversity conservation. Biological conservation , vol 131 (2006) p.433-445
71	Majcen, Z. 2003. Raréfaction des espèces compagnes de l'érablière, p. 93 to 102. In: Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin and A. Cimon, coordinators. Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier.216 p.
97	Ménard, S., M. Darveau, L. Imbeau and L.-V. Lemelin. 2006. Méthode de classification des milieux humides du Québec boréal à partir de la carte écoforestière du 3e inventaire décennal, Rapport technique No Q2006-3, Canards Illimités Canada - Québec, 19 p.
84	Merrill, B.R. and E. Casaday. 2001. Best Management Practices Road-Stream Crossing Removal. Roads Trails and Resources Maintenance Section, North Coast Redwoods District, California State Parks. 23 p.
40	Ontario Ministry of Natural Resources. 2001. Sylvicultural effectiveness Monitoring manual for Ontario. 50 pages
80	Ministère des Ressources naturelles et de la Faune. SaMARE, Simulateur de Mortalité, d'Accroissement et de Recrutement pour les Érablières. 5 p.
24	Ministère des Ressources naturelles et des Parcs, Direction des programmes forestiers. 2003. Outil d'aide à la décision pour classifier les secteurs d'intérêt majeurs et définir les stratégies d'aménagement pour l'intégration visuelle des coupes dans les paysages; Objectifs de protection ou de mise en valeur des ressources du milieu forestier visant le maintien de la qualité visuelle des paysages forestiers. 15 pages.
64	Ministère des Ressources naturelles et des Parcs, division des inventaires forestiers. 2001. Le système hiérarchique de classification écologique. Pamphlet.
14	Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier. 2003. Méthodologie d'évaluation de la perte de superficie productive associée aux réseaux routiers. 27 pages.

70	Ministère des Ressources naturelles, Direction de la recherche forestière. 2002. Le traitement d'éclaircie précommerciale pour le groupe de production prioritaire SEPM, Avis scientifique. Produced by the Comité consultatif scientifique du Manuel d'aménagement forestier. 139 p.
82	Ministère des Ressources naturelles. 1997. L'aménagement des ponts et des ponceaux dans le milieu forestier. Guide de 145 p.
13	Ministère des Ressources naturelles. 2001. Voirie forestière et installation de ponceau, Saines pratiques. 27 pages
26	Ministry of Forests, Forest Practices Branch. 1994. Visual landscape design training manual. For. Prac. Br., Min. For., Victoria, B.C.
25	Ministry of Forests, Forest Practices Branch. 2001. Visual Impact Assessment. Guidebook. 2nd ed. For. Prac. Br., Min. For., Victoria, B.C.
12	Ministry of Natural Resources. 2004. Water crossing inventory instruction manual, crown forest road and water crossing program. 134 pages.
91	MNRO. 2001. Forest management guide for natural disturbance pattern emulation, Version 3.1. Ont. Min. Nat. Res.,Queen's Printer for Ontario, Toronto. 40 p.
Gén_8	MNRO. 2005. Use of Indicators in Forest Management Planning. FMP Training Material. 57 p.
65	MRN et al. 2001. Atelier sur les milieux riverains forestiers, Rapport d'atelier. Workshop held in Shawinigan on November 21 and 22, 2001. 56 p.
41	MRNF. Méthode pour déterminer la sensibilité à l'orniérage d'une UAF. Software program developed by the MRNF. 7 p.
Gén_6	Munson, A.D., M. Darveau, L. Bouthillier et al. 2003. Indicateurs de la gestion durable des forêts : développement d'un processus de mise en œuvre dans une étude de certification dans la région de la Mauricie, Quebec. 34 p.
94	Ouimet, R., H. D'Avignon, S. Tremblay, C. Périé and V. Gerardin. 2000. Comment calculer les indices de Pielou à partir de données d'inventaire écologique pour évaluer la diversité des écosystèmes forestiers. Note de recherche forestière no 102. MRN, Direction de la recherche forestière. 12 p.
28	Pâquet, J. and L. Deschênes, 2005. Lignes directrices pour la mise en œuvre des objectifs visant le maintien de la qualité des paysages et l'harmonisation des usages, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction des programmes forestiers, Direction de l'environnement forestier, 33 pages.
27	Pâquet, J. and L. Bélanger. 1998. Stratégie d'aménagement pour l'intégration visuelle des coupes dans les paysages. Réalisé par C.A.P. Naturels dans le cadre du « Programme de mise en valeur des ressources du milieu forestier » du ministère des Ressources naturelles. Charlesbourg. 40 p.
3	Paquet, Josée. 1996. Aménagement visuel des paysages forestiers, un guide de mise en valeur. 33 pages.
71	Paquin, R. and J. Noël. 2003. Envahissement des érablières par le hêtre, p. 191 to 200. In: Les enjeux de biodiversité relatifs à la composition forestière, P. Grondin and A. Cimon, coordinators Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de la recherche forestière et Direction de l'environnement forestier.216 p.
37	Pentassuglia, N. and Meek, P. 2004. Essais de coupe avec rétention variable dans l'est du Canada. Rapport Avantage de FERIC. Vol 5 No. 5. 6 pages

96	Périé, C., Levesque, F., D'Avignon, H., Ouimet, R. and V.Gerardin. 2000. Utilisation d'indicateurs cartographiques dans la caractérisation de la mosaïque forestière à l'échelle d'une aire commune. Note de recherche forestière no 101. MRN, Direction de la recherche forestière. 18 p.
Gén_7	Programme de forêts modèles du Canada. 2000. Guide d'utilisation des indicateurs locaux de l'aménagement durable des forêts: Expériences du Réseau canadien de forêts modèles. 272 p.
87	Renaud, M. and R. Langevin. 2004. Programme informatisé de calcul de l'aire équivalente de coupe d'un bassin versant en relation avec le débit de pointe des cours d'eau dans la forêt à dominance résineuse : guide d'utilisation, version décembre 2004, gouvernement du Québec, ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier et Université Laval, Faculté de foresterie et de géomatique, no publ. DEF-0242. 13 p.
8	Samson, C.,C. Dussault, R. Courtois and J.P. Ouellet. 2002. Guide d'aménagement de l'habitat de l'orignal. Société de la faune et des parcs du Québec, Fondation de la faune du Québec et ministère des Ressources naturelles du Québec, Sainte-Foy. 48 pages
88	Schreiber, A., H. L'Écuyer, R. Langevin and N. Lafontaine. 2006. Lignes directrices rattachées aux objectifs de conservation du sol et de l'eau : plans généraux d'aménagement forestier de 2008-2013, Quebec, gouvernement du Québec, ministère des Ressources naturelles et de la Faune, Direction de l'environnement forestier. 30 p.
38	Schreiber, A., Lafontaine, N. and Jetté, J-P. 2001. Limiter la formation d'ornières dans les parterres de coupe au moyen d'une approche de gestion par objectifs. 2 p.
36	Canada Forest Service. 2007. Le processus de planification de l'aménagement des écosystèmes forestiers. Researchers involved: Simon Bell and Tom Murray. 6 p.
6	Service d'extension en foresterie de l'Est-du-Québec. 1997. Travaux sylvicoles et aménagement Multiressource – Clef d'aide à la décision. 57 pages
34	Sougavinski, S. and F. Doyon. 2002. La coupe avec rétention variable de la structure : résultats de recherche, expérience de mise en œuvre et questions opérationnelles. 60 p.
55	Sougavinski, S. and F. Doyon. 2005. Directives de répartition spatiale existantes pour la forêt boréale canadienne aménagée. Directives de Réseau de gestion durable des forêts, Edmonton, Alberta. 116 p.
33	Sturtevant, B. R., A. Fall, D. D. Kneeshaw, N. P. P. Simon, M. J. Papaik, K. Berninger, F. Doyon, D. G. Morgan, and C. Messier. 2007. A toolkit modeling approach for sustainable forest management planning: achieving balance between science and local needs. Ecology and Society 12(2): 7. [online] URL: http://www.ecologyandsociety.org/vol12/iss2/art7/
80	Turbis, S. 2007. Formation SaMARE,partie application. Ministère des Ressources naturelles et de la Faune. Présentation PowerPoint, 91 acétates.
Gén_9	Vallauri, D., G. Olivier, L. Poncet et C. Schwoehrer. 2001. Références scientifiques sur la Conservation d'un réseau représentatif et fonctionnel de forêts naturelles. WWF et Réserves naturelles de France. 91 p.
60	WWF-Canada and TEMBEC. 2005. A Collaborative Approach between WWF and Tembec on Forest Certification in the Gordon Cosens Forest, A model for Forest Certification in Canada. 10 p.