

FMD 19 Ecosystem Based Forest Management Plan

APPENDICES

APPENDIX A – PUBLIC PARTICIPATION PROCESS SUMMARIES & REVIEWS	2
APPENDIX B – DESCRIPTIONS OF THE ECOLOGICAL PROTECTED AREAS NETWORK	24
APPENDIX C – ECOLOGICAL PROTECTION GUIDELINES	30
APPENDIX D – HARVEST PERMIT CONDITIONS	44
APPENDIX E – AAC DETAILS, ASSUMPTIONS, & METHODOLOGY	47
APPENDIX F - SILVICULTURE PROGRAM INFORMATION	55
APPENDIX G – CRITERIA AND INDICATORS PROGRAMS	57
APPENDIX H – LEGAL DESCRIPTION OF DISTRICT 19A (GOOSE BAY)	74

Appendix A – Public Participation Process Summaries & Reviews

Innu Community Consultation Summary

Ten community consultations were completed to date. Meetings were held at the following locations and dates:

1. October 28th, 2001 Grand Lake Area
2. November 28th, 2001 Sheshatshiu
3. December 12th, 2001 Sheshatshiu
4. February 19th, 2002 Sheshatshiu
5. March 17th, 2002 Utshimassits
6. April 16th, 2002 Sheshatshiu
7. May 3rd, 2002 Sheshatshiu
8. September 6th, 2002 Sheshatshiu
9. October 11th, 2002 Sheshatshiu
10. October 22nd, 2002 Grand Lake Area

Participants in the Innu community consultations are listed below:

Elizabeth Penashue	Sebastian Penunsi	Joseph Pokue
Michel Jack	Hank Rich	Philip Rich
Basil Penashue	Caroline Ashini	Olivia Andrew
Jerome Jack	John Aster	Max Penashue
John Jack	Collette Pastitshi	Sylvester Rich
Patrick Andrew	Lizette Abraham	Mary Mae Rich
Dominic Rich	Jack Selma	Pien Nuna
Bernadette Penunsi	Henry Abraham	Anne Marie Penashue
Richard Nuna	Patrick Ashini	Ray Rich
Jim Nui	Michel Rich	Martha Jack
Max Gregoire	Francis Penashue	Agatha Rich
Mathias (Akene) Pone	Janet Ashini	Virginia Pater
Pien Gregoir	Hank Pater	

The Innu Nation Forest Guardians and planning staff conducted the Innu community consultations primarily in Innu Aimun. Based on the minutes from these meetings a summary of consistent concerns and comments are listed below.

Summary Points

- The forest animals need shelter from the trees, the people must care about the land, water, trees, animals, rivers, streams ... how the forest works.
- What or how will the animals survive on if they continue to cut at a larger scale?
- Innu used the whole land, it must not get overrun with roads.
- There must be no harvesting around Grand Lake. There should be a large buffer where no cutting takes place.
- Innu respect the land and forest because that where they made their living from the land. They respect the forest water and animals.
- Road building disturbs the land.
- Need to learn how trees grow and how not to destroy the land.
- Must not destroy the land like what has happened in other parts of the country. Some places, once they had abundant wildlife in there woods, now the trees are cut and the wildlife is gone.
- Many trees are cut every year in Nitassinan, yet the Innu never get any benefits, only loss of wildlife.
- There should be no more clear-cutting.
- They should do studies to see what the impacts on the land are.
- There should not be any cutting until the Innu finish the forestry agreement and co-management.
- The government is damaging our land slowly. Forestry will be the same kind of damage that we saw with the Smallwood reservoir.
- The amount of trees cut is too much. The forest will have trouble growing back if so much is taken at once.
- The Forest Guardians Program is helping to protect the land and ensure less damage occurs. The Forest guardians should stop the clear-cutting.
- There are less berries - Redberries, Bakeapples, and blue berries because of the cutting.
- On a field visit, Innu elders were concerned with the large size and scale of the clear-cut harvesting. They highlighted the importance of maintaining habitat for all species, especially important country food species such as partridge, porcupine, and rabbit.
- All the Innu Elders favoured the partial cutting systems they viewed, but cautioned against over-exploiting the forest like they have seen in the past.

General Public Participation Sessions

Seventeen public sessions have been held in total. The following are participants who attended sessions and signed the participant list. Minutes for all the public sessions can be viewed at: <http://www.gov.nf.ca/forestry/management/district19a/>

Name	Affiliation
Keith Deering	Dept. of Forest Resources and Agrifoods
Jay Forsyth	Innu Nation Forest Office
Ken Colbert	Dept. of Forest Resources and Agrifoods
Elsie Colbert	Concerned Citizen
Paul Pigott	CBC
Janet Skinner	Concerned Citizen
Jane McGillvray	Concerned Citizen
Gary Forward	Dept. of Forest Resources and Agrifoods
Carol Dostie	Sawmiller
Carol Best	Central Labrador Economic Development Board
Lem Seaward	Concerned Citizen
Len Newman	Sawmiller
Derek Gabriel	Concerned Citizen
Ernie Rumbolt	Concerned Citizen
John Rumbolt	Concerned Citizen
Dwight Vokey	Sawmiller
Mike Hickey	Commercial Harvester
Max Pardy	Concerned Citizen
Brian Chaulk	Concerned Citizen
Ingham Bryanton	Sawmiller
Alex Saunders	Concerned Citizen
Jerimiah Perry	Concerned Citizen
Richard Nuna	Innu Nation Forest Office
Michel Rich	Concerned Citizen
Elizabeth Penashue	Concerned Citizen
Mina Campbell-Hibbs	Concerned Citizen
Judy Norman	Concerned Citizen
Hank Shouse	Concerned Citizen
Keith Watts	Dept. of Forest Resources and Agrifoods
Helen Michel Andrew	Concerned Citizen
Robin Goodfellow-Baikie	Concerned Citizen
Max Penashue	Concerned Citizen
Max Gregoire	Concerned Citizen
Rose Gregoire	Concerned Citizen
George Gregoire	Concerned Citizen
Sylvester Rich	Concerned Citizen
Mary May Rich	Concerned Citizen
Mary Agatha Rich	Concerned Citizen

George Nuna	Concerned Citizen
Ray Rich	Innu Nation Forest Office
Lacina Cailibaly	Innu Nation Forest Office
Dean Clark	Town of Happy Valley – Goose Bay
Jane Lethbridge	Concerned Citizen
Robert Otto	Dept. of Tourism, Culture and Recreation
Larry Innes	Innu Nation Forest Office
Betty Anne Fequet	Birch Brook Nordic Ski Club
Ben Michel	Innu Nation
Guy Playfair	Innu Nation Forest Office
Pat Ashini	Innu Nation Forest Office
Annette Lutterman	Innu Nation
Claudius Baikie	Concerned Citizen
Edward Gillingham	Concerned Citizen
Carl Hamlyn	Concerned Citizen
Peter Warren	Concerned Citizen
Davina Mugford	Dept. of Labrador and Aboriginal Affairs
Cody Powell	Concerned Citizen
Jenny Michelin	Concerned Citizen
Derek Montague	Concerned Citizen
Jim Learning	Labrador Metis Nation
Frank Phillips	Dept. of Forest Resources and Agrifoods
Joe Goudie	Parks Canada
Aden Clark	Dept. of Govt. Services and Lands
Bob Goulding	Concerned Citizen
Ron Bowles	Dept. of Labrador and Aboriginal Affairs
Tony Chubbs	Department of National Defense
David Nuke	Concerned Citizen
Paul Aylward	Dept. of Govt. Services and Lands
Brenda Saunders	Concerned Citizen
Marsha Michelin	Concerned Citizen
Misty O'Dell	Concerned Citizen
Clayton Montague	Concerned Citizen
Louie Montague	Concerned Citizen
Etienne Pastiwett	Concerned Citizen
Paul Michelin	Concerned Citizen
Darrin Sooley	Dept. of Fisheries and Oceans
Peter Armitage	Concerned Citizen
Corrina Wilkinson	Concerned Citizen
Wendy Allen	Concerned Citizen
Dennis Peck	Town of Happy Valley – Goose Bay
Gerald Dyson	Concerned Citizen
Len Moores	Dept. of Forest Resources and Agrifoods
Edward Meshier	Concerned Citizen
Jackie McCarthy	Concerned Citizen
David Hunt	Goose Bay Chamber of Commerce

Karen Blackmore	Labradorian
Ken Mesher	Concerned Citizen
Rahul Khesla	Concerned Citizen
Greg Nuna	Concerned Citizen
John Hickey	Town of Happy Valley – Goose Bay
Graham Moorhouse.	Birch Brook Nordic Ski Club

The general public participation sessions agenda was structured from a ‘workshop approach’ facilitation technique, which allowed participants go through a series of brainstorming exercises resulting in a condensed list of topics to be covered during future public sessions. This technique allows for the process to be driven by what the participants want to discuss, not an agenda predetermined by managers and planners. The identified topics were organized in three broad categories: Ecological, Cultural, and Economic. These are summarized below:

Ecological Landscape Themes

Ecosystem Conservation

- Sensitive Areas
- Protected Areas
- Protection of Bio-Diversity

Fish & Wildlife Conservation

- Animals abandoning habitat due to disturbances
- Change in wildlife eating habits
- Fish & Wildlife Protected Areas
- Habitat protection
- Important wildlife areas
- Abundance of small game
- Effects of roads on wildlife

Protection of Ecological Values

- Ecosystem Health
- Clean water
- Fresh air (oxygen)

Global Implications

- Reducing our ecological footprint
- Canada’s responsibility to International agreements (e.g. Kyoto, Convention on Biodiversity, Migratory Bird Convention)

Cultural Landscape Themes

Hunting & Trapping

- Abundance of small game
- Food resources

Non-Timber Forest Products (Domestic)

- Snowshoe-makers
- Medicinal plants

Drinking water
Berries & other food plants
Firewood

Heritage Values

Protect culturally significant areas
Cultural health

Education & Research

Traditional knowledge
Integration of use of resources (& knowledge)
Public education and information
Knowledge about the forest

Recreation

Hiking
Skiing
Fishing
Snowmobile
Going to the cabin
Nature Watching

Wilderness Reserve

Areas for no human development

Access to Resources

Bridge location
Access of products (timber and non-timber)
Road locations

Identification of Hazardous Sites

Current and planned sites
Spraying Areas (defoliant, pesticides, etc)

Landscape Aesthetics

Scenic values
Scenic views and recreation

Economic Landscape Themes

Timber Harvesting Concerns

Harvesting methods (Selective vs. clear cut)
Where wood is cut – terrain – slope cutting, wet areas
Minimize site impacts

Utilization of resources
 Ground disturbance
 Harvesting near water bodies
 Sensitive areas.

Silviculture

Regeneration; promote natural regeneration
 Reforestation issues

Forest Resource Roads

Ecological impacts of roads
 Minimize road development
 Road side buffers

Planning & Timber Sustainability

Timber Supply (pulp and sawlog)
 Harvest levels.
 Long-term planning.

Processing & Value Added

Maximum value added
 Secondary manufacturing
 Secondary processing locally

Non-Timber Forest Products (Commercial)

Snowshoe makers
 Medicinal plants
 Berries & other food plants
 Firewood

Tourism

Outfitting
 Eco-tourism

Sustainable Economic Development.

Growth in Industry
 Financial assistance
 Government support
 Cooperation between all parties

Future Economies

Research and development
 Diversity of industry / industries

Use of appropriate technology
Life science economy

Management & Process Issues

Local Benefits & Control

Local Employment
Protection for local operations
Training
Local control of harvesting
Limit number of outside employees
Involvement of other government departments to promote local economic activities (saw mills, etc)
Maximize local benefits
No round wood export

Regulations & Enforcement

Enforcement – how will we know the practices outlined in the management plan will be enforced?
Monitoring – who does the monitoring?
Clear regulatory process
Discussion(s) on tenure to land
Control of cabin development
Centralized information control

Balanced Recognition of Values.

True consultation
Public consultation
Multiple use of landscape
Access to land
Sustainability – what is the definition?
Economic vs. Ecological Values

The first Draft of the Strategy Plan was presented on July 31, 2002. A subsequent public session to hear comments, concerns, and questions from the public was held on September 5th, 2002. The Second Draft of the Strategy Plan was presented on October 10, 2002, along with the first draft of the Five Year Operating Plan for District 19A. A subsequent public session to hear comments, concerns, and questions from the public was held on November 14th, 2002. Minutes from these meeting are available at the website above. Written submissions by public individuals and groups are included below.

Response to the July 31st, 2002 Draft Forest Ecosystem Strategy Plan By the Public Group - The Third Signatory

September 5, 2002.

We must have a sustainable forest before we can have a sustainable yield (harvest). Said in reverse, we cannot have a sustainable yield until we have a sustainable forest. We must have a sustainable forest to have a sustainable industry, and we must have a sustainable industry to have a sustainable economy, and we must have a sustainable economy to have a sustainable society. Put another way, we must first practice sound "bio-economics" (the economics of maintaining a healthy forest) before we can practice sound "socio-economics (the economics of maintaining a healthy society). And it all begins with a solid foundation - a sustainable forest.

Chris Maser, *The Redesigned Forest*, page 143.

Introduction:

We, as a group of concerned citizens referring to ourselves as The Third Signatory, are pleased to be given the opportunity to respond to the Draft July 31 Forest Ecosystem Strategy Plan. We believe that the ecological implications must be considered first and foremost, with all forms of wildlife, birds, trees, and other plants, fish, insects, micro organisms and their habitat must be respected. As well, we concur with careful efforts to have sustainable forestry management while maximizing the local benefits in secondary processing.

Our response is to the Forestry Ecosystem Strategy Plan as applied to district 19A: North Side only, and excludes response to the Ecological Protection Guidelines (Appendix C) and the Ecological Protected Areas Network (Appendix B), as these were not as yet provided. We await the Five Year Operating Plan and the Annual Work Schedule and Past Report.

1. Ecology and the Harvest Method

1.1 From our research and study, we believe the 'Selective Cut During The Winter' method is most appropriate for our northern Boreal Forest. This is the traditional Labrador method (commercial harvesting of timber is not traditional p. 39). A selective

cutting approach retains the natural beauty of Labrador (and appeals to the eco-tourism industry) and the independent style of working.

1.2 We acknowledge that much work has been put into trying to adapt a mechanized and clear cut method to an ecological-based practice. We are also aware that minimal research has been conducted on the Labrador Boreal forest and that the proposed method is experimental and will be reviewed and adapted. As we believe in the Precautionary Principle, we urge you to approach harvest rate and practice with caution until research has been conducted to examine site specific effects on our forests. We understand that what is proposed is a major improvement over previous mechanical harvest practices, but are not convinced that it is the best approach for the frontier forests of Labrador.

1.3 In view of these points, we want just under 10% of the commercial cut (e.g. 5,000 cu. metres of Annual Allowable Cut) set aside for small scale low impact logging. This would be for 12 independent local small business winter harvesters, i.e. winter skidding with small mechanical means no larger than a snowmobile, for the sort yard supply. This research project is to be monitored for its success in both perpetual forest management and its impact on providing winter work for residents in the region.

2. Ecology and Harvest Method Accountability

2.1 No harvesting without trained guardians in place

2.2 Parties responsible for the critical importance of the identification and protection of species at risk and their habitat must themselves be identified and accountable. All species, not just those at risk, need to be respected.

2.3 The parties responsible would include Aboriginal Wildlife officers in collaboration with Aboriginal Forestry Guardians.

2.4 There must be a reliable and continuing method of consultation with Aboriginal elders and hunters in assessing wildlife conditions and concern.

2.5 “Patchy, semi-closed canopy (commercial) forest” (p.24, #9), which is referred to in the Draft Plan as “key wildlife habitat for many species” (p.24,#10) such as woodland caribou and marten, must not be considered commercial forest

2.6 Labrador's old growth forests are crucial to the world's bio-diversity and must be harvested only in an environmentally sound and responsible manner.

2.7 Forestry activity in the region must be monitored, and stopped if not managed in an ecologically-sensitive manner, as described in this document.

2.8 Fines (or charges, as appropriate) for infractions and harvest malpractice, such as wasteful practices, destruction of marked wildlife habitat and riparian reserve etc.

Continued blatant infractions should result in loss of harvest privileges. The forestry rules are to be enforced with vigour.

2.9 There must be a clear, complete, and transparent process for dealing with infractions.

2.10 An Aboriginal agency is to carry out monitoring and testing of water quality during and after harvesting operations. Water testing activities to be clearly defined: what types of tests, when, and by who.

2.11 Increase buffer zones along roads and near cabins.

3. Annual Allowable Cut

3.1 From our research, we understand that 120 year regeneration period (midpoint at age class 7) (Silva Report 2002) may be at least 130 years. A conservative regenerative delay is twenty years, giving a total rotation period of a minimum of 150 years.

3.2 Due to the harsh climate and relatively poor conditions in much of Labrador, we recommend using the Precautionary Principle, with an adjustment to the rotation age to between 150-190 years, until growth and yield research specific to Labrador sites is completed. A site series classification and mapping is an essential first step, followed by permanent sample plot research that examines variability in growth and yield and other factors such as potential diseases.

3.3 5,000 cu. metres, (just under 10%) of the AAC is to be dedicated to small harvesters selective cut (as above in 1.3).

3.4 When domestic cut is not used in one year, the unused domestic allowance is to be left on the stump and not be available for commercial harvest.

4. Permits

4.1 A transparent process, with consistent rules (as the current saw mill permit selection process is not clear).

4.2 Sawmillers should have the harvest quotas; harvest permits to be controlled by saw millers, not the harvester.

4.3 Strict “use it or lose it” permit policy with sawmillers: e.g. if a sawmiller uses only 50% one year, their quota the next year is only 50% of the original quota (however, loss of quota should not happen if there have been unforeseen circumstances such as a fire with rebuilding not complete).

- 1) Both large and small saw millers must have equal opportunities.
- 2) Local saw millers/processors only to have permits (Principle of Adjacency).
- 3) The rule of ‘no export of saw logs out of District 19’ to be established.

5. Maximizing Local Benefits

5.1 Research priority given to a study on how to implement a healthy saw milling and secondary processing industry in the region.

5.2 Support for a sort yard, inventory carry-over and kilns.

5.3 Expertise enhances industry training, set-up, and chances for industry success; ensure funding and support for acquisition of business and technical skills.

5.4 Full and innovative use of all wood fibre, as described in the AGFOR report of August/02, must be actively pursued.

5.5 Acknowledgement that wood products can be trucked to outside markets by “back-haul” (freight trucks returning to Western destinations empty).

5.6 Labrador can become a national centre for forest guardian training (Transfer of Technology).

5.7 Sawmillers’ harvesting permits should be available to District 19 sawmillers / processors only.

5.8 Through policies and regulations, create a climate that enables and supports Labrador regional saw millers and secondary wood processors; be supportive of the formation of a Labrador “saw millers and wood processors” organization. Put policies and regulations in place that are conducive to stimulating the local economy and secondary processing (value added) to maximize the return for wood harvested.

5.9 Labrador peoples' concerns and interests must take precedence over the interests of large multi-nationals such as Abitibi and Kruger; District 19 of Labrador cannot be seen as a warehouse of saw logs for island mills (Principle of Adjacency).

6. Research

6.1 Priority given for funding to build on AGFOR study to establish a viable local woods industry.

6.2 Actively support a Centre of Excellence for Research on northern Boreal Forest in North West River (as proposed by Memorial University and College of the North Atlantic) The secondary purpose of this centre would be education. We suggest that a Research Chair in Labrador boreal forest ecology be established in Labrador, affiliated with the Memorial University Labrador Institute of Northern Studies.

6.3 The continued research in the field, and forestry practice, to be adapted to findings; regenerative and rotation time research to begin immediately.

6.4 In the research centre / learning institution, forestry-related skills that will be required in the implementation of this plan, both from monitoring and secondary processing perspectives, should be identified, planned for, and implemented in order that Labradorians can play the major role in resulting activities.

7. Towards a Non-Subsidized Forest Industry

7.1 Stumpage fees must accurately reflect "saw log" fee vs. "pulp" fee; clarify definition of "saw log" and "pulp," adjusted to the Labrador circumstance e.g. +/- 6 inches? (It seems that all too frequently standards devised for the island of Newfoundland are inappropriate to Labrador boreal forests conditions.)

7.2 Phase out activities that are no longer related to eco-management, such as seedling growth and replanting activities.

7.3 Assess true cost of Development (Cost Benefit Analysis) to reflect loss to society of fish, wildlife, tourism and any non-timber forest product etc.

8. Public Accountability

8.1 No commercial harvesting on Southside of 19A without public process and feed-back (as per Northside)

- 8.2 Annual public report process, with feed-back, on total forest management.
- 8.3 Audit of plan at end of five years to publicly report on successes and failures
- 8.4 Local industry plan to be researched, mapped out, made public, and implemented, with time lines and public accountability.

9. Document and Process Comments

- 9.1 Throughout the document, the phrase “Aboriginal and non-aboriginal communities” within the region is used. However, most of the communities within district 19 are both. We ask that this be re-phrased to reflect the Aboriginal and non-aboriginal mix of cultures in the various communities of the region.
- 9.2 P.36, paragraph 4, omit the sentence “These industrial developments brought a second wave of 'settlers' which quickly outnumbered the Innu, Inuit and settler combined,” because we are talking about District 19 only, which does not include western Labrador.
- 9.3 P.36, paragraph 5, add “Meanwhile, the Labrador Metis Nation, organized since the mid 1980’s, have a federally-filed Land Claim that overlaps some of the area under discussion in this five year plan.”

We, The Third Signatory, are the only group, it seems, that “pays” to give input. Our costs, aside from our time, include photo-copying, research materials, phone calls, and gas to enable us to attend meetings. We would welcome consideration for these expenses in the future.

With 97% of District 19 being Crown Land and subject to this plan, what happens within the forest is important to all residents.

Although DFRA, in its mandate, is to represent the people, we feel that, at times, it may be in a conflict of interest. Therefore, we continue to expect inclusive, direct public input into forest management for District 19.

We are not alone in being interested and concerned about the forests, as evidenced by recent protests by the Labrador Metis Nation.

Concluding Remarks

10.1 We acknowledge the large part the Innu Nation had in ensuring that the public had input into what will happen to everyone's forests

10.2 We applaud the amount of effort put into the proposed Forest Ecosystem Strategy Plan, particularly those of us who witnessed the Labrador Linerboard experience of the 1970's.

10.3 We seek transparency, accountability, and fairness for everyone involved; we are not advocating for any individual, or championing a group cause. Although we are aware that some debate may be part of the dialogue, we strive for sober reasoned thought and constructive input in achieving an excellent Forest Plan for District 19.

1.1 Committee Members

Roberta Benefiel

Clarice Blake Rudkowski

Betty Ann Fequet

Eldred Davis

Edward Mesher

Judy Norman

Ernie Rumbolt

Robin Goodfellow-Baikie, Chair

1.1.1 Volunteer Consultants

J. Fred McNutt, B. Sc. F., M.B.A., CESO consultant

Sean Sharpe, M. Sc., R.P.Bio, Research Manager, Institute for Environmental Monitoring and Research

1.1.2 Elder Advisor

Jane Lethbridge

Response to Second Draft (October 10th 2002) of Forestry Management Plan by the Third Signatory

November 14/02

We have studied the Second Draft of the Forest Ecosystem Strategy Plan for Forest Management District 19A, plus the recent Environmental Protection Guidelines and the Five Year Operating Plan. We await the Past Report. We have met with Keith Deering of DFRA and Jay Forsyth of Innu Nation (October 24,2002) to review The Third Signatory issues that remain outstanding. This document forms a written response to the issues. We do this with the continued understanding that the Forest Management Plan has asked for public response, and this response is to the total plan, and not limited to selected aspects only of the plan.

1) AAC and Research:

- We all agree that research of the Labrador Boreal Forest has been minimal;
- Labrador conditions are not like the Island of Newfoundland, and this is a distinct plan and district;
- History of cutting on the island has proven unsustainable;
- Other opinions, including that of our consultant, are that a more realistic AAC is 150 years rotation age, which includes the regenerative delay;
- We ask that the Precautionary Principle be adopted with our forest resources;
- Our committee wants the rotation age changed to 150 years to better reflect the lack of knowledge and a more realistic figure; at a minimum, we want a commitment to study and verify the rotation age and regeneration time during this plan;**
- The net-down figure of 2.6%, referred to as the Air Photo Refinement Factor, was not explained, nor were the sources of information leading to this figure defined;

We want the Refinement Factor of 2.6% to be further identified and explained in the plan.

2) Local Processing and Northside AAC:

- The plan says that 20% of the cut is to be processed locally;
- The AGFOR report indicated that 60% of the wood could be utilized in the present local market only;
- It is also seen as realistic to expect a 20% per year increase in this amount throughout the life of the plan. Our goal at the end of 5 years would be 80% local utilization of the Northside resource;
- We want local harvesting and local processing to be linked. In order to encourage a balance between harvesting and processing, plus to provide incentive to the local industry, we ask for the following scheme:

If in the second year, 40% of the north side AAC is processed locally, the AAC for the following year will not be reduced; but if only 20% is processed locally, then the commercial AAC will be reduced by 20% of the original commercial AAC in the following year. (See Appendix A for further illustration);

- Our intent is to promote a healthy local wood processing industry; it is not our intent to put people out of business. It is difficult to foresee the result of this incentive. However, if it is not achieving the intended goals, this suggestion can be reviewed after 3 years;
- We want the partners to commit to this plan of incentives.**

3) Southside Activities:

When the Strategy Plan was presented this summer, maps of the district showed activity in the forest south of the Grand (Churchill) River. When questioned directly on that, it was clearly stated that there would be no cutting there as part of the Five Year Operating Plan. We believed the 2 presenters told the truth as was revealed to them. However, after some delay, this Five Year Plan was released showing commercial cutting to begin in 2005, with a “conservative” A.A.C. of almost three times that of the Northside. It appear as though higher management at DFRA used this delay to mislead the public into believing the forest on the Southside was not due to be cut. It also appears that DFRA considers this to have been included in the Plan consultation process.

We want DFRA to acknowledge this misrepresentation. As with the Northside, we want the partners to commit to a legitimate public consultation process concerning the Southside forests prior to any Southside activity .

The map of the protected areas does not show inclusion of existing and traditional trap lines and hunting areas except those used by the Innu. These areas too must be protected even if the Labrador Inuit Association and the Labrador Metis Nation does not make a formal request to do so.

We want the partners to ensure that non-Innu protected areas data be included in this Plan.

As stated in Section 2.1 of the Five Year Operating Plan, 4 conditions must be met before commercial cutting on the Southside is considered. The fourth condition was that “Investment in local capacity to harvest and process the majority of Southside timber allocations”. We ask that no cutting occur on the Southside until there is investment in local capacity to harvest and process 100% of Southside timber allocations. We want the partners to re-affirm their commitment to the first 3 conditions plus an amended fourth condition of capacity for 100% local processing prior to any Southside activity.

4) Selective Commercial Cut:

- A more accessible area than designated (on the south side) is required;
- This project needs to be well-managed, monitored, co-ordinated and assessed;
- The Central Labrador Economic Development Board (CLEDB) can be asked to find a co-ordinator for this Pilot Project, as it has the potential to create long term work for 13 seasonal people;
- We request a Selective Commercial cut because we continue to believe that the selective method of cutting is preferable in Labrador, and so this forms an important “comparison” project in environmentally good harvest methods and small operator potential;
- Harvest from this method would be recognized by the Forestry Stewardship Council;
- Longer wood, of greater value, can be harvested using this method, and sent to a central sort yard, or mills;

We want the partners to ensure that this project receives the attention it requires so that it has every chance of success.

5) Permits:

-The permit allocation process has, to date, been unclear with no public guidelines, and it is therefore considered by the public to be 'political'. As well, Innu Nation now states that it too will issue permits;

-Define permit process, rules and Guiding Principles;

-Include how DRFA and IN permits are to be divided in the Work Plan;

We want the government and the partners committed to clarifying the Permit Process of the past, the present, and for the future;

-Throughout this process we have emphasized the importance of a balance of both large and small woods industry for the region. We want to see a balance of e.g. 25% of the local saw milling capacity for small (500,000 to 3 million bd.ft/yr) sawmills;

We want the partners committed to ensuring a balance of large and small saw milling in the region;

-Commercial saw millers only are to hold harvest permits;

-If the permit is not used, it is not renewed;

-To our understanding, these rules are how things are done elsewhere;

We want the partners committed to these conditions of permits.

-To date, the strategy behind permit decisions (e.g. favouring large sawmill permitting over small) has, to our knowledge, not been based on research or a comprehensive industrial strategy. However, with research (such as the recent AGFOR study(August 22/02)) and an Industrial CLEDB Committee (that has forest industry and public representation there is opportunity for a comprehensive industry planning;

-There needs to be some definable connection between permitting and the Proposed Industrial Committee;

-Permits should reflect the goals of any Industrial Strategy devised for the region;

-We want the partners committed to working with others in the region in the permitting process.

6) Industrial Committee:

The plan assures that there will be public input into both the plan creation and implementation. The suggestions has been made that the CLEDB 'do' that. We concur, as CLEDB reflects public input, but CLEDB needs Terms of Reference for such a committee. We suggest the following for such a committee:

-The goal of the committee would be to have 80% of all wood harvested in the region, processed in the region, within 5 years;

-Relationship of the Industrial Committee with the bodies that issue the permits needs to be defined and clear, and sharing the purpose of a successful lumber and value-added industry in the region

-The public should be represented on this committee, with one seat for 'sustainable industry' interests, and one for 'environmental concerns. These two seats would be open to application from the public, with the criteria that the person applying has some Labrador background in the issues;

-Both large and small industry and harvesters should be represented in the committee;

-The comprehensive industrial committee has to devise an industrial strategy by May/03, and all permit-letting reflect this Strategy;

We want the partners to create 'Terms of Reference' for the CLEDB which will reflect both the public and the forestry partners involvement.

7) Research:

There is a great deal of research to be done in the Labrador Boreal Forest generally, and in Forest Management Area 19A specifically. As well, with no land use planning, this plan is a 'timber management plan' only, and risks removing other land use options that may be important.

We want the partners to commit to the following:

- Research to be carried out is to be defined in work plan;**
- Silviculture in this region, with an Ecosystem Strategy, is to be classified as 'research';**
- Encourage people and organizations outside DFRA/IN to partner with DFRA/IN in forest-related research;**
- Give support for a Boreal Forest Research Centre, as initiated by the Labrador Institute of Northern Studies of Memorial University and the local College of the North Atlantic;**
- See that land use planning is completed within five years;**
- The research budget is to be made public.**

8) Accountability:

The current plan states that monitoring of forests is dependent on funding availability, but clearly this is not adequate for such a plan. We want the partners to ensure that monitoring will be carried out, and that it will not be dependent on funding availability. **It is difficult to imagine what cut blocks for 120 years on the Northside would look like, and we concur with the suggestion that plotting them on a map would assist our understanding.**

We want the partners to include a Northside 120 year plot strategy in the Plan. This public process has involved the public, and has revealed a strong public interest in forest resource management. We want the partners to ensure that there is a public annual report and review of the Forest Management Plan. Careful, cautious harvest of our forest resources with maximum local benefit is what the public want. **We want the partners to show commitment to these values in all actions they take.**

Appendix A

Illustration of the Northside Harvesting AAC to Balance Local Processing

Year 1 May 02 to April 03: 20% of harvest to be processed locally: If this is not achieved, the difference (e.g. if only 17% achieved, the difference is 3%) will be removed from the original commercial AAC for the following year. So, for year April 03 to April 04, the north side AAC would be reduced by 3%, in this example.

Year 2 May 03 to April 04: expected amount of local processing will be 40%. If by April 04, this remains at, for example 20%, then the north side commercial AAC for the next year will be reduced by 20% of the

original commercial north side AAC allocation.

Year 3 May 04 to April 05: expected amount of local processing will be 60%. If by April 05, this has become, for example 40% but as the standard set was 60%, then the north side commercial AAC for the next year will be reduced by 20% of the original commercial north side AAC allocation.

Year 4 May 05 to April 06: expected amount of local processing will be 80%. If by April 05, this has become, for example 65% but as the standard set was 80%, then the north side commercial AAC for the next year will be reduced by 15% of the original commercial north side AAC allocation.

Year 5 May 06 to April 07: The AAC would be reduced by the corresponding amount if the goal of 80% local processing had not been met.

Appendix B

Letter from Edward Mesher, Committee Member, who was out of town November 14, 2002, but sent this message

Sorry I can't be at the Forestry meeting this time.

As I was to address the issue of Accountability I would simply like to point out a few thoughts. We, the people who make up the 3rd signatory citizens group along with many other Labrador people look forward to and expect to see 80% of commercial wood cut from our land be processed on our land and employ our fellow Labrador people in the process.

Secondary production and value added will create much more local employment, a sort yard for longer timber would be a start. A wood pellet industry would be a good thing to look into along with other wood products. Keeping in mind the Transport trucks leaving the Upper Lake Melville area empty.

Monitoring of the forest in this 5 yr plan to be cut must be part of the plan no excuse will be accepted not to carry out this important job. (For those of you who don't know that includes hiring local people to go into the forest that is to cut and flag off sensitive areas just like the Innu have been doing for some time now.)

We also expect well publicized annual public accountability meetings to take place and that this is assured by the Newfoundland Dept of Forestry. We are aware that the NL Pulp and Paper industry is at about \$7 million dollars now and that Labradorians see a very small percentage of the revenue generated. As far as I concerned this will no longer be tolerated and I feel that there are many more Labradorians who feel the same. We look forward to working with the LMN in anyway possible to help them

get on track in regards to the forest issue. I think that it would be also safe to say that we would also like to see any Labradorians in districts 19, 20 and 21 work together to insure that Labradorians will no longer be ignored nor separated and divided over the Labrador Forest Issue. The time has come for us all to realize what's been allowed to happen to our natural resources and to come together to strengthen Labradors position to work together! . It doesn't matter if the people are from the LIA, the LMN or the Innu Nation we are all Labradorians and I feel that we would be all better off when we work together. I would like to thank you all for coming out to this meeting this evening and listening to my words.
Edward Mesher

Very Respectfully yours
Edward Mesher

The Third Signatory

Committee Members

Roberta Benefiel
Clarice Blake Rudkowski
Betty Ann Fequet
Eldred Davis
Edward Mesher
Ernie Rumbolt
Robin Goodfellow-Baikie, Chair

Volunteer Consultants

J. Fred McNutt, B. Sc. F., M.B.A., CESO consultant
Sean Sharpe, M. Sc., R.P.Bio, Research Manager, Institute for Environmental Monitoring and Research

Elder Advisor

Jane Lethbridge

Appendix B – Descriptions of the Ecological Protected Areas Network

One of the key principles of Ecosystem-Based Planning is the identification of an ecological Protected Area Network (PAN) at different levels of planning. For this Plan, the ecological protected areas strategy focused on three distinct scales: Landscape, Watershed, and Stand.

At the Landscape scale, the ecological PAN's were designed at the 1:500,000 map scale for all of District 19 and the 1:250,000 map scale for District 19A. As shown on Maps 7 & 8, the District 19A EPAN is designed to 'nest' within the District 19 EPAN, with several of the 19 PAN components forming the framework of the 19A PAN. A similar exercise is anticipated for Districts 19B and 19C in future planning efforts.

The Landscape scale ecological Protected Area Networks were designed by Silva Ecosystem Consultants. The PAN designs were based upon the principles of landscape ecology and conservation biology. The objective for the development of the PAN was to designate both unique and representative core reserve areas, and to begin to design broad connectivity linkages in the landscape, as a "coarse filter" to allow for the persistence of all ecosystems and habitats.

A summary of the component descriptions and general methodology utilized by Silva in the creation of the Landscape scale PANs is listed below¹. Please note that the Landscape scale PANs do not incorporate cultural land use information or protected areas at the watershed and stand levels.

1. District 19 Ecological Protected Area Network (1:500,000 Scale)

The primary data sources for District 19 PAN design was the Drieman vegetation inventory, the Lopoukhine ELC mapping (see Chapter 1), unclassified Landsat imagery and woodland caribou spatial data.

The area that was the most difficult to address was the extensive area dominated by bogs, lichen forest, and varied scrub in the west half of District 19. In the end, it was elected to delineate a set of areas of unique features identified using the available data sources (Core Reserves #2, 3, 4, and 5). These areas exist within the matrix that is dominated by bogs, scrub, and lichen forest, but deserve identification as ecologically unique features and special habitat areas. Further linkages through the matrix need to be designed to connect these unique areas, when more information is available.

¹ Hammond H., and Leslie, E. 2001. *Draft Interpretive Maps For FMD 19 Ecosystem-Based Plan*. Windlaw. Silva Ecosystem Consultants.

It was also recognized that there were subtle differences, unique areas, and unique patterns in what is referred to as the matrix. Based on the information that was available it was difficult to differentiate between these areas. If and when a further, more detailed level of protected areas planning occurs for the western half of District 19, there will be additional information required and gathered to support a more detailed PAN that reflects the diversity of the landscape. In other words, the area defined as the matrix contains a significant degree of heterogeneity and clumped differentiation.

PAN Component Descriptions

The District 19 PAN is composed of 5 core reserves, a Red Wine Caribou Reserve, and 3 linkages.

Core Reserve #1: Mealy Mountains Proposed National Park

The Mealy Mountains Park covers a very wide range of ecosystem types in District 19, ranging from rugged bedrock uplands to extensive lowlands, and includes significant portions of the Eagle Plains and of the relatively productive semi-closed and closed canopy spruce-fir forests in the Kenamu River valley. It provides a large and varied core area in the eastern portion of District 19. It also includes the vast majority of the range of the Mealy Mountains Caribou herd in District 19. At this scale, and at this stage in initial PAN development, its proposed boundaries were acceptable as the limit of CR-1.

A section of this Core Reserve is included in the District 19A PAN.

Core Reserve #2: Seal Lake

This area consists of Lopoukhine's ecoregions L-4 and L-5 at the far north end of District 19. This is an area of deeply striated geology, with parallel ridges of sedimentary rock, long narrow lakes and an unusual degree of deciduous vegetation cover. This area is quite unique in all of District 19, and cannot be understood without considering it as imbedded in a large landscape that lies north of District 19.

Core Reserve #3: Red Wine Mountains

The Red Wine Mountains are delineated as Lopoukhine's ecoregion K-3. The Red Wine Mountains are a low range of mountains with exposed bedrock partially covered by lichens and mosses, with dwarf spruce and ericaceous shrubs. This vegetation cover is unique in the western portion of District 19. The PAN design for District 19 connects the Red Wine Mountains to the Mealy Mountains through the Red Wine Caribou Reserve and two large linkages described below.

Core Reserve #4: Churchill River Uplands—West

This core reserve consists of Lopoukhine's ecodistrict R-4. It is an outlier of the Domagaya Lake ecoregion that is located to the southwest, adjacent to the Quebec border. This ecodistrict is a slightly elevated area of shallow soils over hummocky bedrock topography. It comprises the northern headwaters of the Mecatina River, and is also at the junction of many smaller local watersheds. It is also adjacent to the Churchill River linkage. It contains a very complex pattern of vegetation, including many of the

most westerly stands of semi-closed canopy forest in District 19. It is a unique sub-type in the western portion of District 19.

Core Reserve #5: Complex Habitat Matrix—Southwest

Core Reserve #5 is a large area of mixed, moderately dense coniferous forest with non-commercial scrub forest, bog, and lichen forest along the southern edge of District 19. This area was selected for inclusion in the protected areas network because it has a very high level of biodiversity based on the vegetation types, and it provides a wide range of habitat for many species in a relatively small area. The conjunction of open water, riparian ecosystems, wetlands, scrub forest, and closed canopy forest in a small to medium sized landscape provides most of the range of habitats found in southern Labrador in one contiguous unit. This includes all of Lopoukhine ecodistrict S-5 and a portion of the S-3, S-4 and S-6 ecodistricts.

This area also provides good connectivity from the central District 19 area down towards the Quebec-Labrador border. The reserve extends along the border for approximately 40 km, providing ample opportunities for cross-border and inter-agency coordination to ensure the maintenance of reasonable movement routes from Labrador into the forests of Quebec, and vice versa.

Core Reserve #6: Red Wine Caribou Reserve

The Red Wine Caribou Reserve is an *initial* interpretation of the core habitat area for the Red Wine caribou herd based upon spatial data provided by the Department of Tourism, Culture, and Recreation—Wildlife Research Division. Additional spatial data was obtained from Schaefer et al. (2001) *Fuzzy structure and spatial dynamics of a declining woodland caribou population*. *Oecologia* 126:507-514. As additional caribou data becomes available, the boundaries of this reserve will need to be refined.

The endangered Red Wine caribou herd was given special consideration in the PAN design, since wide-ranging woodland caribou are especially sensitive to habitat fragmentation and loss. Woodland caribou are generally considered an “umbrella” species: if we ensure sufficient woodland caribou habitat, then we simultaneously ensure sufficient habitat for many other species.

The Red Wine Caribou Reserve is located in a large, highly variable lichen scrub and bog-dominated area referred to in the discussion above as part of the matrix in the western portion of District 19. The Caribou Reserve effectively serves to connect the more heavily forested areas to the east and south with the Red Wine Mountains and areas to the northwest.

A section of this Core Reserve is included in the District 19A PAN.

Linkage #1: Churchill River

This major linkage was designed to provide connectivity through the key central portion of District 19 along the Churchill River valley. This valley includes the unique and

unusual rich ecosystem and vegetation types on the slopes and floodplain bordering the Churchill River.

The linkage begins at Lake Melville at the boundary of the Mealy Mountains Proposed National Park. The linkage runs along the south side of the Churchill River from the Proposed National Park to a point just north of the junction of the Churchill and Minipi Rivers. The linkage in this area varies from over 15 km wide, to about 3 km wide, depending on biophysical features. The widest points of the linkage are designed to encompass substantial wetland complexes, sandy lichen barrens, and other areas of high biological diversity.

West of the Minipi River, the Churchill River Linkage occupies *both* sides of the Churchill River valley. The linkage boundary in this stretch follows a very significant Lopoukhine ecoregion boundary. The linkage through this area occupies moderately steep slopes, falling into the main Churchill River valley, and the vegetation and ecosystems on these slopes. Vegetation in the area ranges from closed canopy coniferous forest to lichen forest and varied scrub.

The purpose of the linkage is to provide connectivity on a central axis through District 19, and to protect the unique habitats found in the Churchill River valley. While this valley occupies a very small portion of the total area of District 19, the deeply incised valley and steep north- and south-facing slopes result in a series of ecotypes that are unique in the District 19 area. They are likely critical habitat for many species.

A section of this Linkage is included in the District 19A PAN. A Domestic Harvesting Reserve and a Selective-Commercial Harvesting Area within a portion of the 19A section have been incorporated into the linkage. These special management areas aim to ensure local community members have some small-scale access to forest resources, while maintaining the ecological integrity of the linkage.

Linkage #2: Dominion Lake-Minipi Lake

This broad linkage ranges from 15 to 20 km in width and connects the Mealy Mountains Proposed National Park to the Churchill River valley. It encompasses the southern portions of District 19A from the Kenamu watershed to the Minipi watershed and then to the Dominion watershed and finally, to the Churchill River linkage.

The purpose of the linkage is to provide a second east-west connecting route, this time through varied, relatively gentle terrain. The linkage also encompasses several large lakes and associated river systems, and provides a very diverse range of habitats. To an extent, this linkage duplicates the function of the Churchill River linkage, but it is located 75 kilometers to the south over much of its length, and in a significantly different set of eco-types. The southern boundary of the eastern two-thirds of this linkage follows the watershed divide between the Kenamu and Minipi watersheds, and the major watersheds that flow south into the province of Quebec.

A large section of this Linkage is included in the District 19A PAN.

Linkage #3: Eagle Plains-Quebec

This is a north-south linkage which joins the Mealy Mountains Proposed National Park with the Quebec-Labrador border, running straight north-south. This linkage is designed mainly to provide connectivity, but also to encompass representative portions of two of Lopoukhine's ecodistricts—V-2 and V-7—and a portion of district X-2. The linkage was designed to encompass portions of these major ecoregions to mirror the biodiversity in the area. V-2 is occupied largely by closed canopy to moderately closed canopy commercial forest, whereas V-7 is dominated by more open wetlands.

The linkage swells to over 20 km in width as it nears the Quebec border, to capture an area dominated by old fires and deciduous forests, which are unique in the southern landscape of District 19. The linkage passes through an area for which there is no Drieman vegetation inventory data. The linkage in this reach will need to be modified when vegetation data becomes available, so as to encompass specific areas of unique biodiversity and other habitat types.

2. District 19A Ecological Protected Area Network (1:250,000 Scale)

The District 19 ecological PAN description explains the rationale for the PAN at the large landscape scale (1:500,000) and highlights the components that have been transferred to the District 19A PAN. The majority of the designated protected areas and linkages in District 19A are in fact the result of PAN design at the District 19 level. The District 19 PAN already includes many of the rare and representative ecosystems in District 19A. However, representation and connectivity both within and beyond District 19A are significantly improved by the addition of the three components of the District 19A PAN.

Component Descriptions

The District 19A PAN is composed of two additional core reserves and one additional linkage.

Core Reserve A: Kenamu River

The Kenamu River watershed includes a vast range of biophysical land cover types as well as many rare forest types. The lower reaches of the Kenamu River are already included in the proposed study area of the Mealy Mountains Proposed National Park (Core Reserve 1). This reserve focuses on protecting the middle reaches of the river's watershed, which includes many complex lower elevation areas that are not well suited to forestry operations.

Core Reserve B: Naskaupi River-Susan River

At the northern end of District 19A, a number of major rivers flow into the west end of Grand Lake. These rivers - the Naskaupi, Crooked, Red Wine and Susan Rivers - drain extensive areas to the north and west. The lower reaches of these river systems contain

regionally rare semi-closed canopied forests that rapidly disappear as one moves up stream and/or out of the river valleys. From a landscape perspective, forestry operations are not ecologically viable in such situations.

Logging along the Grand Lake road now heavily fragments the area south of Grand Lake. This reserve, extending from the north shore of the Susan River north and east to the Crooked River valley, is required to ensure representation of viable core habitat areas in the northern portion of District 19A.

Core Reserve C: Waterfowl Reserve

This thin reserve begins on the shores of Lake Melville northwest of Northwest River and continues up to Sebaskachu bay. The reserve protects the sensitive shoreline and coastal islands, which form important waterfowl habitat. This small reserve contains a mixture of forest and wetland habitats with many fresh/salt water estuaries.

Linkage A: Goose River-North

This linkage connects the extensive scrub and barrens of the Red Wine Caribou Reserve to the Goose Bay wetlands, following the northern portion of the deeply incised Goose River valley. The Goose River valley's forested slopes provide key habitat and a distinct natural connectivity corridor in the landscape of north-central FMD 19A.

This linkage preserves some connectivity in the most heavily fragmented portion of FMD 19A. The Grand Lake Area to the north, the area south of the Goose River extending to the Churchill River, are the two areas that have been extensively logged over the past 30 years.

Appendix C – Ecological Protection Guidelines

Environmental Protection Guidelines

For Ecologically & Culturally Based Forest Management In District 19

(Stand Level Operations)

September 25, 2002

“Forests are interconnected webs which focus on sustaining the whole, not the production of any one part or commodity. Trees, the most obvious part of a forest, are critical structural members of a forest framework. However, trees are only a small portion of the structure needed for a fully functioning forest.” (Hammond, 1991)

An ecologically based approach to forest management requires that forest managers shift their focus from managing resource components of the ecosystem to managing the three-dimensional ecological landscapes that produce them. The primary concern then becomes the maintenance of landscapes and waterways as complete ecosystems, because the only way to assure the sustained benefit of forest values, now and in the future, is to keep them and all their parts in a healthy state.

Similarly, the foundations of Aboriginal culture and the traditional Labradorian economy are the natural ecosystems of what the Innu call *Nitassinan*. These ecosystems support and maintain all wildlife, fish, plants, and fresh water. Throughout much of *Nitassinan*, forests are the dominant ecosystem. Hence there is a strong need for forest planning, policy, and environmental protection guidelines that ensure the protection and careful use of the District’s forest landscapes and stands.

The Innu Nation and the Department Of Forest Resources & Agrifoods (DFRA) are committed to the concept of ecosystem-based forest management. This commitment is captured in the District 19 Strategy Plan vision statement:

“To create an ecosystem-based forest management plan for District 19 that protects ecological and cultural integrity, productive capacity, resiliency and biodiversity while advancing economic opportunities for the sustainable development of forest-based industries.”

The District 19 Strategy Plan provides the strategic goals, objectives, and guiding principles for how to achieve this vision, and provides the basis from which these Environmental Protection Guidelines were developed.

The Environmental Protection Guidelines provide specific “on the ground” standards for harvesting operators. They form a framework for monitoring compliance and give management direction to forest planners. These Guidelines are intended for stand level operations, although occasionally reference may be made to watershed or landscape level planning issues. Individually, the Guidelines appear as specific rules; however, when implemented collectively they aim to facilitate ecologically based and culturally appropriate forest management.

These Guidelines were developed by the DRFA and Innu Nation through consideration of scientific literature, discussions with resource managers, and in consultation with members of the Innu Nation and the general public. In implementing the District 19 Forest Management Plan, the DFRA and Innu Nation will continue to oversee management issues, and as new information and management techniques become

available, these Guidelines will be adapted accordingly. These Guidelines will be formally reviewed and revised on an annual basis to incorporate any necessary changes.

These Guidelines are conditions of Crown commercial harvesting permits, and they are the basis for monitoring operator compliance.

1.0 Pre-Operational Planning and Monitoring Requirements

1.1 Harvesting Blocks

- a) Harvest Blocks will be identified in the Five Year Plan and Annual Work Schedules.
- b) Where planned Harvest Blocks are within one kilometre of existing or proposed ecological reserves, wilderness reserves, provincial parks, or important viewsheds, modified operations may be necessary.
- c) Harvest Blocks will delineate riparian buffers and ecologically sensitive sites that are defined and mapped at the watershed level (1:50,000).
- d) Adjacency Guidelines* will be applied to provide for connectivity at the watershed level, wildlife corridors, avoid concentration of Harvest Blocks and maintain a component of older age class forest through time.
- e) Harvest Blocks will be generally 100-400 ha in size. Following surveys and assessments, Harvest Blocks will be divided up into Harvest Units and connected by stand-level Ecological Protected Area Networks.

1.2 Harvest Block Survey & Assessment

- a) Each Harvest Block will be assessed in the field to describe and map ecosystem types and terrain features such as localized steep slopes², streams (permanent, intermittent and ephemeral), bogs, wildlife dwellings/habitats, scrub patches and small gap disturbances that are not mapped at the watershed level.
- b) These features (environmental, topographic, forest conditions, etc.) within the Harvest Block may restrict or require harvest modifications as per *Operational Standards*.³

1.3 Stand Level Ecological Protected Area Network (EPAN)

* Represents an issue that will be resolved on a “go forward” basis. Unresolved issues will be monitored, researched and ultimately resolved by the Parties implementing these guidelines.

² Defined as slopes greater than 30%.

³ Operational Standards are defined in section 2.

- a) Based on the field assessment, a stand level Ecological Protected Area Network (EPAN) will be developed according to identified ecosystem types and terrain features.
- b) The EPAN will function to protect ecological structures and features as well as to provide connectivity at the stand and watershed level.
- c) The EPAN will account for approximately 30% of the total Harvest Block. The remaining area outside of the EPAN will be incorporated into *Harvest Units*. Leave areas will be maintained during the current management period.

1.4 Harvest Unit Size and Shape

- a) Harvest Unit size and shape will be defined by the ecosystem features present, EPAN, and the Harvest Block boundaries.
- b) Harvest Units will follow natural topographic features and curved edges, feathered where possible.
- c) Clear-cut openings within Harvest Units will have varied dimensions and maximum cover-to-cover distances in any direction of <300 m.
- d) Harvest Unit's openings will be designed to maximize edge-edge ratios.

1.5 Silviculture Prescriptions

- a) A Silviculture Prescription will be completed for each Harvesting Block.
- b) Silviculture Prescriptions will include ecological site description; logging method; areas of ecological sensitivity; criteria for selecting permanent reserve trees, patches or strips; locations of skid roads/yarding routes, temporary bridges; any silviculture treatments following cutting.
- c) Silviculture Prescriptions must be prepared prior to officially committing logging blocks to timber cutters and commencing logging.
- d) Silviculture Prescriptions need to include a series of appropriate maps at appropriate scales.
- e) Each Silviculture Prescription will contain appropriate timber volume information based on global inventories and operational cruise data, if available.

1.6 Timber Volume Information

- a) Timber volumes in each Harvest Unit will be stratified by species and quality (at a minimum % or estimated volumes of sawlogs and pulp if an operational timber cruise has been completed), and this

information will be provided as part of the Silviculture Prescription for each Harvest Unit.

- b) Accessible stands of quality sawlogs will be generally reserved for value-added production. General harvest allocation will reflect a proportionate degree of good and poor areas (harvest perspective) to maintain an adequate balance of harvest opportunities.
- c) This data should be derived from an operational timber cruise, but in absence of cruise date, data may be derived from DFRA Forest Inventory Data. Timber volumes will be subject to the following working net-down factors⁴:

Volume Net-down	Percent
Residuals & Retention	6.0%
Cull	10.0%
Waste & Breakage	3.0%
Other	1.0%
Total	20.0%

1.7 Monitoring & Review

- a) Provisions for monitoring and audits must be made by the operator in accordance with an approved monitoring and audit system* before harvesting operations are carried out.
- b) Monitoring and audits will use these Environmental Protection Guidelines as a basis for assessing operator compliance.

1.8 Cultural Values Protection

- a) A minimum 50-metre, no-cut buffer is to be left between operations and approved cabins. Planners will consult with cabin owners and make best efforts to modify operations in order to achieve an outcome acceptable to the parties involved.
- b) All harvesting in visually sensitive areas (as identified in the Strategic Plan or in Five-Year Operating Plans) will adhere to the District Visual Management Guidelines.*
- c) The Historic Resources Division will be contacted for review of all Five Year Operating Plans to advise on the location of any known historic resources or areas of high potential for historic resources, and appropriate mitigation measures.

⁴ These working net-down factors will be refined over time, and are subject to further research, monitoring and review.

2.0 Operational Harvesting Standards:

2.1 Riparian Buffers

- a) Riparian buffers will be based on the ecological sensitivity of the riparian ecosystem.
- b) A minimum buffer distance shall be established on both sides of every water body and around the perimeter of every wetland.
- c) The buffer width must include the riparian zone and riparian zone of influence (the riparian ecosystem), with particular attention paid to inclusion of shallow and wet soils.
- d) Where the slope is greater than 30% there shall be a minimum no-harvest buffer of 20 m + (1.5m x % slope).
- e) All equipment or machinery is prohibited from entering any water body, therefore structures must be created to cross over such water bodies.
- f) Buffers must be marked in the field prior to logging, and no cutting is permitted in the riparian buffer, unless the buffer meets specific requirements⁵.
- g) Riparian buffers will exceed the minimum buffer distances for identified fish and wildlife habitat requirements.
- h) Minimum buffer distances are as follows:

Major Rivers	100m
Salmon Rivers & Lakes	100m
Lakes*	20m
Bogs & Wetlands	20m
Permanent Streams*	20m
Intermittent Streams	10m ^{4*}
Ephemeral Streams	8m ^{4*}

2.2 Wildlife Dwellings, Corridors, & Habitat Buffers

- a) A 50-metre, no-cut, treed buffer will be maintained around known black bear denning sites (winter) or those encountered during harvesting. These den sites must be reported to the Wildlife Division.
- b) No forestry activity is to occur within 800 metres of a bald eagle or osprey nest during the nesting season (May 15 to September 15) or for any active nest, and 200 metres during the remainder of the year. The location of any raptor nest site must be reported to the Wildlife Division.
- c) All hardwoods within 30 metres of a water body occupied by beaver are to be left standing.

⁵ A selective harvest may be permitted under certain conditions within buffers for Intermittent and Ephemeral streams*.

- d) A minimum 30-metre, no-cut, treed buffer will be maintained from the high water mark in waterfowl breeding, moulting, and staging areas. These sites will be identified by the Canadian Wildlife Service and/or the Wildlife Division.
- e) Where moose shelter and moose yards are identified, they will be designated for protection in consultation with Wildlife Division.
- f) Harvesting is not permitted within caribou calving areas.
- g) Harvest scheduling will be modified during the migration of wildlife (e.g., incursions of George River caribou into the Grand Lake area) and during temporary wildlife concentrations (e.g., waterfowl staging). Wildlife Biologists will identify the areas of concern, and in conjunction with District planners, determine the requirements for any suspension or modification of forestry operations.
- h) During the preparation of five-year operating plans, areas identified as “Sensitive Wildlife Areas” in the Strategic Plan will require consultation with the Wildlife Division prior to any allocations in or adjacent to those areas for purposes of forestry activity.
- i) In addition to the guidelines listed above, special considerations will apply to the following species (*Guidelines to be developed*):
 - Marten
 - Woodland Caribou
 - Porcupine

2.3 Ecologically Sensitive Sites

- a) At the stand level, ecologically sensitive sites must be mapped and protected from harvesting. Ecologically sensitive sites will include:
 - Riparian buffers
 - Wildlife dwelling & habitat buffers
 - Steep slopes
 - Scrub patches
 - Very moist sites
 - Shallow soils
 - Young regenerating stands

2.4 Priority Protection Areas

- a) Priority Protection Areas are designated to highlight stand and ecosystem types that are currently rare in District 19.
- b) Although these stands are given a priority for protection, portions of these stands may be included for harvesting where justified.
- c) Priority protection areas will include, but are not limited to:

- Areas identified as containing rare and/or unique flora (through field identification and/or literature review).
- White spruce stands and trees*
- Hardwood stands and trees

2.5 Retention Requirements

- a) A percentage* of the standing volume must be reserved from cutting in each Harvest Unit to provide for the maintenance of ecosystem structures, functions, and aesthetics.
- b) The standing volume will be retained for protection of stand micro-features including rock outcrops/ridges, scrub patches, intermittent/ephemeral streams, advanced regeneration, snags, hardwood species, and to provide connectivity between features.
- c) Retention patches and leave trees must be well distributed throughout each Harvest Unit and include sufficient stand integrity.
- d) A minimum average of 10 live trees over 50 cm dbh and snags per hectare (average on a cut block) well distributed as groups of trees of sufficient integrity to withstand windthrow is to be left on all sites (harvesting and silviculture).

2.6 Skid Roads

- a) Skid roads must be pre-located in Harvest Units so that sensitive sites and features are not damaged.
- b) Soil disturbance from skid roads and operations adjacent to skid roads (eg landings) is to be minimized (less than 10% of the block area).
- c) Soils prone to rutting (moist to wet) must be avoided during non-winter conditions. All roads must avoid or, where avoidance is not feasible, minimize crossing ecologically sensitive areas.
- d) Skidding bridges and/or culverts must be used to protect all wet areas and water courses, including ephemeral streams and seeps during operations.
- e) Erosion control measures (e.g. laying down brush mats and constructing diversion ditches for water run-off) are to be maintained while the skid road is in use.
- f) When a skid road is on steep ground and is no longer in use, cut-off ditches and push lanes must be created. The frequency of ditches will be determined by District Planners.

2.7 Site Disturbance & Erosion

- a) Excessive bulldozing is not permitted and no more than 10% of the total forest within an operating area can be disturbed (including roads and landings).
- b) Where disturbance exceeds 10%, a rehabilitation plan will be developed by the District Planners and carried out by the operator.
- c) Disturbance is defined as per the *Ground Disturbance Survey Guidelines* developed by the Newfoundland Forest Service.
- d) Any forestry operation that directly or indirectly results in silt entering a water body must be dealt with immediately (a government official must be notified within 24 hours). Failure to comply will result in the operation being stopped, and may result in charges being laid against the operator under applicable legislation.

2.8 Archaeological Feature Protection

- a. When an archaeological site or artifact is found, work on the site must immediately stop. The discovery must be immediately reported to the Historic Resources Division.
- b. The Historic Resources Division, in consultation any affected Aboriginal groups will determine what measures are to be taken with respect to any discovery of historic resources on a harvesting block.

2.9 Fuelling, Spills, & Wastes

- a) All waste disposal sites require a Certificate of Approval from the Minister of Government Services and Lands.
- b) Should an oil or gas spill in excess of 70 litres occur, the operator must make every effort to first contain and second clean up the spill and must immediately report the spill to the Spill Report Line at 1-800-563-2444.
- c) No heavy equipment or machinery is to be refuelled, serviced, or washed within 30 metres of a water body.
- d) Gasoline or lubricant depots must be located no less than 100 metres from the nearest water body.
- e) All fuel-storage tanks (including JEEP tanks) must be registered with the Department of Government Services and Lands and installed in accordance with the *Storage and Handling of Gasoline and Associated Products Regulations*.
- f) Used or waste oil shall be collected either in a tank or a closed container.
- g) Above ground storage tanks shall be surrounded by a dyke. The dyked area will contain not less than 110% of the capacity of the tank. The base and walls of the dyke shall have an impermeable lining of clay, concrete, solid masonry, or other material which has been designed, constructed, and maintained to be liquid tight to a

permeability of 25L/M²/d. There shall be a method to eliminate water accumulations inside the dyke.

- h) Garbage is to be disposed of at an approved garbage disposal site. Prior to disposal it must be contained in a manner which will not attract wildlife. All equipment is to be removed from the operating area where operations are completed.

2.10 Utilization

- a) Complete utilization of harvested trees is required. Complete utilization is harvesting of trees to a top diameter of 8 cm and stumps to a height of 30 cm (see Utilization Guidelines).
- b) The District Planners can modify the stump height requirement to accommodate snow conditions.

3.0 Forest Access Roads

3.1 Minimum Standards

- a) All forest access roads will adhere to the minimum standards and guidelines described in:

*The DFRA Forest Resource Road Operating Manual.
Department Of Fisheries & Oceans Resource Road
Construction – Fish Habitat Protection Guidelines.*

3.2 Forest Access Road Locations:

- a) All proposed forest access roads must be surveyed and assessed before construction commences.
- b) All proposed forest access roads locations must be identified in five year operating plans.
- c) The Canadian Wildlife Service is to be consulted when road construction is to occur around identified waterfowl breeding, moulting, and staging areas.
- d) Road construction is not permitted within any buffer zone except with the permission of the District Planners.
- e) All forest access roads, borrow pits, and quarries must avoid:
 - Wetlands, deltas, and floodplain or fluvial wetlands;
 - Terrain with high erodibility potential;
 - Known sensitive wildlife areas such as calving grounds, calving areas, caribou migration routes, caribou rutting areas and winter areas, waterfowl breeding areas and colonial nesting sites, bear dens,

established moose yards, eagle and osprey nest sites, etc.;

- Known sensitive fish habitat, such as spawning and rearing grounds;
- Culturally significant areas such as archaeological sites;
- Existing reserves such as parks (municipal, provincial, or national), wilderness areas and ecological reserves, or rare, threatened, and endangered plant sites and habitats.

3.3 Borrow Pits & Quarries

- a) Operators will be required to minimize the number of new borrow areas opened for construction and/or maintenance.
- b) Existing borrow areas will be utilized whenever practical.
- c) Pits and quarries require a valid quarry permit from the Department of Mines and Energy prior to aggregate extraction activities.
- d) Pits and quarries shall not be located in sensitive areas.
- e) Where borrow pit or quarry activity is likely to result in sediment-laden runoff contaminating a water body, sediment control measures such as filter fabric berms or sedimentation ponds are to be installed. The District Planners must approve any mitigation methods prior to aggregate extraction where such conditions exist.
- f) Borrow pits are to be located no less than 50 metres from the nearest water body.
- g) Operators are required to rehabilitate borrow pits and quarries after use to an acceptable standard as determined by the District Planners.

3.4 Bridges, Culverts & Ditching

- a) Bailey bridges and arched open bottom culverts will be preferred to round “closed-bottom” culverts for all stream crossings.
- b) Any proposed locations for bridge or culvert installations will be reviewed and approved, with any appropriate modifications, by monitors in the field prior to construction
- c) All bridges and culverts are to be installed in accordance with the manufacturer's specifications and the specifications attached to the Certificates of Approval received from the Department of Environment and Labour and from the Department of Fisheries and Oceans. Culvert ends will be properly riprapped.
- d) Excavations required for the construction of piers, abutments, or multi-plate culverts will be completed in dry conditions according to DFO standards.
- e) Baffles and check culverts are to be placed at frequent intervals in any ditches constructed on slopes.

- f) Ditches near streams will be designed so that any discharge is not directed into the stream.
- g) Ditches will be constructed at the same or smaller gradient as the road.
- h) In side hill and similar areas, ditches will be constructed on the uphill sides of roads to intercept seepage and run-off.

3.5 Water Body Crossings & Vicinity

- a) The proposed location together with stream reach survey information must be submitted to the Department of Environment and the Department of Fisheries and Oceans for all proposed water body crossings. Stream reach surveys will be conducted according to the Department of Fisheries and Oceans “Standard Methods Guide for Freshwater Stream Surveys in Newfoundland and Labrador.”
- b) Permits or letters of approval are required from the Department of Environment and the Department of Fisheries and Oceans for all water body crossings.
- c) Heavy equipment and machinery are not permitted in any water body. Whenever possible, any in-stream work is to be carried out from dry stable areas.
- d) A "no-grub" zone of 30 metres of undisturbed ground vegetation must be maintained around any water body crossing to minimize the damage to the lower vegetation and organic cover, thus reducing erosion potential.
- e) Manual clearing at water body crossing sites should be used to remove or control vegetation.
- f) Right-of-way widths at water body crossings should be kept to a minimum.
- g) Fill materials for road building must not be obtained from any water body or from within the floodplain of any water body.
- h) Trees are to be felled away from all water bodies, and slash and debris should be piled above the high water mark so that it cannot enter water bodies during periods of peak flow.
- i) Unnecessary side casting or backbiting in the vicinity of water bodies is not permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent to a water body, road slope stabilization must be undertaken at the toe of the fill where it enters the water (an area where active erosion is likely). The placement of large riprap or armour stone is recommended in such areas.
- j) Side casting must be carried out in such a manner that sediment does not enter any water body.
- k) All cut banks and fill slopes in the vicinity of water bodies shall be stabilized..

- l) To minimize erosion and sedimentation, water body crossings shall:
- have stable approaches;
 - be at right angles to the water body;
 - be located where channels are well defined, unobstructed, and straight;
 - be at a narrow point along the water body;
 - allow room for direct gentle approaches;
 - preserve vegetation to the greatest extent possible;
 - stabilize any soil exposed during bridge construction or culvert installation according to an approved method.

3.6 Decommissioning

- a) On a site-specific basis, roads can be decommissioned and/or rehabilitated as directed by the District planners. Decommissioning is defined as barring access; rehabilitation means to re-vegetate the road.
- b) All closed bottom culvert structures shall be removed on road decommissioning, unless otherwise directed by the Department of Fisheries and Oceans.

4.0 Silviculture Operations

4.1 Scarification*

- a) Select scarification methods best suited for preparing the area for planting and for minimizing ground disturbance.
- b) Where slash is piled into windrows, ensure the windrows are placed where slash cannot be washed into streams at peak flooding conditions.
- c) To minimize erosion, do not direct scarification equipment straight down slope.
- d) Where safety is not an issue, a minimum average of 10 cavity trees or snags per hectare, or a clump of trees, will be left on all sites.
- e) Whenever possible, natural regeneration will not be disturbed.

4.2 Planting

- a) Only local native species will be planted.
- b) Landings will be stabilized by planting tree seedlings, alder, and willows at the time of plantation establishment.

4.3 Pre-Commercial Thinning

- a) Pre-commercial thinning activities will not be undertaken in sensitive wildlife areas during sensitive periods. These locations and times will be identified by the Wildlife Division.
- b) Where white spruce regeneration is present, the District Planners will determine how the spruce will be thinned.
- c) Trees cut will not be felled into water bodies.
- d) Pre-commercial thinning will not occur in riparian buffers or along roadsides.

Appendix D – Harvest Permit Conditions

Commercial Harvest Permit Conditions

1. The permit holder and operations are subject to the Forestry Act and Regulations
2. The permit holder is responsible for obtaining an operating permit to operate during the fire season. A commercial cutting permit is invalid during fire season, unless accompanied by an operating permit, and is in compliance with provincial, regional, and district guidelines for forestry activities.
3. Harvesting under this permit is restricted to those trees that have been identified by the operator and approved by the Department of Forest Resources and Agrifoods District Office.
4. Operations carried out under this permit shall utilize trees as per the following: (unless otherwise indicated on permit).
 - a) All merchantable trees in cutting area greater than 9 cm dbh (diameter breast height) must be felled and removed from cutting area except those designated as leave trees or leave areas by the Dept. of Forest Resources and Agrifoods.
 - b) All trees must be utilized to a top diameter of 8 cm.
 - c) All stumps must be as low as possible and not exceed 15cm in any case.
 - d) All timber suitable for sawlogs must be utilized as sawlogs.
 - e) Hardwoods, advanced growth, regeneration and snags shall not be cut.
5. Unless otherwise indicated or approved by the District Office there shall be:
 - a) No cutting, piling or storage of timber within 100 meters of any stream, brook or other body of water unless authorized by the District Office.
 - b) No cutting, within 30 meters of designated trails (groomed trails, etc.).
 - c) No cutting on islands.
 - d) No bulldozing of trees.
 - e) No activities in silvicultural or no cutting areas.
 - f) All waste material (garbage) associated with forest operations shall be removed and disposed of at an approved waste disposal site.
 - g) No person or company shall construct a forest road or bulldoze skid trails, timber landings, or similar types of work associated with timber harvesting operations, without the approval of the Minister or his designate, in writing, prior to the commencement of construction.

6. The permittee shall not cross, operate in or disturb streams or water bodies unless written permission has been obtained from the Dept. of Fisheries and Oceans and the Water Quality Division of the Dept. of Environment and Labour.
7. The permittee will be responsible for any damage to access roads that is found attributable to their operation
8. The permittee must record, in a legible manner with a permanent marker or lumber crayon, the permit number on the ends of every wood pile regardless of pile size or location. All timber cut on permits in excess of 50,000 fbm, 385 m³ or 106 cords must be scaled by a certified scaler. Returns are to be submitted to the District Office at the end of each month.
9. Timber cut on this permit can only be sold to a person holding a timber purchase license
10. If operations are not commenced within three (3) months, this permit will be suspended.

Selective-Commercial Harvesting Permit Conditions (example)

1. This permit is issued for a period of one (1) year on an experimental basis. The issuance of this permit is not to be construed as granting rights or interests in any future allocations of timber, and may only be renewed if the applicant can demonstrate conformity with the terms and conditions of this permit.
2. The permit holder and operations are subject to the Forestry Act and Regulations.
3. The permit is issued on an interim basis, pending finalization and approval of the District Management Plan. The Minister reserves the right to revise or replace permit conditions as may be necessary to bring permit into conformity with the Management Plan.
4. Harvest allocations are made on an interim basis, and may be subject to change, pending finalization and approval of the District Management Plan.
5. Harvesting operations are subject to provincial Forest Service Guidelines for Environmental Protection (Stand Level) and to operational standards for the District as will be determined by the approved District Management Plan.
6. Operations are restricted to the areas indicated on the permit. Harvesting is restricted to individual trees that have been identified by the operator and approved by the department and the Innu Nation. Diameter at Breast Height (DBH) and height measurements shall be recorded for each identified tree.
7. Operations may require trail clearing as identified by the operator and approved by the department and the Innu Nation.

8. Harvesting is restricted to winter conditions only.
9. White spruce tree species are acceptable for harvest, as the permittee has demonstrated an ability to process the resource for local value-added production.
10. Operations carried out under this permit shall utilize as per the following:
 - a) All trees must be utilized to a top diameter of 8cm.
 - b) All stumps must be as low as possible and not exceed 15 cm in any case.
 - c) All branches and limbs will be left on site.
11. The permittee shall not cross, operate in or disturb streams or water bodies unless written permission has been obtained from the Dept. of Fisheries and Oceans and the Water Quality Division of the Dept. Environment and Labour.
12. The permittee will be responsible for any damage to access roads that is found attributed to their operation.
13. The permittee must record, in a legible manner with a permanent marker or lumber crayon, the permit number on the ends of each tree harvested and on the associated stump. Each tree will be scaled at a central location by a certified scaler. Results are to be submitted to the District office at the end of each month.
14. The permittee must submit to the district office records showing the ratio of utilization to waste and evidence of value-added production for all white spruce harvested under this permit. Such records to be submitted no later than 30 days of the date of expiration of this permit.

Appendix E – AAC Details, Assumptions, & Methodology

The rate of annual harvest, or Annual Allowable Cut (AAC), is an important calculation that defines the scale at which harvesting occurs over time. Since the necessary growth and yield data required for running linear wood supply models (such as FORMAN +1) does not exist for this District, the AAC was calculated using a basic Area/Volume formula. This approach will provide a ‘go-forward’ AAC estimation that will be revised, as appropriate data is available. The area formula utilized is as follows:

$$\frac{[\text{Net Operable Area (ha)} \times \text{Net Volume (m}^3\text{/ha)}]}{\text{Rotation Age (years)}} = \text{AAC (m}^3\text{/year)}$$

Therefore the estimate of the potential AAC for management areas in District 19A requires primarily three key inputs:

1. Quantification of the timber management landbase. (*Net Operable Area*)
2. Estimate of the timber volumes on that landbase with expected losses for natural disturbance, waste, and retention. (*Net Volume*)
3. Length of time allowed for a forest ecosystem to recover to a mature condition following a harvesting disturbance. (*Rotation Age*)

The details, assumptions, and general methodology for how these inputs were determined are provided below and are followed by the AAC calculations. Highlighted terms and analysis are explained in the accompanying sections.

1. Qualification Of The Timber Management Landbase (*Net Operable Area*)

An up-to-date Geographic Information System (GIS) was used to classify the District 19A forest landbase into commercial and non-commercial forest types based on an early 1990’s forest inventory completed by the Province. *Commercial Forest* is defined as forest stands that contain a minimum softwood volume of 90 m³/ha. Therefore, stands less than 9 m in height (< Height Class 4) and less than 75% crown closure on poor sites (43P stands) are not considered commercial forest.

From this Commercial Forest landbase various area reductions were applied utilizing the GIS to account for:

- The Ecological and Cultural Protected Areas Network;
- Isolated stands* and ecologically sensitive terrain;
- 20m forested buffers on rivers, lakes, major streams and bogs;
- Areas dominated by slopes greater than 30%.

* Explained in accompanying section.

The remaining *Operable Commercial Forest* landbase was then mapped and considered available for timber management activities. The Operable Commercial Forest landbase is depicted on Map 11 of the Strategy Plan.

The Operable Commercial Forest is then subject to a final area net-down to account for finer level Protected Area Networks (26%) and the Air-Photo Refinement Factor* (2.6%). The finer level Protected Area Networks will generally be composed of sensitive ecosystem types and terrain features, such as localized steep slopes, small streams (permanent, intermittent and ephemeral), micro-bogs, wildlife dwellings/habitats, scrub patches, and small gap disturbances that are not mapped with the GIS and are identified following field surveys.

The resulting *Net Operable Commercial Forest* landbase is then utilized in the AAC calculations. Table A describes the District 19A Timber Management Landbase figures and highlights the protection net-downs.

Table A: Timber Management Landbase Areas and Net-downs

Landbase	Northside (ha)	Southside (ha)	District Total (ha)
Total District 19A Area <i>(Less ~70% for non-forest ecosystems and non-commercial forest stands)</i>	1,041,643	1,186,256	2,227,899
Commercial Forest <i>(Less ~50% for Protected Area Networks and other reductions)</i>	166,166	512,305	678,471
Operable Commercial Forest <i>(Less 28.6% for Finer level Protected Area Networks and Air-photo Refinement Factor.</i>	91,153	233,585	324,738
Net Operable Commercial Forest	65,083	166,780	231,863

2. Estimate of Landbase Timber Volumes (*Net Volume*)

The DFRA Forest Cover Inventory measures softwood volumes as a unit of timber volume (m³) per hectare of forestland. This measure was determined from the analysis of 1:12,500 scale aerial photos that identify the height, species, age, and productivity of the forest landbase. The information derived from the photographs was then verified and supplemented by a series of ground plots. The resulting inventory has a specific (volume/hectare) value for all forest cover types. This measure is utilized to calculate the *Gross Commercial Volume* for any forest stand and by dividing the Gross Commercial Volume by the Operable Commercial Forest landbase, the *Gross Volume/Hectare* value is determined.

To determine the *Net Volume/Hectare*, the next step requires incorporating the expected losses from natural disturbance, waste, and forest retention following harvesting. These volume net-down estimates for District are as follows:

Volume Net-down	Percent
<i>Residuals & Retention</i>	6.0%
<i>Cull</i>	10.0%
<i>Waste & Breakage</i>	3.0%
<i>Fire</i>	1.0%
Total	20.0%

The resulting *Net Volume/Hectare* is then utilized in the AAC calculation. Table B outlines the operable landbase results with timber volume estimates of the different Management Units in District 19A.

Table B: Operable Landbases & Timber Volume Estimates in District 19A.

Unit	Operable Area(ha)	Gross Volume (m³)	Gross Vol/ha	Net Operable Area(ha)	Net Vol/ha
MU1	15,357	2,008,318	130.778	10,965	104.623
MU2	35,139	4,709,705	134.031	25,089	107.225
MU 3	26,483	3,397,857	128.304	18,909	102.643
HVGB Unit	8,880	1,152,091	129.74	6,340	103.792
Domestic	5,294	647,124	122.242	3,780	97.794
Northside Total	91,153	11,915,095	130.715	65,083	104.572
MU 4	36,722	4,967,266	135.266	26,220	108.213
MU 5	50,359	6,659,030	132.232	35,956	105.786
MU 6	77,198	9,434,048	122.205	55,119	97.764
MU 7	24,825	2,819,166	113.563	17,725	90.85
MU 8	22,446	2,855,649	127.224	16,026	101.779
Domestic	16,384	2,234,832	136.407	11,698	109.126
Selective Com.	5,651	839,860	148.629	4,035	118.903
Southside Total	233,585	29,809,851	127.619	166,780	102.095
District Total	324,738	41,724,946	128.488	231,863	102.790

3. Length of time to recover following a harvesting disturbance (*Rotation Age*)

Rotation age is the age at which the mean annual increment of merchantable volume culminates and hence yields the most material per unit area per annum. Normal yield tables show that rotation age increases as site quality decreases. They also show that the corresponding merchantable volume and mean annual increment decrease greatly from good to poor sites. Averages for black spruce stands of three site classes in the boreal forest of Canada are as follows:

	Good	Medium	Poor
Rotation age, yr	95	113	132
Merchantable volume, m ³ /ha	218	160	101
Mean annual increment, m ³ /ha	2.3	1.4	0.8
Merchantable volume, ft ³ /acre	3,110	2,285	1,440
Mean annual increment, ft ³ /acre	33	20	11

In District 19A, the proportion of site classes of merchantable stands is about 10% good, 55 % medium and 35% poor. The average gross merchantable volume is about 130 m³/ha. Based on these figures, a rotation age of 120 years is appropriate. Since these numbers don't take into consideration silvicultural interventions, 120 years is also considered precautionary. This will be further refined during this planning horizon through collection of stratum specific growth and yield information.

Rotation Age = 120 years.

AAC Calculations

Therefore, utilizing the Area/Volume equation and the inputs described above, the AAC can be determined for the Management Areas in District 19A.

$$\text{Northside AAC} = \frac{[\text{Net Operable Area (ha)} \times \text{Net Volume (m}^3\text{/ha)}]}{\text{Rotation Age (years)}}$$

$$\text{Northside AAC} = \frac{[65,083 \text{ (ha)} \times 104.572 \text{ (m}^3\text{/ha)}]}{120 \text{ (years)}}$$

$$\text{Northside AAC} = 56,716 \text{ m}^3\text{/year}$$

$$\text{Southside AAC} = \frac{[\text{Net Operable Area (ha)} \times \text{Net Volume (m}^3\text{/ha)}]}{\text{Rotation Age (years)}}$$

$$\text{Southside AAC} = \frac{[166,780 \text{ (ha)} \times 102.095 \text{ (m}^3\text{/ha)}]}{120 \text{ (years)}}$$

$$\text{Southside AAC} = 141,896 \text{ m}^3\text{/year}$$

$$\text{Total District 19A AAC} = 198,612 \text{ m}^3\text{/year}$$

Additional Methods & Assumptions

1. Regenerating Harvest Blocks

Although the majority of forest lands in District 19A are in an old age class with no timber harvesting history, a significant level of harvesting has occurred in Management Units 2 and 3. 5,750 ha of MU 2 (~16%) and 6550 ha of MU3 (~25%) have been harvested within the last 30 years.

Due to the lack of growth and yield data on how these stands are regenerating, the following assumption was made:

Regenerating harvest blocks will grow to the pre-existing average volume/hectare of the Management Unit and be available for harvest within the rotation period (120 years).

Therefore, regenerating harvest blocks were included in the Management Unit's Operable Commercial Forest landbase.

2. Air-Photo Refinement Factor

Aerial photographic interpretations are an important tool in determining ecologically sensitive and isolated stands within the District. The Innu Nation retained Silva Ecosystem Consultants to complete such an interpretation for Management Unit 2. This interpretation focused on delineating broad areas, or site complexes, that were unsuitable for commercial forestry operations. From this analysis a layer entitled "complex terrain dominated by ecologically sensitive sites" was mapped and removed from the commercial landbase. All sites considered *poor* by the DFRA forest cover inventory were also considered ecologically sensitive and alienated from the commercial forest area.

The result of this interpretation was compared to the GIS-based isolation analysis completed by DFRA. The purpose of the comparison was to determine how much more additional forested area is removed following a more detailed interpretation. This difference, applied as a percent, could then be utilized in the other Management Units where aerial photographic interpretation is incomplete. This percent net-down is therefore called the Air-photo Refinement Factor (ARF). The ARF will be utilized in conjunction with the GIS-based isolation analysis as an interim measure until aerial photographic interpretations are completed for each Management Unit.

Methods

Step 1: Analyze the results of the detailed air photo interpretation completed by Silva in the Grand Lake Area (Management Unit 2).

Step 2: Analyze the District-wide isolation exercise completed by DFRA. Details and methodology of this exercise are described below.

Step 3: Overlay the Silva ‘complex terrain’ layer on the DFRA isolations and proposed commercial stands map to determine common isolated areas and where the DFRA analysis missed potential isolated stands. Poor stands considered “outside the matrix” of moderate commercial forest were also identified.

Step 4: Map the additional stands that were considered isolated based on comparing the DFRA isolation exercise with the Silva detailed air-photo interpretation.

Step 5: Reconcile the included and isolated stands with the Management Unit landbase and determine the difference in a percentage.

Step 6: This percentage is then applied District-wide to account for refinements to the DFRA isolation exercise based on future air-photo interpretations of other Management Units. The percentage is called the Air-Photo Refinement Factor (ARF).

Based on this exercise the ARF was estimated at 2.6%⁶

3. Isolation Analysis Methodology

DFRA completed a District wide isolation analysis to account for isolated and inoperable forest stands. Isolated stands accounted for 25% of the Northside commercial forest and 4% on the Southside. The following methods were utilized to identify these stands:

Remnants and disconnected small stands⁷ were removed from the analysis. For the Northside landbase, stands that were less than 5 hectares that were not directly adjacent to stands (or clusters of stands) greater than 5 hectares were removed. For the Southside landbase (which is still entirely unaccessed) this alienation was expanded to further exclude stands less than 10 hectares in size that were more than 500 m away from larger stands or clusters.

Stands completely surrounded by bogs were removed from the analysis. Stands more or less surrounded by other complex terrain types were also excluded.

Isolated clusters of stands that were considered uneconomical to access were removed from the analysis. These stands included areas of patchy or low volume commercial

⁶ Figure is considered provisional and will be refined through further analysis.

⁷ Geoprocessing work done after this exercise (buffering of bogs and clipping of cultural areas) may have resulted in more of these stands and areas being created which are still included in the landbase. This exercise was also done without consideration of the proposed Trans-Labrador Highway (Phase III) alignment.

forest and contiguous islands of commercial forest that were detached by unproductive or other alienated areas. Although this exercise was based largely on judgement, an ARCVIEW extension (*District Harvest Planner*) was used to assign constraints, estimate projected volumes, and estimate required road lengths.

Appendix F - Silviculture Program Information

Operational Treatments

Operational treatments can be divided into one or more of three categories. *Forest Renewal* treatments are aimed at establishing new forests on sites that fail to regenerate adequately on their own following disturbance. Treatments that fall under this category include planting, seeding, and site preparation. *Forest Improvement* treatments are aimed at improving the productivity of otherwise adequate forest sites. The most common treatment falling under this category is thinning (pre-commercial, commercial, and diameter limit). *Stand Reclamation* treatments are aimed at the replacement of degraded forests that occupy productive forest sites.

In order to fulfill the mandate of the provinces silviculture program, DFRA's Labrador Region currently has in its employ a Silviculturist and a Silviculture Technician. The department also operates a Tree Nursery in Goose Bay that employs a Nursery Manager, Nursery Supervisor, and 5 seasonal Silviculture Workers.

Silvicultural Research and Development

The Silviculture and Research Section of Forest Ecosystem Management Division is responsible for conducting applied research on silvicultural and tree improvement issues on behalf of the Department of Forest Resources and Agrifoods. To meet this mandate, the Section employs a Research Silviculturist and technical support. As well, from time to time, silvicultural and tree improvement research is initiated and conducted by Regional and Nursery staff in consultation with the Research Silviculturist. The types of silvicultural research activities carried out by the Department fall within four broad categories:

Reforestation Research: These research activities revolve around tree seedling planting and involve such issues as planting technique, site preparation, vegetation control, and early seedling growth enhancement. As an example, the Department has trials in place to evaluate the benefits of seedling fertilization at the time of planting.

Forest Improvement Research: Research in this area typically revolves around the response of juvenile forests to various improvement activities such as density control, fertilization, and intermediate harvesting (i.e., commercial thinning). As an example, the Department has in place a series of trials to look at the response of various forest stand types to commercial thinning.

Tree Improvement Research: The Department has in place a program to improve the genetic quality of the seedlings that we grow for reforestation. In this way, we hope to enhance the yield from our forest plantations. In support of this effort, research trials are established to test the genetically enhanced seedlings, thereby providing us with the information required to select those trees

which are truly superior. Additionally, tree improvement research includes testing to determine what tree species grow best under various circumstances.

Nursery Research: Nursery oriented silvicultural research primarily involves the effort to produce the best quality seedling at the most reasonable cost. An example of this type of research would be assessment of the performance of seedlings grown in a variety of container types.

Summary of silviculture activities (ha of area treated) in District 19 (1982 – 2001).

Year	Planting	Pre-Commercial Thinning	Site Preparation	Stand Reclamation
1982	15			
1983	65			
1984	56			
1985	100		100	
1986	65			
1987	130	104	62	
1988	130		12	
1989	140		200	
1990	94			
1991	68			17
1992	144	50		25
1993	111		103	72
1994	130		56	53
1995	105	75	12	
1996	114			
1997	111	14		25
1998	67	22		15
1999	90			
2000	90			
2001	90			
Total	1915	265	545	207

Appendix G – Criteria and Indicators Programs

CRITERIA AND INDICATORS

of Sustainable Forest Management In Canada

Canadian Council of Forest Ministers (CCFM) framework

1. Conservation of Biological Diversity

The variability among living organisms from all sources and the ecological complexes of which they are a part - biodiversity encompasses organization at levels ranging from complete ecosystems to the chemical structures that are the basis of heredity. Maintenance of natural genetic and ecosystem diversity across the landscape is the key to ensuring that species maintain viability through their capacity to evolve and adapt to change. Maintenance of the natural range of ecosystems, and the ability of their components to react to external forces and processes, provides the equilibrium required for the maintenance of species diversity. Diversity is therefore inseparable from the generation and maintenance of ecological patterns. Impacts are evaluated through vulnerability assessments which may, in turn, suggest change in the ways forests are managed, or even dictate that action be taken with respect to the restoration of biodiversity.

1.1 Ecosystem Diversity

Ecosystem diversity is the variety and pattern of communities and ecosystems. Maintenance of the variety and quality of the earth's ecosystems is necessary for the preservation of species. Without sufficient quantities of their natural habitats, species become vulnerable.

- 1.1.1 Percentage and extent, in area, of forest types relative to historical condition and to total forest area;
- 1.1.2 Percentage and extent of area by forest type and age class (ref. 2.2.1);
- 1.1.3 Area, percentage and representativeness of forest types in protected areas;
- 1.1.4 Level of fragmentation and connectedness of forest ecosystem components.

1.2 Species Diversity

The greatest and most readily recognizable form of biodepletion lies with species extinction. Slowing down the rate of species extinction due to anthropogenic factors is a key objective of the conservation of biodiversity. Changes in species population levels may also provide an early warning of changes in ecosystem integrity.

- 1.2.1 Number of known forest-dependent species classified as extinct, threatened, endangered, rare, or vulnerable relative to total number of known forest-dependent species;
- 1.2.2 Population levels and changes over time of selected species and species guilds;

- 1.2.3 Number of known forest-dependent species that occupy only a small portion of their former range.

1.3 Genetic Diversity

Genetic diversity, or the variation of genes within a species, is the ultimate source of biodiversity at all levels. It is the material upon which the agents of evolution act. Loss of variation may have negative consequences for fitness and prevent adaptive change in populations.

- 1.3.1 Implementation of an in situ/ex situ genetic conservation strategy for commercial and endangered forest vegetation species as defined by the Canadian Biodiversity Strategy (Federal-Provincial-Territorial Biodiversity Working Group. 1994. Draft Canadian Biodiversity Strategy for Discussion. Biodiversity Convention Office, Hull, Quebec. 69 p.) and as established by Categories I - VI of the IUCN Guidelines (IUCN Commission on National Parks and Protected Areas with the assistance of the World Monitoring Centre. IUCN - The World Conservation Union, Gland, Switzerland. x + 261 pp.)

2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity

This refers to the health, vitality, and rates of biological production in forest ecosystems. The sustainable development of a system is dependent upon normal functioning over the long term. In a living system, normal functioning implies appropriate levels of health, vitality, and productivity of its components.

Forest condition is a measure of relative freedom from stress (health) and relative level of physical/biological energy (vitality) within a forest ecosystem. When integrated, they provide a measure of ecosystem functioning. Forest productivity refers to rates of flora and fauna production, which depend on the degree to which nutrients, water, and solar energy are absorbed and transferred within the ecosystem. Sustainable productivity within a forest ecosystem is dependent upon the ability of the ecosystem's components and their populations to recover from or adapt to disturbances.

2.1 Incidence of disturbance and stress (biotic and abiotic)

This element refers to the levels of air pollutants and the frequency/severity of major biotic and abiotic stresses. Together these are a dynamic complex which, depending on the particulars of the disturbance/stress, may negatively or positively affect forest condition over time.

- 2.1.1 Area and severity of insect attack;
- 2.1.2 Area and severity of disease infestation;
- 2.1.3 Area and severity of fire damage;
- 2.1.4 Rates of pollutant deposition

- 2.1.5 Ozone concentrations in forested regions;
- 2.1.6 Crown transparency in percentage by class;
- 2.1.7 Area and severity of occurrence of exotic species detrimental to forest condition;
- 2.1.8 Climate change as measured by temperature sums.

2.2 Ecosystem resilience

Ecosystem resilience reflects the persistence of ecosystems and their capacity to absorb change and disturbance while maintaining the same productivity and the same relationships among populations. The focus is on the potential for populations to recover from very low levels by having adequate regenerative capacity and a balanced distribution of forest types and age classes.

- 2.2.1 Percentage and extent of area by forest type and age class (ref. 1.1.2);
- 2.2.2 Percentage of area successfully naturally regenerated and artificially regenerated.

2.3 Extant biomass (biota)

Extant biomass is an integrating measure of forest ecosystem condition. It refers to the condition of the forest in terms of biomass production of all species and types and includes the ability of ecosystems to support rare species.

- 2.3.1 Mean annual increment by forest type and age class;
- 2.3.2 Frequency of occurrence within selected indicator species (vegetation, birds, mammals, fish).

3. Conservation of Soil and Water Resources

This refers to the maintenance of soil and water quantity and quality. Soil and water are essential components of the forest ecosystem. The soil and water conservation criterion refers to measures that maintain the quantity and quality of soil and water within and leaving forested ecosystems. The primary focus for soil conservation is the maintenance of the living substrate for forest stands, whereas water conservation centers on the provision of potable water for human and wildlife use and the provision of suitable aquatic environments for plants and animals.

3.1 Physical environmental factors

Physical environmental factors include both soil and water resources. Soil environmental factors refer to the area of productive forest soil where the physical ability of the soil to sustain forest growth has been changed. Proposed measures include the area where land use changes take soil out of forest production or where activities have reduced organic matter levels, compacted soil or led to soil loss through erosion. These reduce the ability of the soil to support forest productivity. Aquatic factors refer to both physical and chemical properties: for example, flow patterns, water temperature, aeration, sediment

load, and chemistry which provide for aquatic plant and animal life. Changes in aquatic environments can negatively affect aquatic life.

- 3.1.1 Percentage of harvested area having significant soil compaction, displacement, erosion, puddling, loss of organic matter, etc.;
- 3.1.2 Area of forest converted to non-forest land use, for example, urbanization (ref. 4.2.1);
- 3.1.3 Water quality as measured by water chemistry, turbidity, etc.;
- 3.1.4 Trends and timing of events in stream flows from forest catchments;
- 3.1.5 Changes in distribution and abundance of aquatic fauna.

3.2 Policy and protection forest factors

In order to ensure that terrestrial and aquatic ecosystems are maintained, it is important that policies are in place which provide for specific management practices or the protection of sensitive sites. Sensitive site conditions include riparian zones, wet soils, infertile soils, steep slopes, and shallow soils over bedrock. With respect to aquatic systems, policies that address stream crossings, watershed management, and riparian areas will assist in maintaining water flow patterns, water levels, and water quality.

- 3.2.1 Percentage of forest managed primarily for soil and water protection;
- 3.2.2 Percentage of forest area having road construction and stream crossing guidelines in place;
- 3.2.3 Area, percentage and representativeness of forest types in protected areas (ref. 1.1.4).

4. Forest Ecosystem Contributions to Global Ecological Cycles

This refers to the impact of the forest and forest activities on global ecosystem functions. Global ecological cycles are a complex of self-regulating processes responsible for recycling the earth's limited supply of water, carbon, nitrogen, and other life-sustaining elements. The world's forests are critically dependent upon, and make substantial contributions to, these global processes. Global ecological cycles are negatively impacted by fossil fuel combustion and associated toxic emissions. Forests make a major positive contribution to global cycles through the uptake and storage of carbon. The longevity, large area of standing crops and conservative decomposition rates characteristic of forest ecosystems make them particularly well adapted to long-term positive carbon balance. Conversely, conversion of forest lands to low biomass, short-lived standing crops with rapid turnover rates, or the permanent removal of forest cover, degrades the land's capacity to absorb and store carbon. For these reasons forest management should promote sustained utilization and rejuvenation of forest ecosystems and protect them from widespread destruction by fire, pests and conversion to alternate land uses. Further, forest management should promote the manufacture of products that can act as long-term carbon pools and that have a low fossil fuel demand in their production.

4.1 Contributions to global carbon budget

Global ecological cycles are negatively affected by the accelerated release of CO₂ into the atmosphere. Carbon budgets that estimate the balance between carbon fixation and carbon release from natural forests and forest products provide a sensitive indicator of the nation's contribution to atmospheric carbon enrichment.

- 4.1.1 Tree biomass volumes;
- 4.1.2 Vegetation (non-tree) biomass estimates;
- 4.1.3 Percentage of canopy cover;
- 4.1.4 Percentage of biomass volume by general forest type;
- 4.1.5 Soil carbon pools;
- 4.1.6 Soil carbon pool decay rates;
- 4.1.7 Area of forest depletion;
- 4.1.8 Forest wood product life cycles;
- 4.1.9 Forest sector CO₂ emissions.

4.2 Forest land conversion

Carbon budgets are sensitive to forest land conversions because replacement ecosystems usually have higher carbon turnover rates and lower storage capacity than forested lands. Irreversible forest removals have particularly negative and long-term impact on carbon budgets.

- 4.2.1 Area of forest permanently converted to non-forest land use (for example, urbanization) (ref. 3.1.2)
- 4.2.2 Semi-permanent or temporary loss or gain of forest ecosystems (for example, grasslands, agriculture)

4.3 Forest sector CO2 conservation

Forest sector CO2 conservation is used to track the industry's relative dependence, through time, on fossil fuels for conversion of raw materials to manufactured products.

- 4.3.1 Fossil fuel emissions;
- 4.3.2 Fossil carbon products emissions;
- 4.3.3 Percentage of forest sector energy usage from renewable sources relative to total sector energy requirement.

4.4 Forest sector policy factors

The commitment of governments to sustaining global ecological cycles can be gauged through evaluation of forest sector policies.

- 4.4.1 Recycling rate of forest wood products manufactured and used in Canada;
- 4.4.2 Participation in the climate change conventions;
- 4.4.3 Economic incentives for bioenergy use;
- 4.4.4 Existence of forest inventories;
- 4.4.5 Existence of laws and regulations on forest land management.

4.5 Contributions to hydrological cycles

Hydrological cycles are a vital component of global ecological cycles. Changes of water surface area within forest landscapes provide a synoptic indicator of potential impacts of forest practice on hydrological cycles.

- 4.5.1 Surface area of water within forested areas.

5. Multiple Benefits to Society

This is about sustaining the flow of benefits from the forest for current and future generations. Forests provide a mix of benefits to society including commercial wood products, commercial and non-market goods and services, and environmental and option values. Sustainable development requires that the forest continue to provide these goods and services over the long term. The forest products industry is Canada's largest earner of foreign exchange. It provided 311 000 direct jobs and an equivalent number of indirect jobs in 1993. Many of these jobs are situated throughout rural areas of Canada where alternative economic opportunities are limited. Many rural communities are entirely or largely dependent on the forest sector for their economic well-being.

In addition to the significant commercial benefits derived, Canada's forests support a wide range of other activities that provide benefits including tourism, wildlife, recreational use of the forest, aesthetics, and wilderness values. Although not always measurable in monetary terms, these activities are also highly valued by Canadians and provide significant benefits to Canadian society.

5.1 Productive capacity

In order to ensure that resources are conserved while still maintaining a satisfactory flow of benefits, efforts must be made to ensure that extraction is not allowed to exceed the long-term productive capacity of the resource base to provide a wide range of goods and services. Excessive rates of extraction are unsustainable and inconsistent with the concept of sustainable forest development.

- 5.1.1 Annual removal of forest products relative to the volume of removals determined to be sustainable;
- 5.1.2 Distribution of, and changes in, the land base available for timber production;
- 5.1.3 Animal population trends for selected species of economic importance;
- 5.1.4 Management and development expenditures;
- 5.1.5 Availability of habitat for selected wildlife species of economic importance.

5.2 Competitiveness of resource industries (timber/non-timber related)

The sustainable development concept recognizes the direct linkage between environment and economy. In order to ensure that economic benefits continue to flow to Canadians, it is vital that a fair and competitive investment climate be maintained within the forest sector. A competitive rate of return is essential if Canada's various forest-based industries are to attract the necessary capital for maintaining their capacity to create jobs and incomes for Canadians.

- 5.2.1 Net profitability;
- 5.2.2 Trends in global market share;
- 5.2.3 Trends in research and development expenditures in forest products and processing technologies.

5.3 Contribution to the national economy (timber/non-timber sectors)

Another important consideration for this criterion is the question of the distribution of wealth. Sustainable development involves more than simply maximizing economic development. It also requires consideration of the way in which wealth from development is distributed to society. Wealth from forest use flows to Canadians through the market economy (which can be measured with economic indicators such as gross domestic product and employment) and through the subsistence economy (involving income in-kind from the extraction and use of fuel wood; building materials; meat, fish, and fur products; medicinals; etc.).

- 5.3.1 Contribution to gross domestic product (GDP) of timber and non-timber sectors of the forest economy;
- 5.3.2 Total employment in all forest-related sectors;
- 5.3.3 Utilization of forests for non-market goods and services, including forest land use for subsistence purposes;
- 5.3.4 Economic value of non-market goods and services.

5.4 Non-timber values (including option values)

A wide range of non-timber values are associated with forests including recreation values, tourism values, existence values, and option values. As Canadian society becomes more affluent and the Canadian economy evolves to a more urban industry-based/service-oriented economy, the importance of non-timber values may be expected to increase.

- 5.4.1 Availability and use of recreational opportunities;
- 5.4.2 Total expenditures by individuals on activities related to non-timber use;
- 5.4.3 Membership and expenditures in forest recreation-oriented organizations and clubs;
- 5.4.4 Area and percentage of protected forest by degree of protection.

6. Accepting Society's Responsibility for Sustainable Development

This means making fair, equitable, and effective resource management choices. The concept of sustainable development transcends biological, ecological, and economic benchmarks. Ultimately it is about people. It is about society's values, the quality of life of members of society, both individually and collectively, and the effectiveness with which we have organized ourselves as a society to ensure that we are managing the relationship between ourselves and our resources in a way that is in the best interests of present and future generations. Thus, this criterion concerns the effectiveness of institutions in managing resources in ways that accurately reflect social values, the responsiveness of institutions to change as social values change, how we deal with the special and unique needs of particular cultural and/or socio-economic communities, and the extent to which the allocation of our scarce resources can be considered to be fair, equitable, balanced, and just.

6.1 Aboriginal and treaty rights

Existing Aboriginal and treaty rights are recognized and affirmed in the Canadian Constitution. In order to ensure that duly established Aboriginal and treaty rights are respected, they should be considered in the context of sustainable forest management. Various levels of government in Canada will aim to meet their legal obligations with respect to duly established Aboriginal and treaty rights in accordance with policy and legislation in their respective jurisdictions. When discussed in relation to renewable resources, such Aboriginal and treaty rights generally relate to hunting, fishing and trapping, and in some cases, gathering.

Forest management and planning processes should be designed, as far as possible, with input from involved Aboriginal communities, as well as other affected groups and communities. Final plans should reflect the options considered and actions taken with respect to duly established Aboriginal and treaty rights.

- 6.1.1 Extent to which forest planning and management processes consider and meet legal obligations with respect to duly established Aboriginal and treaty rights.

6.2 Participation by Aboriginal communities in sustainable forest management

The cultural and spiritual connection between Aboriginal communities and forests is acknowledged. Increased cooperation between Aboriginal communities and all forest stakeholders is important to achieving the goals of sustainable forest management. Governments will work cooperatively with Aboriginal communities within the policy and legislation of their respective jurisdictions in order to achieve the goals of sustainable forest management.

- 6.2.1 Extent of Aboriginal participation in forest-based economic opportunities;
- 6.2.2 Extent to which forest management planning takes into account the protection of unique or significant Aboriginal social, cultural or spiritual sites;
- 6.2.3 Number of Aboriginal communities with a significant forestry component in the economic base and the diversity of forest use at the community level;
- 6.2.4 Area of forest land available for subsistence purposes;
- 6.2.5 Area of Indian reserve forest lands under integrated management plans.

6.3 Sustainability of forest communities

Sustainability can be viewed at a variety of scales. One important level for assessing sustainable development is at the community level. Unsustainable resource practices have the potential to result in high social costs concentrated among residents of rural communities. Decision-making processes that are removed from communities, or that do not consider social costs associated with community instability, do not contribute to sustainable development.

- 6.3.1 Number of communities with a significant forestry component in the economic base;
- 6.3.2 Index of the diversity of the local industrial base;
- 6.3.3 Diversity of forest use at the community level;
- 6.3.4 Number of communities with stewardship or co-management responsibilities.

6.4 Fair and effective decision-making

Decision-making is often complicated by cultural differences, conflicting economic interests, and differences in exposure to risks. Decision-making processes are embedded within the various institutions that have been established to manage and allocate forest resources. The extent to which these institutions effectively incorporate the full range of social values in decisions and the responsiveness of institutions to change in values over time are a determining factor in monitoring our progress toward sustainable development.

- 6.4.1 Degree of public participation in the design of decision-making processes;
- 6.4.2 Degree of public participation in decision-making processes;

- 6.4.3 Degree of public participation in implementation of decisions and monitoring of progress toward sustainable forest management.

6.5 Informed decision-making

Part of society's responsibility to sustainable development is a commitment to improve our collective understanding of ecosystems and the relationship between the environment and the economy. At the individual level it is important that we make an effort to learn and understand each other's perspectives relative to resource use and forest values and that individuals make an effort to become fully informed about the issues. Each and every member of society has an obligation and responsibility to understand the issues, express their position, and understand and respect the positions of others.

- 6.5.1 Percentage of area covered by multi-attribute resource inventories;
- 6.5.2 Investments in forest-based research and development and information;
- 6.5.3 Total effective expenditure on public forestry education;
- 6.5.4 Percentage of forest area under completed management plans/programs/guidelines which have included public participation;
- 6.5.5 Expenditure on international forestry;
- 6.5.6 Mutual learning mechanisms and processes.

Forest Stewardship Council Principles and Criteria

It is widely accepted that forest resources and associated lands should be managed to meet the social, economic, ecological, cultural, and spiritual needs of present and future generations. Furthermore, growing public awareness of forest destruction and degradation has led consumers to demand that their purchases of wood and other forest products will not contribute to this destruction but rather help to secure forest resources for the future. In response to these demands, certification, and self-certification programs of wood products have proliferated in the marketplace.

The Forest Stewardship Council (FSC) is an international body which accredits certification organizations in order to guarantee the authenticity of their claims. In all cases the process of certification will be initiated voluntarily by forest owners and managers who request the services of a certification organization. The goal of FSC is to promote environmentally responsible, socially beneficial, and economically viable management of the world's forests, by establishing a worldwide standard of recognized and respected Principles of Forest Stewardship.

PRINCIPLE #1: COMPLIANCE WITH LAWS AND FSC PRINCIPLES

Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

- 1.1 Forest management shall respect all national and local laws and administrative requirements.
- 1.2 All applicable and legally prescribed fees, royalties, taxes, and other charges shall be paid.
- 1.3 In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA, and Convention on Biological Diversity, shall be respected.
- 1.4 Conflicts between laws, regulations, and the FSC Principles and Criteria shall be evaluated for the purposes of certification, on a case by case basis, by the certifiers and the involved or affected parties.
- 1.5 Forest management areas should be protected from illegal harvesting, settlement, and other unauthorized activities.
- 1.6 Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.

PRINCIPLE #2: TENURE AND USE RIGHTS AND RESPONSIBILITIES

Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented, and legally established.

- 2.1 Clear evidence of long-term forest use rights to the land (e.g. land title, customary rights, or lease agreements) shall be demonstrated.

2.2 Local communities with legal or customary tenure or use rights shall maintain control, to the extent necessary to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies.

2.3 Appropriate mechanisms shall be employed to resolve disputes over tenure claims and use rights. The circumstances and status of any outstanding disputes will be explicitly considered in the certification evaluation. Disputes of substantial magnitude involving a significant number of interests will normally disqualify an operation from being certified.

PRINCIPLE #3: INDIGENOUS PEOPLES' RIGHTS

The legal and customary rights of indigenous peoples to own, use, and manage their lands, territories, and resources shall be recognized and respected.

3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.3 Sites of special cultural, ecological, economic, or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

3.4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

PRINCIPLE #4: COMMUNITY RELATIONS AND WORKER'S RIGHTS

Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

4.1 The communities within, or adjacent to, the forest management area should be given opportunities for employment, training, and other services.

4.2 Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.

4.3 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labour Organisation (ILO).

4.4 Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups directly affected by management operations.

4.5 Appropriate mechanisms shall be employed for resolving grievances and for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property, resources, or livelihoods of local peoples. Measures shall be taken to avoid such loss or damage.

PRINCIPLE # 5: BENEFITS FROM THE FOREST

Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

5.1 Forest management should strive toward economic viability, while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forest.

5.2 Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products.

5.3 Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.

5.4 Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

5.5 Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries.

5.6 The rate of harvest of forest products shall not exceed levels which can be permanently sustained.

PRINCIPLE #6: ENVIRONMENTAL IMPACT

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

6.1 Assessment of environmental impacts shall be completed - appropriate to the scale, intensity of forest management and the uniqueness of the affected resources - and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.

6.3 Ecological functions and values shall be maintained intact, enhanced, or restored, including:

- a) Forest regeneration and succession.
- b) Genetic, species, and ecosystem diversity.
- c) Natural cycles that affect the productivity of the forest ecosystem.

6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

6.5 Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and protect water resources.

6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

6.7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

6.8 Use of biological control agents shall be documented, minimized, monitored and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.

6.9 The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

6.10 Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:

- a) entails a very limited portion of the forest management unit; and
- b) does not occur on high conservation value forest areas; and
- c) will enable clear, substantial, additional, secure, long term conservation benefits across the forest management unit.

PRINCIPLE #7: MANAGEMENT PLAN

A management plan appropriate to the scale and intensity of the operations -- shall be written, implemented, and kept up to date. The long term objectives of management, and the means of achieving them, shall be clearly stated.

7.1 The management plan and supporting documents shall provide:

- a) Management objectives;
- b) Description of the forest resources to be managed, environmental limitations, land use and ownership status, socio-economic conditions, and a profile of adjacent lands;
- c) Description of silvicultural and/or other management system, based on the ecology of the forest in question and information gathered through resource inventories;
- d) Rationale for rate of annual harvest and species selection;
- e) Provisions for monitoring of forest growth and dynamics;
- f) Environmental safeguards based on environmental assessments;
- g) Plans for the identification and protection of rare, threatened and endangered species;
- h) Maps describing the forest resource base including protected areas, planned management activities and land ownership;
- i) Description and justification of harvesting techniques and equipment to be used.

7.2 The management plan shall be periodically revised to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances.

7.3 Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

7.4 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the primary elements of the management plan, including those listed in Criterion 7.1.

PRINCIPLE #8: MONITORING AND ASSESSMENT

Monitoring shall be conducted - appropriate to the scale and intensity of forest management - to assess the condition of the forest, yields of forest products, chain of custody, management activities, and their social and environmental impacts.

8.1 The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations as well as the relative complexity and fragility of the affected environment. Monitoring procedures should be consistent and replicable over time to allow comparison of results and assessment of change.

8.2 Forest management should include the research and data collection needed to monitor, at a minimum, the following indicators:

- a) Yield of all forest products harvested;
- b) Growth rates, regeneration and condition of the forest;
- c) Composition and observed changes in the flora and fauna;
- d) Environmental and social impacts of harvesting and other operations;
- e) Costs, productivity, and efficiency of forest management.

8.3 Documentation shall be provided by the forest manager to enable monitoring and certifying organizations to trace each forest product from its origin, a process known as the "chain of custody."

8.4 The results of monitoring shall be incorporated into the implementation and revision of the management plan.

8.5 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the results of monitoring indicators, including those listed in Criterion 8.2.

PRINCIPLE 9: MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

PRINCIPLE # 10: PLANTATIONS

Plantations shall be planned and managed in accordance with Principles and Criteria 1 - 9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

10.1 The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

10.2 The design and layout of plantations should promote the protection, restoration and conservation of natural forests, and not increase pressures on natural forests. Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods, shall be used in the layout of the plantation, consistent with the scale of the operation. The scale and layout of plantation blocks shall be consistent with the patterns of forest stands found within the natural landscape.

10.3 Diversity in the composition of plantations is preferred, so as to enhance economic, ecological and social stability. Such diversity may include the size and spatial distribution of management units within the landscape, number and genetic composition of species, age classes and structures.

10.4 The selection of species for planting shall be based on their overall suitability for the site and their appropriateness to the management objectives. In order to enhance the conservation of biological diversity, native species are preferred over exotic species in the establishment of plantations and the restoration of degraded ecosystems. Exotic species, which shall be used only when their performance is greater than that of native species, shall be carefully monitored to detect unusual mortality, disease, or insect outbreaks and adverse ecological impacts.

10.5 A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover.

10.6 Measures shall be taken to maintain or improve soil structure, fertility, and biological activity. The techniques and rate of harvesting, road and trail construction and maintenance, and the choice of species shall not result in long term soil degradation or adverse impacts on water quality, quantity or substantial deviation from stream course drainage patterns.

10.7 Measures shall be taken to prevent and minimize outbreaks of pests, diseases, fire and invasive plant introductions. Integrated pest management shall form an essential part of the management plan, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers. Plantation management should make every effort to move away from chemical pesticides and fertilizers, including their use in nurseries. The use of chemicals is also covered in Criteria 6.6 and 6.7.

10.8 Appropriate to the scale and diversity of the operation, monitoring of plantations shall include regular assessment of potential on-site and off-site ecological and social impacts, (e.g. natural regeneration, effects on water resources and soil fertility, and impacts on local welfare and social well-being), in addition to those elements addressed in principles 8, 6 and 4. No species should be planted on a large scale until local trials and/or experience have shown that they are ecologically well-adapted to the site, are not invasive, and do not have significant negative ecological impacts on other ecosystems. Special attention will be paid to social issues of land acquisition for plantations, especially the protection of local rights of ownership, use or access.

10.9 Plantations established in areas converted from natural forests after November 1994 normally shall not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the certification body that the manager/owner is not responsible directly or indirectly of such conversion.

Appendix H – Legal Description of District 19A (Goose Bay)

Forest Management District 19A

Goose Bay

All that piece or parcel of land situate and being in the Goose Bay - Happy Valley area in the Electoral District of Lake Melville abutted and bounded as follows:

Commencing at Nebavik Point, latitude 53° 48' longitude 59° 48', on the south side of Mulligan Bay;

Then in a generally northwesterly direction along the south side of Mulligan Bay and Mulligan River, South Branch, to its headwaters at a point, latitude 53° 59' longitude 60° 29', on the south end of a small lake;

Then on a bearing of 221° for approximately 5.5 kilometres to a point, latitude 53° 56' 30" longitude 60° 32' 30", on the north end of a small pond on the headwaters of a branch of Crooked River;

Then along this branch of Crooked River to a point, latitude 53° 55' 30" longitude 60° 46', to where it meets Crooked River;

Then on a bearing of 270° for approximately 14.8 kilometres to a point where the Red Wine River flows into the Naskaupi River, latitude 53° 55' 30' longitude 60° 59' 30";

Then along the south shore of Red Wine River, south branch, to a point, latitude 53° 48' longitude 61° 45', on the south end of a small lake at its headwaters;

Then on a bearing of 180° for approximately 87.8 kilometres to a point, latitude 53° 00' longitude 61° 45', on a small hill;

Then on a bearing of 270° for 23.8 kilometres to a point, latitude 53° 00' longitude 62° 06', on the northwest end of a string bog;

Then along a bearing of 194° for approximately 10.6 kilometres to a mouth of a tributary of the Churchill River, latitude 52° 54' 30" longitude 62° 09';

Then east along the bank of this tributary, east branch, to a point, latitude 52° 50' longitude 62° 04', on the northwest end of a small lake;

Then following a bearing of 229° for approximately 8.9 kilometres to the south side of a small lake, latitude 52° 47' longitude 62° 10', on the height of land;

Then following the height of land that separates the gulf watershed from the Labrador Sea watershed in a generally easterly direction to a small marsh, latitude 52° 38' longitude 59° 55';

Then in a generally northerly direction along the height of land that separates the

Kenamu River watershed from those flowing into the Labrador Sea, to a small lake, latitude 53° 18' longitude 59° 34';

Then following a bearing of 360° for approximately 1 kilometre until it intersects with the Kenemich River, latitude 53° 18' 30" longitude 59° 34';

Then following the Kenemich River on the north bank to the first major branch, latitude 53° 21' longitude 59° 46';

Then along a bearing of 19° 30' for approximately 20 kilometres to the mouth of Big River, latitude 53° 31' longitude 59° 40', east of Kinriakak Point;

Then following a bearing of 343° for approximately 32 kilometres across Lake Melville to the point of commencement including all islands;

All bearings given are true north.