



Interview

# Hugh Lougheed, Management Forester

9 July 1997

Interviewer

Peter J. Murphy, Forest History Program



Edited by Bob Udell and Jeff Zroback

Photo Credit: Bob Udell (2003)



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## About the Forest History Program at fRI Research

fRI Research, originally the Foothills Model Forest, has been conducting research in sustainable land and forest management in Alberta since 1992. The positive impacts from the application of this research (e.g. Grizzly bears, watershed, forest history) to improving forest management and resource sustainability can be seen across Western Canada and beyond. The Forest History Program began in 1996 when Pete Murphy, Bob Stevenson and Bob Udell began a project to record the natural and management history of its Hinton Forest. This project soon expanded to add more reports and to encompass the entire model-forest land base. The program has produced a series of seven books and ebooks including an Ecotour, an Ecotour App for west central Alberta, one DVD project and a series of reports about the evolution of adaptive forest management in the West Central region of Alberta.

Learn more at [fhp.fRIresearch.ca](http://fhp.fRIresearch.ca)

## The Forest History Program Interview Series

This interview was one of 33 conducted in the late 1990s with various people who were involved with or had associations with the forestry operation at Hinton since its inception in 1955. The information was used in the production of a series of articles and two books linked to Weldwood's 40<sup>th</sup> anniversary celebrations in Hinton in 1997. Some of these interviews are posted to fRI's website for general reading, others are available only with permission for research purposes. All interviews were professionally edited to retain content but improve clarity but preserve content.

## Hugh Lougheed

Hugh Lougheed, at the time of this interview, was the Management Forester for Weldwood of Canada's Hinton operation. He first worked at the company in 1988-89 in the early days of GIS development at Hinton. He then went to Northwood, where he worked in forest management planning and was a key player in the development and writing of the MacGregor Model Forest proposal. He was particularly involved in early developments of their Scenario Planning tool. He returned to Hinton in 1992 and immediately began work on the implementation of the 1991 forest management plan as well as the tools that would be needed for the next plan revision. Key among those preparations was his work on the Linked Planning Process, a practical application of Gordon Baskerville's "steps to good forest management". At fRI he was involved as a member of the activity team developing the Natural Disturbance Program. In 1999 he produced the next Management Plan for Hinton which incorporated much of the work of the Model Forest Program including fine filter and coarse filter biodiversity elements. Later he left the Company for consulting work with JS Thrower, later Timberline and around 2009 he left Alberta to take a position in Sault Ste Marie with the Ontario Ministry of Natural Resources.

## Dr. Peter Murphy - Interviewer

Interviewer Dr. Peter Murphy is Professor Emeritus in Forestry at the University of Alberta, where he taught and conducted research in forest policy and forest fire management from 1973 to 1995, during which time he also held positions of Chair of Forest Science and Associate Dean for Forestry in the Faculty of Agriculture & Forestry. During his time at the University he was active in promoting the study of forest history and its importance as guidance for the advancement of forest science today. As part of this he initiated and conducted a number of important interviews with key players in Alberta's forest history, most notably Des Crossley – Hinton's first Chief Forester – and his counterpart in the Alberta Forest Service, Reg Loomis who together established the foundation of Alberta's forest management agreement system. Dr. Murphy is the Chair of the Forest History Association of Alberta, and has been a member of the Forest History Program team at Foothills Research Institute since the program began in 1996, where he has authored and co-authored a number of books and reports.

**Interview Date: 9 July 1997**



- Murphy:** Thank you for making yourself available and giving this some thought. I explained that it is helpful to put you in the context of your own life experiences, and I wonder if you could begin by telling a little bit about where you were raised, where you are from, where you went to school and what led you into forestry.
- Lougheed:** I was raised in southern Ontario, in Barrie, and went to high school at Eastview Secondary School. Through that time, through most of my high school days, I'd always intended to become a pilot. I was sort of on track to go into the CMR (Collège militaire royal du Canada) and that didn't work out towards the end and I had a short time to decide what to do.
- That was I guess in grade 12 when that happened and then I decided to stay on for grade 13 in Ontario. I had about three months to decide what I wanted to do after grade 13, because there in Ontario, you have to apply in the fall of your grade 13 year to universities. So it was around October/November and I had gone through the process the preceding summer with the forces and found out I wasn't going to be going into that program. Anyway I did some background work and actually my grandfather on my dad's side was a pulpmill manager in Sault Ste Marie. I had lots of discussions with him at different times about forestry and he'd looked after some of the forestry side of that business around the Sault and points north and west. So he'd always talked about the forest industry and some of the things that went on in his career, and so I guess I had an interest there as well as being interested in the outdoors.
- Murphy:** So you had that interest, too.
- Lougheed:** So that was always an interest for me, and I kind of put the two things together and I thought, well, it sounds like an interesting field and engineering seemed too numbers-oriented and I wasn't so much into that. I liked the biology end of forestry. I went into forestry, not with a great deal of understanding about what it was. There wasn't a lot of forestry down in southern Ontario, at least industrial forestry the way you'd understand it. I looked around and actually one of my classmates had a brother in forestry at University of New Brunswick (UNB) in Fredericton, so in the spring of 1980 I went out with my friend during Easter and visited his brother in Fredericton. I had a tour of the university and talked with the professors and some of the students there and liked it. It was a good school, but I'd also applied to the University of Toronto (U of T) but I thought it would be kind of exciting to get out of Ontario and try something new, so that's how I ended up in Fredericton in my undergrad program.
- Murphy:** So you went there in the fall of 1980. Who was the dean at that time?
- Lougheed:** The dean was Jack Ker. He actually taught me economics. He was an interesting character. I can still remember him up at the front of the room with his calculator punching numbers in; he never came up with the right number. I think he kept hitting the wrong numbers; he had troubles with his bifocals.
- Murphy:** What was your grandfather's name?
- Lougheed:** His name was Hugh Lougheed.
- Murphy:** You both had the same name?
- Lougheed:** Same as mine. He was Edward Hugh and I'm William Hugh. It was a family tradition—Hugh was always in the eldest son's name. It alternates generations as to whether you go by Hugh: my son is Hugh Donald, but we call him Donald. There is about seven or eight generations of that now.
- Murphy:** You wound up at UNB. That was a five-year program and then you transferred into the second year.



- Lougheed:** It was one of the last years that they allowed you to do that. I think two years after I went in they wouldn't recognize grade 13 anymore. They thought that the students should come in and do the first year over. In my first year, which was the second year of the program, they were kind of keeping an eye on how I made out and I seemed to do fine. There weren't any issues after that first year. They told me at the start that they'd be keeping an eye on my progress. The assistant dean had a bee in his bonnet about that.
- Murphy:** Who was that? Was it Steve Oliver?
- Lougheed:** Steve Oliver.
- Murphy:** He was in my class at UNB.
- Lougheed:** You went to UNB, too.
- Murphy:** Yeah, I was the class of '53. So you had arrived at your first year, the second year of the UNB program, which gave you four years to go and you survived that first year. Did the program meet your expectations?
- Lougheed:** It did. Actually it was quite an eye-opener. I went into the program with some misconceptions about what forestry really was and through the course of the year I was quite amazed at the breadth of what needed to be understood, some of the technical skills that were required and the background knowledge. You've probably seen what a forester needs to be. That I think, if anything, impressed me the most. The breadth of understanding that was required. Just looking at the program in the subsequent years, it was quite intimidating. Just looking at the breadth of it, there was so much, right from biochemistry to wildlife, ecology, computer science, calculus. You had to take a second year calculus course and I ended up in a thermodynamics course, third year engineering. That was pretty wild.
- Murphy:** Did you take the engineering program?
- Lougheed:** No, I took forestry. I actually changed options. I started off in forestry wildlife, so I took the first year of the wildlife option. I remember one course in the biology department was about animal structure diversity and function. Normal courses are three credit hours, this was five and a half. So you know what it was like. At the end of that year, I really went through some ... I was really undecided as to whether to continue in the program. I thought for a while of changing into computer science, but then I decided instead to just change options within the forestry stream. I moved away from more the biology/wildlife end, and I switched into the forest environment option. So that allowed me some more flexibility with my options to focus on things that I was interested in, rather than the forest wildlife stream which is very rigid, and has very little opportunity for options. They had a lot of core courses that were required and you maybe had one option a year that you could take something that was of more interest. On the forest environment side, I focused more on the computer applications in forestry and statistics. That was more what I got interested in.
- Murphy:** What did you do in the summer then?
- Lougheed:** The summer before I went into forestry, I actually worked in Hornpayne, Ontario which is north of White River. I worked at a little camp with the Haavaldsrud Timber Company at Becker Siding. I was actually working for Ontario Paper but based out of Haavaldsrud Timber's camp and I did regen surveys. I was pre any kind of forestry training out there doing regen surveys, struggling with aerial photographs and all sorts of new things. The fellow I worked with, my partner, was a first year technician out of Lakehead University and he didn't really like to explain too much, so I got thrown to the wolves but managed to survive the summer and it was a good summer. Then the first two years of university, both summers, I worked for the



university. The first summer I was doing field work out in the Nashwaak watershed; they had an experimental watershed that was the Nashwaak in Hayden Brook watershed. Hayden was the control and Nashwaak was the clear cut watershed and I was doing permanent sample plot remeasurement in there. I think the Nashwaak had been clear cut in 1977 or 1978, so I was doing the fourth or fifth year of measurement following harvesting. They had all sorts of things out there. They were measuring stream flows, water quality, and I was looking at the revegetation component. So the first summer was collecting the data; the second summer I actually started doing some of the data analysis. Both summers, I worked for Dr Graham Powell.

**Murphy:** Who was that?

**Lougheed:** I spent two summers working for him and that was really good. I think he had quite a large influence on the way I approached not only his courses but others. He is very precise and exacting and I have an immense respect for his knowledge in dendrology, and his understanding of silvics. I guess that influenced me to try to strive towards that.

**Murphy:** Those mentors are very important.

**Lougheed:** He was one of the ones that stands out in my mind. That was the first two summers. The third summer, I worked in Ontario for the Ontario government establishing permanent sample plots for immature plantations, white spruce and pine plantations, anywhere from just east of North Bay through to Thunder Bay. I put thousands of kilometres on the truck. That was an interesting summer, too. As it turns out actually, one of the fellows that I worked with, David Andison, we've crossed paths again and he's just finished a PhD in UBC (University of British Columbia) and is our consultant for landscape ecology and natural disturbance work.

**Murphy:** That took you up to your graduating year—what year was your graduating year?

**Lougheed:** 1984. I guess in my last year or so I was interested in computer applications and timber supply modeling, and I took Gordon Baskerville's course and the forest dynamics course. I got really keen in pursuing that so I worked for a year at the university after graduation for a PhD candidate, actually Doug Walker. I worked on his case study and a few other projects through the course of that year. In 1985 I applied to Lakehead and was accepted into the grad program there, so I started the grad program at Lakehead in the fall of 1985.

**Murphy:** You went into the master's program?

**Lougheed:** I went into the MScF (Master of Science in Forestry) program there. Doug had actually returned from UNB to Lakehead so he had a little bit of influence on getting me to go to Lakehead and start my grad program under him. So I started that in 1985 and completed it in the spring of 1988 and there the work was in forest management planning. My thesis was in spatial analysis and forest management and so I was using arc/info extensively and using Timber Ram in trying to find a way to have some of the spatial elements represented in timber supply analysis. In the fall of 1987 there was an ad put in the paper for a position at Champion, at the time, for an Information Services Supervisor, so I applied for that and was interviewed. They flew me out in November, 1987. Clem Mueller interviewed me here. I was offered the position I think just before Christmas and accepted it, but I had to finish my program. I was allowed the flexibility. I was hired, I think, in December, and I didn't show up until May. So they allowed me about five months and I was being hired into a temporary position, but there was an agreement that they'd be working at the end of the year to have that position turned permanent because they were looking at getting into GIS (Geographic Information Systems) at the time. That was kind of why they brought me out, because of the GIS background that I had at Lakehead.



**Murphy:** It was neat that they gave you that latitude as well.

**Loughheed:** It was really something. I was quite impressed. I said up front that I wanted to finish my program first and I thought "Well that will be it. I won't get the job." I had seen enough people leave the school before finishing to know that you didn't want to do that. It was almost impossible once they left to actually finish it up. So I was not willing to take the position if I had to leave before being done completely. I was in a bit of a rush: I defended my thesis, got married and moved to Alberta in a span of about two weeks. My medical when I got here was kind of interesting. The doctor, I think it was Dr Schneider, went up and took my blood pressure, and he said "You've been under some stress lately!" So I told him what had been going on in the last month and he said come back in a month, and we'll check you out again.

**Murphy:** We were talking about mentors and people who influenced your life, and you mentioned Gordon Baskerville was one of them.

**Loughheed:** I guess my last year at UNB he taught us the forest dynamics course. His approach to teaching that course was more of a synthesis. He expected you at that point in your training to be able to draw together all the things that you'd learned and apply it in forest dynamics. He threw just an immense amount of stuff at you, and I don't think there was a single Wednesday night for the entire term that I slept because we had a Wednesday afternoon lab and it had to be on his desk by eight o'clock Thursday morning. That was every week. We used to finish them at four, five or six in the morning, stumble in and put it on his desk; you know, before eight o'clock. These labs were marked incredibly hard. It was everybody's challenge to do well in Baskerville's lab and they carried a lot of weight in that course. But in that, it was really something to see how it all came together. In the first year, just this breadth of stuff that you had to learn ... I thought "You know, how do you ever apply all of this to what it is you have to do when you are working?" Then it kind of came together in Baskerville's course, so it was kind of an encapsulating course—I really enjoyed that. There was that one and then the practicum in land use planning.

**Murphy:** Is that where you went out in teams?

**Loughheed:** They broke us up into teams and each team dealt with, or had to prepare a forest management plan (FMP) for a different area. In my year they had arranged with the Canadian Forest Service (CFS) to prepare a plan for the Tracadie Air-ground Weapons Military Range. I had 11 or 12 people that I was working with and we prepared a management plan for the Tracadie range and we presented it at the end of the year. So that was interesting, too, taking it right from scratch. We actually ran a timber supply on it and looked at some of the social issues in the area which were quite unique and came up with that. Actually just before I went to Lakehead, I actually was contracted by CFS to revise the plan. They had these impacts, which were the old air to ground missile ranges, and they had mapped them out when they had the class do the project. Well as it turns out, a year later, some of the maps that we had worked with initially were wrong so we had to go back in, and I had to complete the inventory for some of the areas that had moved or shifted. I redid part of the inventory and actually reran the timber supply. That was a fun project.

**Murphy:** So you were here in the spring of 1988?

**Loughheed:** At that time they had a report prepared to look at getting into GIS.

**Murphy:** So they had not been on GIS to that point?

**Loughheed:** No, they were looking at it. The report was prepared by Paul Atfield and a consultant. They had this big thick report that described quite a large facility that would be required. I think there was



seven or eight positions and it was quite an ambitious program that was being proposed out of the GIS report. So I think that stalled it out. A little bit of a complicating factor at the time was that in the spring of 1988 there was the transfer from Champion to Weldwood. I worked for Champion for three weeks, and then they put a new sign out front and we all now reported to Vancouver. I think Vancouver kind of put a hold on some of the activities. I think Hinton had maybe a little more latitude to do things before 1988, or the spring of 1988, and at that time the decision might have been more a Hinton decision. Suddenly with Weldwood being on the scene, Vancouver got involved and progress towards bringing a GIS on site was slowed up. I think that because of the concerns that Weldwood had over staffing levels, that for the temporary positions, similar to the one that I was hired into, there wasn't a lot of motion towards making those permanent. So I was kept busy through the year doing database work. I did a lot of database applications under Clem's direction, so I worked at the weigh scale, did some roads applications (at that time we didn't have an accountant within the forest resource department). I also helped Clem prepare the 1989 operating budget, collated all of that from the various districts, silviculture and roads, and put that together.

**Murphy:** This was all computer-based data?

**Lougheed:** A lot of computer work. I think my first day at work—I can't remember exactly what went on—one of the computers broke down on the floor here and I had never been inside a PC before. Clem says "Well, there is something wrong with this PC over here" and hands me a screwdriver. Anyway it was kind of a learn by poking and prodding thing. By the end of the year, I was switching hard drives and floppies, and sort of getting right into the guts of the PC. I was used as a resource by the department, upgrading hard drives and repairing things.

**Murphy:** But that really wasn't what you had expected when you were hired on?

**Lougheed:** No, I really didn't know where the position was going to go. At that time, you were just glad to have a job—jobs were pretty scarce. I was a little disappointed that the GIS didn't come about and I was even more concerned about the position not being turned permanent. So I had approached some of them, Clem and others, to indicate that I've got a baby, and I have to make sure that I could support my family. So in the spring of 1989 I started looking outside for work and a permanent position came up at Northwood Pulp & Timber Ltd in Prince George, and I applied for it and was successful. I left here with some regrets. I think one of my worst days in my career was actually having to tell Clem I was leaving. I didn't enjoy that at all and I felt that I was leaving him in the lurch, but compelled to do so for my family.

**Murphy:** I'm sure he would have understood.

**Lougheed:** He was great. He went home early, so I wasn't too happy about that! Then off I went to Prince George. I worked there for three and half years.

**Murphy:** What were you doing there?

**Lougheed:** I was hired there as a Planning Forester, so I went from information services here to a planning forestry position there. Pretty quickly I got thrown into developing a forest management plan for the TFL (Tree Farm Licence). They had a TFL 30, which was north and east of Prince George, and they were 18 months into a 36 month project for preparing this forest management plan and they pretty much hadn't done anything. We were behind the 8-ball, so that was my first 18 months with Northwood: getting that thing done up and we submitted it.



- Murphy:** What area was that in, was that up on McGregor?
- Lougheed:** The Barney Drainage on TFL 30.
- Murphy:** In the summer of 1952, I worked on a forest inventory on the upper McGregor, the Parsnip and through there.
- Lougheed:** Oh really, Dave Presslee—
- Murphy:** Is that his country through there?
- Lougheed:** He lived in McGregor for I don't know how many years.
- Murphy:** Oh, I'll see him tomorrow.
- Lougheed:** You should catch up to him. I don't know the ground all that well; I was pretty much stuck to the office. I was out, I tramped around the TFL a bit, but I really didn't have time. There was so much to get done in preparing the plan.
- Murphy:** Were you able to apply the skills then that you'd ...
- Lougheed:** I think more so than I had for the year that I was here at Weldwood. I was thrown into more of a professional role with Northwood. It was quite intimidating. I was put into a new position with the company and it wasn't very well-defined. There was the Chief Forester, then I worked for him, but I was a resource basically for the various operational units.
- Murphy:** Was that Doug Little then?
- Lougheed:** Doug Little was there and I worked for Jim Burbee. He was the Chief Forester and they had just moved Lowell out to Houston, Lowell Johnson. So I was responsible for strategic planning on the Prince George TSA (Timber Supply Area), Houston area, the Morice River, and then the TFL as well. I had broader planning responsibilities for those things. There wasn't much activity in the TSAs. The TSA plan had been done a few years before, and they'd been through most of the timber allocation plans, so the TSAs were fairly quiet. The TFL was the one that was really busy trying to get the new management working plan done. After that we embarked on preparing the McGregor model forest proposal so there was Dave Presslee, myself, Walter Matosevic (who later became Chief Forester) and Chief Forester Jim Burbee.
- Murphy:** Walter was there too.
- Lougheed:** It was Jim Burbee that put that proposal together. It was one of the other successful model forests. So that was quite a project in itself. Then I left shortly after that.
- Murphy:** What brought you back?
- Lougheed:** Doug Walker left here to go consulting and I was getting pretty burned out at Northwood. There was just too much going on and not enough resources. They were very shy on bringing resources in and I guess maybe it was partly my own doing, in not having a comfort in working with consultants. Anyway it was time for a change. We liked Hinton the first time, the people. We had good friends here and I had liked the company so when the position came up, I applied for it and ended up back here in the fall of 1992.





- Murphy:** So this was Doug Walker's position then?
- Lougheed:** I ended up coming back as the Forest Planning Coordinator at the time.
- Murphy:** That's interesting, how these things are intertwined.
- Lougheed:** So that was the fall of 1992.
- Murphy:** That's interesting, you must have left with good feelings.
- Lougheed:** At Northwood?
- Murphy:** No here.
- Lougheed:** It was mostly the people. There was good people and I enjoyed working with them when I was here the first time. Because of the nature of the job, I got to know a lot of people and dealt with them because I was developing these applications for them to use day-to-day in their work. I really got to know a lot about what different people did, so that was very useful later to have understanding.
- Murphy:** So had things changed in the meantime then. Did they have GIS?
- Lougheed:** When I came back they had GIS. Brian Maier was here, he was the GIS Coordinator and Paul Atfield had since left. There was another interesting thing there. In the spring of 1991, I was approached about the GIS Coordinator position and I didn't take it at that time because I still hadn't finished some of the work at Northwood in the management planning. But it was just a year later that things dropped up at that end and I felt comfortable about leaving. Anyway Brian was in that job, in the GIS position, and he had Bob Willing and I think Christian Weik working at that time in that group. They were located over in the old trailers, the ones that eventually burned down. GIS seemed to be up and running. I think one of the problems that they had though was a lot of operational demands on the system that kept that group busy. There were three of them trying to meet just the day-to-day demands, and they weren't able to put together a strategic direction for the GIS. What type of structure should they be developing for the longer term? It was more hand to mouth on the GIS and I think that was a handicap and we're still trying to develop a system. I'm sure Sean Curry talked about that, forest resource information system. Brian was here for a year or two after I got here. I can't remember when he left; it might have been 1994, and that's when we had the change in duties and Sean and I ended up splitting responsibilities for the GIS. Anyway from about 1992 on, I was, for the first year or so, taking care of a number of projects. The management plan had been done—it was approved in August, 1992—so I didn't have that to be working on. It was more just getting established, learning about the FMA and the planning. There was discussion though of the Linked Planning Process. I'm not sure where the term came from, but I think it was something that Don Laishley just recognized as a need. We had a forest management plan that was almost, in a sense, unhitched from the operating plan, so when I got here, I think Doug had done a little bit of work at starting to prepare a 20-year plan that was intended to bridge the gap. I think that thought expanded to saying we need a Linked Planning Process but nobody really defined what a Linked Planning Process was. I ended up getting charged with trying to put something together through a committee that was prepared. It was a joint task force between Weldwood and the LFS (Land and Forest Service). We got going on that in 1993.
- Murphy:** You arrived back here in October, 1992, and it would be interesting to know what your mandate was at that time, what capacity you were expected to perform when you got back here.



**Lougheed:** The management plan had been completed the previous summer, so up to that point the position was fairly focused on preparing the 1991 management plan. They had gone through quite a series, right from 1988 through to 1991, where the position dealt with both the preliminary plan and then the detailed forest management plan. So when I got here that function was pretty much done. The position really wasn't very well-defined as to what I should be focusing on. I think there was a number of forest management planning issues that needed to be dealt with, or that they had in mind that needed to be dealt with, that related more to the implementation of the forest management plan and looking at forest management in general. So I was pretty much given free rein. I think there were a few key things that I was involved with early on that just evolved. Lots of projects, a series of smaller projects as opposed to one large one, that being the forest management plan previously.

**Murphy:** Let's talk about some of those.

**Lougheed:** The first one that comes to mind is the Linked Planning Process and I mentioned earlier that there was this perception of a gap or a gulf between the strategic forest management plan and the implementation on the ground, that the two were unhitched. The work was done initially to look at having a 20-year plan sitting between them and we wanted to develop that further, so Don Laishley arranged with Ken Higginbotham that there be a task force struck and I think we met early in January of 1993 to kick this thing off. It was termed the Linked Planning Process Task Force and there was Bob Udell, Rick Bonar and myself on the company side and from the government side there was Tony Sikora and Dan Wilkinson sitting on it.

We started off by trying to come up with what would be the ideal forest management planning structure—what types of plans should be prepared. So, given what we understood to be some of the issues or concerns—what we saw to be the failings of the existing planning process—what would be the ideal process? We modelled it after Baskerville's<sup>1</sup> "six steps to good forest management". We brought in the concept of feedback and ensuring that there is a linkage in strategies going from one plan to the next as you move down in the hierarchy, so that there is a consistency between what's assumed in the higher level plan and what's done in the lower level plan. Then there is the feedback element that you stop to look at your performance and use that in preparing your visions to all higher level plans. So we took Baskerville's six steps to heart and the process evolved. So we came up with the Linked Planning Process. The structure was basically to introduce what we now call the development plan that sits between the FMP and the AOP (Annual Operating Plan). Right now it is a ten-year plan and that's been very useful. I'll maybe go into that in a little more detail.

The other element that was introduced was the Stewardship Report. That is where we report on all of the key assumptions in all of the higher level plans. That is unique because we look at the key assumptions in the FMP and report on those for a given year, as well as cumulatively over the term of the FMP, so you'd know how you are tracking towards the assumptions that were in the plan itself. Those were two key elements to the Linked Planning Process. The linked part comes from linking the strategies as well as providing the feedback.

**Murphy:** Linking the agencies, too, is that part of it?

**Lougheed:** No, not really. They were heavily involved in sort of providing what they thought to be some of the issues or concerns with the planning process. I guess the example I have is the development plan. I think that's really done away with a lot of the operational issues that we use to stumble into. When I first got here, there was a lot of concern whenever we would initiate a compartment harvest plan or compartment operating plan. There was always this flurry of "Well, why are you doing that, how come this is, or what are you doing?"

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<sup>1</sup> Editor's Note: Dr. Gordon Baskerville, then Dean of Forestry at the University of New Brunswick.



They'd go back to the FMP and it wasn't very specific about the compartment sequence and there wasn't a lot of understanding at the other end about why things were coming into play. I think maybe that understanding was on both sides, but we would be initiating compartment harvest plans, but we couldn't really tie them tightly to the FMP and say "Well, we're following the sequence." Instead it would just be an argument back and forth "I don't think you are, and I think we are." So we wanted to do away with that and I think the development plan has served to do that. The structure of the development plan is that we sequence or schedule volume by compartment for a ten-year period, and we present it in a way that you can see the sequence of compartments that's assumed in the FMP. That way the Forest Service understands where we're going and why we're going there.

There is a justification provided with each of the compartments and why the volume is coming in when it is. It's really structured how we've worked within the operations groups or the two districts. I think they look in a lot more detail at the compartment sequencing than they use to. I think in the past with the cut levels, it wasn't so hard for somebody to wrap their mind around the compartment sequencing. They were harvesting 600,000 to 800,000 cubic metres a year. Then suddenly they hit 1.6 or 1.9 million cubic metres and it's an entirely different story. They kind of went over that critical mass, and they needed a better structure to deal with the sequencing. The development plan provided that, and it really helped us internally as well as provided the Forest Service with the information they needed to be comfortable with how we were implementing the FMP.

**Murphy:** Just to clarify, the task force was a joint one, to try to define what it should be, but the plan itself was entirely your operations.

**Lougheed:** Right. The idea of the task force was to develop the process or the structure, for what should be the forest management planning process. They looked at what types of plans should be prepared and what the contents of those plans should be: what sorts of things should be in each of those plans, what should we have in the FMP, the development plan, the compartment operating plan, the AOP and the stewardship report. We went through that and it took quite a while. It was over a year actually in the works and we presented a report in the spring of 1994. It was endorsed by the LFS, and because there were no changes required to the FMA or regulations, basically given the green light to implement.

**Murphy:** Great.

**Lougheed:** We've since initiated another group to look at revising the 1994 version of the Linked Planning Process just to look at streamlining some of the submissions and approvals because of, I think, changes at the other end in the Forest Service, things that worked or were reasonable back in 1994 from their side. However, because of the cut backs, they're looking at having to streamline some of it. We're in the midst of that now.

**Murphy:** You mentioned a stewardship report, was that a part of that process?

**Lougheed:** Yes.

**Murphy:** Can you tell me about it? What does it mean?

**Lougheed:** A stewardship report is essentially where we track all of our activities—and by all, I mean things like road construction, harvesting, silviculture—and the idea is that we would expand that to cover key assumptions out of the FMP. We've got a stewardship prepared for the 1994 and 1995 years and it focuses more on the traditional annual report type of information. The intent is once we complete the 1998 plan, we'll expand the content of the stewardship report to cover key assumptions in the FMP. So is the growth rate on regenerated stands a key assumption? Does it have a large impact on the success of the strategies?

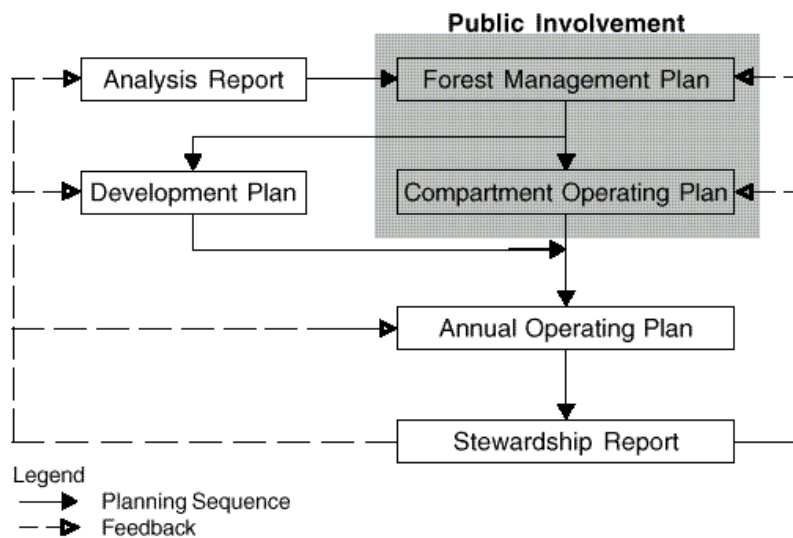


Figure 1: The Linked Planning Process at Hinton

**Murphy:** Was Gordon Baskerville pleased with what you've been able to do here?

**Lougheed:** I think he was pleased with the knowledge that we based a lot of the work on the Linked Planning Process on concepts that he had espoused, both at UNB and in his articles. I think he was also happy that other people had read through his articles. There is the Forest Renewal BC group that came through here a while back, about a year ago, and I had to give a presentation to them on the Linked Planning Process. I felt rather awkward at doing that because you're presenting what you've been able to accomplish to the guy that taught you what it was that you should be doing out there. I guess in doing that all I could see were the failings in it, or what I saw to be some of the shortcomings of what we had actually done. So afterwards I was chatting with him, and I guess I was kind of making excuses for it, some of the things that I knew that he would have picked up as being some of the failings. He was quite gracious and he says "I taught you the theory, you know, that's easy compared to actually trying to implement it in the real world or the industrial world." That made me feel pretty good. He recognized that there was a lot of effort to apply the theory and he didn't look down at we've been able to accomplish. So I felt pretty good about that.

**Murphy:** Yes, you should. I remember talking to him and I think that he was very positive.

**Lougheed:** I'm sure he has talked to Rick Bonar quite a bit through the CSA (Canadian Standards Association). They were on the same committee, so he probably got a lot more background than I was able to provide at that short meeting.

**Murphy:** He is involved with us on this Forest Management Science Council as well. He is an alternate to Gordon Weetman. So it's neat to get input from them both.

**Lougheed:** Actually we had a good presentation; well, you were there. I'll ask you about it later.

**Murphy:** OK, so that's two important elements coming out of that development plan.



- Lougheed:** The development plan and the stewardship report, I think, are the key new elements to that planning process, and I think both have served us well. The stewardship report is newer. The first one of these reports with a significant amount of data in it is just recently off the press, but we've had development plans for the last two or three years now. We actually go through quite a process. We submit it to the Forest Service, although it's not submitted for approval, it's submitted for information and it initiates discussion about what we are doing. We actually have a presentation of it with the Forest Service, so we get the districts in and we go through it from top to bottom and explain why certain compartments are sequenced where they are. As a result, I think there is a much better understanding on their part as to where we are going in the longer term or the mid-term—ten years plus. It does away with a lot of the issues that use to crop up sporadically through the years where you'd be trying to deal with them on an ad hoc basis in regards to trying to answer their questions as to sequencing.
- Murphy:** I can see that but what really stands out in my mind is the tracking of the key assumptions, which I think has been a real weakness in our management so far.
- Lougheed:** That's one aspect that I can maybe bring up when we talk about the FMP and some of our efforts in identifying the things that should be tracked.
- Murphy:** What else is on your list?
- Lougheed:** I guess later on, I think it was in 1993 or early 1994, I got involved with the GIS. I explained earlier that Brian Maier was the GIS coordinator and he left, I think about a year after I got here. We were unsuccessful in finding a replacement for Brian, so Sean and I split the GIS duties. I took on the production side of the GIS, Sean took on the application development side of it. One of the projects that I had under the production side was to undertake the base map update and this thing had been kicking along. We had normally done the base map updates on a five-year cycle but in 1994 we hadn't done one since 1988. It was six years already and we hadn't done much for a base map update so that was one of the things that I was quite anxious to get moving. So through the FMP and some discussions with Sean who was looking after the inventory side of it, it was thought that maybe we could do something a little different, take a different approach than just the traditional way that they had approached base map updating. The thought was that we could use orthophotos for the base map updating, as well as for the management inventory for the FMP. A third benefit to the orthophotos would be use in operational planning of compartments. So through a lot of discussion and background work we were able to come up with a proposal to actually fly the FMA and it was flown in the fall of 1995. We had orthophotos within six months of that time and they've been used for the forest management plan inventory. There was a considerable cost savings on the inventory because they used that for the transfer as opposed to doing first order transfer. So it made the management inventory quite a bit cheaper, and as well we've done the base map update with it, so we've been able to update linear features, seismic roads, pipelines, all those sorts of things. But I think the most surprising benefit that we didn't really appreciate at the time was the use in operational planning. I guess you've seen today where we have the orthophotos live on the GIS, so we can bring those up on as a background to the vector coverages that the area coordinators are using in the design of their plan. One of the things that we'd had an issue with is the plan versus actual boundaries. There is all kinds of issues with the base map precision and the location of blocks, and trying to tie it to old history, and the old history being not as accurate as we would like it to be, so that when you go back for a second pass it presents a real problem. Do I make it relative to the old blocks, or do I put it where it really exists in space? So we've got a couple of things that we try to do to fix that. One is using GPS (Global Positioning System) in operational planning, so all of the blocks are GPS now. On the other side, we want to have our plans accurate so in preparing plans in new areas the orthophotos are invaluable. What the planners are doing now is instead of laying the plans out on paper maps, they are using the base data on those (the base map data)—they are actually laying their plans out using acetate sheet over an orthophoto and using that for digitizing either on a digitizing table or on-



screen. The orthos are incredibly detailed, the resolution on this is phenomenal. You can zoom in on the screen and see individual trees. Even on the paper copies there is enough detail there that they can design their blocks on those sheets and then digitize them in on the screen, but still be very accurate with where the actual ribbon line will go around. They can tie right into seismic lines, into roads or little features that they can use as tie points. For me that was the most surprising benefit of that project, and I think that was only allowed because of the speed of the computer system. We thought that each of those orthos that you drop in a screen is probably 250 megabytes. We thought that there is no way the system is going to handle that volume of information and deal with it but the system works very quickly with the orthos and the coordinators have quite enjoyed having that available.

**Murphy:** That sounds great. It's the next best thing to laying it out on the ground.

**Lougheed:** Well, you know, I can still remember the first time Morris Archibald used it (my office was near the GIS), and he said "Wow, there is the tree I had lunch under the other day." They can pick up a lot of things on the orthos that they just didn't have available to them as they were designing their plans in the past. They make good use of it. I think the benefit is that we get much more accurate plans laid out on the ground, so the variance between the paper map, the plan and the actual on the ground is very small. There has been a good benefit there.

**Murphy:** Another item in your bag of interesting activities was the Aspen Project.

**Lougheed:** This one came out of the 1988 agreement. With the renewal of the FMA, we had to prepare a plan for the use of the aspen within a certain time frame, so shortly after I got here, I think it was in the spring of 1994, there was this flurry of activity. There was some discussions with Don Laishley and his counterparts at the Forest Service and they were trying to figure out how we were going to satisfy this requirement to provide a plan for the use of the aspen. It came about that we would have to look at a resource, an analysis of the aspen in the summer of 1994. It was like those projects that get going and sometimes they take on a mind of their own. It quickly got the attention of Vancouver and we had folks up from Champion to look at the possible options for the use of it, like what types of expansion could we be looking at, paper machines, and this sort of thing. So there was the engineering aspect. They had even been looking at possible locations, I think, but at the same time I was asked to look at the aspen resource—so what did we have available? It pretty quickly became apparent that we had lots of issues regarding aspen in terms of the information we had available both on inventory and in the yield side. I did an analysis based on the 1991 resource analysis for the 1991 FMP. I took that information and worked with it to focus on the aspen whereas in the 1991 plan the focus was conifer and the aspen was just a come along. I revisited that analysis and tried to enhance the way the aspen resource was considered. So we came up with another allowable cut which wasn't really what people had expected. I think there was an expectation of a larger number that had been put out. However, that wasn't possible because of some of the uncertainty that we had with the growth and yield of aspen in terms of the age of the aspen that we have on the FMA now, the expected stand break up and the fact that we have quite a lot of it at around 100 years of age and our break up was expected to be imminent. We reflected that in the analysis. It created the problem that we can't move around fast enough to capture the mortality, so really the sustainable cut isn't what you'd expect given the number of hectares that we have of aspen. Basically, I think the resource analysis indicated that we couldn't really look at an expansion opportunity. I think that was a turning point maybe for the company. I don't know how much of that you want to actually put into this or describe on that.

**Murphy:** I think it's worth mentioning because it is a question that is frequently asked.

**Lougheed:** So after we prepared the resource analysis and we determined that we couldn't proceed with some of the things that had been looked at, the agreement with the government was that we would hold off until six



months after the 1998 FMP was approved and provide a plan for the use of the aspen at that point. So the intent was that on the basis of some of the issues that we'd identified in preparing the aspen report—in that, we recognized there were lots of concerns with the inventory we had available and that we had a very poor growth and yield information—the commitment was that we would gather better information between 1994 and the 1998 plan and then use that in the 1998 analysis with the AAC (allowable annual cut) that was generated in 1998. Then we'll be able to prepare a plan for the use of the aspens. That was what was finally agreed to with the government—"OK, we'll basically accept that as what we'd do to meet that condition in the FMA."

**Murphy:** Could you give a figure to indicate the proportion of aspen, either in area, or volume or AAC?

**Lougheed:** What we calculated in the aspen report was that the allowable cut of aspen is about 120,000 cubic metres. The AAC that was established in the 1991 plan is 126,000 cubic metres, but that AAC is actually a 20-year average of the come along aspen when looking at the conifer.

**Murphy:** That compares to what for your overall AAC?

**Lougheed:** The conifer AAC is 1.9 million cubic metres.

**Murphy:** So it's a pretty small percentage. Interesting.

**Lougheed:** It's a little less than a tenth. There is lots of thought that the deciduous allowable cut is understated by the aspen report, but in using the information that we had available, that's what we came up with.

**Murphy:** That's what you are redressing over the next while. Does aspen include the poplar component, balsam poplar?

**Lougheed:** In some cases we couldn't distinguish. One of the problems with the inventory was that it didn't make a distinction between aspen and poplar.

**Murphy:** That's interesting.

**Lougheed:** The other project is the big one that has taken up a lot of time since mid to late 1995, and that is coordinating development of the 1998 forest management plan. There are quite a number of people working on that. Rick Bonar and Gord Stenhouse have worked on the wildlife component; Sean Curry has worked on the growth and yield; Paul Hostin has worked on the inventory and I've worked primarily in coordinating and developing analysis capabilities. We've had Bob Christian working in developing analysis capability as well.

**Murphy:** OK.

**Lougheed:** So there's just an incredible number of activities going on. I think you've probably talked to Sean Curry at length about the growth and yield side, and on the inventory side we're in the process of receiving a completed AVI (Alberta Vegetation Inventory) coverage for the FMA. We have it now for north of the Athabasca River, and we'll have it for the entire FMA including the south by the end of November of this year. So that'll be the first time I think where we have a full spatial inventory of the FMA.

**Murphy:** Of your new one.



- Lougheed:** Yeah, even in the past we used to have photo point samples or non-spatial inventories. So, I guess, something new for the '98 plan is having an inventory to that precision. The wildlife component, are you going to be talking with Rick Bonar?
- Murphy:** Yes, I will.
- Lougheed:** So I don't need to go into those in detail. One of the key activities has been to make sure that all the work that is being done by the different folks is really going to come to bear at one point in time; you know, that we're not developing growth and yield curves for strata that we can't identify out of the inventory and that sort of thing. People have been really good at making sure that they're aware of what's going on in the other areas. It's been a real challenge for me, I think, to sort of keep tabs on what's going on. In a lot of cases, just trying to understand what's going on. There is a lot of development work occurring. On the wildlife side with the HSI (Habitat Suitability Index) models, trying to understand those and how they could be applied—I think that's more my challenge now, to figure out how we can apply these things to the plan itself. Other inventory things that we've done are the landscape inventories for aesthetics, the recreation and culture inventory being done by the same person. We've also got the riparian corridor inventory; Rick has been looking after that. So you've got a huge amount of new information that we'll have available to use as a basis for the plan. The challenge now is how we incorporate that and make some management interpretations of it in preparing the strategies. Lots of resource information work is going on and developing analysis capabilities. On the other hand, a lot of time has been taken up with trying to establish goals and objectives, indicators, and thinking about how we might need to be in a position to look at CSA certification. So for example at times we have been looking at the Z808 and the Z809 documents and saying, "Are we meeting the intent that they're describing here and adapting some of the public involvement process?" There has been a lot of working with FRAG (Forest Resource Advisory Group).
- Murphy:** Oh, there has been?
- Lougheed:** Yes, with the Forest Resource Advisory Group. So we've met, I think their key issues. We've been through four drafts of the goals and objectives with them. Then we've presented some of the natural disturbance results to them and recently we've worked with them on identifying what resource values they want to deal with and we prioritized those. The first one we tackled was access. That's been an interesting activity. We're going to have to come up with a much more effective way of getting them to work through the next stages of the plan. It's pretty slow working with them on that.
- Murphy:** That's petty stuff, whose the contact for the FRAG group?
- Lougheed:** A good contact would be John Griffiths, he's the chairman of the group, or Lyle Benson is the facilitator.
- Murphy:** These are both outside the company?
- Lougheed:** Yes.
- Murphy:** Who in the company is there?
- Lougheed:** For FRAG, Dave Presslee and Bob Udell have looked after it. I've worked with FRAG strictly from the perspective of the FMP but Dave worked with FRAG in a more general sense. They are permanent members, and I'm there on an issue basis.
- Murphy:** That's neat.





**Lougheed:** The analysis capabilities we've had to look at, what we understood to be the things that the wildlife people were telling us they would need to be able to evaluate in the plan. So there has been a lot of discussion with them on the need to be able to do this or that spatial analysis, and that we'll need to know exactly where these changes are occurring on the landscape and the pattern that results from those changes. Then we can evaluate that for habitat, what kind of habitat it provides. So there has been a lot of work put into developing capabilities at spatial analysis, actually laying the changes out on the ground and then pushing them through time and generating those snapshots, and then being able to evaluate those snapshots of the inventory at future times for wildlife habitat and what it can provide. That was one big component. We've used the GIS and have worked with Glen Jordan at UNB in doing that and that was kind of through the model forest as well. We initially started with the fine filter approach. We thought that that's how we would tackle sustainable forest management in a sense that we'll use the fine filter approach. We started thinking about how we're going to run HSIs on 36 species and we're going to have 20 tell us one thing, seven tell us something else and another seven tell us another thing. So we needed to decide where we were going to go, which ones were important. It was a real concern then that we were just going to spin around in doing the analysis, and that we weren't going to be able to determine from the fine filter approach what the strategies should be on the ground.

So we kind of backed off on that, and said maybe we want to look at a coarse filter. So that's how we got looking at this natural disturbance project and now the way we are looking at approaching the philosophy of the management plan is that we'll provide the habitat through the coarse filter approach, provide a representative area by serial stages and then we'll do a fine filter check. So we'll take key areas on the FMA where we have specific wildlife issues and we'll run the HSIs on those to determine, yes, in fact what we're providing through the coarse filter approach does indeed satisfy the species needs. That approach, the coarse filter and fine filter combination, has evolved over time, just in starting off with one thing and then realizing that probably wouldn't work operationally and adapting. So the natural disturbance project is one that I'm quite keen on. I'll show you some of the information we have on that in terms of what different people think about it. I think we're really on the cutting edge there.

**Murphy:** I think so.

**Lougheed:** Looking at the projects through the model forest being more descriptive, what were the historical patterns of disturbance in terms of the rate of disturbance, the size distribution of disturbance and looking at differences between the natural subregions. So the model forest component was more descriptive.

**Murphy:** OK.

**Lougheed:** There was a Weldwood component and it just evolved last summer actually in discussion with the consultant, Dave Andison. We were having lunch over at the Queen's Bakery and I said "Well, this descriptive stuff is great, and it'll be nice to know, but so what?" "What are we going to do with it from a management perspective?" I said my challenge, and we were sitting there over a chequered table cloth, will be to take the 15 or 20 compartments in a working circle and sequence them for harvest. Can I take the three that are adjacent to each other in a short period of time or do I have to stagger the compartments that are adjacent to each other so that we have disturbance scattered throughout the entire working circle through a rotation or at any given point in time? He kind of stopped in his tracks and said "Gee, you know, that's something I've been interested in looking at!" We discussed it more and eventually the question turned out to be "What is the minimum area that you would require to provide a stable age class distribution?" The area then that you have to look at, is it 30,000 hectares, is it 150,000 or is it a million?

**Murphy:** How big indeed? How big have they been?



**Lougheed:** That was a project that he started off. He used a toy landscape last year and came up with the answer that we don't have a land base big enough to even look at it. I think the size of landscape was in the area of about 10 million hectares in order to have a stable age class distribution. His report presented some information in a format and again we were left with questions. How do we interpret this from a management perspective? What does it mean that we should be doing on the FMA? We finally came up with a little graph, and I'll give you an example of it. Our interpretation of it is that you can define the range of variability for a given seral stage or a hierarchy of spatial scale, so for a 30,000 hectare unit, there will be a range of variability for each age class; we can then now define. We're looking at another project this year to get better at the numbers but say for example, 50% of the time between 12 and 35% of this size of landscape would have been in age class 1. We can prepare a graph through the stochastic modeling that he does. He runs his model out for a 1,000 units, and he samples each of the landscapes and comes up with this frequency distribution around each age class and says well this is where each of my landscapes had the percent area—so percent area by age class. Then I just look at the 50 percentile and the 75 percentile and say well 50% of the time you are between 12 and 35 in this age class, by the time you get out to say age class 5 or something you're saying it's only between 7 and 10% of the landscape is ever in that age class 50% of the time. So what we have to do now from a management perspective is define those units that we want to look at, those 30,000 hectare units and then define where we want to sit with respect to the historical. Do you want to fall within the 50 percentile, the 75 percentile or the 90 percentile? Because what it is telling us that at some point some of the sizes of disturbance on the FMA were like 300,000 hectares. Some of those 30,000 hectare units might all have been one age class at some point in the past: well, is that socially acceptable—not likely—so we'll have to modify what could have occurred historically for what we'll accept today. But we'll be able to show historically this is what occurred but this is what we're going to manage for. We want to be within the 50 percentile. In one place, we may fall outside the 50 percentile because of whatever, but we'll accept that on the 30,000 hectare unit so long as we're satisfying the overall seral stage representation on 125,000 hectare unit. So we're going to use this hierarchy of spatial scales and we may accept something being outside a desirable range at a lower scale so long as we're satisfying it at a larger scale. So that's the approach we're going to take from the management point of view. So we've got this guy chugging away, it's Anderson, and he'll be chugging away and I'll be chewing on him to get me numbers.

**Murphy:** That is really exciting stuff.

**Lougheed:** Dave Anderson knows a lot of people in the states that are doing landscape ecology work and I don't know if you've heard of Bill Baker—he sent a note to Dave. Dave sent him the reports from last year and he's quite complimentary of the work that was going on. He said that it was on the cutting edge and that worries me to some degree. As long as we don't lead too much.

**Murphy:** These are profound questions and they beg answers, and I don't know that there are any simple answers at all. Of course it assumes that we just don't know in the long range scheme of things what exactly those 300,000 hectare burns are.

**Lougheed:** It's funny because it started off as a simple question, from what I understood from a management side to be fairly simple, how should I sequence these compartments? That seems to be the way with Dave; you ask a simple question and you get a very complicated answer. Then it kind of sets you back a bit because you think, well, now how do I interpret this? The biggest challenge I've found is, you know, you ask a question and you get an answer, but the answer really raises five or ten more questions. It takes a lot of effort to try to figure out which of those things to then pursue, what is the critical element of what he is telling me that I need to nail down so that we can proceed or do something better in the FMP. We've kind of short circuited what I think would otherwise be a very long process, if we were just doing it from an academic perspective. We're hard pressed and the plan is imminent and I'm really pushing him and he's very receptive to dealing



with the questions that I need answered. He doesn't always come back with the answers he knows I'm looking for in a sense of being able to just take them and then implement them or go with them.

**Murphy:** It's got to be interesting.

**Lougheed:** It's actually fun. I can remember some of the information that he gave us back on this, we called it the minimum areas report—that was the other way we turned that thing. What's the size of area that would have a stable age class distribution? You have a copy of that. There was one table in there that set me back for weeks figuring out how to interpret this thing. I might of actually shown it at the Science Council and I was still struggling with it. How do you interpret this thing so you can actually make use of it from a management perspective? I scratched my head for the longest time and suddenly it just came out—well, this is what it means. This is how we could apply what he's telling us, but it means that he has to go back and do something else, the next step, because it has raised another question. Now we're refining it a little bit more. We want to look at seral stages, and we don't want to ignore leading species. We want now to look at leading species and seral stages within those leading species. In the first cut of the analysis he just ignored leading species, it was just age that we were concerned with. But now we want to know a little more detail—what are the leading species and what are the ages? So we've had to build some other information, or provide some other information that he'll make his summaries on.

**Murphy:** Within your 30,000 hectare units how do you deal with the question of sizes and shapes?

**Lougheed:** That's part of a longer term project that's being addressed through the model forest. They've got a five-year work plan developed, and we've got a number of scales that we recognized that we needed to look at. There is right from the landscape scale to what they term the meso scale down to the stand scale. So ALPac is focused at the stand and maybe a bit at the meso and they've completely ignored the landscape scale. We're approaching it the other way around. I thought at the outset that we need to nail down what we want to provide on the landscape, non-spatial, specifically how much area in these different types we need to provide. We'll figure out what they need to look like later; we'll have that opportunity through the implementation of the plan. So the focus has been sort of top down in that sense. We want to nail down the landscape and we'll do that to a large degree this year and then we've got some projects that are being initiated to look at the meso scale. So now that we know what it is we want in terms of amount of area in different age classes, the first thing the operations guys will ask is "What do you want it to look like?" So we're embarking on that aspect of it and as well we need to work on the stand scale. Within those meso units if you have an island remnant, what structural elements are remaining within that island? Was there a ground fire instead of the crown fire and what did it leave and is that what we should be looking at leaving? Or should we be leaving something different because our logging puts it to a different scale? Is the thing that we should be targeting the immediate post-fire structural attributes or the attributes that occurred 10 or 20 years after the fact, because possibly with our activity of logging we could put it on anyone of those time periods. So you don't necessarily want the exact post-fire moment, you may want something that's fire plus 40. So what is it we want to have representative of the landscape from a wildlife perspective?

**Murphy:** So partly it depends ...

**Lougheed:** So all of those questions are answered but hopefully we'll have addressed the right ones at this stage. I'm always more comfortable knowing where it is that we want to go—we may not have all the knowledge about how we want to get there right away, but so long as we're firm on where we want to go, we'll kind of stumble our way to the end.

**Murphy:** Then as you go, if you can tie in this monitoring testing of your assumptions, it'll help you from going too far wrong.



**Lougheed:** Exactly. Sean Curry has been working ... he probably mentioned some of the work of Jim Thrower at developing a monitoring program for the EFM (enhanced forest management). He also worked with Sean on the “GYM” or Growth and Yield Monitoring plot system that augmented the existing permanent sample plots, with elements that we have to monitor on the wildlife side: just because you're providing habitat, doesn't mean a species are actually using it. So we'll be monitoring on the wildlife side and we've talked at times about having a large carnivore as being an indicator, a good one, but that's problematic in monitoring species of population always there. There will be other elements as well.

**Murphy:** I thank you very much.

**Lougheed:** You're welcome. Hopefully that's what you are looking for.

**End of interview.**