

Opinions expressed in the following article are those of the author, rather than the FHABC.

HISTORY AND INFLUENCE OF THE MACMILLIAN BLOEDEL LAND USE PLANNING ADVISORY TEAM (LUPAT).

Author: W.W. (Bill) Bourgeois PhD, RPF(Ret)

Bill invested over 40 years to improve forest land management in British Columbia. During this period Bill has been a Canadian Forestry Service research scientist, held corporate executive positions, and worked as a private consultant.

The initial request for this paper was to focus on the history and influence of the MacMillan Bloedel (MB) Land Use Planning Advisory Team (LUPAT). In researching the material, it did not take long before it was obvious that LUPAT was an extension of MB forest management, albeit delivered through separate departments. In addition, many of the lessons learned from this integration are applicable to twenty-first century forest stewardship. Consequently, the decision was that the article should be a cursory discussion of MB forest management, LUPAT and an opportunity to identify lessons learned of interest to contemporary forest stewardship decision-makers.

Intensive forest management became the forefront in MB.

Responding to the 1945 Sloan Commission recommendations, MB forest management began reforestation practices in 1955. The expansion of the staff of foresters hired at that time convinced the Board of Directors that a modern growth and yield program to monitor and predict future yields, would be required if they wanted to maintain or expand cutting operations.¹ Forest management expanded into an "Intensive Forestry Program" in 1962 and in 1970 the more refined Designed Forestry System (DFS) was conceived. This program was headquartered in Nanaimo within the Forestry Division, which later became the Woodlands Services Division in 1975. The DFS was fully implemented in 1980 under the guidance of Dave Handley, Manager DFS, and given the approval and top priority by a new President, Calvin Knudsen, recently arriving from Weyerhaeuser in the USA. Knudsen had a reputation for supporting intensive forest management.

In personal communications with Dave Handley² and my recollection of the DFS, it focused on the goal that "before an area was logged, the design of the future forest was determined including what species would be planted, how and when to fertilize, what the spacing requirements would be and when to begin weed and brush control." This meant every stand had a prescription, based on the site conditions and its contribution to the overall corporate goal (e.g., pulp mill fiber, sawlogs, etc.). In

¹ Donald MacKay, 1982, *Empire of Wood, The MacMillan Bloedel Story*

² Dave Handley – personal communications

addition, the DFS required introduction of controls that would ensure standards were met.

The concept of applying prescriptions to every stand had not been required by the BC government until adoption of the Biogeoclimatic Zone (BGCZ) system in 1976³. This became the ecological base for prescriptions. Prior to this, MB was using the Daubenmire method⁴ of classifying forest sites as part of the DFS outlined in 1972 through the work of Ed Packee (MB forest ecologist) as identified in an internal paper.⁵ The government decision to use the BGCZ forced MB to move away from the Daubenmire method but not without controversy between MB and government staff.

The DFS included a significant component of silviculture and ecological research related to forest harvesting, biodiversity, and forest stand tree growth. The research was usually done by MB researchers in cooperation with other non-MB researchers, for example the work on changing forest management, and learning how to sustain biological diversity in managed forests.⁶



Photo 1: Seedling nursery, Cedar community south of Nanaimo, 1979 – Courtesy of Don Pigott and MacMillan Bloedel.

³William H. MacKenzie and Del V. Meidinger, 2017. "The Biogeoclimatic Ecosystem Classification Approach: an ecological framework for vegetation classification" in *Phytocoenologia*, <https://doi.org/10.1127/phyto/2017/0160>

⁴Daubenmire cover class method

⁵E.C. Packee, 1972, *The biogeoclimatic subzones of Vancouver Island and the adjacent mainland and islands*, MB Forest Research Note. This important paper can be found as a download from the FHABC webpage, at

<https://www.fhabc.org/documents/FHABC-Packee-biogeoclimatic-subzones-paper-1972.pdf>

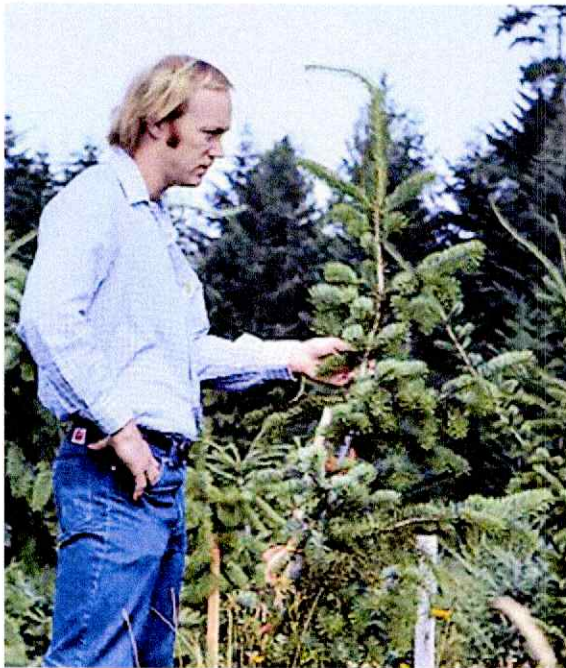
⁶Bunnell F.L., Dunsworth B.G. (eds) (2009) *Forestry and biodiversity: learning how to sustain biological diversity in managed forests*. UBC Press, Vancouver, BC.

Another contribution to the MB DFS was the establishment of a Tree Improvement Centre in 1971. After consistent internal encouragement for a Centre by Cai Hermanson, Dave Handley asked him and later Don Pigott to supervise its development.⁷ These seed orchards were to provide "improved" seed for MB private lands. The primary objective was to obtain seed that would contribute to the overall goal of providing the necessary fibre to meet MB's long-term mill requirements.

In addition, an Arboretum (*HR MacMillan-Grant Ainscough Arboretum*⁸) was established, 12 kilometres south of Nanaimo, with the objective to:

1. Determine what exotic species would be of value for commercial timber production in this region. The value would be measured by growth rate, resistance to insects, disease, etc. and
2. Illustrate the behaviour and growth of local and "exotic" species or those that do not grow naturally in the area.

In 1979 MB determined they needed a sustainable supply of tree seedlings to reforest their private and Crown tenure lands. The Ministry of Forests (MoF) provided



seedlings for Crown lands. However, the allocation for MB public lands was 7 million seedlings annually with a shortfall in the required 13 million. MB was able to secure space for about 3 million in the only two private nurseries in BC at that time, consequently another source was required to fully regenerate the harvested areas.⁷

Dave Handley, Manager of the DFS asked Don Pigott to provide a proposal for the establishment of the first forest company seedling nursery. The objective was to find a site that would alleviate the shortage of seedling supply. This led to the establishment of nursery at "Yellowpoint" with the first crop grown in 1980.

Photo 2 : Don Pigott assessing a Douglas-fir seed orchard ramet at Harmac, ca 1979-80. Courtesy of Don Pigott.

⁷ Email to author, Don Pigott re: Tree Improvement Centre establishment.

⁸ Don Pigott emails re: Arboretum establishment; Don Pigott re: Arboretum management plan.

Since 1962, MB forest management and support mechanisms were focused on the goal of providing long-term fiber necessary to sustain their mills. In moving toward this goal, thanks to the efforts of the Executive in providing direction and company foresters, MB became a leader in BC forest management providing clear guidance and focus to foresters in decision-making within a very complex environment. Much of this leadership mindset in BC forestry continues today with those individuals who remain active. **The need for the important principle of providing a goal and encouraging foresters to achieve it is just as important for today's twenty-first century BC forest stewardship actions.**

Creation of LUPAT.

Rachel Carson's 1962 book *Silent Spring* emphasized the importance of environmental protection. However, it did not have a significant influence on the BC forest industry or government until the next decade. In the meantime, both the forest-industry and government began to think that a change was coming, as outlined by Gerry Burch, Chief Forester of BC Forest Products (BCFP).⁹ This was stimulated in 1965, by the national park creation on the west coast of Vancouver Island, which instigated discussions necessitating the removal of MB and BCFP tenures from the timber harvesting land base. The industry and provincial government resisted this intervention into their business until 1969, when a decision was made to create what is now called the Pacific Rim National Park Reserve. This was the start of including environmental values in forest management.

The BC government did not significantly demonstrate their concern regarding the environment until 1972 when they created a committee of MLAs called the Environment and Land Use Committee (ELUC) and a Secretariat to assist them. The ELUC Secretariat was staffed with very knowledgeable people in the management of various non-timber values. They adopted an approach to work collaboratively with the forest industry of which LUPAT took full advantage in developing the MB program.

These B.C. government actions sent the message to the forest industry that incorporating non-timber forest values would now be part of forest management decision making. Given the focus and commitment of MB to conduct forest management activities to provide sufficient wood for their mills over the long-term, the potential removal of timber from the forest harvesting land base due to non-timber values would need to be evaluated critically.¹⁰ Consequently, the question of how to incorporate the protection and conservation of non-timber forest values within the DFS became front and centre.

Grant Ainscough, MB Chief Forester and John Turner, MB VP Logging, in 1974 established LUPAT¹¹ in response to this question and the inadequate ability internally to recognize slope hazards, stream protection and wildlife habitat. Initially LUPAT was a team consisting of a wildlife biologist (Ralph Urban, Supervisor), fisheries Biologist (Bruce Shephard), and a soils/hydrology specialist (Bill Bourgeois) with the mandate to advise Woodlands Divisions staff on non-timber value issues. In addition,

⁹ Gerry Burch, 2019. "BC Forest Products Resource Planning Group and Why It Formed", *FHABC Newsletter* no 104, <https://www.fhabc.org/newsletter-archive/2019/104.pdf>

¹⁰ William H. MacKenzie and Del V. Meidinger, 2017.

¹¹ *Ibid.*

Ainscough retained W.H. "Pem" van Heek, a landscape architect, to work out of the Chief Forester's office in assisting woodlands operations in the harvesting within visually sensitive areas. Pem was not part of LUPAT but worked collaboratively in bringing another non-timber value into the discussion. LUPAT staff did not have any final decision power. They were advisory in nature and their success would be based on reputations, advice, and scientific arguments.

LUPAT was assigned to the Forestry Division, as part of the Chief Forester's overall responsibility as were all the foresters in the operations divisions. In 1975 there was a change in organization. The Logging Divisions were to be called Woodlands Divisions and the operations foresters were to report to the Division Manager. The change in name and the incorporation of foresters in the operations divisions were a signal that the full forest resources and future timber supply, and not just logging, was to be considered.

LUPAT became part of a Woodlands Services Division along with other corporate support sections such as forest inventory, growth and yield, and the Tree Improvement Centre. This was a significant change in focus for MB and direction to Woodlands Operations. It signaled to the public and government that the company had moved from a focus on logging to one of forest resources management.

As the services of LUPAT became familiar within MB operations, staff requirements increased through short-term contractors to meet the demand of operational requests, especially in non-timber resource inventories and environmental mapping of the watersheds in areas of present and future interest to woodlands operations.

The government decision to insist non-timber values must be considered in forest management has grown and expanded over the years. This has greatly improved the long-term sustainability of the BC forest asset.

LUPAT's approach to incorporating non-timber resource values.

LUPAT's mandate was to provide sound biological and scientifically justifiable advice regarding where logging could be carried out, while considering non-timber values and their impact on the timber supply. LUPAT embarked on using knowledge and techniques that would meet this challenge through balancing the values and goals. This was usually done in collaboration with government specialists. Obviously, it was not uncommon for differences of opinion to arise. Most of the time a resolution was reached.

LUPAT operations consisted of five (5) types of activities:

- Responding to woodlands operations immediate issues,
- Conducting educational discussions (seminars, etc.) regarding environmental/operational issues,
- Participating and providing input into government and industry programs,
- Conducting fish, wildlife, and terrain stability inventories in areas where a Woodlands Division had plans to operate in the short or long-term, and

- Conducting or partnering with government and university operational research trials related to wildlife and fisheries habitat issues.

A folio system was introduced to B.C. in the early 1970's by Bill Young, a forester working for the government in the Prince George area who later became the B.C. Chief Forester (and in retirement, President of the Forest History Association of BC). Young's system involved overlaying resource inventory maps of various resource values for a specific area (e.g., watershed or Timber Supply Area) as a database to be used in determining the nature of the various forest management activities that could be conducted or where conservation/protection was required.

In 1975, MB purchased the first polygon-based Geographic Information System (GIS) to be used for forest land management planning. This provided digital map overlays versus paper maps for the folios. This became a central part of MB's and LUPAT forest planning and scenario analyses beginning in 1976.¹² It has expanded over time to become a basis for strategic forest management planning of today.

In developing its approach to integrated resource management, LUPAT adopted the folio system for MB areas requiring strategic planning, especially with a major focus on planned future harvesting in watersheds with no prior development. LUPAT conducted resource inventories in such sensitive areas as Clayoquot Sound prior to the occurrence of the "War in the Woods,"¹³ and the controversial areas on Haida Gwaii stimulated by the concerns regarding harvesting on Lyell Island. These inventories and analyses provided basic input into availability of timber supply and future constraints on harvesting.

The "change in focus" within MB Woodlands Divisions came at the same time as a greater public concern about the environment. This generated requests for LUPAT to educate operations personnel on how to adjust their traditional practices. A few examples are:



Photos 3 & 4: Terrain stability, Cypre River, near Kennedy Lake, circa 1980 – Courtesy of MacMillan Bloedel.

- 1) **Road construction in Haida Gwaii** where the government threatened a Woodlands Division shut-down due to slides into creeks. My recollection was the government gave the edict, "if you get one more slide you will be shut down." This stimulated a request to LUPAT for a road crew seminar on the topic. In reviewing the situation during the seminar, it was identified that casting excavated material over the side of the road during construction would

¹² Don Reimer-personal communications.

¹³ War in the Woods https://en.wikipedia.org/wiki/Clayoquot_protests

result in it sliding into the adjacent creek. The operators were well aware of this situation. They agreed it could be easily corrected but road construction productivity (i.e., stations/shift) would be reduced. When the Woodlands Division Manager and Engineer were asked if this would be OK, the answer was yes which ended the slide occurrences. An increase in awareness by the operators of what was wanted by management was all that was needed to eliminate slides during construction. The expertise existed within the field crew.

- 2) During the development of the **Coastal Fish-Forestry Guidelines**,¹⁴ a team of government and industry representatives visited a site to talk with fallers about falling trees adjacent to a creek. Safety was paramount within the industry, especially regarding rotten snags or leaning trees on the banks of creeks. Traditionally falling these trees resulted in the snag being felled into the creek where it would most likely break-up and cause damage to the creek and fish habitat.

An on-site discussion with a faller centered around impacts of the debris in the stream. The team raised recognition of safety concerns about this practice with the expectation the faller would support the traditional method. The faller disagreed and said in most cases the snag or tree could be felled away from the creek safely. When asked why this method was not adopted, the answer of safety was the paramount direction from management. With this information in hand, the team took the issue to the Woodlands Division Manager who changed the standard practice for fallers while maintaining safety concerns. Again the expertise existed within the operations.

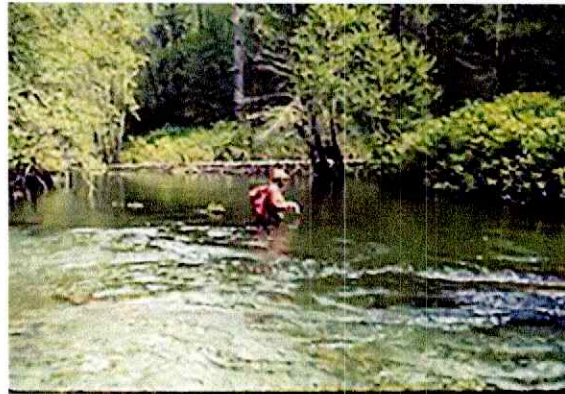


Photo 5: Fisheries inventory, stream on west coast circa late 1970s Courtesy of MacMillan Bloedel

- 3) **Presentations and field trips for woodlands operations personnel** were common due to the recent requirement of incorporating non-timber forest values into woodlands decisions. LUPAT provided these opportunities to increase the knowledge of MB staff for decision-making and preparing for discussions with government staff. These events also provided an opportunity for LUPAT staff to learn what was involved in the practices of woodlands operations and obtain a greater understanding of the integration of forest values in a balanced way. The objective was to try and avoid an "either/or"

¹⁴ [Fish-forestry interaction research - Province of British Columbia \(gov.bc.ca\)](http://fish-forestry.interaction.research - Province of British Columbia (gov.bc.ca))

situation as much as possible. It was an exception where a member of the BC Fish and Wildlife Branch adopted this balancing approach. Where it existed a positive result was arrived at which benefited the timber and non-timber values.

These examples demonstrated the woodlands operations people wanted to do the right thing and have ways of achieving the overall objective while protecting the non-timber values. Only a change in managerial guidance was needed to allow innovation to take over. **This is still true today! These lessons learned through the activities of LUPAT should not be forgotten.**

LUPAT's influence on provincial forest stewardship – examples.

1) LUPAT staff were in great demand for membership on government and industry committees. It was recognized they had professional expertise with the added understanding of woodlands operations. This resource was viewed by government as complementary and trustworthy to what they had internally.

2) **LUPAT terrain classification system**

ELUC Secretariate welcomed LUPAT when approached with a resource inventory that was new or modified. With the support of ELUC Secretariate, the LUPAT terrain classification system was developed and evolved over the years. The basic principles remain part of today's system.¹⁵

3) **Application of the folio system**

LUPAT was an early adopter of the folio system, and capitalized on the computer-developed scenario evaluation method. This approach was originally adopted in the US Northwest to address the spotted owl issue. In 1997 a version of the folio system provided Lignum Forest Products with a process and technology as the basis for an Innovative Forestry Practices Agreement (IFPA).¹⁶ Applying this method at the landscape level and using the OPTIONS model developed by DR Systems, formally associated with LUPAT and the spotted owl issue, became the basis for management of the Lignum Forest Licenses. Lignum was confident with the model, adopting the view that, "If we look after biodiversity and habitat requirements, it will produce an equal or better timber supply"¹⁵. This stimulated the Great Bear Rainforest (GBR) initiative to adopt a similar system known as Ecosystem-Based Management (EBM). The GBR initiative was made aware of the Lignum approach through Moresby Consulting, a consultant used on both initiatives. Consequently, the MB actions and learnings regarding the folio system led to new approaches to forest stewardship in the province.

More recently, through the concerted efforts of the former BC Chief Forester, Diane Nicholls, government has adopted the scenario driven process/system for Forest Landscape Plans (FLP) as the basis for strategic planning. The folio system, LUPAT activities and Lignum's IFPA were precursors of what is being

¹⁵ [Terrain Classification System for British Columbia \(Revised Edition\) \(gov.bc.ca\)](http://gov.bc.ca)

¹⁶ [IFPAs \(gov.bc.ca\)](http://gov.bc.ca)

adopted by government and in part achieving the 2021 “modernization of forest policy” initiative goals.



*Photo 7: Mixed retention stand prescription, unspecified location, late 1990s.
Courtesy of Bill Beese*

How MB lessons can inform twenty-first century forest stewardship.

There were two major MB contributions to achieving the full value from the BC Forest Asset that apply in 2023 and beyond.

- 1) MB’s encouragement of staff to either develop or build on progressive ideas that would advance forest stewardship of BC forests. The twenty-first century decision-makers, within both industry and government, should adopt this approach. We must capitalize on opportunities that will improve forest stewardship and avoid reluctance to move away from the status quo. This direction must be clear and appropriate performance rewarded within the industry and government.
- 2) Just as “Knudsen was the first President who recognized how much we rely on the forest for the success of the company,”¹⁷ government decision-makers of 2023 must give the same appropriate priority when mentioning the goal associated with BC’s economy and community resiliency. This must become a clear government position to all participants in the BC forest sector and public.

¹⁷William H. MacKenzie and Del V. Meidinger, 2017.

The following are some key examples of lessons learned from the MB-DFS and LUPAT and how they are applicable to twenty-first century BC Forest Asset stewardship:

- 1) A clear overall BC Forest Asset goal is essential as guidance to decision-makers.
 - a) MB's goal – Sufficient fibre to meet the needs of MB mills over the long-term.
 - b) Twenty-first century BC Forest Asset goal – Capitalize on the BC Forest Asset to achieve regional community resiliency.
- 2) A clear local/regional wood manufacturing vision to guide BC Forest Asset decision-makers.
 - a) MB – Maintaining mill profitability through providing the appropriate fibre.
 - b) Twenty-first century BC Forest Asset vision – Full utilization of wood fibre while not compromising other forest values as a contribution to community diversification and resiliency.
- 3) A clear forest stewardship framework to guide the delivery of a management unit vision and strategic decisions.
 - a) MB – Identify silviculture prescriptions for every stand considering all forest values in contributing to the overall goal at the division and corporate levels.
 - b) Twenty-first century BC Forest Asset – Complete Forest Landscape Plans that will deliver provincial and community visions.
- 4) Maintain forest resources support programs in key areas of forest stewardship with emphasis on inventories, and growth and yield.
 - a) MB – Maintain robust long-term forest inventory, growth and yield programs, and related knowledge gaps research.
 - b) Twenty-first century BC Forest Asset
 - i. Update and build an enhanced forest resources inventory and associated growth and yield programs.
 - ii. Encourage forest research to fill knowledge gaps.
- 5) Use available fibre volume and type to modify manufacturing diversification.
 - a) MB – Continuously review mill capacity to be consistent with fibre sources and markets.
 - b) Twenty-first century BC Forest Asset – Utilize planned types of wood fibre from Forest Landscape Plans to guide full fibre utilization and manufacturing diversification decisions.

As government has embarked on a new planning initiative called Forest Landscape Plans, we should learn from the MB-DFS concept and how the non-timber values can be incorporated using the lessons learned from LUPAT while adopting the recent technological developments. The sustainable level of wood available for manufacturing is critical to attracting investors, especially those interested in secondary wood manufacturing. Also, using technical and research knowledge advances to improve the knowledge, forest inventory and growth and yield data and analyses to provide increased support for the twenty-first century challenges faced by foresters and decision-makers in achieving the sustainable economic diversification and community resiliency desired. **RELUCTANCE TO CHANGE MUST NOT BE AN OPTION!**

Newsletter seeking editor! Please get in touch to guest edit our next issue. Or, if you would like to assume the position on a more permanent basis. info@fhabc.org

If you have an idea for March Issue #117, please reach out to us at info@fhabc.com



This issue was guest edited by David Brownstein, David Morgan, Sandy McKeller and Eric Andersen.

Page layout by Kat Spencer.