

Ancient Forest

Socio-economic Benefits of Non-timber Uses of BC's Inland Rainforest
Research Bulletin, May 2011

Ancient Forest Trail generates \$151,000 in direct benefits from tourism

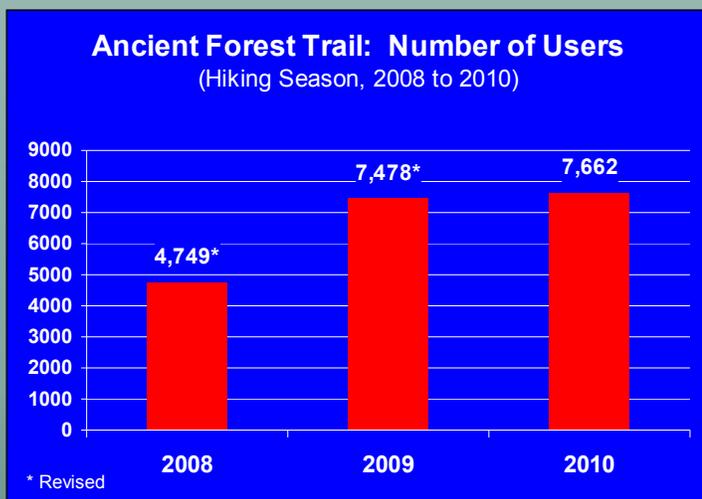
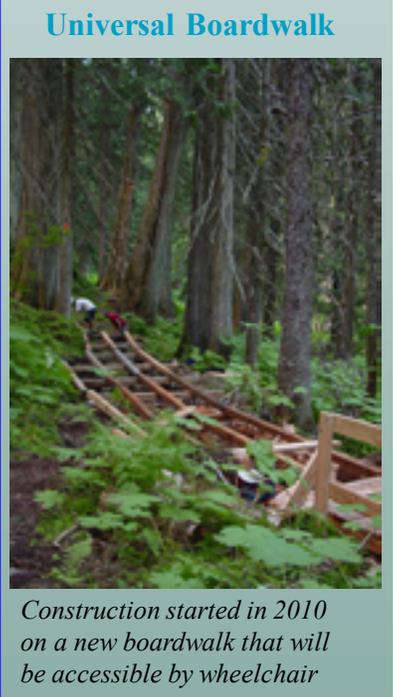
Since its opening in September 2006, the Ancient Forest Trail has become an important stopping point along Highway 16 between Prince George and McBride. (Refer to previous research bulletins for more information about the Trail.) One of our research goals is to estimate the economic benefit of tourism generated by the Trail. To calculate this benefit we installed a counter to record the number of Trail users. Our estimates for each of the past three hiking seasons is shown below. We also conducted in-person surveys of trail users to estimate the number of tourists (37% of all users in 2010). Based on our preliminary analysis of our results to date, we estimate that the Trail generated \$151,000 in direct economic expenditures during the 2010 hiking season. Future analyses will include indirect and induced economic benefits.

Each of the past three years provided an opportunity to improve the data collection methods for estimating the

direct benefits of tourism. As we learned more about Trail users we have been able to improve our results, including the percentage of tourists and the accuracy of the trail counter. We also discovered a systematic over-counting of Trail users during the 2009 season. Consequently, we have revised our previous estimates of Trail users. A primary goal for the

upcoming season of research is to increase the validity and reliability of our trail counts, which is key to producing a final estimate of direct economic benefits from tourism generated by the Ancient Forest Trail.

Tourism is one of many sources of non-timber economic benefits. A complete estimate of non-timber benefits of the inland rainforest also includes scientific research and conservation values (e.g., carbon sequestration), as well as other non-timber uses such as spiritual and cultural values.



The purpose of this research bulletin is to communicate the results of on-going research on the socio-economic benefits of non-timber uses of the inland rainforest of the upper Fraser River valley in British Columbia. The information contained in this bulletin may be distributed freely with proper citation, as follows:

Connell, David J., Jessica Shapiro, and Jonathon Hall 2011. *Socio-economic Benefits of Non-timber Uses of BC's Inland Rainforest: Research Bulletin, May 2011*. Prince George, BC: School of Environmental Planning, University of Northern British Columbia.

For more information about this study please contact Dr. David J. Connell (email: connell@unbc.ca; tel.: 250-960-5835).

Three areas of research for summer 2011

Work continues in 2011 in three areas of study within our focus on the socio-economic benefits of non-timber uses of BC's inland rainforest: economic benefits of tourism in the valley, environmental values of the inland rainforest, and perceived impacts of climate change on the values of the forest. The research team consists of David Connell,

Associate Professor in the School of Environmental Planning at the University of Northern British Columbia and two research assistants, Jessica Shapiro and Jonathon Hall. Jessie and John are graduate students in UNBC's Natural Resources and Environmental Studies (NRES) master degree program.

Climate change and socio-economic values

In 2010 a research team representing multiple areas of expertise was assembled to address questions about whether the inland rainforest stands will or can be sustained into the future and what the best management practices are for these stands. The project explores the vulnerability to climate change of existing ecological processes, the role the inland rainforest plays as carbon sources or sinks biological indicators of climate change, and tools and information to help community-based forest management adapt effectively to climate change.

This project will also assess the socio-economic impacts of climate change on the inland rainforest, especially on non-timber values. Consideration of the impacts of climate change on local communities must include a range of social and economic values, including forest products, non-timber forest products, tourism, recreation, research, conservation, and others. The rising importance of non-timber uses, in particular, corresponds with the historical trend to move away from goods-producing to service-based

industries, and with the potential for growth of tourism in regional economies. The purpose is to assess the (a) perceived values of future non-timber uses of the inland rainforest; (b) perceptions of vulnerability of non-timber uses under different climate change scenarios; and (c) opportunities for adaptation.

Primary data will be collected using semi-structured interviews with key informants involved with various uses of the inland rainforest, household surveys of residents, and on-site surveys of recreation and tourist users. The main objectives of primary data collection are to acquire information about the impacts of climate change on cultural, social, and economic values including timber, wildlife, biodiversity, recreation, cultural heritage and about ideas that area residents and other stakeholders have for mitigating and adapting to the effects of climate change in their area, including the potential of new sources of employment that are consistent with key values and identities.

Ancient Forest Trail and the economic potential of eco-tourism

The primary interest in the upper Fraser River valley historically has centred on the timber value of the region's forests. However, while the upper Fraser River valley has been losing forestry-based jobs to more urban locations, like Prince George, the non-timber uses of the forest have been increasing. Of particular note, tourism is the second largest industry operating within the forested land of the region and is projected to increase over time. Between 1991 and 2006, the McBride region saw an increase in tourism income dependencies and a relative drop in forestry-related income dependency (Horne 2006). This suggests an increasingly important role for tourism within the regional economy, which is the focus of John Hall's research.

The recent developments relating to the non-timber potential of the inland rainforest, particularly the role that tourism might play within the regional economy, have altered the debate about the best use of the inland rainforest. The cedar trees found in the Interior Cedar Hemlock zone,

some of which are estimated to be over one thousand years old, are considered by foresters to be decadent (of low economic value) due to a combination of hollow centres and old age (Silva 1992; Stevenson et al. 2011). As well, the province's Chief Forester recently noted the importance of the biodiversity resources that exist within this forest (see story on page 4). Thus, the relatively low benefits of timber uses of the inland rainforest are being questioned in the face of the increasing potential of non-timber uses.

The Ancient Forest Trail (AFT), located approximately half-way between Prince George and McBride on Highway 16, is emerging as a key element in the region's tourist potential. Since opening in September 2006, the AFT has grown into a substantial recreation destination for both residents and visiting tourists. The visiting tourists contribute to the regional economy through direct expenditures and induced benefits. For his research

Assessing the environmental values of the inland rainforest

The Inland Temperate Rainforest (ITR) of east-central British Columbia has likely been discovered several times over by First Nations peoples, early European settlers, and loggers. However, it has only recently been discovered for its ecological and recreational values, making it a popular destination for research and outdoor activity. An increased appreciation of the global significance of this inland rainforest by scientists, area residents, tourists, recreationists, and other members of the public has made it apparent that there exist many types of forest values that have not yet been documented.

The study of forest values includes the documentation and analysis of values relating to the material resources of a forest that contribute to human physical well-being, the intangible benefits of a forest that contribute to the nonmaterial dimensions of the quality of life, and the

AFT and ecotourism (Continued)

John Hall will assess the economic potential of the Trail as a tourist attraction and as a basis for economic diversification of the regional economy.

The economic benefits of AFT-centred tourism will be determined by estimating the annual economic impact of tourists using the AFT. The significance of this impact will be assessed within the development and diversification of the upper Fraser River valley regional economy. Three primary variables will be considered in order to calculate the annual local economic impact of tourists using the AFT: a) number of tourists visiting the trail; b) direct tourist expenditures; and c) time spent by tourists in the local region. The methods employed to determine these variables will include a combination of heat sensing counters, on-site surveys, and a comprehensive review of local tourist expenditure research.

The results of this research have the ability to demonstrate the economic potential of tourism as a non-timber use of the inland rainforest. The project aims to inform economic development decisions as they continue to evolve and, in turn, help to inform decisions concerning the best use of the ancient cedars of the inland rainforest.

Silva Ecosystems Consultants 1992. *Old Growth Literature Review*. On-line: <http://www.silvafor.org/>

Stevenson, S, H Armeleder, A Arsenault, D Coxson, and C Delong 2011. *British Columbia's Inland Rainforest*. Vancouver: UBC Press.

Horne, G 2006. *British Columbia Local Area Economic Dependencies*. Victoria: Government of British Columbia.

B.C. Ministry of Forests 2011. *Prince George Timber Supply Area Report: Rational for Allowable Annual Cut Determination*. Victoria: Ministry of Forests, Mines, and Lands.

intrinsic benefits of a forest that exist independently of humankind (Putney 2003). Values pertaining to the environment are often described as guiding principles of what is moral, desirable or just (Kempton, Boster, and Hartley 1995). Applied to forests, Bengston (1994) defines held forest values as “an enduring concept of the good related to forests and forest ecosystems” (p. 520).

The purpose of Jessica Shapiro's research is to document the breadth and depth of expressed forest values of the ITR. The literature suggests that there are many values associated with forests, such as aesthetic, spiritual, recreational, and ecological values. These types of values are not always easy to define and measure; however, they represent humankind's relationship with the natural world, and are thus important for understanding the significance of natural environments.

Jessica will examine values expressed by different groups of people involved with the forest (e.g., logging industry, tourists, recreationists), and especially those community members who live in the ITR, as it can be argued that those community members will be most affected by decisions made concerning the future of the forest. The methods of data collection will involve creating a database of text where value expressions relating to the forest are recorded and then analyzed to identify value types, which will then be organised into value categories. These value categories will be the foundation for in-depth interviews with area residents. This past summer (2010), Jessica completed preliminary work for the first stage. Three sources of text were researched including a hiking trail guestbook, data from surveys conducted previously by UNBC researchers, and media pieces concerning the forest. Based on this preliminary analysis, nine categories of values have been identified: recreation, spirituality, education, ecological, economic, discovery, cultural, aesthetic, and stewardship.

The final results from this study will offer a comprehensive account of the expressed forest values of the ITR. This research will add to a growing understanding of the significance of this unique ecosystem and will inform the current debate between harvesting and conserving ‘antique’ cedar trees in the ITR.

Bengston, DN 1994. “Changing Forest Values and Ecosystem Management.” *Society and Natural Resources* 7(6): 515-533.

Kempton, W, JS Boster, JA Hartley 1995. *Environmental Values in American Culture*. Massachusetts: MIT Press.

Putney, AD 2003. “Introduction: Perspectives on the Values of Protected Areas.” *The Full Value of Parks: From Economics to the Intangible*. Ed. D Harmon and AD Putney. Maryland: Rowman and Littlefield Publishers, Inc., pp. 3-11.

Chief Forester reduces allowable cut of old cedars

In January 2011, Mr. Jim Snetsinger, British Columbia's Chief Forester, announced that the amount of old growth cedar that can be harvested in the upper Fraser River valley will be significantly reduced. In his report, *Prince George Timber Supply Area: Rationale for Allowable Annual Cut (AAC) Determination*, Snetsinger stated that it is "important to maintain old growth cedar on the landscape for future generations and to meet the requirements outlined within the four legal Orders, which were established to manage old growth in the ICH [Interior Cedar Hemlock]." For cedar-leading stands in ICH forest, the AAC was reduced from 115,000 cubic metres to 23,000 cubic metres.

An AAC determination is the outcome of a timber supply review, which is undertaken at least every five years. The purpose of a review is to assess current forest management practices in the context of economic, environmental, and social objectives. Up-to-date information is reviewed by the province's chief forester to forecast an appropriate level of timber harvesting for an area for the next five years. This information includes estimates of timber supply and capabilities and requirements of existing and proposed processing facilities.

One of the legal Orders that the Chief Forester cited was the *Order Establishing Landscape Biodiversity Objectives for the Prince George TSA* (2004) (2004 Order). The 2004 Order prescribes objectives for old forest retention and sets a target that 53 percent of the timber harvesting land base be greater than 140 years old. However, as Snetsinger noted, "The 2004 Order does not specify which species are to be retained to meet the 53-percent target for stands greater than 140 years. Given the importance of preserving old cedar-leading stands, this lack of specificity is a cause for concern, as licensees have the option to harvest only old cedar-leading stands."

Another document that influenced the timber supply review was the report prepared by the BC Integrated Land Management Bureau on biodiversity management of the ICH forests. The document, entitled *Guidance and Technical Background Information for Biodiversity Management in the Interior Cedar Hemlock Zone within the Prince George Land Resource Management Plan Area* (2008), includes recommendations for additional spatial old growth management areas (OGMAs). These recommended spatial OGMAs are guidance OGMAs only and are not legal requirements.

The review of cedar-leading stands was based on scenarios designed to analyse the impacts on timber supply of

making the guidance OGMAs legal requirements. The set of five scenarios was based on two definitions of economic operable areas (one by provincial staff and the other by forest licensees) combined with either including or excluding the guidance OGMAs as part of the operable area. In his determination, the Chief Forester supported Scenario E, which uses the licensee's economic operable area with the old growth retention requirement that 53 percent of the timber harvesting land base be greater than 140 years old. This scenario results in a harvest forecast of 23,000 cubic metres per year. The rationale for this decision is that "This reduction in the amount of cedars that can be harvested will assist in meeting the 53 percent target of old growth retention."

New book on BC's inland rainforest

British Columbia's Inland Rainforest is published by UBC Press and written by local scientists Susan Stevenson, Harold Armleder, André Arsenault, Darwyn Coxson, Craig DeLong, and Michael Jull. The book represents the first comprehensive account of the globally unique ecosystem of BC's inland rainforest. The chapters cover ecology, management, and conservation of the inland rainforest. As described by UBC Press, "This book offers a vision that combines various strategies in order to balance the conservation of the inland rainforest as a fully functioning ecosystem with human use of its diverse resources."



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