

# The Hwy40 North Demonstration Project

*Using Natural Patterns as the Foundation for  
Operational Planning*

*Part 2: What Did We Learn?*

*Alberta Foothills Disturbance Ecology Demonstration Series  
Report No. 2*

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Foothills Research Institute's core study area is located in west-central Alberta, with an administrative office in the resource community of Hinton, approximately three hours west of Edmonton.

The area covers 2.75 million hectares (27,500 square kilometres), and includes Jasper National Park of Canada, Willmore Wilderness Park, William A. Switzer Provincial Park and the Forest Management Area of Hinton Wood Products, A Division of West Fraser Mills Ltd. It also includes some provincial management units and the Hinton Training Centre's Cache Percotte Training Forest. Within its boundaries are three forest types – boreal, montane, and sub-alpine – and many forest uses including timber, petroleum and coal extraction, tourism and recreation.

The Foothills Research Institute Natural Disturbance Program partners include Alberta Sustainable Resource Development, Hinton Wood Products, Jasper National Park, and Alberta Newsprint Company.

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# THE DISTURBANCE ECOLOGY DEMONSTRATION SERIES

This research report is the second in a series published by the Foothills Research Institute (FRI) on the management application of natural disturbance research on foothills and mountain landscapes in Alberta. For more information on the FRI Natural Disturbance Program, or the Foothills Research Institute, please contact the Foothills Research Institute in Hinton, Alberta at (780) 865-8330, or visit their website at:

<http://foothillsresearchinstitute.ca>

## **Other Reports in This Series:**

Andison, D.W. 2008. The Hwy40 North Demonstration Project – Using natural disturbance patterns as the foundation for operational planning. Part 1: How we did it. Alberta Foothills Disturbance Ecology Demonstration Series Report No. 1. Hinton, Alberta. January, 2008

# EXECUTIVE SUMMARY

While there have been many isolated efforts to integrate natural patterns into forest land management across Canada, none have tried to adopt a planning strategy that involves using natural patterns as the conceptual framework for decision-making. The difference is that the former strategy uses natural patterns as decision-making filters against value-specific foundations, while the latter uses natural patterns as the default foundation through which other value-specific objectives are filtered.

The goal of the Hwy40 North Demonstration Project is thus ***to demonstrate the effectiveness of using natural disturbance pattern knowledge as the foundation for effective operational-scale forest management planning, leading to sustainable forests and providing for the multitude of values associated with a defined forest area across multiple administrative jurisdictions [sic].***

The study area is a 70,000 ha landscape along Hwy40 between Hinton and Grande Cache that includes parts of the Hinton Wood Products (HWP) and Alberta Newsprint Company (ANC) Forest Management Areas (FMAs), the Foothills Forest Products quota area, and the Willmore Wilderness Area. The study area is one of the largest remaining areas of (largely) intact old foothills forest, includes part of the current habitat for the A la Pêche woodland caribou herd, represents high to extreme risk to both wildfire and mountain pine beetle attack, and is rich in timber and natural gas. It is also an area in which three forest management companies will be planning harvesting operations over the next ten years.

The planning was the responsibility of a multi-disciplinary team of ten people representing Hinton Wood Products, ANC, Foothills Forest Products (and before them Weyerhaeuser Canada), Alberta Sustainable Resource Development (ASRD) Forest Management, ASRD Fish and Wildlife, ASRD Forest Protection, Alberta Energy, the Canadian Association of Petroleum Producers (CAPP), Alberta Tourism Parks and Recreation (formerly Community Development), and the Foothills Research Institute (FRI) (formerly Foothills Model Forest). Over last next two and a half years, the Hwy40 Planning Team met 16 times. The details of the process and the evolution of the final disturbance plan are described in Report #1 (Andison 2008).

This report is an exploration of the insights gained through the Hwy40 experience. The Hwy40 Project Team hoped that the learning would focus on the application of disturbance patterns as a common foundation for planning. More specifically; how, or to what degree can natural patterns be used to help design a disturbance event(s) that provide robust management solutions for other social, economic, and ecological values – across jurisdictional boundaries?

Of the various challenges and conflicts that the Hwy40 Planning Team faced, few were associated with the application of natural disturbance patterns. On the contrary, the use of disturbance patterns as the neutral reference point for planning decisions proved to be well accepted and constructive. In the end, the multi-disciplinary Hwy40 Planning Team generated a disturbance event design that was not only natural in its size, shape, and residual characteristics, but also maintained the greater landscape patterns well within the historical natural range. The team also agreed that the final design optimized most of the identified critical values – a tremendous accomplishment given the nature of the study area. The output from the various decision-support models provided by the agencies involved provided objective support for this choice. Overall, there is convincing evidence that a natural disturbance pattern planning foundation has tremendous potential for creating viable management scenarios.

Other insights gained through the Hwy40 experience relate to the challenges of integrated planning in general. The introduction of any universal planning foundation tests the capacity of agencies to work together towards a common goal. The depth and breadth of integration-related challenges that the project faced were underestimated.

Jurisdictional integration was one of the highlights of the Hwy40 project. The three forest management (FM) companies involved were able and willing to create a single seamless disturbance event spanning all three jurisdictions. The fourth land partner was either unwilling or unable to support adjacent disturbance activities.

Procedural integration was accomplished to some degree between the three FM companies and Alberta Sustainable Resource Development (ASRD). However, the team was discouraged to explore any integrated planning procedures with other land partners.

Participatory integration was perhaps the biggest disappointment of the project, only because in retrospect much of it was avoidable. The Planning Team functioned more as a committee interested more in their agency's stated values, than as a team interested in designing a holistically robust disturbance design solution.

Regulatory integration was the least successful integration element of the Hwy40 project. Since this goes directly to inter-agency regulatory policy, the Hwy40 project had little or no power to influence this.

Overall, the value of adopting a common planning foundation of natural disturbance patterns was considerable in terms of both process and outcomes. The least successful process-related elements were either a direct result of the pioneering nature of the project, or institutional integration issues beyond the control of the participants.

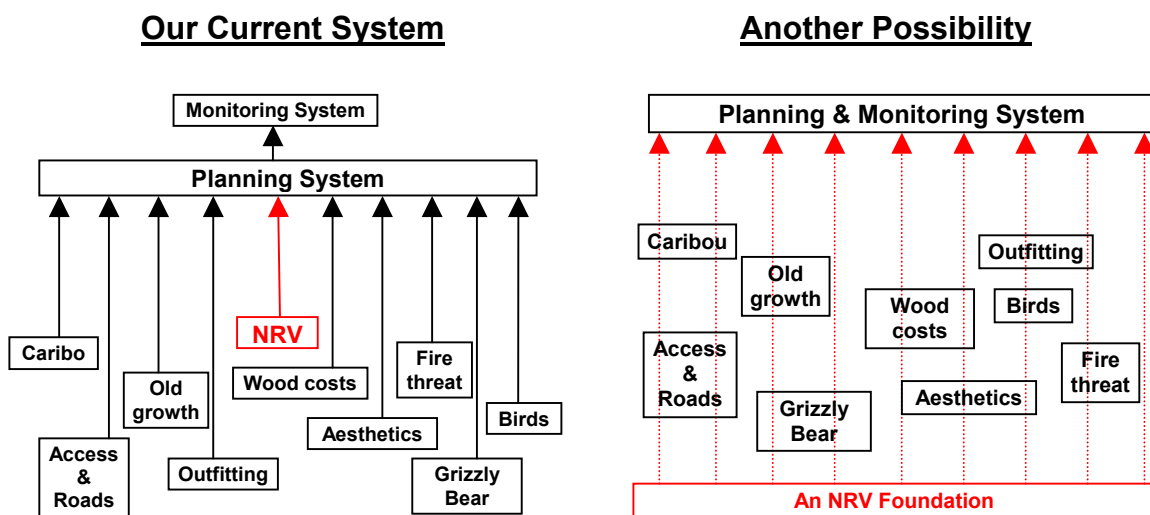
# BACKGROUND

The Foothills Research Institute (FRI) Natural Disturbance (ND) Program has been studying natural disturbance patterns in the foothills of Alberta since 1996. Although research is ongoing, we have already gained considerable insight into how natural disturbances shape Alberta’s landscapes. Natural patterns are present at virtually all scales, and are tremendously variable in both breadth and depth. The challenge is shifting now to more practical questions of operational realities, ecological impacts, and social and economic limitations. Exactly how, to what degree, and when will natural pattern knowledge be used to plan, manage, and monitor?

There have been several isolated integration efforts across Alberta. Many forest management companies are now leaving residual stems and islands, disturbance sizes are increasing, and harvest block shapes are becoming more irregular – all of which represent more natural patterns. In addition, natural range of variation (NRV) targets for metrics such as residual material, block size, and seral-stage distributions are now being included in planning guidelines and monitoring systems across the province.

Technically, these efforts amount to adding some coarse-filter objectives (based on natural patterns) to the list of values for which we manage, depicted as value inputs from below (shown on the left in Figure 1). These efforts are commendable, and represent the progressive integration of a selection of NRV metrics into the existing policy, planning and monitoring frameworks.

**Figure 1. Conceptual Models of How Forest Management Planning Occurs Today (left), Compared to How it Might Occur Using a NRV Foundation (right).**



Adopting a few natural patterns as practical guides for individual (coarse-filter) planning attributes is only one of many possible natural pattern strategies. Natural disturbance patterns may also be used as a baseline through which other biological, social, and economic filters are passed (see the right-hand diagram in Figure 1). If and when a decision is made to deviate beyond NRV (to satisfy the need for roads, safety, cultural preferences, or specific ecological issues, for example), it is done with full awareness of the potential risks. In this way, natural disturbance patterns have the potential to provide a broad, but inclusive ecologically relevant foundation for planning and management.

Our experience so far suggests that many other ecological, social, and economic values are well served by an NRV strategy. By definition, the natural disturbance model is consistent with the habitat requirements of many species, reducing linear feature density, higher aesthetic value, and even mitigating the threat of natural disturbance. The use of an NRV foundation is also theoretically attractive. Consider that it offers the potential to 1) integrate management and monitoring systems, 2) ensure that management decisions have a scientific and ecological foundation, 3) integrate the planning needs of several institutions across jurisdictional boundaries, and 4) streamline the planning process.

The FRI Natural Disturbance Program partners agreed that the time had come to test the potential for NRV to be used as a planning foundation for operational planning.

## **GOALS and OBJECTIVES**

The goal of the Hwy40 Demonstration project is to ***demonstrate the effectiveness of using natural disturbance pattern knowledge as the foundation for operational-scale forest management planning***. The three main objectives of the project are:

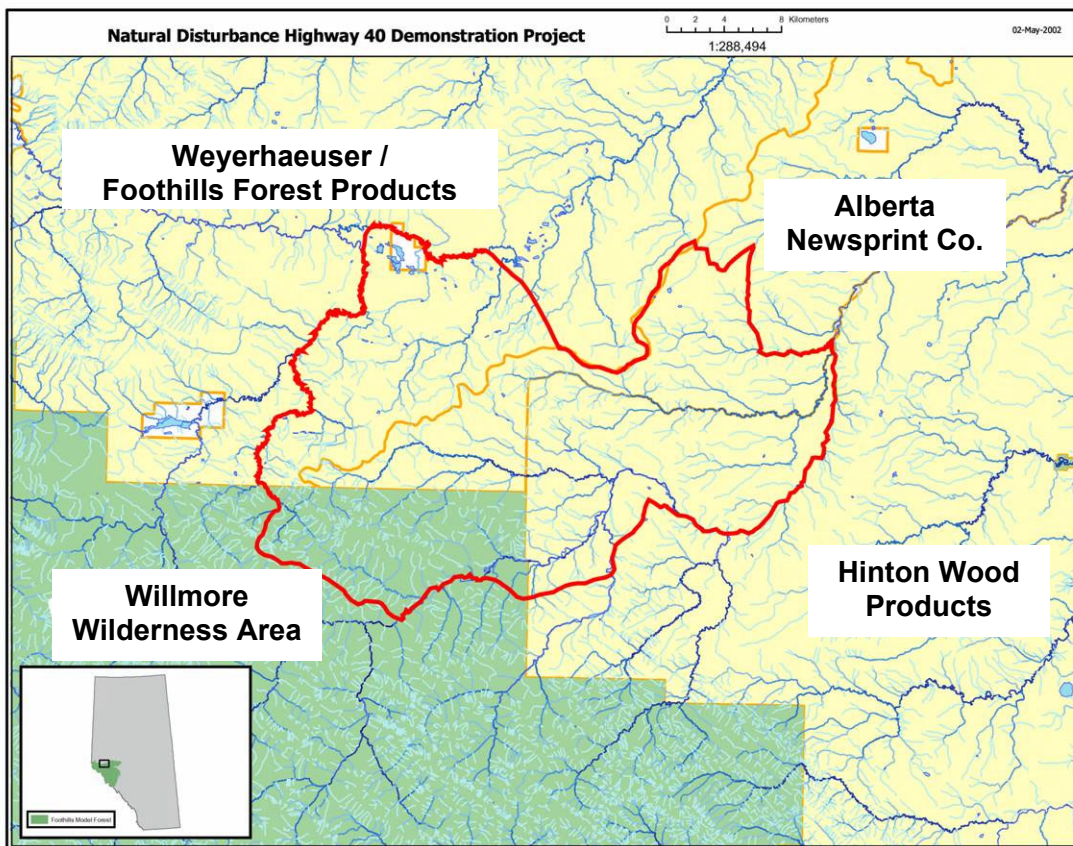
- 1) *Evaluate the robustness of an NRV strategy as a foundation for operational planning.* The success or failure of integrating individual elements of NRV (such as retention of undisturbed islands) is only one element of a NRV strategy. This project is as much about process as it is outcomes.
- 2) *Identify and explore potential convergences and conflicts of adopting a holistic NRV strategy with existing policies, practices, objectives, and other economic, social, and ecological values.* The best way to learn about the impacts and potential of new ideas is through demonstration.
- 3) *Build a common understanding of the concept and practice of adopting a natural disturbance based plan.* A myriad of opinions exist today on how, to what degree, and where NRV information should be integrated into forest management planning, and to what degree it is possible or desirable. A demonstration area will be a powerful communication tool with which to help develop and focus debates, and ultimately inform new opinions, strategies, and policies.



# LOCATION

The site chosen for this project is an area approximately 70,000 hectares in size spanning equal parts of the Hinton Wood Products (HWP) and Alberta Newsprint Company (ANC) Forest Management Areas (FMA) and the Foothills Forest Products quota area, and 10,000 ha of the Willmore Wilderness Area. The study area is bisected by Highway 40, and is bounded by the Berland River in the south and Pierre Greys Lakes in the north (Figure 2). For more information on the study area, see Report #1 in this series (Andison 2008).

**Figure 2. Location of the Hwy40 North Demonstration Study Area (in Red).**



# INTRODUCTION TO THIS REPORT

The Hwy40 planning process is finished. A full description of the methods and process can be found in Report #1 in this series (Andison 2008). This report focuses on sharing what was learned through the planning process, including some recommendations for future collaborative NRV-based operational planning exercises.

# METHODS

The Hwy40 process was evaluated from two perspectives; 1) The degree to which using a natural pattern foundation generated 'natural' and otherwise (value-specific) sustainable disturbance solutions, and 2) The degree to which a natural pattern planning foundation helped a multi-jurisdictional planning team create a fully integrated operational plan.

## **Planning Element #1: Natural Patterns as the Foundation**

All traditional natural resource planning exercises today begin with the needs of a single value. For example, the foundation for forest management is a sustainable, economically feasible supply of wood fibre. For the energy sector, the foundation is to maximize the extraction of subsurface oil and natural gas resources. For provincial parks, the foundation ranges from ecological integrity to optimizing recreational experiences depending on the location.

These values are relevant to planning exercises because they become the starting point for each process. For example, all forest management companies are required by law to develop a (theoretical) long-term planning scenario that maximizes the supply of harvestable wood. Alberta Energy employs a highest bid auction system by which an eligible company can purchase exclusive rights to develop subsurface resources. Although various types of filtering processes (which bring into play other social, economic, and ecological needs) almost always modify these ideal scenarios to some degree, the starting point is still related to both the process, and the outcomes of planning.

This project uses natural disturbance patterns as the single, common planning foundation for everyone. The hypothesis is that by using Mother Nature as a biologically relevant guide, we focus everyone on the resulting disturbance pattern as a shared goal.

## **Planning Element #2: Integrated Decision-Making**

Using natural patterns as the foundation for operational planning requires operational planning to become more integrated. There are at least four types of integration:

- A. Jurisdictional,
- B. Procedural,
- C. Participatory and,
- D. Regulatory.

### **A) Jurisdictional Integration**

Jurisdictional integration is the ability to create a single, seamless, operational disturbance plan that ignores jurisdictional boundaries. If jurisdictional integration is successful, the disturbance design gives no hint as to the location of administrative boundaries. The plan

responds only to spatial biological or topographic cues, and shared economic and social values from the partners.

It is not necessary for cross-border agencies to share the same list of objectives to achieve jurisdictional integration. Nor is it necessary for one partner's objectives to be ranked any differently than those of the others. However, it is critical that all land partners involved share:

- 1) An understanding of, and respect for each other's objectives,
- 2) A respect for the importance of the biological value of the greater landscape within the context of the combined agency objectives,
- 3) A belief that (one or more) well-designed disturbance event(s) is more biologically robust than any possible sum of the pieces planned in isolation, and
- 4) A willingness to be locally responsive with respect to operational preferences.

A holistic disturbance design is likely to include some operational elements or tools within each jurisdiction that individual plans might not have included. For example, the feathering of harvest boundaries next to protected areas, prescribed burns in areas not otherwise identified by high-level plans, or a linked burn-thinning plan across protected area / working forest boundaries are all possible scenarios. Thus, jurisdictional integration may require not only collaborative planning, but coordination of disturbance activities.

It is easy to confuse jurisdictional integration with compromise. A planning process that employs the compromise model is simply a negotiation between individuals representing different values. It is largely a product of individual negotiating skills, available evidence to support positions, institutional will, and perceived and actual authority. In contrast, a planning team that exploits a jurisdictional integration model works together towards common outcomes as the highest priority.

Jurisdictional integration should be of the easiest forms of integration to achieve because a) it only involves land partners with long-term land-based tenure, b) does not require significant compromise of objectives, c) the disturbance tools are commonly available, and d) long-term plans tend to allow for operational flexibility.

## **B) Procedural Integration**

Procedural integration refers to the alignment of the planning activities and protocols of the land management agencies involved. Procedures are blended, but still meet the needs of each agency involved. This means that the respective planning processes involved must speak the same language, be subject to the same level and type of public scrutiny, and follow similar regulatory steps such that their plans overlay each other in time and space to meet the overall objectives.

In the case of Hwy40, a successfully integrated plan procedurally would outline where, when, and how much area is disturbed through *all* human activity over a given period of time. This ideally includes harvesting, road building, seismic activities, the installation of well sites and pipelines, land conversion, and prescribed burning. The outcome is a single disturbance plan that includes all of these elements and more - not just an overlay of individual plans, but a jointly conceived plan.

### **C) Participatory Integration**

Participatory integration requires all agencies involved in planning on a given landscape to agree to participate in a true team environment. A successfully integrated plan from a participatory perspective is one in which all partners contributed to, understand, and agree with the planning decisions as representatives of their respective organizations. For this to happen, there has to be a common understanding that there is a greater good that is being served by forgoing individual needs and positions. It is each participant's responsibility to communicate with their respective peers within their agency. Participants bring experience, expertise, and information to the table, not ultimatums or positions. The Planning Team and/or planning process should also reflect a wide range of land partners for that landscape.

There is one more element of participatory integration worth mentioning – having the right people involved. A group of individuals who all possess similar, appropriate levels of expertise and decision-making responsibility is far more likely to succeed as a team.

### **D) Regulatory integration**

The fourth element of integrated forest land management is regulatory integration, which means streamlining regulatory requirements for permits, public input, data, approvals, plan submissions, and so on. A successfully integrated disturbance plan from a regulatory perspective would package all of the rules, regulations, and requirements under a single process. Note that this does not mean that all forest land management agencies have to follow the same rules, or that a single regulatory body is responsible for all management activities. Rather, it means the primary regulator (the province of Alberta in this case) merges the various requirements into a single window. The advantages to the regulator are the elimination of duplication, identifying regulatory gaps, and creating a single format for all data and information. The advantage to the applicant is that they can focus on developing plans that follow a single, unambiguous set of requirements.

For this project, there are at least three levels of regulatory integration:

Level 1: A single evaluation from ASRD FMB for the (combined) harvest designs of the three forest management companies.

Level 2: Integrating the necessary approvals of all branches and divisions within ASRD into a single package.

Level 3: Integrating the application and approval process between all of the necessary higher-level agencies. In the case of Hwy40, that would include ASRD, AE, and ATPR.

## RESULTS

The results section is organized similar to the methods section. For each of the five elements identified above, a discussion of the relevant issues is provided as they occurred during the Hwy40 process. A grade is assigned which ranks the success of the project to achieve each element relative to the original expectations of the project. A summary of the grades and key discussion points is provided in Table 1.

**Table 1. Summary of the Hwy40 Project Planning Process.**

Element		Grade	What Went Well?	What Could Have Gone Better?
Using Natural Patterns as a Foundation		B +	A multi-jurisdictional Planning Team created a disturbance design solution that provided viable solutions for other values.	Integrating variability was challenging. Did not invest enough time in shared learning of key concepts and processes.
Integration	Jurisdictional	B -	Three forest management companies collaborated on the disturbance design.	One land partner was unwilling to participate in any disturbance activities.
	Procedural	D	Forest management procedures were accepted and respected as a backdrop for planning.	No agency beyond forest management was willing or able to consider blending procedures.
	Participatory	C -	High-level buy-in to the project concept was high, and most Planning Team members were faithful to the goal and the process.	The Planning Team worked more as a <i>committee</i> than as a <i>team</i> . Commitment was in some cases conditional.
	Regulatory	E -	The three forest management companies used the ASRD requirements as their starting position.	No control over the integration of any other regulatory agency requirements for land management in Alberta.
<b>Overall</b>		<b>C</b>	<b><i>Adopting natural patterns as a foundation for operational planning was a success.</i></b>	<b><i>The institutional integration issues across the many agencies involved posed significant obstacles.</i></b>

## **1) Natural Pattern Foundation. Grade: B+**

Overall, the use of natural patterns was successful. When the team focused on disturbance design as an outcome based on historical patterns, there were few disagreements. The team benefited from access to detailed historical knowledge of the local historical disturbance regime, plus a number of relevant decision-support tools.

As described in the first report (see Andison 2008), the Hwy40 Planning Team proceeded through four main disturbance design questions;

- 1) How much area to disturb?
- 2) How big are the disturbance patches and events?
- 3) Where do the disturbance events go? and,
- 4) What survives and where within disturbance events?

For each question, the available scientific evidence was presented as a backdrop to understanding the natural range. The issues of disturbance rate, location, and survival probability were partially addressed through a spatially explicit disturbance simulation model (Andison 1996, 1998) calibrated to the Hwy40 landscape. LANDMINE generates multiple possible disturbance scenarios based on historical fire regime information, and was used throughout the planning process. The design of the event shape, orientation, edges, and residuals were aided by the use of NEPTUNE (TFC 2007), which generates ten pattern metrics of disturbance events, and compares them to the historical range for the study area.

One of the more challenging aspects of the integrating natural disturbance patterns was moving away from determinism to using probabilities. The Hwy40 strategy for developing the location, size, shape, and orientation of the disturbance event(s) was to use 1) utilize the available spatial probabilistic disturbance event design tools (LANDMINE) to identify some reasonable starting points, 2) impose professional judgement to develop an initial list of disturbance locations, sizes, and shapes with those natural designs in mind, 3) develop and use key planning indicators to score the various scenarios (see Andison 2008 for details).

Residual planning required a slightly different approach. Natural wildfires show a tremendous range of residual sizes, shapes, locations and types. The Hwy40 solution was to use several scenarios from the LANDMINE output as a backdrop. However, in the end, most of the forest companies resorted to more traditional design keys such as stand type boundaries, riparian zones, or adjacency to non-commercial timber.

### ***HOW COULD WE DO BETTER NEXT TIME?***

The integration of natural patterns was the most successful part of the Hwy40 planning process. However, the Planning Team could have spent more time discussing a) the

biological relevance of natural patterns, and b) the conceptual foundations of adopting a natural pattern strategy.

One of the technical challenges we failed to entirely overcome is finding an efficient way of taking advantage of the flexible solution space available. For example, the natural pattern options available for residual planning are overwhelming. Mixing spatial scenario modelling output with existing landscape keys was only moderately successful.

## ***CHALLENGES BEYOND OUR CONTROL***

*None.* This was the only aspect of the project that we had complete control over.

## **2. Jurisdictional Integration. Grade: B-**

The perimeter of the final Hwy40 disturbance plan developed by the Planning Team is a single seamless disturbance event that spans parts of three different forest management companies. No jurisdictional boundaries are apparent within the event. The internal continuity of the event design was a significant success, and due mostly to high levels of collaboration between the three companies and ASRD FMB. This interagency cooperation is one of the highlights of the Hwy40 plan.

The team was somewhat less successful in creating a natural disturbance boundary. Although most of the perimeter of the disturbance event is irregularly shaped, parts of the south and west boundaries are straight lines at right angles. These lines represent the boundary of the Willmore Wilderness Area, which is managed by Alberta Tourism Parks, Recreation (TPR). Throughout the planning process TPR was unwilling or unable to entertain the possibility of any corresponding adjacent disturbance in the Willmore.

## ***HOW COULD WE DO BETTER NEXT TIME?***

At the time, there were no strategic or operational plans for the Willmore that disturbance activity in this area might have contradicted. Furthermore, there are no regulatory barriers precluding disturbance activities within the Willmore. In fact, (non-industrial) tree cutting and prescribed burning are acceptable tools with which to achieve the “...*management, conservation and protection of its natural resources and by the preservation of its natural beauty*” (Willmore Wilderness Park Act [www.qp.gov.ab.ca/documents/acts/W11.cfm](http://www.qp.gov.ab.ca/documents/acts/W11.cfm))

The issue was that TPR representatives were unconvinced that any collaborative disturbance activities in that part of the Willmore were in the best interests of either TPR or the Park. This means that the decision to become involved in disturbance activities was not just a tactical decision, but also a strategic choice. The absence any sort of management plan for the Willmore was undoubtedly a factor. Knowing this, we could have done better on three fronts:

- Involve high-level personnel in development of the project objectives and TOR. This would resolve at least two issues 1) how to proceed in the absence of direction from a strategic plan, and 2) a decision by each agency with respect to collaborative planning across boundaries. The details of any agreement(s) would then be passed on to the relevant planning staff.
- Invest more time and effort in the initial stages of the project - at both the Project and Planning Team levels - explaining the concepts and potential (positive and negative) consequences of adopting an NRV foundation across a multi-jurisdictional landscape.
- The project terms of reference (TOR) should be specific in terms of the expectations of participants. The Project Team in this case made an assumption that the agreement to participate as a land partner equated to a willingness to consider adjacent disturbance activities. However, this expectation was not well articulated.

### ***CHALLENGES BEYOND OUR CONTROL***

This project reveals two significant challenges related to jurisdictional integration. First, the various Alberta government agencies have powerful, and fairly exclusive mandates. This makes managing for the needs of specific natural resources more efficient. However, this also means that they are, by design, not meant to integrate with one another. In fact, although efforts are currently underway in Alberta to address this issue (GoA 2008), there currently exists no overriding provincial framework for land management, nor any formal mechanism for collaborative planning on any level.

Another jurisdictional challenge is how to include in collaborative planning exercises the areas of Alberta without management plans. There is a modest backlog of updated strategic and/or operational plans for non-FMA areas in the province.

### **3. Procedural Integration. Grade: D**

Although the Hwy40 planning process had to meet existing regulatory requirements, it was not necessary to work within the bounds of any specific planning process. The original plan was to develop a new process 'on the fly' as a team using the combined expertise of the members. The logic was that a new planning foundation likely required a new planning process, and planners are the most qualified people to help develop this.

The team relied on the general direction of the planning process for FMA holders as a guide, with the additions of the four disturbance pattern questions and planning indicators (see Report #1). Thus it is not surprising that the most successful procedural integration that occurred was between and among the three forest companies and ASRD Forest



Management Branch. However, this integration deteriorated as the planning progressed. Two of the forest companies chose different harvest approval and layout procedures and the third did not submit approvals at all (see Andison 2008 for details).

Prescribed burns (PBs) on FMA land are extremely rare, so it is not surprising that forest management companies do not often integrate planning activities with ASRD Forest Protection Branch. The Hwy40 team spent considerable time exploring this question, and concluded that the two activities were different, but potentially highly compatible. The flexible nature of the PB planning system is a distinct advantage. Efforts to bring these planning elements together continue.

The Willmore has no operational planning procedures or management plans. This was a tremendous opportunity to explore alternative management strategies and achieve park-related goals through working with adjacent land partners. The location and orientation of the Hwy40 disturbance event were also ideally suited to installing some adjacent prescribed burning to further enhance the value of the planned event (as a wildfire and MPB barrier). However, because there was a failure to achieve jurisdictional integration (see above), TPR was understandably not engaged at the procedural level.

The planning procedures of the energy sector in Alberta are fundamentally different than that of any other partner involved. Furthermore, the AE and CAPP representatives felt that the existing tenure system(s) allowed no room for flexibility to explore the potential to integrate with other agencies or disturbance activities.

### ***HOW COULD WE DO BETTER NEXT TIME?***

Without a pre-defined planning procedure to follow; everyone used his or her own planning system (and assumptions) as a reference point. This created mixed levels of engagement and confidence in the process. The result was a group that functioned less as a *team* than a *committee* of people with different, but overlapping interests.

The process would have benefited by having an outline of a planning process from the beginning. Procedural concerns often undermined the discussion of important planning issues, and the lack of definitive course direction caused confusion. Furthermore, asking the Planning Team to develop the planning process was in hindsight, unreasonable.

### ***CHALLENGES BEYOND OUR CONTROL***

While there may be compelling arguments for using prescribed burning on FMA land for biological reasons, they also represent (social and economic) risks. To what degree, under what circumstances, and where forest management companies might be prepared to agree to prescribed burns on their landscape are questions that remain unexplored, but beyond the mandate of the Hwy40 Planning Team.

The energy sector represents the only planning integration opportunity that was entirely beyond the ability of the Hwy40 project team to resolve. However, it is also the issue that has the greatest potential to compromise the benefits of an integrated disturbance design. *Fully integrated land management planning, with or without natural disturbance as a backdrop, cannot happen without meaningful procedural engagement of the energy sector.*

How or to what degree to involve land management partners without standardized procedures in collaborative planning exercises is also a concern. However, this is also potentially a significant opportunity for those partners.

#### **4. Participatory Integration. Grade: C-**

As envisioned, the Planning Team did discuss, debate, and at least initially agree on all disturbance design issues. Using natural patterns as the backdrop for planning design decisions helped the team create a viable disturbance event design.

The Hwy40 Planning Team members were generally very dedicated to the project. Although meetings were often difficult to schedule with so many involved, attendance was very high over more than two years of meetings. The Planning Team also took seriously the task of creating a new process. Solutions were often creative and thoughtful, and the willingness to learn and the desire to make the project a success was obvious in most.

Participatory inconsistencies were rare, but most of them had dramatic impacts. For example, the lack of willingness from TPR to consider disturbance within the Willmore created an artificial level of participation that had a negative impact on the team environment. The same could be said for CAPP and AE participation. While these representatives were fully engaged in the exploration of disturbance design solutions, they were unable to offer the involvement of their agencies in these solutions. No provision for this hierarchy was allowed in the original TOR.

The Planning Team twice received unsolicited participation from individuals not involved in the Hwy40 project. In the first instance, a Planning Team member was concerned that their perspective, as it related to their particular value, was not being sufficiently considered. Since this objection went directly to a senior member of one of the participating agencies (beyond the existing project hierarchy described in Report #1), it created some unfortunate friction with one of the collaborating agencies.

However, it also triggered a neutrally facilitated de-briefing session that was extremely revealing. For example, it provided an opportunity for other team members to express similar concerns of their management issues not being fully considered in meetings. Another helpful insight gained from this session was that there was some frustration with the open-ended planning process and the extended timelines. The session also revealed

a lack of consistency in the understanding of the underlying project goals and objectives. Although unintended, this de-briefing session was perhaps the most valuable meeting of the Hwy40 Planning Team in terms of gaining participatory insights.

The second incident of external participatory involvement concerned the unsolicited submission of an alternative disturbance design scenario to the Planning Team (see Report #1 for details). While unexpected, this alone did not significantly impact either the team or the process. However, it became a far more serious issue when the agency involved adopted the new design as the only planning solution it was now willing to support – despite the fact that an agency representative sat on the Planning Team. From a participatory perspective, this suggested that being part of the Hwy40 process was, for some, conditional. This was the most disruptive participatory-oriented incident of the Hwy40 planning process, and the only one to threaten to end it outright.

Another participatory challenge we faced was the inconsistent commitment to complete follow up homework between meetings. In some cases, this was due to confusion over why such materials were required. As a result, the Planning Team spending a considerable amount of time going over some materials and concepts several times.

The team atmosphere also suffered from the replacement of individuals on the team. One partner cycled through three different representatives over 18 months, in each case without any de-briefing, or the passing on of materials to the successor. The agency involved was fairly critical to the process, and thus these personnel transitions created some problems with continuity and flow within the Planning Team.

The final participation issue for the project was the fact that the Hwy40 Planning Team chair was also the natural disturbance expert and the FRI Project Lead. Ideally, meeting chairs should be neutral, entirely objective, and otherwise uninvolved in the details.

### ***HOW COULD WE DO BETTER NEXT TIME?***

The incidents described above suggest that the commitment to the project from the various Planning Team participants was mixed. Some were unwilling or unable to consider collaborative disturbance activities. Others were committed only as long as they perceived that the interests of their agency were being met, after which they participated via ultimatums and/or dissent. The Planning Team chair was not entirely objective. The inconsistent effort to produce requested information or data between meetings, and some frequent changes in team membership suggests that this project was not a high priority for all of the agencies involved. The planning process was never clearly defined. These are not indicators of a high functioning *team*.

Many of the agencies involved in the Hwy40 project are not required to work in true team environments - with other agencies working towards common objectives. Rather, they

tend to participate as members of a committee of individuals representing values and clearly defined perspectives, technical or scientific expertise, or resources (such as personnel or funding). Committees generally work well because the roles are differentiated and well understood. Within teams, individuals function more as equals.

Given our collective history of operating as a series of land management committees, the transition to teamwork is a challenge that the project could have better anticipated. For example:

1. **Get buy in and support at high levels within participating agencies, and ensure they communicate directly with staff.** The project goals, objectives, outcomes, and staff expectations should be clearly outlined to senior staff in each participating agency. This may very well be a negotiation, but far better for it to happen up front than during the planning process. Senior staff must then pass any specific instructions to relevant staff.
2. **Have the right people involved.** A team planning exercise requires a fairly high level of technical expertise and professional skills.
3. **Give participants the proper tools to become a team.** The TOR should include specific expectations of roles and responsibilities of each person involved. This should include basic rules of conduct in a meeting (*i.e.*, Robert's Rules), the use of facilitators, chairs, and external expertise, dealing with external input, dispute-resolving mechanisms, and other team-related issues.
4. **Provide the participants with a proposed planning process.** In the absence of something more concrete, it is inevitable that people will rely on existing participatory habits as their reference point. Without reasonable reference points and timelines, participants and agencies are more likely to lose interest.
5. **Provide each participant with background information.** This includes a detailed understanding of a) the conceptual foundations of using natural patterns as land management guides and b) a refresher on very basic key concepts such as *sustainable forest management* and *adaptive management*.

## **CHALLENGES BEYOND OUR CONTROL**

There were no incentives or directives for any of the agencies involved in the Hwy40 project to collaborate from a (hard or soft) policy perspective. This suggests that the problem from a participatory perspective was not so much with the process, but the ability of individuals to function beyond their traditional roles. The transition from being part of a committee to a team requires a shift in roles. The conditional participation issue this project experienced is an excellent example of the inability to make that transition. Thus, it may be optimistic to presume that the steps described above will result in agreement

between land management agencies. *Until there is some higher-level direction that every agency is bound by, collaboration will always be limited and/or conditional.*

## **5. Regulatory Integration. Grade: E-**

Of the three stages of regulatory integration described above, the Hwy40 project modestly hoped to achieve Level 1: a one-window approach from ASRD for approvals for forest management companies.

The original vision was to have one individual from ASRD review and approve the Preliminary and Final Harvest Plans as a package. Towards that, someone from the Hinton Area of ASRD FMB was designated as the sole contact, and participated on the Hwy40 Planning Team. Unfortunately, the three forest management companies failed to coordinate their plan submissions. Two companies used different pathways for approval, and the third did not develop or submit an associated, parallel operational plan. Only one of the companies involved referenced the larger work of the Hwy40 Planning Team and the operational plans of adjacent partners.

No other regulatory streamlining issues were seriously considered. The Planning Team had already been discouraged to pursue regulatory issues with either Alberta Energy or Alberta TPR.

### ***HOW COULD WE HAVE DONE BETTER?***

Merging regulatory requirements is a new idea, and potentially risky for everyone involved. Although the concept is difficult to argue with, the reality is that it means sharing both responsibility and power.

Despite the fact that a one-window approach to approvals was one of the original project objectives, the Hwy40 process did not allow for the necessary time or means of resolving regulatory integration. The assumption was that ASRD would identify an internal solution, which in hindsight was unfair. Instead, the Team could have developed a proposal for how regulatory integration might occur, and submitted it to ASRD for consideration.

### ***CHALLENGES BEYOND OUR CONTROL***

Although the Planning Team discussed Levels 2 and 3 of regulatory integration (*i.e.*, the coordination of regulations between and within provincial agencies), they are both well beyond the scope of this project. However, we did learn that *the coordination of the many layers of provincial regulations required for a given landscape is critical to the success of any integrated planning efforts.*

# DISCUSSION and CONCLUSIONS

It is important to remember that this was a demonstration project - designed to a) explore new territory, and b) learn. Success is not so much a function of final disturbance products or the process, but rather the wisdom gained from the experience. In that regard the Hwy40 project was successful.

The Project Team originally assumed that the learning would focus on the application of disturbance patterns as a common foundation for planning. The main interest was in how, or to what degree natural patterns could be used to help design a trans-boundary disturbance event(s) that provided viable solutions for most, if not all other social, economic, and ecological values for all land partners.

As report #1 attests, not only did the Planning Team unanimously agree to the final design, but;

- a) The decision-support models provided by the agencies involved confirmed the strength of the final design in providing for all values,
- b) The Planning Team generally agreed with the results of the model output, and
- c) The disturbance design was natural in its size, shape, orientation, and severity.

The use of a common biological foundation also allowed the Planning Team to bypass some traditional value-specific barriers prominent in the current land planning system. The fact that the team arrived at unanimous design solution in the face of the many integration-related challenges bodes well for the potential of natural disturbance patterns to function as a planning foundation. Overall, the use of natural disturbance patterns as a planning foundation was successful.

What we did not anticipate was the wealth of new insights with respect to the issue of integrated planning in general. The Hwy40 experience suggests that everyone involved underestimated the impacts of integration-related challenges, including institutional policy issues, tenure arrangements, roles, standardized protocols, rules and regulations, communication, education, and process.

Of the four types of integration identified (jurisdictional, procedural, participatory, and regulatory), we had the greatest success in achieving jurisdictional integration. The Hwy40 experience further suggests that the greatest potential for short-term improvement for integrated operational scale planning (using natural patterns as the foundation) is with participatory integration. Towards that, the list below is a sequence of steps that one might consider for a similar operational planning exercise using to ensure a higher participatory grade.

### **A) SETTING THE STAGE (Project Team or Higher):**

- 1) Get formal approval of the concept of an integrated planning exercise using a natural pattern foundation from individuals from each partner at senior levels of decision-making. This is more of an agreement in principle, but it ensures that everyone is aware of the expectations of participants and agencies.
- 2) Develop and agree to a protocol for dealing with any areas that do not have a management plan.
- 3) Differentiate between flexible versus inflexible policies and practices for each agency involved. Where is there room to manoeuvre, and under what circumstances?
- 4) Compile a mutually agreeable list of goals and objectives for the landscape in question, ideally referenced directly from existing relevant strategic planning documents and guidelines.
- 5) Create a decision-making and responsibility hierarchy, and ensure that everyone involved understands it.
- 6) Draft a Terms-of-Reference (TOR) document with the Project Team. TOR should include the hierarchy, rules of team membership, alternates, and replacements, agency representation, clearly defined team objectives, roles and responsibilities, a timeline, meeting protocols, a planning process, conflict resolution, and a schedule of topics and deliverables.
- 7) Assign individuals with the most appropriate expertise and tools as per the TOR to the Planning Team.
- 8) Prepare a detailed outline from items 1-7 above and get unconditional approval of the plan from individuals from each partner at a level above the Project Team.
- 9) Reassess the involvement of the original partners on a regular basis. If there is any change in status, the TOR should dictate the consequences (e.g., removal from the team, changing roles, etc).

### **B) MANAGING THE PLANNING PROCESS:**

- 10) Have at least one joint meeting between the Project and Planning Teams at the beginning of the process to share background information and expectations. Schedule joint meetings on a regular basis.
- 11) Invest heavily in educating all participants in the concept of using natural patterns in land management. There is a three-day professional short course offered by

the FRI ND program taught by experts across Canada that could become a prerequisite for Planning Team members.

- 12) Agree to formal rules for both working as a team and functioning within Planning Team meetings. Specifically consider different options for the Chair.
- 13) Provide a dedicated session at the start of planning on the various types of planning models. Do not assume that everyone is fully familiar with either the concept or practice of planning.
- 14) Based on feedback from the items above, develop, present, and discuss a detailed preliminary planning process, timeline, and deliverables. The exact form of this process is less important than the form.
- 15) At the beginning and end of every meeting, review the status of progress relative to the agreed upon planning process and original TOR. Discuss and agree to changes as required.
- 16) At the start and end of each meeting, clearly identify a 'to do' list, and assign names and timelines.
- 17) Set Planning Team meeting dates ahead of time as far as possible.

### **C) COMMUNICATING:**

- 18) Develop a comprehensive communications plan. Internally, it will provide for any requirements for professional education and ensure that all participants in the hierarchy are aware of new developments, decisions, and progress. Externally, transparency and openness are important when innovative concepts are involved.

The Hwy40 process scored relatively low on both procedural and regulatory integration elements. To be fair, most of the issues encountered were largely beyond the control of the Planning Team. However, even under ideal circumstances (implementing the 18 recommendations listed above for example), a truly integrated planning exercise at operational scales is not possible without resolving the many procedural and regulatory obstacles this project encountered.

Perhaps the concept of a *natural pattern foundation* can provide some guidance here too. Consider that the most successful elements of the Hwy40 process relate specifically to the use of natural patterns. As hypothesized, natural patterns provided some common ground and a universal reference point for the Hwy40 Planning Team. On the other hand, most of the problems encountered correspond to procedural and regulatory issues beyond the Team's control. Thus, it is reasonable to hypothesize that a natural pattern foundation could provide robust solutions for procedural and regulatory integration issues as well.



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