

# *A Comparative Analysis of Some Trends in Canadian and U.S. Forest Policy*

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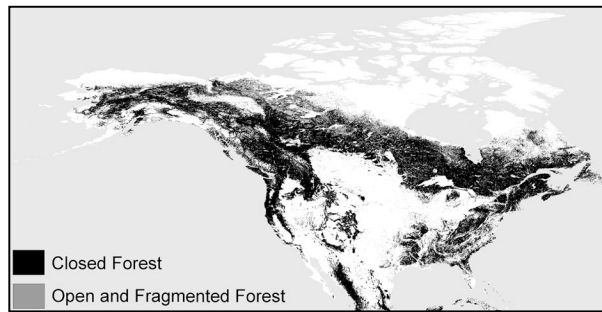
## Introduction

The forests of Canada and the United States are a vast resource. Forests and other wooded land occupy 45 percent of Canada's land area, 31 percent of the United States' land area, and when combined, make up 12 percent of the world's forest area (FAO 2001a). Figure 1 shows the extent of forests in Canada and the U.S. These forests are incredibly diverse and contain a wide range of economic, ecological, aesthetic, recreational, and cultural values. The volume of timber harvested annually in the U.S. is approximately 450 million cubic meters (USDA 2001), creating roughly 1.5 million direct jobs (USDA 2004a). In Canada, approximately 190 million cubic meters of timber are harvested annually, creating roughly 376,000 direct jobs (CFS 2004d). In addition to commercial forestry jobs, many people depend on the forests of Canada and the U.S. for income from tourism and trapping, for other resources such as drinking water, berries, mushrooms and game, and for the many cultural, spiritual, and aesthetic benefits provided by forests.

Policies that affect the conservation and use of these forests are clearly of great importance. This paper examines several important areas in Canadian and U.S. forest policy, many of which have evolved in recent years. The areas we examine include forest management policy on public lands, the role of forests in climate change mitigation, and natural disturbance management. After outlining reasons for the observed trends, we describe some of the challenges facing both countries as these changes are implemented.

## Forest Management Policy

Public forests in Canada and the U.S. are managed under a wide variety of legislation and policy. Both countries have various regulatory frameworks and government agencies for managing forests on federal lands, state or provincial lands and Aboriginal controlled land. Some municipal or community controlled public lands also exist in both countries. In Canada, a National Forest Strategy provides some high-level guidance for forest policy and sets out the overall vision and goals for sustainable forest management. Federal laws that can affect forest practices include the *Fisheries Act*, the *Canadian Environmental Assessment Act* and the *Canada Wildlife Act*. The *Species at Risk Act* (SARA) was recently created to prevent wildlife species from becoming extinct, and to provide for their recovery. SARA requires that the government of Canada regularly assess species at risk, and implement the necessary recovery strategies to protect or restore populations. In the U.S., high-level forest policy is found in the *National Forest Management Act* (NFMA) that establishes forest management planning requirements on federal public forests. More recently, the Healthy Forests Initiative was developed to provide a high level strategy for addressing fire risk and forest health concerns. The *Forest and Rangeland Renewable Resources Planning Act* and the *National Environmental Policy Act* also provide national level guidance to forest management. The *Endangered*



**Figure 1. Forest cover in Canada and the U.S., data from FAO (2001b)**

*Species Act* requires that a register be kept of endangered and threatened species and prohibits activities that adversely affect these species.

In Canada, the Canadian Forest Service (CFS) is the national-level government agency concerned with forest management. The CFS mandate includes policy development, research, and international promotion of Canada's forest sector. Of the 401.5 million hectares of forestland in Canada, 94 percent is publicly managed (CFS 2005). Parks Canada manages some forestland in Canada's national parks, and the Department of Indian Affairs and Northern Development oversees forest management on Aboriginal lands. Some federal lands (such as national defence lands) are directly managed by the CFS; however, the management of publicly owned forestland in Canada is largely under the jurisdiction of the individual provinces and territories which have their own legislation, regulation, and policies governing the use and management of forests. The United States contains approximately 302 million hectares of forestland, of which 204 million hectares are classified as productive, non-reserved timberland. Commercial forestry is conducted on both private and public lands; however, private land provides most of the commercial forest landbase in the U.S. In 2001, 91 percent of the U.S. annual harvest was estimated to have come from private lands (Smith, et al. 2004). Public forest management in the U.S. can fall under federal or state jurisdiction, under the U.S. Department of Agriculture Forest Service, Bureau of Land Management, other federal agencies, or forest management bodies of individual states.

The evolution of forest management policy is often characterized as passing through a series of distinct and predictable stages. Kimmins (2002) describes a progression from exploitative use to "administrative forestry" focused on timber, and eventually to the adoption of "social forestry" where both ecological considerations and the needs of society for a wide range of forest values drive forest management decisions. Forest management that is

economically, ecologically, and socially sustainable is often referred to as sustainable forest management, or SFM. Wang (2004) describes SFM as a two-tiered approach, where traditional economics continues to play a key role, though caution is exercised when ecosystem integrity is at stake. SFM is essentially a manifestation of the concept of sustainable development, with a core objective of meeting society's current needs without compromising the needs of future generations. Forest policy developments in both Canada and the U.S. contain a variety of indicators that demonstrate a trend towards SFM, which we will outline in the following paragraphs.

### ***Criteria and Indicators***

At a high level, SFM has been defined within internationally recognized criteria and indicator frameworks such as those developed by the Canadian Council of Forest Ministers (CCFM 2000) and the Montréal Process Working Group (MPWG 2003). These frameworks recognize the importance of maintaining the productive capacity of forests for a wide variety of economic, ecological, and social benefits through time. Criteria represent the high-level goals at the core of SFM, and various indicators provide yardsticks by which progress towards these goals can be measured. Canada and the U.S. have both produced reports (CCFM 2000; USDA 2004a) that detail national-level progress towards meeting these measures of SFM. Both countries are still developing their capacity to report on all indicators, as well as working towards a better understanding of some indicators that currently do not have agreed protocols for measurement.

### ***Adaptive Management***

While the adoption of criteria and indicators reporting suggests that Canada and the U.S. are both moving towards an SFM approach, adopting SFM is a challenging undertaking that often highlights our incomplete knowledge of forest ecosystems and divergent views on how SFM objectives should translate into operational activity. Adaptive management (Walters 1986) has been proposed as a strategy to deal with this uncertainty and is based on accepting the incomplete level of understanding we have about ecosystem function. It involves taking an experimental approach to management decisions and a willingness to change course when the outcomes of our management activities become better understood. Key to this approach is the establishment of well-designed monitoring programs that can compare anticipated and actual results

and can feed directly into management actions. Canada and the U.S. are both introducing adaptive management in some areas of managed forest. Many examples of provincial forest policies that recognize adaptive management exist in Canada (Duinker and Trevisan 2003). and in the U.S. Northwest a series of Adaptive Management Areas have been established (USDA 1997a). The transition to adaptive management can also be challenging. Stankey et al. (2003) point out that adaptive management in the Pacific Northwest has been hampered by institutional and regulatory barriers, a lack of incentive for managers to take risks, and a need to assist practitioners in “learning how to learn.”

### **Public Involvement**

The challenging nature of SFM is further complicated by the proliferation of actors involved in forest policy and management (Lindquist and Wellstead 2002). Although government and forest companies remain the principal players, the public has an increasing influence, and stakeholders wanting a say in forest management now include individuals, local communities, labour groups, and even large international organizations. In addition to economic and ecological sustainability, social sustainability is a key aspect of SFM. With the complexities involved in working with such a wide range of stakeholders, community-based forest management is emerging as another tool to provide SFM. Community-based management shifts the public from an advisory role to a collaborative one through partnerships between government agencies and local communities (Berkes 1995). Several examples of community-based forest management now exist on both sides of the border that range from collaborative planning processes to communities gaining direct control of small to medium sized forest areas. The Model Forest Program is one example of this type of management, where partnerships between diverse stakeholder groups provide direction in the management of forests used as testing ground for sustainable forest management (CFS 2004b). Since its inception in Canada the program has expanded worldwide and now includes over thirty model forests established or under development around the world (IDRC 2004). The U.S. has also participated in the Model Forest Program by designating three of its Adaptive Management Areas as model forests in 1995 (CMFN 2004). Adaptive Management Areas in the U.S. are similar to the Canadian model forests, with collaboration playing an important role in decision-making. Although a new program of “charter forests” may replace the Adaptive Management

Areas program (Beckley, et al. 2003) the proposed charter forest program has also emphasized public involvement, as well as local control through management by local trusts (O’Laughlin 2002; White House 2002a).

### **Aboriginal Participation**

Aboriginal groups living adjacent to forests, as all forest dependent communities, do have economic, aesthetic, recreational, and other interests in forests. Additionally, there are often traditional knowledge systems and uses of forests in Aboriginal communities (Garvin, et al. 2001), as well as different worldviews (Parsons and Prest 2003) that can make Aboriginal opinions and approaches to forest management unique. While community and stakeholder groups have become prominent in forest management through the 1990s, Aboriginal groups are also playing an increasing role and may gain prominence rapidly in the current decade.

In Canada, recent court cases have confirmed the existence of Aboriginal rights on traditional territories, as well as requirements for consultation when activities may infringe on Aboriginal interests (Davis and Co. 1998). In some provinces and territories, particularly British Columbia and Yukon, forest management responsibility for some areas is shifting to First Nations communities through land claims and treaty negotiations. Furthermore, the British Columbia government has recently committed itself to direct-award allocation to First Nations of up to eight percent of the province’s AAC, as well as direct revenue sharing with First Nations from provincial stumpage revenues (BCMOF 2003a). Collaborative processes with First Nations are also occurring in other jurisdictions in Canada. In Newfoundland and Labrador, the provincial government is facilitating First Nations involvement in forest management planning (GNL 2004), and in Yukon, collaboration between government and First Nations have produced short-term timber harvesting plans (YTG 2004b, 2004c). At the national level, the First Nations Forestry Program has supported over 1,300 projects to develop First Nations forest management skills and capacity to participate in forestry (CFS 2002). Many examples of cooperation between forest companies and local First Nations across Canada also exist. These include joint business ventures, cooperative agreements between Aboriginal and non-Aboriginal companies, forest services contracting, socio-economic partnerships (such as training, capacity building, or employment agreements with First Nations communities) and collaborative forest management planning (NAFA-IOG 2000).

In the U.S., the indigenous population also play a prominent role in forest management. Aboriginal communities control 6.9 million hectares of forest and other wooded land (FAO 2001a) that was estimated to have generated over US\$465 million in revenue in 1991 (ITC 1993). The Bureau of Indian Affairs, in partnership with local tribes, has traditionally carried out forest management on native reserves, though in the 1990s a review recommended that this relationship be reconfigured to place tribes in more direct control of their forests (ITC 1993). As in Canada, the right of Aboriginal communities to carry out traditional activities on other public land has been recognized, as has the requirement for meaningful consultation when these activities may be impacted (USDA 1997b). The area of land controlled by Aboriginal people is also changing in one part of the country, namely Alaska. The *Alaska Native Claims Settlement Act* authorized Aboriginals (mainly through native-owned corporations) to select and receive title to over 17 million hectares of public land (ADNR 2000). Some 25 percent of Alaska's timber regions are now managed by native-owned corporations (AFA 2004). Collaboration in other areas of forest management occurs, including grants and technical assistance for the development of Aboriginal forest businesses, training to increase Aboriginal participation in fire fighting, and the sharing of traditional Aboriginal knowledge to support the development of forest management plans, research, and interpretive programs (USDA 1997b).

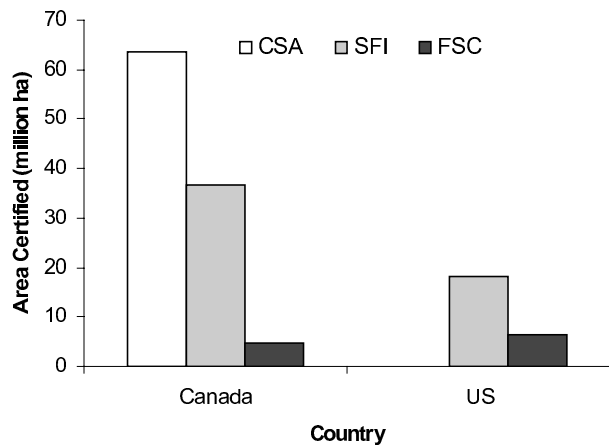
**Certification**

Another important manifestation of the SFM paradigm is the adoption of third-party certification for forest products. Certification identifies forest products that originate from companies that adhere to a set of environmental and social standards, allowing consumers to advocate SFM by choosing certified products over uncertified ones. Certification by third-party organizations is a growing trend in both Canada and the U.S. Certification differs fundamentally from traditional forest policy in that it is based on markets and can be largely independent of government (Cashore 2002). Several certification schemes are in use in North America. The Forest Stewardship Council (FSC), Canadian Standards Association (CSA), and the Sustainable Forestry Initiative (SFI) are currently the three most recognized schemes. FSC certification emerged in the mid 1990s and grew from concern by NGOs and others over forest practices (FSC 2003). CSA and SFI (and the Programme for the Endorsement of Forest Certification Systems (PEFC) in Europe) were developed to compete

with FSC for legitimacy, largely through forest industry initiatives (Cashore, et al. 2005). Other certification schemes also exist.

Currently an estimated 63.7 million hectares have been certified in Canada under CSA, 36.8 million hectares under SFI, and 4.9 million hectares under FSC (Abusow 2005). This amounts to 104.6 million hectares certified in total under CSA, SFI, or FSC combined. (Some forests are certified under more than one scheme; so the total is less than the sum of the individual areas.) In the United States, an estimated 6.3 million hectares have been certified under FSC (FSC 2005) and 18 million hectares under SFI (SFI 2005).<sup>1</sup> The areas certified in Canada and the U.S. are compared in figure 2.

**Figure 2. Certified forest area in Canada and the U.S.**



**Integrating Forests into Climate Change Mitigation**

Current evidence suggests that greenhouse gas emissions from human activities are at least partially influencing changing climate patterns (IPCC 2001). The rapidly emerging issue of global climate change has led to a recognition of the role forests can play in reducing atmospheric greenhouse gasses. Forests have the capacity to capture and store atmospheric carbon through respiration and growth, as well as releasing carbon to the atmosphere through fire or decay. The net effect of these processes determines whether forests are carbon “sources” or “sinks.” The United Nations Framework Convention on Climate Change, through the Kyoto Protocol (UNFCCC 1997), calls for participating countries to reduce net greenhouse gas emissions to less than 1990 levels. Under the Kyoto Protocol, the role forests play in absorbing and storing

atmospheric carbon are accounted for in two ways. The impacts of afforestation (planting areas not forested for 50 or more years), reforestation (planting areas not forested at the end of 1989) and deforestation are included in calculations of greenhouse gas emissions, either increasing or decreasing them. Additionally, each country has the option to include the effects of forest management on carbon storage and have this applied to national emissions targets.

The Kyoto Protocol was ratified by Canada in 2002. Canada projects that forest management may make a contribution to offsetting its emission reduction targets (Government of Canada 2005). However, this contribution is still uncertain, and choosing to include forest management carries the risk that natural disturbances or other unforeseen factors may reduce this effect, even resulting in a net emission of carbon. At present, forest products are not considered sinks; so carbon stored in long-term products such as furniture or building materials do not contribute to sequestration. Some private forest companies that increase forest carbon storage through enhanced management practices or afforestation may be able to sell storage “credits” to domestic or international emitters facing emission penalties or have them purchased directly by the Government of Canada’s new Climate Fund (Government of Canada 2005). Natural Resources Canada’s Forests 2020 Plantation Demonstration and Assessment Initiative is researching the carbon storage capabilities of afforestation projects with fast growing species and working to attract investment in plantations that help sequester atmospheric carbon (CFS 2004d). Furthermore, both natural forest and plantations may have the potential to provide renewable biomass energy that offsets some fossil-fuel consumption.

Systems for carbon accounting are still being developed, and Canada has been a major participant in the development of systems and models for accounting for the role of forests in the global carbon cycle (e.g., CFS 2004e; Kurz and Apps 1999). Canada is also an active participant in the Intergovernmental Panel on Climate Change (IPCC) that aims to assess continually the latest information and science on climate change. Over 30 Canadian scientists helped author and edit the IPCC’s Third Assessment Report in 2001 (Environment Canada 2001).

The U.S. government has stated that it will not ratify the Kyoto Protocol, citing reasons that include unachievable and arbitrary targets, economic costs, and a lack of strategy to reduce emissions from developing countries, namely China and India (USDS 2001). However, the U.S. does plan to work towards reducing greenhouse gas emis-

sions through a variety of voluntary schemes, education, technological advances, tax incentives, and regulations (USDS 2002). The U.S. government believes economic growth can be used to provide the wealth needed to use cleaner technologies and promote carbon sinks domestically, as well as in the developing world where the need to reduce emissions may be more urgent (White House 2002b). Domestic incentives that involve forests include the promotion of forest and agricultural carbon sinks under USDA’s Environmental Quality Incentives Program, Forest Land Enhancement Program, and Conservation Reserve Program (U.S.DA 2003a). Forest carbon sinks (and sources) are also recognized under the U.S. Department of Energy (DOE) Voluntary Reporting of Greenhouse Gases Program (USDOE 2005). Other programs may help to preserve forest carbon sinks outside the U.S. The President’s Initiative Against Illegal Logging provides assistance to nations working to prevent unwanted forest harvesting and forest sector corruption, and the *Tropical Forest Conservation Act* allows for some debt relief to developing nations that increase tropical forest conservation. Like Canada, the U.S. is conducting climate change research, including research better to understand the role of forests as carbon sinks (USGCRP 2004). The U.S. has also participated extensively in IPCC activities and assessments (CCSP 2003).

It is important to note that support for the Kyoto Protocol could shift in either Canada or the U.S. following the election of new governments with differing opinions on climate change policy. The previous U.S. Democratic administration supported the agreement until narrowly losing office in 2000. The 2004 election produced similar results and the Democratic Party had campaigned to improve climate change programs (DNCC 2004), although their specific position on Kyoto was less clear. Support for the Kyoto Protocol within Canada is also not without its detractors. The government of Alberta has stated that it does not support the agreement and will actively block any potential impacts to the province’s economy (Government of Alberta 2002). During the 2004 Canadian election, the Conservative Party of Canada stated it would direct funding away from initiatives related to Kyoto if elected, describing the agreement as “increasingly irrelevant” (Conservative Party of Canada 2004) and went on to win approximately 30 percent of the national vote. Mainstream political parties on both sides of the border have different views on the agreement from current governments and are supported by significant segments of the public. However, the role of forest in climate change strategies appears to now be established and unlikely to disappear.

## Natural Disturbances

In recent years, the impacts of natural forest disturbance have been a challenge for both Canada and the U.S. In the U.S., some of the worst fire seasons in fifty years occurred in 2000 and 2002 (USDA 2003b), and in 2003 brush fires in California resulted in 24 fatalities and the destruction of 3,710 homes (CDFFP 2003). In the same year, fires in British Columbia burned an area over ten times larger than the preceding ten year average (BCMOF 2004a), destroying several hundred homes and businesses and permanently closing a local sawmill that was in the path of one of the fires (BCMOF 2004d). Earlier, in 1988, large forest fires burned out-of-control in Yellowstone National Park, affecting over 250,000 hectares (Turner, et al. 2003).

Forest pests are also having notable impacts. The mountain pine beetle (*Dendroctonus ponderosae*) is currently infesting over seven million hectares in British Columbia (BCMOF 2004b) and is the largest outbreak in the province's history. In the southern United States, the southern pine beetle (*Dendroctonus frontalis*) caused over US\$200 million in damages in 2001 (USDA 2003). Spruce beetle outbreaks in 1978-1982 in central British Columbia resulted in the mortality of over two million cubic meters of timber (Safraiyik and Humphreys 1993) and in the last 25 years have affected over 400,000 hectares of forest on Alaska's Kenai Peninsula (ADNR 2004).

Canada and the U.S. both actively suppress forest fires, and the various agencies responsible for fighting forest fires are characterized by a high degree of cooperation. In Canada, fire suppression is the responsibility of the individual provinces (and Parks Canada in Canada's National Parks), and each jurisdiction has its own fire fighting crews and equipment. However, the Canadian Interagency Forest Fire Centre in Winnipeg coordinates the sharing of these resources during times when fires overwhelm individual agencies (CIFFC 2004). In the U.S., firefighting is carried out by the USDA Forest Service, along with a variety of state and local fire agencies. As in Canada, resources are also coordinated by a central agency called the National Interagency Fire Center.

Cooperation between Canada and the U.S. in fighting large forest fires also occurs. Since 1982, Canada and the U.S. have had a formal agreement to share firefighting resources during catastrophic events, including established protocols for making resources available, responsibilities for costs, and facilitation of the quick movement of personnel and equipment across borders (CIFFC 2004).

Recent destructive fires in Canada and the U.S. have led to increasing concern over the causes of these events and for the vulnerability of forests and adjacent communities. Major government reviews occurred in response to large fires in the U.S. and Canada (Filmon 2004; USDA 2000). The reviews suggest ways of improving institutional effectiveness, assisting communities affected by wildfires, and rehabilitating burned forest areas. Public education aimed at residents in interface areas (transitions between human settlement and wild forest) was also proposed to increase awareness of the risks of living in or adjacent to forests, as well as some of the measures that can be taken to reduce risks. Both reviews concluded that more proactive management of forest fuels in interface areas is needed, and that successful fire suppression has likely increased risk because of a build-up of forest fuels.

Beyond the initial reviews, policy changes and action in response to these issues are also occurring. The Healthy Forests Initiative (HFI) was launched in the U.S. in 2002 with the aim of reducing risks to communities, water supply systems and the environment from forest fires, and of streamlining projects that will achieve these goals. Since 2000, over five million hectares have been treated under various fuel reduction and restoration projects (HFI 2005) and approximately US\$760 million in projects are proposed for 2005 (USDA 2004b). Legislative changes to improve and expedite consultation and administrative activities have also been introduced.

In Canada, the FireSmart program was initiated in the 1990s with the goal of creating awareness and of communicating solutions to the problem of vulnerable interface communities (Partners in Protection 2003). The program encourages homeowners to assess risks to their own property, local planners to consider FireSmart design principles for communities, and land managers to consider mitigating strategies in landscapes surrounding interface communities. The program is essentially one of public education, with the responsibility for implementation of FireSmart principles left to communities or individual property holders. As a result, some community-wide FireSmart programmes have been initiated, notably in Ft. McMurray, Kamloops, Hinton and Banff (Partners in Protection 2003). Some larger-scale projects have also occurred. The First Nations Forestry Program of the Canadian Forest Service funded FireSmart projects in several First Nations communities across Saskatchewan (CFS 2004a), and the Yukon territorial government has a territory-wide FireSmart Program. In 2004, Can\$1.5 million was allocated for projects across the Yukon (YTG 2004a).

While Canadian initiatives to manage fires proactively remain ad hoc compared to those in the U.S., a more coordinated approach is currently being developed in Canada. The Canadian Wildland Fire Strategy is being planned as a nation-wide initiative to develop resilient and informed communities, healthier forest ecosystems, and modernized fire management business practices (Hirsch, K. personal communication 2005). Specific projects under the strategy may include public education, policy improvements, risk analyses, assessments of vulnerable interface areas, hazard mitigation (including fuel treatments), improvements to building codes and local bylaws, and enhancements to Canada's firefighting infrastructure. Innovative uses of economic incentives (e.g., insurance, taxes, or fines) may also be explored to promote individual and corporate behavior that reduces risk.

Canada's record of successful fire suppression has also been recognized as a contributing factor to the mountain pine beetle epidemic in British Columbia (Hawkes and Taylor 2001). Lodgepole pine forests in the British Columbia interior are normally subject to frequent fires, but fire suppression has led to large areas of old forest dominating the landscape. However, recent weather trends have also contributed to the ongoing epidemic. Hot dry summers have drought-stressed trees making them less able to resist attack, and a lack of prolonged cold winter weather has reduced beetle mortality. All of these factors combined have provided ideal conditions for beetle population growth. Although opportunities for salvage harvesting in affected stands exist, projections of future timber supply indicate that the infestation may result in a loss of approximately 4.5 million m<sup>3</sup> per year in long-term harvest levels (BCMOF 2003b).

In response to this epidemic, the British Columbia government is raising harvest rates to ensure effective salvage and rehabilitation in commercial forestry areas. Salvage plans are recognizing the ecological benefits of leaving some areas unharvested, and protected areas are being managed with alternative treatments such as prescribed fire. Support for communities dealing with socio-economic impacts is also being introduced, and new markets for beetle-killed timber are being explored (BCMOF 2005, 2004c). At the federal level, the government of Canada has introduced the Mountain Pine Beetle Initiative (CFS 2004c), which aims to reduce the impacts of current and future epidemics by researching management options, developing decision support systems, and developing a better understanding of biological and economic impacts. Direct management of the mountain pine beetle on federal lands (First Nations reserves, National Parks,

military, and other federal lands), as well as assistance to private landholders, is another aspect of the program.

In the U.S., similar strategies are being adopted to prevent and manage insect outbreaks. In the West, the Western Bark Beetle Report (USDA 2002) estimates that over eight million hectares of forest could be subject to bark beetle infestations over the next 15 years and proposes suppressing beetle outbreaks through baiting and removing host material, preventing outbreaks through thinning, and restoring beetle killed stands through reforestation. Funding for bark beetle management projects peaked in 2004, with over US\$20 million in projects being funded through the Forest Health Protection Program (USDA 2004d). The southern pine beetle is also being managed through prevention and restoration projects that totalled over US\$11 million in 2004 (USDA 2004c).

## Discussion and Conclusion

There are several notable differences between Canada and the U.S. relating to forest policy, many of which are widely recognized. These differences include a predominance of public managed forestlands in Canada as compared to privately owned plantation forests that make up the majority of the U.S. industrial landbase. Individual provinces control most Canadian public forests, with large areas under long-term tenure arrangements with forest companies. Federal agencies administer the majority of U.S. public forests and typically sell timber through small short-term timber sales. Canada continues to rely on public land for the majority of its timber supply, whereas the U.S. has curtailed timber production on public land because of costly litigation and a robust supply from private lands in the southeast. Harvesting in U.S. National Forests declined by 84 percent between 1986 and 2001, while increasing by 46 percent on non-industrial private lands (Smith, et al. 2004). The Canadian forest industry is essentially geared towards exports (especially to the U.S.) whereas the U.S. industry largely sells into its own domestic markets. Many of these differences, along with a greater relative scarcity of timber resources in the U.S., have contributed to ongoing trade disputes over forest products between the two countries (Beckley 2003; Reed 2001).

Despite these differences, we have identified a number of areas where Canadian and U.S. forest policies are changing in similar ways. These similar trends likely stem from the wide range of cross-border issues that relate to Canadian and U.S. forests, a similar cultural background, and the economic importance of forests in both countries. The physical proximity of the two countries also facilitates

**Table 1. Summary of areas examined in Canada and U.S. forest policy**

Area Examined	Main Features
Forest Management Policy	Common trend to adopt policies that promote SFM on public forestland.
Integrating Forests into Climate Change Mitigation	Both countries are researching the role that forests can play in mitigating climate change and integrating forests into climate change strategies, despite diverging in their support for the Kyoto protocol.
Natural Disturbance Management	A common interest to better protect forests and communities is leading to similar policies and programs that aim to manage disturbances proactively.

information exchange that almost certainly contributes to parallels in forest policy. Many of these factors have been linked to forest policy trends by others (e.g., Beckley 2003), and it has been suggested that shifts in forest policy tend to occur first in the U.S. and later migrate north to Canada (Thomas 2002). The areas we have examined are summarized in table 1.

Canada and the U.S. have both experienced dramatic and damaging natural disturbance events in recent years. By trying to learn from these events, both countries are developing strategies better to prepare for future disturbances and to move away from management activities that may be contributing to disturbance risk. In the wake of recent damaging fires on both sides of the border, several conferences have brought together Canadian and U.S. fire management experts, including those responsible for some of the policy changes we have outlined. It is, therefore, not surprising that parallels exist between policies that are emerging in this area. Managing and responding to forest disturbances will remain challenging as our reliance on forests for a wide range of values intensifies and as the value of assets at risk continues to increase. Complex tradeoffs are involved that balance the need to protect human safety and assets against recognition of the ecological role of fire and natural pests. Furthermore, disturbance processes will never be entirely controllable or predictable, and our best efforts to minimize risk may still fail from time to time.

Despite diverging over endorsement of the Kyoto Protocol, Canadian and U.S. programs and policies in some areas of climate change show similar trends. Both countries are incorporating forests into climate change policies and conducting research better to understand the contribution forests can make to climate change mitigation. Although support for the Kyoto Protocol could conceivably shift in either country, the issue of climate change itself is unlikely to fall off the agenda of any government, and the new role of forests in climate change mitigation appears to be here to stay. The long-term effect of adding

carbon storage to the ever-increasing list of values derived from forests remains to be seen. Demand for forest carbon storage may begin to compete with traditional forest values, or conflicts could occur over management practices that promote carbon uptake at the expense of other values. The unpredictable nature of forest disturbances may also confound some strategies to use forests as carbon sinks. Climate change itself may exacerbate some disturbances or alter growing conditions, creating stress on forests used as carbon sinks.

Forest management policy is evolving rapidly in response to the emerging sustainable development paradigm and new management practices that define sustainable forest management. Both Canada and the U.S. are initiating criteria and indicators reporting, adaptive management, increased public involvement, enhanced Aboriginal participation, and third-party certification. A key question surrounding these policies, however, is whether long-term public satisfaction with forest management will consequently stabilize. It may be easy to introduce some policies that include sustainability as a high-level goal and be even relatively straightforward to create public advisory committees with a wide range of stakeholders. It can be much more difficult to provide the institutional support and commitment required for long-term results, especially in the face of conflicting views over difficult tradeoffs and uncertainty. In comparing the U.S.'s and Canada's "Two Paths Towards Sustainable Forests," Beckley et al. (2003) conclude that institutional reforms will be required in both countries to better facilitate public involvement and incorporate social science. However, it is important to remember that collaboration will not always solve conflicts over resource management. Collaboration is about working relationships, and like all relationships, some will be easy, others stormy (but still worthwhile), whereas some will simply fail to produce desired results. The breakdown of collaborative processes may inspire new approaches that are more successful, though even with the best facilitation some may never result in more than an



“agreement to disagree.” Furthermore, the various influences on forest management exerted through SFM (e.g., local planning processes, criteria and indicators, or certification requirements) may deliver inconsistent priorities or even conflicting objectives. We will always be left with difficult tradeoffs to make in some forest areas, though a commitment to approaches like adaptive management acknowledges that decisions must be fluid and subject to continuous reevaluation.

Although a wide range of cross-border issues and shared contexts have likely led to the similar policies and trends we have identified, it will be many decades before we know whether these will result in sustainable forests (and forest communities), effective contributions to climate change mitigation, or more effective natural disturbance management. The goal of sustainable development will no doubt remain a moving target in both Canada and the U.S. as our understanding of forest ecosystems develops and the goals and opinions of stakeholders continue to evolve. Our ability to adapt to shifts in understanding and objectives will likely be a key determinant of whether we succeed, as will a commitment to processes that may go through unexpected twists and turns. It will be interesting to continue comparing Canadian and U.S. approaches through the upcoming century. Given the similar trends we have outlined and their significant challenges, collaboration between our two countries and the sharing of lessons learned will be of great benefit to both countries.

## Notes

- 1 Estimated from the 55 million hectares reported by SFI (2005) for the U.S. and Canada combined, minus the 36.8 million hectares reported for Canada from Abusow (2005).

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