

# Examining the Role of the Forest Industry in Collaborative Ecosystem Management: Implications for Corporate Strategy

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## ABSTRACT

The North American timber industry owns or controls a substantial amount of commercial timberland, and it is within this privately held acreage that major portions of critical natural habitat and areas of biodiversity are found. Because significant ecosystem components and processes lie within the ownership of forestry operations, industry participation in collaborative ecosystem management initiatives is vital to protect the integrity of ecological units at the landscape scale. This article analyzes and identifies the role of industry in ecosystem management projects, industry's willingness to participate in collaborative ecosystem management and the motivations behind company participation. Companies indicated active involvement in collaborative ecosystem management as both project initiators and collaborators. Motivations for participating in collaborative ecosystem management initiatives include the desires to decrease governmental regulations, collect data, develop relationships and improve current practices. Many companies also feel that participation is financially beneficial because it positively impacts corporate public relations. We discuss the implications of these results for developing an effective corporate environmental strategy associated with resource-based industries. Copyright © 2005 John Wiley & Sons, Ltd and ERP Environment.

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## Introduction

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**E**COSYSTEM APPROACHES TO MANAGEMENT HAVE BECOME IMPORTANT ASPECTS OF SUSTAINABLE planning, management and practice for the timber industry in the United States. To achieve the principles of sustainability, large private landholders can no longer limit their management focus to areas within ownership boundaries. Instead, in order to effectively manage their natural resource base over the long term, these corporations increasingly must consider the broader ecological system and other stakeholder interests. Collaboration with adjacent landowners and other interested parties is therefore a key component of sustainable forestry practices.

Although ecosystem management has multiple definitions, in this study it refers to the resource management paradigm that incorporates a holistic approach to ecosystem functioning as well as a collaborative decision-making process. Specifically, ecosystem management involves the following three components: (1) adherence to ecological boundaries as opposed to human defined boundaries; (2) a simultaneous focus on the interaction of multiple abiotic and biotic factors and (3) collaboration among multiple landholders, organizations, agencies and other interested parties. Ecosystem management has been a major element of resource policy in the United States since the early 1990s. Eighteen federal agencies have formally subscribed to the principles of ecosystem management, and are exploring ways to incorporate this concept into their current activities (Haeubner, 1998).

Because major portions of critical habitat and areas of high biodiversity lie within the ownership of resource-based industries such as forestry operations, their participation in collaborative ecosystem management initiatives is crucial to effectively manage ecological units at the landscape scale. Approximately one-third of U.S. land is classified as forestland (Holt and Warren, 1998). Sixty-five percent of this land (483 million acres) can be further classified as commercial forestland. Of this commercially viable forestland, approximately 68 million acres are owned and managed by industrial landowners (Holt and Warren, 1998). Hence, the timber industry, along with other natural resource-based industries, controls and impacts a significant amount of critical natural resources that must be incorporated into landscape-level management initiatives.

Numerous benefits from the participation of resource-based industry in the development of ecosystem plans have been identified. These include the contribution of resources, knowledge, and expertise that can augment the development of high quality management plans (Brody, 2003). However, the underlying motivations for resource-based industry to participate in collaborative ecosystem management projects have never been clearly articulated. This study investigates the motivations behind the collaborative ecosystem management practices of the North American timber industry and increases understanding of how and why industry engages in collaborative ecosystem planning efforts. Through a survey of the 38 largest landholding forestry corporations, we identify different collaborative ecosystem management initiatives existing within the timber industry, the role of industry in these projects, motivations behind company participation and industry's willingness to participate in collaborative ecosystem management. Results provide important insights into the conditions and characteristics of companies participating in ecosystem management efforts as well as guidance to improve their ability to sustainably manage natural systems and optimize ecosystem services.

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## Industry's Role in Ecosystem Management

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Resource-based industries can play a key role in ecosystem management due to the amount of land they manage and the important ecological habitats and species located on these properties (Hoffman *et al.*,

1997). The importance of the large landholding industry in ecosystem management is outlined by Machlis (1999), who states that for ecosystem management to be successful key institutions such as resource management agencies, governments and corporations with large land holdings should be included in the planning process. Machlis also notes the timber industry's increasing interest in achieving best management practices for biodiversity while pursuing other management objectives such as timber production.

MacKenzie (1996) further discusses the importance of industry as a stakeholder in her study of ecosystem approaches for restoring the Great Lakes ecosystem. She stresses the significance of industry in the achievement of planning goals and in the remediation process of the lake ecosystem. Stakeholders in several of her studies felt that the inclusion of locally owned industries in the ecosystem planning process might yield positive results by increasing community identification and ownership of the plan. Studies have also shown how the participation of a broad range of stakeholders improves the success rate of all forms of forest management. Richards *et al.* (2003) argues that sustainability of the forest resource is more likely to be achieved if major landowners are involved directly in the planning and management process.

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### Motivations for Industry to Participate in Ecosystem Management Projects

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In the keynote address of a 1997 forestry conference, the following incentives to participate in ecosystem management projects were noted: information, assistance, recognition, relief from regulation, economic benefits and avoidance of penalties (Salwasser *et al.*, 1998). Vogt *et al.* (1997) argue that the timber industry will be motivated to participate in ecosystem management due to the decreasing land base of timber and because of public values and perceptions of how the timber industry is managing their timberlands (Vogt *et al.*, 1997). They state that, due to a smaller land base, timber harvesting must be more wisely managed and that public perceptions will in turn affect management policies and practices. Hoffman *et al.* (1997) contend that the U.S. Endangered Species Act helps motivate the timber industry to practice ecosystem management and that sustainable timber practices can result in newer, more efficient technology, termed as 'leaner operations' within the industry. For this reason, ecosystem management initiated by corporations can enhance economic competitiveness and 'promote efficiency and productivity over the long term'.

Motivations to operate according to sustainable ecosystem practices extend from both within and outside the timber industry. Darnall (2003) identifies both external and internal drivers for participation in voluntary environmental initiatives. Internal voluntary environmental initiative motivation refers to the specific capabilities of an organization (Sharma and Vrendenberg, 1998). Organizational resources include human capital such as managerial attitudes and individual environmental champions (Sharma *et al.*, 1999; Cordano and Frieze, 2000; Anderson and Bateman, 2000) as well as the corporation's basic proficiency in environmental management practices (Hart, 1995; Christmann, 2000).

External pressures comprise all factors outside an organization that influence its routines and competencies, such as regulations (Hart, 1995; Henriques and Sadosky, 1996; Hoffman, 2000), market pressures and customer preferences (Arora and Gangopadhyay, 1995; Hoffman, 2000) and the media (Fineman and Clarke, 1996). The market power of large retail clients of the timber industry can also affect their practices. Many retailers such as Home Depot or Sears boycott specific companies pursuing unsustainable harvesting or management practices (Hoffman, 2000). This is a further reflection of customer preferences; recent surveys have revealed that 69% of consumer respondents stated they had avoided purchasing certain products due to environmental concerns (Mater, 1997).

Voluntary organizations that require members to participate in sustainable forestry practices are also a motivating force for the timber industry. The American Forest and Paper Association now requires

its members to practice responsible forestry to protect important ecological habitats, species and water quality (Hoffman, 2000). With the adoption of the Sustainable Forestry Initiative in 1995, the American Forest and Paper Association confirmed its commitment to sustainable forestry. The Forest Stewardship Council, an important international organization, has also turned to sustainability by declaring its mission 'to support environmentally appropriate, socially beneficial and economically viable management of the world's forests' (Mater, 1997). Often, voluntary participation in these types of program is more attractive to the timber industry than command-and-control regulations by government.

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## Research Methods

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The sampling frame for this study was based on a list of the top 50 landholding timber companies in North America compiled by the Bank of America (Slaybaugh and Gates, 2003). These 50 companies control almost 62 million acres, or approximately 90% of corporate-owned forestland in the United States. This list includes both timber product companies, which hold timberlands to harvest and sell for profit, and timber investment management organizations, which purchase timberlands for investment purposes. From the list of 50 companies, we were able to contact and interview 38 companies, corresponding to a response rate of 76%.

We administered a standardized telephone interview, lasting approximately 30 minutes to one hour, to one representative at each participating company. The survey consisted of four sections to elicit information on company background, whether and how the company had become involved in collaborative ecosystem management initiatives, whether participation entailed collaboration with other landholders and the results of project participation and willingness of companies to participate again. A variety of both open-ended and closed questions were utilized in the survey to collect both quantitative and qualitative data. Open-ended questions were included to obtain in-depth information about each company's specific management practices, motivations and perceived costs and benefits for their company's participation in collaborative ecosystem management initiatives.

Likert scale questions were used to identify and rate motivating factors that influenced each company to participate in collaborative ecosystem projects or initiatives. Participants were asked to respond by ranking their answers on a scale from 1 to 7, where 1 is 'strongly disagree' and 7 is 'strongly agree'. Likert scale questions regarding the following motivating factors were included: resource management, financial gain, public relations, stakeholder partnerships, data and information collection, technical assistance, personal satisfaction, media pressure and participation as an alternative to litigation and command-and-control regulations.

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## Results

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The first section of the telephone survey asked questions concerning company background and resource management activities. Some of the main findings are summarized in Table 1. Based on responses, an average of 250 employees per firm are engaged in resource management activities and 92% of the sample believe their resource management activities play an important role in their ecological region. Seventy-one percent of the companies surveyed discussed the importance of internal initiatives within their company, with membership in the Sustainable Forestry Initiative ranking as the most popular certification system. Internal initiatives consisted of company stewardship programs, sustainable forestry principles and guidelines and overall environmental management systems. In addition to participation in certification systems such as the Sustainable Forestry Initiative, many companies were also involved

Average number of employees engaged in resource management activities	250.97
Company believes landholdings possess characteristics that distinguish it from other firms	34%
Company management plays an important role in the region	92%
There has been publicity regarding the company's role in resource stewardship in the last 5 years	92%
Publicity overwhelmingly positive or negative	8% no publicity 16% about equal positive and negative publicity 58% mainly positive 18% mainly negative
Company involvement in controversial resource management issues	63%
Company participation in an official certification system	87%

**Table 1.** Company background and resource management

in other sustainable forestry certification systems such as the Forest Stewardship Council, International Standards Organization (ISO 14001) and the Canadian Standards Association. In total, 87% of the companies surveyed are participating in some type of forestry certification system and 13 of these companies were certified in more than one certification system due to owning land in multiple locations. Publicity was an important theme throughout the timber industry, with 92% of the surveyed companies experiencing publicity on their resource stewardship role in the last five years. Most of this publicity dealt with corporate forest management in general, but forestry certification, wildlife management and land exchanges also ranked as popular topics. It is important to note that the majority of this publicity was either positive or a mixture of positive and negative.

The second section of the survey focused on company participation in collaborative ecosystem management initiatives. These results are summarized in Table 2. While all of the companies surveyed were familiar with the term collaborative ecosystem management, there was variation in the degree of participation, the role companies played and the motivations for involvement. Approximately three-quarters of the respondents had participated in one or more ecosystem management projects, but more than half of the sample had declined at least one opportunity to participate in a project during the previous ten years. When asked why companies did not or would not participate, respondents listed concerns over the initiator's agenda, unclear goals and objectives of the project, time constraints, anti-trust issues and a general lack of funding (for more information on industry participation, see Brody *et al.*, 2004). When a company did participate in an ecosystem management project, it was usually as an active member or leader of the planning process. Of the 28 companies that participated in ecosystem management projects, 57% considered their role to be project initiators and over 35% assumed the role of collaborator.

Of the ten listed motivating factors to participate in collaborative ecosystem management projects, good public relations and an alternative approach to command-and-control regulations ranked the highest (both averaging 5.97 out of 7). The developments of stakeholder partnerships, collaboration as a more attractive alternative to litigation and obtaining data from other parties were also prominent motivating factors. Participating in collaborative ecosystem management for direct financial gain was the least cited motivation. Finally, when asked whether there were other motivators not listed in the survey, respondents listed, among other factors, market access and ethical obligations.

Respondents' views on the results of their organizations' participation in ecosystem management projects are summarized in Table 3. For the vast majority of the sample, participation in collaborative ecosystem management resulted in important benefits for the company, including such factors as relationship building with other stakeholders, better management practices, regulatory predictability and stability and

Familiarity with collaborative ecosystem management planning	100%
Company involvement in collaborative ecosystem management projects/initiatives in the past 10 years?	71%
Company involvement in collaborative ecosystem management projects/initiatives in the past 5 years?	74%
For companies that listed projects (28 out of 38 surveyed), what was the average number of projects listed?	3.11 (range 1–7)
Number of companies participating in each role	Initiator – 57% Collaborator – 35% Respondent – 3% Observer – 3%
In the past 10 years, has the company decided not to participate in a collaborative ecosystem management program it had the opportunity to participate in?	52%

*Possible motivators for collaborative ecosystem management participation on a scale of 1–7, 1 being strongly disagree, 7 being strongly agree*

Alternative to command-and-control regulations	5.97
Public relations	5.97
Stakeholder partnership	5.61
Alternative to litigation	5.32
Data collection	5.01
Effective resource management	4.92
Personal satisfaction	4.55
Technical assistance	4.53
Decrease media pressure	4.30
Financial gain	3.79

**Table 2.** Participation in ecosystem management and collaborative decision-making

Participants felt the ecosystem management projects their company had participated in were more formal than informal in nature	72%
Participation resulted in an adopted plan, memorandum or some other agreement	78%
The company benefited by participating	87%
The project was successful	87%
The company incurred costs by participating	96%
Company believed costs outweigh the benefits of participating	19%
Company believed other participants benefited by company's participation	95%
Company believed initial goals and objectives were met by collaborating parties	88%
Company believed any agreement reached by collaborating parties has been or will be implemented	98%
Company believed the health of natural resource/ecosystem has improved as a result of the initiative	81%
Company would participate in a collaborative ecosystem management project again or in the future	100%

**Table 3.** Results of ecosystem management participation

economic incentives. Benefits also accrued to other stakeholders and to the health of the natural resource itself. These planning processes were generally more formal than informal and the outcomes were adopted plans, memoranda of understanding or some other forms of agreement. While 96% of participants indicated they incurred costs, only 19% believed these costs outweighed the long-term benefits of involvement in collaborative initiatives. Additionally, all participating companies responded they would participate in another ecosystem management project in the future. Of all the respondents in the sample, whether they participated in ecosystem management or not, 89% believe it is a useful process for industry–government relations because of reciprocal relationships and trust developed through col-

laboration and decreased regulations resulting from stakeholders working together on common resource management problems.

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## Implications for Corporate Environmental Strategy

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The results of this study indicate that collaborative ecosystem management is an integral component of the forest and timber industry in North America. From a corporate perspective, participation in ecosystem management initiatives fosters communication and collaboration among multiple interests, leading to more sustainable management practices, effective business strategies and mutually beneficial relationships with outside stakeholders. Key findings of the survey describing the degree to which companies become involved in ecosystem management efforts and the motivations driving the decision to participate in a planning process can provide guidance for effective corporate environmental strategy associated with resource-based industries.

First, participation in collaborative ecosystem management offers an attractive alternative to command-and-control style government regulation and could reduce the need for strict regulatory controls in the long run. Many companies in the survey expressed their dislike of stringent regulations and lack of control in the regulatory process. The practice of collaborative ecosystem management could help decrease the burden of governmental controls and improve the current regulatory structure by educating regulators about sustainable corporate practices. If the forest and timber industry can demonstrate to regulators that it is working to improve environmental standards, companies can show they are capable of setting and abiding by their own high management standards. A collaborative approach may reduce operational costs and provide the flexibility corporations need to sustainably manage their natural resource base. One company representative told us

The original intent of our regulatory system is laudable, but the resultant system is too heavy on process and paperwork with less and less time for professional decision-making in the forest. We could achieve better results simply by being smart business folks and being aware of our neighbors and communities.

Second, participation in collaborative ecosystem management and other sustainability projects can result in a positive public image and indirect financial gain over the long term. Companies are increasingly more receptive to media coverage and the expectations of their stakeholders. As indicated in the survey, pressure exerted through these outside channels may be a viable policy option for influencing corporate decisions. Engaging in high profile, environmentally sustainable practices often results in favorable media attention and broad public support. Positive press can reduce public opposition to commercial harvesting operations, increase the firm's customer base, and make it easier to conduct core business practices. One timber representative stated that his company participates in collaborative ecosystem management projects 'to understand what people value and find win-win approaches to satisfy those values'.

Third, involvement in collaborative ecosystem management projects may provide a strategic opportunity to develop partnerships with other stakeholders. As mentioned above, firms increasingly recognize that they lie within a broader network of interests and that interaction with these outside interests is essential to effective management (Hoffman, 2000). Developing relationships based on trust and reciprocity with neighboring landholders can help a company attain its resource management and financial goals. By forming relationships with other interests, there is a good chance that those interests will collaborate with each other to reach common goals in the future. Strong partnerships can also reduce

the likelihood that costly and protracted disputes will emerge among multiple interests within the ecological region. Reciprocity is particularly important for corporate landholders whose neighbors are controlling and impacting what can often be considered the same natural system. Beyer *et al.* (1997) describe how reciprocity derived through personal relationships between the forest industry and an environmental non-government organization enhanced the management of forest ecosystems in the Upper Peninsula of Michigan.

Fourth, the formation of partnerships creates the possibility of information sharing, data collection, and technical assistance. Collaborating with outside parties often entails an exchange of information and data relevant to managing natural resources. Corporate entities can gain valuable knowledge regarding habitat locations, species movement, silvaculture techniques, the presence of pollutants etc. Furthermore, non-government organizations and government agencies can provide technical assistance and databases that can be useful to managing timber or other types of renewable resource on industry-owned lands. Survey respondents felt that data and information collected collaboratively would be supported by stakeholders and could increase company awareness, improve current findings and lead to better science and overall management practices.

Finally, there are several planning-oriented conditions that seem most conducive for corporate involvement. Engaging in collaborative ecosystem management may be most viable from a corporate strategic perspective when there is a well structured, formal planning process with established timetables. If the goals of the project are well defined, the stakeholders are easily identified and the role of each participating party is clear, corporate involvement may yield optimal results. Additionally, it appears that forestry corporations benefit most when they take a leadership role in the planning process or are active collaborators in management outcomes. If government organizations provide a formal, structured planning process where industry plays a key decision-making role, then industry participation in ecosystem approaches to management may be more effective.

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## Conclusion

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This study provides insights into the degree to which forestry corporations participate in collaborative ecosystem management initiatives, the primary motivations for becoming involved and the conditions under which collaboration is most viable from a strategic planning perspective. The results offer guidance to resource-based corporations (e.g. forestry, agriculture, mining, marine operations etc.) interested in pursuing ecologically sustainable approaches to management. However, this article should be considered only a first step in examining the topic of industry and ecosystem management. Future research needs to be conducted to better understand the motivations for and benefits of participating in collaborative resource management initiatives.

For example, in-depth analyses of specific ecosystem management projects involving multiple corporate entities and other interests could identify the costs and benefits of collaboration in more detail. Examining different types of resource-based industry would also help to identify corporate environmental strategy. Agriculture, mining, marine and other interests each have individual management objectives and motivations for becoming involved in ecosystem management initiatives. In particular, non-renewable resource industries such as mining may find that they have less to gain directly in terms of improved resource management than the timber companies included in our survey, but would still enjoy some of the other benefits discussed here (e.g. reputational effects, avoiding litigation etc.). Finally, empirical research that seeks to establish a link between participation in ecosystem management efforts and financial performance of firms would further legitimize corporate participation in such projects over the long term.



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