

PERSPECTIVE

Editor's Note: The following is a voluntary paper proposed for the XII World Forestry Congress, Quebec, Canada, September 21–28, 2003. This segment is Part II of a two part series. Part I defined sustainable forestry and discussed sustainable forestry management as a spectrum of management intensities (volume 9, number 1).

Forest Plantations as Components in a Global Biodiversity Conservation Strategy: The Role of Developed, Temperate-Forest Countries (Part II)

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FOREST PLANTATIONS AS INTEGRAL TO BIODIVERSITY CONSERVATION

Leading conservation organizations are beginning to recognize that intensive forest management on portions of the landscape well suited to this use can serve to reduce development pressures on other forest areas, and create new opportunities—both practical and political—to provide greater protection to areas of globally- or regionally-significant biodiversity value (Sedjo and Botkin 1997; Hunter and Seymour 1999). A recent report by the World Wildlife Fund suggests that a significant expansion of the area of intensively-managed forest plantations could allow the world's major forest products companies to meet a substantial share of the global demand for industrial roundwood from a relatively small proportion of the world's forest area, and open up new opportunities to provide outright protection to high conservation value forests, particularly those with globally-significant biodiversity values (Howard and Stead 2001). So convinced is WWF of the value of this approach that they have called upon the world's ten largest forest products companies to collectively increase the area of intensively-managed forest plantations by 5 million hectares per year—for the next 50 years (World

Wildlife Fund 2001). With this level of investment, WWF estimates that as much as 80 percent of the world demand for industrial roundwood in 2050 can be met from less than 20



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percent of the world's forests. Furthermore, WWF asserts this can all be done consistent with the Forest Stewardship Council (FSC) criteria for green certification, meaning that much of that 20 percent will be new planted forests on retired marginal crop and pasture land, rather than plantations created by converting natural forests.

This is appealing at a global theoretical level, but there is a need to demonstrate the efficacy of this approach in practical application in

different regions of the world, representing various biophysical, economic and social contexts (Hunter and Seymour, 2000). It has been argued that, in the United States, this is essentially the pattern of forest land allocation that has already emerged, at least when viewed at the national level. Wood production has shifted largely to industrial timberlands and other private forests on about one-fifth of US forest land; biodiversity conservation is becoming a primary management goal in many public forests and forests managed by conservation NGOs, making up another one-fifth; and multiple-use management is still the *de facto* approach on both public and private forests that constitute the remaining three-fifths. Generally speaking, the most productive forest lands, especially those close to labor and markets, have found their way into ownership by forest industry or other private owners for whom wood production is a leading objective. Large, contiguous and often remote forest areas, comprising a wide variety of landforms and habitat types, are generally in public ownership.

This pattern breaks down, however, when US forest lands are viewed at the regional or local level. West of the Great Plains, less than 40 percent of forest land is privately owned; in the East, private forests constitute nearly 90 percent of the total (Powell et al.

1993). It has been estimated that habitat for nearly three-quarters of the Federally-list threatened and endangered species in the US is found *exclusively* on private lands, much of it in the East (Natural Heritage Data Network 1993). Conversely, some of the most productive forests, characterized by fast-growing commercially desirable native tree species, are found on public lands on the Pacific coast. A large-scale reallocation of public and private forest land aimed at placing important conservation lands in public ownership and highly productive forest lands in private hands would be operationally impractical, and politically infeasible. Some other mechanism is needed for aligning the management of forest lands with the uses to which they are naturally suited.

There have been several intensive efforts to identify forests of high conservation value, rank them in order of importance, and prioritize them in terms of degree of threat and need for immediate action to conserve biodiversity and other environmental values (Ricketts et al., 2000). A parallel process is needed to identify forest areas well-suited to intensive forest management, starting with a consensus approach to specifying a set of criteria and attributes for differentiating lands of relatively high value for sustainable wood production and relatively low value for biodiversity conservation. Preliminary efforts to accomplish this have met with public concerns that identifying and prioritizing such areas would be tantamount to declaring "sacrifice zones" in which there would be no attempt whatsoever to conserve biodiversity or protect other environmental values (Heaton 2003). Existing requirements of federal and state law in the US already generally preclude such an approach. Nevertheless, voluntary efforts such as the recent Forest Stewardship Council certification of a hybrid poplar plantation in Oregon (Forest Stewardship Council 2002) will provide additional public assur-



ance that environmental values, including biodiversity conservation, can be protected in different ways at every point in the spectrum of forest management intensities. Conversely, continued efforts such as this could result in constructive modifications in guidelines for independent certification of forest plantations to comprise a set of "best practices" for intensive forest management.

TOWARD A NEW CONSENSUS ON SUSTAINABLE FORESTRY

We are perhaps within reach of a new political consensus—one in which both the forestry community and the environmental community actively support the idea that intensively-managed forest plantations *and* protected areas in high conservation value forests have an essential place in a comprehensive strategy for sustainable forest management (Sample 2003). It has been suggested (Binkley 2003) that a consensus agreement might include considerations such as:

- ✿ devoting 20-30 percent of the landbase of plantation projects to ecological services

- ✿ strict control of offsite impacts of plantation-based timber production, especially the movement of silt, fertilizer or herbicides into waterways or groundwater

- ✿ agreed upon limits on the use of yield-enhancing chemicals such as fertilizers and herbicides, focused on minimizing use and maximizing impact

- ✿ agreed upon limits on the use of genetically modified organisms (GMOs) to instances in which it can be demonstrated that gene flow out of the plantation is not possible

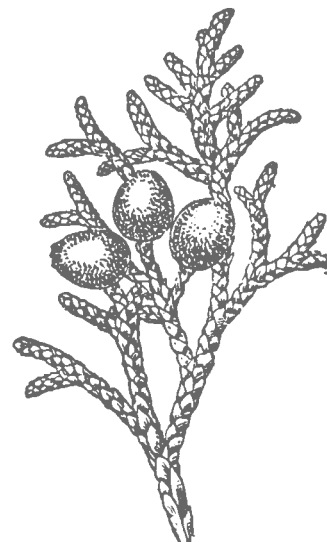
- ✿ a commitment not to log old growth forests

Developed, temperate-forest countries with high per-capita consumption of wood products have a dual conservation responsibility to fulfill. First, there is an obligation to protect their remaining "hot spots" of biological diversity—and bear their share of the local, short-term economic effects of doing so. Second, there is an obligation to meet their

share of the demand for renewable wood and fiber that they themselves generate, without shifting an undue burden onto biologically rich forests in other regions of the world. Taking a more specialized approach to forest management, and further developing the policies and institutional frameworks that make it possible to do so, create significant potential for improving both biodiversity conservation and sustainable wood production.

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