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Is the Bioenergy Industry a Threat to 'Natural' Forests?

by Robert W. Gray | Nov 2011

As the use of forest resources for bioenergy gains popularity in the energy sector, the fear that it will lead to unsustainable harvest levels has become pronounced. The most pervasive fear among ecologically conscious citizens is that harvesting for bioenergy products will be visited on North America's "natural" forests.

As defined by the environmental community, "natural" forests, also referred to as "primeval," "native," or "pristine" forests, are those that have been minimally influenced by humans. This stands in direct contrast to plantation forests, which have been intensively managed for one or more rotations. At issue is the definition of "natural" forests, and whether or not the bioenergy sector can aid in the restoration of degraded natural forests.

Most, if not all, of our North American forested ecosystems have evolved under the influence of humans. Over the last almost 20,000 years, indigenous peoples exerted tremendous evolutionary pressure on forest plants and other organisms through their use of fire. We have now come to realize, contrary to earlier opinion, that indigenous peoples had a highly sophisticated understanding of how fire affects ecosystems. Fire use by indigenous peoples was instrumental to their very survival as was fire to the diversity and resilience of the forests they inhabited.

The written accounts of newly arrived European settlers in western North America often describe open forests of tall, large-diameter trees. From fire history research and ethnoecological studies we have determined that these conditions were attributed to a wide range of burning patterns resulting from a combination of lightning and human ignitions. In the United States, lightning and indigenous ignitions are both considered a "natural" disturbance process. The forests that were first encountered upon their arrival in North America were therefore "natural" despite their long-term fire management by humans.

Beginning in the 18th century on the east coast and in the mid-19th century in the west, an organized attempt was made to stamp out all fires, which began a protracted and unfortunate process of converting what was truly "natural" into something that is not. Initially this focused on preventing indigenous peoples from using fire as they had for thousands of years. With industrialization and technological advancement, our focus turned from excluding fire to the aggressive suppression of fire.

Our current fire-industrial complex of air tankers, heavy equipment, water tenders and highly trained crews has been very successful in suppressing most fires. The result, paradoxically, is that with this success has come the threat of even greater fire severity, intensity and extent as fuels continue to accumulate unabated in our forests.

In the last two decades we have witnessed the birth of the aptly named "megafire" phenomena. These are wildfires that exhibit behaviour – spread rate, flame length, intensity, spotting distance and severity – well outside what we have come to accept as extreme. The result, ecologically, can be a wholesale shift in ecosystem composition and structure. An unfortunate example played out this spring in northern New Mexico where the 60,000-hectare Las Conchas Fire reburned an area of the Jemez Mountains that had burned under high-severity conditions in the 1996 Dome Fire. According to government researchers this area of the Jemez Mountains will not support a forest for several centuries.

What is needed throughout North America is large-scale forest ecosystem intervention that focuses on restoring resilience and adaptability to these systems before it is too late. The forest ecosystem component that is most responsible for the degraded condition is density, especially an excessive density of small-diameter and dead trees.

The emerging bioenergy field has brought a much-needed economical solution to the problem of how to pay for the removal of these low-value trees. With markets developing in the fields of energy, cosmetics, lubricants and textiles, we now have an opportunity to fund large-scale forest ecosystem restoration where in the past we have had to rely on inconsistent and inadequate government subsidies.

The intent of the environmental community is noble; for the sake of future generations and diversity, we should not exploit every forest we can for immediate monetary gratification. Unfortunately we are responsible for the conditions and options we pass on to those future generations. If we fail to act on the degraded state of many of our forested ecosystems we will deliver a much-impooverished condition as well as fewer options for management. The more responsible approach would be to aggressively treat these forests so that they become more resilient to future disturbances.

Robert W. Gray is a fire ecologist and principal of R.W. Gray Consulting Ltd., based in Chilliwack, B.C.



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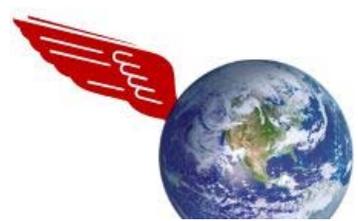
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Small Log Conference 2011 Sawmillers, loggers and biomass producers with an interest in small log processing converged on the lakeside city of Coeur D'Alene, Idaho, in late March for the Fifth Small Log Conference. Produced by the Montana Community Development Corporation, the event attracted approximately 175 attendees who heard presenters speak about a number of issues and topics, including forest health, the Mountain Pine Beetle epidemic, the challenges of harvesting and transporting biomass, and of course, small log processing.

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Eastern Canada's forest industry came together in Moncton, N.B., in early April for the 2011 Canadian Woodlands Forum Spring Meeting and the organization's 92nd Annual General Meeting.

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