The Forestry Source

Published monthly by the Society of American Foresters (SAF), *The Forestry Source* (ISSN 1084-5496) provides SAF members and other natural resource professionals with news regarding developments within the forestry profession as well as the activities and policies of SAF.

The opinions expressed in articles, commentaries, and letters do not necessarily reflect the policies or views of SAF.

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Subscription rates: $35 for individuals in the US and Canada ($65 in foreign countries); $65 for institutions in the US ($95 in foreign countries). Subscription price to members is included in annual dues. Contact Corey Hughley at the above phone number regarding subscriptions and address changes. Single issues may be purchased for $2.50 from the SAF sales office.

Postmaster: Send address changes to *The Forestry Source*, 5400 Grosvenor Lane, Bethesda, MD 20814-2198, Attn.: C. Hughley

Periodicals postage paid at Bethesda, Maryland, and at additional mailing offices. Printed in the USA.

ISSN 1084-5496.

From the Leadership **Gregory R. Russell, CF**

Foresters Need to Take the Lead on Forest Management Issues

Recent events across North America have caused me to seriously consider where the practice and profession of forestry are headed. In May, Canada announced that nearly 72 million acres of boreal forest would be off-limits to timber harvesting. The state of Massachusetts recently removed 34 percent of its state forestland from harvest. Michigan is contemplating setting aside vast acreages of state forest from harvest. Tennessee is struggling with a proposal to reduce the state's forestry division to a strictly fire suppression force. Leadership in Energy & Environmental Design (or LEED) still is reluctant to recognize wood, except from Forest Stewardship Council–certified sources, in its standards. Third-party certification systems change standards on a regular basis, thus making it very difficult for certificate holders to meet the standards. The examples go on and on.

Forestry professionals need to take the lead in steering these types of issues to sound conclusions. Too often these matters are decided on emotion and science is ignored. The Society of American Foresters is the leading voice in science-based forest management. The SAF staff has been tirelessly working to keep itself at the forefront of these issues. However, SAF does not have the staffing level it had just a decade ago, and things get missed or attention gets diverted to higher-level priorities.

So, what do we do as a professional society to keep forestry and foresters relevant in today's society? Aside from just supporting SAF at the local or national levels, we need to be engaged in forestry issues at both these levels. We, as professional foresters, have the expertise and knowledge to steer the debate toward sound scientific conclusions. All too often we sit back and complain about the outcome while never participating in the debate. Often the issues are not truly what we perceive as "us against them"; rather, they are issues that can and should be win-win issues for all sides involved. If foresters are not at the table, then we will certainly come out on the short end of the stick.

In issues I have participated in recently, a successful tactic has been to ask questions of those who appear to want to diminish our ability to practice forestry. The trick is to get to the core issue in their opposition and use our knowledge as the basis for a solution to the perceived problem. The head of the agency that I work for recently suggested that I ask questions to which I already know the answer. In this way we gain the advantage of bringing our expertise and knowledge to the forefront, rather than trying to defend ourselves. It is amazing how little our fellow natural resources managers know about what we foresters do. If we cannot get them to understand, trust, and respect our expertise in resource management, we have little hope in expecting the public to recognize our expertise. When you talk to your fellow resource managers, inform them of the complexity of your job, and emphasize your training and the scientific basis you use for the management decisions you make. If you don't make these basic efforts, we as professionals, and our profession, will continue to be diminished and ultimately ignored.

Forestry is my chosen profession. If we do not engage in the debates on the issues of the day, we will be relegated to insignificance. I refuse to be labeled insignificant! I urge you to talk to your colleagues, both SAF members and nonmembers, to get them to support SAF and our profession in "Taking the Lead in Forestry." One way to do this is to become an SAF leader at the level in which you are most comfortable, be it the chapter, state, division, or national level. SAF needs you, as does your profession.

Russell is SAF Council representative for District 5 and the assistant central regional manager for the Minnesota Department of Natural Reources. He is a 30-year member of SAF and earned his forestry degree at Michigan Technological University in 1980.

Editor's Notebook **By Steve Wilent**

Carbon vs. Carbon: Does the Source Matter?

By Steve Wilent

If you think "sustainable," current king of forestry buzzwords, is over used and difficult to define, its successor—"carbon neutral"—is even more problematic. Energy produced from forest biomass is said to be carbon neutral, because any carbon dioxide (CO_2) released is later sequestered as new biomass grows. This is true. You might also argue that the combustion of woody biomass releases carbon that the trees already had sequestered, thus paying off any CO_2 debt by withdrawing on a CO_2 deposit account.

Some states, environmental groups, and the US Environmental Protection Agency, assume that all carbon dioxide is equal, that CO_2 from the combustion of forest biomass is the same as CO_2 from the combustion of fossil fuels. That's true, too. CO_2, regardless of its heritage, affects the Earth's climate in the same way. So, there are valid arguments on both sides of the carbon neutral issue.

However, the argument is, for the time being, irrelevant. Although the ultimate goal is to reduce the amount of CO_2 in the biosphere, there is little chance of a meaningful reduction in the short term. There are as yet no non-carbon–emitting alternatives to fossil fuels that are both less expensive and as widely available. Until the development of such alternatives—solar power being the ideal, since an unlimited supply is available—it is better to use non-fossil fuels such as biomass.

Look at it this way: CO_2 exists both in the biosphere (air, water, soil, plants, animals, and so on) and below the biosphere (fossil fuels such as coal, oil, and natural gas). The concentration of CO_2 in the biosphere—in particular, in the atmosphere and oceans—has increased because we humans have transferred large amounts of fossil carbon to the biosphere, largely through the combustion of fossil fuels.

As we work toward greater energy efficiency and develop new carbon capture and storage technologies, one of our primary goals ought to be to slow that transfer of CO_2.

Imagine that we could do so, that we could instantly replace all fossil fuels with biomass. The amount of CO_2 emitted might remain about the same, but the transfer of fossil CO_2 would end and, in terms of the biosphere, we could claim to be somewhere in the neighborhood of being carbon neutral.

Of course, that scenario is pure fantasy. According to the Global Carbon Project's "Carbon Budget 2008" report, the use of fossil fuels, along with other industrial process such as cement production, accounted for 88 percent of total anthropogenic CO_2 emissions in 2008. The remaining 12 percent of emissions resulted from land-use change. While annual emissions from land-use change have remained flat since 1960 and are declining as a share of total anthropogenic CO_2 emissions, the annual emissions from fossil fuels has roughly quadrupled in those 50 years, and there is no end to the increase in the CO_2 emission rate in the foreseeable future.

Although the recent global recession resulted in reductions in emissions in the United States and other industrialized nations in 2009, the Netherlands Environmental Assessment Agency has reported that "emissions from fast-growing developing countries, such as China and India, have completely nullified CO_2 emission reductions in the industrialized world." As the global economy improves, emissions in both developed and developing nations will undoubtedly increase.

At best, biomass-derived energy can replace only a fraction of the fossil fuels we currently use. According to the US Department of Energy's (DOE) Annual Energy Outlook 2010 report, 84 percent of total energy used in the United States in 2008 was derived from fossil fuels—coal, oil, and natural gas. Under present laws and policies, that share will drop only to 78 percent by 2035. New laws and policies, not to mention interruptions in fossil fuel supplies, may further reduce our dependence on fossil fuels to some degree and could increase the use of biomass energy, but fossil fuels will be part of our energy portfolio for decades to come.

The DOE calculates that 7 percent of

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Commentary

By Michael Leonard

Mixed Messages on Biomass and Carbon Dioxide Jeopardize Restoration Efforts

I've been a practicing forester in Massachusetts for about 25 years, and for almost five years now I've been employing mechanized timber harvesting operators that use whole-tree harvesting for the improvement cuttings I mark on private woodlots. With the great downturn in the housing market, these timber harvesting companies that were keeping busy doing mostly land clearing for developments began to look for logging jobs so they could keep their businesses going and continue to sell chipwood, mostly to Pinetree Power's 17-megawatt biomass plant in Fitchburg. It's been fantastic, as I am now able to mark anything from the crummy two-inch red maple to the big bully 30-inch white pine—trees that are unmerchantable without a viable biomass market. It's like a dream come true for the silviculturalist to be able to mark all the junk wood for an improvement cutting.

With the proposed construction of more biomass plants, most foresters had high hopes for more markets for low-grade timber so we can continue the massive job of forest restoration on two million acres of private forestland. However, these hopes appear to have been dashed by the mixed messages we've been receiving from the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), the Manomet Center for Conservation Sciences, and the US Environmental Protection Agency (EPA).

First, after spending millions of dollars to promote biomass, EOEEA suspends tax incentives for biomass generation plants, "In recognition of scientific questions about the sustainability of biomass energy, both from a forest management and greenhouse gas perspectives"—questions to be answered by a study by the Manomet Center.

After the Manomet study came out in June, the EOEEA's Department of Energy Resources (DOER) concluded from the report that burning wood to generate electricity is more harmful to the climate and environment than burning coal and other fossil fuels. DOER also said that that the emergence of a vibrant biomass energy market might result in the state's forests being harvested at accelerated rates. As a result, the agency is suggesting that additional regulations may be needed to protect public values. In my view, DOER should not be making public policy decisions regarding forest biomass harvesting based on its narrow interpretation of the Manomet study, which has many errors as well as some erroneous assumptions.

The Massachusetts Department of Conservation and Recreation has facilitated widespread forest destruction over the past half century by issuing permits for liquidation cuttings. Now the state wants to take away the best tool we have to help restore these degraded woodlots! Without a viable and growing biomass market, we can't sell improvement cuttings.

In a June 11 *Boston Globe* article, Manomet president John Hagan is quoted as saying, "Do you want to wait 10, 20, 30 years just to get to the point [at which wood] is as good as coal? That is a real social question: Do we as a society want to make the climate worse before it gets better?"

Then, in a June 22 interview in the *New York Times,* Hagan responded to a question about whether news articles with headlines such as "Mass. Study: Wood Power Worse Polluter Than Coal," "Manomet: Biomass Isn't Green," and "Biomass Benefits Refuted" had mischaracterized the report. The articles, he said, "fail to recognize that, over time, using wood for energy can lead to lower atmospheric greenhouse gas levels. While emissions from burning wood are initially higher than from fossil fuels, regrowing forests sequesters carbon, a process that eventually can yield greenhouse gas levels lower than would have resulted from continued burning of fossil fuels."

Consulting forester Mike Leonard in a mostly white pine stand after a biomass improvement cutting in Petersham, Mass.

At the very least, Manomet is guilty of sending mixed messages.

At the federal level, while the US Department of Agriculture is supporting more biomass production via the Biomass Crop Assistance Program (BCAP), the EPA issued its final "tailoring rule," under which CO_2 emitters will be required to account for their greenhouse gas emissions in Clean Air Act permits when the agency begins to formally regulate the "heat-trapping gases" next January. Under the EPA's new rule, emissions from biomass are treated the same as other sources of greenhouse gases, even though private-forest groups urged the EPA to exclude biomass combustion from the requirements, arguing that the process is carbon neutral. Without an exemption from the tailoring rule, biomass producers will have an incentive to turn back to fossil fuels, because they offer a more concentrated energy source.

This doesn't make sense, because many studies have shown that biomass is carbon neutral. When wood or other biomass is combusted for energy, it releases back into the atmosphere carbon dioxide that the trees had absorbed from the atmosphere during their growth. That is why CO_2 emissions from biomass combustion are assigned an emissions factor of zero.

Does the federal left hand know what the federal right hand is doing?

In terms of CO_2 and biomass, this is the bottom line: managed forests can sequester more carbon annually than unmanaged forests. This is accomplished by utilizing materials from thinnings for energy to offset fossil fuel consumption, calculating the long-term storage of carbon in durable wood products from harvested wood, and successfully regenerating the harvested forest to meet or exceed previous sequestration rates. Therefore, increasing the acreage under forest management will enhance the terrestrial carbon storage potential for existing forests. This is true not only in Massachusetts, but elsewhere in the United States. In the West, there are more than 50 million acres of overstocked forests due to ill-advised fire suppression that eventually will go up in flames, releasing tremendous amounts of carbon. Biomass improvement cuttings will reduce this risk.

Managed forests are also less apt to be developed rather than unmanaged forests, so carbon continues to be sequestered in these managed forests rather than being lost to development.

It is very disappointing that people who are making policy decisions in regards to biomass production have made so many errors, sent out mixed messages, and have little or no experience with forestry. Have any of them actually walked through a biomass improvement cutting? I sponsored a field trip last year for some of my own acquaintances, but not one Department of Conservation and Recreation or EOEEA official attended.

Landowners want to sell biomass. They love the way their woodlots look after a biomass improvement cutting, and it provides the best market for low-grade timber we have ever had. Biomass markets are the best thing to ever happen in the forestry sector. We can restore degraded woodlots, reduce rates of deforestation, create more jobs, and provide a clean renewable source of energy. It's a win-win-win for everybody. So let's end the mixed messages and support the building of more biomass plants!

Mike Leonard is a consulting forester based in Petersham, Massachusetts. Contact him at www.northquabbinforestry.com.

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dards Association, Forest Stewardship Council, and Program for the Endorsement of Forest Certification schemes."

FSC Releases Revised Standard

On July 8, the Forest Stewardship Council (FSC-US) released a revised version of its forest management standard for the contiguous United States. The revised standard includes 10 principles and 56 criteria. "The revised standard harmonizes nine regional standards into one national standard to reduce complexity and improve efficiencies in the management and auditing process," said FSC-US. Regional variation is allowed where local conditions, including forest types and ecological processes, warrant different management techniques.

"It would be an understatement to say that FSC's standards development process, which brings together diverse perspectives and oftentimes conflicting interests, is challenging," said Mike Jani, FSC-US board member and chief forester of the Humboldt Redwood Company and Mendocino Redwood Company, in an FSC-US press release. "However, it's a necessary undertaking to capture a true balance of values. The result is a standard that is challenging yet functional for forest managers and a marketplace label that consumers can trust to represent outstanding forest management."

The new standard was issued after a three-year review and revision process and approval by FSC International. See www.fscus.org.

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all energy used in the United States in 2008 came from renewable sources, and of that, 53 percent was from biomass—more than hydro, wind, solar, and geothermal combined. For biomass, that comes to about 3.7 percent of total energy consumption. The Oak Ridge National Laboratory suggests that biomass could supply as much as 15 percent of the nation's energy by 2030.

By using more energy from biomass, we will not only slow the rate of increase in fossil CO_2 emissions but also stem the transfer of petrodollars to other nations and increase investment and employment in the United States. Even if you believe that CO_2 is not affecting our climate or that the Earth isn't warming, this is reason enough to promote the use of biomass. And, as Mike Leonard points out in his Commentary (see above), larger markets for biomass can make previously unmerchantable material worth harvesting, thus helping to make forest-health treatments profitable. That, in turn, may help decrease the danger of catastrophic wildfire in the West and encourage private landowners to hold on to their working forests.

The EPA and states such as Massachusetts, with their "carbon is carbon" mindsets, are erecting barriers to biomass energy production without offering other viable alternatives to fossil fuel CO_2 emissions. They would do well to adopt a "biomass carbon is better than fossil carbon" mindset.

Wilent is editor of The Forestry Source.

Commentary

It's Time for a Long-Term Energy Plan

By Suz-Anne Kinney

By Suz-Anne Kinney

Controversy erupted in June with the publication of a report prepared for the Commonwealth of Massachusetts by the Manomet Center for Conservation Sciences. The report, some say, leaves the impression that the carbon footprint of biomass electricity is worse than that of energy produced by oil and coal. As biomass has almost universally been considered carbon neutral to this point, this statement has raised more than a few eyebrows—and voices. The Biomass Power Association (BPA), for instance, has requested a correction of misinformation contained in the report. Environmental groups will no doubt pick up some of the conclusions reached in the report and use them to oppose biomass power plants going forward.

As the BPA points out, 110 pages into the report, the Manomet Center finally confirms what we all knew: "All bio-energy technologies—even biomass electric power compared to natural gas electric—look favorable when biomass 'waste-wood' is compared to fossil fuel alternatives."

Perhaps if the study had clarified its definition of biomass upfront, the reaction might have been less antagonistic. The definition of biomass used in the study is Massachusetts-specific. Because there are minimal logging residues available for energy production in Massachusetts, the study concludes whole trees will need to be used to supply biomass power facilities. Since there is a minimal pulpwood market in Massachusetts, the study classifies as biomass anything that is more than five inches in diameter on a tract already being harvested for sawtimber.

Oil, coal, and natural gas will never undo any of the negative impacts on the environment for which they are responsible.

Using this expanded definition of biomass, the Manomet Center concluded that it takes 21 years to recapture the carbon emitted when biomass replaces coal in an electricity plant. In isolation, this statistic seems alarming. In context, though, when you compare these numbers to the length of time it takes coal to recapture the carbon that is emitted into the atmosphere when it is burned, the numbers look pretty good. Infinity is alarming. Oil, coal, and natural gas will never undo any of the negative impacts on the environment for which they are responsible. Compared to "until the end of time," 21 years seems a relatively short time for erasing a carbon debt.

If Massachusetts, or any other state, turns its back on biomass power because it takes 21 years to recover additional carbon emissions, they would be shortsighted in doing so. I know some people believe that all forests should be left in place to sequester the emissions produced when burning oil and coal. This logic, however, fails to account for the fact that most forests are owned by private individuals who depend on timber production for income. These forest owners benefit from new markets for forest products, as do the communities in which they live. And new markets generally act as incentives for landowners to plant more trees. Cleaning up greenhouse gasses (GHGs) emitted by oil and coal should not be the sole responsibility of forest landowners.

And let us not forget that oil, coal, and natural gas are not renewable, environmentally friendly sources of energy. All of these sources are being depleted rapidly and will, in the not too distant future, be scarce. In the last few months, we've seen the trifecta of deadly disasters caused by fossil fuels: the Gulf oil spill, the West Virginia coal mine collapse, and the natural gas line explosion in Texas. The fact is that the removal and transport of these energy sources often have negative repercussions. While the negative impacts of harvesting biomass are weighted heavily in the Manomet study, the negative impacts associated with oil and coal are beyond its scope.

But they shouldn't be beyond the scope of the public discourse on the subject. Reducing carbon in the atmosphere may be one of our most important goals in the long term, but values such as safety, renewability, and sustainability should also be essential ingredients of our long-term energy plans.

And long-term strategy is what we need to be thinking about. In the next to last paragraph of the study, the Manomet Center writes:

"Concerns about the relative importance of short- versus long-term consequences of higher carbon emissions may also play a role in how one interprets the results of this study. Those who believe that short-run increases in GHG levels need to be avoided at all costs will be less likely to favor biomass development than those focused on the potentially quite significant, but longer-term benefits of reduced GHG levels that could ultimately result from biomass development."

I say we've been thinking about the short-term for far too long. We fixate on this quarter's results or this November's election. Our obsession with the short term has crowded out our ability think strategically about the long term. It's time to act, to develop and implement an energy plan that is both economically and environmentally sustainable, a plan that will carry us securely into the next century.

Suz-Anne Kinney is editor of Forest 2Market's Forest2Fuel *newsletter (www.forest2market.com). This essay, which first appeared in the May/June 2010 edition of the newsletter, is used here with her permission.*