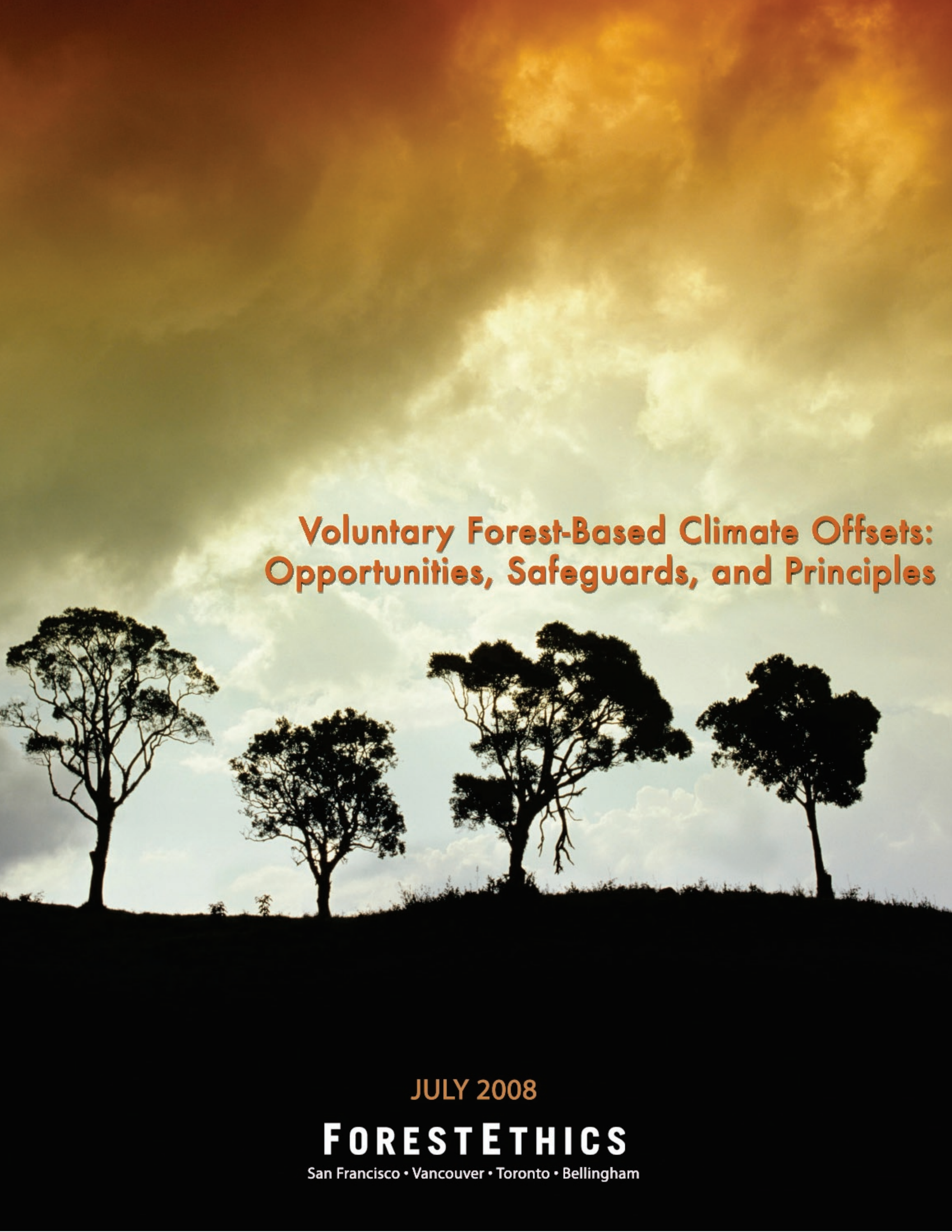

Voluntary Forest-Based Climate Offsets: Opportunities, Safeguards, and Principles

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Introduction: Putting Forest Offsets into Context

Human-induced climate change represents one of the most serious crises know to modern humanity, which has existed in a period of relative climatic stability. While the climate disruptions now underway will necessitate some adaptation, priority must still be given to dramatically reducing aggregate greenhouse gas emissions and atmospheric greenhouse gas levels, to prevent even more environmentally, socially, and economically catastrophic disruptions.[1]

Thus we encourage companies to focus first and foremost on both reducing their emissions and encouraging governments to adopt more effective international and national emissions reductions policies.[2] Such policies should include measures to reduce deforestation and forest degradation, which contribute 17% to 25% of greenhouse gas emissions globally and threaten wildlife, water supplies, and traditional communities.[3] Forest degradation and loss also reduce the planet's capacity to sequester the excess carbon dioxide now in the atmosphere.[4]

When addressing your corporate carbon footprint, the primary objective should be to directly reduce your greenhouse gas emissions, e.g., by developing and adopting new technologies and business practices. After exhausting such emissions reductions opportunities, you may be able to "offset" your remaining emissions by financing projects that reduce emissions or sequester carbon elsewhere. Voluntary forest-based offset projects can play a positive supporting role in thwarting climate change.[5] Projects that reduce the logging of primary forests can prevent the significant emissions associated with forest degradation and outright forest loss. Restoring degraded forests or using certain forestry practices can also increase carbon sequestration and/or reduce emissions.[6] Some projects can also have valuable environmental and social co-benefits, including for imperiled wildlife and indigenous peoples, while helping to maintain forest ecosystems' resilience.

However, forest projects can also have serious ecological or social impacts, overstate their greenhouse gas benefits, or simply miss opportunities for crucial environmental and social co-benefits. Replacing intact wild forests with fast-growing tree plantations or other "managed" forests might look beneficial—if one ignores the emissions, habitat destruction, and dislocation of traditional communities that often results. Business-as-usual logging in established industrial forests is neither ecologically beneficial nor the type of additional action needed to slow climate change.

To be credible, effective, and appropriate, forest-based offsets need to meet basic principles and more detailed standards for greenhouse gas accounting and for environmental and social protection and co-benefits. The principles described below can be used to evaluate the various offsets standards now in the marketplace, and could also help in developing more definitive standards.

We urge offsets proponents and participants to support more effective international and national emissions reduction policies, and to encourage other businesses to adopt effective and achievable greenhouse gas reduction goals. Otherwise, the gains from voluntary offsets may be outweighed by unregulated emissions elsewhere. And for forests to help mitigate climate change, emissions must be reduced enough to ensure that climate shifts do not jeopardize the forests' own survival.[7]

Most existing climate policies also do not adequately address the opportunities (e.g., forest conservation) and risks with forest offsets. If offsets are to play a role in regulatory policy, then the policies must: address the basic offsets principles discussed below; place offsets in "closed-loop" accounting systems that ensure national and global emissions are sufficiently reduced; and limit the role played by offsets to ensure direct emissions reductions remain a top priority.

Basic Principles for Voluntary Forest Offsets

Offsets' Role in Comprehensive Climate Strategies:

- Companies and other parties should place the greatest emphasis on directly reducing their greenhouse gas emissions (e.g., by reducing their use of paper and fossil fuels) and on encouraging other businesses and governments to adopt more effective climate strategies and policies. As a general rule, no more than 20% of an entity's carbon footprint reductions should come from forest offsets.[8]

- Energy companies should not be eligible to use forest projects to offset emissions from fossil fuel production, but should instead focus on developing cleaner alternative technologies and capacity, and reducing their reliance on fossil fuels.[9]

Environmental and Social Priorities:

Top priority should be given to offsets projects that:

- Protect forests from deforestation. Avoided deforestation is a top priority and opportunity from the perspectives of both slowing climate change and conserving imperiled ecosystems.[10]
- Protect climatic refugia and other intact forests, habitats for imperiled wildlife, rare ecological communities, and connectivity across forest landscapes, particularly in locations that will enable species and ecosystems to adjust to and survive a changing climate.[11]
- Protect forest areas and support sustainable livelihoods important to indigenous peoples, and provide equitable remuneration to indigenous peoples with traditional or legal rights to the site.

Secondary priority should be given to projects that:

- Restore forests to provide habitats for imperiled wildlife, support rare ecological communities, and provide connectivity across forest landscapes, particularly in locations that will enable species and ecosystems to adjust to climate change.
- Leverage longer timber rotations in forests already under commercial management, to increase tree size and age, and cumulative soil carbon gains, while reducing frequency of nitrogen fertilizer applications.

Environmental and Social Protections:

Offsets projects should be prohibited or not given credit where they:

- Would harm old growth forests, imperiled species and their habitats (including species not yet officially recognized by governments), wilderness and heretofore unlogged forests, and other Endangered Forests.[12]

- Involve the conversion of natural forests, grasslands, and other natural ecosystems to tree plantations or other intensively managed forests.[13]
- Use non-native or genetically modified plants or other species.
- Result in other significant harmful environmental impacts, e.g., water resource impacts, or impacts to peatlands and other carbon rich soils.
- Result in significant offsite environmental impacts.
- Harm forest areas important to indigenous peoples and local communities.
- Have not documented their acceptance via "free prior and informed consent" by all entities with tenure rights to the site, including indigenous peoples.
- Have not conducted independently verified environmental and social assessments that consider both short- and long-term effects.

Certification by the Forest Stewardship Council (FSC) is recommended as an additional mechanism for providing social and environmental safeguards for projects involving active forest management.

Comprehensiveness and Full Life-Cycle Accounting:
The project's greenhouse gas accounting must address the full life cycle of the project, including:
- The effects on all elements of the forest ecosystem, including soils, understory vegetation, and other above and below ground biomass.
- The biological and nonbiological greenhouse gas effects of all aspects of forest management used over time, including the use of fossil fuels, construction of roads and other infrastructure, the use (and oxidization) of nitrogen-based fertilizers, logging, soil disturbance, etc.
- All greenhouse gases, e.g., carbon dioxide, nitrous oxide, methane.
- Any substantial changes to the project baseline in the years immediately preceding the project's inception, to avoid creating an unintended incentive for prior deforestation.

Additionality, Baselines, and "Leakage:"
- Credit should only be given for avoided emissions and/or sequestration that is above baseline levels, i.e., for benefits additional to what would occur in lieu of the project.
- Additionality tests should consider existing regulatory requirements, typical forestry practices for the locale, and whether the project would be financially viable without the support of the offsets sponsors. As with other aspects of the project, documentation and verification is needed.
- The identification of baseline emissions and sequestration levels must be time sensitive, and account for changes that would have likely occurred over time in lieu of the project. For example, in regions where deforestation is typically followed by cycles of tree planting and logging, the baseline should account for those cycles.
- Control sites should be used to measure baseline carbon budgets over time. Sites can be located either adjacent to or within the project area.
- Projects that reduce emissions must either account for emissions "leakage" or demonstrate that leakage will not be significant.[14] While "market leakage" is not a given, project sponsors can minimize its likelihood by reducing overall demand for the curtailed activity, e.g., by reducing demand for wood and paper products, or for other activities associated with deforestation and forest degradation.[15] The entities that own the project sites should also be required to report on their entity-wide greenhouse gas baselines and emissions, to support leakage-related claims, and to ensure that projects do not "cherry-pick" sequestration opportunities while ignoring emissions.

Permanence, Reliability, and Credits Timing:
- The project managers must establish the institutions, financing, and staffing necessary to implement the project.
- Implementation measures must include a comprehensive, site-specific, long-term forest management/conservation plan, as well as monitoring and adaptive management protocol.
- The project's greenhouse gas forecast must account for the life-span and reliability of sequestered carbon and avoided emissions. Natural disturbances, changes in forest growth likely to occur as a result of climate disruptions, and other remaining risks to project permanence must be factored-in.
- Offset credits for avoided emissions or sequestration should only be taken in the year or accounting period in which those gains occur.[16]
- The carbon in any forest products and other biomass removed from the forest should be counted as an emission at the time of removal.[17]
- Project managers are encouraged to use other mechanisms to reduce the risk of project benefits

not being maintained over time, e.g., conservation easements and other legal mechanisms, trusts to fund ongoing project management, and an offsets "reserve," i.e., extra offsets for which credit is not being taken, as a hedge against project benefits not being fully realized.

Best Available Science:

- The assumptions underlying the project's greenhouse gas accounting and forest management plans should be consistent with the best available science, including the findings of the IPCC.

- The project and forest management plan must describe the greenhouse gas monitoring and verification protocol to be used, include data on the project site and its ecology and baseline carbon budgets, and detailed plans for conserving any sensitive environmental resources.
- The project's greenhouse gas accounting must be based on data suitable to the project site and specific forest type. Direct field tests using scientifically robust sampling must be used to measure more significant elements of the project and forest's carbon and greenhouse gas budget, both to establish baselines and for monitoring of changes over time.
- Field surveys by qualified experts and other suitable methods must be used to evaluate the project's potential impact on wildlife and other sensitive environmental resources.
- All methods should be standardized, repeatable, and documented.

Monitoring, Verification, and Disclosure:

- Both initial project accounting and monitoring of project implementation and results over time must be independently verified by accredited certifiers using the best available science. Verification should confirm not only the validity of the project's methods, but also the accuracy of its reported results.
- Verification should include consultation with local communities and local, regional, and national experts.
- The offsets credits should be logged in a recognized, publicly-accessible offsets registry, to avoid potential double-counting of credits, i.e., sale to multiple investors.
- Any discontinuation in the project's implementation and/or carbon benefits must be reported by the verifiers to the applicable offsets registry.
- A publicly-available report should summarize the project's: location, basic ecology, forest management plan, greenhouse gas projections and assumptions, carbon credit owners, and monitoring and verification plan. The project sponsors' business sector and overall carbon footprint should also be briefly described. Verification report summaries should also be made available.

Endnotes:

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[1] The latest reports by the Intergovernmental Panel on Climate Change suggest that 50% to 85% reductions in greenhouse gases are needed by 2050 to avert dangerous climate change, i.e., global warming of more than 1 to 2 degrees Celsius over recent or even pre-industrial levels. (IPCC. 2007. *Climate Change 2007: Mitigation—Summary for Policy Makers*. Cambridge University Press; IPCC. 2007. *Climate Change 2007: Mitigation—Introduction*. Cambridge University Press.) Other scientists indicate that faster reductions may be needed to avoid calamity; see, for example, "The Earth today stands in imminent peril," Steve Connor, The Independent, June 19, 2007, http://environment.independent.co.uk/climate_change/article2675747.ece. For examples of ongoing and projected impacts from climate change, see: IPCC. 2007. *Climate Change 2007: Climate Change Impacts, Adaptation, and Vulnerability*. Cambridge University Press.

[2] See for example, *Getting Carbon Offsets Right: A Business Brief on Engaging Offset Providers*, Business for Social Responsibility, 2007, www.bsr.org, which encourages companies to "strive for high emissions reductions with a low percentage of those reductions coming from offsets."

[3] According to one IPCC report, global deforestation accounts for roughly 17% of annual carbon dioxide emissions alone, not including emissions from associated fossil fuel use (and not including other greenhouse gas emissions). (IPCC. 2007. *Climate Change 2007: Mitigation—Summary for Policy Makers.* Cambridge University Press.) Other sources place the figure as high as 25%. (Miles et al. 2008. **Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation: Global Land-Use Implications**. *Science;* IPCC. 2000. *Land Use, Land Use Change and Forestry*.) According to the Stern Report, deforestation accounts for more global emissions annually than the transportation sector. (Stern, N. 2006. *Stern Review: the Economics of Climate Change*. HM Treasury, London.) In North America *per se*, deforestation accounts for a lower percentage of annual emissions.

[4] Sequestration refers to the removal and storage of carbon dioxide from the atmosphere by plants or other mechanisms.

[5] According to the Union of Concerned Scientists, "forest and land-use measures have the potential to reduce net carbon emissions by the equivalent of 10-20% of projected fossil fuel emissions through 2050." (www.ucsusa.org.) Previous IPCC reports indicated that forest-based mitigation could sequester as much as 5,380 MtCO2/year through 2050, which is roughly equivalent to the 5,800 MtCO2/year estimated as being released from deforestation as of the 1990s. (IPCC. 2007. *Climate Change 2007: Mitigation—Forestry*. Cambridge University Press.)

[6] Examples of forestry practices that can increase sequestration and/or reduce emissions include longer timber rotations, which allow trees and soils to take in more carbon, and reduce the cumulative need for application of chemicals that can oxidize to greenhouse gases.

[7] Under "tipping point" scenarios, runaway climate change will severely destabilize forests and other natural ecosystems, resulting in them becoming uncontrollable sources of net greenhouse gas emissions.

[8] While some parties suggest the figure should be even lower, 20% is roughly consistent with the contribution of deforestation and forest degradation to global greenhouse gas emissions. (See notes 3 and 5 above.)

[9] Of course mitigation (or "offsets") for biodiversity impacts should still be required for any forest-clearing and other forest ecosystem impacts caused by energy projects.

[10] The IPCC noted that forests store more carbon dioxide than the entire atmosphere and that, "in the short term, the carbon mitigation benefits of reducing deforestation are greater than the benefits of afforestation" and cited the Stern Report regarding forests storage of carbon relative to the atmosphere. (IPCC. 2007. *Climate Change 2007: Mitigation—Forestry*. Cambridge University Press.)

[11] Climatic refugia have been described as "Ötopographically diverse areas [that] allowed habitats and lineages to persist through altitudinal shifts, and in many cases, to diverge during periods of climate change." (Noss, 2000, in Hansen, L., Biringer, J., & Hoffman, J. *Buying Time: A User's Manual for Building Resistance and Resilience to Climate Change in Natural Systems*. http://assets.panda.org/downloads/buyingtime.pdf.)

[12] See *Ecological Components of Endangered Forests,* 2006, ForestEthics, Greenpeace, Natural Resources Defense Council, and Rainforest Action Network, http://forestethics.org/downloads/EFDefinitions_April_2006_2.pdf. Both government-designated and *de facto* wilderness areas should be protected.

[13] Plantations can be understood as areas planted predominately with non-native trees or other commercial plants. Forests comprised of native species can also be managed as plantations, including via single species plantings on sites that would normally support multiple species, exclusion of other species via herbicide applications, short logging rotations that preclude the development of forest composition and structure, and/or other practices.

[14] Emissions "leakage" is a possibility when demand for emissions-causing activities (e.g., logging) curtailed in a project area is such that similar activity increases elsewhere to satisfy the unmet demand. It can occur either when project managers shift emissions-causing activities to other locations, or when other forest managers increase their emissions-causing activities to take advantage of the unmet demand ("market leakage").

[15] In large economies, for example, individual projects may have an unnoticeable effect on overall demand. Leakage might also be partial, i.e., demand may be shifted to activities with lower greenhouse gas emissions, e.g., manufacture of

paper using recycled fiber, rather than virgin fiber. And while the market for forest products in the U.S. may be relatively inelastic (suggesting leakage is more likely), there often exist significant surpluses in wood products supplies (suggesting that projects that reduce supply may not automatically trigger action elsewhere). Leakage may also depend on market signals, i.e., other businesses may simply not be aware of the reduced production. Other alternatives for reducing the risk of leakage include decommissioning product processing facilities, establishing timber plantations on marginal agricultural lands to offset reduced production, and clustering housing development to offset reduced land use conversion.

[16] The accounting for long-lived projects may be divided into multiple accounting periods each of a few years in length.

[17] By one account, "nearly two-thirds of forest carbon in a harvest is released as emissions over time." (*Forest Carbon in the United States: Opportunities and Options for Private Lands*, Wayburn, L., J. Franklin, J. Gordon, et al., 2000, The Pacific Forest Trust.) Similarly, other analysts note that "only about a quarter to a third of the carbon in live trees usually ends up in products." (Willey, Z. & Chameides, B, eds. 2007. *Harnessing Farms and Forests in the Low Carbon Economy: How to Create, Measure, and Verify Greenhouse Gas Offsets.* Duke University Press.) The processing, transportation, and end use of forest products also tends to be very energy (and thus greenhouse gas) intensive, and would need to be accounted for during any life-cycle analysis of harvested biomass, as would the eventual decomposition of the products. An exception to this approach might be appropriate in a regulated carbon market if "downstream" purchasers of the harvested material are instead responsible for the emissions associated with product processing and decomposition.