

Southern Oregon Climate Action Now

**SOCAN**

**Confronting Climate Change**

<http://socan.info>

**Comments on the proposed "O&C Land Grant Act of 2013" S. 1784.**

**Alan Journet Ph.D.**

**Professor emeritus, Biology & Environmental Sciences, Southeast Missouri State University, Cape Girardeau MO 63701-4799**

**Submitted as Co-facilitator of and on behalf of, Southern Oregon Climate Action Now**

It is probably an understatement to suggest that the greatest threat confronting humanity over the next two centuries will be climate change driven by human emissions into our atmosphere of greenhouse gases, notably carbon dioxide. This problem poses a serious threat to the livability of our planet for future generations. Addressing this problem is a matter of inter-generational justice. If we care about future generations, meaning our grandchildren and beyond, we will undertake those actions necessary to protect our planet from the devastating impact climate change could impose.

The problem arises if we continue, both nationally and globally, to follow the current 'business as usual' behavior. This essentially means taking no meaningful action to address the root cause of climate change: the concentration of these gases in our atmosphere. Should we continue on the path we are currently following, future generations are likely to experience a planet that exhibits a climate totally different from that we currently know, with temperatures in the Pacific Northwest, for example, reaching more than 9°F warmer (Dalton *et al* 2013), with little or no change in precipitation overall, but dryer growing seasons spawning a greater likelihood of drought and wildfire. In our historical climate, natural, forestry, and agricultural systems have flourished. This is unsurprising since it is to these conditions that they are adapted.

Unfortunately, the kind of climatic changes projected under the 'business as usual' scenario would prove devastating to these same natural, agricultural, and forestry systems. Unfettered climate change is, itself, likely to pose as serious a threat to the sustainability of our forests as anything else we can imagine. The climate envelope studies of Rehfeldt *et al* (2006) suggest that many tree species currently of critical importance in the Oregon timber industry will likely be severely compromised by late Century; the range of the Lodgepole pine, for example, may not include Oregon. The potential forest association consequences undertaken by the MAPSS team of the USFS Pacific Northwestern Research Station in Corvallis (Bachelet *et al* 2003, Shafer *et al* 2010) also suggest that many of the tree associations currently critical for our healthy forests will be compromised during the coming century absent a profound change in the current climate trajectory. Devastated forests will not provide habitat for wildlife especially endangered species, recreational attractions, or income to anyone – tourism, the timber industry, or the counties.

The solutions to the excessive concentration of greenhouse gases in our atmosphere fall into two categories: (1) reducing emissions, and (2) capturing and sequestering the carbon already present. Forests have a great capacity to serve the second of these.

Ries and Donahue (2012) report that with the rapid expansion of fossil fuel extraction on public lands these lands have been transformed from net carbon sinks several decades ago to net carbon sources – now contributing to the climate change problem rather than reducing it.

Our western forests are among the greatest carbon sequestering systems in the nation. In 2005, 28% of the west was in forest accounting for 69% of the regional carbon storage. The average rate of storage was 13 Kg C /m<sup>2</sup>, while the Marine West Coast Forests, designated in Wyden (2013) as Dry Forests (*sensu* Franklin and Johnson 2010), were storing over twice that average at 29.6. Kg C /m<sup>2</sup> (Zhu *et al* 2012). These are the White oak, Ponderosa pine, Douglas fir communities with which we are familiar in the Rogue Valley. Meanwhile, it is worth noting that one result of the Northwest Forest Plan has been a considerable increase in carbon storage - a trend which is expected to continue if limits on timber sales and logging are maintained (Krankina *et al.* 2012). Notably, conversion of old growth forests to younger forests compromises atmospheric carbon dioxide storage; this reduced carbon storage does not recover for 200 years (Harmon *et al* 1990).

In the O&C Land Grant Act of 2013 (S 1784), the management focus is entirely on harvest vs conservation. While we appreciate the effort in Sec 103 Management of Forestry Emphasis Areas to focus on ecological forestry principles with consideration for endangered species, fire prevention, riparian system protection, and reducing soil erosion, our concern is an apparent absence of any consideration for climate change issues. In addition to the loss of carbon resulting directly from logging, it should be recognized that timber harvesting operations themselves result in considerable carbon emissions while they can also damage forest soil systems resulting in further carbon losses (Buchholz *et al* 2013).

We appreciate that timber harvest comprises a reasonable use of our publicly owned forests. However, since these forests are held in trust for future generations, we submit that management of these forests should consider what is in the public's long term best interest rather than just what is in the short term economic best interest of a subset of that population. Thus we understand the merit of devoting Section 103 to those portions managed for a forestry emphasis and appreciate that the S 1784 recognizes the need to manage these forests employing ecological forestry principles that do not compromise ecosystem support services, recreational value, or their value as habitat for wildlife. We assume that permitted harvesting techniques involve only uneven aged management and selective logging. Given the historic preference among loggers for clear cuts, of course, the proof the application of ecological principles will be how the harvest is undertaken.

However, what concerns us greatly is that even in Sec. 105 Management of Conservation Emphasis Areas, there is no reference to carbon sequestration as being a priority goal for these forests.

The essence of management for carbon storage comprises managing firstly for healthy diverse forests that can mature to old growth stats and maintain their current structure and function in the face of a changing climate while exhibiting either resistance to it or resilience when confronted with it. Our concern is that placing timber harvest as a primary purpose for these forests will dramatically compromise their ability to serve as valuable ongoing carbon sinks.

If we fail to address climate change adequately, not only will these forests likely lose their ability to provide timber, but also, residents of the planet generally will suffer dramatically.

While the harvest of timber from forested land is unquestionably a reasonable use of these resources, forest management should be undertaken in such a way that carbon storage is maintained or enhanced not compromised.

We urge far greater consideration be paid to management that enhances rather than compromises the ability of these valued forest resources to store carbon. Specifically, we respectfully request that S. 17874 be revisited and revised to recognize the critical role that carbon sequestration by healthy forest plays in addressing climate change.

One claim we have heard is that the plan must be sound since it is criticized by both environmentalists and the timber industry. But this is not an adequate interpretation of the issue. By analogy, if half the voters preferred an immigration policy the deported all illegal aliens, and half preferred one that offered a path to citizenship to all, the sane remedy would not be to deport half. Just because a proposal is criticized by both sides does not mean it is a sound proposal representing a reasonable compromise. Maybe it is just a flawed proposal.

#### **Sources:**

Bachelet D, Neilson R, Hickler T, Drapek R, Lenihan J, Sykes M, Smith B, Sitch S, Thonicke K 2003 Simulating past and future dynamics of natural ecosystems in the United States, *Global Biogeochemical Cycles* 17(2): 1045 - 1066.

<http://sequoia.fsl.orst.edu/dgvm/2001GBCIpi.pdf>

Buchholz T, Friedland A, Hornig C, Keeton W, Zanchi G, Nunery J. Mineral soil carbon fluxes in forests and implications for carbon balance assessments. *GCB Bioenergy*, 2013; DOI:

<http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12044/abstract>

Dalton M, Mote P, Snover A 2013 *Climate Change in the Northwest; implications for our landscapes, waters, and communities*, Oregon Climate Change Research Institute; Island Press.

<http://occri.net/wp-content/uploads/2013/11/ClimateChangeInTheNorthwest.pdf>

Franklin J, Johnson N 2010 Applying Restoration Principles on the BLM O&C Forests in Southwest Oregon.

[http://www.blm.gov/or/resources/forests/files/Franklin\\_Johnson\\_restoration\\_overview\\_Nov\\_30%20final.pdf](http://www.blm.gov/or/resources/forests/files/Franklin_Johnson_restoration_overview_Nov_30%20final.pdf)

Harmon M, Ferrell W, Franklin J. 1990 Effects on Carbon Storage of Conversion of Old-growth Forests to Young Forests, *Science* 247 (4943): 699 – 702.

<http://academic.evergreen.edu/curricular/ftts/downloadsw/harmonetal1990.pdf>

Krankina O, Harmon M, Schneckenburg F, Sierra C 2012 Carbon balance on federal forest lands of Western Oregon and Washington: The impact of the Northwest Forest Plan, *Forest Ecology and Management* 286 (2012): 171 – 182.

Contact Alan Journet [alanjournet@gmail.com](mailto:alanjournet@gmail.com)

Rehfeldt G, Crookston N, Warwell M, Evans J 2006 Empirical Analyses of Plant-climate Relationships for the Western United States, *International Journal of Plant Science* 167 (6): 1123 – 1150.

[http://www.fs.fed.us/rm/pubs\\_other/rmrs\\_2006\\_rehfeldt\\_g001.pdf](http://www.fs.fed.us/rm/pubs_other/rmrs_2006_rehfeldt_g001.pdf)

Potential future distributions of Oregon trees can be found at:

<http://forest.moscowfs.wsu.edu/climate/species/>

Ries H, and Donahue J, 2012 Greenhouse Gas Emissions from Fossil Fuel Extracted Federal Lands and Waters. Prepared by Stratus Consulting for The Wilderness Society.

<http://wilderness.org/sites/default/files/FINAL%20STRATUS%20REPORT.pdf>

Shafer S, Harmon M, Seidl R, Neilson R, St. Clair B, Yosh A 2010 The potential effects of climate change on Oregon's vegetation [In] Della K and Mote P (Editors) Oregon Climate Assessment Report, Oregon Climate Change Research Institute

[http://occri.net/wp-content/uploads/2011/01/OCAR2010\\_v1.2.pdf](http://occri.net/wp-content/uploads/2011/01/OCAR2010_v1.2.pdf)

Zhu Z, Sleeter B, Griffith G, Stackpoole S, Hawbaker T, Bergamaschi B 2012, An Assessment of Carbon Sequestration in Ecosystems of the Western United States— Scope, Methodology, and Geography, USGS, US Dept Interior.

[http://pubs.usgs.gov/pp/1797/pdf/pp1797\\_Chapter1.pdf](http://pubs.usgs.gov/pp/1797/pdf/pp1797_Chapter1.pdf)

For bill text and section-by-section summary visit:

<http://www.wyden.senate.gov/priorities/oc-act-of-2013>

Alan Journet

[alanjournet@gmail.com](mailto:alanjournet@gmail.com)

541-301-4017

December 14<sup>th</sup> 2013