

## GOOD FOREST MANAGEMENT

The vexed issue of good forest management and global warming. Whatever the views of the individual, climate change or global warming has captured the policy makers and to have influence we must accept and work within that framework on a here and now basis, which means dealing with the effect of predicted increasing frequency and severity of drought on forest fuels.

Seems there may be a “chink in the armour” of the ANU Fenner School of Environment & Society <https://fennerschool.anu.edu.au/> Wollongong University and any fellow travelers who by their media campaigns attempt to discourage proper management of forests and National Parks. They risk being hoisted by their own petard!



Upslope to Dunoon Road, Wye River, 9 September 2013  
The 2015 fire burnt through this area and destroyed houses on Dunoon Road.

Somewhat hidden away in the IPCC 6<sup>th</sup> Report, Chapter 5, page 106, commencing at Line 40:

"Forest-based methods include afforestation, reforestation, and forest management (Table 5.9). Building on previous work that emphasized the global potentials of various options, more recent advances have focused on the limits of those global potentials in light of ecological and climate risks that can threaten the long-term permanence of carbon stocks (Boysen et al., 2017b; Anderegg et al., 2020). Some of those risks arise from droughts, fires, insect outbreaks, diseases, erosion and other disturbances (Thompson et al. 2009).

"Sustainable forest management can help to manage some of these vulnerabilities, while in some cases, it can increase and maintain forest sinks through harvest, transfer of carbon to wood products and their use to store carbon and substitute emissions-intensive construction materials (Churkina et al., 2020). Forest genomics techniques can increase the success of both reforestation and conservation initiatives, accelerating breeding for tree health and productivity (Isabel et al., 2020)."

[https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_Full\\_Report.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf)

The stand-outs in those two paragraphs:

- ecological and climate risks that can threaten the long-term permanence of carbon stocks
- the reference to drought and fire at the end of the first paragraph

- Sustainable forest management ... increase and maintain forest sinks through harvest, transfer of carbon to wood products and their use to store carbon and substitute emissions-intensive construction materials
- Forest genomics techniques can increase the success of both reforestation and conservation initiatives, accelerating breeding for tree health and productivity

## **Backstories**

Let's look at a few of the reports, etc, behind those two paragraphs. First "Churkina et al., 2020" or similar.

### **Buildings can become a global CO<sub>2</sub> sink if made out of wood instead of cement and steel**

<https://www.sciencedaily.com/releases/2020/01/200127134828.htm?fbclid=IwAR09l4q2II-9oZQDJKg24frHFR9vV6eQT8232bNxKhUTw3kScUOegLqUkkI>

**Summary:** A material revolution replacing cement and steel in urban construction by wood can have double benefits for climate stabilization. First, it can avoid greenhouse gas emissions from cement and steel production. Second, it can turn buildings into a carbon sink as they store the CO<sub>2</sub> taken up from the air by trees that are harvested and used as engineered timber.

Next, "Thompson et al. 2009" or similar.

### **Rethinking the Wildland Fire Management System**

[https://www.fs.fed.us/rm/pubs\\_journals/2018/rmrs\\_2018\\_thompson\\_m001.pdf](https://www.fs.fed.us/rm/pubs_journals/2018/rmrs_2018_thompson_m001.pdf)

**Introduction:** In the western United States and elsewhere, the need to change society's relationship with wildfire is well-recognized. Suppressing fewer fires in fire-prone systems is promoted to escape existing feedback loops that lead to ever worsening conditions and increasing risks to responders and communities. Our primary focus is how to catalyze changes in fire manager behavior such that responses are safer, more effective, and capitalize on opportunities for expanded use of fire. We daylight deep-seated, systemic drivers of behavior, and in so doing, challenge ingrained ways of thinking and acting that may be inconsistent with current intentions around wildland fire management. We pose the questions of whether all fires are emergencies that require rapid deployment and concentration of suppression resources, whether rhetoric and actions align with policy and guidance, and whether we can unambiguously define and measure what a safe and effective response looks like. Using the Forest Service of the US Department of Agriculture (USDA) as a relevant test case for systemic investigation, we argue that fundamental changes in how the fire management community thinks about, learns from, plans for, and responds to wildland fires may be necessary. Our intention is to initiate a broader dialog around the current and future state of wildland fire management.

And, on forest genomics:

### **Forest genomics: Advancing climate adaptation, forest health, productivity, and conservation**

<https://onlinelibrary.wiley.com/doi/full/10.1111/eva.12902>

**Abstract:** Forest ecosystems provide important ecological services and resources, from habitat for biodiversity to the production of environmentally friendly products, and play a key role in the global carbon cycle. Humanity is counting on forests to sequester and store a substantial portion of the anthropogenic carbon dioxide produced globally. However, the unprecedented rate of climate change, deforestation, and accidental importation of invasive insects and diseases are threatening the health and productivity of forests, and their capacity to provide these services. Knowledge of genetic diversity, local adaptation, and genetic control of key traits is required to predict the adaptive capacity of tree populations, inform forest management and conservation decisions, and improve breeding for productive trees that will withstand the challenges of the 21st century. Genomic approaches have well accelerated the generation of knowledge of the genetic and evolutionary underpinnings of nonmodel tree species, and advanced their applications to address these challenges. This special issue of Evolutionary Applications features 14 papers that demonstrate the value of a wide range of genomic approaches that can be used to better understand the biology of forest trees, including species that are widespread and managed for timber production, and others that are threatened or endangered, or serve important ecological roles. We

highlight some of the major advances, ranging from understanding the evolution of genomes since the period when gymnosperms separated from angiosperms 300 million years ago to using genomic selection to accelerate breeding for tree health and productivity. We also discuss some of the challenges and future directions for applying genomic tools to address long-standing questions about forest trees.

The above papers are three of many that Google Search found.

Taking the use of timber for building construction further, two of many websites:

### **Mid-Rise Timber Buildings Design Guides**

<https://www.woodsolutions.com.au/articles/mid-rise-timber-buildings-design-guides>

The National Construction Code 2016 Volume One (NCC), Building Code of Australia, Class 2 to Class 9 Buildings, allows the use of timber construction systems under the Deemed-to-Satisfy (DTS) Provisions for Class 2 (a building containing two or more sole-occupancy units (SOUs) each being a separate dwelling), Class 3 (residential buildings, other than buildings of Class 1 or 2, which are a common place of long-term or transient living for a number of unrelated persons, including hotels) and Class 5 (offices) buildings up to 25 metres in effective height, known as mid-rise construction ...

### **21 Detailed Construction Sections for Wood Structures**

<https://www.archdaily.com/889466/21-detailed-construction-sections-for-wood-structures>

**Introduction:** Wood is one of the oldest materials that man has used to build their homes and take refuge from the weather. Wood does not only fulfill a structural function - being highly resistant to earthquakes - but it also provides interior thermal comfort, as well as adding a warm look and feel to a building, while easily adapting to natural environments.

A fire engineering website:

### **Charred wood and fire resistance**

<https://www.fireengineering.com/fire-prevention-protection/charred-wood-and-fire-resistance/#gref>

**From the discourse:** Fire resistance ratings based on the ASTM E119 [American Standard Test Method] fire exposure can now be demonstrated for wood used as an exposed structural member or as part of a fire-rated assembly. For exposed wood members, all wood initially chars at about the same rate until a char layer is formed. After a brief period of fire exposure, the rate of char formation becomes relatively constant, despite a gradually increasing furnace temperature. Burning of large wood members creates a protective insulating char layer on the exposed surfaces, protecting the inner core, which continues to maintain its nominal strength and stiffness properties under near-ambient temperatures over long-duration fire exposures. For wood protected by a membrane, such as gypsum wallboard, charring of the wood will begin at the initial charring rate when the membrane fails, but it will similarly slow as the char layer is created.

We need to think about this charring function as part of a suite of building fire protection measures in the context of Australian hardwoods milled for building materials.

Hardwood suppliers, take a look at their range of hardwood products:

### **ASH Australian sustainable hardwoods**

<https://ash.com.au/>

#### **On sustainability**

Sustainable timber is the **ultimate renewable**. As trees grow, carbon is captured from the atmosphere and stored in the timber.

*And when it's harvested for building materials some of that carbon continues to be stored in those hardwood building materials.*

**Powelltown Sawmills Pty Ltd**

<http://powelltownsawmills.com.au/>

Ryan & McNulty Sawmillers, Benalla

<https://www.ryanandmcnulty.com.au/>

**Conclusion**

While I'm not an advocate for particular sawmilling businesses it should be apparent to all that good forest management would include selective harvesting and milling of our hardwood forests, including National Parks, to thin them out and provide for succession and a staged forest, as promoted by Professor Patrick Baker, Professor of Silver Culture and Forest Ecology, The University of Melbourne—see link below—which would logically include landscape-scale fuel reduction burning.

[https://www.youtube.com/watch?v=gRVJWxt\\_Vo&list=PLy9vG53Si1DEvMt6K0YuiMOVGyOfQjRut&index=3](https://www.youtube.com/watch?v=gRVJWxt_Vo&list=PLy9vG53Si1DEvMt6K0YuiMOVGyOfQjRut&index=3)