

Fire management research in the savannas—recent initiatives, future prospects

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Before considering future challenges facing fire management and associated applied research issues across the tropical savannas, it is useful to consider the achievements of the Tropical Savannas CRC and its partners over the past decade or so. These have been substantial. An early challenge was to develop a coordinated approach to fire management research across the north that was inclusive of and relevant to all major extensive landholders, the rural fire agencies and fire researchers. Tangible outcomes of that initiative have been, notably:

- (1) the development and undertaking of substantial community-based fire management projects in all three northern jurisdictions co-funded principally with NHT and community resources;
- (2) the development of knowledge-based resources including websites (e.g. NAFI—www.firenorth.org.au), informative texts for land managers (e.g. *Savanna burning: understanding and using fire in northern Australia*), and research symposia (e.g. the International Journal of Wildland Fire publication, *Fire and savanna landscapes in northern Australia – regional lessons and global challenges*); and
- (3) sponsoring and chairing of the North Australia Regional Fire Manager's Forum, an industry body involving all the fire agencies with responsibilities in the north.

An allied key task simmering in the background has been to address the fundamental problem of how to develop economically sustainable fire management solutions for savanna landscape managers. While such issues are most glaringly conspicuous in the instance of indigenous lands and communities, they apply more-or-less equally to fire-prone lands under all tenure arrangements. The development and implementation of the Western Arnhem Land Fire Abatement (WALFA) project has been singularly important in this regard. Not only has that project succeeded in offering economic sustainability as a commercial greenhouse gas offset program, it has demonstrated that effective partnerships can be forged between, and which pay mutual respect to, the knowledge traditions of indigenous land managers, scientists and, often forgotten, supportive policy makers. In all these respects WALFA provides a landmark for the future. I would also submit that WALFA would not have been made possible without the commitment and support of the Tropical Savannas CRC.

As to the future, a number of challenges spring to mind; unfortunately not all of which are likely to be as positively exciting as WALFA and its successors. On the very positive side, over the next few years commercial opportunities surrounding the development of new savanna burning and greenhouse gas abatement projects will continue; in fact, discussions are well advanced concerning the establishment of projects in fire-prone central Arnhem Land, the Gulf country between Borroloola to Burketown, the north Kimberley, and, further down the track, western Cape York and south of the Daly River in the NT. While each of these projects has substantial technological and capacity building issues to meet, the ongoing development of appropriate and supportive policy and governance frameworks poses perhaps even greater challenges. Of these, a key issue is to sort out legal issues surrounding entitlements and rights to offsets in multi-tenure settings. Another is to develop effective multi-party business models and arrangements.

Other fire and land management-related opportunities are also on the horizon: accounting for an increased set of greenhouse gases other than emissions of the two gases (N₂O, CH₄) currently allowed for; the potential for carbon sequestration in above- and below-ground stores; and associated potential for developing 'avoided deforestation' and 'biodiversity credit' instruments and markets. Each of the above issues provides substantial and significant research and policy development challenges. Equally, there is clearly an opening for indigenous organisations themselves to develop a coordinated approach, indeed a commercial partnership, to progress development of these opportunities for the benefit of their stakeholders. The North Australia Indigenous Land & Sea Management Alliance (NAILSMA) will likely play a major coordinating role in this regard.

The above initiatives are reliant on ongoing support for developing technological infrastructure (e.g. fire mapping; fuel curing maps) and information delivery systems (e.g. websites such as NAFI). The Tropical Savannas CRC has played a pivotal role in such developments to date, and it is evident that a substantial challenge lies ahead in securing ongoing funding support from new sources for these critical tools. In short, a national program (outside of the ad hoc CRC program) is required, as recommended by the COAG *National Bushfires Inquiry*.

A final and imposing challenge for land and fire managers across the north which needs to be addressed here concerns dealing with the ever-growing threat from introduced pasture grasses. Various of these species develop very substantial and highly flammable fuel loads (e.g. Mission grass, Gamba grass). Much attention has been given in the past to the biodiversity impacts and invasibility of such species. Today, it is increasingly clear that in unmanaged situations the uncontrolled spread of such species poses a very considerable threat to human life (including those of professional and volunteer fire-fighters) and property, and far greater recognition needs to be given to life and property issues than hitherto. Management solutions will be difficult and require a concerted applied research effort backed by informed community and government support.