

Ecologically Sustainable Fire Management for the Northern Rivers region of NSW

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Abstract

The Northern Rivers Fire and Biodiversity Consortium is a network of land managers and stakeholders seeking a coordinated, landscape level approach to fire management across the Northern Rivers region of NSW. It provides a collaborative framework that coordinates and leverages resources and efforts aimed at raising the role of fire as an important restoration tool for biodiversity conservation. Specifically focused on the management of fire for biodiversity outcomes, the Consortium provides a forum to exchange information, improve existing knowledge through research, and supports a consistent approach to managing fire for beneficial environmental and social outcomes. It also offers the opportunity for fire and natural resource management agencies to work in partnership with private landholders in implementing on-ground fire-related projects.

In a short period, the Consortium has successfully coordinated activities that have raised the profile of fire as a management tool for biodiversity conservation. This has been achieved through a number of key individual projects with on-ground and policy outcomes. In this presentation, an outline of the projects currently being undertaken is provided, including their objectives and the hurdles that each have confronted. In particular the limitations of current fire thresholds for ecological burning are explored, as well as the integrated use of fire and targeted chemical weed control to restore and maintain healthy ecosystems. Some of the ways that fire can be managed for the continued existence of threatened species populations are also discussed.

INTRODUCTION

The Northern Rivers Fire and Biodiversity Consortium (NRFBC) is a network of land managers and stakeholders seeking a coordinated, landscape level approach to fire management for biodiversity across the Northern Rivers region of NSW. This region covers the Tweed, Byron, Ballina, Lismore, Richmond Valley and Kyogle Local Government Areas.

The creation of the NRFBC has the support of existing planning instruments such as the Northern Rivers Regional

Biodiversity Management Plan (DECCW, 2010), which identifies inappropriate fire regimes as one of the very highest threats to vegetation communities and ecosystems across the region.

CONSORTIUM ACTIVITIES

With a vision to achieve ecologically sustainable fire management for the Northern Rivers of NSW, Consortium participants include State government agencies, local councils, and non-government organisations involved in

biodiversity and fire management. The NRFBC works in close cooperation with the South East Queensland Fire and Biodiversity Consortium (SEQFBC), and encourages involvement by research institutes. The NRFBC provides a forum to:

- enable the exchange of information between stakeholders and other networks;
- encourage a consistent landscape approach to managing fire for biodiversity; and
- support a collaborative approach to identify and implement fire-related projects and on-ground actions.

WORKING GROUPS

Since its establishment in August 2011 the NRFBC has successfully coordinated a number of on-ground and policy actions that have raised the profile of fire as a management tool for biodiversity conservation in the Northern Rivers. Working groups have been established for the following projects:

- Bell Miner Associated Dieback (BMAD) has been identified as a Key Threatening Process under the *Threatened Species Conservation Act 1995*. It is a significant threat to the sustainability of the eucalypt forests of north-east NSW and south-east Queensland, with a strong correlation between dense weedy understories, particularly where lantana thickets occur, and the development of BMAD.

The NRFBC is involved in a pilot project aiming to introduce fire into a BMAD 'at risk' dry sclerophyll forest where Bell Miners (*Manorina melanophrys*) have only recently been noted. By reducing lantana density and promoting a grassy understory,

the objective is to ascertain whether the BMAD cycle can be significantly interrupted by fire. Through pre and post burn monitoring, exploration of key knowledge gaps about the role of fire in managing BMAD will be undertaken. The value of integrating fire with follow-up herbicide treatment to control BMAD is also part of the project. By coordinating prescribed burning in BMAD areas and promoting fire as a tool to control BMAD, community awareness of the potential role of fire in managing BMAD will be enhanced.

- Studies have identified high intensity and frequent wildfires as a major cause in the recent steep decline of isolated koala (*Phascolarctos cinereus*) populations in the Tweed and Byron coastal areas. A consortium working group has been set up to investigate ways to mitigate the impact of fire on identified koala habitat in these areas. The overall aim is to produce guidelines that inform fire management activities for the protection of core koala habitat areas.

The working group will assist the Tweed and Byron Councils and other participating organisations to garner community support by holding fire and koala information days focusing on community awareness and monitoring. Investigation of the value of prescribed burns to protect koalas and help manage wildfires that threaten habitat is anticipated.

- The northern eastern bristlebird (*Dasyornis brachypterus*) population in the Border Ranges is on the verge of extinction, with only 25-30 birds remaining. Decline of habitat condition and extent is thought to be due in part to a lack of fire,

particularly since the late 1980s. The use of fire is being trialled as part of an integrated approach to restore eastern bristlebird habitat on selected properties in the Border Ranges.

With the Eastern Bristlebird Recovery Team Northern Working Group, this project has gathered data to determine priority eastern bristlebird habitat areas; i.e. areas where the bird has been recorded or priority habitat areas identified. Preparation for a prescribed burn to restore habitat on three selected private properties has been undertaken, with pre and post burn monitoring incorporated, and any constraints to enhancing eastern bristlebird habitat e.g. fire threshold guidelines, to be examined.

- A common theme for all on-ground projects that involve ecological burns is the potential constraints in undertaking such burns. A working group identified existing regulatory and on-ground constraints for undertaking ecological burning, and submitted a proposal to the NSW Government's review of the Native Vegetation Regulation 2005 for a streamlined environmental assessment process, particularly for burns that may be outside the State-wide Fire Interval Guidelines or other instruments such as the NSW Bush Fire Environmental Assessment Code, 2006.

Each working group of cross organisational representatives strategically targets hurdles that have stalled the progress of activities leading to positive fire-related environmental outcomes. This collaborative framework has resulted in improved coordination and leveraging of resources and efforts

to raise the role of fire as an important restoration tool for managing biodiversity conservation.

The Consortium has recently identified two new projects:

- Investigation of ways to mitigate high intensity wildfires to help recovery of the regionally endangered population of the North Coast emu (*Dromaius novaehollandiae*), and implementation of ecological burns to provide a more diverse foraging habitat for the emu.
- Sourcing, collection, storage and distribution of seeds from endemic species for BMAD affected forests, for the purpose of seed replenishment over large landscape areas following wildfires. The feasibility of establishing such a resource will be investigated.

A CASE STUDY - EASTERN BRISTLEBIRD HABITAT RESTORATION

Funded by the Commonwealth's Caring for our Country program an alliance between the NRFBC, SEQFBC and SEQ Catchments was formed to deliver the project 'Restoring habitat for nationally threatened species in the Border Ranges region'. An identified priority in the Border Ranges Rainforest Biodiversity Management Plan (DECCW, 2010), this project aims to implement targeted fire and weed management strategies to restore habitat for the eastern bristlebird.

Project delivery includes stakeholder collaboration in both NSW and Queensland to:

- identify priority areas of known eastern bristlebird habitat and of other threatened species including the nationally listed Hastings River

mouse (*Pseudomys oralis*) and NSW listed eastern chestnut mouse (*Pseudomys gracilicaudatus*);

- implement targeted fire and weed management strategies to control weed and shrubby acacia encroachment; and
- conduct pre and post burn fauna and flora surveys to monitor populations and vegetation responses.

It complements another project funded under the Environmental Trust Research Program and administered by the Office of Environment & Heritage, investigating the decline of grassy 'islands' in the region, a key habitat of the northern population of the eastern bristlebird.

Located approximately 35 km north of Kyogle, an area along Grady's Creek adjacent to Border Ranges National Park, was identified as suitable for a prescribed fire to improve habitat for the eastern bristlebird. Of the three properties on which the burn is proposed, eastern bristlebird habitat management plans have been prepared for two of them, with at least 80 hectares of known or potential habitat identified. The burn undertaken for this project will not only meet the objectives of these plans, but will also address priorities identified in the draft National Recovery Plan for the eastern bristlebird (OEH, 2012).

In recognition that additional habitat occurred on other private properties in the local area and to stimulate interest among neighbours, the NRFBC was central in the delivery of a Hotspots community fire management workshop program to provide landholders with the skills and knowledge to undertake fire management planning and implementation for the enhancement of eastern bristlebird habitat. In Queensland

an information day for landholders with eastern bristlebird habitat will be held, continuing ongoing communication that has occurred with those landholders.

THE BURN PROPOSAL AND ASSESSMENT

The majority of the proposed burn area includes grassy open semi-mesic wet sclerophyll forests with degraded areas impacted by environmental weeds; primarily lantana (*Lantana camara*) and crofton weed (*Ageratina adenophora*) developing in dense thickets within the gullies and mid-slopes.

Regularly burnt until the late 1980's, records suggest that fire was used across the burn area approximately every three to four years. These fires usually occurred during late winter or spring, being undertaken to promote new growth for grazing. It is likely that without fire eastern bristlebird habitat condition will continue to decline given ongoing weed and shrub encroachment. Collaborative efforts between the Northern Rivers Catchment Management Authority and this project have enabled weed control to be extended across the burn area to maximise the effectiveness of the burn.

A low to moderate intensity fire is planned to remove ground fuel and impact weed and acacia regrowth. The timing of the fire will avoid the eastern bristlebird breeding season of August to December and follow up weed control work is scheduled post fire.

In NSW, unless specifically exempted, prescribed burns must undergo environmental assessment. For hazard reduction burns private landholders can apply for a Hazard Reduction Certificate; a streamlined assessment and approval process undertaken by the NSW Rural Fire Service. However, if the intended burn is

not exempt nor does it demonstrate hazard reduction benefits, there is currently no clear burning approval process. Ecological burns are specifically excluded from assessment under the hazard reduction approval process, meaning private landowners must seek alternative authorisation under relevant environmental legislation.

For this proposal a Hazard Reduction Certificate could not be issued. With no streamlined assessment available, it was important to ensure that all relevant legislation was considered prior to the burn occurring. This included:

- protection of Aboriginal and cultural heritage;
- pollution prevention;
- soil erosion considerations;
- controlling the spread of weeds; and
- adhering to any existing land management agreements.

As there was a number of nationally and state listed species identified, a licence under Section 91 of the *Threatened Species Conservation Act 1995* was required. Issue of a licence requires considerable justification to show that an ecological burn will not 'harm threatened species, populations, and ecological communities or damage their habitats'. Reliant on the underpinnings of detailed scientific justification, this process was undertaken by the NRFBC on behalf of the landholders. In addition to State legislation, assessment of the impacts to threatened species listed on the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* were also considered.

CONCLUSION

To date there have been relatively few resources invested in initiatives such as the NRFBC that promote sustainable fire management policies and programs. The delivery of the eastern bristlebird project has highlighted several challenges facing landholders and land managers seeking to implement ecologically based burns for conservation and landscape resilience outcomes. This is despite an increasing recognition that fire is not only a fundamental driver that shapes our ecological communities but also plays a critical role in biodiversity conservation. This case study demonstrates that without the collaborative support of stakeholders that the Consortium model facilitates, achieving the objectives of projects that include ecological fire is difficult, particularly on private lands. The NRFBC shows that the cooperative alliances it cultivates can help to overcome such obstacles and progress a range of projects to deliver biodiversity outcomes.

ACKNOWLEDGEMENTS

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BIOGRAPHY

Mr Greg Banks has an Applied Science degree in Parks, Recreation and Heritage from Charles Sturt University, and has worked with State and local government and non-government organisations, in a range of natural resource management and policy roles over the last 23 years. Although working across many environmental disciplines, an overall focus on fire planning and management has prevailed, including six years employment as an RFS Fire Mitigation/Community Safety Officer. Since 2010 he has been with the Nature Conservation Council's Bushfire Management Program, and as well as facilitating workshops is currently the Northern Rivers Fire and Biodiversity Consortium Coordinator.

