

Bell Miner Associated Dieback Strategy

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North Coast
Environment
Council Inc.



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About this Strategy

This Bell miner Associated Dieback (BMAD) Strategy has been prepared by the Bell miner Associated Dieback Working Group, a voluntary body convened by the Northern Branch of the NSW National Parks and Wildlife Service (part of the Department of Environment and Conservation) and supported by the North East Region of Forests NSW (part of the Department of Primary Industries).

Active membership of the Bell miner Associated Dieback Working Group is drawn from:

- The NSW National Parks and Wildlife Service (Northern Field Branch);
- Forests NSW (North East Region);
- The North Coast Environment Council Inc.;
- The North East Forest Alliance;
- The Department of Infrastructure, Planning and Natural Resources;
- Local landholders.

This Strategy is endorsed by the members of the BMAD Working Group as an agreed suite of actions designed to address prevention, control and remediation of Bell miner Associated Dieback of affected and potentially affected forests across all land tenures in NE New South Wales.

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Introduction

Bell miner Associated Dieback (BMAD) is currently spreading rapidly through sclerophyll forests on public and private lands in New South Wales. These forests are regionally important for plant and animal conservation, water catchment management and the production of honey and timber. This form of dieback is of national significance as it is spreading through forest ecosystems throughout eastern Australia.

As a result of increased community and Government concern, in November 2001 the NSW National Parks and Wildlife Service (NPWS), now part of the Department of Environment and Conservation, convened a workshop of representatives from interested government agencies, universities, landholders and conservation groups. The workshop resulted in the formation of BMAD Working Group with representation from local landholders, Landcare Group/s affiliated with Richmond Landcare Inc., North Coast Environment Council (NCEC), North East Forest Alliance (NEFA), NPWS, Dept of Infrastructure, Planning and Natural Resources (DIPNR) and Forests NSW (FNSW). The BMAD Working Group is coordinating some efforts to better manage dieback.

The BMAD Strategy aims to:

- provide a focus for the BMAD Working Group in communicating the significance of dieback and raising public and government awareness of the issue;
- promote research into the causes of dieback;
- support trial and implementation of control measures;
- assist in the coordination of on-ground control programs;
- develop dieback risk assessment criteria and risk management guidelines; and
- lobby for the resources to deal with and prevent dieback effectively.

Significance of the Strategy Area

This Strategy applies to BMAD affected and potentially affected areas of northern New South Wales (Refer to Map 1). While this is not the only area affected by BMAD, it has been selected for attention due to high levels of community concern and the importance of the area for biodiversity and for production of forest products, and the area's history of research on the problem.

The area is characterised by exceptional biodiversity with an overlap of two major biogeographic subregions: the Torresian (subtropical) and Bassian (cool southeastern) biogeographic sub region. The area includes the southern part of the largely eroded Focal Peak Shield Volcano and part of the adjacent Mount Warning Shield Volcano. The national parks and nature reserves in this region include areas which are part of the World Heritage listed Central Eastern Rainforest Reserves of Australia (CERRA). These World Heritage areas include Border Ranges National Park and parts of Toonumbar, Richmond Range, Mount Northfagus, Mount Clunie and Tooloom National Parks. Collectively these reserves are critical habitat for over 150 threatened species and their biodiversity is of international significance.

The area is of economic and social value for a range of land use practices including agriculture, forestry and horticulture as well as urban and rural residential purposes. The contribution of tourism to the social and economic value of the region is also significant, and the continuing presence of diverse and healthy vegetation within the region is critical for the further expansion of the tourism industry. Timber production from State and private forests is a regionally significant contributor to economic wealth and in state forests is an integral part of the NSW Government Forest Agreement process. Private and public forests provide conservation, catchment and apiary values. Dieback in forests severely impacts upon these values.

The impacts of BMAD in the strategy area are currently largely restricted to the catchments of the Richmond and Clarence Rivers, with some expansion into the Tweed River catchment (Northern Rivers Catchment Management Authority Area). However the extent of dieback is expanding rapidly through sclerophyll forests across the region. The Strategy recognises that while the area targeted is limited, the issue is of national significance as BMAD has the potential to degrade forests across the extensive range of the Bell miner from southern Queensland to Victoria.

Nature of the Issue

Eucalypt dieback, strongly associated with sap feeding insects called psyllids, is also sometimes associated with the native Bell miner or bellbird (*Manoria melanophrys*) and has become common in some parts of the bird's range. Bell miners are a natural part of eucalypt ecosystems and normally have minor and positive impacts on forests. However, increases in Bell miner populations and their distribution, in addition to other factors such as tree stress, psyllid infestation, dense forest understoreys as well as weed invasion, drought, logging, road construction, pasture improvement, bio-diversity loss both floral and faunal, soil nutrient changes, and changing fire and grazing regimes have all been implicated in the spread of dieback. The outward expression of BMAD is generally characterised by:

- trees stressed and dying;
- high populations of psyllids and other sap-sucking insects contributing to tree stress;
- high Bell miner numbers, with their aggressive territorial behaviour, driving away insectivorous birds that would otherwise help to control insect numbers;
- alteration of the forest structure: canopy and midstories depleted with grassy and wet and dry sclerophyll understoreys replaced by dense shrubby vegetation, often associated with lantana invasion.

Dieback occurs within both wet and dry sclerophyll forest communities. The forests most susceptible to dieback are those dominated by Dunn's white gum (*Eucalyptus dunnii*), Sydney blue gum (*E. saligna*), flooded gum (*E. grandis*), grey ironbark (*E. siderophloia*), narrow leaved White Mahogany (*E. acmenoides*), grey gum (*E. punctata*), and grey ironbark (*E. paniculata*). There is also evidence that some normally non-susceptible dry sclerophyll types e.g spotted gum (*E. maculata*) and blackbutt (*E. pilularis*) may be affected when they occur alongside susceptible forest types.

The potential impacts of BMAD on forest productivity and biodiversity cannot be overstated.

Potential impacts for conservation include:

- Extreme degradation of forest ecosystems in World Heritage listed National Parks such as Border Ranges NP, Murray Scrub and Dome Mountain in Toonumbar NP, Bungdoozle and Cambridge Plateau in Richmond Range NP, Mt Nothofagus NP, Kooreelah NP, and Mt Clunie NP.
- Major disruption in ecosystem function, and reduction in diversity and abundance of threatened flora and fauna species including Dunn's White Gum (*Eucalyptus dunnii*) and Rufous Bettong (*Aepyprymnus rufescens*) across all land tenures,
- Increased weed invasion and associated displacement of native forest species.

Impacts on forest productivity can be severe. Dieback defoliates the crown, ultimately leading to the death of standing trees. Not only do the standing trees die, but the lack of foliage and flowering and subsequent fruiting, reduce and eventually eliminate the seed production necessary for forest regeneration. Dense understorey development (primarily Lantana weed invasion in northern NSW and Cissus in the south) continues with little overstorey and reduced alternative species competition. Reduced eucalypt flowering directly impacts on honey production and on bird species and populations that compete with Bell miners.

Impacts of BMAD on private lands are significant, as these areas are critical to the livelihoods and well being of local communities. Forest woodlots and timber supplies, honey production, shelter belts and forest-related lifestyles are under threat from BMAD.

Local economies may also be impacted through declining forest tourism as dieback reduces the value, significance and aesthetic appeal of the forests.

Dieback affected areas are located in the catchments of the major rivers of the Northern Rivers and Upper North Coast regions of NSW including the Tweed, Richmond, and Clarence Rivers. Maintenance of water quality in these river systems is critically dependent on maintenance of healthy forest cover over the catchment uplands. BMAD has the potential to degrade these forests, and consequently impact negatively on rivers and catchment communities through increased sediment and nutrient loads, and increased frequency and intensity of flooding.

Bell miner
Associated
Dieback in the
Toonumbar
National Park.
The canopy has
receded with
dead stags
evident among
the remaining
trees, which
exhibit stressed
crowns.

*Photograph by
Steve King*



Management Challenges

Challenges to the successful management of BMAD are:

- Ongoing management practices that may promote the spread of BMAD;
- Limited understanding, recognition, and agreement of the extent and causes of the problem and appropriate management response;
- Need for immediate action due to the extent and consequences of problem;
- Community perception of Bell miners;
- Maintenance of Ecologically Sustainable Forest Management (ESFM) outcomes in BMAD affected and at-risk forest;
- Possible implications of dieback for forest productivity;
- Lack of awareness by funding and managing agencies, landholders, and the community of BMAD as a pressing forest management issue;
- Limited resources for research and management of BMAD;
- Need for coordinated government policy and action over BMAD;
- Resource requirements for research and management of BMAD are currently unknown;
- Competing management priorities often take precedence over BMAD;
- The widespread extent of the affected and at risk areas;
- The complexity of contributing factors and their effects; and
- The exponential rate of forest stability and values decline associated with BMAD.

Legislative and Policy Framework

Legislative and Policy requirements that need to be considered when formulating and implementing management measures for BMAD include:

Relevant Legislation

National Parks & Wildlife Act (1974) (NPW Act)

The NPW Act vests the care, control and management of national parks, nature reserves, historic sites and Aboriginal areas with the Director-General of the NPWS. Key management objectives include conservation, provision of appropriate scientific and educational opportunities, and management of fire and pest species. These are achieved through the preparation and implementation of Plans of Management for each reserve, which identify pest species present, control strategies and priorities for that reserve. This Plan incorporates actions identified in Plans of Management that have been completed within the Northern Rivers Region of NPWS.

Threatened Species Conservation Act (1995) (TSC Act)

The main objective of the TSC Act is to conserve biological diversity. The Act provides for the listing of threatened species, populations and ecological communities. The TSC Act also provides for the preparation and implementation of recovery plans and threat abatement plans for threatened species and the designation of areas as habitat critical to the survival of threatened species, populations and ecological communities. One of the major features of the TSC Act is the integration of the conservation of threatened species into the development control processes under the *Environmental Planning and Assessment Act 1979*.

Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act seeks to encourage ecologically sustainable development by managing the development process and the effects of development on the environment.

It is the requirement of the NPWS that all activities (including pest control) proposed on NPWS land are assessed under Part 5 of the EP&A Act. This involves an assessment of whether the activity is likely to significantly affect the environment, including threatened species, populations and ecological communities, and their habitats. The mechanism to carry out this assessment is generally regarded as a *review of environmental factors* (REF). Where a significant effect is likely, the EP&A Act requires the preparation of an *environmental impact statement* (EIS) and in the case of a significant effect on threatened species, populations or ecological communities, a *species impact statement* (SIS).

FNSW assessment requirements are encompassed in the Integrated Forestry Operations Approval (below).

Forestry and National Parks Estate Act (1988)

This Act makes provision with respect to forestry operations following regional resource and conservation assessments to provide for a system of integrated approvals for forestry operations. The Integrated Forestry Operations Approval (IFOA) for the Upper North East has been made under s 26 and as a consequence the subject of the approval are excluded from environmental assessments and approval under Parts 4 or 5 of the *Environmental Planning and Assessment Act 1979*. The IFOA applies to ongoing forest management operations in native forests including pest control.

Forestry Act 1916

The Forestry Act establishes the Forestry Commission, and provides for the dedication, reservation, control, and use of state forests, timber reserves, and Crown lands for forestry and other purposes.

Removal of timber, products or forest materials requires the issue of a licence from FNSW. Licences may specify conditions relating to environmental or other requirements to be satisfied by the operator.

Noxious Weeds Act 1993

The Noxious Weeds Act provides for the identification, classification and control of noxious weeds. The Act provides for the declaration of noxious weeds at one of four levels (W1 to W4), with actions to be taken by the occupier of the affected land dependent on the level of declaration. Across northern NSW, dependent on the lantana variety and local control authority priority, lantana is either not declared, or declared at level W2 or W3. Lantana (*Lantana camara*), excluding pink flowered lantana, is declared noxious in the Far North Coast County Council (trading as Far North Coast Weeds) Control Area (including Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed Council) as a W3 noxious weed. W3 declaration means that the weed must be prevented from spreading and its numbers and distribution reduced. Lantana has been declared as a noxious weed as many varieties are poisonous to stock. For more information regarding weed declaration visit the NSW Agriculture Weeds web page at www.agric.nsw.gov.au.

Rural Fires Act 1997

Section 50 of the *Rural Fires Act 1997* requires the establishment of District Bush Fire Management Committees (DBFMCs) who are tasked with preparing:

- A bush fire risk management plan, and
- A plan of operations.

These plans cover whole Local Government Areas (LGAs) or groups of LGAs. Fire-related activities addressing management of dieback must be undertaken in accordance with the requirements of these plans.

Other Relevant Acts

- *Protection of the Environment Operations Act;*
- *Environmental Protection and Biodiversity Conservation Act (Comm);*
- *Plantations and Reforestation Act 1999*
- *Prevention of Cruelty to Animals Act 1979;*
- *Pesticides Act 1999;*
- *Occupational Health and Safety Act 2000;*
- *Agricultural and Veterinary Chemicals Code Act 1994 ;*
- *Firearms Act 1996 & Firearms (General) Regulation 1997.*

Relevant Policies

Forest Agreements (FAs)

The aim of the NSW Government's forest policy since 1995 has been to secure a balanced outcome in the forest regions, an outcome which takes into account conservation issues as well as economic and social issues. The Government has been working towards the development of both a comprehensive, adequate and representative (CAR) reserve system of forests and an ecologically sustainable, value-added and secure native forest timber industry.

Following the introduction of the Forestry and National Park Estate Act 1998, forest agreements were prepared for the Eden, Lower North East and Upper North East regions of New South Wales. These agreements set out the principles and framework for the cooperative management of all forests in the regions. Forest agreements are preceded by a regional forest assessments (including comprehensive regional assessments), and contain provisions that promote ecologically sustainable forest management, sustainable timber supply, community consultation on forestry operations and arrangements concerning native title rights and interests or land claims, as well as other provisions the Ministers consider appropriate. Forest agreements also refer to any associated (IFOA) granted in association with the agreement.

Ecologically Sustainable Forest Management

Ecologically Sustainable Forest Management (ESFM) requires that forests be managed to sustain in perpetuity all forest values for current and future generations. ESFM aims to restore, maintain or enhance forest ecological processes, biodiversity, natural and cultural heritage, social and economic benefits on an ecologically sustainable basis, the intangible benefits of forests and maintaining future options, and other identified forest values.

In NSW, government commitments to ESFM are effected by Regional Forest Agreements (RFA's). New South Wales Forest Agreements (FAs) require FNSW to prepare Regional ESFM Plans, to monitor sustainability criteria and indicators, and to report the implementation of ESFM Plans. The Minister for Planning must prepare an annual report to Parliament on ESFM, including management of NPWS lands and private lands. FAs also require both NPWS and FNSW to cooperate with other land managers to address forest health issues and to seek specialist advice where pests and diseases cause significant damage, decline or death of trees.

Forest decline through BMAD makes it increasingly difficult to maintain ESFM outcomes in NE NSW over time.

National Lantana Strategy

Lantana is a highly invasive weed affecting a range of land-use types within a wide range of climates and topographies of Australia. The complexity of this weed is amplified by its 29 different varieties, difficulty in integrating control measures and finding suitable biocontrol agents. The extensive infestation across more than 4 million hectares poses a threat to economically effective control. Lantana is a social problem for landholders and community. The National Lantana Strategy highlights the need for increased responsible action and incentive to landholders, local government, regions and State government to take action. The Strategy establishes the National Lantana Management Group; provides for extension and education; encourages best practice in lantana control and management; and includes a community biocontrol element encouraging adoption of biological control measures.

Current Approach

The BMAD Working Group has identified key actions that need to be undertaken in order to develop effective management measures for BMAD. Implementation of these actions has commenced, and needs to be actively pursued under this Strategy. These actions are:

1. Surveying and assessing the extent of Bell miner associated dieback within the far north Coast of NSW;
2. Supporting a comprehensive, independent literature review to determine the extent of existing knowledge, identify potential management approaches, and to identify key information gaps and research directions;
3. Implementing lantana removal trial plots within areas affected by dieback located on private property, National Parks and FNSW managed lands;
4. Targeted surveys and monitoring of Bell miners;
5. Developing guidelines for restoration of dieback affected sites which may be implemented by landholders and government agencies;
6. Securing adequate resources to address management of BMAD;
7. Promoting BMAD as an issue with government and private land holders including production of the "Trouble in the Treetops" brochure and local area survey.

Consistent with the EFSM requirements FNSW are preparing Regional Forest Health Management Plans as part of the Native Forest Health Management Strategy. The current management intent is to integrate native forest harvesting with trials to reduce the spread of dieback into open forests by use of frequent low intensity fire and to trial rehabilitation methods for dieback affected areas.

BMAD Working Group members the North East Forest Alliance (NEFA) and the North Coast Environment Centre (NCEC) continue to lobby the State government for recognition, research and management action to address BMAD as a pressing forest management issue, including making comment on and recommendations concerning logging operations in BMAD affected and potentially at risk areas; site inspections with government representatives, promoting a coordinated whole-of-government approach to the issue; being instrumental in the initiation of the BMAD Working Group; supporting mapping of the extent of BMAD; and promoting the development of a BMAD Management Plan.

Trials of lantana control methods have been carried out in BMAD affected sites by NPWS and private landholders for the past two years.

Funding is currently being sought to extend current trials and to carry out the BMAD aerial survey as identified in the Working Group key actions.

The BMAD Working Group is consulting with the NSW Scientific Committee to list 'Bell miner Associated Dieback' as a key threatening process under the NSW Threatened Species Conservation Act 1995. Discussions about this potential listing are continuing.

Resource Implications

The management of BMAD is problematic for a number of reasons (See Management Challenges above). The current resource base is limited, and without adequately resourced research and management programs the problem has the potential to negatively impact on forest productivity and biodiversity across the majority of the sclerophyll forests and adjoining rainforest areas in eastern New South Wales.

The BMAD Working Group has therefore identified resourcing as a key area for action in the BMAD Strategy.

Strategy Objectives and Actions

Objective	Proposed Action	Responsibility	Priority
<p>1. Raise community and Government awareness of and response to Bell miner associated dieback as a pressing forest management issue</p>	<p>1.1 Formulate a Communications Strategy to raise awareness.</p> <p>The Strategy will include:</p> <ul style="list-style-type: none"> • Protocols and messages for media contact • Established consultative processes • Brochures • Public awareness activities <p>Target audiences to include:</p> <ul style="list-style-type: none"> • Relevant Government ministers and departments • Community groups • Forest product groups • Farmers/RLPBs • Noxious weed agencies <p>Messages to include:</p> <ul style="list-style-type: none"> • Dieback is linked to forest structure and biodiversity disturbance, particularly canopy and midstorey decrease and overly dense understorey as well as tree stress and increased psyllid and often to Bell miner abundance • Other strongly associated factors are changes to fire and grazing regimes where these increase understorey development • Dieback is a real, severe and widespread threat to forest values • How to recognise healthy and BMAD affected forest • How to recognise at risk forest • The potential impacts on public/private lands • Strategies and techniques to manage BMAD and stop its spread 	<p><i>BMADWG (FNSW, NPWS assistance)</i></p>	<p>H</p>
	<p>1.2 List BMAD as a key threatening process</p>	<p><i>BMADWG</i></p>	<p>M</p>
	<p>1.3 Link BMAD Strategy to relevant Statutory and Policy Initiatives including:</p> <ul style="list-style-type: none"> • Catchment Management Authority planning and management • Actions under the NSW Biodiversity Strategy • SOE/SoP/FNSW reporting processes • ESFM guidelines; • Forest Health Strategy (FNSW); • DEC Parks Service Division management including Plans of Management, Pest Management Plans, and Reserve Fire Management Strategies; • Promote with RLPB's 	<p><i>BMADWG members (FNSW, NPWS, NCEC, DIPNR)</i></p>	<p>M</p>
	<p>1.4 Promote BMAD as State-wide issue whose management will require whole-of-government coordination</p>	<p><i>BMADWG</i></p>	<p>H</p>

Objective	Proposed Action	Responsibility	Priority
2. Increase understanding of the causes, severity and extent of BMAD	<p>2.1 Support and facilitate surveys to determine the extent and degree of BMAD</p> <p>Supported surveys will include:</p> <p>2.1.1 Land-based surveys</p> <ul style="list-style-type: none"> • Existing State Forest land-based survey; • The BMADWG Kyogle area landholder questionnaire; • Extension of land-based surveys within NPWS estate and other Crown lands <p>2.1.2 Aerial survey</p> <p>Conduct a comprehensive aerial survey of northern NSW</p> <p>2.1.3 Remote sensing</p> <ul style="list-style-type: none"> • Conduct the FNSW/NPWS supported BMAD multi-spectral imaging survey. 	<i>BMADWG</i>	H
	2.2 In cooperation with relevant government agencies, establish representative and long-term monitoring programs to detect change in extent and degree of BMAD over time.	<i>BMADWG</i>	H/M
	2.3 Support the development of accurate GIS mapping products to display the extent and severity of BMAD	<i>FNSW, NPWS</i>	H
	2.4 Support the compilation of a comprehensive independent scientific literature review of all available relevant information to determine the current state of knowledge of BMAD and related phenomena.	<i>BMADWG</i>	H
	2.5 Support the independent scientific development and application of criteria and methodologies to determine areas at risk from BMAD.	<i>BMADWG</i>	H/M
	<p>2.6 Guide the development of a BMAD Research and Management Strategy with the support of all stakeholders</p> <p>The BMAD Research Strategy will be focussed on the development of management options, and will address:</p> <p>(a) Determining the cause/s of BMAD, particularly investigation of parameters including:</p> <ul style="list-style-type: none"> • Forest structure including disturbance/ degradation; canopy and midstorey removal and understorey overdevelopment • Tree stress: including waterlogging, drought and competition • Weed invasion • Successional processes; • Geology/soil; • Disturbance; • Land use history; • Psyllid abundance; • Forest type; • Fire and grazing regimes and management; <p>(b) Management Options including:</p>	<i>BMADWG</i>	H/M

Objective	Proposed Action	Responsibility	Priority
	<ul style="list-style-type: none"> • Short term measures for limiting the spread of BMAD and rehabilitation of affected areas; and • Longer term management changes to prevent re-occurrence of BMAD and to ensure the maintenance of forest structure, health, bio-diversity integrity, and productivity • Assessment of control options for application in ecologically sensitive locations 		
	2.7 Promote the inclusion of BMAD as a priority research topic with participating government organisations and research organisations. (E.g incorporation of BMAD as a priority within the NPWS Northern Directorate Research Strategy; promotion of BMAD-related research with universities).	<i>FNSW, NPWS</i>	M
	2.8 Initiate and support a Research Symposium/Workshop to develop research directions for inclusion in the BMAD Research Strategy.	<i>BMADWG</i>	M
3. Develop appropriate management strategies for the prevention, control and abatement of BMAD in affected and at risk areas.	3.1 Seek and support government agency terms of reference, policy and management guidelines to better manage BMAD	<i>BMADWG</i>	M
	3.2 Support appropriate management trials of rehabilitation techniques, including: <ul style="list-style-type: none"> • Maintenance of existing lantana control trials; • Expansion of understorey control trials; • Investigation into, and trials of, integrated management methods; • Assessment of fire regimes for use in integrated understorey control and forest structure and biodiversity restoration. 	<i>BMADWG</i>	H
	3.3 Support the development and trialing of innovative integrated prevention, control and rehabilitation methods and guidelines generated from investigation of the potential causal factors under the BMAD Research Strategy.	<i>BMADWG</i>	M
	3.4 Support development of appropriate risk assessment and management guidelines for all affected and at risk forest types and areas according to appropriate/relevant management options	<i>BMADWG</i>	H/M
4. To promote and support the identification of and provision of	4.1 Support the assessment of resource implications of BMAD research and management.	<i>BMADWG</i>	M

Objective	Proposed Action	Responsibility	Priority
adequate resources for research and management of BMAD			
	4.2 Continue to support and promote initiatives that raise awareness of BMAD as a threat to forest health, sustainability, productivity and biodiversity.	<i>BMADWG</i>	M
	4.3 Continue to pursue external funding to support research, rehabilitation, and control methods	<i>BMADWG</i>	H
	Pursue increased budget allocations for BMAD research, rehabilitation, and control within participating Government agencies. Budget allocations to include an operating budget for the BMAD Working Group.	<i>FNSW, NPWS, DIPNR</i>	H

Information Sources

Information used in the preparation of the Working Draft was sourced from: the Bell miner Dieback Workshop of 26 November 2001; the Bell miner Working Group Scientific Workshop of 19 August 2002, scientific research papers (see below), the BMAD Working Group Environmental Trust Grant application; and the BMAD Working Group pamphlet “Trouble in the Treetops”. Selected references providing detailed information on dieback are listed below:

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