NSW GOVERNMENT | Office of Environment & Heritage

Investing in Native Vegetation Management and Threatened Species Programs in NSW

Guide note for NSW catchment management authorities

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1 Purpose and scope

This guide note has been prepared to assist CMAs to consider two important issues during the development of catchment action plan (CAP) upgrades:

1. data and analyses comprising state-scale native vegetation management (NVM) benefits layers and associated maps, and
2. prioritisation and projects being developed in the revised Priorities Action Statement (PAS2).

Through use of this guide, CMAs and others making use of its recommendations are encouraged to:

1. Develop catchment targets and actions that will optimise the benefits for biodiversity at state and regional scales by encouraging investment in areas where greatest state-scale benefit to biodiversity complements:
    a) national and state natural resource management (NRM) targets and investment rules
    b) regional considerations including cost effectiveness, program delivery capacity and social capacity, and
    c) NRM outcomes for carbon sequestration, soil conservation, catchment hydrology and water quality, salinity management, etc. (see Section 2).
2. Incorporate state-scale threatened species investment priorities in conjunction with existing priorities for aquatic ecosystems and threat abatement, catchment priorities and local community expectations (see Section 3).
3. Utilise existing catchment monitoring, evaluation and reporting (MER) frameworks to support reporting on state-scale investment priorities and contribution to NVM benefits (see Section 4).

CAP upgrades will be assessed as to whether they are suitable for biodiversity certification under the *Threatened Species Conservation Act 1995* (TSC Act). OEH has developed a separate guide on how CAPs can meet the requirements for certification (*Biodiversity Certification of Catchment Action Plans: Guide note for NSW catchment management authorities*[1]).

Other aspects of biodiversity conservation which are considered in CAP upgrades, including weed management and feral animal control, threat abatement and aquatic biodiversity, are the subject of other guidance material being developed by OEH, DPI and others.

[1] www.environment.nsw.gov.au/biodiversity/nswbiostrategy.htm

2 Considering state-scale native vegetation management benefits

2.1 Introducing the management benefits layers and NVM benefits map

OEH recommends that where an investment is made in improving native vegetation condition, it should be directed to where it will contribute highest benefit to terrestrial biodiversity by improving the condition, extent and connectivity of vegetation formations. This is described in terms of contributing to 'native vegetation management (NVM) benefits'.

2.2 Intent and purpose of considering NVM benefits

Figure 1 shows areas where the greatest benefit to biodiversity at the state scale is predicted to be achieved from management of native vegetation (including revegetation of previously cleared areas).

The analyses undertaken to develop the NVM benefits map reflect a recognition that no single emphasis in management necessarily has the same level of importance across all parts of the state. The techniques used to develop the map are described in a separate technical report (see Section 5).

This analysis will inform investment across a range of activities, including: protecting and improving the condition of the most important areas of depleted vegetation classes, revegetating cleared areas (particularly where these increase the area of the most fragmented types), and linking efforts to create a network of 'green corridors'. OEH has identified four types of NVM benefits:

NVM benefits

'Native vegetation management (NVM) benefits' refer to the analyses that predict where native vegetation management will contribute highest benefit to terrestrial biodiversity through improvement in the condition, extent and connectivity of native vegetation formations at state-scale.

- 'Manage' benefits relate to areas of existing native vegetation in generally good condition where the emphasis of management would be on maintaining this high condition. A number of highest 'manage' benefit areas occur in protected areas; this reflects the importance of continued management of protected areas where pressures are exerted by adjacent land uses.
- 'Improve' benefits also relate to areas of existing native vegetation, and while they are generally the best examples of more heavily altered vegetation types, they nonetheless require some form of active management to improve their condition.
- 'Revegetate' benefits depict largely cleared areas where re-establishment of species that previously occurred at the site (through replanting or natural regeneration) would contribute to improving terrestrial biodiversity condition at the state scale. The analysis tends to highlight the more extensively cleared vegetation types, notably in the sheep–wheat belt.
- 'Consolidate' benefits were derived through a different form of analysis to the other three benefits layers, and can be most simply described as a state-scale connectivity analysis. The layer highlights where emphasis on linking, or retaining the current connectivity values of core remnants, would provide greatest benefit. This includes a combination of (a) monitoring and targeted removal of threats (e.g. weeds, inappropriate fire regimes), notably in large protected areas; and potentially (b) revegetation to buffer and/or link native vegetation where this will maintain the internal viability of an otherwise isolated remnant.

Individual maps depicting each of these layers are included in Appendix 1. Darker areas indicate higher relative benefits.

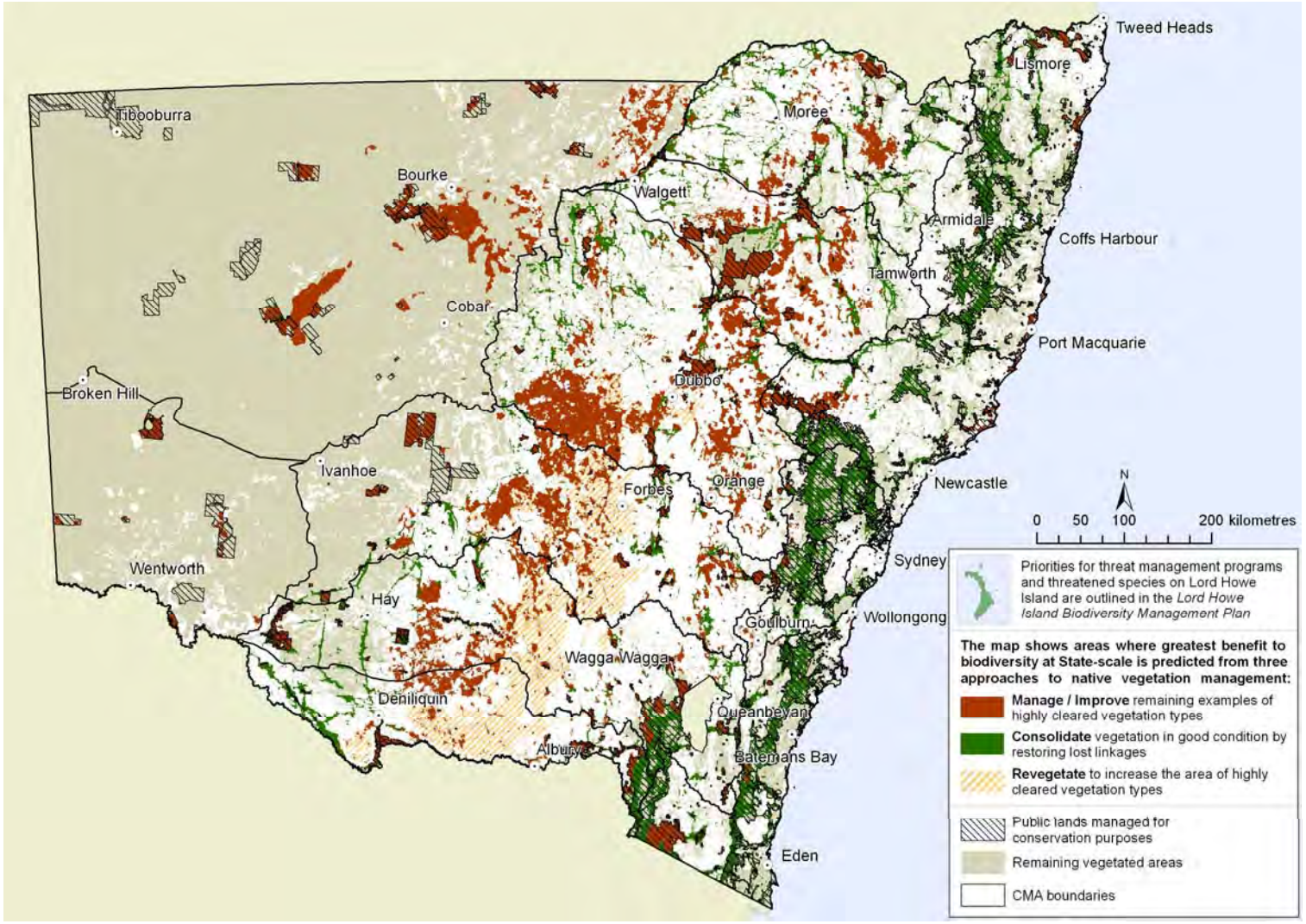


Figure 1: The NVM benefits map showing areas of predicted highest benefit to terrestrial biodiversity by improving the condition, extent and connectivity of vegetation classes at the state scale

Box 1: Overview of how to interpret areas mapped as comprising high NVM benefit

	Manage / Improve	Consolidate	Revegetate*
Colour on map	Brown	Green	Hatched orange
What the mapping depicts	Areas where management to maintain or improve condition within existing vegetation would contribute most benefit to biodiversity at the state scale	Areas that are well connected to existing vegetation or are part of an important habitat link or corridor	Cleared areas where revegetation would contribute most benefit to biodiversity at state scale
Outcome	Maintain or improve condition within the best remaining examples of heavily cleared vegetation classes	Maintain vegetation in good condition and improve its connectivity across a larger area	Increase the area of vegetation types which have been most heavily cleared
Approach	Protect and manage existing native vegetation	Monitor, control threats and enhance connectivity within and between areas in good condition	High quality mixed species plantings (using locally-appropriate provenance) or natural regeneration on cleared areas

* The intention of the mapping is to depict where revegetation, if undertaken, would provide greatest benefit to terrestrial biodiversity at the state scale. It is acknowledged that a large proportion of these mapped areas are productive agricultural lands. As such, it is likely that only a small proportion of these areas will be revegetated, notably where this contributes to ecosystem services that support farm productivity.

2.3 Features of the NVM benefits map

The NVM benefits map (Figure 1) depicts areas where investment to improve the condition, extent and connectivity of vegetation classes is likely to provide the highest benefit to terrestrial biodiversity. It was developed to depict the highest benefit areas for the four types of management interventions on a single map.

The broad management interventions depicted by the NVM benefits map are not mutually exclusive. Native vegetation management involves a combination of activities including active removal of pressures (e.g. grazing), encouraging natural regeneration, targeted replanting, and monitoring to trigger management of emergent threats in high condition areas. Rather than reflecting one or other type of activity in each management intervention, the mapping highlights how the relative emphasis of the selected management approach varies between the management benefits layers.

Of the four management benefits layers, greatest overlap occurs between the ‘manage’ and ‘improve’ layers. Both were derived from the same type of spatial analysis technique, and relate to existing native vegetation. They have been combined in Figure 1 to reduce the complexity of the map.

The map was developed by identifying the top five per cent of benefits that would be achieved from each of the ‘revegetate’ and ‘manage/improve’ areas. The top 10 per cent

of benefits from the ‘consolidate’ areas layer was used to ensure that areas outside protected areas are highlighted.

While the NVM benefits map depicts areas where highest benefit is predicted to accrue from investment, investing in areas outside the highest benefit bracket depicted in Figure 1 could also provide biodiversity benefit. CMAs and others are encouraged to consider each of the management benefits layers in Appendix 1 when developing investment priorities.

The management benefits layers and NVM benefits map are not intended to depict ‘high conservation value’ native vegetation, but rather are intended to complement national, regional and state-scale priorities for investment in threatened species recovery, threat abatement, and maintenance of ecosystem services such as water quality and carbon sequestration.

The scale at which the NVM benefits have been presented precludes their direct use in assessing applications to clear native vegetation under the *Native Vegetation Act 2003* (NV Act), or to evaluate proposals for funding to support rehabilitation works. They should be considered indicative, and should be validated by field assessment.

2.4 Applying the NVM benefits to develop regional priorities

Effective prioritisation of investment will require consideration of opportunities and constraints presented by factors other than biodiversity benefit. These include:

1. availability of funds
2. investment rules established by funding sources (including overlapping objectives for carbon sequestration, soil and water conservation, etc.)
3. regional program delivery capacity, and
4. local community interest and landholder willingness to participate in targeted areas.

OEH recommends encouraging investment where it will maximise terrestrial biodiversity benefit, and does not present these areas as ‘priorities’ in the absence of consideration of other factors. In the event that factors preclude investment in areas with highest NVM benefit, OEH encourages efforts to be directed towards other areas where benefit would be achieved in conjunction with other regional considerations.

The analyses used to derive spatial NVM benefits were less effective in predicting benefits in arid ecosystems across their range. Condition, and in turn likely response to management, is strongly influenced by total grazing pressure. The lack of data on total grazing pressure across western landscapes limited the sensitivity of the management benefits analyses to variation in condition in these areas. This reduced diagnostic ability meant that only 40,000 ha of the total 8.8 million hectares of arid acacia shrublands, and 317,000 ha of the total 6.9 million hectares of arid chenopod shrublands stood out from the analysis as having higher benefit from management than surrounding areas. This is recognised as an important limitation in the analysis, leading to a significant underestimate of the areas of arid vegetation types that require management.

OEH encourages investment in 10 per cent of each of the arid acacia shrublands and arid chenopod shrublands ecosystems (88,000 ha and 690,000 ha, respectively) where conditions on the ground suggest that management would be most beneficial. CMAs are encouraged to consider the NVM benefit areas that did appear in the management benefits analyses for arid ecosystems as comprising part of the 10 per cent of arid ecosystems targeted for investment.

2.5 Supporting information

In addition to the NVM benefits map, OEH will provide:

1. ***Data layers*** – To encourage use of the data input layers and benefits layers OEH distributed the GIS data in January 2012. These are available for download via www.environment.nsw.gov.au/research/AncillaryVegetationProductsDataInventory.htm (select *native vegetation management (NVM) benefits* from the list of datasets), or at the OEH Data Download site (http://mapdata.environment.nsw.gov.au/DDWA/). CMAs are encouraged to work with the layers and provide feedback on their strengths and limitations.
2. ***Technical report*** – A technical report is available which describes how the map of areas of highest biodiversity benefit from native vegetation management was derived www.environment.nsw.gov.au/biodiversity/nswbiostrategy.htm.

In addition to considering the positive benefits predicted from undertaking vegetation management in a particular location, the potential for adverse impacts (e.g. reduced catchment yield leading to increased in-stream salinity levels) will also need to be considered. Spatial analytical tools developed by OEH (such as SCaRPA) are used to assist CMAs to consider co-benefits or impacts across linked NRM themes.

2.6 Integrating NVM benefits in CAP upgrades

OEH recommends that CMAs consider state-scale NVM benefits through the following processes:

Step 1: Data layers provided by OEH

OEH has provided all CMAs with a series of GIS layers comprising: (a) base input layers, (b) map layers for the four types of NVM benefits, and (c) a map depicting areas predicted to contribute highest benefit to biodiversity at the state scale from investment in native vegetation management. The layers are described in Table 1.

Step 2: Intersect mapped native vegetation management areas with regional data to determine the extent to which state-scale priorities overlap with regional priorities

Where areas have significance at both state and regional scales, CMAs are encouraged to afford these the highest priority for investment. To clarify any relationship, CMAs are encouraged to map the state-scale NVM benefits in relation to catchment priorities. This will highlight whether/which areas identified as significant within the regional context appear similarly important at the state scale.

Where there is limited overlap between high benefit areas and catchment priorities, it would be useful to develop a clearer understanding of whether this is the result of:

3. limitations in the mapping of areas with highest state-scale NVM benefits caused by scale and spatial accuracy of data inputs
4. use of a broader set of regionally-defined criteria which highlight additional considerations beyond the state-scale analyses, and/or
5. specific priorities at the catchment scale which, while complementary to state-scale NVM benefits, are based on local significance values.

When comparing the management benefits layers and NVM benefits map with regional data, CMAs should be aware that these analyses were derived at 1:100,000 scale. While they can be interpreted to that scale, finer resolution comparison is not encouraged, and field verification of the data is recommended.

Table 1: Data and products available to help CMAs integrate areas of highest biodiversity benefit from native vegetation management

Product	Type	Description and purpose
Modelled vegetation classes	Input layer	Potential coarse-scale substitute for vegetation mapping where finer resolution, ground-checked product does is not available
NSW vegetation condition	Input layer	Predictive modelling of native vegetation condition; incorporates consideration of groundcover and changes in canopy density; the reliability of the model is less discriminatory in far western NSW due to limited data on total grazing pressure
'Manage' and 'Improve' layers	Output	Two separate layers derived from biodiversity forecasting analysis, generally equivalent to 'conserve' and 'repair' layers previously developed by OEH in regional-scale analyses
Revegetation layer	Output	A new analysis of poorest condition (and largely cleared) native vegetation amenable to revegetation to re-establish highly depleted vegetation types in heavily cleared landscapes
Landscape value ('Consolidate') layer	Output	Evaluation of contribution to cross-regional connectivity of woody vegetation derived using a spatial habitat links methodology and presented in the 'Consolidate' layer
Map of areas of highest state-scale NVM benefit	Output	Composite of the highest bracket for the above four map layers; provides a focus for investment in native vegetation management where factors such as investor preferences, cost, feasibility and community engagement permit
Extent of NVM benefits in each mapped ecosystem by CMA	Output – table	Area of each type of NVM benefit and the potential contribution that CMA investment in these areas could provide

Step 3: Interrogate data inputs, biodiversity benefits layers and the combined benefits map to ascertain the basis for state-scale biodiversity benefits

Regional and state analyses may not reliably identify all areas with characteristics that warrant preferential investment. Ultimately, the decision about whether the characteristics of an area of native vegetation would contribute to biodiversity at the state scale will only be confirmed by site assessment.

CMAs are encouraged to explore the mapping inputs and map layers to determine the characteristics of native vegetation where investment is likely to be highly beneficial. This could include:

- patterns of vegetation condition, status and/or distribution relative to adjacent regions – identifying vegetation types that might have been cleared to a greater or lesser extent relative to other catchments
- characteristics of vegetation where investment in management would have greatest benefit, following consideration of all other relevant factors (including vegetation type, extent of clearing and patterns of remnant distribution, and the size, condition and connectedness of remnants).

Appendix 2 provides information on the amount of each of the three categories of NVM benefit, shown on Figure1, that occur in eleven ecosystems types. The amounts of each form of NVM benefit on public and private land are broken down further based on whether

they are currently protected (e.g. NPWS reserves; conservation agreements on private land) or not protected. The analysis indicates there is potential for further NVM benefits on public and private protected areas. The range of categories of land or water managed for conservation purposes on both public and private lands are detailed in Appendix 3.

The area of NVM benefit for each ecosystem in each CMA is also expressed as a percentage of the total area of NVM benefit for that ecosystem in NSW. This provides an indication of the relative contribution each CMA could make to improving the condition of that ecosystem, particularly through programs aimed at securing NVM benefits on private land without any form of covenant.

CMAs are encouraged to incorporate information and statistics on the extent and area of NVM benefit for the ecosystems within the catchment, as a means of illustrating the contribution that the CAP makes towards state-scale priorities:

- maps showing areas of national, state and regional significance (where data is available) and a composite map showing relative priority in the catchment of vegetation based on significance at different scales
- table of statistics describing the distribution of areas with highest NVM benefits for each vegetation type in the catchment on different land tenures (Appendix 2).

Step 4: Implement investment plans which accommodate areas of highest NVM benefit

CMAs are encouraged to translate their understanding of NVM benefits by:

1. identifying landscapes which contain significant amounts of areas with highest NVM benefit, and where cross-tenure partnerships would enhance the resilience of species and ecosystems at the landscape scale
2. targeting investment in vegetation management activities (i.e. on-ground works) to areas with highest NVM benefit, where site assessment confirms that management will improve the condition of remnant vegetation or revegetate areas that are likely to provide benefits to terrestrial biodiversity.

2.7 Relationship to ‘resilience’ approaches

CMAs are applying ‘resilience thinking’ to develop state and transition models which identify drivers and pressures that influence natural resource condition, and highlight opportunities to avoid irretrievable change in condition of priority assets. The NVM benefits analyses provide an indication of state context as CMAs seek to understand the significance of native vegetation. The analyses potentially identify areas with greater likelihood of comprising conditions more able to persist and be enhanced to increase ecosystem resilience:

- Areas with high ‘manage’ benefits generally represent areas of native vegetation which remain in relatively good condition and which require management to maintain that condition. Emphasis on avoiding loss in condition would ensure critical condition thresholds are not crossed.
- Areas depicted as having high ‘improve’ benefits generally include native vegetation in lower condition (but nonetheless in better condition relative to other areas of the same vegetation type) which would be amenable to improvement to maximise their ‘buffering’ from critical condition and fragmentation thresholds.
- Areas depicted with high ‘consolidate’ benefits similarly have potential for rehabilitation to enhance the overall connectedness of remnant vegetation – this in turn has potential to enhance the resilience of linked natural areas overall.

2.8 Relevance to project development and funding proposals

Development of project proposals for funding under the 2012–13 round of the Biodiversity Fund demonstrated the role of the state-scale management benefits analyses in supporting implementation of Australian Government NRM investment programs. A number of proposals by NSW agencies, CMAs and non-government organisations included portions of the NVM benefits mapping to support claims of the significance of intended investment areas.

The mapping is also underpinning the NSW Government's position on where it considers investment from the Biodiversity Fund would be most effective. The 'consolidate' benefits have direct relevance to demonstrating opportunities to enhance connectivity and contribute to the National Wildlife Corridors plan. Each of the management benefits layers similarly has direct application to prioritising and contextualising investment under the Clean Energy Futures Land Sector Package.

The Australian Government has *Principles for the Regional NRM Planning for Climate Change Fund* to assist CMAs in embedding climate change adaptation and mitigation strategies in catchment planning. The principles identify attributes of climate-ready NRM plans which include identifying opportunities and management strategies to maximise environmental benefits, such as biodiverse plantings, landscape connectivity and protection of remnant vegetation. The NVM benefits analysis can directly assist CMAs to develop CAPs that have this attribute.

Furthermore, the NVM benefits analysis is relevant to developing programs that would contribute towards two targets in *Australia's Biodiversity Conservation Strategy 2010–2030*:

Target 4: By 2015, achieve a national increase of 600,000 km^2 of native habitat managed primarily for biodiversity conservation, and

Target 5: By 2015, 1000 km^2 of fragmented landscapes are being restored to improve ecological connectivity.

2.9 Potential to refine boundaries of mapped NVM benefits

The accuracy of maps provided in the draft Strategy is limited by the scale and accuracy of data used to derive each of the benefits layers. The maps are intended as a guide to show areas where highest NVM benefits are likely to occur, and where investment in native vegetation management could be directed. Where state-scale NVM benefits and catchment-scale priorities overlap, CMAs are encouraged to adopt these areas as their highest priority for investment. However, it is recognised that CMAs and others hold data and mapping, in many cases developed with or by OEH, which is more accurate at a finer resolution than 1:100,000.

Two aspects of the biodiversity forecasting analysis for 'manage', 'improve' and 'revegetate' areas are amenable to use of finer resolution catchment scale data:

1. Utilise finer resolution vegetation mapping inputs to more accurately predict the occurrence of vegetation types that represent clear priority for investment (e.g. vegetation types that have been extensively cleared and where management of any remnants in moderate to good condition would have significant benefit).
2. Utilise regional-scale condition data which more reliably reflect site condition, and/or accommodate additional information on pressures acting at the site (weed infestation, feral predator populations, etc.).

3 Incorporating threatened species investment priorities

3.1 What is the Priorities Action Statement (PAS)?

The development and delivery of cost-effective priorities for threatened species is a requirement of the NSW *Threatened Species Conservation Act 1995* (TSC Act). The PAS outlines strategies for managing threatened species, threatened ecological communities, endangered populations and key threatening processes in NSW.

The PAS program, which has been operating since 2007, must be reviewed every three years. A revised PAS (PAS2) is currently being developed, incorporating findings of the latest PAS review. The first phase of the PAS2 program (2012–2016) will focus on managing and prioritising threatened species. During this time, methods for managing and prioritising endangered populations and threatened ecological communities will be developed for the next phase of the program. While these new methods are being developed, existing PAS actions and recovery plans can be used to guide CMA programs.

3.2 Six management streams for threatened species

The PAS2 identifies six categories of threatened species with distinctly different management requirements. All listed threatened species have been allocated to one of these 'management streams' (see Table 2). The management streams have been designed to help decision-makers and the public organise effort and determine the most appropriate management for each species.

OEH has provided each CMA with a draft list of the threatened species that have been recorded in their region, arranged by management stream. Final lists will be provided by the end of 2012. It is expected that draft management projects for all species (species projects) will be completed by December 2012. Draft species projects with management sites outside NPWS reserves will be provided to relevant agencies and CMAs to review the estimated costs and feasibility of the proposed management actions.

Table 2: The six management streams for threatened species in NSW

Site-managed species (~42% of all threatened spp.) require active site-based management. These species will be managed via targeted projects that are developed by experts, widely reviewed, assessed for feasibility, costed and prioritised	**Landscape-managed species (~14%)** are typically widely distributed and/or highly mobile and are subject to threats at landscape scales (most often habitat loss or degradation). These species will be managed predominantly via vegetation management policies and programs
Iconic species (1%) have exceptional social and/or cultural values in the community. Iconic Species Projects will be prepared based on existing recovery plans that will outline management sites, actions and costs. Iconic species will not be prioritised on the basis of cost-effectiveness	**Partnership species (~16%)** are migratory, vagrant, or have less than 10% of their distribution within NSW. Programs for these species are coordinated by other jurisdictions and NSW will remain an active participant
Data-deficient species (~18%) are species for which there is insufficient information on ecology, threats or distribution to develop a species project. A profile will outline key knowledge gaps and priorities for research and survey for OEH and partner institutions such as universities	**Keep watch species (~10%)** require no immediate investment, either because they have few known threats or they are known to be much more abundant than previously assumed. OEH will regularly review their status with respect to demographic or ecological changes

3.3 Species projects

Site-managed species projects will include information on implementation costs, benefit to the species and likelihood of success of each management action. These values will be incorporated into a cost-effectiveness priority score. Projects will then be placed into high, medium and low priority groups that can be used by a range of agencies to guide investment decisions from a statewide perspective. CMAs can use the priority categories to help guide the cost-effective allocation of resources for threatened species management within their catchment.

The site-managed species projects will detail management and monitoring actions at management sites. These sites occur on a range of public tenures (including OEH reserves, state forests, travelling stock routes and other public reserves) as well as on private lands (freehold and leasehold). Private landholders with management sites will be consulted to determine if they are willing to undertake voluntary management with funding assistance. Where landholders are not willing to participate, alternative sites will be explored.

OEH will engage all key implementation partners (including CMAs) during the annual project selection phase to identify and/or review their respective commitments to high priority projects. CMAs will be invited to:

- identify high priority projects within their catchment for which the CMA has capacity to participate in some/all actions in partnership with OEH, particularly with regard to sites occurring on private tenure
- identify projects for which the CMA could assume a lead role (for example, by coordinating a project in which all or most management sites occur on private land).

Species projects will be published online, to enable easy access. CMAs can choose to collaborate with any number of potential partners when implementing projects, including:

- corporate investors who will have the opportunity to support individual species via funding management activity for Site-managed or Iconic speces
- individual landholders who agree to participate in the program. Landholders can receive information via the website regarding how actions on their property can contribute to the species' security. CMAs may provide support and advice to local landholders who choose to be involved
- community groups wishing to participate in implementation of actions at management sites occurring in their local area may be supported by or partner with the CMA.

3.4 Integrating PAS2 investment priorities

OEH recommends that CMAs undertake a four step process to incorporate PAS2 priorities into CAPs and investment plans:

Step 1. Obtain support/reference materials from OEH

OEH has provided each CMA with a list of threatened species requiring management within the catchment, arranged according to management stream. OEH has also been seeking comments from CMAs on those draft species projects that have management sites on private land in their CMA. The species projects will be finalised by the end of 2012.

Species summary documents for all Data-deficient, Keep Watch and Partnership species occurring within the CMA, outlining key management and/or research requirements for each species will be provided in mid 2013.

Summary documents will also be provided for all Landscape-managed species in the CMA, outlining habitat requirements and the type and location of vegetation management and/or threat abatement activity that will benefit the species in July 2013.

Step 2: Identify Site-managed species projects for which the CMA could participate in implementation, given existing commitments, priorities and available resources

CMAs will seek to incorporate regional priorities for threatened species management in their CAP upgrades. Where capacity allows, OEH would encourage CMAs to align with the statewide priorities presented in the PAS2 (i.e. the investment priority categories for Site-managed species projects).

Step 3: Participate in the project selection phase

Where CMAs consider themselves best placed to lead the collaborative delivery of a project (for example, where all proposed management sites and actions occur on private land), OEH would welcome the opportunity to discuss this option further. This includes forming partnerships with OEH, other CMAs, other state agencies, local government, community groups or universities, and will be coordinated by OEH.

Step 4: Identify areas where vegetation management and/or threat abatement would benefit landscape species

Maintaining and increasing the extent of Landscape-managed species will largely rely on managing the native vegetation types used by these species.

An outline of how the revised PAS program can be referred to in CAPs and supporting documents is provided below:

Draft CAP – Suggested text that can be used or adapted is provided in **Box 2** below.

Box 2: Suggested text about the revised PAS for draft CAPs

The *Theatened Species Conservation Act 1995* (TSC Act) and the *Fisheries Management Act 1994* provide for the development and implementation of a Priorities Action Statement (PAS). A PAS outlines strategies for managing the threatened species, ecological communities, endangered populations and key threatening processes listed under each Act, and relative priorities for implementation of recovery and threat abatement strategies. The program has been operating since 2007.

OEH is undertaking a review of its implementation and evaluating its effectiveness. A new program (PAS2) is being developed in response to the findings and recommendations of the review. The goal of the new PAS2 is to maximise the number of threatened species that are secure in the wild in NSW. Key features include the development of species projects that will provide detailed information on the management and monitoring required for threatened species that can be secured through management at specific sites. Furthermore, these projects will be categorised on the basis of cost-effectiveness, to inform decisions on how to allocate NSW Government funding for threatened species management.

A new online database is also being developed that will provide access to the species projects and investment priority categories for use by other potential investors interested in contributing to threatened species conservation. Annual investment plans that are developed to implement the CAP will consider the priorities identified in the PAS2.

Supporting documents – Supporting documents for the CAP could include a list of threatened species that occur in the catchment and their management stream. Once the cost-effectiveness analysis of Site-managed species projects has been undertaken in December 2012, the investment priority categories (i.e. high, medium and low) could also be shown for each of these species. Consideration could also be given to including a map(s) of management sites for high priority Site-managed species.

An outline of the management and research/survey actions proposed for species in the other management streams could also be included.

OEH is developing a new database to support the PAS2. The PAS2 database will be available online and will include information on all the species projects including maps of management sites. The new database will be operational by mid 2013 in time for the commencement of the PAS2 in July 2013. CMAs are being consulted on the development of the database. The supporting document could refer to the PAS2 database, and a summary of its functions and content is provided in **Box 3**.

Box 3: Database to support the PAS2

Coordinating species projects and tracking outcomes for threatened species across the state is a large and complex task, which will be supported by a new online database developed and managed by OEH. The PAS2 database will link to the OEH threatened species website so that it can be accessed by any individual or group with internet access.

The PAS2 database will:

- display all species projects and species action statements on the website, providing a blueprint for coordinating species management across multiple tenures, jurisdictions and stakeholders around the state
- allow users to identify species and actions in their local area
- collect and store monitoring and outcome information
- generate reports for tracking performance for different users such as species project coordinators, action implementers, and species champions.

Annual investment plans – The investment priority categories and draft projects will be released for public comment in March 2013. Potential investors will be invited to nominate which projects they would be willing to contribute funding to, and/or actions they would be willing to undertake on management sites that occur on their lands.

For the Site-managed species, OEH will use the project priority categories to develop a draft program of projects that could be implemented with the funding available from OEH and other investors. The draft program will be provided to CMAs and other potential partners including agencies and councils that are associated with the management sites. As the projects require management actions on all management sites to be implemented in order to be effective, agreement of partners will be sought for the project to remain part of the program. It is planned to announce the three-year program of projects in mid 2013 and allocate funding so implementation can commence in August 2013.

4 Reporting

CMAs are encouraged to report on how CAP programs contribute towards:

a) spatial relationships between investments and areas of highest NVM benefit

b) implementation of high priority PAS2 species projects, and

c) narrative around how projects have been designed to deliver optimal NRM outcomes based on values, priorities, opportunities and longer-term investment considerations.

5 Further information

Related documents

NSW Native Vegetation Management Benefits Analyses: Technical report, Office of Environment and Heritage NSW, available at www.environment.nsw.gov.au/biodiversity/nswbiostrategy.htm.

Native vegetation management benefits datasets for 'manage', 'improve', 'revegetate' and 'consolidate' are available at either:

- www.environment.nsw.gov.au/research/AncillaryVegetationProductsDataInventory.htm, or
- http://mapdata.environment.nsw.gov.au/DDWA/.

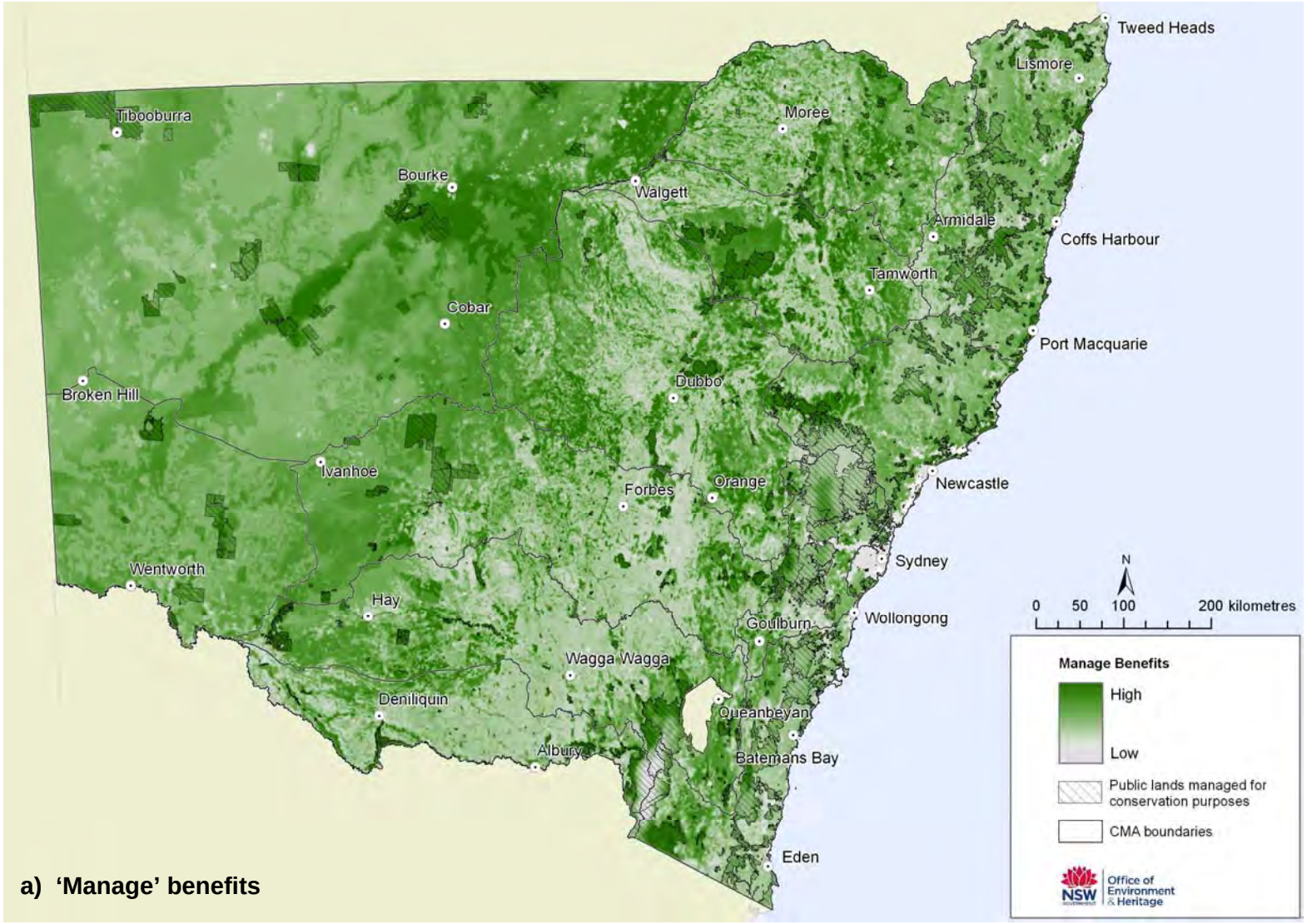
Principles for the Regional NRM Planning for Climate Change Fund, Department of Sustainability, Environment, Water, Population and Communities, available at www.environment.gov.au/cleanenergyfuture/regional-fund/about.html

Australia's Biodiversity Conservation Strategy 2010–2030, Department of Sustainability, Environment, Water, Population and Communities, available at www.environment.gov.au/biodiversity/publications/strategy-2010-30/index.html

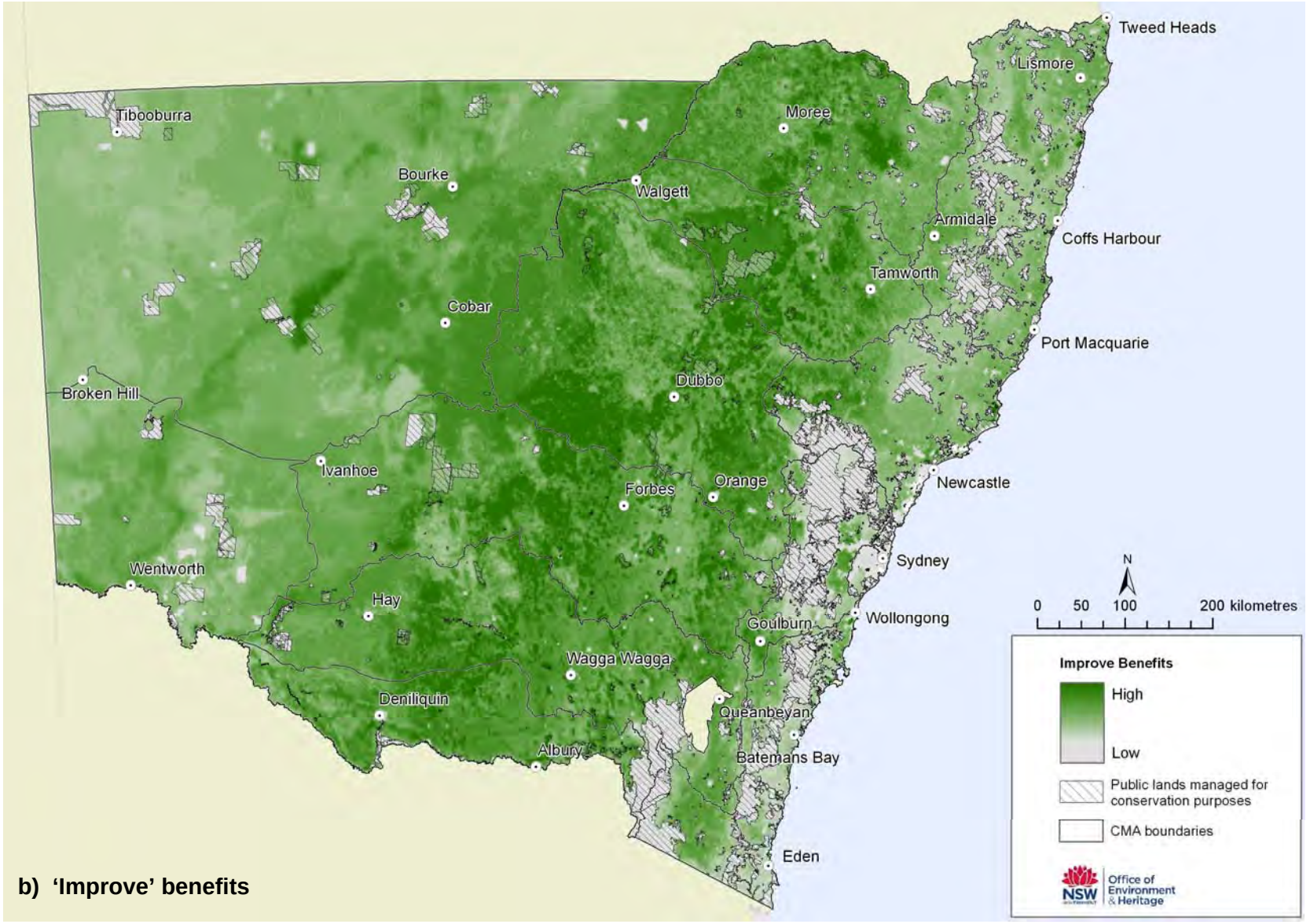
Enquiries

Enquiries about this guidance note should be directed to the Environment Line: 131 555 (NSW only) or info@environment.nsw.gov.au.

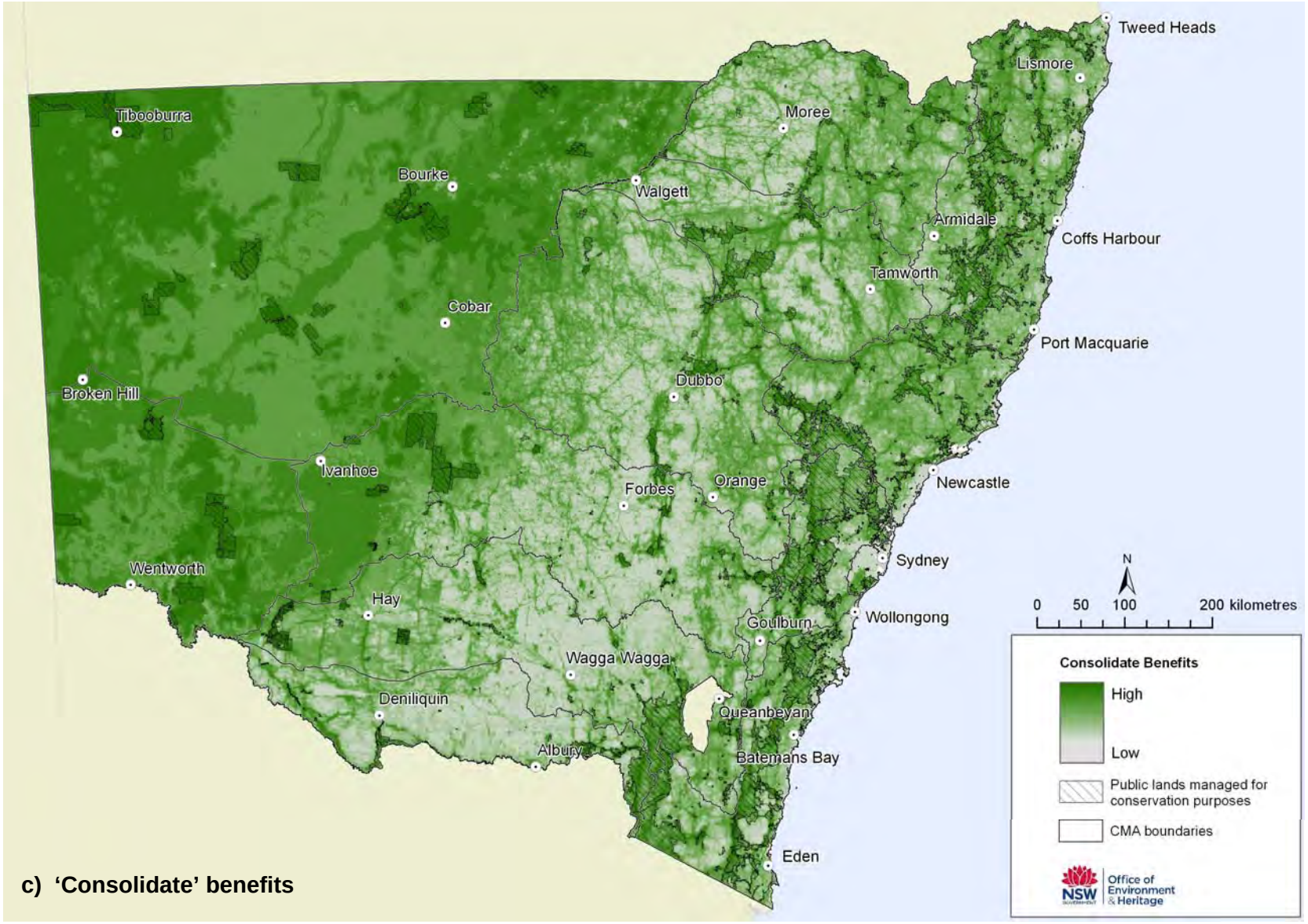
Appendix 1: Native vegetation management benefits layers



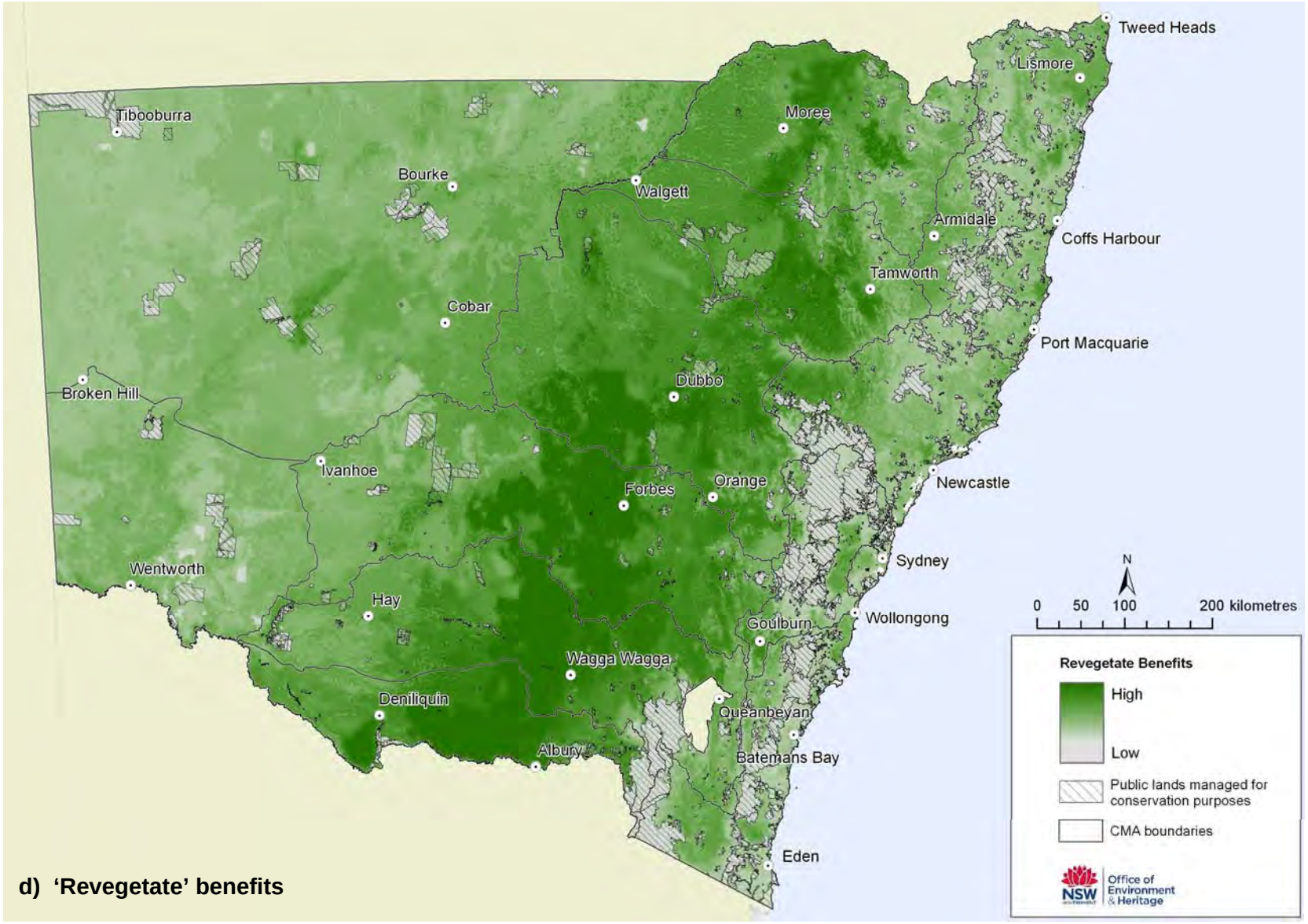
a) 'Manage' benefits



b) 'Improve' benefits



c) 'Consolidate' benefits



d) ‘Revegetate’ benefits

Appendix 2: Extent of highest NVM benefit in each ecosystem type by CMA and land tenure

All CMAs

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)			
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total
Alpine Complex	Public	Reserved	151,748	150,264	20	99,456	0	
		Not reserved	1,056	728	0	56	0	
	Private	With covenant	16	16	4	12	0	
		Without covenant	2,124	1,356	0	96	0	
	All		154,944	152,364	24	99,620	0	99,644
Arid acacia shrublands*	Public	Reserved	613,268	607,932	22,748	140	0	
		Not reserved	61,980	60,184	28	60	0	
	Private	With covenant	443,240	441,620	5,476	0	0	
		Without covenant	7,778,256	7,723,376	11,436	132	0	
	All		8,896,744	8,833,112	39,688	332	0	40,020
Arid chenopod shrublands*	Public	Reserved	835,884	757,224	114,336	63,720	0	
		Not reserved	403,904	239,960	2,152	11,204	0	
	Private	With covenant	339,800	315,712	7,816	3,220	0	
		Without covenant	6,458,728	5,556,028	29,152	85,496	16	
	All		8,038,316	6,868,924	153,456	163,640	16	317,112
Dry sclerophyll forest	Public	Reserved	3,412,940	3,280,048	1,049,352	1,358,672	292	
		Not reserved	1,356,104	988,872	118,264	178,336	2,364	
	Private	With covenant	254,916	163,784	41,264	42,768	368	
		Without covenant	7,922,744	3,383,384	767,576	771,080	48,956	
	All		12,946,704	7,816,088	1,976,456	2,350,856	51,980	4,379,292
Forested wetlands	Public	Reserved	273,812	240,048	134,704	42,416	900	
		Not reserved	289,584	196,232	22,280	55,316	4,564	
	Private	With covenant	52,300	29,696	11,904	6,200	1,820	
		Without covenant	1,611,184	580,624	91,988	123,128	48,000	
	All		2,226,880	1,046,600	260,876	227,060	55,284	543,220
Grasslands	Public	Reserved	151,048	107,572	62,944	10,684	124	
		Not reserved	121,980	25,636	9,976	4,204	208	
	Private	With covenant	219,308	111,360	95,208	1,340	864	
		Without covenant	2,264,292	952,448	158,988	32,332	11,532	
	All		2,756,628	1,197,016	327,116	48,560	12,728	388,404
Grassy woodlands	Public	Reserved	548,096	415,796	138,864	195,940	13,672	
		Not reserved	863,728	208,116	205,984	28,076	116,840	
	Private	With covenant	233,952	53,372	40,176	9,476	18,240	
		Without covenant	11,954,316	1,454,892	1,625,540	251,828	2,316,936	
	All		13,600,092	2,132,176	2,010,564	485,320	2,465,688	4,961,572
Heathlands	Public	Reserved	149,544	146,768	10,576	85,144	0	
		Not reserved	11,528	10,512	168	1,264	0	
	Private	With covenant	1,120	1,032	48	192	0	
		Without covenant	39,076	25,996	768	4,124	0	
	All		201,268	184,308	11,560	90,724	0	102,284
Rainforest	Public	Reserved	349,728	344,552	40,588	180,400	0	
		Not reserved	115,520	97,964	72	17,680	0	
	Private	With covenant	7,056	4,576	120	624	8	
		Without covenant	395,124	105,924	1,152	18,680	4	
	All		867,428	553,016	41,932	217,384	12	259,328
Semi-arid woodlands	Public	Reserved	2,170,488	1,839,572	563,112	145,520	1,684	
		Not reserved	1,458,268	698,256	177,992	141,204	13,780	
	Private	With covenant	1,129,048	925,716	122,760	18,256	2,688	
		Without covenant	19,623,460	12,681,152	1,421,588	515,136	178,208	
	All		24,381,264	16,144,696	2,285,452	820,116	196,360	3,301,928
Wet sclerophyll forest	Public	Reserved	1,251,104	1,231,616	71,504	645,880	0	
		Not reserved	912,332	779,924	560	112,300	0	
	Private	With covenant	50,316	36,200	144	4,072	0	
		Without covenant	1,978,600	1,045,100	3,732	137,164	0	
	All		4,192,352	3,092,840	75,940	899,416	0	975,356
CMA totals	**Public**	**Reserved**	**9,907,660**	**9,121,392**	**2,208,748**	**2,827,972**	**16,672**	
		Not reserved	**5,595,984**	**3,306,384**	**537,476**	**549,700**	**137,756**	
	Private	**With covenant**	**2,731,072**	**2,083,084**	**324,920**	**86,160**	**23,988**	
		Without covenant	**60,027,904**	**33,510,280**	**4,111,920**	**1,939,196**	**2,603,652**	
	All		**78,262,620**	**48,021,140**	**7,183,064**	**5,403,028**	**2,782,068**	**15,368,160**

* The lack of data on total grazing pressure meant that only 40,000 ha of the total 8.8 million hectares of arid acacia shrublands, and 317,000 hectares of the total 6.9 million hectares of arid chenopod shrublands can be predicted to have high NVM benefit. However, OEH's intent is to encourage investment in 10% of each of these ecosystems (88,000 ha and 690,000 ha respectively) where conditions on the ground suggest that management would be most beneficial. CMAs are encouraged to consider the likely benefits of investment in the mapped NVM benefit areas when undertaking assessments to guide investment across their wider extent.

Border Rivers–Gwydir CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Dry sclerophyll forest	Public	Reserved	222,048	202,204	86,452	60,600	0	147,052	
		Not reserved	120,516	63,540	3,856	17,016	4	20,876	
	Private	With covenant	40,456	27,352	1,212	9,108	0	10,320	
		Without covenant	1,164,268	538,220	34,192	141,496	116	175,804	
	All		1,547,288	831,316	125,712	228,220	120	354,052	8.08
Forested wetlands	Public	Reserved	10,868	6,716	3,536	3,124	4	6,664	
		Not reserved	19,288	10,312	2,164	3,420	24	5,608	
	Private	With covenant	1,240	516	216	132	0	348	
		Without covenant	99,312	30,140	8,404	12,764	300	21,468	
	All		130,708	47,684	14,320	19,440	328	34,088	6.28
Grasslands	Public	Reserved	16,748	7,728	2,584	7,280	0	9,864	
		Not reserved	25,132	3,580	992	2,260	4	3,256	
	Private	With covenant	3,736	328	0	36	0	36	
		Without covenant	277,976	44,004	7,576	16,096	112	23,784	
	All		323,592	55,640	11,152	25,672	116	36,940	9.51
Grassy woodlands	Public	Reserved	49,708	29,160	16,280	5,880	248	22,408	
		Not reserved	93,940	19,768	14,672	5,468	1,092	21,232	
	Private	With covenant	18,644	6,116	1,440	1,896	0	3,336	
		Without covenant	1,101,284	203,712	150,096	48,084	6,992	205,172	
	All		1,263,576	258,756	182,488	61,328	8,332	252,148	5.08
Heathlands	Public	Reserved	1,844	1,840	708	444	0	1,152	
		Not reserved	84	84	0	8	0	8	
	Private	With covenant	156	156	0	16	0	16	
		Without covenant	2,028	2,004	4	1,156	0	1,160	
	All		4,112	4,084	712	1,624	0	2,336	2.28
Rainforest	Public	Reserved	3,576	2,852	1,984	320	0	2,304	
		Not reserved	6,068	1,312	16	456	0	472	
	Private	With covenant	1,972	1,140	88	232	0	320	
		Without covenant	37,916	8,332	504	4,060	0	4,564	
	All		49,532	13,636	2,592	5,068	0	7,660	2.95
Semi-arid woodlands	Public	Reserved	116,572	56,072	24,984	37,520	20	62,524	
		Not reserved	232,512	59,788	15,452	32,264	780	48,496	
	Private	With covenant	39,384	9,592	4,292	5,136	444	9,872	
		Without covenant	1,337,608	246,200	85,112	130,700	7,676	223,488	
	All		1,726,076	371,652	129,840	205,620	8,920	344,380	10.43
Wet sclerophyll forest	Public	Reserved	6,396	6,248	1,020	652	0	1,672	
		Not reserved	836	796	0	64	0	64	
	Private	With covenant	60	40	0	16	0	16	
		Without covenant	9,780	8,632	4	1,008	0	1,012	
	All		17,072	15,716	1,024	1,740	0	2,764	0.28
CMA totals	**Public**	**Reserved**	**427,760**	**312,820**	**137,548**	**115,820**	**272**	**253,640**	
		Not reserved	**498,376**	**159,180**	**37,152**	**60,956**	**1,904**	**100,012**	
	Private	**With covenant**	**105,648**	**45,240**	**7,248**	**16,572**	**444**	**24,264**	
		Without covenant	**4,030,172**	**1,081,244**	**285,892**	**355,364**	**15,196**	**656,452**	
	All		**5,061,956**	**1,598,484**	**467,840**	**548,712**	**17,816**	**1,034,368**	**6.73**

Central West CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Arid acacia shrublands*	Public	Reserved	684	76	20	104	0	124	
		Not reserved	788	68	8	60	0	68	
	Private	With covenant	40	4	0	0	0	0	
		Without covenant	2,244	76	156	104	0	260	
	All		3,756	224	184	268	0	452	1.13%
Arid chenopod shrublands*	Public	Reserved	27,508	2,172	716	6,028	0	6,744	
		Not reserved	67,616	3,680	1,144	3,860	0	5,004	
	Private	With covenant	12,448	348	968	528	0	1,496	
		Without covenant	329,240	19,644	8,936	21,736	8	30,680	
	All		436,812	25,844	11,764	32,152	8	43,924	13.85%
Dry sclerophyll forest	Public	Reserved	222,896	203,580	181,776	9,600	44	191,420	
		Not reserved	182,448	96,908	50,224	12,888	228	63,340	
	Private	With covenant	45,300	25,804	14,428	4,860	148	19,436	
		Without covenant	1,398,608	476,372	321,152	83,764	6,100	411,016	
	All		1,849,252	802,664	567,580	111,112	6,520	685,212	15.65%
Forested wetlands	Public	Reserved	17,000	13,272	8,596	2,940	44	11,580	
		Not reserved	32,304	22,804	4,696	2,852	300	7,848	
	Private	With covenant	5,140	3,540	608	1,616	24	2,248	
		Without covenant	139,884	76,352	15,744	12,976	3,228	31,948	
	All		194,328	115,968	29,644	20,384	3,596	53,624	9.87%
Grasslands	Public	Reserved	7,076	3,980	304	876	0	1,180	
		Not reserved	24,016	7,240	544	796	0	1,340	
	Private	With covenant	5,268	3,204	128	240	0	368	
		Without covenant	138,076	32,032	3,020	2,660	8	5,688	
	All		174,436	46,456	3,996	4,572	8	8,576	2.21%
Grassy woodlands	Public	Reserved	50,600	18,888	25,696	4,840	784	31,320	
		Not reserved	204,096	35,620	72,944	5,172	13,336	91,452	
	Private	With covenant	41,296	8,168	13,740	968	1,616	16,324	
		Without covenant	2,137,920	239,668	546,820	33,808	185,080	765,708	
	All		2,433,912	302,344	659,200	44,788	200,816	904,804	18.24%
Heathlands	Public	Reserved	13,772	13,504	2,004	4,724	0	6,728	
		Not reserved	5,156	4,916	8	716	0	724	
	Private	With covenant	364	292	24	120	0	144	
		Without covenant	8,480	5,752	72	648	0	720	
	All		27,772	24,464	2,108	6,208	0	8,316	8.13%
Semi-arid woodlands	Public	Reserved	238,588	164,860	44,836	52,668	256	97,760	
		Not reserved	594,724	319,964	84,948	54,724	3,936	143,608	
	Private	With covenant	67,964	42,628	19,240	3,064	556	22,860	
		Without covenant	2,266,964	861,112	270,848	162,516	37,516	470,880	
	All		3,168,240	1,388,564	419,872	272,972	42,264	735,108	22.26%
Wet sclerophyll forest	Public	Reserved	8,184	7,020	1,144	3,188	0	4,332	
		Not reserved	22,200	5,300	44	328	0	372	
	Private	With covenant	3,200	1,228	12	232	0	244	
		Without covenant	105,272	31,560	628	4,188	0	4,816	
	All		138,856	45,108	1,828	7,936	0	9,764	1.00%
CMA totals	**Public**	**Reserved**	**586,324**	**427,368**	**265,092**	**84,968**	**1,128**	**351,188**	
		Not reserved	**1,133,372**	**496,524**	**214,560**	**81,396**	**17,800**	**313,756**	
	Private	**With covenant**	**181,020**	**85,216**	**49,148**	**11,628**	**2,344**	**63,120**	
		Without covenant	**6,526,748**	**1,742,608**	**1,167,376**	**322,400**	**231,940**	**1,721,716**	
	All		**8,427,464**	**2,751,716**	**1,696,176**	**500,392**	**253,212**	**2,449,780**	**15.94%**

* The lack of data on total grazing pressure meant that only 40,000 ha of the total 8.8 million hectares of arid acacia shrublands, and 317,000 hectares of the total 6.9 million hectares of arid chenopod shrublands can be predicted to have high NVM benefit. However, OEH's intent is to encourage investment in 10% of each of these ecosystems (88,000 ha and 690,000 ha respectively) where conditions on the ground suggest that management would be most beneficial. CMAs are encouraged to consider the likely benefits of investment in the mapped NVM benefit areas when undertaking assessments to guide investment across their wider extent.

Hawkesbury–Nepean CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Dry sclerophyll forest	Public	Reserved	842,252	827,264	9,376	486,788	0	496,164	
		Not reserved	72,860	60,828	96	7,680	0	7,776	
	Private	With covenant	18,720	10,580	224	3,196	0	3,420	
		Without covenant	453,908	268,076	2,980	51,516	0	54,496	
	All		1,387,740	1,166,748	12,676	549,180	0	561,856	12.83%
Forested wetlands	Public	Reserved	11,240	10,116	404	6,832	0	7,236	
		Not reserved	4,172	1,908	36	788	0	824	
	Private	With covenant	1,464	480	8	124	0	132	
		Without covenant	59,060	14,120	532	2,888	0	3,420	
	All		75,936	26,624	980	10,632	0	11,612	2.14%
Grasslands	Public	Reserved	16	12	0	0	0	0	
		Not reserved	116	20	0	0	0	0	
	Private	With covenant	864	28	8	0	0	8	
		Without covenant	5,984	280	32	0	0	32	
	All		6,980	340	40	0	0	40	0.01%
Grassy woodlands	Public	Reserved	9,568	7,332	1,648	1,828	0	3,476	
		Not reserved	9,096	4,004	268	236	0	504	
	Private	With covenant	11,540	2,492	288	1,084	0	1,372	
		Without covenant	315,072	57,788	9,804	3,508	0	13,312	
	All		345,276	71,616	12,008	6,656	0	18,664	0.38%
Heathlands	Public	Reserved	41,008	40,904	12	28,048	0	28,060	
		Not reserved	3,228	3,180	0	272	0	272	
	Private	With covenant	20	20	0	0	0	0	
		Without covenant	4,952	4,304	0	476	0	476	
	All		49,208	48,408	12	28,796	0	28,808	28.16%
Rainforest	Public	Reserved	18,016	17,648	0	10,976	0	10,976	
		Not reserved	860	752	0	128	0	128	
	Private	With covenant	84	56	0	24	0	24	
		Without covenant	7,552	4,124	0	520	0	520	
	All		26,512	22,580	0	11,648	0	11,648	4.49%
Wet sclerophyll forest	Public	Reserved	133,512	131,728	10,512	60,872	0	71,384	
		Not reserved	28,836	19,568	20	1,064	0	1,084	
	Private	With covenant	1,752	1,188	8	376	0	384	
		Without covenant	90,408	37,292	144	6,568	0	6,712	
	All		254,508	189,776	10,684	68,880	0	79,564	8.16%
CMA totals	**Public**	**Reserved**	**1,055,612**	**1,035,004**	**21,952**	**595,344**	**0**	**617,296**	
		Not reserved	**119,168**	**90,260**	**420**	**10,168**	**0**	**10,588**	
	Private	**With covenant**	**34,444**	**14,844**	**536**	**4,804**	**0**	**5,340**	
		Without covenant	**936,936**	**385,984**	**13,492**	**65,476**	**0**	**78,968**	
	All		**2,146,160**	**1,526,092**	**36,400**	**675,792**	**0**	**712,192**	**4.63%**

Hunter–Central Rivers CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Dry sclerophyll forest	Public	Reserved	422,144	394,412	113,068	165,176	0	278,244	
		Not reserved	93,780	66,344	4,292	8,700	0	12,992	
	Private	With covenant	17,624	10,116	1,308	1,812	0	3,120	
		Without covenant	954,868	356,580	49,644	66,888	16	116,548	
	All		1,488,416	827,452	168,312	242,576	16	410,904	9.38%
Forested wetlands	Public	Reserved	29,692	25,696	10,352	2,792	0	13,144	
		Not reserved	18,632	8,292	500	808	0	1,308	
	Private	With covenant	1,316	332	8	76	0	84	
		Without covenant	257,896	45,736	1,792	9,148	4	10,944	
	All		307,536	80,056	12,652	12,824	4	25,480	4.69%
Grasslands	Public	Reserved	552	544	16	0	0	16	
		Not reserved	4	0	4	0	0	4	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	8	8	4	0	0	4	
	All		564	552	24	0	0	24	0.01%
Grassy woodlands	Public	Reserved	28,832	23,284	7,132	11,236	0	18,368	
		Not reserved	21,928	7,920	1,328	1,584	0	2,912	
	Private	With covenant	7,744	1,652	428	376	0	804	
		Without covenant	400,416	71,264	25,700	25,128	28	50,856	
	All		458,920	104,120	34,588	38,324	28	72,940	1.47%
Heathlands	Public	Reserved	20,056	18,968	2,724	9,724	0	12,448	
		Not reserved	1,040	800	4	132	0	136	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	4,272	2,112	64	300	0	364	
	All		25,368	21,880	2,792	10,156	0	12,948	12.66%
Rainforest	Public	Reserved	82,588	81,824	1,220	46,648	0	47,868	
		Not reserved	36,696	34,464	4	4,732	0	4,736	
	Private	With covenant	1,736	1,268	0	52	0	52	
		Without covenant	69,400	24,080	92	3,256	0	3,348	
	All		190,420	141,636	1,316	54,688	0	56,004	21.60%
Wet sclerophyll forest	Public	Reserved	185,552	180,352	11,680	83,852	0	95,532	
		Not reserved	167,572	154,036	56	17,736	0	17,792	
	Private	With covenant	16,996	13,228	0	904	0	904	
		Without covenant	640,452	334,516	500	36,496	0	36,996	
	All		1,010,572	682,132	12,236	138,988	0	151,224	15.50%
CMA totals	**Public**	**Reserved**	**769,420**	**725,084**	**146,192**	**319,428**	**0**	**465,620**	
		Not reserved	**339,652**	**271,856**	**6,188**	**33,692**	**0**	**39,880**	
	Private	**With covenant**	**45,416**	**26,596**	**1,744**	**3,220**	**0**	**4,964**	
		Without covenant	**2,327,312**	**834,296**	**77,796**	**141,216**	**48**	**219,060**	
	All		**3,481,800**	**1,857,832**	**231,920**	**497,556**	**48**	**729,524**	**4.75%**

Lachlan CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Arid acacia shrublands*	Public	Reserved	640	640	0	0	0	0	
		Not reserved	52	48	0	0	0	0	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	6,360	5,340	4	0	0	4	
	All		7,052	6,028	4	0	0	4	0.01%
Arid chenopod shrublands*	Public	Reserved	74,736	71,828	21,080	10,436	0	31,516	
		Not reserved	48,656	41,744	244	1,668	0	1,912	
	Private	With covenant	27,300	26,228	0	36	0	36	
		Without covenant	929,908	857,940	1,740	8,728	0	10,468	
	All		1,080,600	997,740	23,064	20,868	0	43,932	13.85%
Dry sclerophyll forest	Public	Reserved	102,896	96,896	75,640	11,996	40	87,676	
		Not reserved	55,328	22,980	10,084	9,424	620	20,128	
	Private	With covenant	22,516	13,916	5,176	6,432	24	11,632	
		Without covenant	794,204	183,788	78,748	95,052	9,660	183,460	
	All		974,944	317,580	169,648	122,904	10,344	302,896	6.92%
Forested wetlands	Public	Reserved	14,540	11,628	6,948	2,052	620	9,620	
		Not reserved	19,624	10,804	2,500	1,768	3,168	7,436	
	Private	With covenant	7,456	4,868	1,580	420	1,312	3,312	
		Without covenant	164,748	68,324	18,112	11,768	29,104	58,984	
	All		206,368	95,624	29,140	16,008	34,204	79,352	14.61%
Grasslands	Public	Reserved	212	52	16	16	8	40	
		Not reserved	120	68	24	0	44	68	
	Private	With covenant	292	276	184	0	32	216	
		Without covenant	6,096	2,124	812	24	816	1,652	
	All		6,720	2,520	1,036	40	900	1,976	0.51%
Grassy woodlands	Public	Reserved	39,132	18,512	19,480	2,128	5,712	27,320	
		Not reserved	157,152	16,548	47,128	2,912	53,020	103,060	
	Private	With covenant	52,600	6,580	9,636	788	7,088	17,512	
		Without covenant	2,379,084	100,232	435,596	30,868	736,444	1,202,908	
	All		2,627,968	141,872	511,840	36,696	802,264	1,350,800	27.23%
Heathlands	Public	Reserved	372	372	360	0	0	360	
		Not reserved	0	0	0	0	0	0	
	Private	With covenant	68	68	16	0	0	16	
		Without covenant	80	76	0	4	0	4	
	All		520	516	376	4	0	380	0.37%
Semi-arid woodlands	Public	Reserved	402,244	362,112	135,424	12,484	1,128	149,036	
		Not reserved	186,864	96,968	54,080	18,500	5,500	78,080	
	Private	With covenant	63,432	36,576	7,352	4,228	964	12,544	
		Without covenant	2,661,324	1,228,960	245,732	72,284	80,460	398,476	
	All		3,313,864	1,724,616	442,588	107,496	88,052	638,136	19.33%
Wet sclerophyll forest	Public	Reserved	8,816	8,468	6,008	1,092	0	7,100	
		Not reserved	14,148	2,840	96	2,132	0	2,228	
	Private	With covenant	2,860	388	0	20	0	20	
		Without covenant	30,284	4,228	776	1,380	0	2,156	
	All		56,108	15,924	6,880	4,624	0	11,504	1.18%
CMA totals	**Public**	**Reserved**	**643,588**	**570,508**	**264,956**	**40,204**	**7,508**	**312,668**	
		Not reserved	**481,944**	**192,000**	**114,156**	**36,404**	**62,352**	**212,912**	
	Private	**With covenant**	**176,524**	**88,900**	**23,944**	**11,924**	**9,420**	**45,288**	
		Without covenant	**6,972,088**	**2,451,012**	**781,520**	**220,108**	**856,484**	**1,858,112**	
	All		**8,274,144**	**3,302,420**	**1,184,576**	**308,640**	**935,764**	**2,428,980**	**15.81%**

* The lack of data on total grazing pressure meant that only 40,000 ha of the total 8.8 million hectares of arid acacia shrublands, and 317,000 hectares of the total 6.9 million hectares of arid chenopod shrublands can be predicted to have high NVM benefit. However, OEH's intent is to encourage investment in 10% of each of these ecosystems (88,000 ha and 690,000 ha respectively) where conditions on the ground suggest that management would be most beneficial. CMAs are encouraged to consider the likely benefits of investment in the mapped NVM benefit areas when undertaking assessments to guide investment across their wider extent.

Lower Murray–Darling CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Arid chenopod shrublands*	Public	Reserved	224,192	205,716	47,920	0	0	47,920	
		Not reserved	58,436	30,888	0	0	0	0	
	Private	With covenant	54,788	50,332	4	0	0	4	
		Without covenant	1,588,012	1,522,956	436	0	0	436	
	All		1,925,428	1,809,892	48,360	0	0	48,360	15.25%
Forested wetlands	Public	Reserved	11,768	11,156	2,676	0	0	2,676	
		Not reserved	20,780	19,168	24	0	0	24	
	Private	With covenant	456	392	0	0	0	0	
		Without covenant	45,972	40,928	44	0	0	44	
	All		78,976	71,644	2,744	0	0	2,744	0.51%
Semi-arid woodlands	Public	Reserved	395,692	367,520	32,980	0	0	32,980	
		Not reserved	68,956	57,428	300	0	0	300	
	Private	With covenant	321,016	300,012	756	0	0	756	
		Without covenant	3,078,496	2,796,296	6,368	0	0	6,368	
	All		3,864,160	3,521,256	40,404	0	0	40,404	1.22%
CMA totals	**Public**	**Reserved**	**653,404**	**606,012**	**83,576**	**0**	**0**	**83,576**	
		Not reserved	**157,464**	**116,128**	**324**	**0**	**0**	**324**	
	Private	**With covenant**	**389,772**	**364,224**	**760**	**0**	**0**	**760**	
		Without covenant	**4,985,148**	**4,632,848**	**6,848**	**0**	**0**	**6,848**	
	All		**6,185,788**	**5,719,212**	**91,508**	**0**	**0**	**91,508**	**0.60%**

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Murray CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Alpine Complex	Public	Reserved	40,672	40,656	12	27,812	0	27,824	
		Not reserved	0	0	0	0	0	0	
	Private	With covenant	4	4	4	0	0	4	
		Without covenant	0	0	0	0	0	0	
	All		40,676	40,660	16	27,812	0	27,828	27.93%
Arid chenopod shrublands*	Public	Reserved	9,856	7,852	616	6,648	0	7,264	
		Not reserved	11,848	5,020	32	496	0	528	
	Private	With covenant	5,052	4,500	328	1,552	0	1,880	
		Without covenant	189,880	95,336	1,220	13,404	8	14,632	
	All		216,636	112,708	2,196	22,100	8	24,304	7.66%
Dry sclerophyll forest	Public	Reserved	70,288	68,852	51,444	12,452	0	63,896	
		Not reserved	15,740	5,780	1,564	1,960	40	3,564	
	Private	With covenant	5,504	3,332	1,744	464	4	2,212	
		Without covenant	129,208	42,492	14,472	10,548	2,708	27,728	
	All		220,740	120,456	69,224	25,424	2,752	97,400	2.22%
Forested wetlands	Public	Reserved	56,664	50,556	43,344	5,732	104	49,180	
		Not reserved	66,776	55,072	3,516	40,056	240	43,812	
	Private	With covenant	21,980	12,920	7,168	3,148	36	10,352	
		Without covenant	221,856	104,112	19,332	52,696	8,032	80,060	
	All		367,276	222,660	73,360	101,632	8,412	183,404	33.76%
Grasslands	Public	Reserved	6,044	624	2,132	940	60	3,132	
		Not reserved	11,720	656	2,520	136	88	2,744	
	Private	With covenant	72,364	5,432	38,340	652	792	39,784	
		Without covenant	196,092	11,512	53,060	1,400	7,676	62,136	
	All		286,220	18,224	96,052	3,128	8,616	107,796	27.75%
Grassy woodlands	Public	Reserved	50,108	42,412	20,484	17,280	2,752	40,516	
		Not reserved	69,360	22,248	13,388	1,156	19,352	33,896	
	Private	With covenant	18,784	3,188	2,748	556	3,604	6,908	
		Without covenant	1,303,736	80,276	78,316	13,988	704,360	796,664	
	All		1,441,988	148,124	114,936	32,980	730,068	877,984	17.70%
Rainforest	Public	Reserved	108	108	8	56	0	64	
		Not reserved	0	0	0	0	0	0	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	0	0	0	0	0	0	
	All		108	108	8	56	0	64	0.02%
Semi-arid woodlands	Public	Reserved	23,892	11,228	7,440	7,064	152	14,656	
		Not reserved	45,084	14,648	3,360	9,176	964	13,500	
	Private	With covenant	33,024	5,828	6,260	2,148	528	8,936	
		Without covenant	663,132	84,408	32,848	51,564	34,596	119,008	
	All		765,132	116,112	49,908	69,952	36,240	156,100	4.73%
Wet sclerophyll forest	Public	Reserved	69,540	68,900	3,564	51,212	0	54,776	
		Not reserved	19,288	14,956	240	1,272	0	1,512	
	Private	With covenant	236	216	84	40	0	124	
		Without covenant	14,028	5,104	200	648	0	848	
	All		103,092	89,176	4,088	53,172	0	57,260	5.87%
CMA totals	**Public**	**Reserved**	**327,172**	**291,188**	**129,044**	**129,196**	**3,068**	**261,308**	
		Not reserved	**239,816**	**118,380**	**24,620**	**54,252**	**20,684**	**99,556**	
	Private	**With covenant**	**156,948**	**35,420**	**56,676**	**8,560**	**4,964**	**70,200**	
		Without covenant	**2,717,932**	**423,240**	**199,448**	**144,248**	**757,380**	**1,101,076**	
	All		**3,441,868**	**868,228**	**409,788**	**336,256**	**786,096**	**1,532,140**	**9.97%**

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Murrumbidgee CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Alpine Complex	Public	Reserved	51,356	51,324	8	34,040	0	34,048	
		Not reserved	8	8	0	0	0	0	
	Private	With covenant	12	12	0	12	0	12	
		Without covenant	80	72	0	24	0	24	
	All		51,456	51,416	8	34,076	0	34,084	34.21%
Arid chenopod shrublands*	Public	Reserved	86,756	58,392	32,376	40,396	0	72,772	
		Not reserved	174,340	115,736	608	5,152	0	5,760	
	Private	With covenant	16,876	11,268	80	1,104	0	1,184	
		Without covenant	838,700	495,164	9,612	41,392	0	51,004	
	All		1,116,672	680,560	42,676	88,044	0	130,720	41.22%
Dry sclerophyll forest	Public	Reserved	189,084	176,424	114,408	42,320	208	156,936	
		Not reserved	90,296	38,288	8,752	9,272	1,456	19,480	
	Private	With covenant	25,268	15,340	4,372	3,360	184	7,916	
		Without covenant	647,376	185,648	76,448	60,456	29,184	166,088	
	All		952,024	415,700	203,980	115,408	31,032	350,420	8.00%
Forested wetlands	Public	Reserved	35,940	32,672	31,212	1,464	128	32,804	
		Not reserved	21,000	13,468	3,076	720	740	4,536	
	Private	With covenant	5,356	3,008	1,908	236	440	2,584	
		Without covenant	112,672	51,648	18,984	5,796	6,552	31,332	
	All		174,968	100,796	55,180	8,216	7,860	71,256	13.12%
Grasslands	Public	Reserved	7,480	1,604	1,524	528	0	2,052	
		Not reserved	26,172	2,220	3,072	212	0	3,284	
	Private	With covenant	22,752	548	9,712	60	16	9,788	
		Without covenant	211,908	25,476	37,512	3,048	408	40,968	
	All		268,312	29,848	51,820	3,848	424	56,092	14.44%
Grassy woodlands	Public	Reserved	161,136	140,384	27,496	74,620	4,096	106,212	
		Not reserved	171,268	49,024	37,496	3,984	28,884	70,364	
	Private	With covenant	49,152	11,236	6,492	1,592	5,472	13,556	
		Without covenant	2,116,772	215,196	160,444	30,084	650,096	840,624	
	All		2,498,328	415,840	231,928	110,280	688,548	1,030,756	20.77%
Heathlands	Public	Reserved	372	372	128	228	0	356	
		Not reserved	8	8	0	0	0	0	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	36	36	4	0	0	4	
	All		416	416	132	228	0	360	0.35%
Semi-arid woodlands	Public	Reserved	71,832	44,092	39,552	12,844	128	52,524	
		Not reserved	110,300	31,800	11,084	12,304	2,600	25,988	
	Private	With covenant	30,284	8,688	9,188	2,144	196	11,528	
		Without covenant	1,269,652	199,836	202,964	52,400	17,848	273,212	
	All		1,482,068	284,416	262,788	79,692	20,772	363,252	11.00%
Wet sclerophyll forest	Public	Reserved	70,676	69,344	19,668	32,028	0	51,696	
		Not reserved	59,484	25,628	16	3,584	0	3,600	
	Private	With covenant	1,648	1,444	28	36	0	64	
		Without covenant	57,132	34,716	432	4,956	0	5,388	
	All		188,940	131,132	20,144	40,604	0	60,748	6.23%
CMA totals	**Public**	**Reserved**	**674,632**	**574,608**	**266,372**	**238,468**	**4,560**	**509,400**	
		Not reserved	**652,876**	**276,180**	**64,104**	**35,228**	**33,680**	**133,012**	
	Private	**With covenant**	**151,348**	**51,544**	**31,780**	**8,544**	**6,308**	**46,632**	
		Without covenant	**5,254,328**	**1,207,792**	**506,400**	**198,156**	**704,088**	**1,408,644**	
	All		**6,733,184**	**2,110,124**	**868,656**	**480,396**	**748,636**	**2,097,688**	**13.65%**

* The lack of data on total grazing pressure meant that only 40,000 ha of the total 8.8 million hectares of arid acacia shrublands, and 317,000 hectares of the total 6.9 million hectares of arid chenopod shrublands can be predicted to have high NVM benefit. However, OEH's intent is to encourage investment in 10% of each of these ecosystems (88,000 ha and 690,000 ha respectively) where conditions on the ground suggest that management would be most beneficial. CMAs are encouraged to consider the likely benefits of investment in the mapped NVM benefit areas when undertaking assessments to guide investment across their wider extent.

Namoi CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Dry sclerophyll forest	Public	Reserved	336,084	321,780	297,692	12,452	0	310,144	
		Not reserved	314,720	272,972	39,180	51,364	16	90,560	
	Private	With covenant	37,704	22,552	12,612	5,700	8	18,320	
		Without covenant	1,060,160	528,268	187,536	123,328	1,172	312,036	
	All		1,748,668	1,145,572	537,020	192,844	1,196	731,060	16.69%
Forested wetlands	Public	Reserved	10,352	8,936	6,492	1,216	0	7,708	
		Not reserved	13,192	8,716	2,388	1,400	92	3,880	
	Private	With covenant	1,984	892	388	240	8	636	
		Without covenant	75,304	29,008	7,612	4,632	780	13,024	
	All		100,832	47,552	16,880	7,488	880	25,248	4.65%
Grasslands	Public	Reserved	4,004	496	172	100	56	328	
		Not reserved	14,644	1,996	2,372	40	72	2,484	
	Private	With covenant	2,788	536	160	68	24	252	
		Without covenant	263,632	26,644	9,808	972	2,512	13,292	
	All		285,068	29,672	12,512	1,180	2,664	16,356	4.21%
Grassy woodlands	Public	Reserved	26,324	15,356	9,172	2,364	80	11,616	
		Not reserved	57,864	25,684	18,696	1,876	1,156	21,728	
	Private	With covenant	12,020	6,144	5,344	1,088	460	6,892	
		Without covenant	1,098,372	266,120	217,236	32,648	33,936	283,820	
	All		1,194,580	313,304	250,448	37,976	35,632	324,056	6.53%
Heathlands	Public	Reserved	760	756	672	72	0	744	
		Not reserved	356	356	152	76	0	228	
	Private	With covenant	88	84	8	48	0	56	
		Without covenant	3,024	2,532	592	1,020	0	1,612	
	All		4,228	3,728	1,424	1,216	0	2,640	2.58%
Rainforest	Public	Reserved	1,680	1,064	516	52	0	568	
		Not reserved	384	240	40	48	0	88	
	Private	With covenant	288	44	32	24	8	64	
		Without covenant	7,020	2,264	424	448	4	876	
	All		9,372	3,612	1,012	572	12	1,596	0.62%
Semi-arid woodlands	Public	Reserved	94,072	38,744	11,092	22,256	0	33,348	
		Not reserved	118,252	28,772	3,972	12,980	0	16,952	
	Private	With covenant	9,960	3,396	868	1,448	0	2,316	
		Without covenant	588,772	114,644	16,488	39,804	112	56,404	
	All		811,056	185,556	32,420	76,488	112	109,020	3.30%
Wet sclerophyll forest	Public	Reserved	6,980	6,504	188	3,000	0	3,188	
		Not reserved	8,824	8,224	4	136	0	140	
	Private	With covenant	1,144	868	0	416	0	416	
		Without covenant	27,356	12,784	900	4,416	0	5,316	
	All		44,304	28,380	1,092	7,968	0	9,060	0.93%
CMA totals	**Public**	**Reserved**	**480,256**	**393,636**	**325,996**	**41,512**	**136**	**367,644**	
		Not reserved	**528,240**	**346,960**	**66,804**	**67,920**	**1,336**	**136,060**	
	Private	**With covenant**	**65,976**	**34,516**	**19,412**	**9,032**	**508**	**28,952**	
		Without covenant	**3,123,780**	**982,264**	**440,596**	**207,272**	**38,516**	**686,384**	
	All		**4,198,252**	**1,757,376**	**852,808**	**325,736**	**40,496**	**1,219,040**	**7.93%**

Northern Rivers CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Dry sclerophyll forest	Public	Reserved	434,800	426,432	13,424	278,324	0	291,748	
		Not reserved	232,652	211,128	44	36,888	0	36,932	
	Private	With covenant	26,680	21,628	0	4,064	0	4,064	
		Without covenant	853,224	542,588	136	87,784	0	87,920	
	All		1,547,356	1,201,776	13,604	407,060	0	420,664	9.61%
Forested wetlands	Public	Reserved	60,524	55,420	20,652	10,688	0	31,340	
		Not reserved	55,592	32,596	2,060	2,432	0	4,492	
	Private	With covenant	3,900	1,936	20	52	0	72	
		Without covenant	343,644	93,048	600	6,640	0	7,240	
	All		463,660	183,000	23,332	19,812	0	43,144	7.94%
Grasslands	Public	Reserved	1,608	1,324	8	52	0	60	
		Not reserved	44	24	0	0	0	0	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	148	72	0	0	0	0	
	All		1,800	1,420	8	52	0	60	0.02%
Grassy woodlands	Public	Reserved	18,560	12,024	944	5,716	0	6,660	
		Not reserved	44,288	14,896	36	2,232	0	2,268	
	Private	With covenant	10,848	3,088	0	468	0	468	
		Without covenant	668,208	104,336	96	15,788	0	15,884	
	All		741,904	134,344	1,076	24,204	0	25,280	0.51%
Heathlands	Public	Reserved	12,936	11,896	3,964	1,832	0	5,796	
		Not reserved	524	408	4	0	0	4	
	Private	With covenant	136	128	0	4	0	4	
		Without covenant	3,652	2,520	32	84	0	116	
	All		17,248	14,952	4,000	1,920	0	5,920	5.79%
Rainforest	Public	Reserved	219,276	216,928	36,704	109,540	0	146,244	
		Not reserved	62,524	52,500	12	11,048	0	11,060	
	Private	With covenant	2,412	1,708	0	268	0	268	
		Without covenant	243,356	54,464	132	9,192	0	9,324	
	All		527,568	325,600	36,848	130,048	0	166,896	64.36%
Wet sclerophyll forest	Public	Reserved	445,092	439,020	16,240	227,260	0	243,500	
		Not reserved	375,412	349,584	84	50,512	0	50,596	
	Private	With covenant	17,132	14,060	12	1,696	0	1,708	
		Without covenant	812,008	465,268	148	63,344	0	63,492	
	All		1,649,644	1,267,932	16,484	342,812	0	359,296	36.84%
CMA totals	**Public**	**Reserved**	**1,192,796**	**1,163,044**	**91,936**	**633,412**	**0**	**725,348**	
		Not reserved	**771,036**	**661,136**	**2,240**	**103,112**	**0**	**105,352**	
	Private	**With covenant**	**61,108**	**42,548**	**32**	**6,552**	**0**	**6,584**	
		Without covenant	**2,924,240**	**1,262,296**	**1,144**	**182,832**	**0**	**183,976**	
	All		**4,949,180**	**3,129,024**	**95,352**	**925,908**	**0**	**1,021,260**	**6.65%**

Southern Rivers CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Alpine Complex	Public	Reserved	59,720	58,284	0	37,604	0	37,604	
		Not reserved	1,048	720	0	56	0	56	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	2,044	1,284	0	72	0	72	
	All		62,812	60,288	0	37,732	0	37,732	37.87%
Dry sclerophyll forest	Public	Reserved	548,968	542,200	106,072	269,696	0	375,768	
		Not reserved	174,072	147,576	172	22,360	0	22,532	
	Private	With covenant	15,104	13,144	188	3,772	0	3,960	
		Without covenant	400,512	229,584	2,268	46,024	0	48,292	
	All		1,138,656	932,504	108,700	341,852	0	450,552	10.29%
Forested wetlands	Public	Reserved	13,920	12,660	240	5,072	0	5,312	
		Not reserved	17,736	12,844	1,312	988	0	2,300	
	Private	With covenant	1,928	736	0	136	0	136	
		Without covenant	76,896	22,924	108	2,904	0	3,012	
	All		110,480	49,164	1,660	9,100	0	10,760	1.98%
Grasslands	Public	Reserved	3,840	2,284	404	840	0	1,244	
		Not reserved	12,868	3,740	28	760	0	788	
	Private	With covenant	2,180	704	32	284	0	316	
		Without covenant	211,232	47,428	264	8,040	0	8,304	
	All		230,120	54,156	728	9,924	0	10,652	2.74%
Grassy woodlands	Public	Reserved	113,312	108,120	10,268	70,048	0	80,316	
		Not reserved	34,348	12,360	28	3,448	0	3,476	
	Private	With covenant	11,224	4,692	60	660	0	720	
		Without covenant	398,008	114,172	1,332	17,904	0	19,236	
	All		556,892	239,344	11,688	92,060	0	103,748	2.09%
Heathlands	Public	Reserved	52,296	52,148	4	39,032	0	39,036	
		Not reserved	896	704	0	60	0	60	
	Private	With covenant	284	284	0	4	0	4	
		Without covenant	6,604	5,972	0	432	0	432	
	All		60,080	59,108	4	39,528	0	39,532	38.65%
Rainforest	Public	Reserved	23,576	23,284	156	12,736	0	12,892	
		Not reserved	8,940	8,660	0	1,268	0	1,268	
	Private	With covenant	564	360	0	24	0	24	
		Without covenant	29,108	12,452	0	1,204	0	1,204	
	All		62,188	44,756	156	15,232	0	15,388	5.93%
Wet sclerophyll forest	Public	Reserved	313,308	311,156	1,480	181,920	0	183,400	
		Not reserved	215,436	198,916	0	35,472	0	35,472	
	Private	With covenant	5,284	3,540	0	336	0	336	
		Without covenant	165,896	109,196	0	14,072	0	14,072	
	All		699,924	622,808	1,480	231,800	0	233,280	23.92%
CMA totals	**Public**	**Reserved**	**1,128,940**	**1,110,136**	**118,624**	**616,948**	**0**	**735,572**	
		Not reserved	**465,344**	**385,520**	**1,540**	**64,412**	**0**	**65,952**	
	Private	**With covenant**	**36,568**	**23,460**	**280**	**5,216**	**0**	**5,496**	
		Without covenant	**1,290,300**	**543,012**	**3,972**	**90,652**	**0**	**94,624**	
	All		**2,921,152**	**2,062,128**	**124,416**	**777,228**	**0**	**901,644**	**5.87%**

Sydney Metro CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Dry sclerophyll forest	Public	Reserved	21,480	20,004	0	9,268	0	9,268	
		Not reserved	3,692	2,528	0	784	0	784	
	Private	With covenant	40	20	0	0	0	0	
		Without covenant	66,408	31,768	0	4,224	0	4,224	
	All		91,620	54,320	0	14,276	0	14,276	0.33%
Forested wetlands	Public	Reserved	588	528	0	268	0	268	
		Not reserved	344	104	0	0	0	0	
	Private	With covenant	8	4	0	0	0	0	
		Without covenant	11,020	1,484	0	60	0	60	
	All		11,960	2,120	0	328	0	328	0.06%
Grassy woodlands	Public	Reserved	816	324	264	0	0	264	
		Not reserved	380	40	0	0	0	0	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	34,500	2,040	36	0	0	36	
	All		35,696	2,404	300	0	0	300	0.01%
Heathlands	Public	Reserved	6,128	6,008	0	1,040	0	1,040	
		Not reserved	236	56	0	0	0	0	
	Private	With covenant	4	0	0	0	0	0	
		Without covenant	5,948	688	0	4	0	4	
	All		12,316	6,752	0	1,044	0	1,044	1.02%
Rainforest	Public	Reserved	892	828	0	72	0	72	
		Not reserved	24	12	0	0	0	0	
	Private	With covenant	0	0	0	0	0	0	
		Without covenant	712	168	0	0	0	0	
	All		1,628	1,008	0	72	0	72	0.03%
Wet sclerophyll forest	Public	Reserved	3,048	2,876	0	804	0	804	
		Not reserved	296	76	0	0	0	0	
	Private	With covenant	4	0	0	0	0	0	
		Without covenant	25,984	1,804	0	88	0	88	
	All		29,332	4,756	0	892	0	892	0.09%
CMA totals	**Public**	**Reserved**	**32,976**	**30,576**	**264**	**11,452**	**0**	**11,716**	
		Not reserved	**4,972**	**2,816**	**0**	**784**	**0**	**784**	
	Private	**With covenant**	**56**	**24**	**0**	**0**	**0**	**0**	
		Without covenant	**144,572**	**37,952**	**36**	**4,376**	**0**	**4,412**	
	All		**182,576**	**71,368**	**300**	**16,612**	**0**	**16,912**	**0.11%**

Western CMA

Ecosystem	Current tenure	Conservation status	Vegetated extent (ha)		NVM benefits (ha)				% NVM benefits in CMA as total for ecosystem
			Pre1750	Current	Manage / Improve	Consolidate	Revegetate	Total	
Arid acacia shrublands*	Public	Reserved	590,192	585,596	22,728	36	0	22,764	
		Not reserved	51,848	51,424	20	0	0	20	
	Private	With covenant	429,688	428,128	5,476	0	0	5,476	
		Without covenant	7,496,984	7,445,292	11,276	28	0	11,304	
	All		8,568,712	8,510,440	39,500	64	0	39,564	98.86%
Arid chenopod shrublands*	Public	Reserved	412,836	411,264	11,628	212	0	11,840	
		Not reserved	43,004	42,892	124	28	0	152	
	Private	With covenant	223,336	223,036	6,436	0	0	6,436	
		Without covenant	2,582,848	2,564,988	7,208	232	0	7,440	
	All		3,262,024	3,242,180	25,396	472	0	25,868	8.16%
Forested wetlands	Public	Reserved	716	692	252	236	0	488	
		Not reserved	144	144	8	84	0	92	
	Private	With covenant	72	72	0	20	0	20	
		Without covenant	2,920	2,800	724	856	0	1,580	
	All		3,852	3,708	984	1,196	0	2,180	0.40%
Grasslands	Public	Reserved	103,444	88,916	55,784	52	0	55,836	
		Not reserved	7,144	6,092	420	0	0	420	
	Private	With covenant	109,064	100,304	46,644	0	0	46,644	
		Without covenant	953,140	762,868	46,900	92	0	46,992	
	All		1,172,792	958,180	149,748	144	0	149,892	38.59%
Semi-arid woodlands	Public	Reserved	827,592	794,940	266,804	684	0	267,488	
		Not reserved	101,576	88,888	4,796	1,256	0	6,052	
	Private	With covenant	563,984	518,996	74,804	88	0	74,892	
		Without covenant	7,757,512	7,149,696	561,228	5,868	0	567,096	
	All		9,250,664	8,552,520	907,632	7,896	0	915,528	27.73%
CMA totals	**Public**	**Reserved**	1,934,780	1,881,408	357,196	1,220	0	358,416	
		Not reserved	203,724	189,444	5,368	1,376	0	6,744	
	Private	**With covenant**	1,326,244	1,270,552	133,360	108	0	133,468	
		Without covenant	18,794,348	17,925,732	627,400	7,096	0	634,496	
	All		22,259,096	21,267,136	1,123,324	9,800	0	1,133,124	7.37%

* The lack of data on total grazing pressure meant that only 40,000 ha of the total 8.8 million hectares of arid acacia shrublands, and 317,000 hectares of the total 6.9 million hectares of arid chenopod shrublands can be predicted to have high NVM benefit. However, OEH's intent is to encourage investment in 10% of each of these ecosystems (88,000 ha and 690,000 ha respectively) where conditions on the ground suggest that management would be most beneficial. CMAs are encouraged to consider the likely benefits of investment in the mapped NVM benefit areas when undertaking assessments to guide investment across their wider extent.

Appendix 3: Public and private land managed for conservation purposes

Tenure	Categories of land / water managed for conservation purposes	Data source
Public	OEH estate (national parks, nature reserves, state conservation areas)[1]	OEH
	OEH estate (not gazetted)	OEH
	Aquatic reserves[1]	OEH
	State forest flora reserves[1]	DPI
	Travelling stock reserves[2]	DPI
	Crown reserves (with a conservation purpose[3])	DPI
	Marine parks (Sanctuary zones)	Marine Park Authority DPI, DPC
	Other Crown lands with a conservation agreement	DPI
Private	Western Lands Lease with a conservation agreement or covenant[4], including conservation covenants held on title (DPI database). This information overlaps with other data such as wildlife refuges and PVPs. NCT covenants.	DPI
	Freehold land with a conservation agreement or covenant including wildlife refuges[1], voluntary conservation agreements[1], Crown land conversion covenants (compliance), property agreements (in perpetuity)[1], PVP agreements (in perpetuity)[1]	Miscellaneous including OEH, CMAs, and private organisations

[1] aligns with the categories found within the Native Vegetation Report Card 'New Conservation Areas' and 'New Restoration/Revegetation of Native Vegetation' categories.
[2] Travelling stock reserves (TSRs) are parcels of Crown land that are reserved under legislation for use by travelling stock and are managed by livestock health and pest authorities (LHPAs). LHPAs manage the land to strike a balance between the needs of travelling or grazing stock and the conservation of native species.
[3] Crown reserve categories are defined in DECCW 2010, *Deriving priority areas for investment. A technical report to accompany the Draft NSW Biodiversity Strategy*.
[4] Western Land Leases are technically public land, however they are managed privately with few restrictions beyond those that generally apply to private land.