Title	Native Vegetation Management Benefits - Series 2

Abstract

Native Vegetation Management Benefits (NVMB) mapping

NVMB mapping is a way of identifying the relative benefits to NSW biodiversity of protecting or restoring native vegetation. NVMB mapping is used for cross-tenure, whole-of-landscape conservation planning, decision support, prioritisation and scenario planning.

The NVMB method employs well-developed ecological theory to combine vascular plant records, bioclimatic data, vegetation condition mapping and connectivity analysis.

NVMB Series 2

Series 2 is a fully complementary set of NVMB layers with consistent units (with a range from zero to one), such that for any location, the set of benefit values across the set of NVMB layers sum to a single maximum level of overall potential benefit for that location, referred to as the 'Maximum Biodiversity Benefit' (MBB). MBB reflects each location's capacity to support species and communities which have been depleted across NSW. The schema describing the nesting of the set of layers is provided in the attached resource: NVMB Series2 chart. Two 'delta' (change) layers are included to represent what additional benefits can be achieved in 15 years of fostering regeneration (delta improve benefits) and through full restoration action (delta restore benefits). A 'manage and improve' layer quantifies the combined benefits conserved by managing existing vegetation, and the additional benefits that can accrue through fostering regeneration (over a nominal 15-year period).

All layers are derived from a common set of inputs. The various NVMB layers become differentiated through the application of variants of the ecological condition layer, at the final stage of developing the layers (current condition is used for manage benefits, partially restored condition for improve benefits, and fully restored condition for the restoration benefits).

Series 2 represents a slight but significant departure from previous NVMB versions. Previous versions were provided in 4 separate SEED records: Manage benefits; Improve benefits; Restore benefits; and Landscape benefits. The landscape value benefits from the previous version are now integrated into Manage, Improve and Restoration benefits. A new layer of Maximum Biodiversity Benefit is added.

End users will notice significant differences between previous versions and these Series 2 layers. Stage 2 puts greater emphasis on cross-scale ecological connectivity across the benefit layers rather than treating landscape connectivity separately. For example, cleared areas of highly diminished communities such as box-woodlands in the wheat-sheep belt, are only given the highest restore benefit value in areas that are also well connected to areas of existing native vegetation.

Versioning

Series 2 is an update on the previous NVMB series (Series 1). Users may wish to employ Series 1 in cases where connectivity considerations are less (e.g., for large scale conservation actions - which produce their own 'critical mass'). In most cases Series 2 is the preferred source for conservation planning.

Due to the Series 2 layers forming an integrated set, they are provided together in a single SEED record. Because of the step change from previous version, Series 2 is reset as Series 2 v1.0.

Series 2 v1.0 is relevant to 2017. It does not consider the 2019-20 megafires or the degree of subsequent recovery. However, 2017 and 2020 NVMB surfaces have been produced in Series 1 (see below for more information).

More technical detail

The probabilistic method used for accumulating values draws on the 'equitable' approach (Drielsma and Love 2021) which applies 'diminishing returns' to connectivity, rather than the previous 'any additional unit of connectivity always provides proportionally more benefit'.

This series also incorporates the following advances:

- use of continuous values in GDM/environmental space (i.e., no loss of information by unnecessarily reducing to discrete classes)

- by incorporating an improved connectivity links approach (Drielsma et al. 2022), the new layers better consider how different locations can contribute to

maintaining or restoring habitat linkages that allow species to move and migrate across landscapes

- incorporation of generic REMP approach (Drielsma and Love 2021) for spatial context component

More information

For more detail on the NVMB Series 2 method view this presentation.

Series 1

The previous series of LVMB mapping can be found at the following SEED records: Manage benefits; Improve benefits; Restore benefits; Landscape benefits.

Post-megafires

2017 and 2020 (post-megafire) NVMB surfaces have been produced in Series 1, for manage and restore. If comparing between 2017 and 2020 be sure to use outputs from the same series (i.e., series 1).

Climate-informed NVMB

Climate-informed versions of the manage benefits and restore benefits (Series 1 v.1) can be found here. These are being updated in 2024-24.

References

Drielsma MJ, Love J, & Thapa R 2023, Ecological models for reporting and conservation prioritisation - meeting the rising challenges, with examples from NSW, Australia. Presentation to the 6th International Ecosummit, Gold Coast 13-17 June 2023.

Drielsma MJ, Love J, Thapa R, Taylor S, & Williams KJ 2022, General Landscape Connectivity Model (GLCM): a new way to map whole of landscape biodiversity functional connectivity for operational planning and reporting. Ecological Modelling, Vol.465, pp.109858, doi: https://doi.org/10.1016/j.ecolmodel.2021.109858.

Drielsma M, & Love J 2021, An equitable method for evaluating habitat amount and potential occupancy. Ecological Modelling, 440:109388, doi: https://doi.org/10.1016/j.ecolmodel.2020.109388.

Drielsma MJ, Ferrier S, Howling G, Manion G, Taylor S, Love J (2014) The Biodiversity Forecasting Toolkit: Answering the 'how much', 'what' and 'where' of planning for biodiversity persistence, Ecological Modelling, 274:80-91. https://www.sciencedirect.com/science/article/pii/S0304380013005760?via%3Dihub.

Resource locator

Data Quality Statement

Name: Data Quality Statement

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data quality statement for Native Vegetation Vegetation Benefits - SERIES 2

Function: download

NVMB Series 2 chart

Name: NVMB Series 2 chart

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Shows the relationships between the series 2 spatial layers

Function: download

Maximum Biodiversity Benefits

Name: Maximum Biodiversity Benefits

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

The maximum benefit to NSW biodiversity from each pixel if it were fully restored, allowing for the status of vegetation that can be supported there.

Function: download

Manage benefits	Name: Manage benefits
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	The benefit to NSW biodiversity from each pixel in its current, baseline state - the benefit of maintaining it in its current state by mitigating threats
	Function: download
Manage & Improve benefits	Name: Manage & Improve benefits
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	The benefit to NSW biodiversity from each pixel in its current, baseline state, plus additional benefits that can be achieved in 15 years of managed improvement - the benefit of maintaining it in its current state by mitigating threats and allowing restoration to occur.
	Function: download
Restore benefits	Name: Restore benefits
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	The additional benefit to NSW biodiversity of fully restoring each pixel from its current, baseline state
	Function: download
Delta improve benefits	Name: Delta improve benefits
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	The additional benefit to NSW biodiversity from improving condition of each pixel from its current, baseline state, over 15 years
	Function: download
Delta restore benefits	Name: Delta restore benefits
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	The additional benefit to NSW biodiversity from each pixel from fully restoring it from its current, baseline state
	Function: download

Unique resource identifier

Code	2b268a7c-c7ef-412d-97a0-9642bb1f69ea

Presentation form	Map digital

Edition	1.0

Dataset language	English

Metadata standard

Name	ISO 19115
Edition	2016

Dataset URI	https://datasets.seed.nsw.gov.au/dataset/2b268a7c-c7ef-412d-97a0-9642bb1f69ea
Purpose	Planning and prioritisation of conservation, restoration and improvement of native vegetation to maximise NSW biodiversity
Status	Under development
Spatial representation type	grid
Spatial reference system	
Code identifying the spatial reference system	4283
Spatial resolution	90 m
Topic category	

Keyword set

keyword value	HERITAGE-Natural
	ECOLOGY-Landscape
	LAND-Use
	VEGETATION-Floristic
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16

Geographic location

West bounding longitude	141
East bounding longitude	154
North bounding latitude	-37.7
South bounding latitude	-28
NSW Place Name	NSW

Vertical extent information

Minimum value	-100
Maximum value	2228
Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711

Temporal extent

Begin position	2017-10-12
End position	N/A

Dataset reference date

Resource maintenance

Maintenance and update frequency	As needed

Contact info

Contact position	Data Broker
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Responsible party role	pointOfContact

Lineage	Input layers comprise: * [Ecological condition](#) * [Ecological connectivity](#) and also see [scientific paper](#) * A generalised dissimilarity model of SE Australia developed for the [BIAP project](#)
	The method used to combine these layers is in prep.

Limitations on public access	

Responsible party

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Metadata date	2024-02-26T13:08:37.783537

Metadata language	