NSW GOVERNMENT | Biodiversity Conservation Trust

Biodiversity Conservation Trust Assessment Metric

| March 2022

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Introduction

BCT investment in private land conservation is guided by the NSW Biodiversity Conservation Investment Strategy (BCIS). The BCIS identifies priority investment areas, outlines five investment principles, and sets targets for inadequately protected NSW Landscapes and income diversification[1].

The BCT has developed an Assessment Metric to determine best value for money sites in BCT's Conservation Management Program fixed price offer, conservation tenders, co-investment partnerships and revolving fund[2]. The Assessment Metric supports cost-effective investment by the BCT in private land conservation.

The Assessment Metric ranks best value for money sites via the generation of a Biodiversity Value Score for each site, which is then divided by the price for conservation management of the site, to generate a Biodiversity Value Index.

The following information about the Assessment Metric provides general guidance about metric composition and inputs. The BCT may vary the composition and/or inputs to the Assessment Metric for specific or targeted investment at any time without notice. Therefore, you should exercise care, use your own judgement, and seek professional advice where appropriate, in deciding how to use the information.

The Assessment Metric has been peer-reviewed by experts from CSIRO and the University of Adelaide and is subject to ongoing review.

[1] The NSW Biodiversity Conservation Investment Strategy may be found here

[2] Information about the BCT Conservation Management Program may be found here

Metric Design

The BCT Assessment Metric has been designed to assign each site a **Biodiversity Value Score (BVS).** The BVS is divided by the price[3] for conservation management of the site, to generate a single **Biodiversity Value Index (BVI)** to identify best value for money sites.

$$Biodiversity\ Value\ Index\ (BVI) = \frac{Biodiversity\ Value\ Score\ (BVS)}{Price\ for\ conservation\ management}$$

The **Biodiversity Value Score** (or **BVS**) represents the biodiversity value achieved from conservation management of a site and is made up of four components:

Conservation values	The BCT values sites according to the conservation values they secure. This measure is derived from field assessment of ecological condition of the site and the predicted future condition of the site based on proposed management actions; the type of environmental values on the property such as threatened ecological communities; and the value of the site based on its contribution to conservation in the landscape.
Duration	The BCT values the long-term protection of biodiversity through conservation agreements which can be either in-perpetuity[4] or in some offers termed agreements (between 15-75 years). The BVS gives greatest weight to in-perpetuity agreements and greater weight to longer-term agreements relative to shorter-term agreements.
Risk	The BCT values sites with greater risk of conservation values being lost or impacted in the future, based on the topographic position of the site as assessed through the land and soil capability class of the site and other appropriate surrogate where relevant.
Area	The BCT values sites of greater size by valuing each additional hectare the same. The eligible area of the proposed site to be protected by the conservation agreement is measured.

Figure 1 below outlines the composition of the Assessment Metric used in its standard application for the Conservation Management Program.

[3] The 'price' in this case will be the present value (PV) of all proposed future management payments, to ensure sites are assessed on an equal footing irrespective of the actual term of the proposed agreement. [Present value is the current worth of the future series of management payments discounted at the discount rate used by the BCT to calculate the sum to be set aside for future payments.]

[4] In-perpetuity agreements continue to apply to the land forever and are binding on successors in title.

below provides a summary of the metric components, including their value ranges.

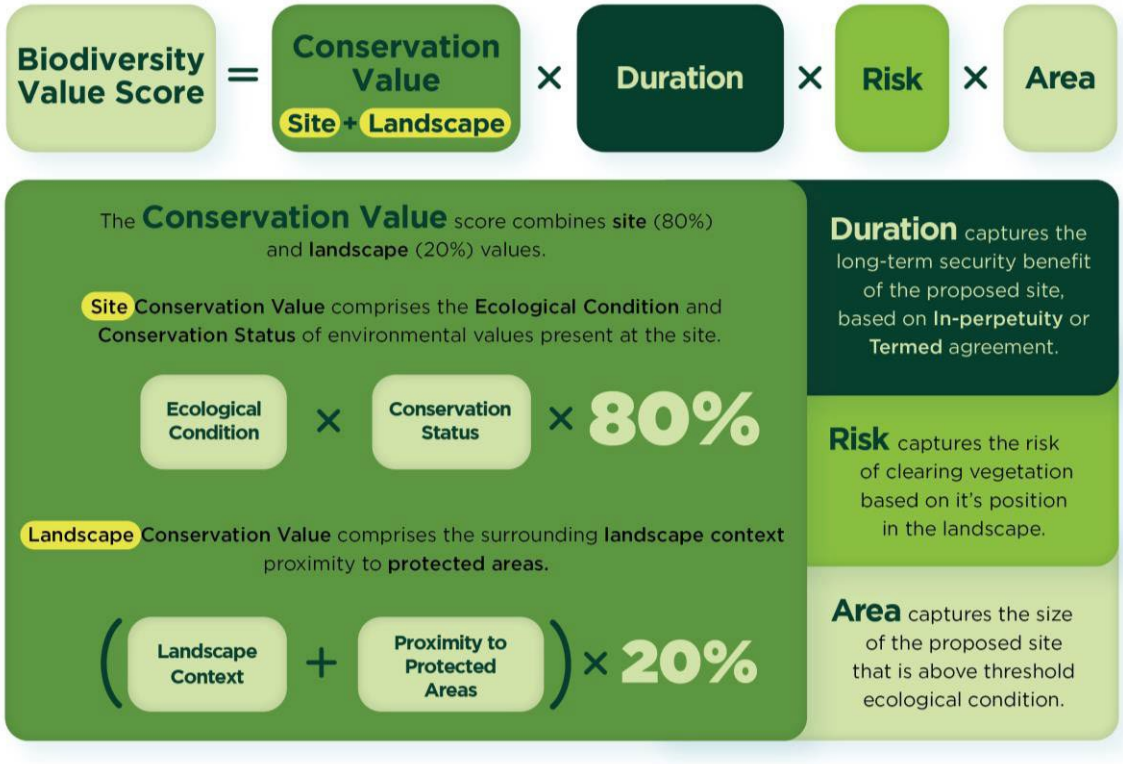

***Figure 1**: Composition of the Biodiversity Value Score*

***Table 1:** Summary of the metric components and their value ranges*

Metric Component	Value Range
Conservation Value	**0 – 100**
Site Conservation Value	***0 – 80***
	(scaled from max possible range of 2 – 400)
▪ Ecological Condition	1 – 100
▪ Conservation Status	1 – 4
Landscape Conservation Value	***0 – 20***
	(scaled from max possible range of 2 – 200)
▪ Landscape Context	1-100
▪ Proximity to Protected Place	1-100
Duration	**0.15 – 1**
Risk	**1 – 6**
Area	**Unlimited**

Primary Metric Components

1. Conservation Value

Description and Intent
The Conservation Value score of a site combines the conservation values present within the site (Site Conservation Value), as well as those outside of the site but in the local surrounding landscape (Landscape Conservation Value). Details of the components of Site Conservation Value and Landscape Conservation Value are provided below. Site Conservation Value (SCV) represents 80% of the final Conservation Value score because it represents the ecological condition of the native vegetation and the conservation assets to be conserved and managed at the site. Landscape Conservation Value (LCV) contributes 20% of the Conservation Value score in recognition of the influence that position in landscape has on long term resilience and viability of the site. The BCT may apply an alternative weighting for offers that target specific landscape outcomes.

Score Range	0 – 100 [Comprising 0-80 from SCV and 0-20 from LCV]
Data Source	See Site Conservation Value and Landscape Conservation Value below
BCIS	See Site Conservation Value and Landscape Conservation Value below

Site Conservation Value

Description and Intent
The **Site Conservation Value** score is an assessment of the ecological value of the site. This is a field-based measure that involves assessment of: ▪ **ecological condition** of the site, including the predicted future condition of the site based on landholder commitment to undertake a set of proposed management actions. This ensures that the greater number of management actions a landholder commits to, the greater the projected improvement in ecological condition will be. ▪ **conservation status** of environmental values on the property such as threatened ecological communities, threatened species and significant wetlands.

The Site Conservation Value score represents the product of these two attributes, scaled to a value of 0-80.

Site Conservation Value (0 – 80)	=	***Ecological Condition***	***X***	***Conservation Status***

Measurement of each factor is addressed in more detail below.

Score Range	0 – 80
Data Source	See **ecological condition** and **conservation status** below
BCIS	See **ecological condition** and **conservation status** below

(a) Ecological Condition

Description and Intent

The Ecological Condition of a site is measured using the following expression:

$$Ecological\ Condition = Current\ ecological\ condition\ + Gain\ \left(\begin{matrix} difference\ between \\ current\ and \\ future\ predicted\ condition \end{matrix}\right)$$

Current ecological condition. This is assessed from multiple plot-based ecological surveys throughout the candidate site. A minimum of one ecological survey plot is conducted for every vegetation class present within the proposed site. Where vegetation classes vary significantly in condition, additional plots are surveyed to reflect the variation. Where ecological condition falls below set thresholds this land will be ineligible for scoring. The method used to measure ecological condition will vary based on whether the vegetation assessed is considered a target asset or not.

- For target assets, a Targeted Habitat Assessment is undertaken using a method developed by the BCT considering best available information. A minimum of one sample is collected for each zone of stratified target habitat.
- For all other vegetation zones, a Rapid Vegetation Integrity (Rapid VI) Assessment is conducted based on principles set out in the Biodiversity Assessment Method (BAM). A minimum of one 50x20m plot is conducted for every vegetation class present within the proposed site. Where vegetation classes vary significantly in condition, additional plots are conducted to capture this variation in condition. Vegetation condition is assessed against benchmark values for vegetation classes in each IBRA subregion. Where relevant the BCT applies dynamic benchmarks developed for vegetation classes. Rapid VI assessments are not required for vegetation classes where a Targeted Habitat Assessment has been undertaken.

and

Gain in condition predicted for a site is based on agreed management actions implemented by the landholder. The assessment of gain is consistent with the BAM.

Score Range	1 – 100
Data Source	Field-based ecological survey; state or regional vegetation map products.

BCIS principles	Prioritising sites of better current and future predicted ecological condition: ▪ Improves protection of good samples of the least protected ecosystems (BCIS Principle 1) ▪ Improves landscape connectivity and contribution to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Seeks to promote long-term outcomes (BCIS Principle 2) by encouraging landholders to adopt a greater number and more impactful management actions ▪ Complements other government and non-government programs (BCIS Principle 3) ▪ Supports sustainable farming enterprises and promotes regional economic benefits and avoids land use conflicts (BCIS Principle 4)

(b) Conservation Status

Description and Intent
Conservation Status refers to specific conservation assets that are the focus of BCT investment. The conservation assets and their relative importance are set out in **Table 2**, and are selected to reflect the specific objectives of any given CMP offering. The BCT may vary weightings or identify additional specific conservation assets that are applicable for targeted offers. Conservation Status is calculated by summing the Target Asset score with the sum of the Priority Ecosystems and Species attributes scaled 0-1, as follows: $$Conservation\ Status = Target\ Asset + \sum \left(\begin{matrix} Priority\ Ecosystems \\ Priority\ Species \end{matrix} \right) (scaled\ 0-1)$$ Where two attributes are listed as significant under different jurisdictions (e.g. Commonwealth vs State level), the higher of the respective Conservation Status scores will apply.

Score Range	Conservation Status = 1 – 4 Target Asset = 1 or 3 Priority Ecosystems and Species = 0 – 1
Data Source	**Threatened Ecological Community:** Field-based ecological survey **Wetlands:** Field-based ecological survey + Directory of Important Wetlands of Australia + Ramsar Wetlands of NSW **Saving our Species site managed species sites:** SoS Database
BCIS principles	Prioritising sites of high conservation status: ▪ Improves protection of good samples of the least protected ecosystems (BCIS Principle 1)

	▪ Improves landscape connectivity and contribution to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Seeks to promote long-term outcomes (BCIS Principle 2) ▪ Complements other government and non-government programs (BCIS Principle 3) ▪ Supports sustainable farming enterprises and promotes regional economic benefits and avoids land use conflicts (BCIS Principle 4)

Table 2: *Components of Conservation Status, including associated weightings*

Conservation Status				
	Low	**Medium**	**High**	**Very High**
Score	**1**	**2**	**3**	**4**
BCT Priority Asset				
Target Habitat [5]	Absent	N/A	Present	N/A
Priority Ecosystems & Species				
Threatened Ecological Community (TEC) [6]	Other	Vulnerable Ecological Community (VEC)	Endangered Ecological Community (EEC)	Critically Endangered Ecological Community (CEEC)
Wetlands	Absent	Other wetlands	Directory of Important Wetlands Australia (DIWA) Coastal wetlands (identified under Coastal Management State Environmental Planning Policy)	Ramsar wetlands (Ramsar Convention 1971)
Species listed under the Saving our Species Program [7]	Absent	Other site-managed threatened species	Site-managed Endangered species	Site-managed Critically Endangered species

[5] Defined for each CMP offering

[6] Listed under either NSW or Commonwealth legislation

[7] Any site intersecting with a Saving Our Species Priority Management Site

Landscape Conservation Value

Description and Intent
The **Landscape Conservation Value** is a measure of the site's contribution to the conservation values in the broader surrounding landscape. In order to prioritise sites that maintain and build a network of core areas and corridors, the BCT targets sites (where possible) that are: • established in a **landscape context** of existing high vegetation cover • encourage connectivity with existing **permanently protected places** The Landscape Conservation Value score represents the sum of these attributes, scaled to a value of 0-20. ***Landscape Conservation Value*** **=** ***Landscape Context*** **+** ***Proximity to Protected Place*** Measurement of each factor is addressed in more detail below.

Score Range	0 – 20
Data Source	See **Landscape Context, Proximity to Nearby Sites** and **Proximity to Protected Place** below.

(a) Landscape Context

Description and Intent
Landscape context represents how well-connected habitat is to other surrounding habitat in an area that includes the proposed agreement area and a 1500m buffer. Values derived from a raster layer of the Biodiversity Indicators Program Ecological Carrying Capacity (ECC) index are aggregated in that area for each site.

Score Range	1 – 100
Data Source	NSW Biodiversity Indicator Program
BCIS principles	Prioritising sites with greater connection to surrounding habitat: ▪ Improves landscape connectivity and contribution to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Supports sustainable farming enterprises and promotes regional economic benefits and avoids land use conflicts (BCIS Principle 4)

(b) Proximity to Permanently Protected Places

Description and Intent	
Sites close to existing permanently protected places[8] are prioritised. Proximity to protected places is measured using spatial information and scored on a scale of 1-100, where: • 100 is where a site adjoins a permanently protected place. • 0 is 10km (or further) proximal to a permanently protected place.	
Score Range	1 – 100
Data Source	Collaborative Australian Protected Area Database BCT Agreements Database
BCIS principles	Prioritising sites close to Permanently Protected Places: ▪ Improves landscape connectivity and contribution to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Complements other government and non-government programs seeking to build the protected area system (BCIS Principle 3)

2. Duration

Description and Intent	
There is a preference for establishment of new in-perpetuity agreements over termed agreements. The Duration score is calculated according to the below expression: $$Duration = \frac{T}{100}$$ Where T=Term (years, starting from 15-75, In-perpetuity agreements receive term of 100)	
Score Range	0.15 – 1
Data Source	BCT Landholder Application and Agreement Geodatabase
BCIS principles	Prioritising sites with long-term agreements: ▪ Improves protection of good samples of the least protected ecosystems (BCIS Principle 1)

[8] Permanently protected places are outlined in the BCT Existing Obligations and Agreements table and include In-perpetuity conservation agreements under the (i) Nature Conservation Trust Act 2001, (ii) National Parks and Wildlife Act 1974, (iii) Native Vegetation Conservation Act 1997, and (iv) Biodiversity Conservation Act 2016.

	▪ Improves landscape connectivity and contribution to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Promotes long-term outcomes – both for landholders and the environment (BCIS Principle 2) ▪ Supports sustainable farming enterprises and promotes regional economic benefits (BCIS Principle 4) by providing ongoing conservation management payments

3. Risk

Description and Intent	
Land capability is the inherent physical capacity of the land to sustain a range of land uses and management practices in the long term without degradation to soil, land, air and water resources. Sites that are on land of higher land capability (i.e. that may be suitable for cultivation) are of higher risk of clearing for agriculture than those on less-fertile lands. To score 'risk' a simple step wise scale is used, based on the state-wide mapping of Land and Soil Capability Class (Table 3). Sites that are on land that is subject to specific types of existing in-perpetuity agreements will be subject to a reduced Risk score. Any area of land that is subject to one of these existing agreements will automatically receive the lowest Risk score of 1. The reduced Risk score is only applied to the area of land that is under the existing agreement.	
Score Range	1 – 6 (as per Table 3)
Data Source	DPIE Land and Soil Capability Mapping for NSW
BCIS principles	Prioritising sites with greater risk of clearing: ▪ Improves protection of good samples of the least protected ecosystems (BCIS Principle 1) ▪ Improves landscape connectivity and contribution to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Complements other government and non-government programs (BCIS Principle 3) by targeting conservation of over cleared landscapes ▪ Ensures investment is efficient (BCIS Principle 5)

Table 3: *Scoring by Land and Soil Capability class*

Average Land and Soil Capability class	Score
1	6
2	6
3	6
4	3
5	2
6	2
7	1
8	1

4. Area

Description and Intent	
This is the area (Ha) of the proposed site that is eligible[9]. This score increases linearly with area because the BCT values each additional area under agreement the same.	
Score Range	Unlimited [10]
Data Source	BCT Agreement Geodatabase
BCIS principles	Prioritising larger sites: ▪ Improves protection of good samples of the least protected ecosystems (BCIS Principle 1) ▪ Improves landscape connectivity and contributing to a Comprehensive, Adequate and Representative (CAR) protected area system (BCIS Principle 1) ▪ Ensures investment is efficient (BCIS Principle 5) by securing large tracts of land

[9] Eligibility is defined for each offer made under the BCT Conservation Management Program (CMP)

[10] Minimum area varies depending on the eligibility requirements of individual offers.