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Biodiversity Conservation Trust Assessment Metric

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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 diversification¹.

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 fund².

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 Assessment Metric supports cost-effective investment by the BCT in private land conservation.

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 CSIRO 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 price³ for conservation management of the site, to generate a single **Biodiversity Value Index (BVI)** to identify best value for money sites.

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

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. While this metric structure will be applied in most cases, deviations from this general form are sometimes required to suit the specific objectives of the Program. Alternative expressions commonly applied are attached in **Appendix A**.

Table 1 below provides a summary of the elements, including their value ranges.

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.

This metric has been peer-reviewed by CSIRO and is subject to ongoing review.



Figure 1: Composition of the Biodiversity Value Score.

Metric Component	Value Range
Conservation Value	0 – 100
<i>Site Conservation Value</i>	<i>0 – 80</i>
	<i>(scaled from max possible range of 0 – 400)</i>
▪ Ecological Condition	40 – 100
▪ Conservation Status	1 – 4
<i>Landscape Conservation Value</i>	<i>0 – 20</i>
	<i>(scaled from max possible range of 0 – 300)</i>
▪ Landscape Context	0-100
▪ Proximity to Nearby Sites	0-100
▪ Proximity to Protected Place	0-100
Duration	0.15 – 1
Risk	1 – 6
Area	Unlimited

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

Primary Metric Components

1. Conservation Value

Description and Intent	
<p>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).</p> <p>Details of the components of Site Conservation Value and Landscape Conservation Value are provided below.</p> <p>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.</p>	
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	
<p>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:</p> <ul style="list-style-type: none"> ▪ 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. <p>The Site Conservation Value score represents the product of these two attributes, scaled to a value of 0-80 (from a maximum possible range of 0 to 100 x 4=400).</p> $ \begin{array}{ccccc} \textit{Site} & & & & \\ \textit{Conservation} & & & & \\ \textit{Value} & = & \textit{Ecological} & \times & \textit{Conservation} \\ & & \textit{Condition} & & \textit{Status} \\ & & & & \\ (0 - 80) & & & & \end{array} $ <p>Measurement of each factor is addressed in more detail below.</p>	

Score Range	0 – 80 (scaled from a maximum possible range of 100 x 4)
Data Source	See ecological condition and conservation status below
BCIS	See ecological condition and conservation status below

(a) Ecological Condition

Description and Intent	
<p>The Ecological Condition of a site is measured using a combination of information of:</p> <ul style="list-style-type: none"> ▪ Current ecological condition. This is assessed from multiple plot-based ecological surveys throughout the candidate site, 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. <p>and</p> ▪ Future predicted condition based on management actions agreed by the landholder to be undertaken at a site. Standard management actions are outlined in Appendix B. The BCT may identify specific management actions that are applicable for targeted offers. The rate of predicted gain in ecological condition as a result of proposed management actions is consistent with the BAM. 	
Score Range	40 – 100.
Data Source	Field-based ecological survey; State or regional vegetation map products.
BCIS principles	<p>Prioritising sites of better current and future predicted ecological condition:</p> <ul style="list-style-type: none"> ▪ 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	
<p>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. The BCT may identify additional specific conservation assets that are applicable for targeted offers.</p> <p>Where two attributes exist over the same area, or where attributes are listed as significant under different jurisdictions (e.g. Commonwealth vs State level), the higher of the respective Conservation Status scores will apply.</p>	
Score Range	1 – 4 (as per Table 2)
Data Source	<p>Threatened Ecological Community: Field-based ecological survey</p> <p>Wetlands: Field-based ecological survey + Directory of Important Wetlands of Australia + Ramsar Wetlands of NSW</p> <p>Saving our Species site managed species sites: SoS Database</p>
BCIS principles	<p>Prioritising sites of high conservation status:</p> <ul style="list-style-type: none"> ▪ 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)

Conservation Status				
	Very high	High	Medium	Low
Threatened Ecological Community (TEC)	Critically Endangered Ecological Community (CEEC) (listed under either NSW or Commonwealth legislation)	Endangered Ecological Community (EEC) (listed under either NSW or Commonwealth legislation)	Vulnerable Ecological Community (VEC) (listed under either NSW or Commonwealth legislation)	Other
Wetland	Ramsar wetlands (Ramsar Convention 1971)	Directory of Important Wetlands Australia (DIWA) Coastal wetlands (identified under	Other wetlands	Absent

	State Environmental Planning Policy 14)			
Species listed under the Saving our Species Program ⁵	Site-managed Critically Endangered species	Site-managed Endangered species	Other site-managed threatened species	Absent
Score	4	3	2	1

Table 2: Conservation Status

Landscape Conservation Value

Description and Intent	
<p>The Landscape Conservation Value is a measure of the site’s contribution to the conservation values in the broader surrounding landscape.</p> <p>In order to prioritise sites that maintain and build a network of core areas and corridors, the BCT targets sites (where possible) that are:</p> <ul style="list-style-type: none"> established in a landscape context of existing high vegetation cover nearby other sites to ensure aggregation of biodiversity outcomes as well as encourage public uptake under knowledge that uptake of neighbours will directly benefit any proposed site encourage connectivity with existing permanently protected places <p>The Landscape Conservation Value score represents the sum of these three attributes, scaled to a value of 0-20.</p> $\text{Landscape Conservation Value} = \text{Landscape Context} + \text{Proximity to Nearby Sites} + \text{Proximity to Protected Place}$ <p>Measurement of each factor is addressed in more detail below.</p>	
Score Range	0 – 20 (scaled from a maximum value of 100 x 3)
Data Source	See Landscape Context , Proximity to Nearby Sites and Proximity to Protected Place below.

⁵ Any site intersecting with a Saving Our Species Priority Management Site

(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	0 – 100
Data Source	NSW Biodiversity Indicator Program
BCIS principles	<p>Prioritising sites with greater connection to surrounding habitat:</p> <ul style="list-style-type: none"> 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 Nearby Sites

Description and Intent	
<p>Sites that are close to other proposed sites have increased value. This will play an important role by encouraging clumping of sites all other factors being equal.</p> <p>Scores are allocated based on the distance between the boundary of proposed sites (Table 3).</p>	
Score Range	1 – 100 (as per Table 3)
Data Source	BCT Site Assessment Geodatabase
BCIS principles	<p>Prioritising sites nearby to other proposed sites:</p> <ul style="list-style-type: none"> 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)

Distance value	Score	Distance value	Score	Distance value	Score
0 – 500 m	100	3.5 – 4 km	65	7 – 7.5 km	30
500 m – 1 km	95	4 – 4.5 km	60	7.5 – 8 km	25
1 – 1.5 km	90	4.5 – 5 km	55	8 – 8.5 km	20

Distance value	Score	Distance value	Score	Distance value	Score
1.5 – 2 km	85	5 – 5.5 km	50	8.5 – 9 km	15
2 – 2.5 km	80	5.5 – 6 km	45	9 – 9.5 km	10
2.5 – 3 km	75	6 – 6.5 km	40	9.5 – 10 km	5
3 – 3.5 km	70	6.5 – 7 km	35	>10 km	1

Table 3: Scoring for Proximity to Nearby Sites

(c) Proximity to Permanently Protected Places

Description and Intent	
Sites close to existing permanently protected places ⁶ are prioritised. Proximity to protected places is measured using spatial information and the scores are detailed in Table 4 .	
Score Range	0 – 100 (as per Table 4)
Data Source	Collaborative Australian Protected Area Database BCT Agreements Database
BCIS principles	Prioritising sites close to Permanently Protected Places: <ul style="list-style-type: none"> ▪ 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)

Distance value	Score	Distance value	Score	Distance value	Score
0 – 500 m	100	3.5 – 4 km	65	7 – 7.5 km	30
500 m – 1 km	95	4 – 4.5 km	60	7.5 – 8 km	25
1 – 1.5 km	90	4.5 – 5 km	55	8 – 8.5 km	20
1.5 – 2 km	85	5 – 5.5 km	50	8.5 – 9 km	15
2 – 2.5 km	80	5.5 – 6 km	45	9 – 9.5 km	10

⁶ 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.

Distance value	Score	Distance value	Score	Distance value	Score
2.5 – 3 km	75	6 – 6.5 km	40	9.5 – 10 km	5
3 – 3.5 km	70	6.5 – 7 km	35	>10 km	1

Table 4: Scoring for Proximity to Protected Place

2. Duration

Description and Intent	
<p>There is a preference for establishment of new in-perpetuity agreements over termed agreements. The Duration score is calculated according to the below expression:</p> $Duration = \frac{T}{100}$ <p>Where;</p> <p>T=Term (years, starting from 15-75, In-perpetuity agreements receive term of 100)</p>	
Score Range	0.15 – 1
Data Source	BCT Landholder Application and Agreement Geodatabase
BCIS principles	<p>Prioritising sites with long-term agreements:</p> <ul style="list-style-type: none"> ▪ 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) ▪ 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	
<p>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.</p> <p>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.</p> <p>To score 'risk' a simple step wise scale is used, based on the state-wide mapping of Land and Soil Capability Class (Table 5).</p> <p>Sites that are on land that is subject to specific types of existing in-perpetuity agreements will be subject to a reduced Risk score.</p> <p>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.</p>	
Score Range	1 – 6 (as per Table 5)
Data Source	DPiE Land and Soil Capability Mapping for NSW
BCIS principles	<p>Prioritising sites with greater risk of clearing:</p> <ul style="list-style-type: none"> ▪ 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)

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

Table 5: Scoring by Land and Soil Capability class

4. Area

Description and Intent	
This is the area (Ha) of the proposed site that is eligible ⁷ . This score increases linearly with area because the BCT values each additional area under agreement the same.	
Score Range	Unlimited ⁸
Data Source	BCT Agreement Geodatabase
BCIS principles	<p>Prioritising larger sites:</p> <ul style="list-style-type: none"> ▪ 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

⁷ Eligibility is defined for each offer made under the BCT Conservation Management Program (CMP)

⁸ Minimum area varies depending on the eligibility requirements of individual offers.

Appendix

Appendix A – Variations to the Assessment Metric

The Assessment Metric has been designed for general use across the BCT’s Conservation Management Program. However, where a particular offer has a different focus, the BCT may modify the metric to ensure it delivers optimal outcomes for any given offer in the Program.

Common exceptions to above Assessment Metric design include:

- When targeting a particular species or ecological community
- When evaluating fixed price offer applications, revolving fund properties or co-investment partnership proposals.

Targeted metric variant

The general Assessment Metric assesses Site Conservation Values by considering the Ecological Condition of **all** vegetation present at a site. However, where a targeted species is the focus of the Conservation Management Program, the Site Conservation Values may include additional assessment of other targeted conservation assets (**Figure 2**). These assessments are undertaken in accordance with best-practice assessment methods for that species or ecosystem.



Figure 2: Example of a metric targeting specific species or ecosystem values

Fixed price offer, co-investment partnerships and revolving fund metric variant

The metric used in the BCT's Fixed Price Offer, Co-investment partnerships and Revolving Fund offers is consistent with the General metric described above, with the following exceptions:

- These are state-wide offers so the **Landscape Conservation Value** component of the Biodiversity Value Score is modified to remove 'proximity to nearby sites (**Figure 3**).
- Only in-perpetuity agreements are permitted for each of these offers, and so each can only receive a Duration score of 1.

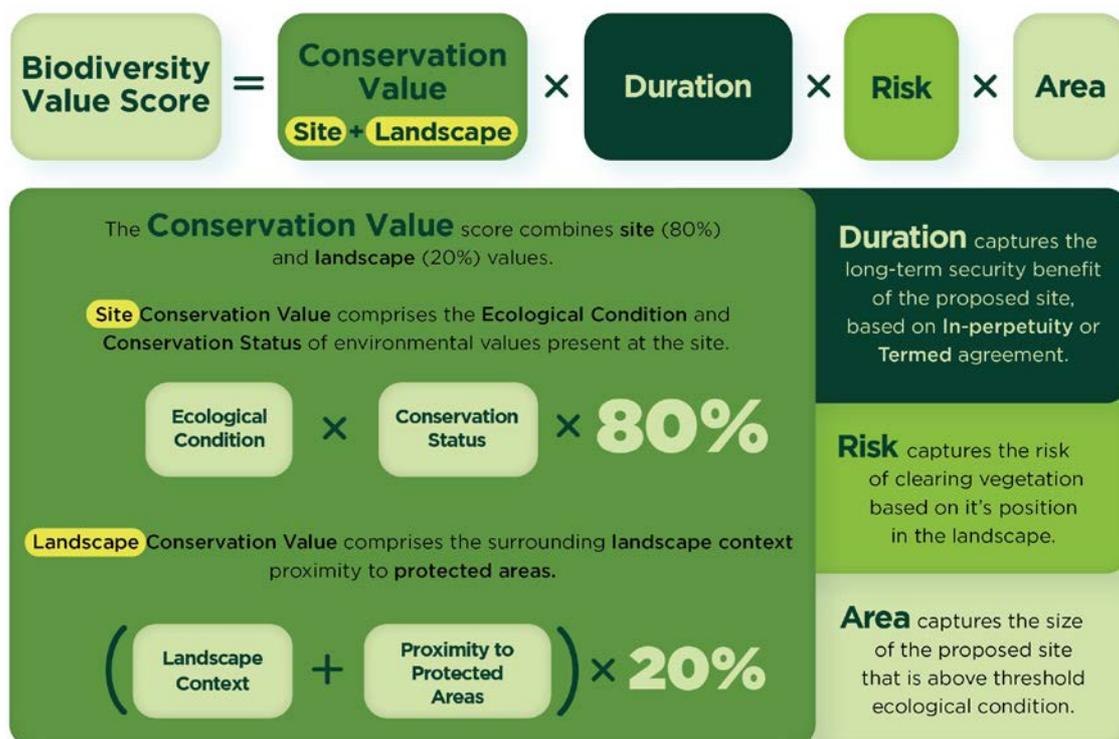


Figure 3: Fixed price Offer (FPO), revolving fund (RF) and co-investment partnerships metric

Appendix B – Standard management actions

The management actions undertaken at a site influence the Ecological Condition score received. **Table 6** provides an example list of the standard management actions required by the BCT for participation in the Conservation Management Program. The BCT reviews and revises (as necessary) this list of management actions for each of its Programs to support best practice management and optimise program outcomes

Requirement	Management Issue	Management Actions that contribute towards the Conservation Value of the Biodiversity Value Score
Required	Weed Control	Control spread of targeted High Threat Weeds (HTW)s and Weeds of National Significance (WONs) and reduce extend over longer term
	Domestic Stock Grazing Control	Exclude stock access (non grassy systems)
		Maintain grassy ecosystems
		Maintain fencing
Pest Control	Control populations of pest animals	
Optional	Weed Control	Significant (>90%) reduction in cover of relevant HTWs and WONs
	Domestic Stock Grazing Control	Enhance grassy ecosystems
		Long term (5 years) stock resting for natural regeneration
		Exclude stock access (for grassy systems)
		New fencing to control stock access
	Pest Control	Targeted control of populations of pest animals (e.g. fumigation)
	Habitat Enhancement	Inclusion of artificial nesting boxes with ongoing management, replacement and maintenance
		Relocation of fallen logs onto biodiversity stewardship site from appropriate sources
		Addition of rocks from appropriate sources
		Relocation and securing of dead hollow bearing stag trees from appropriate sources
		Supplementary planting
Create artificial frog ponds or wetlands		

Table 6: Management actions standard for the Conservation Management Program