

Submission Guide: Ecologically Sustainable Development

A guide for making submissions on the NSW biodiversity reforms

The biodiversity reforms will help deliver ecologically sustainable development in NSW. The introduction of a new biodiversity offsets scheme, including an expanded biodiversity certification program and a new Biodiversity Conservation Trust aims to deliver a transparent and consistent approach to biodiversity assessment and offsets in NSW that provides upfront certainty to proponents.

This document provides the detailed information stakeholders will need to know about the new approach to facilitating ecologically sustainable development in NSW to make a submission on these elements of the reforms. It includes a number of 'consultation questions' which stakeholders may like to address in submissions.

More Information

Other submission guides are available for stakeholders who are interested in making submissions on the new land management framework, the Native Vegetation Regulatory Map, the initiatives to support private land conservation and the new approaches to listing threatened species and regulating native wildlife.

The draft Biodiversity Conservation Bill and draft Local Land Services Amendment Bill are also available in full for public exhibition.

Visit <http://landmanagement.nsw.gov.au>

Have your say on the proposed changes

You can share your comments on the proposed changes by making a submission online at <http://landmanagement.nsw.gov.au/haveyoursay>.

You can also send your submission to:

Biodiversity Reforms - Have Your Say
PO Box A290
Sydney South
NSW 1232

Contents

1. The new biodiversity offsets scheme	2
2. Biodiversity certification.....	10
3. Offsets payments calculator	13

1. The new biodiversity offsets scheme

The reforms will help deliver ecologically sustainable development in NSW. The introduction of a new biodiversity offsets scheme, including a biodiversity certification program and a new Biodiversity Conservation Trust aims to deliver a transparent and consistent approach to biodiversity assessment and offsets in NSW that provides upfront certainty to proponents.

Key elements include:

- **A new, scientifically robust method** for biodiversity impact assessment called the Biodiversity Assessment Method (BAM). The BAM will apply to development that meets or exceeds the ‘BAM threshold’, or where that development triggers the existing threshold of significant effect. The BAM will also apply to clearing of native vegetation that requires a permit under the Local Land Services Act (LLS Act).
- **Implementing the avoid, minimise, offset hierarchy.** The BAM will provide proponents with clear guidance on how impacts on biodiversity can be avoided and minimised, before offsetting any remaining impacts. It is based on international best practice.
- **Biodiversity stewardship agreements to secure offsets.** A biodiversity stewardship agreement is a voluntary agreement between the Minister for the Environment and a landowner to permanently protect and manage an area of their land to improve its biodiversity values.
- **A new set of offset rules.** These rules will govern how offsets are used to ensure they deliver clear conservation outcomes. They require offsets to be like for like or better.
- **Serious and irreversible impacts.** The scheme recognises that there are some types of ‘serious and irreversible impacts’ that are not acceptable to the community. These types of impacts must be avoided for non-major projects.
- **Accreditation scheme.** A scheme to accredit assessors to apply the BAM will be developed to ensure that BAM assessments are correct and consistent.
- **Biodiversity certification.** The existing biodiversity certification scheme will be modified with the goal of encouraging the assessment and protection of biodiversity values at the early stages of planning for land use change.
- **Biodiversity Conservation Fund.** For the first time, proponents will be able to discharge their offset requirement by paying into the Biodiversity Conservation Fund and having the Biodiversity Conservation Trust source biodiversity offsets on their behalf.

What are biodiversity offsets?

Biodiversity offsets provide biodiversity benefits to compensate for impacts on biodiversity from development and clearing of native vegetation. They help to achieve long-term conservation outcomes while providing developers the ability to undertake actions that have biodiversity impacts.

For example, if a developer proposes to clear a significant area of native vegetation to carry out development, a BAM assessment may indicate that another area of similar native vegetation should be permanently protected and managed to offset the biodiversity loss caused by the clearing. Over time, the biodiversity gain from managing the similar vegetation will go towards replacing the biodiversity lost due to the clearing.

The new Biodiversity Assessment Method

The Biodiversity Assessment Method (BAM) will simplify the existing biodiversity assessment pathway and create a consistent assessment process for development^[1] that currently requires biodiversity assessment under the *Environmental Planning and Assessment Act 1979* (EP&A Act) as well as development above the new BAM threshold. It will also apply to clearing of native vegetation which requires approval under the LLS Act.

There are a range of different approaches currently used to assess biodiversity in NSW, including: the Framework for Biodiversity Assessment, the BioBanking Assessment Methodology, the Biodiversity Certification Assessment Method, the Environmental Outcomes Assessment Methodology, and the preparation of a Species Impact Statement (SIS) under the EP&A Act. In the new scheme, the BAM will be used when preparing an SIS and will also replace the other existing assessment approaches^[2].

Because the BAM will be a technical assessment it will be required to be applied by a person accredited in applying the method (this will generally be an accredited ecological consultant).

The BAM will take proponents through a process of considering ways to avoid and then minimise impacts from their development, and will then calculate offsets for any remaining impacts.

The BAM threshold

For development that requires consent under the EP&A Act, the BAM will need to be used to assess the impact of the development on biodiversity values where the development is above the BAM threshold, or where that development triggers the existing threshold of significant effect. A risk-based approach has been adopted for setting the proposed BAM threshold, to capture projects with greater risk of biodiversity impacts while ensuring that lower risk developments are not required to apply the BAM. The aim of the BAM threshold test is that it is simple, practical and able to be applied by a non-expert.

The BAM will need to be used to assess a development if any criteria in the box below are met. In addition, the BAM will also apply to any developments that will have a significant effect on biodiversity based on the existing assessment of significance (formerly known as the seven part test) under the EP&A Act.

The BAM will also apply where approval to clear native vegetation under the LLS Act is required. More information is available in the *Simplifying Land Management* submission guide.

Proposed BAM threshold criteria

1. Area of vegetation clearing is above the clearing threshold (for subdivision, this is area of proposed future clearing). The following options are presented for consideration and feedback:

Minimum lot size ^[3] associated with the property	Threshold for clearing, above which the BAM must be applied		
	Option A	Option B	Option C
Less than 2 ha	0.5 ha	0.5 ha	0.5 ha
2 to less than 40 ha	0.5 ha	1 ha	2 ha
40 to less than 1000 ha	1 ha	2 ha	4 ha
Greater than 1000 ha	2 ha	3 ha	10 ha

OR

2. If site is on land^[4] identified on the 'threshold values map' on the Planning Portal (an online platform maintained by the Department of Planning and Environment)

OR

3. If proposed clearing exceeds what is allowed under the LLS Act (i.e. 'allowable activities' or codes of practice)

Consultation Questions

- Do you consider the proposed BAM thresholds and the existing assessment of significance (seven part test) will assist you in determining whether or not you will be required to obtain a BAM assessment for your development?
- Do you think the proposed BAM thresholds and the existing assessment of significance (seven part test) provide a reasonable balance between the interests of the community in assessing biodiversity values, and the social and economic benefits of developing land?
- Do you think that the proposed BAM thresholds are too high or too low? If so, why?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Applying the BAM

The BAM is a metric-based tool that requires biodiversity impacts and biodiversity improvements to be assessed and quantified in terms of 'ecosystem credits' and 'species credits', collectively termed 'biodiversity credits'.

At development sites

When the BAM is triggered, it will be applied at development sites to assess proposed losses in biodiversity and identify offset obligations, measured in biodiversity credits. It will provide:

- clear direction on assessing the biodiversity on a development site,
- guidance on how a proponent can avoid and minimise potential impacts, and
- a calculation of an offset obligation resulting from the remaining impacts.

The proponent must engage an accredited assessor to apply the BAM at a proposed development or clearing site and document the results in a biodiversity development assessment report (BDAR). The BDAR will include information on how the proponent proposes to avoid and minimise impacts, and the offset obligation in biodiversity credits.

The proponent must provide the BDAR to an approval authority as part of their development or clearing application. If the development application is approved the approval authority will set an offset obligation as part of the approval, such as in conditions of consent (as biodiversity credits, or alternatively, if permitted to do so under the offset rules, as biodiversity conservation actions). Generally the offset obligation will be the full amount calculated by the BAM. The approval authority will have discretion to set a lower offset obligation. When deciding whether to reduce the offset obligation, the approval authority will weigh up the environmental, social and economic costs and benefits of the proposal within the existing framework of s.79C of the EP&A Act.

For further information on applying the BAM at development or clearing sites, visit <http://landmanagement.nsw.gov.au/bam-tool>.

For information on applying the BAM under the LLS Act, see the *Simplifying Land Management* submission guide.

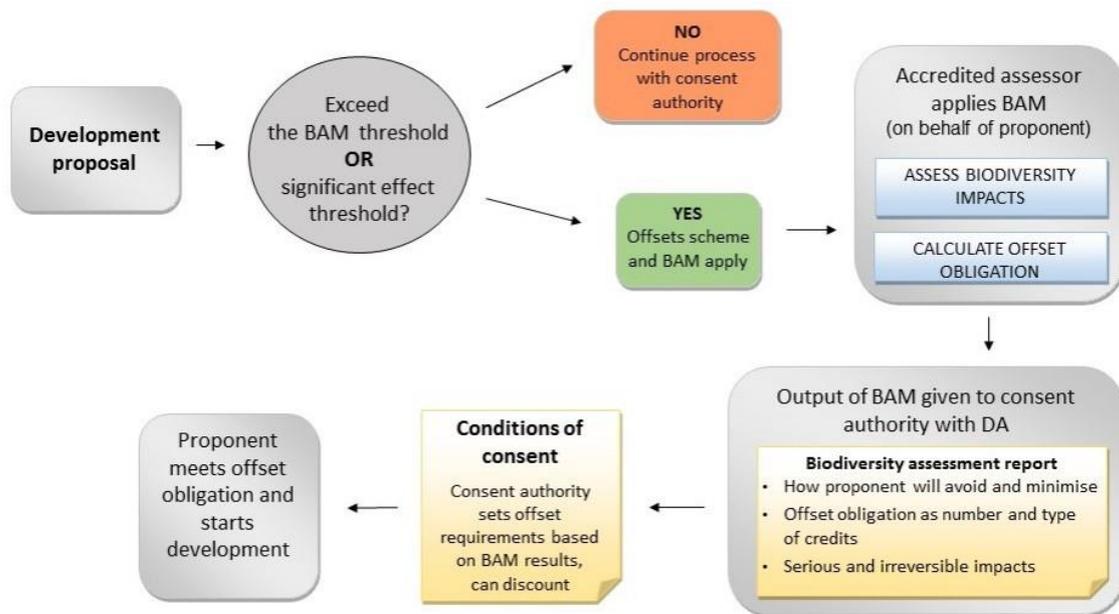


Figure 1. Offsets scheme process for applying the BAM at a development site

At biodiversity stewardship sites

A biodiversity stewardship agreement is a voluntary agreement between the Minister for the Environment and a landowner to permanently protect and manage an area of their land to improve its biodiversity values through management actions. The expected biodiversity improvement will be calculated by applying the BAM to the site. The BAM calculates the expected biodiversity improvements as biodiversity credits which will be documented in a biodiversity stewardship site assessment report (BSSAR) for a biodiversity stewardship site.

These credits can be retired to offset biodiversity impacts from development. The landowner may choose to retire the credits to offset a development of their own or sell the credits on the credit market. Potential credit buyers could include developers, the Biodiversity Conservation Trust or another other government or philanthropic organisation who wants to buy credits for conservation.

The sale of credits will fund the management of the site – the credit price must at least cover the cost of ongoing management. If there is market demand for the credits, the landholder can also make a profit from the sale of their credits.

The offset rules

The new scheme will include rules to govern how offsets are used to ensure they achieve clear conservation outcomes. The offset scheme's rules will be set out in a regulation made under the Biodiversity Conservation Act. The regulation will be exhibited for comment before it is made. The proposed offset rules build on international best practice principles for offsets:

- Proponents must first consider measures to avoid and minimise impacts, before they may offset any remaining impacts.
- Offsets are targeted to the biodiversity values being lost or to higher conservation priorities (like-for-like or better).
- Offsets are additional to other legal instruments.
- Offsets must be enduring, enforceable and transparent.

Outline of proposed offset rules

Like for like rules

In the first instance, remaining biodiversity impacts are to be offset by securing and retiring 'like for like' offsets. The principle behind this is that offsets should be highly comparable to the biodiversity values being lost. It is proposed that like for like offsets would be defined as:

- impacts on vegetation must be offset with vegetation that is in the same local area (based on adjacent IBRA subregions^[5]) as the impact and is:
 - a plant community type in the same vegetation class and same or higher threat status group^[6] or
 - a plant community type associated with the same threatened ecological community (as identified in the Vegetation Information System database).
- impacts on threatened species (that are not associated with a particular plant community type) must be offset with the same threatened species, not constrained by locality

Variation rules

Where a person can demonstrate that they have not been able to find a 'like for like' offset a varied offset may be used. It is proposed that the variation rules allow:

- impacts on vegetation must be offset with vegetation that is from the same vegetation formation^[7] (not constrained by locality) and is:
 - a plant community type in the same or higher threat status group or
 - a plant community type associated with the same threatened ecological community.
- impacts on species (that are not associated with a plant community type) must be offset with species:
 - for fauna species, in the same order that uses similar habitat to the species impacted
 - for flora species, with the same life-form (i.e. tree, shrub, orchid etc.) as the species impacted

in the same locality and

- that is under the same or greater level of threat (e.g. if the species impacted is listed as endangered, the species in the offset must be listed as endangered or critically endangered).

Further detail for the proposed offset rules is set out in the BAM.

Biodiversity conservation actions

Where a person can demonstrate that they have been unable to find both like for like and varied offsets, biodiversity conservation actions may be used in place of biodiversity credits. Biodiversity conservation actions are measures, other than protection and management of land as an offset site, that are known to improve biodiversity values.

Biodiversity conservation actions will generally sit at the bottom of the hierarchy of options to satisfy an offset obligation. In exceptional circumstances, biodiversity conservation actions may be used as a first option for specific threatened species and threatened ecological communities identified by the Environment Minister.

The offsets payment calculator will be used to calculate the amount of money that must be contributed to biodiversity conservation actions, if they are used.

Consultation Questions

- What strengths or weaknesses do you see in the proposed offset rules?
- Do you think some impacts should always require a like-for-like offset e.g. impacts on endangered or critically endangered entities or species, or species whose threat status is increasing? Or is it acceptable that the variation rules always allow offsetting with a broader suite of similar biodiversity when a like-for-like offset cannot be found?
- Do you think the variation rules for vegetation should allow the offset site to be found anywhere in NSW? Or should the offset site be restricted to the same region as the impact, for example in the same IBRA region or IBRA sub-region?
- Do you think the variation rules should require that an offset contains similar biodiversity to what is being impacted? Or do you think the rules should allow offsetting with anything that is more threatened, even if it is different to what was impacted?
- How might you be affected by the proposed offset rules?
- Do you think that different offset rules should be adopted? What rules would you prefer and why?
- Do you consider that the proposed offset rules will reasonably balance environmental, social and economic interests in land?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

What are serious and irreversible impacts?

Some impacts on biodiversity value will significantly increase the risk of species extinction or long-term viability, or are otherwise particularly severe. In the biodiversity offsets scheme these are known as 'serious and irreversible impacts'. The offsets scheme seeks to prevent these impacts from occurring to reduce the risk of further threatened species or communities becoming extinct.

The criteria to identify serious and irreversible impacts will be set out in the regulations made under the Biodiversity Conservation Act. These criteria, based on a scientific process, will be used to develop a list of species^[8] and communities that constitute the serious and irreversible impacts. There may be relevant thresholds set for each entity on the list. The list and thresholds will be set out in a publicly available 'schedule' for certainty. The schedule

will likely be attached to the BAM and would be able to be updated. For example, updates would be needed to reflect new threatened species listings.

The criteria, together with any relevant thresholds and any necessary appendices to the BAM, will be released for consultation in the future. The new criteria will be developed drawing learnings from implementing the major project offsets policy. The aim will be to provide transparency and certainty by setting objective criteria that can be used to develop a schedule listing all serious and irreversible impacts.

Consideration will be given to whether the current impacts requiring further consideration under the current NSW Biodiversity Offsets Policy for Major Projects should be incorporated into the criteria. Broadly, the existing impacts for further consideration are impacts on:

1. important rivers and wetlands
2. species movement along important mapped corridors
3. critically endangered species and ecological communities
4. threatened species and ecological communities that increase the risk of extinction
5. critical habitat

Consultation Questions

- Should the approval authority be responsible for determining whether a project has serious and irreversible impacts, or should the BDAR do this where feasible?
- Should serious and irreversible impacts remove the possibility of consent being provided for non-major projects only, or should it also apply to any class of major projects?
- Should the criteria to be developed take account of any impacts requiring further consideration under the current NSW Biodiversity Offsets Policy?
- Should the offsets scheme provide for the identification and assessment of serious and irreversible impacts?
- A new concept of Areas of Outstanding Biodiversity Value will replace the concept of critical habitat in the new Act. We would be interested in your feedback on whether these should be included as serious and irreversible impacts, or are adequately addressed in other aspects of these reforms.

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Discharging an offset obligation

Proponents will be able to meet their offset obligation by:

- **Retiring biodiversity credits:** either by purchasing and retiring credits from the market, or by establishing a Biodiversity Stewardship Agreement (including on land owned by the proponent) and retiring the resulting credits.
- **Making a payment to the Biodiversity Conservation Fund:** calculated using the offsets payment calculator. The payment to the Fund is taken to satisfy the offset obligation. The Biodiversity Conservation Trust then becomes responsible for locating and securing an appropriate offset.
- **Biodiversity conservation actions.** A proponent can fund conservation actions as an alternative to retiring credits or paying into the Fund in certain, circumstances established under the offset rules.

- **Committing to undertake rehabilitation** after activities have ceased (available as a special arrangement in limited circumstances).

Consultation Question

- Will the ability to source biodiversity credits directly from the Trust improve development and biodiversity conservation outcomes?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Accreditation system

To help make sure the BAM is correctly applied, all BAM assessments (for developments or clearing, biodiversity stewardship agreements, and for biodiversity certification proposals) need to be carried out by people who are accredited to use the BAM ('accredited assessors'). Accredited assessors will be trained how to use the BAM and will have biodiversity assessment skills and competencies, such as ecological consulting expertise.

The assessors will be responsible for assessing sites using the BAM and generating the required reports. Assessors will not be responsible for determining development or clearing applications, biodiversity certification applications, or establishing biodiversity stewardship agreements.

The Minister for the Environment will be responsible for establishing the accreditation scheme. When setting up the scheme we will learn from the existing BioBanking accreditation scheme and other similar accreditation schemes, to ensure that the accreditation scheme supports the delivery of high quality and accurate biodiversity assessments. We are proposing the following guiding principles for the scheme:

1. The purpose of the accreditation scheme is to ensure that assessors are competent to apply the BAM.
2. The accreditation scheme must be designed to deliver its purpose.
3. The accreditation scheme must be resource efficient and adequately resourced.
4. The accreditation scheme must include actions to address incompetent assessors.
5. The roles and responsibilities of accredited assessors must be clearly defined.
6. The accreditation scheme must include accreditation and renewal criteria that directly relate to the factors which affect quality of assessments and integrity of assessors, and are auditable.

2. Biodiversity certification

The biodiversity certification scheme is being expanded and improved. This will encourage the assessment of biodiversity values during the early planning of land use change.

By providing a streamlined assessment process, biodiversity certification provides certainty to developers and the community about the development potential of areas where future development is planned. This process also has potential to achieve better environmental outcomes than site-by-site assessment. At the planning stage there is more opportunity to plan good development footprints and protect areas of biodiversity value. Biodiversity certification aims to provide security for biodiversity values in landscapes proposed for development as well as certainty for developers.

A number of changes are being introduced to the current biodiversity certification scheme. A broader range of proposals will have access to biodiversity certification, and a new category of 'strategic' biodiversity certification will be established, which will have access to a broad range of biodiversity conservation measures. For the first time, individuals and not just planning authorities, will be able to be applicants. Assessment processes for biodiversity certification proposals will be aligned with other development assessment processes. This will improve the consistency of biodiversity outcomes within the planning system. Biodiversity certification will be actively encouraged for proposals declared to be of strategic biodiversity or development importance.

Expanding who can seek biodiversity certification

In the current biodiversity certification scheme only planning authorities are able to apply for biodiversity certification. Increasingly, individual developers are seeking biodiversity certification via a sponsoring local council. Allowing individuals to independently apply for biodiversity certification will enable councils to focus biodiversity certification proposals that are of most benefit to their local area.

Ideally, biodiversity certification proposals will align with local, district and regional planning goals. Individuals applying for biodiversity certification will be required to consult with the relevant council.

Biodiversity certification will be available in both urban and rural settings and to all scales of development.

Biodiversity Assessment Method

The biodiversity impacts of biodiversity certification proposals will be assessed through a new single assessment method, the Biodiversity Assessment Method (BAM).

Under the current scheme the Biodiversity Certification Assessment Methodology (BCAM) is used to assess biodiversity certification applications. The BCAM has different policy settings to other existing methods used to assess biodiversity impacts. This results in different offset requirements. Assessing biodiversity certification proposals with the BAM will ensure transparent and consistent outcomes for biodiversity within the planning system.

Encouraging strategic biodiversity certification

Biodiversity certification aims to integrate assessment of biodiversity impacts into the process of planning for future land use change. At an early stage in the planning process, proposals have greater opportunity to avoid undesirable impacts. This process can also protect biodiversity values of strategic significance in the landscape. The Biodiversity Conservation Trust can provide assistance to planning authorities undertaking strategic biodiversity certification to help them assess and offset the biodiversity impacts of future land use changes. In a change from the current scheme, a broad range of conservation measures will only be available for certification proposals declared to be "strategic proposals" by the Minister for the Environment. This is intended to encourage planning authorities to take a more strategic approach to biodiversity planning, and only by doing so will they be eligible to utilise the full range of available conservation measures.

Strategic biodiversity certification

A new category of 'strategic' biodiversity certification will be established. In a change from the existing scheme, proposals declared to be strategic can use a broader range of

conservation measures to offset the impacts on biodiversity of the bio-certification proposal, compared to non-strategic proposals.

The Minister for the Environment will be able to declare a proposal to be a strategic proposal. A declaration can only be made if a proposal is put forward by a planning authority (either jointly or on their own). The Minister will consider the matters outlined in the biodiversity conservation regulation before making a declaration that a proposal is strategic. Matters for consideration could include:

- Scale of the proposal, including the area of land proposed to be bio-certified
- Regional context of the proposal – having regard to strategic plans under the EP&A Act or other endorsed strategic plan.
- Any advice provided by the Minister for Planning regarding the proposal
- The environmental, social and/ or economic outcomes the proposal could facilitate.

Additional conservation measures

All biodiversity certification proposals may discharge their offset obligations through appropriate biodiversity credits or payment into the Biodiversity Conservation Fund.

Only declared strategic biodiversity certification proposals will be able to apply the following additional conservation measures that are available to all strategic proposals under the current scheme:

- reservation of land under the *National Parks and Wildlife Act 1974*
- adoption of development controls that conserve or enhance the environment under the *Environmental Planning and Assessment Act 1979*; or
- any other measure that the Minister for the Environment determines to be a conservation measure.

Consultation Questions

- Do you think the new scheme design incentivises increased adoption of bio-certification?
- Do you think that the proposed bio-certification scheme reasonably balances the community's interest in the environmental, social, and economic uses of land?
- Could any elements of the proposed scheme be improved to better facilitate flexibility, responsiveness and innovation in addressing biodiversity impacts at the planning stage?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Loans for strategic biodiversity certification

The cost of offsets and assessment is seen as a barrier for planning authorities participating in the current biodiversity certification scheme. It is intended under the new scheme that planning authorities may be eligible to receive low interest financing from the Biodiversity Conservation Trust. Loans would be allocated by the Minister to the highest priority projects, based on detailed criteria. This proposal will be discussed in more detail with planning authorities during the public exhibition phase.

Work is also underway to design a dedicated mechanism for recovering costs associated with biodiversity certification through a levy or similar biodiversity contribution. Together with loans, the cost recovery mechanism should alleviate the financial burden on planning authorities participating in the biodiversity certification scheme.

3. Offsets payments calculator

What is the calculator and what will it do?

The offsets payment calculator will work out how much a proponent must pay into the Biodiversity Conservation Fund (the Fund) to meet an offset obligation. When a proponent makes a payment into the fund, the responsibility of finding an offset is transferred to the Biodiversity Conservation Trust (the Trust). The Trust must secure the required biodiversity credits, while the proponent is considered to have met their offset obligation.

Paying into the fund will be a new way for proponents to meet their offset obligations. Proponents will still have the option to secure offsets themselves.

Currently, proponents can offset the impacts of development by purchasing credits from landholders through the bio-banking scheme. Credits can also be bought and traded on the market.

The calculator will provide a price for each type of biodiversity credit that the Trust is required to find. There are two types:

- **ecosystem credits**, which are defined by Plant Community Type. There are 1392 different Plant Community Types in NSW.
- **species credits**, which reflect threatened species that are not easily predicted by vegetation type.

Biodiversity credits will be created under biodiversity stewardship agreements under the NSW Biodiversity Offsets Scheme. Under these agreements, landholders receive payments to protect and manage biodiversity on their land. The amount paid to landholders includes the annual cost of management actions and may also include a profit negotiated by the landholder.

Currently, the market for biodiversity credits in NSW is small and concentrated on certain credit types and areas of the State. Since the NSW Biodiversity Banking and Offsets Scheme (the BioBanking Scheme) was introduced in 2010, there have been 205 trades of 18159 ecosystem credits in 64 Plant Community Types. There have been 13 trades in species credits.

The NSW biodiversity credit market is expected to grow and diversify rapidly when the NSW Biodiversity Offsets Scheme is introduced.

Developing a method for the calculator

The primary aim of the calculator is to provide a price that accurately predicts the costs that the Trust will incur in securing each type of biodiversity credit as an offset. This will be the price proponents must pay to meet a credit obligation when choosing to pay into the fund. This price will also be used to determine the amount a proponent must spend when they are offsetting using biodiversity conservation actions, in accordance with the offset rules.

This is a complex task. The Trust will offer proponents a new service. The challenges and risks of finding the right biodiversity credits will be transferred from proponents to the Trust. It is important that the calculator provides the Trust with enough money to secure the credits required to offset the biodiversity impacts of development.

The government commissioned external experts to develop a proposed model for the offsets payment calculator.

The aim of this chapter is to describe the key elements of the proposed model and seek feedback.

The proposed calculator model

The proposed model identifies three types of costs that the Trust will incur when it takes on and satisfies an offset obligation for a proponent. These are the purchase cost of the biodiversity credit, administration costs and the cost of risk.

The price paid by proponents will reflect these three cost components.

1. Expected credit purchase cost

The direct cost of acquiring biodiversity credits from landholders

2. Fund administration expenses

The cost of operating the Fund, including the cost of searching for biodiversity credits

3. Risk loading

A margin to manage the risk that actual credit purchase costs and Fund administration expenses exceed expected costs

Figure 1. Key components of price

Component 1: Expected credit purchase cost

The main component of the price will be the direct cost of purchasing biodiversity credits from landholders at a set point in time. This will vary according to the number and type of credits required. The calculator will provide a price for each type of biodiversity credit that the Trust is required to find. Credits types are grouped into two categories: **ecosystem credits** and **species credits**.

Ecosystem credits

The cost of purchasing ecosystem credits from landholders will be predicted using a combination of:

- **individual and group trades models** based on analysis of past trades in ecosystem credits
- **a costs model** based on the factors driving the amount landholders expect to be paid.

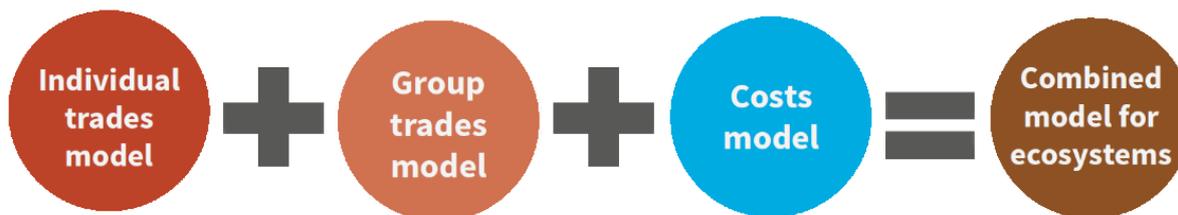


Figure 2. Key inputs to predict the cost of ecosystem credits

The **individual** and **group trades models** predict future prices using information on past ecosystem credit trades. Specifically, they draw on:

- previous sale prices for each ecosystem credit
- the cumulative number of each ecosystem credit sold to date, which shows how much supply has been consumed and provides an indicator of relative scarcity
- vegetation information on each Plant Community Type, which is analysed to identify features that correlate with price in past trades.

Statistical analysis of these factors is described in Box 1 below.

Box 1. Statistical analysis of trade data

The proposed method uses past trades to predict future prices.

The individual trades model is based on past sale prices for each ecosystem credit and the number of credits sold to date. It only applies to credit types that have been traded more than five times.

The group trades model uses a statistical model to combine data on past sale prices, the number of credits sold to date and vegetation information on each Plant Community Type. This data is used to calculate a price for each ecosystem credit type. Relevant vegetation information factors are chosen on the basis of which features have a statistical relationship with price.

Price increases as the number of credits traded grows. This is because supply is finite and credits will become more expensive as they become increasingly scarce.

Previous sale prices and the number of past trades are drawn from the BioBanking Scheme public register maintained by the Office of Environment and Heritage (OEH), adjusted for inflation based on changes to land values and average weekly earnings.

Vegetation information on Plant Community Types is drawn from the Vegetation Information System (VIS) database maintained by OEH, which is a single, integrated source for vegetation information in NSW.

Both of these datasets are publicly available.

The **costs model** complements the trades model to overcome the absence of trade data for many ecosystem credit types.

It identifies two drivers of the cost of creating an ecosystem credit from the landholder's perspective:

- the cost of actively managing the land to improve biodiversity values, for the life of the agreement (i.e. cost of management actions)
- a return to the landholder that reflects the lost opportunity to use that land for another purpose.

Box 2 below describes how management costs and return to landholder are estimated in the proposed model.

Box 2. Estimating management costs and return to landholder

Ecological experts reviewed 50 existing BioBanking Agreements to estimate typical management costs and a return to landholder across six regions. BioBanking Agreements will be replaced by Biodiversity Stewardship Agreements under the new biodiversity offsets scheme. Future analysis could combine data from both types of agreement.

The analysis assumes that sites in regions further away from the coast are likely to be larger and that larger plots have lower management costs per credit due to economies of scale.

Management costs component are derived from the Total Fund Deposit in existing BioBanking Agreements. The Total Fund Deposit is the amount required to make annual payments to the landholder to support management of the land in perpetuity.

A return to landholder is estimated for each region, based on an expert opinion of land value per hectare.

The base cost allocated per credit is the sum of these two components.

The base cost is multiplied where the ecosystem impacted is listed as endangered or critically endangered. Threat status reflects the scarcity of the ecosystem credits sought.

The **combined model** for ecosystem credits brings together the results of the individual and group trades models and costs model.

A weighting between the individual and group trades models and cost model is applied to each ecosystem credit. The weighting will depend on how many trades there have been for that ecosystem credit.

The costs model will be more important where there have been fewer trades. Over time, the weighting towards the individual and group trades models will increase as the number of trades for each ecosystem credit grows. This is because the trades models directly reflect market price. Once a critical number of trades is reached price only the individual trades model will be used by the calculator to determine the price. They are likely to provide a more accurate projection of the costs incurred by the Trust than the costs model once more market data is available.

Consultation Questions

- Is it reasonable to expect prices to increase over time as the biodiversity available for use as offsets becomes scarcer?
- What weighting should be applied across the individual trades model, group trades model and costs model in the absence of any past trades and as trades occur?
- How many trades are needed before the trades model could be weighted at 100 per cent?
- Is there any additional data that could be used by the Trust to predict the return landholders will be seeking on the sale of their biodiversity credits?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Species credits

The expected purchase cost of species credits will be calculated using:

- an **individual trades model** based on the trade history of individual species credits
- a **costs model** based on analysis of factors driving the number of species credits created per site.



Figure 3. Key inputs to predict the cost of species credits

The **individual trades model** will apply to species credits where there has been more than one trade. Because there is very limited trade data on species credits, it is a simple model based on sale prices alone.

The costs model uses the characteristics of different species and their threat status to estimate the cost of generating different species credits and their relative scarcity. Key characteristics and how they relate to price are described in Box 3 below.

Box 3. The role of expert assessment in the costs model for species credits

Ecological experts grouped species in a number of pricing categories.

There are 18 categories of flora species, based on plant type (aquatic plants, fungi, ground covers, epiphytes and climbers, shrubs and trees) and density (high, medium or low density).

Density affects the number of credits that can be generated at a site. Low density flora are expected to have a higher price than high density flora.

There are five categories of fauna species, based on area of occupancy (very wide ranging, wide ranging, discrete habitat or specialised foraging requirements or highly restricted breeding habitat).

Area of occupancy affects the rarity of sites containing the species. The scarcer a credit is, the higher the price.

Ecological experts estimated a purchase cost for credits in each category. For each category, the price increases by threat status. That is, whether a species is listed as vulnerable, endangered or critically endangered.

Threat status impacts on the scarcity of sites to generate species credits.

The **combined model** for species credits brings together the results of the individual trades model and costs model.

A weighting between the individual trades model and costs model is applied to each species credit. The weighting will depend on how many trades there have been for that species credit.

As with ecosystem credits, the costs model will be more important where there have been no or few trades. Once a critical number of trades is reached only the trades model will be used by the calculator to determine price.

Consultation Questions

- Is there a better way to predict the cost of species credits, given the lack of trade history? Is there any additional data that could be used to improve predictions?
- Is it reasonable to increase the price of species credits where the species is endangered or critically endangered?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Component 2: Fund administration expenses

The second component of the price is the cost of managing the fund.

This includes two types of cost:

- The **fixed costs** of managing the fund each year may include salaries, office accommodation, updating the calculator, information technology systems, data management and insurance.
- **Variable costs** associated with searching for and securing credits may include the cost of advertising, desktop reviews, initial site assessments, negotiations with landholders and establishment of stewardship agreements.

A process to estimate fixed and variable costs is described in Box 4 below. The basis for estimating fund administration expenses will be reviewed on an annual basis against actual costs incurred managing the fund.

Box 4. Estimation of Fund administration expenses

The fixed costs will be calculated on a per credit basis and variable costs will be calculated on a per search basis.

For each financial year, the Trust will estimate:

- expected fixed and variable costs
- projected number of transactions
- projected number of credits to be sourced.

As with all inputs for the calculator, this information will be made publicly available. Estimates will be based on market intelligence and business planning.

Consultation Question

- How can the Trust make the estimation of Fund administration expenses more reliable?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

Component 3: Risk loading

The final element of price is a risk loading, to mitigate against the risk that the price set by the calculator is not enough to meet the actual costs incurred by the Trust.

This is important because information on the market is incomplete. This risk will be greatest in the fund's first few years of operation when trade data is limited and the market is changing rapidly.

The loading will be applied to the expected cost of credits and fund administration expenses. The way the loading is set is described in Box 5 below.

Box 5. Setting the risk loading

The loading will be calculated on the basis of:

- parameter error, or the risk that the settings in the calculator are not accurate
- process error, or the risk of random variation in the market price.

The loading can be varied depending on confidence in the pricing model and appetite for risk. It could change over the life of the fund, as trade data improves and the market matures.

Updating the calculator

The calculator will be updated regularly to ensure that it keeps pace with the market. This will reduce the risk of over or under pricing.

The calculator may adopt datasets, information or rules published by the Trust that may be changed by the Trust from time to time.

The Trust will publish a schedule for calculator updates so that proponents can plan for any changes. During each pricing period, the price produced by the calculator will be a fixed and binding offer and will be valid until the next scheduled update.

The Minister for the Environment will publish the calculator. The Trust will be responsible for operating the calculator and updating databases that support the calculator. To support transparency, the calculator will be publicly available online.

It is likely that substantial updates to the calculator will be needed in the first one to two years of operation as more trades occur (particularly in credits that have not previously been traded) and new sources of data become available.

Consultation Questions

- Should the calculator produce a fixed price in all circumstances or could there be some situations where it would be appropriate to allow a proponent to negotiate a price with the Trust?
- Should the Trust be able to set and update all aspects of the calculator? Are there any components that should be set and updated by the Minister or another party?
- How often do you think the calculator should be updated to provide proponents with price certainty while improving the accuracy of the calculator as market conditions change?

Have Your Say at <http://landmanagement.nsw.gov.au/haveyoursay>

References

1. The BAM will not apply to exempt and complying development under the EP&A Act or clearing of native vegetation permitted on Category 1 land on the NVR Map or under codes or allowable activities under the Local Land Services Act 2013 (LLS Act). Initially the BAM will not apply to EP&A Act part 5 activities (it will apply to part 5.1 State significant infrastructure immediately).
2. Note that the existing processes under the EP&A Act (7 part test and SIS) have been transferred with minor changes to the Biodiversity Conservation Act. The Biodiversity Conservation Act will require a proponent to apply the BAM and prepare a biodiversity assessment report, for projects above the BAM threshold and for projects that trigger the existing threshold of significant effect. The SIS will consist of the biodiversity assessment report, as well as an assessment of any other impacts on biodiversity suggested by the nature of the development. The other existing methods, being the Framework for Biodiversity Assessment, the BioBanking Assessment Methodology, the Biodiversity Certification Assessment Method and the Environmental Outcomes Assessment

Methodology will no longer exist, and will be replaced by the BAM. Note that the requirement to prepare an SIS for developments with a significant impact will continue to apply for fish and marine vegetation regulated under the Fisheries Management Act 1995 and to Part 5 of the EP&A Act.

3. Some areas (industrial, unincorporated land, very urban local government areas) may not have minimum lot sizes. In these cases the 'minimum lot size' would be taken to be the actual lot size of the land on which a development is proposed.
4. This map is under development, however it is proposed to capture sensitive values. For example, the map would include: core koala habitat, coastal wetlands, littoral rainforests, Ramsar wetlands identified under environmental planning instruments and areas of outstanding biodiversity importance under the Biodiversity Conservation Bill.
5. IBRA subregions are identified under the Interim Biogeographic Regionalisation for Australia (IBRA) system, which divides Australia into bioregions and subregions on the basis of their dominant landscape-scale attributes.
6. 'Threat status group' will be defined in the BAM and will be based on percent cleared or association with a threatened ecological community in the NSW Vegetation Information System.
7. 'Vegetation formation' is the highest vegetation classification class under the NSW vegetation classification hierarchy.
8. Note that the definition of species in the Biodiversity Conservation Bill includes populations. References to 'species' throughout this section are also intended to refer to 'populations'.