Biodiversity Offsets Payment Calculator

User guide – standalone version

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Summary

This user guide aims to document how the **Biodiversity Offset Payment Calculator (BOPC)** applies the pricing models to generate a price for both species and ecosystem credits. The standalone version of the working model comprises an online tool accessible at www.lmbc.nsw.gov.au/offsetpaycalc

There is a version of the BOPC that is integrated with the Biodiversity Assessment Method (BAM) Calculator. Please refer to the BAM Calculator user guide for further reference to the integrated version.

Who should to use this user guide?

Developers who are required under the *Biodiversity Conservation Act 2016* (the Act) or any other Act (including under an instrument, approval or agreement) to retire biodiversity credits may satisfy that requirement by, instead, paying an amount into the Biodiversity Conservation Fund (BCF) determined in accordance with the offset payment calculator established under Division 6 of the Act.

The total credit cost calculated with the BOPC is a best estimate of the market value, plus a risk premium, plus an administration cost of the biodiversity credits at the time of the calculation session, and is valid only during the quarter of the current year. For the purposes of the BOPC, the four quarters that make up the year are: January, February and March (Q1); April, May and June (Q2); July, August and September (Q3); and October, November and December (Q4).

The underlying econometric model of the BOPC is updated each quarter with the latest data available.

Disclaimer

It is the responsibility of the BOPC manager to update this user guide and make it available at the online tool website. It is the responsibility of the user of the online tool to download the latest version of the user guide. When using this user guide, verify that the version matches the respective technical note 'Pricing models for the Biodiversity Offsets Payment Calculator'.

Read this if you are landholder

Please be aware that when a landholder seeks to enter into an agreement with the Minister for the purposes of establishing a biodiversity stewardship site, the total biodiversity credit cost calculated using the standalone version of the BOPC does not represent any obligation for the BCF to purchase the potential credits to be generated.

If the landholder wants to sell biodiversity credits to the BCF, the sale price of each biodiversity credit will be negotiated between the parties, and will be affected by supply and demand for each biodiversity credit. For further information, please contact the Biodiversity Conservation Trust (BCT) team at BCT.transition@environment.nsw.gov.au.

Contents

1. Biodiversity market in NSW

1.1 Background

The Biodiversity Offsets Scheme (BOS) is a market-based scheme that provides a consistent biodiversity assessment process for development, a rigorous and credible offsetting scheme as well as an opportunity for rural landowners to generate income by managing land for conservation. The BOS enables 'biodiversity credits' to be generated by landowners and developers who commit to enhance and protect biodiversity values on their land through a biodiversity stewardship agreement. These credits can then be sold, generating funds for the management of the site. Credits can be used to counterbalance (or offset) the impacts on biodiversity values that are likely to occur because of development. The credits can also be sold to those seeking to invest in conservation outcomes, including philanthropic organisations and government. The principle is that creating a market in biodiversity credits gives incentives to protect biodiversity values for future generations.

The BOS may require a developer to offset the biodiversity impacts of a development by acquiring and retiring biodiversity credits.

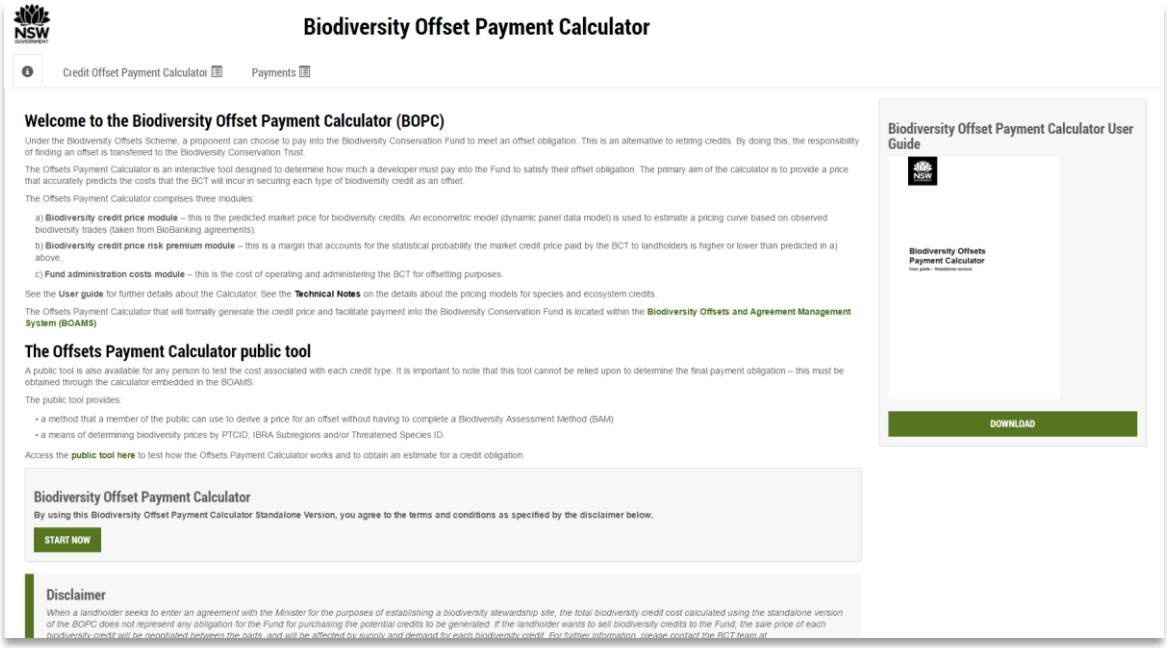
Rather than retiring credits themselves, a developer can choose to pay into the BCF. When a developer pays into the BCF, the BCT takes on the developer's offset obligation and becomes responsible for securing the required offsets.

The purpose of the BOPC is to determine how much a developer must pay into the BCF to satisfy an offset obligation. The payment is based on predicting the costs that will be incurred by the BCF when securing the necessary offset credits.

2. Starting off

2.1 Welcome page and Disclaimer section

Open the tool at www.lmbc.nsw.gov.au/offsetpaycalc

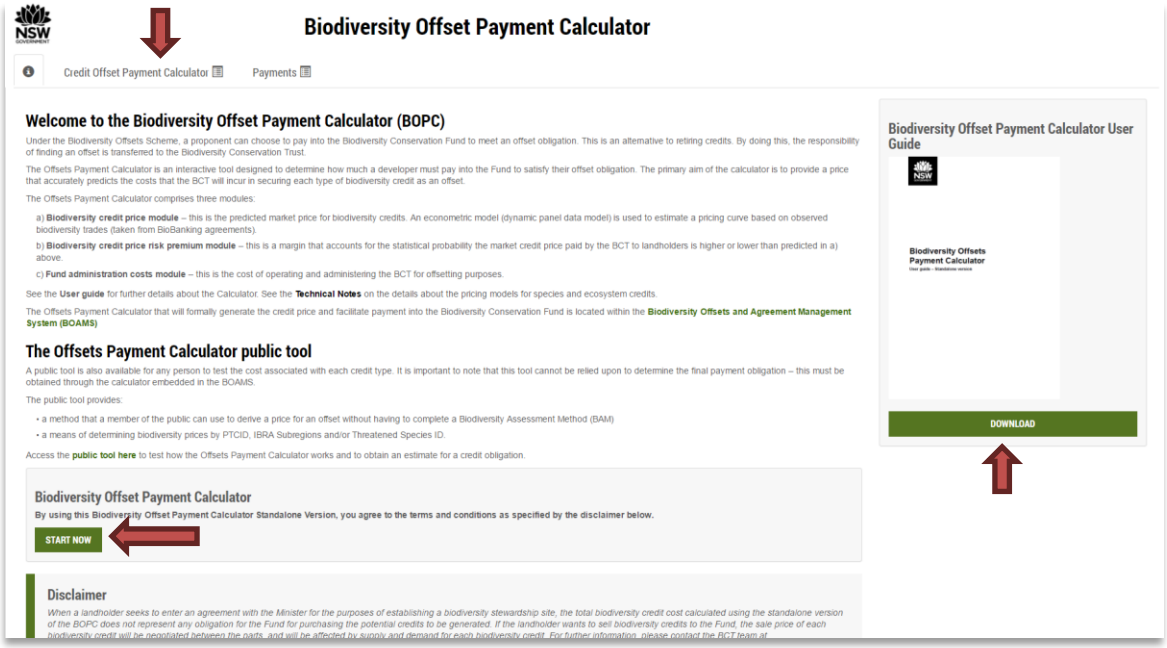


Read the Welcome statement and the Disclaimer section. Scroll down as necessary.

2.2 Launch the BOPC

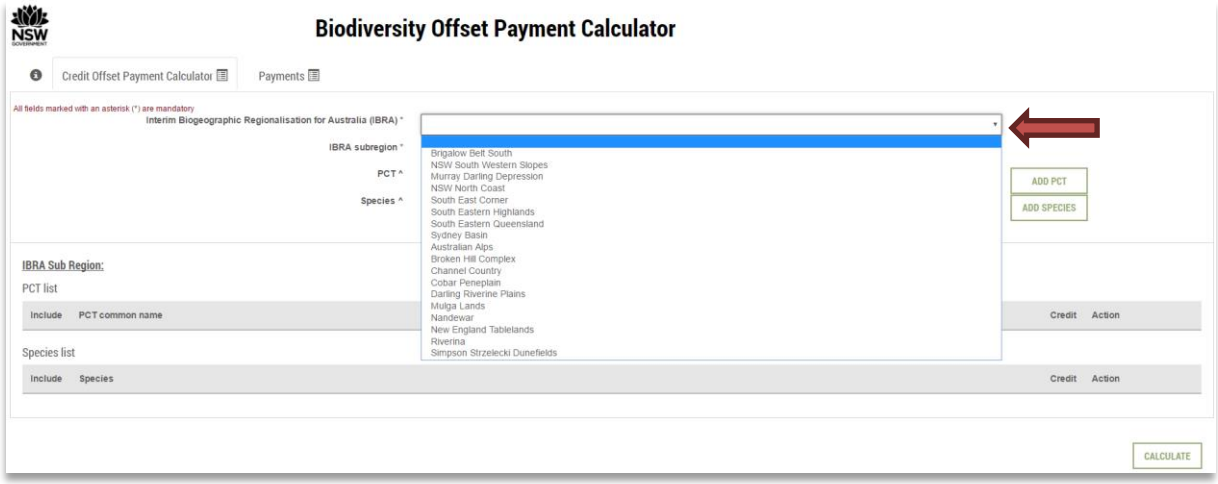
Click on the ‘START NOW’ button, or select the `Credit Offset Payment Calculator’ tab.

You can download the latest version of this user guide on the `DOWNLOAD’ button.

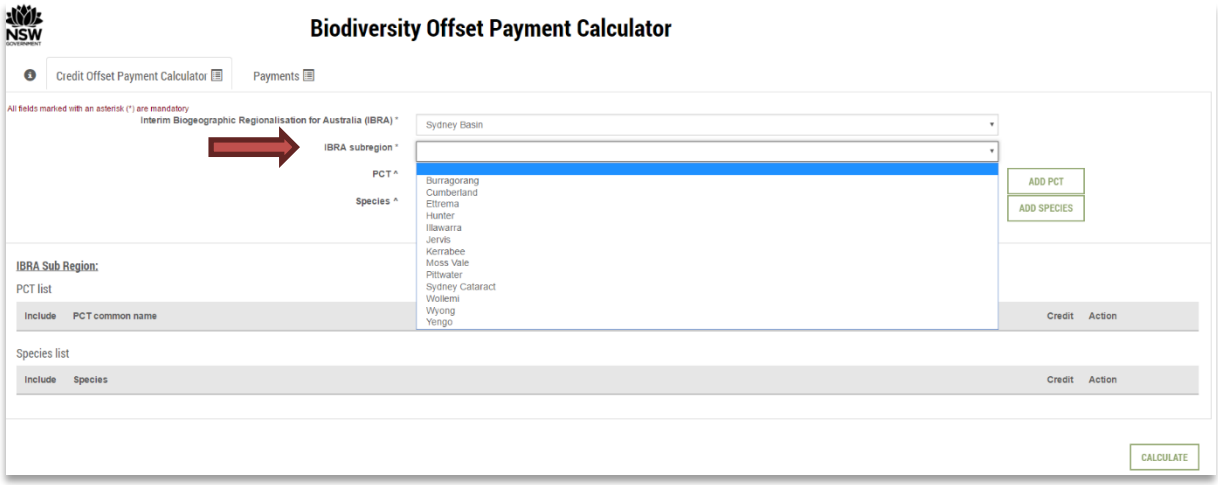


2.3 Start a biodiversity credit price calculation within a specific IBRA subregion

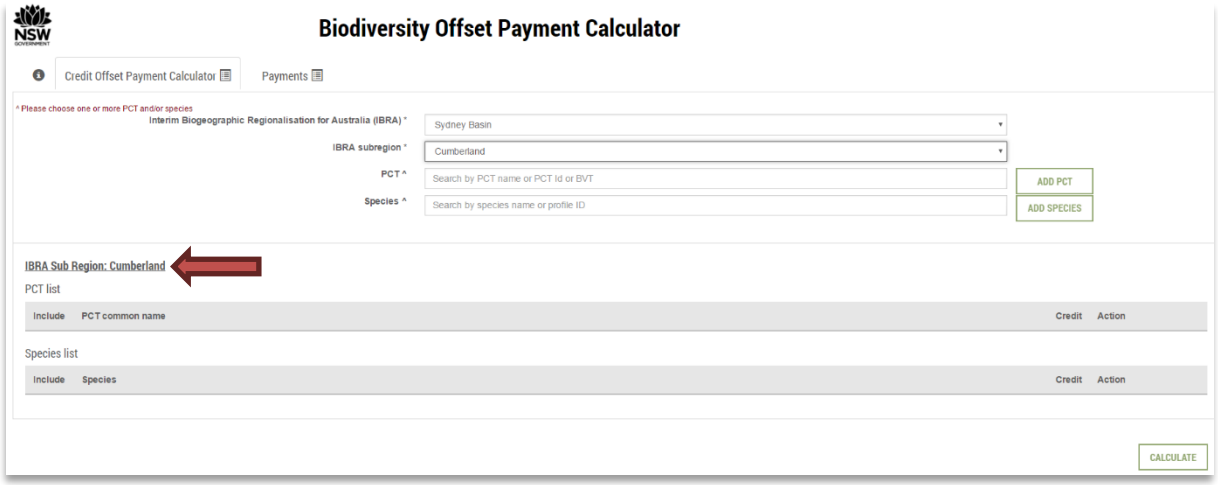
1. Select from a list the Interim Biogeographic Regionalisation for Australia (IBRA) region where the biodiversity credits or the development to offset are located.



2. Then, select the specific IBRA subregion where the credits or the development to offset are located.



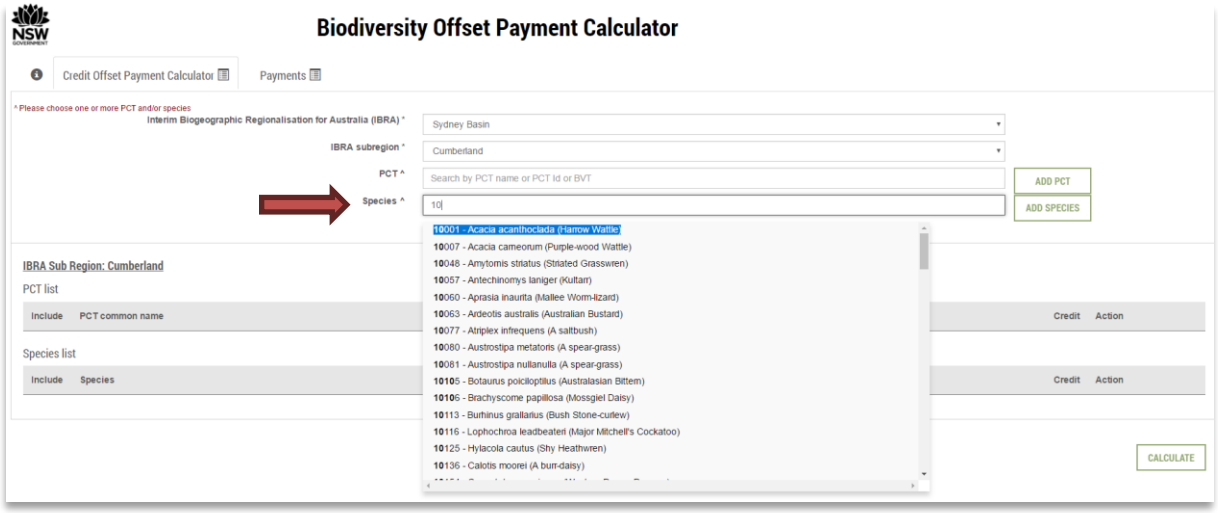
In this example, **Sydney Basin** is the IBRA region and **Cumberland** is the IBRA subregion.



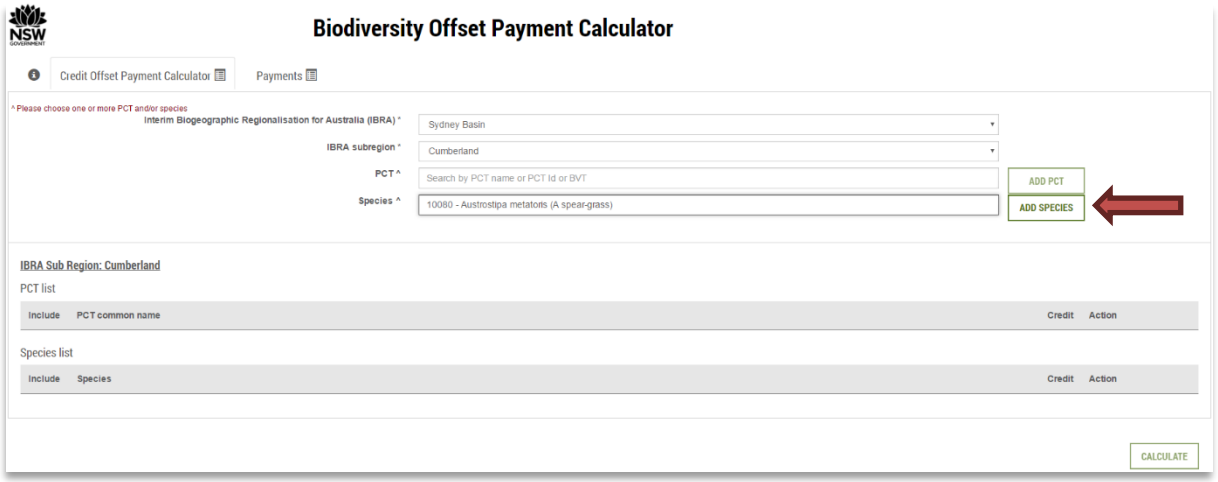
2.3.1 Species credit price

In case of species, the pricing model is based on density and threat status of flora, and area of occupation and threat status for fauna. The technical note 'Pricing models for the Biodiversity Offsets Payment Calculator' describes in detail the pricing model for species credits.

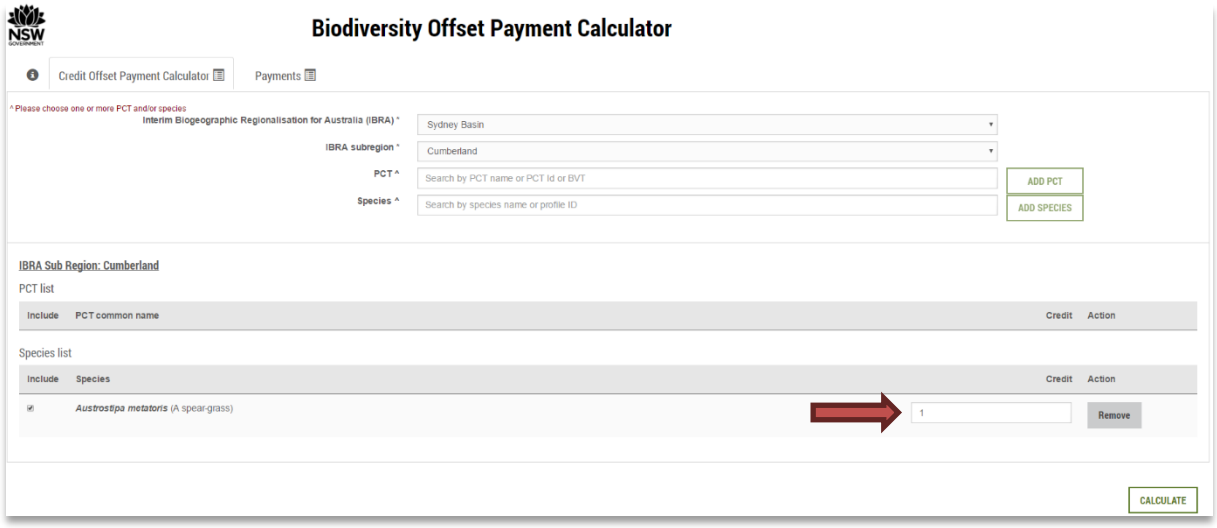
3. Select/input the type of species to offset. In the 'Species selection box', you can input either the Species profile ID, scientific name or common name.



4. Click on the 'Add species' button to add the species of interest into the 'Species list' and proceed to next step.

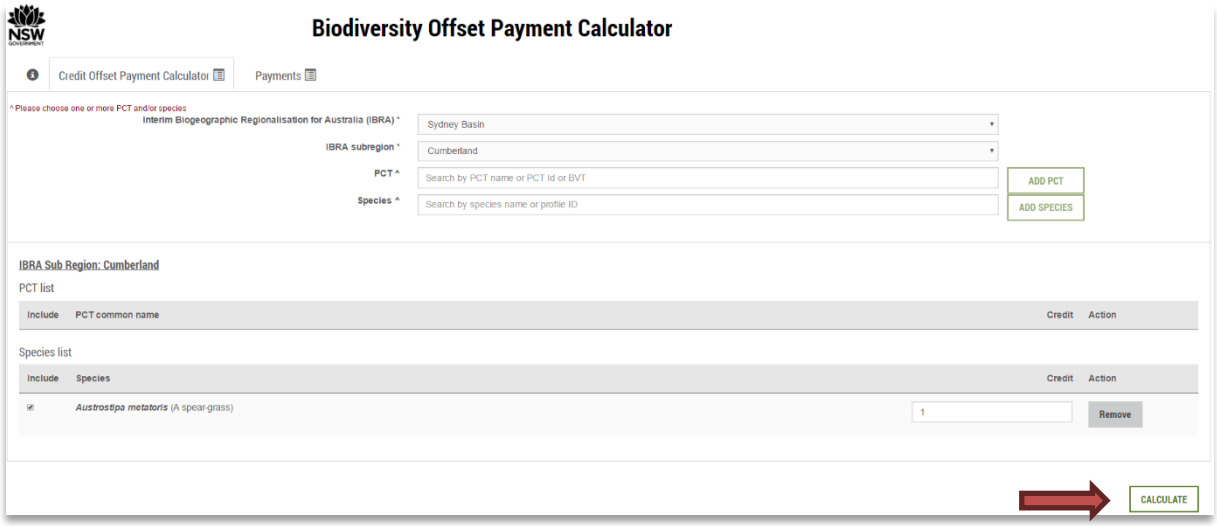


5. Input the number of species credits required.

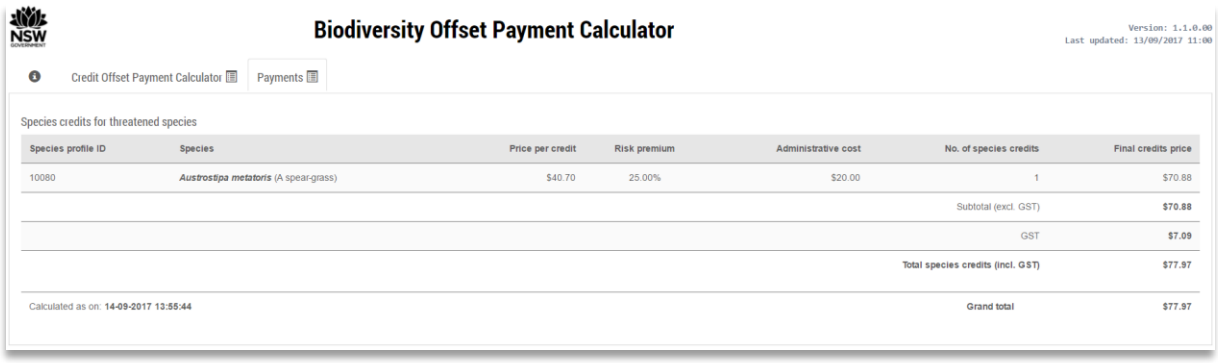


6. If more than one species credit is required to be offset in the same IBRA subregion, repeat steps 3 to 5 to add more credits to the ‘Species list’.

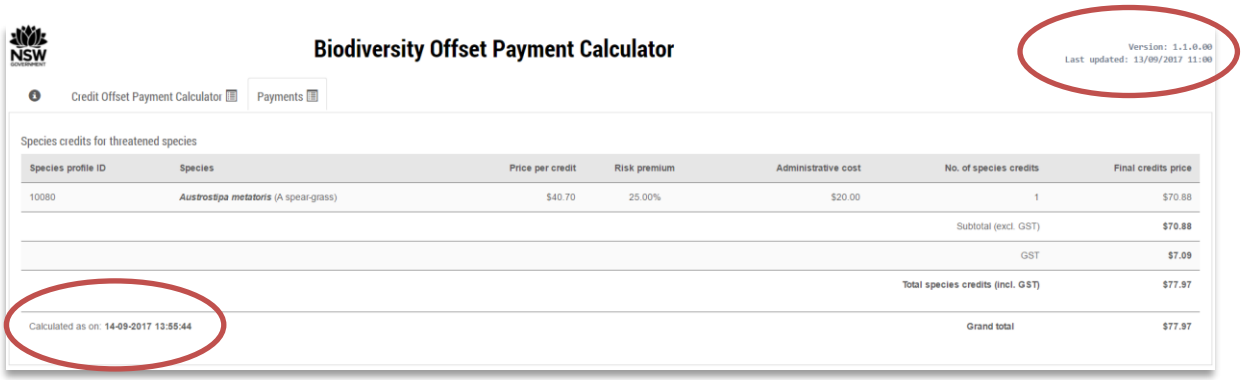
7. When all species credits required to offset are included in the list, click on the ‘Calculate’ button to proceed into the ‘Payments’ tab.



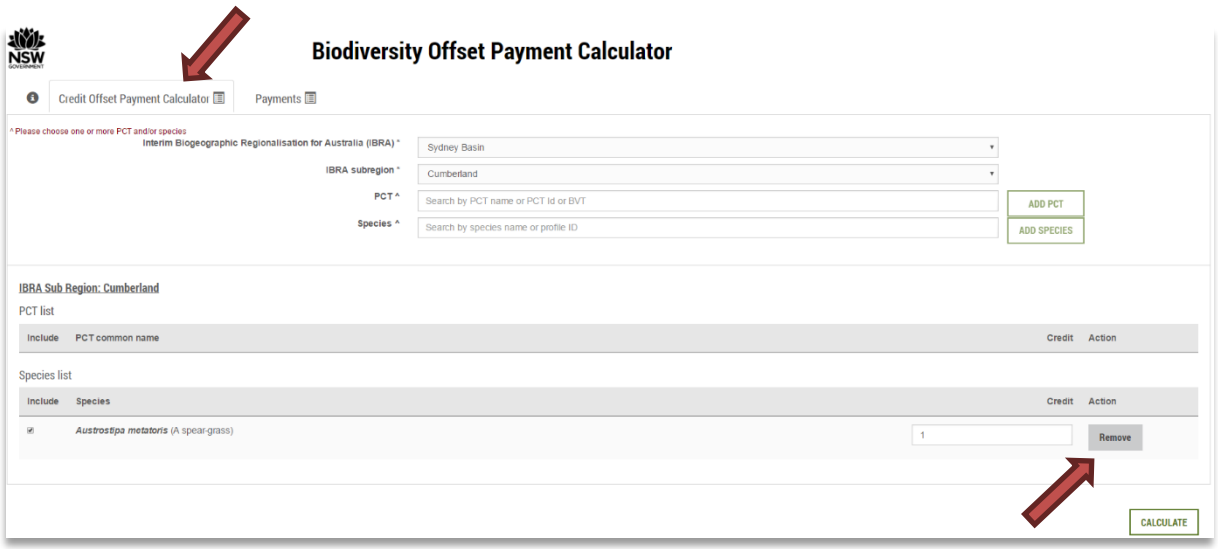
The ‘Payments’ tab summarises the species credits to be offset, the price per credit, the risk premium, the administrative cost per credit, the number of credits required and the final credits total cost.



Click `Ctrl-P' to print/save each species credit total cost report for further reference. Verify that both the version and date of calculation are visible.



8. If you want to remove a specific species credit form the 'Species list', go back to the 'Credit Offset Payment Calculator' tab and click on the 'Remove' button in the 'Species list'.

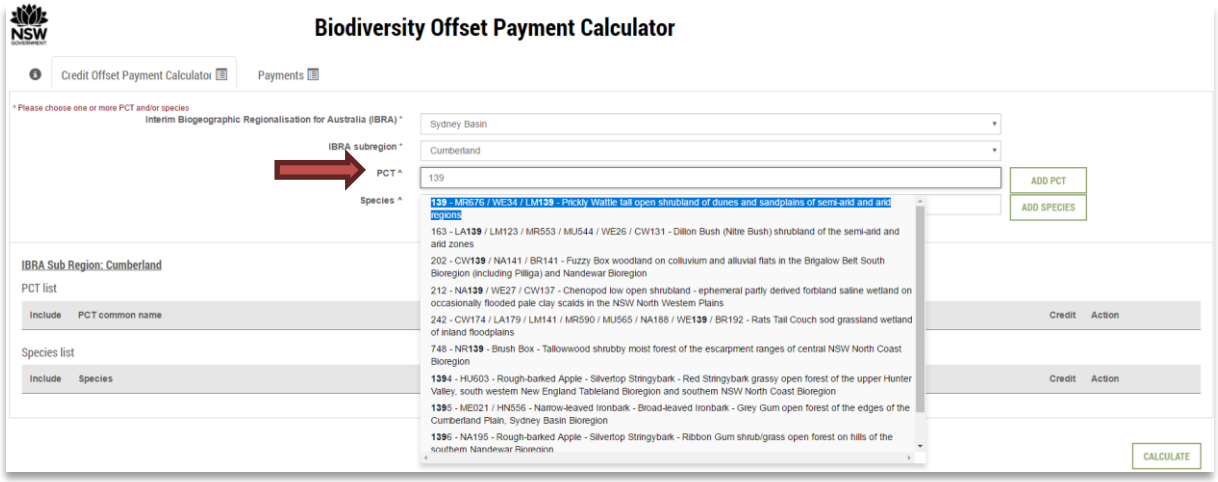


9. To start a new species credit calculation within same IBRA subregion, remove all species credits from the list and repeat steps 3 to 7.

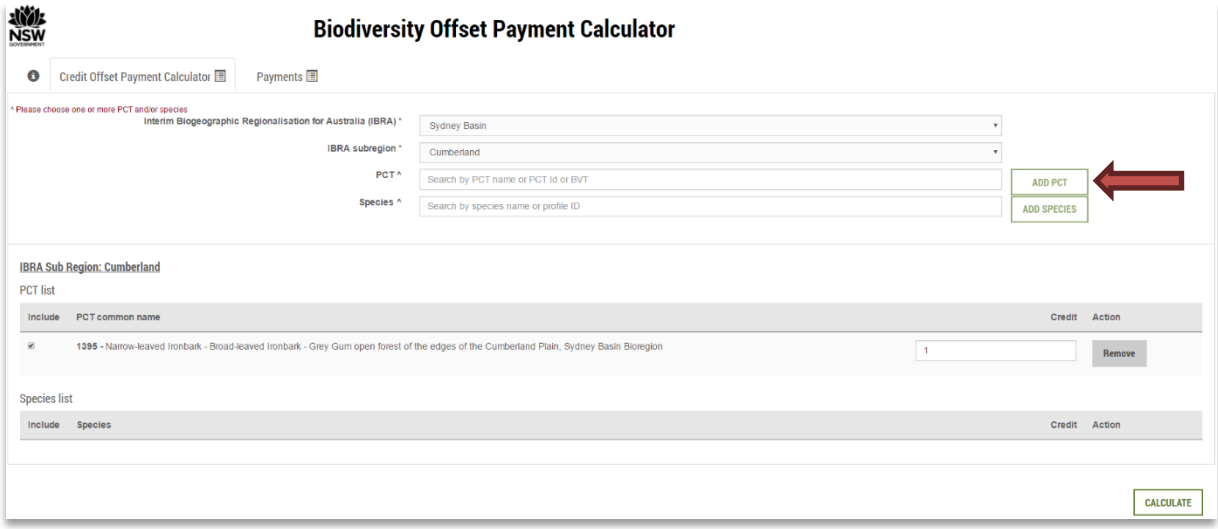
2.3.2 Ecosystem credit price

The technical note 'Pricing models for the Biodiversity Offsets Payment Calculator' describes in detail the pricing model for ecosystem credits.

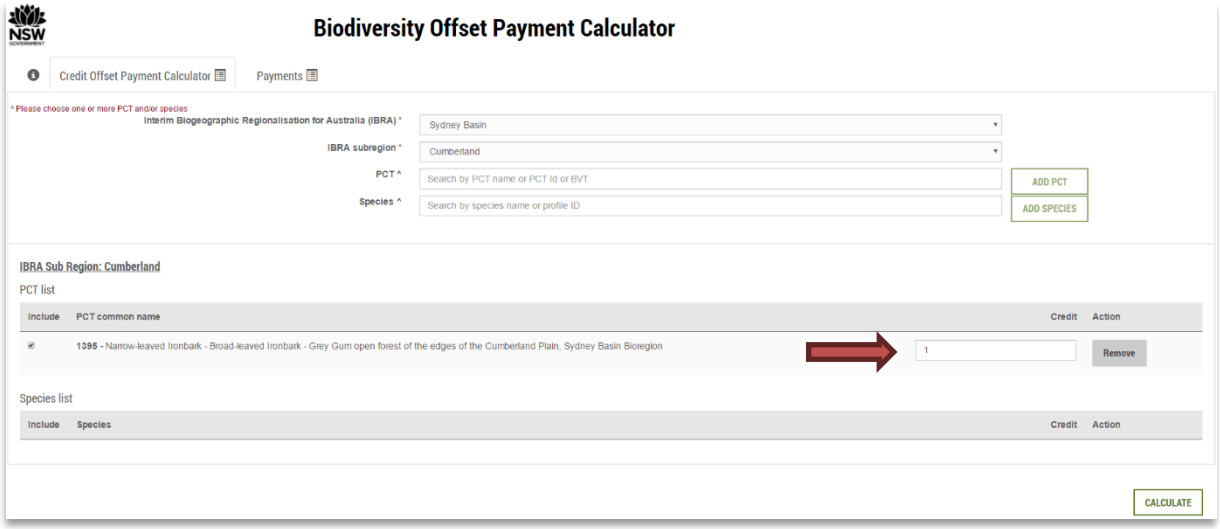
10. Once the IBRA region and IBRA subregion have been defined (see steps 1 and 2), to start an ecosystem credit price calculation, select/input the type of ecosystem to offset. You can input in the **PCT** selection box either the Plant Community Type (PCT) ID, Biometric Vegetation ID (BVID) or ecosystem name.



11. Click on the 'Add PCT' button to add the ecosystem of interest into the 'PCT list' and proceed to the next step.

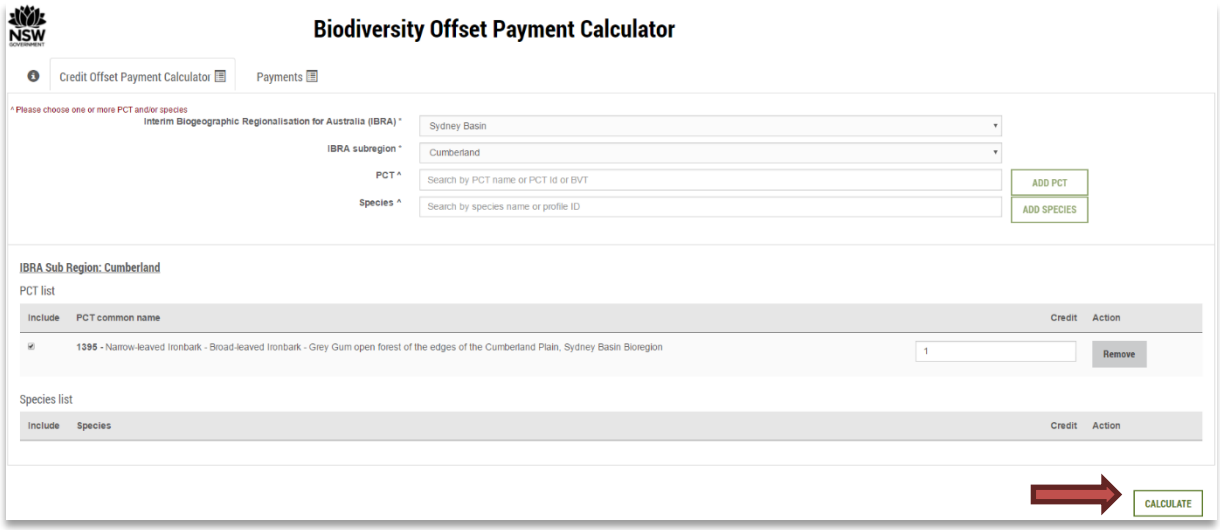


12. Input the number of ecosystem credits required.



13. If more than one ecosystem credit is required to be offset, repeat steps 10 to 12 to add more ecosystem credits to the ‘PCT list’.

14. When all ecosystem credits to offset are included in the ‘PCT list’, click on the ‘Calculate’ button to proceed to the ‘Payments’ tab.

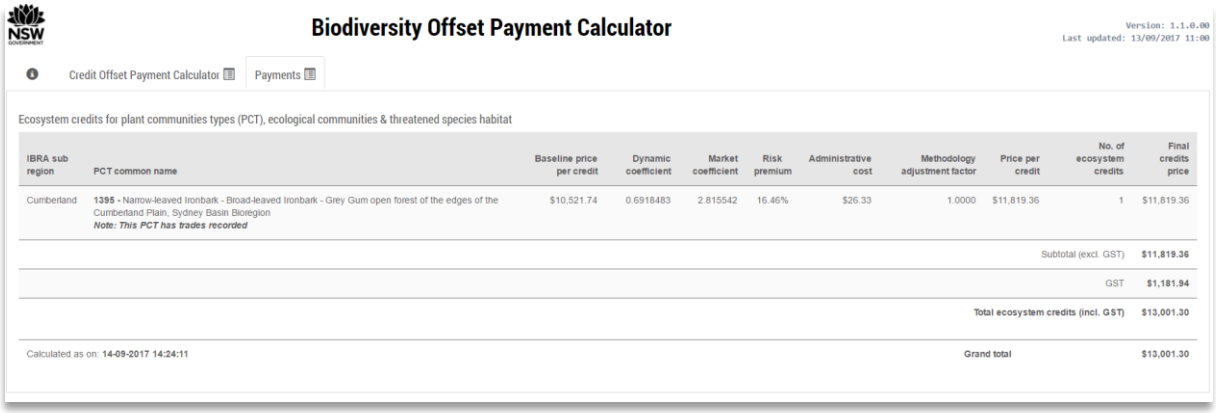


The ‘Payments’ tab summarises the ecosystem credits to offset and:

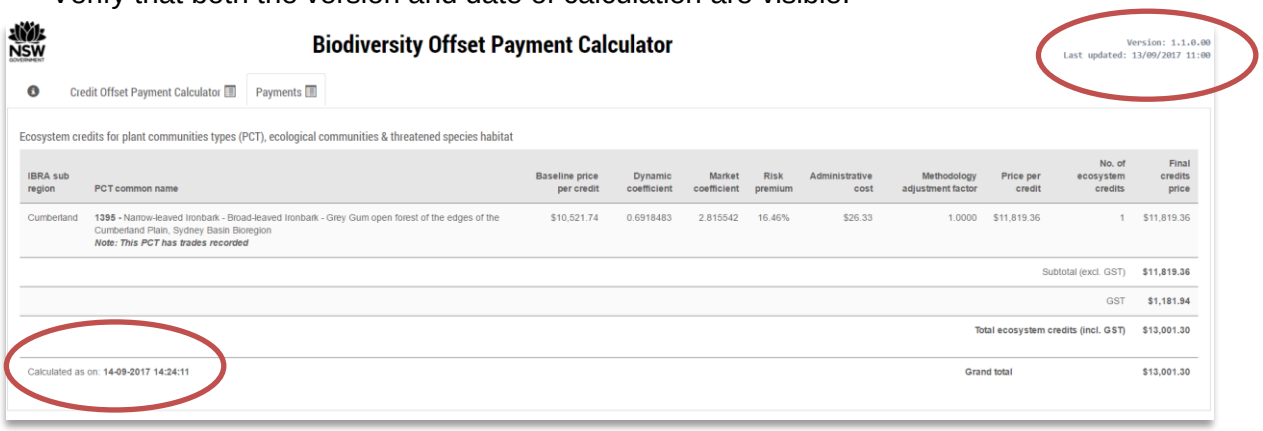
1. the ‘baseline price per credit’, which is automatically retrieved according the following rules:
   a) For PCT with trades recorded, the baseline price is the weighted average price from the most recent quarter, regardless of the IBRA subregion of interest.
   b) For PCT without trades recorded, but within an IBRA subregion with trades recorded, the baseline price is the weighted average price of all PCT ID within the IBRA subregion of interest.
   c) For PCT without trades recorded, and within an IBRA subregion without trades recorded, the baseline price is the weighted average price from the most recent quarter of the market region D.

d) When the predicted price (using the baseline price in a), b) or c)) is lower than an observed weighted average price that cover the costs of the management actions for improving vegetation integrity and threatened species habitat at a biodiversity stewardship site (Part A in Biobanking Agreements), the BOCP uses such an observed weighted average price that cover the costs of the management actions.

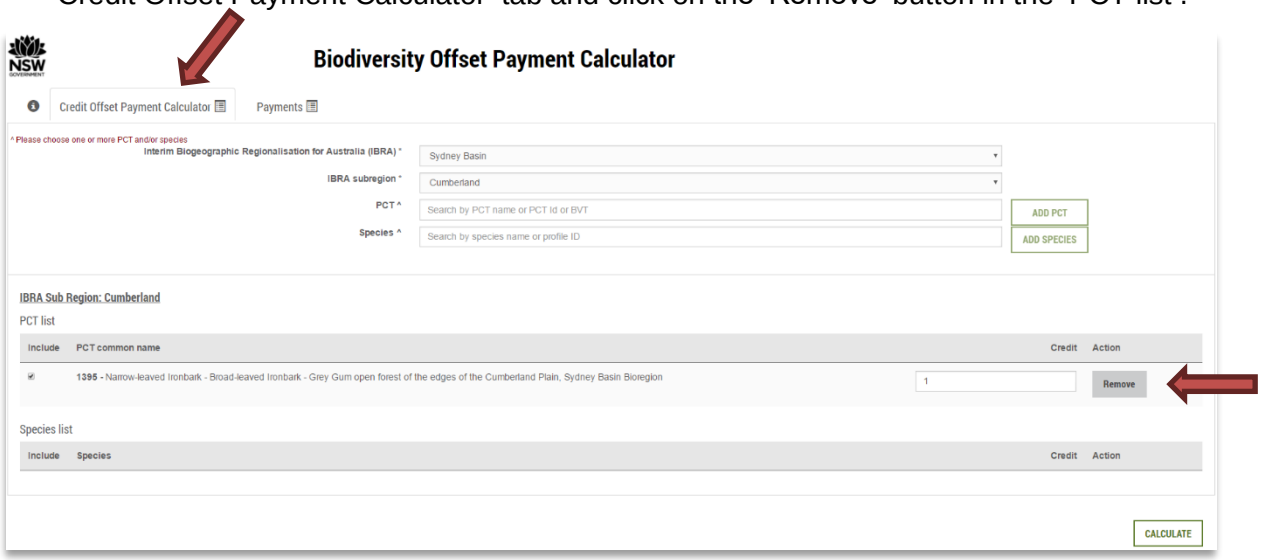
2. the 'dynamic coefficient'.
   a) The dynamic coefficient is reported for cases 1.a), 1.b) and 1.c), according with the technical note '"Pricing models for the Biodiversity Offsets Payment Calculator'.
3. the 'market coefficient'.
   a) The dynamic coefficient is reported for cases 1.a), 1.b) and 1.c), according with the technical note '"Pricing models for the Biodiversity Offsets Payment Calculator'
4. the 'risk premium'.
5. the 'administrative cost per credit'.
6. the 'methodology adjustment factor'.
7. the 'price per credit'.
   a) For cases1.a), 1.b) and 1.c), the 'Price per credit' is calculated as:
      - A= EXP[(LN('Baseline price per credit')*Dynamic Coefficient)+Market Coefficient)]*Methodology Adjustment factor
        - 'EXP' returns e, which is the base of the natural logarithm.
        - 'LN' returns the natural logarithm of a given number.
      - B= A*Risk Premium
      - C=(A*0.0026) or C=20 if (A*0.0026) < 20.
      - Price per Credit= A+B+C
   b) For case 1.d), the 'Price per credit' is calculated as:
      - A= Baseline price per credit
      - B= A*Risk Premium
      - C=(A*0.0026) or C=20 if (A*0.0026) < 20.
      - Price per Credit= A+B+C
8. the number of credits required, per biodiversity type.
9. the final credits total price.



Click `Ctrl-P' to print/save each species credit total cost report for further reference. Verify that both the version and date of calculation are visible.



15. If you want to remove a specific ecosystem credit from the 'PCT list', go back to the 'Credit Offset Payment Calculator' tab and click on the 'Remove' button in the 'PCT list'.

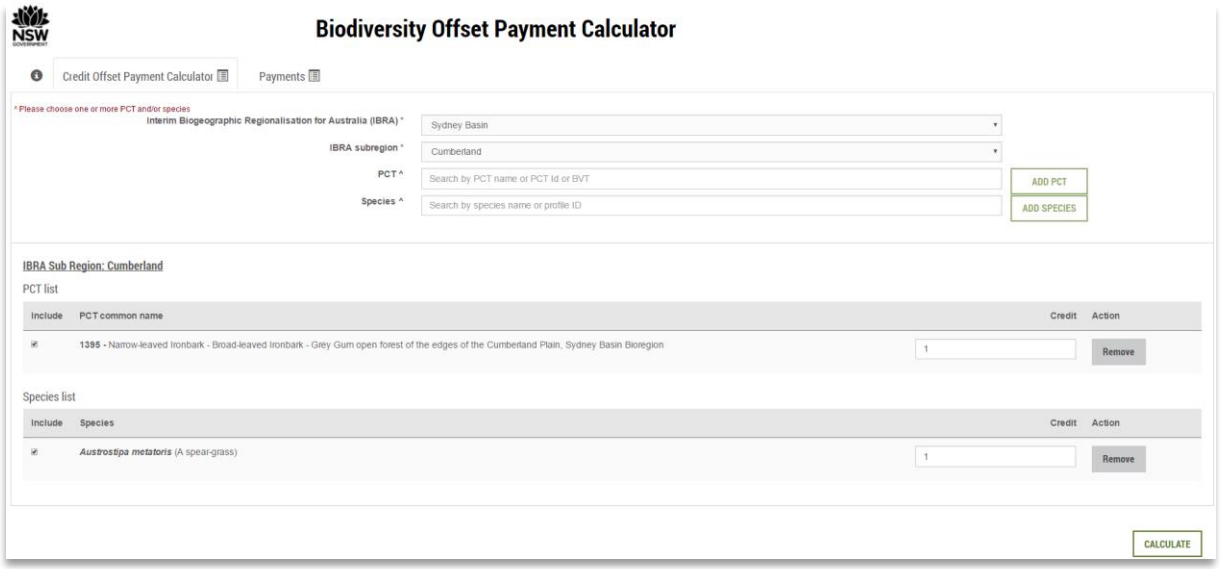


16. To start a new ecosystem credit calculation within the same IBRA subregion, remove all ecosystem credits from the 'PCT list' and repeat steps 10 to 14.

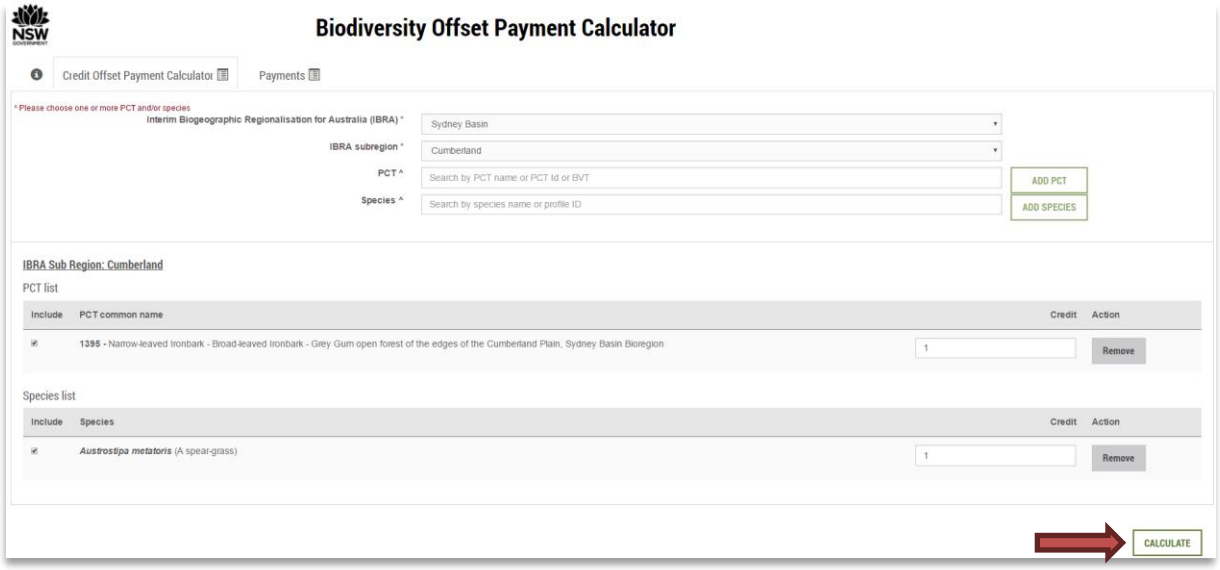
2.3.3 Combined species and ecosystem credits price calculation within the same IBRA subregion

The online tool supports a combined species and ecosystem credits price calculation.

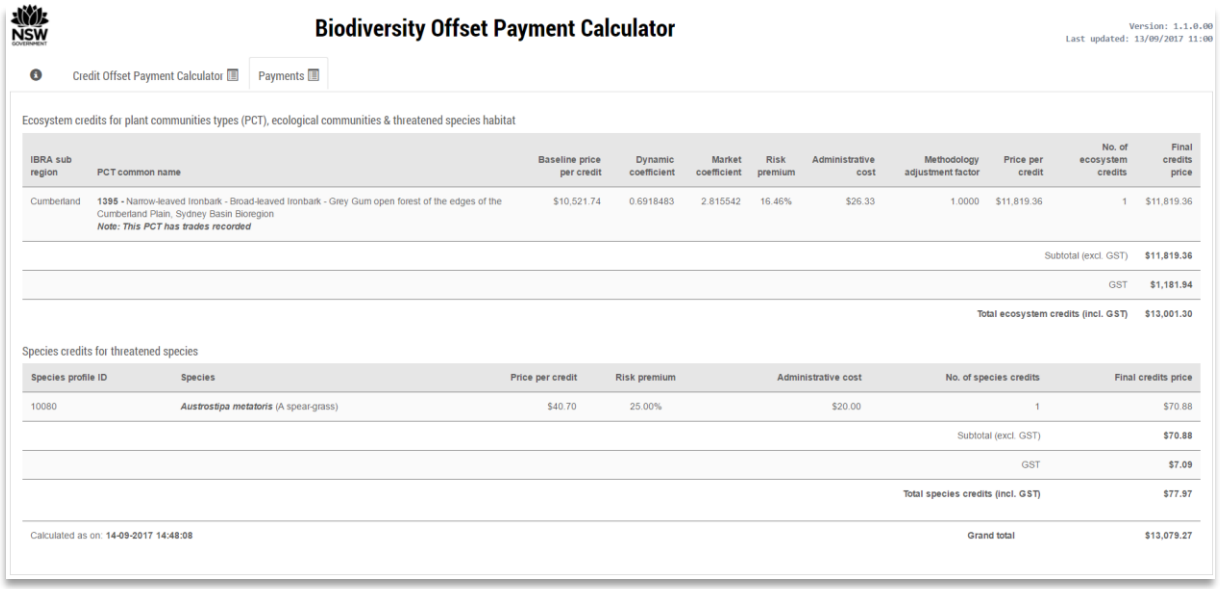
17. To start a combined species and ecosystem credits price calculation, repeat steps 1 to 6 for species, and 10 to 13 for ecosystem.



18. When all species and ecosystem credits to offset are included in the respective list (either ‘PCT’ or ‘Species’), click on the ‘Calculate’ button to proceed into the ‘Payments’ tab.



The ‘Payments’ tab summarises both the ecosystem and species credits to offset and the total cost.



Biodiversity Offset Payment Calculator

Version: 1.1.0.00
Last updated: 13/09/2017 11:00

Credit Offset Payment Calculator | Payments

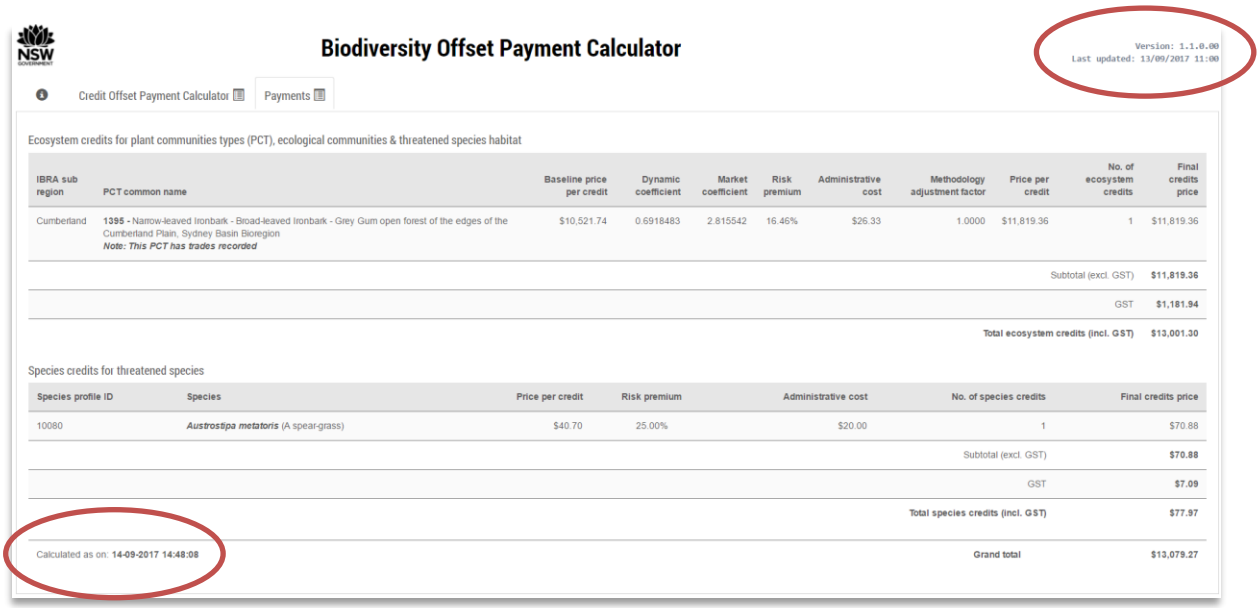
Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

IBRA sub region	PCT common name	Baseline price per credit	Dynamic coefficient	Market coefficient	Risk premium	Administrative cost	Methodology adjustment factor	Price per credit	No. of ecosystem credits	Final credits price
Cumberland	**1395 -** Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion ***Note: This PCT has trades recorded***	$10,521.74	0.6918483	2.815542	16.46%	$26.33	1.0000	$11,819.36	1	$11,819.36
									Subtotal (excl. GST)	**$11,819.36**
									GST	**$1,181.94**
									Total ecosystem credits (incl. GST)	**$13,001.30**

Species credits for threatened species

Species profile ID	Species	Price per credit	Risk premium	Administrative cost	No. of species credits	Final credits price
10080	***Austrostipa metatoris*** (A spear-grass)	$40.70	25.00%	$20.00	1	$70.88
					Subtotal (excl. GST)	**$70.88**
					GST	**$7.09**
					Total species credits (incl. GST)	**$77.97**
Calculated as on: **14-09-2017 14:48:08**					**Grand total**	**$13,079.27**

Click ‘Ctrl-P’ to print/save each species credit total cost report for further reference. Verify that both the version and date of calculation are visible.



Biodiversity Offset Payment Calculator

Version: 1.1.0.00
Last updated: 13/09/2017 11:00

Credit Offset Payment Calculator | Payments

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

IBRA sub region	PCT common name	Baseline price per credit	Dynamic coefficient	Market coefficient	Risk premium	Administrative cost	Methodology adjustment factor	Price per credit	No. of ecosystem credits	Final credits price
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					Total species credits (incl. GST)	**$77.97**
Calculated as on: **14-09-2017 14:48:08**					**Grand total**	**$13,079.27**

3. Assorted credit price calculations

3.1 Species credit price calculation within different IBRA subregions

The current version of the BOPC online tool does not allow you to calculate the species credit price for different IBRA subregions during the same calculation session. For different IBRA subregions, start a different calculation session and follow steps 1 to 7 of this guide. Save and store each species credit total cost report for further reference.

3.2 Ecosystem credit price calculation within different IBRA subregions

The current version of the BOPC online tool does not allow you to calculate the ecosystem credit price for different IBRA subregions during the same calculation session. For different IBRA subregions, start a different calculation session and follow steps 10 to 14 of this guide. Save and store each ecosystem credit total cost report for further reference.

3.3 Combined species and ecosystem credits price calculation within different IBRA subregions

The current version of the BOCP online tool does not allow you to calculate the combined species and ecosystem credits price for different IBRA subregions during the same calculation session. For different IBRA subregions, start a different calculation session and follow steps 17 to 18 of this guide.

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