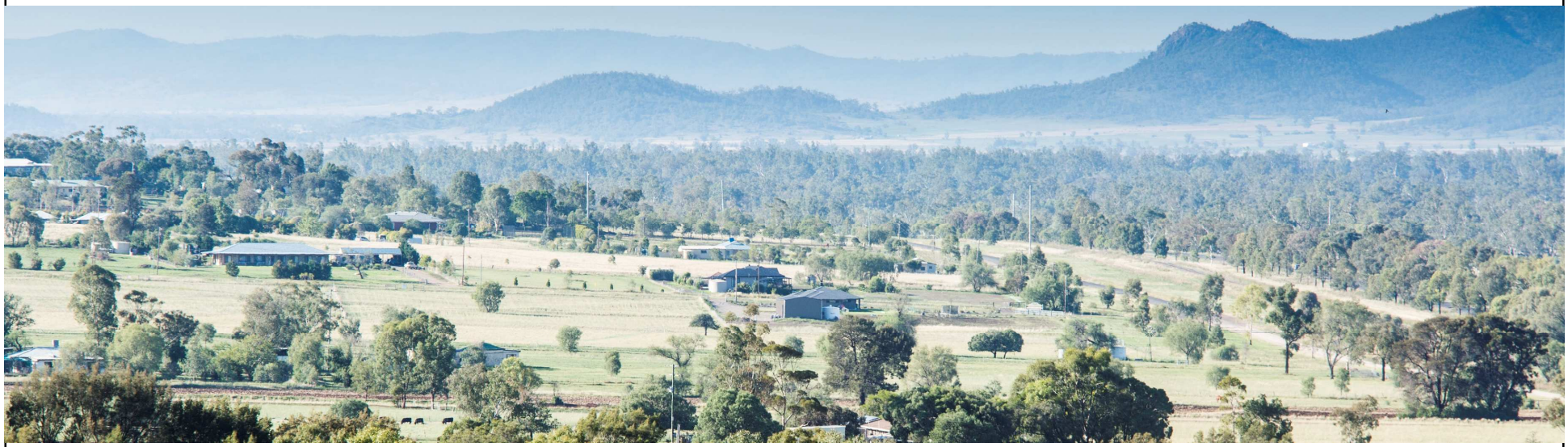
DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

BAM Support for Accredited Assessors

A series of webinars to support the role of accredited BAM assessors in the Biodiversity Offset scheme (BOS)



For more information, go to the BAM Support Webinar webpage or contact us via the BOS Online Enquiry Form

Department of Planning, Industry and Environment

BAM SUPPORT WEBINAR 5

The Biodiversity Offsets Payment Calculator and the Spot Price Index

Mladen Kovac
Director of the Centre for Advanced Analytics and Economics, DPIE

Wednesday 6th November 2019
2:00 – 3:00 pm

For more information, go to the assessor resource page www.environment.nsw.gov.au/biodiversity/assessors or contact us at www.environment.nsw.gov.au/biodiversity/bos-help-advice

Overview

TIME	ITEM	DESCRIPTION	DURATION
2:00	Introduction	Acknowledgment of Country Introduction and house keeping	10 mins
2:10	Content Presentation	1. Overview of the latest update to the Biodiversity Offsets Payment Calculator (BOPC) 2. Update on the public release of the offsets market Spot Price Index	25 mins
2:35	Q & A session	Presenter and SME panel address participants' questions	20 mins
2:55	Wrap-up and Close	Closing remarks Upcoming sessions Post-webinar feedback	5 mins

Biodiversity Offsets Scheme

Biodiversity Offsets Payment Calculator (BOPC) and Spot Price Index (SPI)

November 2019

The Biodiversity Offsets Payment Calculator was upgraded on 31 October 2019. The new calculator came into effect on 1 November 2019.

This change coincided with the launch of the **Spot Price Index**.

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Biodiversity Offsets Payment Calculator

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The BOPC is used to determine how much a developer must pay into the Biodiversity Conservation Fund instead of purchasing and retiring credits from the market (or an alternate offsetting pathway)

Using the BOPC is a ‘premium’ pathway

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The BOPC is built using sophisticated statistical and economic models that attempt to predict how market prices will evolve over time in response to changing market conditions and policy parameters.

The Biodiversity Conservation Trust will be under an obligation to later secure biodiversity offsets from the money paid into the Fund.

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The BOPC uses the following data in its models:

- historical credit sales data (price and quantity)
- costs of producing biodiversity credits
  - taken from existing biodiversity stewardship or biobanking agreements
  - includes all costs associated with the BSA such as land, labour, material, etc.

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Regularly scheduled BOPC updates

Updates with new data

The BOPC is regularly updated every 3 months with latest cost-of-production or credit trade data.

As more trading data is entered into the model its accuracy of prediction improves.

Updates due to other changes

The BOPC is updated for any changes likely to impact on market dynamics.

1. Change to discount rate used to estimate biodiversity stewardship total fund deposit
2. Implementation of the BAM
   - change in quantity of credits
   - introduction of trading groups

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Expected market response

	Effect on market	Expected market response
Discount rate reduction Total Fund Deposit	Reduces profit margin for landholders	Landholders increase prices to retain profit margins
Change in credit quantity (Supply) Credit equivalence assumption	Reduces landholder revenue per hectare	Landholders increase prices to maintain existing revenue level
Change in credit quantity (Demand) Credit equivalence assumption	Developer cost of offsetting is reduced	Developers resist credit price increases and purchase fewer credits

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Expected market response

	Effect on market	Expected market response
New trading group rules	Highly complex. Effectively broadens the types of credits that can be traded on a like-for-like basis Oversimplifying greatly – expect to see credit prices within trading groups to converge to new average weighted prices. Variable effect on landholder profit margins and developer costs	Expect landholders to attempt to increase credit prices (in a sub-set of credits) and developers to resist higher credit prices.

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Uncertainties in the BOPC

The BOPC relies on data, assumptions and modelling to estimate how market prices will evolve in response to changing market conditions and market parameters.

The BOPC is sensitive to the following:

- BBAM to BAM credit equivalence
- Market supply and demand modelling
- The combining of many individual credit markets into a smaller number of trading group markets

These issues are resolved the more actual BAM trades are recorded removing the need for complex equivalence estimation and other modelling.

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Paradox of Value

Water Diamand Paradox

- Water is essential for human wellbeing
- Water can be purchased for $1 per bottle
- There is abundant supply of water to more than meet demand
- Diamonds are not essential for human wellbeing
- 1 carat diamonds can be purchased for up to $25,000 (depending on quality, cut, etc)
- There is a shortage of diamond supply that is less than the demand for diamonds

Ecological vs Market Scarcity

- Ecologically threatened species are considered ‘more important’ from an ecological value perspective
- If market supply of non threatened species is less than their market demand then (like diamonds) their price increases
- Conversely, if there is abundant market supply of threatened species that more than meets demand, then (like water) their price decreases

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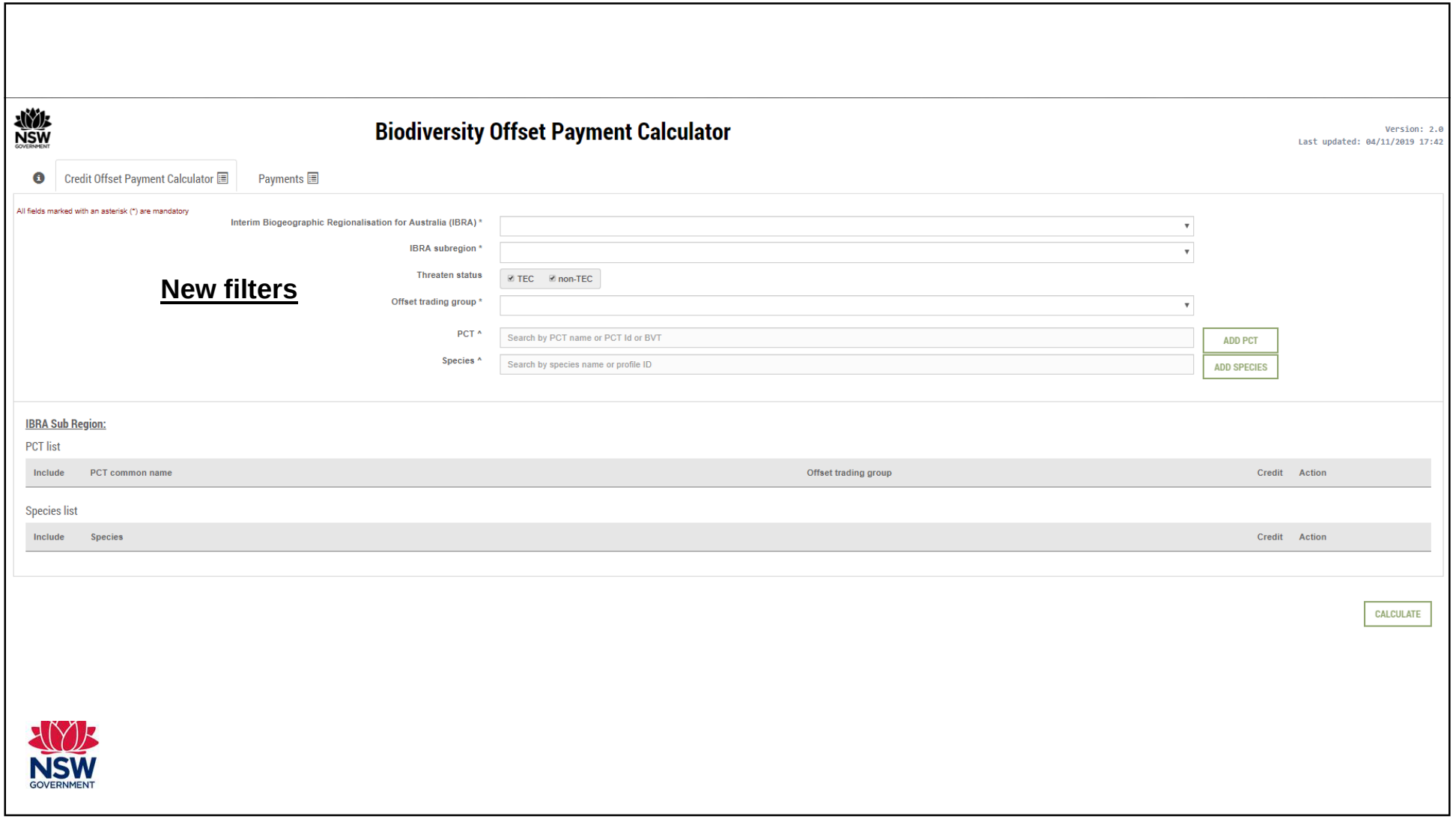
Biodiversity Offset Payment Calculator
Version: 2.0
Last updated: 04/11/2019 17:42
Credit Offset Payment Calculator
Payments
All fields marked with an asterisk (*) are mandatory
Interim Biogeographic Regionalisation for Australia (IBRA) *
IBRA subregion *
Threaten status
TEC
non-TEC
Offset trading group *
PCT ^
Search by PCT name or PCT Id or BVT
ADD PCT
Species ^
Search by species name or profile ID
ADD SPECIES
New filters
IBRA Sub Region:
PCT list
Include
PCT common name
Offset trading group
Credit
Action
Species list
Include
Species
Credit
Action
CALCULATE

BBAM Spot Price Index

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The Spot Price Index (SPI) is one of a series of economic instruments the Department of Planning, Industry and Environment has developed to improve economic efficiency in the Biodiversity Offsets Scheme.

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The SPI provides a much richer source of market information than can be extracted from the BOPC

- actual (raw) credit prices – not an econometric estimate
- history of credit trade prices
- spatial information on credit trades and BSAs
- market performance – at LGA, CMA region and up to State level

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***BAM SPI is under development (there are not credits trades registered yet)**

Ecosystem credits spot price

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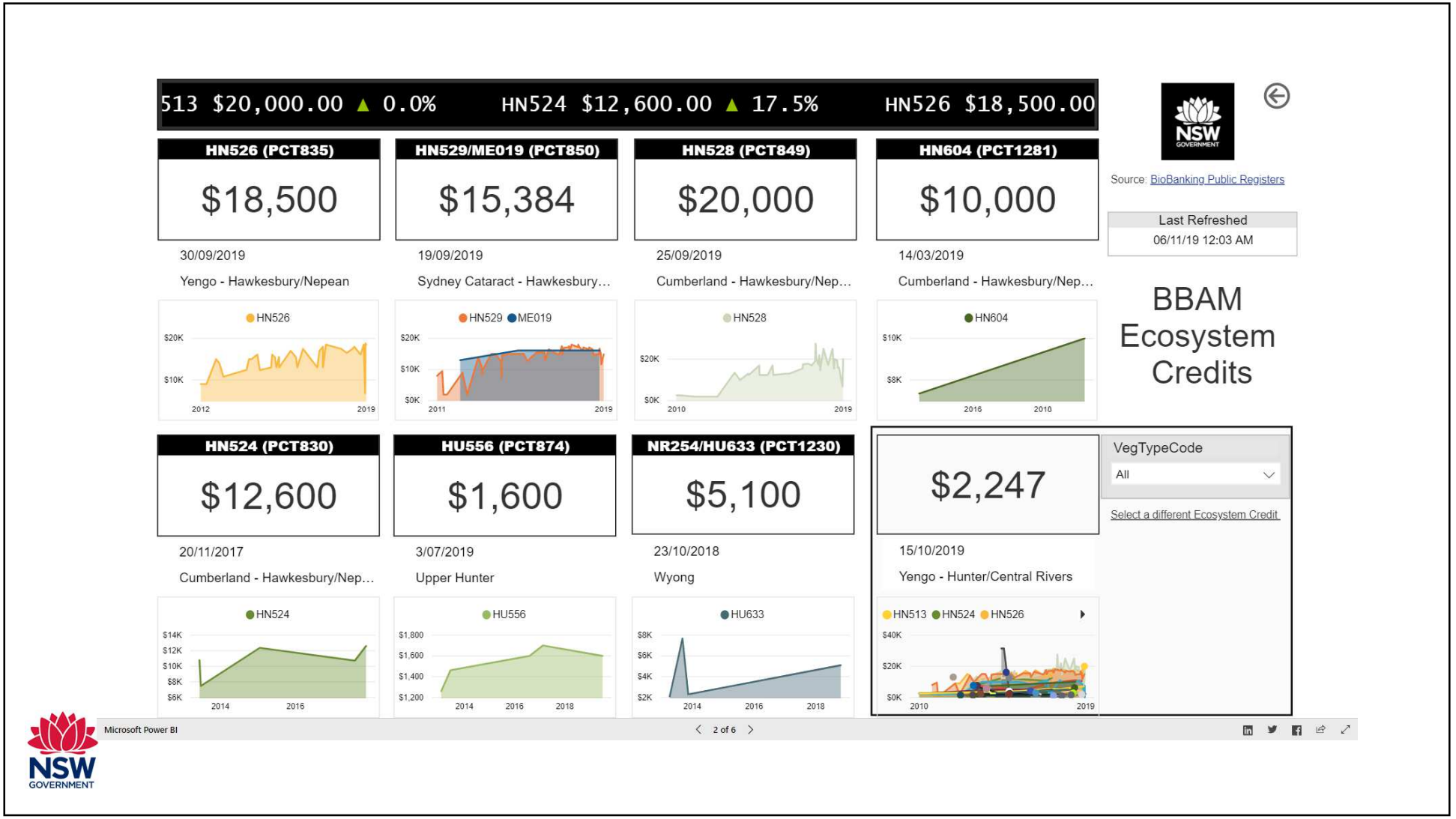
513 $20,000.00 ▲ 0.0%
HN524 $12,600.00 ▲ 17.5%
HN526 $18,500.00
HN526 (PCT835)
$18,500
30/09/2019
Yengo - Hawkesbury/Nepean
HN529/ME019 (PCT850)
$15,384
19/09/2019
Sydney Cataract - Hawkesbury…
HN528 (PCT849)
$20,000
25/09/2019
Cumberland - Hawkesbury/Nep…
HN604 (PCT1281)
$10,000
14/03/2019
Cumberland - Hawkesbury/Nep…
Source: BioBanking Public Registers
Last Refreshed
06/11/19 12:03 AM
BBAM Ecosystem Credits
HN524 (PCT830)
$12,600
20/11/2017
Cumberland - Hawkesbury/Nep…
HU556 (PCT874)
$1,600
3/07/2019
Upper Hunter
NR254/HU633 (PCT1230)
$5,100
23/10/2018
Wyong
$2,247
15/10/2019
Yengo - Hunter/Central Rivers
VegTypeCode
All
Select a different Ecosystem Credit
Microsoft Power BI
2 of 6

Species credits spot price

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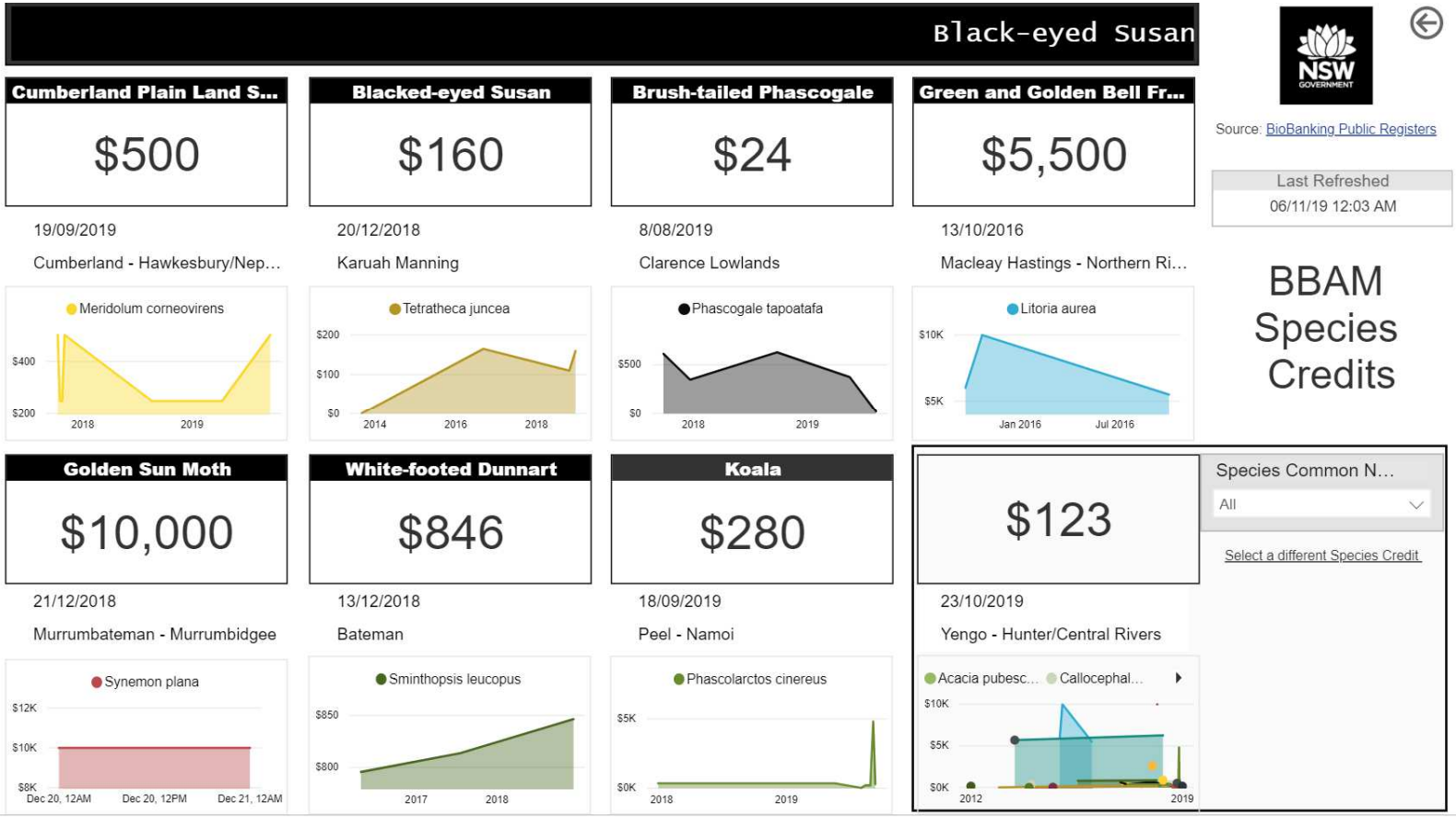
Black-eyed Susan
Cumberland Plain Land S...
$500
19/09/2019
Cumberland - Hawkesbury/Nep...
Meridolum corneovirens
$400
$200
2018
2019
Blacked-eyed Susan
$160
20/12/2018
Karuah Manning
Tetratheca juncea
$200
$100
$0
2014
2016
2018
Brush-tailed Phascogale
$24
8/08/2019
Clarence Lowlands
Phascogale tapoatafa
$500
$0
2018
2019
Green and Golden Bell Fr...
$5,500
13/10/2016
Macleay Hastings - Northern Ri...
Litoria aurea
$10K
$5K
Jan 2016
Jul 2016
Source: BioBanking Public Registers
Last Refreshed
06/11/19 12:03 AM
BBAM Species Credits
Golden Sun Moth
$10,000
21/12/2018
Murrumbateman - Murrumbidgee
Synemon plana
$12K
$10K
$8K
Dec 20, 12AM
Dec 20, 12PM
Dec 21, 12AM
White-footed Dunnart
$846
13/12/2018
Bateman
Sminthopsis leucopus
$850
$800
2017
2018
Koala
$280
18/09/2019
Peel - Namoi
Phascolarctos cinereus
$5K
$0K
2018
2019
$123
23/10/2019
Yengo - Hunter/Central Rivers
Acacia pubesc...
Callocephal...
$10K
$5K
$0K
2012
2019
Species Common N...
All
Select a different Species Credit

Biodiversity Offset Market performance

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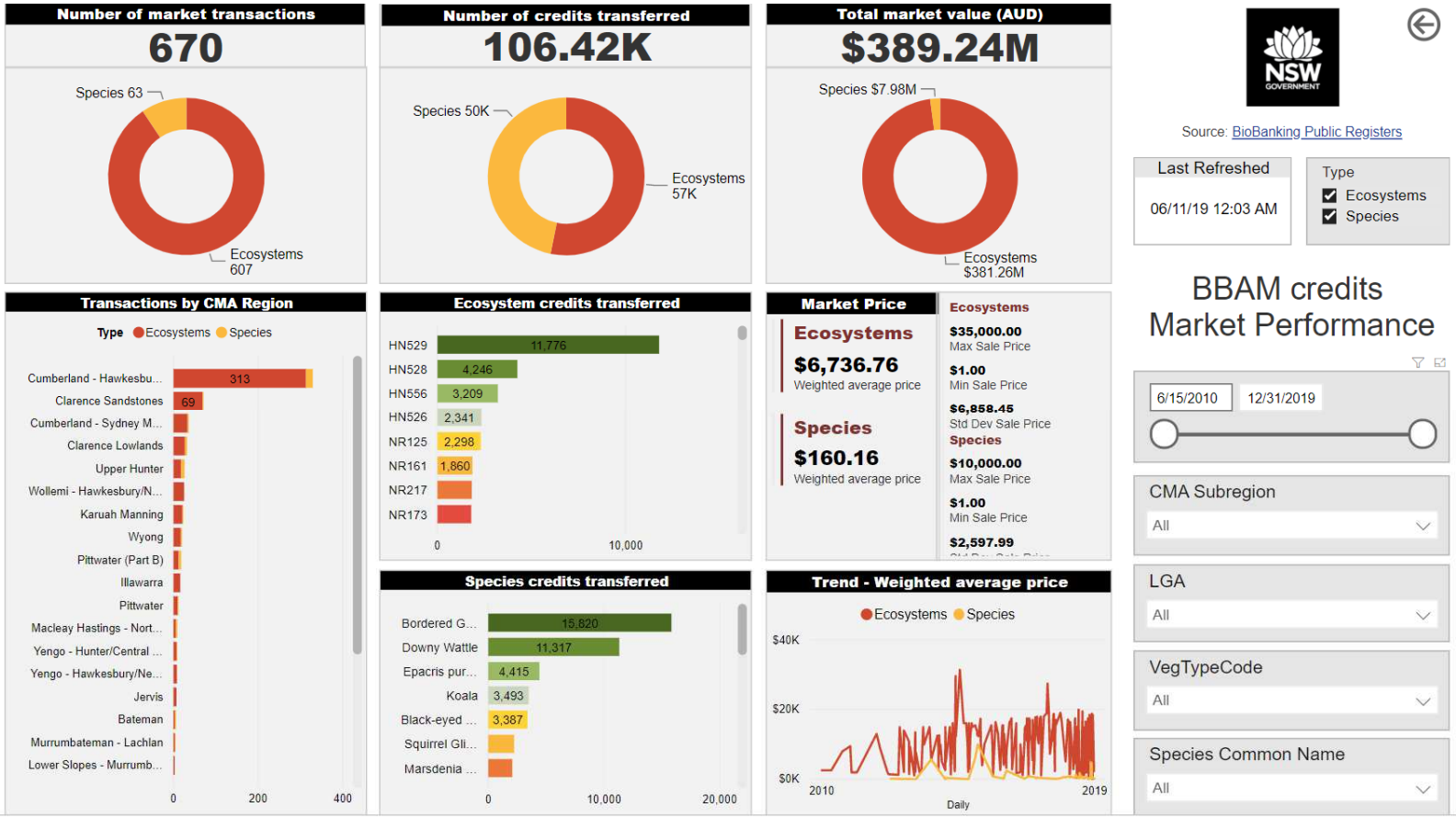
Number of market transactions
670
Species 63
Ecosystems 607
Number of credits transferred
106.42K
Species 50K
Ecosystems 57K
Total market value (AUD)
$389.24M
Species $7.98M
Ecosystems $381.26M
Transactions by CMA Region
Type Ecosystems Species
Cumberland - Hawkesbu... 313
Clarence Sandstones 69
Cumberland - Sydney M...
Clarence Lowlands
Upper Hunter
Wollemi - Hawkesbury/N...
Karuah Manning
Wyong
Pittwater (Part B)
Illawarra
Pittwater
Macleay Hastings - Nort...
Yengo - Hunter/Central ...
Yengo - Hawkesbury/Ne...
Jervis
Bateman
Murrumbateman - Lachlan
Lower Slopes - Murrumb...
0 200 400
Ecosystem credits transferred
HN529 11,776
HN528 4,246
HN556 3,209
HN526 2,341
NR125 2,298
NR161 1,860
NR217
NR173
0 10,000
Species credits transferred
Bordered G... 15,820
Downy Wattle 11,317
Epacris pur... 4,415
Koala 3,493
Black-eyed ... 3,387
Squirrel Gli...
Marsdenia ...
0 10,000 20,000
Market Price
Ecosystems
$6,736.76
Weighted average price
Species
$160.16
Weighted average price
Ecosystems
$35,000.00
Max Sale Price
$1.00
Min Sale Price
$6,858.45
Std Dev Sale Price
Species
$10,000.00
Max Sale Price
$1.00
Min Sale Price
$2,597.99
Trend - Weighted average price
Ecosystems Species
$40K
$20K
$0K
2010
2019
Daily
Source: BioBanking Public Registers
Last Refreshed
06/11/19 12:03 AM
Type
Ecosystems
Species
BBAM credits
Market Performance
6/15/2010
12/31/2019
CMA Subregion
All
LGA
All
VegTypeCode
All
Species Common Name
All

Stewardship Agreements

(a.k.a BioBanking Agreements)

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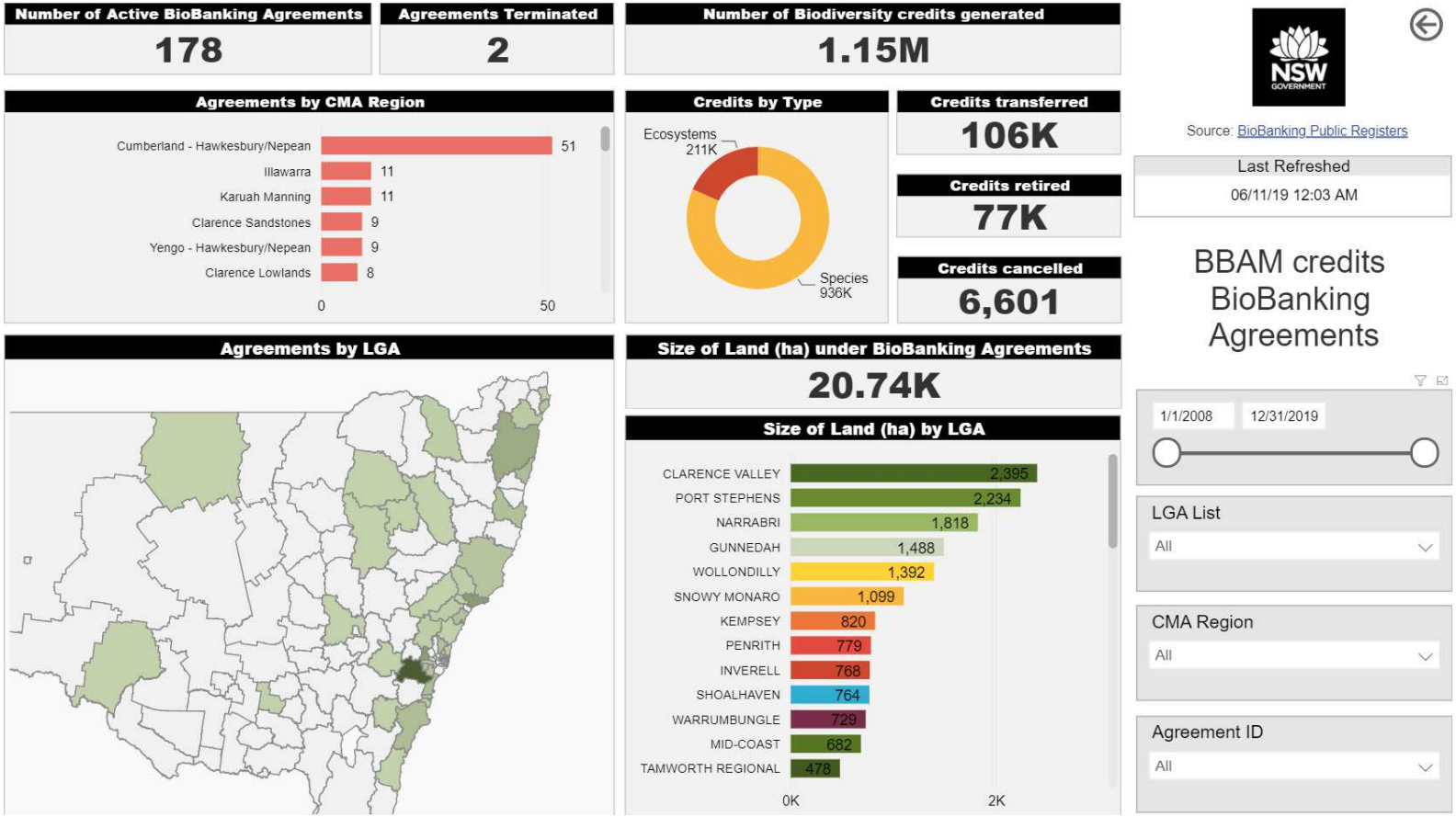
Number of Active BioBanking Agreements
178
Agreements Terminated
2
Number of Biodiversity credits generated
1.15M
Agreements by CMA Region
Cumberland - Hawkesbury/Nepean 51
Illawarra 11
Karuah Manning 11
Clarence Sandstones 9
Yengo - Hawkesbury/Nepean 9
Clarence Lowlands 8
0
50
Credits by Type
Ecosystems 211K
Species 936K
Credits transferred
106K
Credits retired
77K
Credits cancelled
6,601
Agreements by LGA
Size of Land (ha) under BioBanking Agreements
20.74K
Size of Land (ha) by LGA
CLARENCE VALLEY 2,395
PORT STEPHENS 2,234
NARRABRI 1,818
GUNNEDAH 1,488
WOLLONDILLY 1,392
SNOWY MONARO 1,099
KEMPSEY 820
PENRITH 779
INVERELL 768
SHOALHAVEN 764
WARRUMBUNGLE 729
MID-COAST 682
TAMWORTH REGIONAL 478
0K
2K
Source: BioBanking Public Registers
Last Refreshed
06/11/19 12:03 AM
BBAM credits
BioBanking
Agreements
1/1/2008
12/31/2019
LGA List
All
CMA Region
All
Agreement ID
All

End presentation

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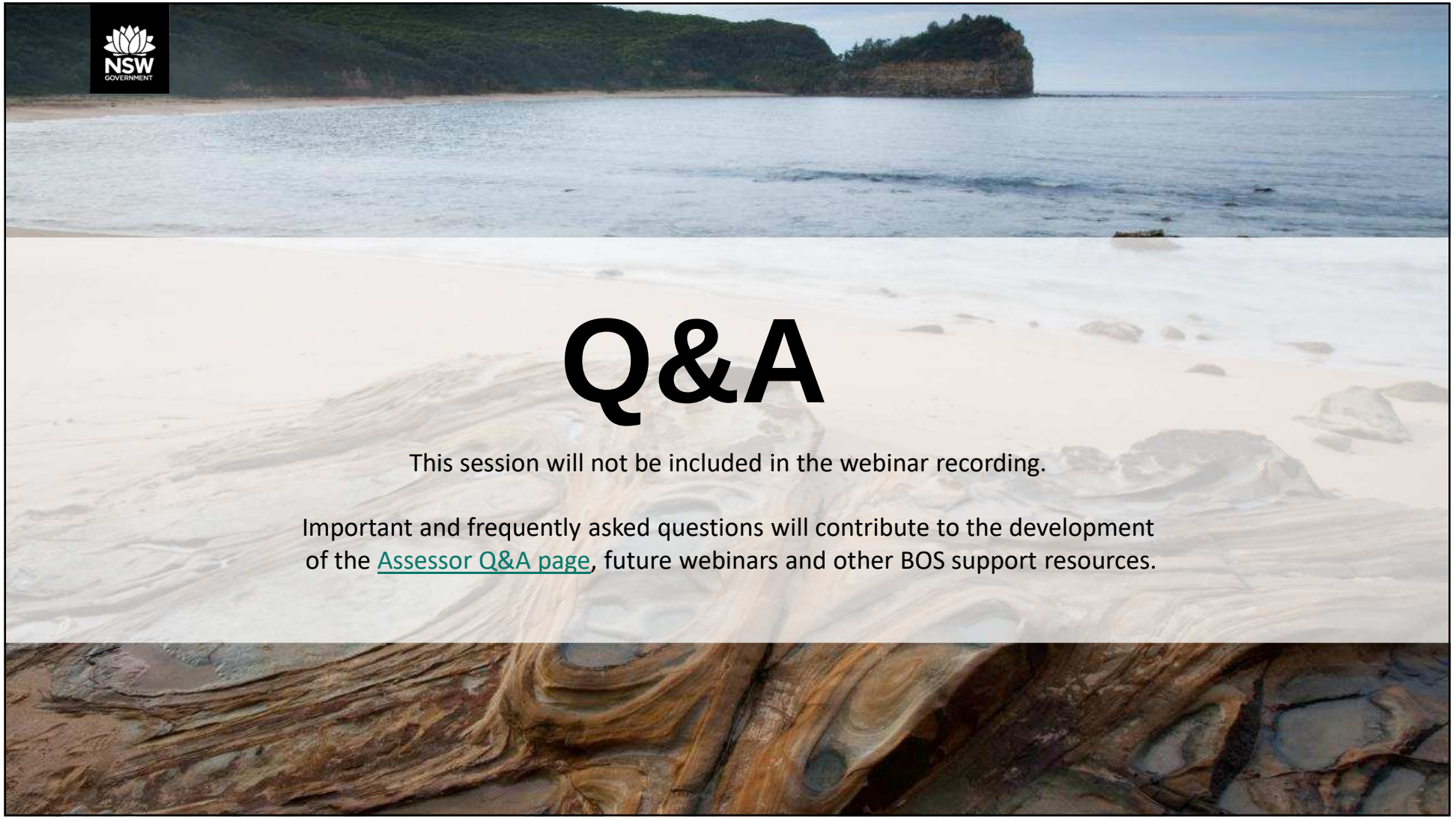

Q&A

This session will not be included in the webinar recording.

Important and frequently asked questions will contribute to the development of the Assessor Q&A page, future webinars and other BOS support resources.

Thank you for your participation

Webinar recordings will be available to view online on the BOS Vimeo Showcase at vimeo.com/showcase/6271450 and via the BAM Support Webinar webpage

Contact us at www.environment.nsw.gov.au/biodiversity/bos-help-advice