Biodiversity Assessment Method (BAM) Calculator
User guide
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1. Introduction

1.1. The Biodiversity Assessment Method Calculator

The Biodiversity Assessment Method Calculator (BAM Calculator) is an online interactive view of the Biodiversity Assessment Methodology (BAM). The BAM Calculator follows the rules and calculations outlined in the BAM, and assists the user in applying the BAM at a site and generating an outcome.

1.2. Purpose of the BAM Calculator

Users can apply the BAM and use the BAM Calculator to assess development proposals and estimate credit generation at biodiversity stewardship sites. These proposals can be based on survey data collected using the BAM field survey methods or on estimated data.

1.3. Scope of the BAM Calculator

The BAM Calculator contains all biodiversity data for New South Wales that is available in BioNet, the OEH repository for biodiversity data products. The BAM Calculator has biodiversity data from all IBRA regions, all Plant Community Types (PCT) and all ecosystem credit species and species credit species.

The BAM Calculator is available from two sources. The full version can be accessed through Biodiversity Obligations and Agreements Management System (BOAMS). Users must be registered to access this version. A standalone version may also be accessed for demonstration purposes. This version does not enable users to save data or print outputs.

1.4. Structure of this document

This document provides an outline of the process for completing a BAM assessment, the functions/calculations performed and the results presented by the BAM Calculator.

This document does not describe the assessment process or functioning of the BAM in detail. This document does not describe the rationale behind the vegetation integrity, habitat suitability or credit calculations. Users can refer to the BAM document for a more detailed explanation of the assessment process and calculations.

This document is aligned with the tab structure of the BAM calculator and provides:

- an outline of the purpose of the tab and a flowchart of the user actions required in the tab
- a map of the key functions users need to complete in the tab
- a brief description of the steps users need to complete to perform an assessment
- references to relevant sections of the BAM and other useful information.

The flowchart provides the following information:
Figure 1  Workflow of user actions required in tab

5. Linear Development (developments only)
   Confirm if a linear development

6. Landscape Features
   Select Landscape feature type
   Enter Landscape feature name
   Indicate if feature is part of development footprint

Optional - Remove landscape feature?
   Click Action: Remove

6. Complete tab
   Click Next
2. Starting off

2.1. Launch the BAM Calculator

Accredited Assessors can access the BAM Calculator via the Biodiversity Obligations and Agreements Management System (BOAMS).

A standalone version of the tool is available at https://www.lmbc.nsw.gov.au/bamcalc. Users accessing this version have access to the credit calculator functionality but are not able to save or print reports:

![BAM Calculator Interface](image)

2.2. Download the user guide

Click the ‘Download’ button:

![Download Button](image)

The user guide (this document) outlines the step-by-step process to using the BAM Calculator.

2.3. Start an assessment

Click the ‘Start Now’ button:

![Start Now Button](image)

You’ll be taken to the Assessment details tab
You can also click on the tab headings to navigate between tabs. You'll only be able to navigate to tabs that have been previously commenced or completed.

2.4. Create New assessment
Click the 'Create New' button:

![CREATE NEW]

Any details filled in for the assessment will be erased and a new assessment can be started. Click on Assessment details tab to start filling in new details.

Note: This option is only available in the standalone version.
3. General functions

In the version of the BAM Calculator accessed via BOAMS, there are high-level functions that act across all tabs to help users manage assessments and create output from the calculator:

**In the standalone version, no high-level functions are available:**

### 3.1. Open an existing assessment

1. Click the "Open" button:

   ![Open Button](image)

   You must launch calculator via BOAMS to see this option.

   You'll be taken to the 'Open assessment' dialog box. This box shows the list of assessments versions saved for the assessment that is currently open:
2. Click on a number or name in the Revisions column to open that assessment. You’ll be returned to the Assessment details page with the data that has been saved for that assessment and will be able to continue.

3.2. Save an assessment

1. Click the ‘Save’ button:

SAVE

The current assessment will be saved with all entered data and completed calculations.

3.3. Save as new version

1. Click the ‘Save as new version’ button:

SAVE AS NEW VERSION

A new version of the current assessment will be saved with all updated data and completed calculations.

3.4. Cancel progress

1. Click the ‘Cancel’ button:

CANCEL

All entered data and calculations completed since the last save will be cleared and the assessment will revert to the previously saved information.

3.5. Finalise

1. Click the ‘Finalise’ button when all the data is entered and you are ready to submit the assessment.

FINALISE
Once finalised, the button changes to read ‘Re-Open’. This indicates that the application is submitted and you have an option to re-open and update the application.

’save’ and ‘save as new version’ buttons become deactivated and the ‘open’ button allows different versions to be viewed along with information about each version.

### 3.6. Print a report

1. Click the ‘Print’ button:

2. A dropdown list of the available reports will be displayed:

3. Click on the desired report.

   The report will be opened in PDF format.

   ![You must launch calculator via BOAMS to see this option.](image)
4. Entering assessment details

The ‘Assessment details’ tab is used to enter the type of biodiversity assessment being conducted, identify the assessment application and enter the location of the site. The same tab is used for all assessment types.

The steps to be taken by the user to complete this tab are displayed in the flow diagram below. Further details on individual functions and calculations performed are provided in Section 4.1 to 4.4.

![Workflow overview for the ‘Assessment details’ tab.](image)

Click on the ‘Assessment details’ tab:

4.1. Select the assessment type

1. Click on the ‘Assessment type’ dropdown:

2. Select the required assessment type.

   ![Section 4.1]

   ![Section 4.2]

2. Select the required assessment type.

   See BAM section 3 for further information.
4.2. Enter the proposal name (optional)

3. Click in the input box next to ‘Proposal name’ and enter a name for the proposal:

- Assessment ID will not be generated for unsaved assessments.
- BAM calculator accessed via BOAMS will allow you to save versions of an assessment.
- Proposal ID will not be generated for unsaved assessments.

4. Click the ‘Next button’:

- Once ‘Next’ is clicked, the assessment type for the assessment is locked. If you need to change the assessment type, you'll have to restart the case by refreshing your browser (in the standalone version) or by selecting ‘New’ (in BOAMS).
5. Defining the site context

The ‘Site context’ tab is used to enter information to assess the biogeographic and landscape setting of the site. The same tab is used for all assessment types.

The steps to be taken by the user to complete this tab are displayed in the flow diagram below. Further details on individual function and calculations performed are provided in section 5.1 to 5.5.

Figure 3  Workflow overview for ‘Site context’ tab.
Click on the ‘Site context’ tab:

5.1. Specify the Interim Biogeographic Regionalisation for Australia region

1. Click on the ‘Interim Biogeographic Regionalisation for Australia (IBRA)’ dropdown:

2. Select the IBRA region in which the majority of the site is located:

5.2. Specify the IBRA subregion

1. Click on the ‘IBRA Subregion’ dropdown:

2. Select the IBRA subregion in which the majority of the site is located. These are filtered based on the IBRA Region selected in Step 5.1.

5.3. Specify the NSW landscape

1. Click on the ‘NSW Landscape’ dropdown:

2. Select the NSW landscape in which the majority of the proposal occurs.

   NSW landscape does not influence calculations of integrity or credit calculations, but is used in reporting.


5.4. Enter the native vegetation cover

1. Click in the input box next to ‘Cover’ and enter a value for percentage landscape native vegetation cover:

   See BAM section 4.2 for further detail.
5.5. Linear developments
1. Tick the box if the development is linear shaped according to the definition within the BAM

Linear Development ✔

5.6. Identify landscape features
1. Click on the landscape ‘Feature’ dropdown:

2. Select the required type of landscape feature.
3. Enter the name of the landscape feature in the ‘Name’ column:

4. Click the checkbox in the ‘Part of development footprint’ column if the feature is within the development footprint:

Part of development footprint ✔

5. Click on ‘Add another landscape feature’ to accept the entered data and add another row:
6. If required, click the ‘Remove’ button under the Action column to remove a landscape feature:

- NSW landscape does not influence calculations of integrity or credit calculations, but is used in reporting.

7. Click the ‘Next’ button:

Once ‘Next’ is clicked, the IBRA for the assessment is locked. If you need to change the IBRA type, you’ll have to restart the case by selecting ‘New’ (in BOAMS) or refreshing your browser (in standalone version).
6. Calculating vegetation integrity scores

The ‘Vegetation’ tab is used to enter information to specify the plant community type(s) present on the site and to enter plot data used to calculate vegetation integrity scores. Tab sections relating to defining plant community types and threatened ecological communities and defining current vegetation condition are the same for all assessment types. Tab sections relating to assessing the future vegetation integrity score differ between development/bio-certification and offset assessments.

The steps to be taken by the user to complete this tab using the data import feature are displayed in the flow diagram below (Figure 4). Steps taken if the users elect to enter data plot by plot is indicated in Figure 5. Further details on individual function and calculations performed are provided in sections 6.1 to 6.6.

**Figure 4**  Workflow overview for ‘Vegetation’ tab – entering data for vegetation zones using the import feature.

**Note:** Steps 1 to 3 can be performed in any order.
Optional - 12. Location
Specify zone ➔ Enter Easting and Northing coordinates ➔ Enter Bearing

13. Composition score
Add plots ➔ Enter observations

14. Structure score
Add plots ➔ Enter observations

15. Function score
Add plots ➔ Enter observations

Optional: Add another Zone?
Click Add Zone ➔ Repeat Steps 6 - 9

16. Complete tab
Click Next

Figure 5 Workflow overview for Vegetation tab – entering data for vegetation zones directly into the survey popups.

Optional - 13. Composition score
Modify expected values (if required)

Optional - 14. Structure score
Modify expected values (if required)

Optional - 15. Function score
Modify expected values (if required)

16. Complete tab
Click Next

Figure 6 Workflow overview for Vegetation tab – modifying expected future condition values for calculation of future vegetation integrity (development and biocertification only).
1. Click on the ‘Vegetation’ tab.

For development and biocertification assessments, you'll see:

For stewardship assessments, you'll see:
6.1. Define the plant community type and threatened ecological communities and zones

Note: Steps 1 to 6 can be completed in any order based on the user’s knowledge of correct PCT.

1. Click on the ‘Formation’ dropdown:

   ![Formation dropdown](image1)


2. Select required formation for the required plant community type.

   ![Formation list](image2)

3. Click on ‘Class’ dropdown:

   ![Class dropdown](image3)


4. Select required class.

   ![Class list](image4)

5. Click on ‘Plant community type (PCT)’ dropdown:
6. Select the required PCT.

The % cleared value for the PCT will be displayed under ‘PCT % cleared’:


7. Click on ‘Associated TEC’ dropdown

8. Select the relevant TEC. If no TEC is associated with the PCT, select ‘Not an TEC’. Listing status will be displayed under ‘Listing status’:

Only TECs with a known association with the selected PCT are shown in the dropdown.


9. Click the ‘Add veg zone’ button under the Action column:

A vegetation zone record will be added to each vegetation integrity score section shown for the type of assessment being performed.

For development and biocertification assessments, the following sections will be displayed:

- vegetation zones (current vegetation integrity score), and
- vegetation zones (future vegetation integrity score).
For stewardship assessments, the following sections will be displayed:

- vegetation zones (current vegetation integrity score)
- vegetation zones (future vegetation integrity score, without management), and
- vegetation zones (future vegetation integrity score, with management).

10. For PCTs with multiple vegetation zones, click the ‘Add Veg Zone’ to add a record for each vegetation zone required:

11. A zone number will be generated and the relevant PCT number for each record displayed:

<table>
<thead>
<tr>
<th>Number</th>
<th>PCT code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1300</td>
</tr>
</tbody>
</table>

12. Click on the ‘Condition class’ column and type a condition class label for the zone:

Zone condition class is solely a label for zone identification purposes and does not have any influence on integrity or credit calculations.

13. Click on the ‘Patch Size’ input:

14. Enter the relevant patch size area (in hectares) for the zone.

A vegetation zone name will be generated based on the condition class and PCT code and displayed under the ‘Vegetation zone name’ column:

15. Enter the area for the vegetation zone under the ‘Area (ha)’ column:
16. Click on the ‘High risk lands’ checkbox to indicate if the zone is considered to be on high risk land (for stewardship assessments only):

17. Click the ‘Add another PCT’ button (if required) and repeat the above steps for vegetation zones in the next PCT:

18. Click the ‘Search PCT outside IBRA’ button (if required) and type the name or ID of PCT to search and select PCT, repeat the above steps for vegetation zones in the next PCT:

6.2. Import data

1. Click the ‘Import’ icon next to the vegetation zone you wish to import data for:

2. Download the csv template by clicking on ‘this template file’ link in the ‘Import’ popup:

3. Open the template in Excel, populate the template with observation values, save the template. Row 1 of the template is reserved for headers; row 2 of the template is reserved for example data. Users should enter data into the template from row 3.

4. Highlight and copy the column headings and data (including Rows 1 and 2) from Excel.
5. Click the ‘Import’ icon to reopen the ‘Import’ popup:

6. Paste the copied data from the Excel file into the popup.

7. Click the ‘Import’ button:

8. Click the ‘Close’ button:

9. Your data will be imported in the relevant condition score popups and the scores will be automatically calculated, with the condition score boxes for each condition attribute changing from showing no score (indicated by three full stops):

   ![Condition Score Popups](image)

   to showing a numeric score value:

   ![Condition Score Popups](image)

   - If assessing a non-woody plant community type, do not specify any values for function attributes (other than high threat exotic cover) in the csv import file.
10. To clear imported data, click the ‘Import’ tool icon to reopen the ‘Import’ popup:

![Import icon]

11. Click the ‘Clear plots’ button:

![Clear plots button]

12. All imported data will be cleared and “… ” will be displayed in condition score boxes:

<table>
<thead>
<tr>
<th>Composition condition score</th>
<th>Structure condition score</th>
<th>Function condition score</th>
</tr>
</thead>
<tbody>
<tr>
<td>…</td>
<td>…</td>
<td>…</td>
</tr>
</tbody>
</table>

6.3. Calculate the current vegetation integrity score (all assessments)

1. Click on Location box and add in details.

![Location box]

Add another plot by clicking the ‘Add plot’ button and add further data. Repeat as required. Once added, plots can only be removed by deleting the vegetation zone and re-entering the data.

![Add plot button]
2. Click on the condition score box under ‘Composition condition score’ to open the ‘Composition condition score’ popup:

3. If you have imported data, skip this step. Otherwise click on the ‘Plots’ tab and enter the required composition observation values in Plot 1 for each growth form group.

4. Click the ‘Recalculate’ button to prompt calculation of the composition score for the zone:

5. Click on ‘Calculation results’ tab to see the intermediate calculations used to determine the score and results:

   The following calculations are shown in this popup:

   Benchmarks: these values indicate benchmark reference values for the vegetation class/IBRA combination of the zone.

   Observed mean: this is the average of observed values entered for all plots for a specific growth form group.

   Unweighted composition score: BAM Calculator calculates and displays the unweighted condition score for the relevant growth form group. This calculation converts observed mean values to continuous unweighted condition scores using a Weibull distribution.
Weighted composition score: BAM tool calculates and displays weighted condition score for the relevant growth form group. This calculation applies a dynamic weighting based on the proportional contribution of each growth form group benchmark function to the benchmark total function (sum of benchmark function across all growth form groups).

Dynamic weighting: BAM tool calculates and displays a dynamic weighting based on the proportional contribution of each growth form group benchmark condition attribute to the benchmark total condition (sum of benchmark condition attributes across all growth form groups).

Note: Weightings for composition and structure are calculated using a similar approach. For further information on these weightings and calculations please refer to Appendix 6 of the BAM.

6. Click the ‘Close’ button:

7. Click on the condition score box under ‘Structure condition score’ to open the ‘Structure condition score’ popup and repeat the above steps 2 to 5 to determine the structure score:

8. Click on ‘Calculation results’ tab to see the intermediate calculations in determining the score and results:

   The same calculations as described for composition are performed for structure. See BAM Appendix 6.

9. Click the ‘Close’ button:
10. Click on condition score box under ‘Function condition score’ to open the ‘Function condition score’ popup and repeat steps 2 to 5 above to determine the function score:

Note: Some fields in the Function tab will be restricted based on the PCT selected.

11. Click on ‘Calculation results’ tab to see the intermediate calculations in determining the score and results:

The same calculations as described for structure are performed for function. See BAM Appendix 6.

Note: Weightings for function are static rather than dynamic as defined in BAM Appendix 6.

12. Click the ‘Close’ button:

13. After completing the composition, structure and function calculations, the current vegetation integrity score will be displayed under the ‘Current vegetation integrity score’ column:
6.4. Calculate the future vegetation integrity score
(devolution/biocertification assessments)

1. Click on condition score box under ‘Composition condition score’ to open the
‘Composition condition score’ popup:

There is no need to enter data in the ‘Plot’ tab as the BAM calculator assumes a 0 value
for future observations.

2. If you wish to enter an expected future condition score to reflect partial clearing or other
activities resulting in a non-zero expected future value, click in the cell for the ‘Future
mean (\(\bar{x}\))’ value for the required growth form group column to change the value from
zero:

3. Click the ‘Recalculate’ button to prompt calculation of the composition score for the zone:

4. Click on the ‘Calculation results’ tab to see the intermediate calculations in determining
the score and results.

5. Click the ‘Close’ button:

6. Click the condition score box under ‘Structure condition score’ to open the ‘Structure
condition score’ popup

There is no need to enter data in the ‘Plot’ tab as the BAM calculator assumes a 0 value
for future observations.
7. Click the ‘Recalculate’ button to prompt calculation of the structure score for the zone:

![Recalculate button]

8. Click on the ‘Calculation results’ tab to see the intermediate calculations in determining the score and results.

9. Click the ‘Close’ button:

![Close button]

10. Click on condition score box under ‘Function condition score’ to open the ‘Function condition score’ popup

![Condition score table]

11. There is no need to enter data in the ‘Plot’ tab as the BAM calculator assumes a 0 value for future observations.

12. Click on the ‘Recalculate’ button to prompt calculation of the Function score for the zone:

![Recalculate button]

13. Click on ‘Calculation results’ tab to see the intermediate calculations in determining the score and results.

14. Click the ‘Close’ button:

![Close button]

15. After completing the composition, structure and function calculations, the future vegetation integrity score and the change in vegetation integrity scores between current and future will be displayed:

![Vegetation zone tables]
6.5. Calculate the future vegetation integrity score without management (stewardship assessments)

1. Click on the condition score box under ‘Composition condition score’ to open the ‘Composition condition score’ popup:

2. If you wish to modify the default rate of decline, click on the ‘Modify default rate of decline’. Input boxes under the default rate of decline row will be presented. Click ‘Unlock’, enter the required modified rate of decline and then click ‘Update’ to set the new rate of decline. Click the ‘Recalculate’ button to update the calculations:

   RECALCULATE

The following calculations are shown in this popup:

   Rate of decline: the annual rate of decline for the growth form group. See BAM section 13.5.

   BAM tool calculates and displays the predicted future condition (composition/structure/function) value for the growth form group.

   This calculation reapplies the logistic growth curve (Weibell curve) and the dynamic weighting approach to the attribute value without management to determine the future predicted condition score for composition, structure and function. Equation 21 or Equation 22 is then used to calculate the future vegetation integrity score without management.

   See BAM Appendix 6.

3. Click the ‘Close’ button:
4. Click on the condition score box under ‘Structure condition score’ to open the ‘Structure condition score’ popup:

5. If you wish to modify the default rate of decline, click on the ‘Modify default rate of decline’. Input boxes under the default ‘Rate of decline’ row will be presented. Click ‘Unlock’, enter the required modified rate of decline and then click ‘Update’ to set the new rate of decline. Click the ‘Recalculate’ button to update the calculations:

6. Click the ‘Close’ button:

7. Click on the condition score box under ‘Function condition score’ to open the ‘Function condition score’ popup:

8. If you wish to modify the default rate of decline, click on the ‘Modify default rate of decline’. Input boxes under the default rate of decline row will be presented. Click ‘Unlock’, enter the required modified rate of decline and then click ‘Update’ to set the new rate of decline. Click the ‘Recalculate’ button to update the calculations:

- The same calculations as described for composition future without management are performed for structure.

- The same calculations as described for structure are performed for function.
9. Click on the ‘Close’ button:

![CLOSE]

10. After completing the composition, structure and function calculations, the future vegetation integrity score (without management) and the change in vegetation integrity scores between current and future without management will be displayed:

![Future vegetation integrity score without management]

6.6. Calculate the future vegetation integrity score with management (stewardship assessments)

1. Screenshot of the future vegetation integrity score with management (stewardship assessments. See the surrounding text for further details.

![Future vegetation integrity score with management]

2. Click on the composition score box under ‘Composition condition score’ to open the ‘Composition condition score’ popup:

![Composition condition score popup]
3. If you wish to incorporate gain due to active restoration into the future vegetation integrity score with management, click on ‘unlock; under ‘Future value with active restoration gain’. Input boxes for specifying future value with active restoration gain will be enabled. Enter the proposed future value and then click ‘Lock’ to set the proposed value. Click the ‘Recalculate’ button to update the calculations:

BAM tool calculates and displays the current mean of observed values of the relevant growth-form group over all plots (from the ‘Current vegetation integrity score’ popup).

Once the intrinsic rate of increase has been determined, the BAM calculator reapplies the logistic growth curve (Weibell curve) and the dynamic weighting approach to the attribute value with management to determine the future predicted condition score for composition, structure and function.

Equation 25 or Equation 26 is then used to calculate the future vegetation integrity score with management.

See BAM Appendix 6.

4. Click the ‘Close’ button:

5. Click on condition score box under ‘Structure condition score’ to open the ‘Structure condition score’ popup:

6. If you wish to incorporate gain due to active restoration into the future vegetation integrity score with management, click on ‘Lock’ under ‘Future value with active restoration gain’. Input boxes for specifying future value with active restoration gain will be enabled. Enter the proposed future value and then click ‘Lock’ to set the proposed value. Click the ‘Recalculate’ button to update the calculations:

7. Click the ‘Close’ button:
8. Click on condition score box under ‘Function condition score’ to open the ‘Function
condition score’ popup:

9. If you wish to incorporate gain due to active restoration into the future vegetation integrity
score with management, click on ‘Lock’ under ‘Future value with active restoration gain’.
Input boxes for specifying future value with active restoration gain will be enabled. Enter
the proposed future value and then click ‘Lock’ to set the proposed value. Click the
‘Recalculate’ button to update the calculations:

10. Click on the ‘Close’ button:

11. After completing the composition, structure and function calculations, the future
vegetation integrity score (with management), any security benefit score and the change
in vegetation integrity scores between current and future with management will be
displayed:

12. Click the ‘Next’ button:
6.7. Calculating vegetation integrity for stewardship sites with multiple management zones (optional)

Where multiple management zones are required within a single vegetation zone, users can specify these in the current vegetation integrity score section.

This feature is used where different management actions will result in different levels of gain.

1. Click the ‘Management zones’ button to open the management zones popup:

![Management Zones Popup]

2. Enter the name and area of the first management zone and click the ‘Add zone’ button. Repeat for each additional management zone. Note that the area of the management zones must sum to the total area of the vegetation zone or the following alert will display:

![Alert]

3. In the ‘Future vegetation integrity score with management’ section complete the composition, structure and function scores for each management zone. The total change in vegetation integrity score will be calculated based on the weighted area of these management zones:
7. Determining habitat suitability for threatened species

The ‘Habitat suitability’ tab is used to confirm acceptance of the threatened species predicted and nominated to be present on the site by the assessment calculator. Tab sections relating to defining the individual predicted and candidate threatened species are the same for all assessment types.

The steps to be taken by the user to complete this tab are displayed in the flow diagram below. Further details on individual function and calculations performed are provided in Sections 7.1 – Predicted Threatened Species and 7.2 – Candidate Threatened Species.

![Workflow overview for ‘Habitat suitability’ tab.](image-url)

Figure 7 Workflow overview for ‘Habitat suitability' tab.
Click on the ‘Habitat suitability’ tab:

7.1. Confirm the predicted threatened species for ecosystem credits

1. Review the ‘Habitat constraints’ and ‘Geographic limitations’ checkboxes relevant to each species to confirm that the indicated constraints and limitations are relevant to the site. If the indicated habitat constraints and geographic limitation are not relevant, uncheck the box.

Note: Further details on habitat constraints (including ‘Other’ category) can be found in the Threatened Biodiversity Data Collection (TBDC)
2. The ‘Confirm predicted species’ dropdown will be automatically populated with ‘Yes’ if:
   a. there are no habitat constraints and geographic limitations indicated
   b. all indicated limitations or constraints are left checked:

These species are assessed for ecosystem credits.

If habitat constraints and/or geographic limitations are indicated but the assessor determines that either none of the habitat constraints and/or none of the geographic limitations are relevant to the site, the ‘Confirm predicted species’ dropdown will be changed to ‘No’.

Species are predicted for a zone based on criteria in BAM section 6.4 – Step 1. The assessment calculator presents species satisfying these criteria. Assessors must review the data presented for habitat constraints and geographic limitations to determine if these criteria are satisfied in each zone (for habitat constraints) and the site (for geographic limitations), and confirm.

3. If you wish to include an ecosystem credit species not predicted by the BAM Calculator, click on the ‘Search predicted species’ button and enter the species name. Any matching species will be presented in a list. Click on the species name and then click ‘Add predicted species’ button:

7.2. Confirm the candidate threatened species for species credits

1. Review the ‘Habitat constraints’ and ‘Geographic limitations’ checkboxes relevant to each species to confirm that the indicated constraints and limitations are relevant to the site. If the indicated habitat constraints and geographic limitation are not relevant, uncheck the box.

   Note: Further details on habitat constraints (including ‘Other’ category) can be found in the Threatened Biodiversity Data Collection (TBDC)
2. The ‘Confirm candidate species’ dropdown will be automatically populated with ‘Yes’ if:
   a. there are no habitat constraints and geographic limitations indicated
   b. all indicated limitations or constraints are left checked.
   These species are assessed for Species Credits.
   If habitat constraints and/or geographic limitations are indicated but the assessor
determines that either none of the habitat constraints and/or none of the geographic
limitation are relevant to the site, the ‘Confirm predicted species’ dropdown will be
changed to ‘No’.

   Species are nominated as candidates for a zone based on criteria in BAM section
6.4 – Step 1. The assessment calculator presents species satisfying these criteria.
Assessors must review the data presented for habitat constraints and geographic
limitations to determine if these criteria are satisfied on the site, and confirm.

3. If you wish to include a species credit for species not nominated as a candidate by the
BAM Calculator, click on the ‘Search candidate species’ button and enter the species
name. Any matching species will be presented in a list. Click on the species name and
then click the ‘Add candidate species’ button:

4. Click the ‘Next’ button:
8. Entering habitat and species survey information

The ‘Habitat survey’ tab is used to enter survey information on the candidate threatened species nominated to be present on the site by the assessment calculator. Tab sections relating to defining the individual candidate threatened species are the same for all assessment types.

The steps to be taken by the user to complete this tab are displayed in the flow diagram below. Further details on individual function and calculations performed are provided in Sections 8.1 – Identify species present and 8.2 – Identify the relevant zones and quantify species presence.

Figure 8 Workflow overview for ‘Habitat survey’ tab.

Click on the ‘Habitat survey’ tab:

8.1. Identify species present

1. The list of candidate species that were confirmed in the ‘Habitat suitability’ tab is displayed.
2. The unit of measure or ‘UOM’ is displayed for these species.
3. For development and biocertification assessments, the ‘Biodiversity risk’ and ‘Biodiversity risk weighting’ are also displayed for these species.
4. Click on the ‘Species presence’ dropdown to indicate how the presence of the species was determined:

5. Where either ‘Yes (surveyed)’, ‘Yes (expert report)’ or ‘Yes (assumed present)’ have been selected, the ‘UOM’ and the ‘Veg Zone and Value’ column inputs will be activated. See BAM section 6.4 – Steps 3 and 4 for further information on assessment of presence, and BAM section 6.6 for further information on biodiversity risk weightings.

8.2. Selecting survey months

1. For each candidate threatened species, use the checkboxes in the survey timetable to indicate when the survey(s) were undertaken.

8.3. Identify the relevant zones and quantify species presence

2. In the ‘Veg Zone & Value’ column, select the checkbox for all/any veg zone/s for which candidate species are present.

Users can specify the species as present in multiple vegetation zones. See BAM Section 6.4 – Step 4.
3. After selecting a checkbox for a zone, a value box will be displayed.

4. Enter a value to quantify the species presence in terms of number of individuals (count) or area of habitat, as indicated by the UOM.

8.4. Incomplete data
1. An alert will display if all required fields have not been completed.

2. Details of the errors will be listed in a message at the top of the page.
9. Calculating biodiversity credits

The ‘Credits’ tab is used to summarise the results of calculations of biodiversity credits. The same tab is used for all assessment types.

No user action is required in this tab so no flow chart of required user actions is presented. Further details on calculations performed are provided in Sections 9.1 – Calculate ecosystem credits for plant community type, threatened ecological communities and threatened species habitat, and 9.2 – Calculate species credits for threatened species.

Click on the Credits tab:

9.1. Calculate ecosystem credits for plant community type, ecological communities and threatened species habitat

No user action is required in this section.

The list of vegetation zones entered in the ‘Vegetation’ tab is presented with ecosystem credit calculations for each zone.

The subtotal of ecosystem credits across all zones within a PCT is presented.

The total ecosystem credits for the site is presented.

See BAM section 11.2 for development/biocertification assessments and section 13.8 for stewardship assessments.

9.2. Calculate species credits for threatened species

No user action is required in this section.

The list of candidate species indicated as present on the site in the ‘Habitat survey’ tab is presented with the species credits calculations for each species.

Equations for calculation of species credits vary depending on type of entity (as indicated by kingdom) and method of assessment (as indicated by UOM). See BAM section 11.2 for development/biocertification assessments and section 13.9 for offset proposals.
10. Determining biodiversity credit class

The ‘Credit Classes’ tab is used to present the credit class information. The same tab is used for all assessment types. However, for stewardship assessments, only the attributes of the credits generated for the site are presented, while for development type assessments, attributes relevant to ‘like-for-like’ and variation rules are presented.

![No user action is required in this tab, so no flow chart of required user actions is presented. Further details on rules implemented are provided in sections 10.1 – Determine ecosystem credit classes and 10.2 – Determine species credit classes.](image)

Click on the ‘Credit Classes’ tab:

1. for stewardship assessments –

**Ecosystem credit classes**

<table>
<thead>
<tr>
<th>PCT</th>
<th>TEC</th>
<th>Area</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>152</td>
<td>Not a TEC</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

**Species credit classes**

<table>
<thead>
<tr>
<th>Species</th>
<th>Area</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antarctia stenoma / Stimson’s Python</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Lophioscincus headwateri / Major Mitchell’s Cockatoo</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

**Antarctia stenoma / Stimson’s Python (152_ Classnamem)**

<table>
<thead>
<tr>
<th>Only the below Spp</th>
<th>In the below IBRA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antarctia stenoma / Stimson’s Python</td>
<td>Any in NSW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Any Spp in the below kingdom</th>
<th>In any of the below NSW listing status</th>
<th>In the below IBRA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fauna</td>
<td>Vulnerable</td>
<td>Boorambilla Plains</td>
</tr>
</tbody>
</table>

**Lophioscincus headwateri / Major Mitchell’s Cockatoo (152_ Classnamem)**

<table>
<thead>
<tr>
<th>Only the below Spp</th>
<th>In the below IBRA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lophioscincus headwateri / Major Mitchell’s Cockatoo</td>
<td>Any in NSW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Any Spp in the below kingdom</th>
<th>In any of the below NSW listing status</th>
<th>In the below IBRA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fauna</td>
<td>Vulnerable</td>
<td>Boorambilla Plains</td>
</tr>
</tbody>
</table>
2. for development and biocertification assessments –

Ecosystem credit classes

Ecosystem credit summary

<table>
<thead>
<tr>
<th>PCT</th>
<th>TEC</th>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>75F Yellow Box-grafted woodland on alluvium or panga loam and clay on flats in NSW South Western Slopes (Strength)</td>
<td>Not a TEC.</td>
<td>12</td>
<td>ESB</td>
</tr>
</tbody>
</table>

Credit classes for 276

<table>
<thead>
<tr>
<th>Like-for-like options</th>
<th>Any PCT in the below class</th>
<th>And in any of below trading groups</th>
<th>Containing HET</th>
<th>In the below EBCA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Slopes Grassy Woodlands (including PCT’s: 206, 208, 216, 217, 202, 203, 337, 428, 461, 483, 467 )</td>
<td>Western Slopes Grassy Woodlands + a PHN, similar group (including Tier 2 or higher)</td>
<td>Yes</td>
<td>Lachlan, Darling Depression, Lachlan Plains, Murrumbidgee and South-Central Plateau. Any EBCA subregions that lie within 100 kilometres of the outer edge of the impacted site.</td>
<td></td>
</tr>
</tbody>
</table>

Species credit classes

Species credit summary

<table>
<thead>
<tr>
<th>Species</th>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crestra albaea / Sloane's Froglit</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Polytelis swainsonii / Superb Parrot</td>
<td>12</td>
<td>128</td>
</tr>
<tr>
<td>Tyto novaehollandiae / Masked Owl</td>
<td>5</td>
<td>53</td>
</tr>
</tbody>
</table>

Clibo albaea / Sloane's Froglit (275, Classname1)|

<table>
<thead>
<tr>
<th>Like-for-like options</th>
<th>Only the below spp</th>
<th>In the below EBCA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crestra albaea / Sloane's Froglit</td>
<td>Any in NSW</td>
<td></td>
</tr>
</tbody>
</table>

Polytelis swainsonii / Superb Parrot (276, Classname1)|

<table>
<thead>
<tr>
<th>Like-for-like options</th>
<th>Only the below spp</th>
<th>In the below EBCA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polytelis swainsonii / Superb Parrot</td>
<td>Any in NSW</td>
<td></td>
</tr>
</tbody>
</table>

Tyto novaehollandiae / Masked Owl (276, Classname1)|

<table>
<thead>
<tr>
<th>Like-for-like options</th>
<th>Only the below spp</th>
<th>In the below EBCA subregions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyto novaehollandiae / Masked Owl</td>
<td>Any in NSW</td>
<td></td>
</tr>
</tbody>
</table>

10.1. Determine ecosystem credit class

No user action is required in this section.

- In the ‘Ecosystem Credit Summary’ section, the list of PCTs entered in the ‘Vegetation’ tab is presented with ecosystem credit results for each zone.
- In the ‘Credit Classes’ section, the credit class attributes for each PCT are presented.
- For development and biocertification assessments, the credit class attributes for the assessed credits and the like-for-like and variation rules are presented.
- For stewardship assessments, only the credit class attributes for the assessed credits are presented.

See BAM section 11.3 for development/biocertification assessments and BAM section 13.10 for stewardship assessments.
10.2. Determine species credit classes

No user action is required in this section.

- In the ‘Species Credit Summary’ section, the list of species entered in the ‘Habitat suitability’ and ‘Habitat survey’ tabs is presented with credit results for each species.
- In the ‘Credit Classes’ section, the credit class attributes for each species are presented.
- For development and biocertification assessments, the credit class attributes for the assessed credits and the like-for-like and variation rules are presented.
- For stewardship assessments, only the credit class attributes for the assessed credits are presented.

See BAM section 11.3 for development/biocertification assessments and BAM section 13.10 for stewardship assessments.
11. Calculating biodiversity credit payments

The ‘Price’ tab is used to present the credit price/payment information. The same tab is used for all assessment types.

1. Click on the ‘Price’ tab:

![Figure 9 Workflow overview for ‘Price’ tab.](image)

2. If required, uncheck boxes to exclude ecosystem or species credits from calculation.

3. Click the ‘Calculate’ button to execute the calculation process.

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

<table>
<thead>
<tr>
<th>IDMA sub region</th>
<th>PCT common name</th>
<th>PCT list</th>
<th>Baseline price per credit</th>
<th>Dynamic coefficient</th>
<th>Market coefficient</th>
<th>Risk premium</th>
<th>Administrative cost</th>
<th>Methodology adjustment factor</th>
<th>Price per credit</th>
<th>No. of ecosystem credits</th>
<th>Final credits price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litchfield</td>
<td>ZTR - Yellow box gumrup tall woodland or savannas and grasslands in NRM South Western Slopes Bioregion</td>
<td>169</td>
<td>$2,187.56</td>
<td>0.34838983</td>
<td>4.409103</td>
<td>20.07%</td>
<td>0.2379</td>
<td>1.069</td>
<td>$2,558.63</td>
<td>139</td>
<td>$2,722.82</td>
</tr>
</tbody>
</table>

Total ecosystem credits (incl. 1.4%) $2,722.82

### Species credits for threatened species

<table>
<thead>
<tr>
<th>Species profile ID</th>
<th>Species</th>
<th>Threat status</th>
<th>Price per credit</th>
<th>Risk premium</th>
<th>Administrative cost</th>
<th>No. of species credits</th>
<th>Final credits price</th>
</tr>
</thead>
<tbody>
<tr>
<td>30408</td>
<td>C. oblongifolia</td>
<td>Vulnerable</td>
<td>$42.55</td>
<td>0.057</td>
<td>$23.30</td>
<td>15</td>
<td>$101.59</td>
</tr>
<tr>
<td>10345</td>
<td>P. parviflora</td>
<td>Vulnerable</td>
<td>$81.63</td>
<td>0.057</td>
<td>$23.30</td>
<td>13</td>
<td>$135.231.25</td>
</tr>
<tr>
<td>10826</td>
<td>F. innesi c.</td>
<td>Vulnerable</td>
<td>$48.35</td>
<td>0.057</td>
<td>$23.30</td>
<td>5</td>
<td>$50.718.87</td>
</tr>
</tbody>
</table>

Total species credits (incl. 1.4%) $180.125.38

Total credits price $190.125.38

Calculated as on: 17-4-2016 14:35:05

Grand total $215,032.64
12. Updating existing cases

1. An alert will display when an existing case is opened and changes have been made to the underlying data. This alert flags that changes have been made to the assessment. Newly added species are highlighted with a star.

2. An alert will display when an existing case is opened and a PCT has been delisted during a data update. Users must return to the vegetation tab and update the PCT selection.
Reference data updated. Details of the changes to the application listed below (if available). Apart from these please visit Habitat tabs (Step 4 and 5) to see any possible new species additions.

**PCT**

**Depleted** - PCT(s) not longer valid. Please visit 3. Vegetation tab and update the PCT(s).

- 725: [ ]
13. Streamlined assessment: Paddock Tree module

Paddock Trees assessment is a type of development assessment.

13.1. Assessment details tab

The steps to be taken by the user to complete this tab are displayed in the flow diagram below. Further details on individual functions and calculations performed are provided below.

Figure 10  Workflow overview for the ‘Assessment details’ tab for Paddock Trees

Select the assessment type

1. Click on the ‘Assessment type’ dropdown:

2. Select the required assessment type – Paddock Trees
   - See BAM section 3 for further information.

Enter the proposal name (optional)

3. Click in the input box next to ‘Proposal name’ and enter a name for the proposal:
BAM Calculator – User Guide

Assessment ID will not be generated for unsaved assessments.

BAM calculator accessed via BOAMS will allow you to save versions of an assessment.

Proposal ID will not be generated for unsaved assessments.

Select the definition

4. If the vegetation on the site does not meet one of the definitions, you must use one of the other assessment modules of B AMC.

Click on one of the definitions from the list to proceed:

The site can be assessed using Paddock Trees module if the vegetation meets the definition:

- the trees located on category 2 land are surrounded by category 1 land on the regulatory maps under the Biodiversity Conservation Act, or
- the native vegetation that comprises the groundcover is:
  i. less than 80% of the cover of indigenous species of vegetation, and
  ii. not less than 10% of the area is covered with vegetation (whether dead or alive), and
  iii. the assessment is made at the time of year when the proportion of the amount of indigenous vegetation in the area to the amount of non-indigenous vegetation in the area is likely to be at its maximum, and
  iv. the foliage cover for the tree growth form group is less than 25% of the benchmark for tree cover for the most likely plant community type, or
- it is a tree located more than 50m away from any living tree that is greater than 20cm DBH and the tree is located on category 2 land that is surrounded by category 1 land; or it is in a group of three (3) or fewer living trees within a distance of 50m of each other, that in turn, are greater than 50m from the next living tree that is greater than 20cm DBH and located on category 2 land that is surrounded by category 1 land.

Any proposed clearing of native vegetation that does not meet the definition of paddock trees must be assessed using other modules of assessment in B AMC. This module is not intended for use where paddock trees are species credit species. If such species are known to be present, these trees must be assessed using a module of the B AM that requires species assessment.

5. Click the ‘Next’ button:

Once ‘Next’ is clicked, the assessment type for the assessment is locked. If you need to change the assessment type, you’ll have to restart the case by refreshing your browser (in the standalone version) or by selecting ‘New’ (in BOAMS).

13.2. Site context tab

The ‘Site context’ tab is used to enter information to assess the biogeographic setting of the site.

The steps to be taken by the user to complete this tab are displayed in the flow diagram below. Further details on individual function and calculations performed are provided below.
Click the ‘Site context’ tab:

Specify the Interim Biogeographic Regionalisation for Australia region

6. Click on the ‘Interim Biogeographic Regionalisation for Australia (IBRA)’ dropdown:

7. Select the IBRA region in which most of the site is located:
Specify the IBRA subregion

8. Click on the ‘IBRA Sub Region’ dropdown:

9. Select the IBRA subregion in which the majority of the site is located. These are filtered based on the IBRA region selected in Step 7.

13.3. Entering PCT Group data

The ‘Vegetation’ tab is used to enter information to specify the plant community type(s) present on the site and to enter Paddock Trees details. Tab sections relating to defining plant community types and threatened ecological communities and defining current vegetation condition are the same for all assessment types.

The steps to be taken by the user to complete this tab using the data import feature are displayed in the flow diagram below (Figure 12). Steps taken if the users elect to enter data plot by plot is indicated in Figure 13. Further details on individual function and calculations performed are provided in sections below.
Figure 12  Workflow overview for ‘Vegetation’ tab – entering data for Paddock Trees PCT Groups

Note: Steps 1 to 3 can be performed in any order.

Click on Vegetation tab, for Paddock Trees, you will see the message shown below:
Define the plant community type and threatened ecological communities and zones

Note: Steps 10 to 15 can be completed in any order based on the user's knowledge of correct PCT.

10. Click on the ‘Formation’ dropdown:

11. Select required formation for the required plant community type.

12. Click on ‘Class’ dropdown:

<table>
<thead>
<tr>
<th>Class</th>
<th>Plant community type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpine Bogs and Fens</td>
<td>Alpine Heaths</td>
</tr>
<tr>
<td>Alpine Herbfields</td>
<td>Eastern Riverine Forests</td>
</tr>
<tr>
<td>Inland Floodplain Swamps</td>
<td>Montane Bogs and Fens</td>
</tr>
<tr>
<td>Montane Wet Sclerophyll</td>
<td>Montane Wet Sclerophyll Forests</td>
</tr>
<tr>
<td>South East Dry Sclerophyll</td>
<td>Southern Escarpment Wet Sclerophyll Forests</td>
</tr>
<tr>
<td>South Eastern Heathlands</td>
<td>Southern Tableland Dry Sclerophyll Forests</td>
</tr>
<tr>
<td>Southern Tableland Grass</td>
<td>Southern Tableland Wet Sclerophyll Forests</td>
</tr>
<tr>
<td>Subalpine Woodlands</td>
<td>Temperate Montane Grasslands</td>
</tr>
<tr>
<td>Tableland Clay Grassy Woodlands</td>
<td>Upper Riverina Dry Sclerophyll Forests</td>
</tr>
<tr>
<td>Western Slopes Grassy Woodlands</td>
<td></td>
</tr>
</tbody>
</table>

13. Select required class.


14. Click on ‘Plant community type (PCT)’ dropdown:

<table>
<thead>
<tr>
<th>Plant community type (PCT)</th>
<th>Ecological communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>380 - Red Stringybark</td>
<td>- Blue Gum + Long-leaved Box shrub/grass/fill woodland of the NSW South Western Slopes Bioregion</td>
</tr>
<tr>
<td>395 - Broad-leaved Sedge</td>
<td>- Sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion</td>
</tr>
<tr>
<td>366 - Ribbon Gum</td>
<td>- Ribbons Gum + Ribbon Gum shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western Koala coastal eucalypt woodlands</td>
</tr>
<tr>
<td>395 - Narrow-leaved Box</td>
<td>- Narrow-leaved Box shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion</td>
</tr>
<tr>
<td>366 - Ribbon Gum</td>
<td>- Ribbon Gum shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and west Koala coastal eucalypt woodlands</td>
</tr>
<tr>
<td>350 - Narrow-leaved Box</td>
<td>- Narrow-leaved Box shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion</td>
</tr>
<tr>
<td>366 - Ribbon Gum</td>
<td>- Ribbon Gum shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and west Koala coastal eucalypt woodlands</td>
</tr>
<tr>
<td>350 - Narrow-leaved Box</td>
<td>- Narrow-leaved Box shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion</td>
</tr>
<tr>
<td>366 - Ribbon Gum</td>
<td>- Ribbon Gum shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and west Koala coastal eucalypt woodlands</td>
</tr>
<tr>
<td>350 - Narrow-leaved Box</td>
<td>- Narrow-leaved Box shrub/grass/fill woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion</td>
</tr>
</tbody>
</table>

15. Select the required PCT.

The % cleared value for the PCT will be displayed under ‘PCT % cleared’.
A detailed description of each PCT and its geographic distribution is contained within the Vegetation Classification database and is publicly available from http://www.environment.nsw.gov.au/research/vegetationinformationsystem.htm.

16. Click on ‘Associated TEC’ dropdown

17. Select the relevant TEC. If no TEC is associated with the PCT, select ‘Not a TEC’. Listing status will be displayed under ‘Listing status’:

<table>
<thead>
<tr>
<th>Formation</th>
<th>Class</th>
<th>Plant community type</th>
<th>PCT% cleared</th>
<th>Associated TEC</th>
<th>Listing status</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Scribbly Forests (Stratigraphic sub-formation)</td>
<td>Upper Riverina Dry Scribbly Forests</td>
<td>288 - Broad-leaved Sallow grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion</td>
<td>75</td>
<td>Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions</td>
<td>Endangered Ecological Community</td>
<td>Modify default benchmarks</td>
</tr>
<tr>
<td>Heathlands</td>
<td>Southern Montane Heaths</td>
<td>666 - Argyle Apple montane heath on rock outcrops in the ACT, South Eastern Highlands Bioregion</td>
<td>0</td>
<td>Not a TEC</td>
<td></td>
<td>Modify default benchmarks</td>
</tr>
</tbody>
</table>

Only TECs with a known association with the selected PCT are shown in the dropdown.

A detailed description of each threatened ecological community is available from the OEH website at www.environment.nsw.gov.au/threatenedSpeciesApp/.


18. PCT data can be deleted by clicking on the ‘Delete’ button.

19. Click the ‘Add PCT Group’ button under the Action column:
A Paddock Trees PCT Group record will be added to the section shown for the Paddock Tree assessment being performed.

For Paddock Trees assessments, the following sections will be displayed:

- Paddock Trees PCT Groups

20. For PCTs with multiple groups, click the ‘Add PCT Group’ to add a record for each PCT required:

21. A group number will be generated and the relevant PCT number for each record displayed:

22. Click on the ‘No. of trees’ column and enter the number of trees present in that category:
23. Click on the ‘Species’ input and search for the species present:

<table>
<thead>
<tr>
<th>Species</th>
<th>size</th>
<th>DBHOB category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia aulacocarpa</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Acacia bakeri</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acacia binervata</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acacia binervia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acacia blakei</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acacia blakei subsp. diphylla</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acacia blayana</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select the species from below list. Species identified to be present for the selected PCT will be marked with an asterisk and available on the top of the list.

24. Species identified to be present for the selected PCT will be marked with an asterisk and available on the top of the list.

<table>
<thead>
<tr>
<th>Species</th>
<th>size</th>
<th>DBHOB category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eucalyptus albens *</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Eucalyptus blakelyi *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eucalyptus camaldulensis *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eucalyptus melliodora *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eucalyptus acaciiformis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eucalyptus acmenoides</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select the species from below list. Species identified to be present for the selected PCT will be marked with an asterisk and available on the top of the list.

25. If the species selected is not indicative of the selected PCT, a warning message as below will be displayed. (Note: the species is still allowed to be selected.)
26. If the selected species is a species credit species–threatened species, it cannot be assessed using Paddock Trees module. A warning message will be displayed as below.
27. Large tree threshold size for the PCT will be displayed.

28. Large tree threshold size value can be modified by clicking on 'Modify default benchmarks' under ‘Add PCT Group’ button.

29. The value can be updated by clicking on ‘Unlock’ and then updated by clicking on the ‘Update’ button.

30. Select DBHOB value for the PCT group from the list.

31. Select ‘Contains hollows’ checkbox if the trees contain hollows.

32. Negligible biodiversity value ‘Yes/No’ will be displayed.
33. Class value ‘1/2/3’ for the PCT group will be displayed:

<table>
<thead>
<tr>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

34. Based on the values entered, ‘Assessment required’ or not will be displayed:

<table>
<thead>
<tr>
<th>Assessment required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species</td>
</tr>
</tbody>
</table>

35. PCT group data can be deleted by clicking on the ‘Delete’ button:

<table>
<thead>
<tr>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
</tr>
</tbody>
</table>

36. Click the ‘Search PCT outside IBRA’ button (if required) and type the name or ID of PCT to search and select PCT. Repeat the above steps for PCT Groups in the next PCT:

37. Click the ‘Next’ button:
13.4. Habitat suitability for threatened species

The ‘Habitat suitability’ tab is used to display the threatened species predicted and nominated to be present on the site by the assessment calculator.

The user does not need to take any action to complete this tab. The species displayed on this tab does not affect any calculations.

<table>
<thead>
<tr>
<th>Species</th>
<th>Habitat constraints</th>
<th>Geographic limitations</th>
<th>Sensitivity to gain class</th>
<th>NSW listing status</th>
<th>National listing status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chthonicola sagittata</td>
<td>–</td>
<td>–</td>
<td>High Sensitivity to Potential Gain</td>
<td>Vulnerable</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Sooted Warbler</td>
<td>–</td>
<td>–</td>
<td>Moderate Sensitivity to Potential Gain</td>
<td>Vulnerable</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Climacteris plicatus victoriae</td>
<td>–</td>
<td>–</td>
<td>High Sensitivity to Potential Gain</td>
<td>Vulnerable</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Varied Sittella</td>
<td>–</td>
<td>–</td>
<td>Moderate Sensitivity to Potential Gain</td>
<td>Vulnerable</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Glossopittu pusilla</td>
<td>–</td>
<td>–</td>
<td>High Sensitivity to Potential Gain</td>
<td>Vulnerable</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Granatella picta</td>
<td>–</td>
<td>Other, Midsteties present at a density of greater than five midsteties per hectare</td>
<td>Moderate Sensitivity to Potential Gain</td>
<td>Vulnerable</td>
<td>Vulnerable</td>
</tr>
</tbody>
</table>

13.5. Calculating biodiversity credits

The ‘Credits’ tab is used to summarise the results of calculations of biodiversity credits.

No user action is required in this tab so no flow chart of required user actions is presented. Further details on calculations performed are provided in Sections 16.1 – Calculate ecosystem credits for plant community type, threatened ecological communities and threatened species habitat, and 9.2 – Calculate species credits for threatened species.

Click on the Credits tab:
Calculate ecosystem credits for Paddock tree clearing

No user action is required in this section.

The list of PCT groups entered in the ‘Vegetation’ tab is presented with ecosystem credit calculations for each group.

The subtotal of ecosystem credits across all groups within a PCT is presented.

The total ecosystem credits for the site is presented.

See BAM Appendix 1 for Paddock Trees.

13.6. Determining biodiversity credit class

The ‘Credit classes’ tab is used to present the credit class information. The same tab is used for all assessment types. However, for stewardship assessments, only the attributes of the credits generated for the site are presented, while for development type assessments, attributes relevant to ‘like-for-like’ and variation rules are presented.

No user action is required in this tab, so no flow chart of required user actions is presented. Further details on rules implemented are provided in sections 10.1 – Determine ecosystem credit classes and 10.2 – Determine species credit classes.

Click on the ‘Credit classes’ tab:
Determine ecosystem credit class

No user action is required in this section.

- In the ‘Ecosystem credit summary’ section, the list of PCTs entered in the ‘Vegetation’ tab is presented with ecosystem credit results for each zone.
- In the ‘Credit classes’ section, the credit class attributes for each PCT are presented.
- For development (including Paddock Trees) and Biocertification assessments, the credit class attributes for the assessed credits and the like-for-like and variation rules are presented.
- For stewardship assessments, only the credit class attributes for the assessed credits are presented.

See BAM Appendix 1 for Paddock Trees assessments.
13.7. Calculating biodiversity credit payments

The ‘Price’ tab is used to present the credit price/payment information. The same tab is used for all assessment types.

![Figure 13 Workflow overview for ‘Paddock Trees - Price’ tab.](image)

38. Click on the ‘Price’ tab:

![Image of PCT list and Calculate button](image)

39. If required, uncheck boxes to exclude PCTs from calculation.
40. Click the ‘Calculate’ button to execute the calculation process.

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

<table>
<thead>
<tr>
<th>IRRA subregion</th>
<th>PCT common name</th>
<th>Baseline price per credit</th>
<th>Dynamic coefficient</th>
<th>Market coefficient</th>
<th>Risk premium</th>
<th>Administrative cost</th>
<th>Methodology adjustment factor</th>
<th>Price per credit</th>
<th>No. of ecosystem credits</th>
<th>Final credits price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liverpool Range</td>
<td>281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Illawarra Klett South Bioregion. Warning: This PCT has NO trades recorded</td>
<td>$1,383.09</td>
<td>0.9898398</td>
<td>0.42607727</td>
<td>20.87%</td>
<td>$20.00</td>
<td>1.0000</td>
<td>$2,364.45</td>
<td>4</td>
<td>$9,577.81</td>
</tr>
</tbody>
</table>

Subtotal (excl. GST) $9,577.81

GST $957.79

Total ecosystem credits (incl. GST) $10,535.59