BAM Support Webinar 24

Update on the revised Eastern NSW Plant Community Type Classification and State Vegetation Type maps

Questions and Answers

Topic: In-progress assessments and Biodiversity Offsets Scheme (BOS) Credits

How will the changes to the vegetation classification affect in-progress assessments and existing BOS credits?

Any assessment will be covered by transitional arrangements when it has commenced in the Biodiversity Assessment Method (BAM) Calculator (BAM-C) and is in-progress prior to the date the revised Eastern NSW Plant Community Types (PCT) data is uploaded. The transitional arrangements will allow an in-progress assessment to continue to apply legacy data or opt to revise a case and apply the revised Eastern NSW PCT data.

Existing Ecosystem credits that are generated by offset sites and offset obligations in conditions of consent remain valid. These existing credits continue to represent the same biodiversity values according to their vegetation class and percent cleared value or Threatened Ecological Community (TEC) that was identified during assessment. Existing credits generated or offset obligations will continue to trade according to the offset rules in the *Biodiversity Conservation Regulation 2017* (BC Regulation).

Topic: State Vegetation Type Map (SVTM)

What methods were used to create the SVTM?

The objective of the SVTM is to spatially represent at a regional scale all plant community types in NSW using consistent standards and approaches.

Firstly, informative environmental layers and data such as survey sites, climate, geology etc were collated. This included selecting existing fine-scale mapping where appropriate. The Department of Planning, Industry and Environment (the Department) looked at the scale, classification and coverage of this information and then converted it to the revised Eastern NSW classification. The science team developed and implemented a unique Disturbance Index (DI) for this project. The native vegetation layer was also used, which identifies at a canopy scale all the native vegetation across NSW.

The first cartographic tool is segmentation which breaks the entire landscape down into polygons, the primary mapping unit. Aerial Photo Interpretation (API) was used to map polygons into photo patterns which are repetitive structural types like rainforest, woodlands, riparian forests etc. This is done right across the landscape usually as a pre-clearing coverage supported where possible with historical references. Next, detailed topographic layers were developed to show ridges, slopes, flats, exposed and sheltered parts of the environment. PCTs are assigned to any features that are relevant.

Secondly, the PCTs were modelled. The Department reduced the potential complexity of modelling by breaking that down into sub-bioregions and even smaller modelling units. Several types of modelling were used including multinomial models and nearest neighbour modelling algorithms. A third type of modelling was used, the DI applied particularly for natural native grasslands mapping. Models are run multiple times to maximise accuracy.

Thirdly, all data was uplifted into a mapping space. This gave a draft 1750 map coverage. This coverage was intensively checked using API, looking for inconsistencies between modelling regions, under and over modelling, alignment with survey sites, incorrect Vegetation Photo Pattern (VPP) assignments and mapping issues.

Finally, the Department created an extant vegetation map by applying the native vegetation mask to the 1750 layer to 'mask out' cleared areas, infrastructure, roads, dams or water, to retain only the current native vegetation cover.

What is the intended use of the SVTM?

The intended purpose of the SVTM is a regional scale coverage of 1750 and Extant PCTs. It is appropriate to use the SVTM to understand landscape scale PCT coverage and context. The SVTM is not recommended for 'paddock scale' assessment or a substitute for field survey.

How accurate is the SVTM?

Mapping accuracy is assessed using a number of approaches. Firstly, by comparing mapping to vegetation photo patterns and site data. Secondly, raw modelling results are also compared to site data to assess confidence in the mapping layer. Finally, a tailored accuracy assessment program is underway, it will investigate the accuracy of the overall map surface. The maps are prepared between 1:10000 to 1:15000 scale.

Will the SVTM be continually updated? Will BAM plots undertaken by assessors and the mapping they produce for BARs be incorporated into the SVTM?

Yes. The SVTM will be updated annually to include new information from reliable sources including some BAM plot data and feedback collected via the Sharing and Enabling Environmental Data (SEED) FEEDBACK function. The Department is currently exploring ways to better harness data from biodiversity assessments to incorporate into mapping and classification revisions.

Has the SVTM addressed derived and natural grasslands?

No. Derived native vegetation and derived native grasslands are not mapped, as these are not assigned a PCT in the New South Wales classification. Native natural grasslands are assigned a PCT and are mapped.

Will the Biodiversity Values (BV) Map be updated to reflect the new SVTM mapping?

Yes. Vegetation mapping products have a varied role in the development of mapping for the different types of land, as prescribed in clause 7.3 (3) of the BC Regulation, that can be included in the BV Map.

Map methods and a GIS model are being developed to generate mapping for candidate threatened species at risk of a serious and irreversible impact (SAII). The draft revised Eastern NSW PCT mapping is a key input into the development of draft habitat maps for SAII species. The draft habitat maps are provided to internal and external experts on the species to review. In some cases, the experts have advised that other vegetation mapping products should also be used in conjunction with the Eastern PCT mapping. Maintenance of the species habitat mapping involves consideration of any new information that may affect the species habitat maps. This will include using the Eastern PCT mapping as a key input to generate a revised draft habitat map

for consideration by the species experts. New and revised habitat maps will be incorporated into the BV Map as part of the major updates made to map in March and September each year.

Is there any information regarding the accuracy testing of pre-1750 PCT modelling compared to flora plots?

No. We can only test the statistical accuracy against recorded full floristic site information. Generally, these do not occur in cleared areas so their accuracy cannot be tested. However, the pre-1750 mapping is informed by a range of information sources that guide the mapping process.

Are there particular areas where the models are more accurate than others?

Modelling can be variable in its representation of PCTs. Firstly, the areas selected for modelling such as vegetation photo patterns and landscape units are subject to different levels of accuracy and precision. Secondly, probabilities are strongly influence by the number of PCTs being simultaneously modelled, the environmental layers that drive the modelling and the relative number of survey sites. Accuracy is improved by the use of API to determine vegetation photo patterns, quantitatively testing which environmental layers are the most appropriate, and limiting the number of simultaneous PCT models. For example, Dry Sclerophyll Forests, which comprise the largest modelling group are further refined using PCT descriptions to constrain their relative topographical locations such as gully, slopes, ridges, flats and/or exposed or sheltered slopes.

Model accuracy has been shown to have an inverse relationship to the number of modelled PCTs.

The combination of existing finer scale maps and modelling together create a draft Map.

Draft maps are manually edited to check for errors, omissions and to include new information which becomes the final Map.

Topic: Resources

What easy to use resources are available to those not accredited to apply the BAM?

The SEED Portal is a single open data service that the Department is focusing on to provide all users access to structured and streamlined data. Tools are being built into this service to make these data products easier to access. The PCT reference plots are available in SEED. This allows users to view their location on a map and see the attributed PCT name. The final release of Eastern NSW PCT revisions and state-wide mapping products will be released in early 2022. This will be a seamless NSW vegetation map. New features will allow very simple queries on all this foundational data in a framework that supports a desktop assessment. It will be available to everyone to access.

The Department manage and distribute our data to be consistently and equitably available to all users. Community, industry, government can discover and access the same data. This is achieved by passing data from BioNet to the assessment tools through a single open and transparent data service. The BOS receives data from the BioNet system in a way that anyone can access.

Topic: Threatened Ecological Communities (TECs)

When will TEC associations be available for the Eastern NSW PCT descriptions?

The pre-release data package includes the Eastern NSW PCT-TEC association data for all TEC-Determinations made under the relevant legislation prior to December 2020. The most recent Determinations will be included in the final release early next year.

A comprehensive revision of PCT-TEC association data has been completed for the Eastern NSW PCTs for the coast and tablelands bioregions. The review included 88 TECs listed under the *Biodiversity Conservation Act 2016 NSW* (BC Act) and 31 under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC ACT).

Will the revised Eastern NSW classification link PCTs and TECs so that one PCT corresponds to one TEC, instead of multiple potential TECs within one PCT?

Most PCT-TEC associations relate to just one TEC. However, there are some PCTs which relate to two or more TECs across both NSW and Commonwealth listed communities. TECs are defined independently of each other and apply a range of ecological scales that can also encompass multiple PCTs or part of a PCT where it meets certain qualifying conditions outlined in the Determination documents.

Will historical data be considered for endangered ecological communities (EEC) in areas that have been affected by the bushfires?

Yes. Where available, appropriate historical data can be used to map existing PCTs as well as TEC and SAII. Historic data is generally inconsistent but where available it is useful for mapping the extent of vegetation in currently cleared areas.

Topic: Revised Eastern NSW PCTs

Will there be a conversion table, or similar, to show the relationships between legacy and revised Eastern NSW PCTs?

Yes. Each currently approved PCT is given a lineage statement to the revised Eastern NSW PCTs in the coast and tablelands bioregions. This lineage statement will be provided in the BioNet Vegetation Classification (Veg-C) application when the revised classification is formally released in early 2022. The nature of the relationships vary from a simple one to one match, to more complex relationships with a one to many relationships to revised PCTs. A good example of an easy conversion is current PCT849 for the Cumberland Plain, which will simply move across to PCT3320.

There are newly described PCTs for the coast and tablelands for which there are no relationships to the current approved PCTs. New data in previously unsampled regions has strengthened and added to the revised Eastern NSW classification for the coast and tablelands regions.

How are ecosystems credits from legacy PCTs converted for Eastern NSW PCTs? What tools are available to show associations between ecosystem credits generated by current or proposed PCTs for the credit trading links?

Existing ecosystem credits in offsets or obligations remain valid and do not change so no conversions are required. To understand equivalencies for Ecosystem credits generated by either classification you can use the Transition Tool for Ecosystem Credits. The Tool will be published with the formal release of data next year, it will display which Ecosystem credits from the legacy classification and the revised Eastern NSW classification share the same values for offset trading under the offset rules. It is not recommended to use the technical data and lineage information in BioNet Veg-C to understand relationships between Ecosystem credits (legacy and revised) in the BOS because those relationships are determined by the offset rules in the BC Regulation. After the Eastern NSW PCTs are operational in the BAM, the like for like credit report will display revised and legacy PCT IDs.

Will the PCT Scientific Name be included in the PCT print out? At the moment, it provides the PCT common name, but not the Scientific Name.

No. Only the PCT common name has been populated for Eastern NSW PCTs.

When looking up a threatened species, is it possible to list PCT numbers by ascending order with the Vegetation Type section of the Ecological Data tab, within the Threatened Biodiversity Data Collection section of the BioNet? Currently PCTs are listed in no order, making navigation difficult.

Current functionality in the Threatened Biodiversity Data Collection (TBDC) does not allow this, however we can consider it for future development. An easy way to access the threatened species to PCT association data is via the refreshable Power Queries made available by the Department for this purpose. These can be filtered or ordered using standard Excel functionality.

How do we address linear projects which extend west beyond the revised Eastern NSW PCT study area?

Transitional arrangements will capture linear projects that are in progress when the revised Eastern NSW PCTs are uploaded and operational in the BOS. Once transitional arrangements are complete, new projects will need to apply the Eastern NSW PCTs within the coast and tablelands bioregions (Australian Alps, New England Tablelands, NSW North Coast, South East Corner, South Eastern Highlands, South Eastern Queensland, Sydney Basin) and the current PCTs in the western slopes bioregions (Brigalow Belt South, Nandewar, South West Slopes) and further west. The revised Eastern NSW PCT classification study area is in alignment with the IBRA regional and sub-regional boundaries. Current practice for linear projects that extend beyond IBRA sub-regional boundaries requires that a new Biodiversity Offsets and Agreement Management System (BOAMS) child case (BAM-Calculation and credit report) is started for each IBRA sub-region impacted. This approach will manage any assessment complexities across the two classifications. The PCTs in the western IBRA regions of NSW are currently being revised. When released, the revised PCTs for the western IBRA regions of NSW will be consistent with the revised Eastern NSW PCTs and will support consistent outcomes for linear assessments across the two study areas.

What PCTs must assessors refer to in Biodiversity Development Assessment Reports (BDAR) following the introduction of the revised Eastern NSW PCTs? Can reference to the Plot to PCT Assignment Tool be used as a justification in the BDAR for the PCT chosen?

After the revised Eastern NSW PCTs are uploaded and operational in the BAM-C, any new assessments, in the relevant IBRA bioregions, will need to apply the new data and refer to the Eastern NSW PCTs. The BDAR for these assessments will refer to PCTs from the revised Eastern NSW classification along with any analysis undertaken to identify PCTs including use of the Plot to PCT Assignment Tool. Reference to the Plot to PCT Assignment Tool should only form part of the justification for PCT selection. The BDAR must also provide evidence and justification of the decision pathway used to select best fit PCTs regardless of the degree of fit indicated by the Plot to PCT Assignment Tool. Additional information to justify the assignment of PCTs to vegetation zones may include the State Vegetation Type Map for Eastern NSW but is not always necessary.

Before the revised Eastern NSW PCTs are operational in the BAM-C, existing assessments will continue to apply the current PCTs in the BAM-C. In-progress assessments may choose to apply Eastern NSW PCTs to an existing assessment. Regardless of the PCTs applied for these transitional assessments, the BDAR must clearly document the PCT classification used and provide justification and evidence for the PCT assignment to vegetation zones including vegetation structure, landscape position and geomorphology.

Will the revised Eastern NSW PCT classification also have a more nuanced distribution in terms of IBRA regions and subregions? Currently, a number of PCTs have poor distribution information.

Yes. In eastern NSW the availability of flora reference plots allows PCTs to be attributed with location detail via GIS intersect. The standard IBRA bioregion, subregion and LGA fields are populated for the eastern region. Each revised PCT is accompanied by reference site locations which can be viewed in the Plot to PCT Assignment Tool or via the BioNet applications. Each PCT data also provides detailed information in key attributes including elevation, mean annual temperature and rainfall.

Will new benchmarks be derived and are they PCT based or at vegetation class level?

The Department will review benchmarks against the revised Eastern NSW PCT classification and new plot data. Any updates that result from this review will continue to be set at the class by bioregion scale. Where there is a need to derive benchmarks at the PCT level because of the scale of the existing benchmarks being too coarse or too broad, more appropriate local data can be used in accordance with Appendix A of the BAM.

Topic: Plot to PCT assignment tool

How will the Plot to PCT Assignment Tool manage degraded vegetation?

The Plot to PCT Assignment Tool is designed to guide the allocation of native vegetation assemblages to the revised PCTs. The Tool relies on the collection of standardised plot-based flora survey data as per the BAM. Degraded sites that included modified vegetation structure but still retain native species can be used in the Tool. The strength of match to a revised PCT will vary depending on the species present and users may be required to explore alternative assignments using multiple lines of evidence with the Tool to support PCT choices. For example, a BDAR will need to justify PCT selections based on alternative information and reasoning.

Is the PCT growth form data standardised by type or PCT ID with a generic list of what should be available or within that plot?

Each revised PCT provides an inventory of native species ordered by species growth form and presented in descending order of frequency of occurrence. The species and frequency data are extracted from the set of PCT reference plots.

Will the Plot to PCT Assignment Tool require a minimum number of native species in a plot, as per existing diagnostic species lists?

There is no prescribed minimum number of native species for each PCT however information is provided on the mean species richness as a basis for comparison to new sample data. The Tool relies on the collection of flora data using standard plot survey methods. Plots recording fewer species than the average for the matching PCT can expect a weaker score. The Department will provide a user guide to aid application of the Tool and to interpret the results it produces.

Can the Plot to PCT Assignment Tool be used with rapid assessment data instead of full BAM plot data?

No. The Tool relies on the collection of standard plot survey data under the BAM.

Topic: Biodiversity Offset Payment Calculator (BOPC)

How will the updated PCTs affect pricing in the Biodiversity Offsets Payment Calculator?

The Biodiversity Offsets Payment Calculator (BOPC) uses an econometric model to predict a price curve for biodiversity credits based on observed biodiversity trades in offset trading groups.

The introduction of Eastern NSW PCTs will not result in new Offset Trading Groups (OTG) but their composition will change over time. The changes to OTG are not expected to be sudden because existing credits and obligations for ecosystem credits that are PCTs and TECs remain in place. The Department are currently assessing potential market impacts, outcomes from this work will be used to inform transitional arrangements.

Topic: BioMetric Vegetation Types (BVTs)

Will BVTs be matched to the revised Eastern PCT classifications? Many consents refer to BVTs which will be current for years to come, so the translation to the revised Eastern NSW classification would be useful.

A determination of reasonable equivalence is required if you have a BioBanking credit obligation (which use BVTs and were calculated under the provisions of the *Threatened Species Conservation Act 1995)* and you wish to retire credits created under the BC Act to meet your obligations. A statement of reasonable equivalence will then be issued which sets out the number and class of BioBanking credits that are reasonably equivalent under the BC Act and the BOS. The statement of reasonable credit equivalence will indicate which PCTs are equivalent to the BVTs listed in the consent conditions. From the date the revised Eastern NSW classification is operational in the BOS, the statement of reasonable equivalence will indicate which revised Eastern NSW PCTs are reasonably equivalent. For more information please visit: Assessments of reasonable equivalence.

The statement of reasonable credit equivalence can be used to meet your offset obligation (including making a payment to the Biodiversity Conservation Fund) in accordance with the offset rules set out in the BC Regulation.

Topic: Benchmarks

When you redo the benchmarks for each class, can you include the units (e.g. coarse woody debris m/0.1ha)?

The woody debris attributes are included in the Benchmarks for each class in BioNet. These are referred to as total length of fallen logs in the Benchmarks tab of the BioNet Veg-C application. A document indicating all the benchmark units will be hyperlinked to BioNet Veg-C in a future development.

For more information on the Benchmarks attributes included in BioNet, see the Vegetation Classification Web Service data standard.