# **GUIDANCE NOTE: BIODIVERSITY ASSESSMENT**

A Biodiversity Assessment is required for all proposed project sites. A Biodiversity Assessment for the purpose of the University’s Design Standards details all biodiversity present at a site *prior to any form of disturbance or**development* in the context of the University’s seven **[Biodiversity Baseline](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project)**[[1]](#footnote-2) metrics (Table 1) and any other information requested in this guidance note. The University’s Biodiversity Assessment method is designed to:

1. inform site selection and/or building footprint positioning and building design,
2. support projects to achieve net gain of the Biodiversity Baselines as per Target 2 of the Healthy Ecosystems Priority of the [Sustainability Plan 2030](https://about.unimelb.edu.au/__data/assets/pdf_file/0020/346214/Sustainability-Plan-2030.pdf)[[2]](#footnote-3), and
3. support compliance with all relevant local, state, and federal planning & legislative requirements.

Prior to conducting a Biodiversity Assessment, a project boundary must be delineated. The boundary must include all areas where biodiversity may be impacted by a project, including any proposed site access routes and entrances.

Table 1 below describes the information that will need to be included in the Biodiversity Assessment Report for each of the University’s current biodiversity metrics.

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| ***Table 1. Biodiversity Baseline Metric Definitions & Instructions and Required Information for Biodiversity Assessment Report.*** | |
| **Definition & Instructions** | **Required Information** |
| **[Metric 1 - Plantable Area (m](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-1)[2](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-1)[)](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-1)**[[3]](#footnote-4) | |
| ‘**Plantable Ground Area**’ is area at ground level in which plants can be planted (this includes garden beds, lawns and ponds).  ‘**Other Plantable Area**’ is plantable area where there is some form of soil volume constraint. This includes containerised garden beds, vertical green walls and green roofs. These areas will only be considered to have half the ‘area’ value of an equivalent 'Plantable Ground Area' due to their limited soil depth and volume and hence reduced potential to support biodiversity.  ‘**Plantable Area**’ is calculated using the following formula: Plantable Area = ‘Plantable Ground Area’ + (‘Other Plantable Areas’ / 2) | * Plantable Ground Area (m2) * Other Plantable Area (m2) * Plantable Area (m2) * % Plantable Area in reference to the total proposed project site area. * Map showing the different types of Plantable Ground Area and identifying which areas could be improved by the proposed project. |
| [**Metric 2 - Areas of Ecological or Environmental Significance**](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-2)[[4]](#footnote-5) | |
| Any area identified as having ecological or environmental significance on the Areas of Significance [Map](https://uom.maps.arcgis.com/home/item.html?id=9a626f98655d407b94eff336701d9b8a)[[5]](#footnote-6) and [Register](https://unimelbcloud.sharepoint.com/:x:/t/Sustainability/EQlu9EMtZKxLipKqmxMbPssBXCPZ-UqMn2fRGnm5witG7A?e=QiQT4U)[[6]](#footnote-7) must be protected throughout the project lifetime and cannot be offset. Areas of Ecological or Environmental Significance include any areaor tree identified by the University to contain special habitat resources such tree hollows, nests, specialised food resources, burrows as well as areas that form ecosystem units or tree protection zones of Significant Trees. Significant Trees are on the [National Trust Significant Tree Register](https://www.trusttrees.org.au/)[[7]](#footnote-8) and/ or a local government tree register such as the [City of Melbourne's Exceptional Tree Register](https://www.melbourne.vic.gov.au/community/greening-the-city/tree-protection-management/Pages/tree-protection.aspx)[[8]](#footnote-9). The University may also have Significant Trees not recognised by any external third party within this register that reflect a trees habitat provision or another value of importance to the University.  The register is by no means comprehensive, and Biodiversity Assessments must disclose any other Areas or Trees of Ecological or Environmental Significance discovered within or adjoining the proposed site(s). Newly identified areas or Trees must document the following:   * Campus * Location Description * Latitude & Longitude (Decimal Degrees) of centre of Area and dimensions/ boundary of Area * Information on any identified ecological or environmental values as well as any scientific, educational, cultural or heritage values. * Management recommendations * Protection recommendations * Any relevant links * Photo(s) both aerial and on the ground. Position of asset if not clearly visible from the ground should be noted and drone pictures taken, e.g. hollow. * Diameter at breast height (DBH) for Trees | * List all known and documented Areas or Trees of Ecological or Environmental Significance and include Area/Tree ID and map in context of proposed project site. * Map and document the information required if any unknown Areas or Trees of Ecological or Environmental Significance are found. * List any potential impacts of the proposed development on the identified Areas or Trees of Ecological or Environmental Significance and recommend appropriate protection measures required to protect the Area during any potential development. * List any enhancements or increases of footprint to the identified Area that can be implemented as a part of the proposed project’s landscape designs. * Labelled map of all Areas and Trees of Significance within or adjacent to the proposed project site(s) highlighting the Areas of Ecological or Environmental Significance. |
| **[Metric 3 - Number of Understory Plant Species](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-3)**[[9]](#footnote-10) | |
| The number of plant species and individual understorey plants within the proposed site(s).  This metric also includes the number of distinct plant genera & families as well as species. Taxa below species rank such as cultivars, forms & varieties are to be treated as their parent species.  Hybrids or Hybrid Cultivars are to be treated as a distinct species.  Existing data should be checked on site and updated if necessary.  Updates may include any removals or additions that were not recorded in the plant inventory or any existing plants that were missed during the initial plant inventory data collection process.  All plant species within the project site must (if not already) be assigned a lifeform category to enable a structural analysis of existing vegetation. Life form categories should match those used in [Habitat Hectare Assessments](https://www.environment.vic.gov.au/__data/assets/pdf_file/0017/80135/HHv1.3-life-form-recording-sheet.pdf)[[10]](#footnote-11).  Plants identified as specialised food or habitat resources should be flagged for assessment under Metric 2. | * Number of unique plants species located within proposed project site(s). * Top 10 unique plant species by % of total plants located within proposed project site(s). * As above but for genera and family taxonomic levels. * Identification of any weedy species in or adjacent to the proposed project site area and provide information on their current distribution, invasiveness and possible detrimental impacts to the current or future proposed landscape. Any Nationally or Victorian (and NSW for Dookie) listed weed species must be identified and any legislative control requirements reported. * Number of plants flagged for Metric 2 Assessment. * Any major widespread symptoms of a plant pest or disease observed. |
| **[Metric 4 & 5 - Number of trees and tree species](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metrics-4-5)**[[11]](#footnote-12) | |
| The number of individual trees and tree species within the proposed project site(s).  This metric also includes the number of distinct tree genera & families as well as species. Taxa below species rank such as cultivars, forms & varieties are to be treated as their parent species.  Hybrids or Hybrid Cultivars are to be treated as a distinct species.  Existing data should be checked on site and updated if necessary.  Updates may include any removals or additions that were not recorded in the system or any existing plants that were missed during the initial data collection process. The reason for an undocumented historical removal must be recorded.  Trees identified as specialised food resources, containing nests, hives, hollows, mistletoe, or other habitat values should be flagged for assessment under Metric 2. | * Number of unique tree species located within proposed project site(s). * Top 10 unique tree species by % of total trees located within proposed project site(s). * As above but for genera and family taxonomic levels. * Identification of any weedy species in or adjacent to the proposed project site area and provide information on their current distribution, invasiveness and possible detrimental impacts to the current or future proposed landscape. Any Nationally or Victorian (and NSW for Dookie) listed weed species must be identified and any legislative control requirements reported. * Number of trees flagged for Metric 2 Assessment. * Any major widespread symptoms of a plant pest or disease observed. |
| **[Metric 6 - Tree canopy cover area (m](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-6)[2](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-6)[)](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-6)**[[12]](#footnote-13) | |
| Area of tree canopy cover (m2) within the proposed project site(s).  Existing data should be checked on site and updated if necessary.  Updates may include any removals or additions that were not recorded in the system. The reason for an undocumented historical removal must be recorded in the University’s Tree Inventory (refer to Metrics 4&5 above).  Canopy areas belonging to Significant Trees (Metric 2) should be identified in canopy maps.  Tree canopy connectivity gaps should also be highlighted by this metric.  Potential Canopy Area (m2) is estimated by taking the lowest width at maturity value (m) in a range for a proposed species from the [Burnley Plant Guide](https://bpg.unimelb.edu.au/protect/index.jsp)[[13]](#footnote-14) or other referenced reputable resource as a proxy for forecasting the future threshold for canopy cover gain. If species are yet to be selected indicative area noting widths used can be given. | * Tree canopy cover area (m2) within proposed project site(s). * Identification of opportunities to enhance connectivity from the proposed project site(s) to the surrounding landscape. * Potential Canopy Area (m2) * Identification of campus and/or local government canopy cover targets and whether potential canopy area of the proposed site will achieve these targets. |
| [**Metric 7 - Number of fauna and fungi species**](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-7)[[14]](#footnote-15) | |
| Pre-existing digital fauna and fungi records must be reviewed for the presence of protected species within the proposed project site(s). Fauna and fungi records made within the last 20 years in the existing campus queries as well as any sightings within an additional 500m radius of the centre of the proposed project site(s) (if they are not contained within the campus query) are to be downloaded from the [Atlas of Living Australia (ALA)](https://www.ala.org.au/)[[15]](#footnote-16). Boundaries of existing campus queries can be provided by the University’s Sustainability Manager  Species records from the ALA must be compared to the [Flora and Fauna Guarantee Act 1988 (FFG Act) Threatened List](https://www.environment.vic.gov.au/conserving-threatened-species/threatened-list)[[16]](#footnote-17) and the [Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) List of Threatened Fauna](https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl)[[17]](#footnote-18) to determine if the presence of protected species within the proposed project site(s) is likely.  Where protected fauna and/or fungi records within the last 20 years exist within the boundary stipulated above, comments must be provided on the legal processes required to ensure compliance under these Acts.  If any species are identified on these lists within the boundary stipulated above, a dedicated species-specific ecological survey must be conducted to determine the presence or absence of the species within at least a 100m radius of the proposed project site(s). All data generated from these surveys must be uploaded into the ALA and be supplied to the University’s Sustainability Manager. If presence is detected:   * efforts should be made to determine population or number of individuals residing or visiting the proposed project site/campus. * recommendations for reducing impact during the proposed project must be provided. * management recommendations for the campus relating to species minimising impact on and actively supporting the presence of the species on campus must be made.   Methodologies for such surveys must be approved by the University’s Sustainability Manager.  In addition to the above desktop screening process, site visits to determine the presence of residing fauna within the proposed project site(s) must be conducted. Site visits must check for the presence of active nests, hives, mounds and other fauna structures. Tree hollows, building cavities (i.e. roofs) and man-made structures that fauna could occupy must be inspected for the presence of fauna. Site visits should be conducted during the day and nighttime to observe both nocturnal and diurnal species. Any fauna or fungi sightings observed during site visits should be recorded in [iNaturalist](https://www.inaturalist.org/)[[18]](#footnote-19). | * List of species and number of observations and any comments on potential impacts to species found. * EBPC act and FFG act protected species recorded within the last 20 years within the campus and/or site(s) boundaries. * Presence of any pest sightings in both desktop analysis and observed during site visits. * Recommended survey methodology for any listed species identified in desktop analysis. * Table of observations or evidence of any residing fauna or significant fauna structures within the proposed project site(s). Table to include the following information:   + Species Name (if known)   + Type of sighting (actual animal, or evidence of animal e.g. scats)   + Photographic/video evidence (if possible)   + Date and time of observation   + Location of observation both described and in decimal degrees.   + Number of individuals (if known)   + Observations of any resources used by species.   + Dimensions of fauna structures (e.g. hives, nests)   + Potential impact to resident species during demolition, construction, and post project delivery such as noise, light, vibrations etc.   + Protection &/or Management Recommendations for resident species during demolition, construction and post project delivery   + Link to observation record in iNaturalist (can store media here) |

Biodiversity Baseline values for each metric and any specific targets more specific than ‘net gain’ will be provided for each campus by the University’s Sustainability Manager so the project can use these values as benchmarks in their designs.

In addition to the information outlined above, Biodiversity Assessment Reports must also include:

* A map of any relevant planning scheme requirements and an accompanying commentary on what conditions any schedules or overlays may apply to the site and project in question and how these will be managed throughout the project. NOTE: Conservation Management Plans for each campus are under development and will be made available once completed in 2024.
* Summaries of how the final project landscape intends to address the aspirations and goals of the Healthy Ecosystems Management Plan (under development) and any other priority areas of the University’s [Sustainability Plan 2030](https://about.unimelb.edu.au/__data/assets/pdf_file/0020/346214/Sustainability-Plan-2030.pdf)1 and other relevant University Strategic documents.
* Summaries of any relevant local, state, federal, or international strategies and the relevant targets the project could contribute to.
* Summaries of any alternative funding opportunities the land may be eligible for e.g. City of Melbourne’s Urban Forest Fund, or a grant scheme from a local Landcare Group or Catchment Management Authority.
* Maps of the geology of the site and information on soil health including composition and pH. Soil sampling design must be approved by the University’s Sustainability Manager.
* High quality >4K drone aerial photos of proposed project site(s). These images should be taken as close as possible to the ground whilst still capturing the entire site boundary. Height of capture, north arrow & scale should be included with said images.
* Maps representing the health/ condition and extent of any remnant or indigenous vegetation within the proposed project site(s) or potentially impacted by the proposed project. Remnant Vegetation should have the modelled Ecological Vegetation Class identified. The University is currently developing a standardised methodology to assess remnant vegetation on its estate or potential estate. Until such a time where a methodology is stipulated the Biodiversity Assessor must propose a methodology and sampling design to be approved by the University’s Sustainability Manager.
* Photographic evidence and location data for any of the following biodiversity assets not covered by these metrics including but not limited to:
  + Nest boxes, insect hotels or any other man-made habitat structures not tied to a tree.
  + Water bodies / drainage lines, deliberate or otherwise, permanent, or ephemeral.
  + Large habitat rock/s or collection of smaller rocks.
  + Large logs, fallen trees or significant dead woody debris with a basal diameter > 15cm.
  + Burrows, confirming what species is residing in them.
  + The presence of any FFG Act and EPBC Act listed communities and information relevant to compliance with these Acts relating to any identified communities.

Biodiversity Assessment Reports must be submitted to the University’s Sustainability Manager as per the below process.

## **BIODIVERSITY ASSESSMENT PROCESS**

Projects must:

1. Submit the project boundary as soon as it is defined as a .shp file (GDA2020 / MGA2020 Zone 55 - EPSG:7855 or another zone if the location of the project falls outside of zone 55).
2. Ask the University’s Sustainability Manager (for small scale projects) or, engage a suitably qualified person with GIS skills such as an ecologist to undertake the Biodiversity Assessment. The person or company engaged must be approved by the University This document along with the accompanying sections of the Design Standards must be included in the scope of works provided to the desired consultant company.
3. Contact the University’s Sustainability Manager prior to starting the Biodiversity Assessment to determine what existing data/ information is available, including obtaining campus baselines and/or targets for each metric.
4. Submit to the University’s Sustainability Manager a draft Biodiversity Assessment Report detailing the Biodiversity Baselines calculated for each candidate site with maps and tables to display key results.
   1. If the assessment includes comparison between candidate sites, the report must be prefaced with a one-to-three-page summary of results (depending on size of proposed project and number of sites to be evaluated) and the rationale for which candidate site will have the least impact on existing biodiversity and/or the most opportunity to enhance and increase biodiversity of the campus or broader site.
   2. Raw data, images and access to maps included in the assessment must be submitted with the report.
   3. Report must have references & hyperlinks to all external documents.
   4. Reports must be submitted via a live MS Word editable share link.
5. Propose and agree upon a time for the University’s Sustainability Manager to review the supplied information and provide either:
   1. written feedback on the assessment(s)
   2. endorse the assessment results
6. Require the selected Biodiversity Assessor to work with the University to present a summary of key assessment results to key University Project Stakeholders and appointed consultants/ contractors to inform schematic designs.
7. If applicable, submit a modification request form to any of the above requirements to the University’s Project Manager and include rationale for the non-compliance. If written approval is received the project may proceed as they comply with any conditions set in relation to the modification request.

1. [*https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project*](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project) [↑](#footnote-ref-2)
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5. [*https://uom.maps.arcgis.com/home/item.html?id=9a626f98655d407b94eff336701d9b8a*](https://uom.maps.arcgis.com/home/item.html?id=9a626f98655d407b94eff336701d9b8a) [↑](#footnote-ref-6)
6. [*https://unimelbcloud.sharepoint.com/:x:/t/Sustainability/EQlu9EMtZKxLipKqmxMbPssBXCPZ-UqMn2fRGnm5witG7A?e=QiQT4U*](https://unimelbcloud.sharepoint.com/:x:/t/Sustainability/EQlu9EMtZKxLipKqmxMbPssBXCPZ-UqMn2fRGnm5witG7A?e=QiQT4U) [↑](#footnote-ref-7)
7. [*https://www.trusttrees.org.au/*](https://www.trusttrees.org.au/) [↑](#footnote-ref-8)
8. [*https://www.melbourne.vic.gov.au/community/greening-the-city/tree-protection-management/Pages/tree-protection.aspx*](https://www.melbourne.vic.gov.au/community/greening-the-city/tree-protection-management/Pages/tree-protection.aspx) [↑](#footnote-ref-9)
9. [*https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-3*](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-3) [↑](#footnote-ref-10)
10. [*https://www.environment.vic.gov.au/\_\_data/assets/pdf\_file/0017/80135/HHv1.3-life-form-recording-sheet.pdf*](https://www.environment.vic.gov.au/__data/assets/pdf_file/0017/80135/HHv1.3-life-form-recording-sheet.pdf) [↑](#footnote-ref-11)
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13. [*https://bpg.unimelb.edu.au/protect/index.jsp*](https://bpg.unimelb.edu.au/protect/index.jsp) [↑](#footnote-ref-14)
14. [*https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-7*](https://sustainablecampus.unimelb.edu.au/biodiversity/biodiversity-baseline-data-project/metric-7) [↑](#footnote-ref-15)
15. [*https://www.ala.org.au/*](https://www.ala.org.au/) [↑](#footnote-ref-16)
16. [*https://www.environment.vic.gov.au/conserving-threatened-species/threatened-list*](https://www.environment.vic.gov.au/conserving-threatened-species/threatened-list) [↑](#footnote-ref-17)
17. [*https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl*](https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl) [↑](#footnote-ref-18)
18. [*https://www.inaturalist.org/*](https://www.inaturalist.org/) [↑](#footnote-ref-19)