

Progress Report SP 2020-009

Lifeplan: A planetary inventory of life

Ecosystem Science

Project Core Team

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Update requested

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Project Team	required
Program Leader	required
Directorate	required

Lifeplan: A planetary inventory of life

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Context

Lifeplan is a global biodiversity survey project funded by the European Research Council and led by the University of Helsinki. To quote the project's website "As a fundamental data platform, we will generate standardized, global data on a range of species groups, thus allowing quantification of variation in ecological communities at spatial scales covering six orders of magnitude (from 0.1 km to 10000 km), across hundreds of thousands of species". This will be achieved by establishing 100 sites across the globe, with denser sampling in the Nordic countries and in Madagascar. Each of the 100+ global sites will consist of paired urban and natural locations. Perth has been selected as one of the 100 global sites, with our plots located in *Banksia/Casuarina* dominated woodlands in Lowlands Nature Reserve and Kings Park. Other than investigating global patterns in biodiversity, the project aims to scale up use of efficient biodiversity monitoring tools (machine learning analysis of ecoacoustics and camera trapping data, and metabarcoding of aerial spores, soil fungi and flying insects). The project will be carried out over six years, with sampling alternating between the Lowlands and Kings Park locations.

Aims

- Gain an understanding of the application and effectiveness of efficient biodiversity survey methods through participation in a global project.
- Survey and contrast the biodiversity values of a large semi-rural nature reserve and a large urban bushland with similar dominant overstorey vegetation.
- Improve understanding of the broader biodiversity values of a Threatened Ecological Community (*Banksia* woodlands of the Swan Coastal Plain).

Progress

- Sites at Kings Park and Lowlands Nature Reserve were selected in spring 2019.
- The site at Lowlands Nature Reserve was established in February 2021.
- Weekly sampling or data downloads has been undertaken and audio and camera data uploaded to the Lifeplan data repository.
- The first batches of insects samples have been mailed to Kent University in Canada and soil and spore samples mailed to University of Helsinki.
- A short presentation on the Perth site was made at the inaugural online project meeting and at a Lowlands Stakeholder Group meeting.

Management implications

- Involvement with this global project will provide DBCA and Kings Park staff with an improved understanding of the capacity for newer technologies to efficiently survey and monitor biodiversity.
- Data from the project will provide the Botanic Gardens and Parks Authority with an understanding of how management of Kings Park has allowed retention of biodiversity inhabiting *Banksia/Casuarina* dominated woodlands on the Swan Coastal Plain.
- The project will add to an understanding of temporal patterns in biodiversity values of a Threatened Ecological Community which can be used to design monitoring programs and management actions.

Future directions

- Continue monitoring at Lowlands during 2020 and move equipment to the Kings Park in 2021.
- Undertake botanical surveys at the Lowlands and Kings Park sites to add to the information base for these sites and add context to analyses.