

Case Study: Ecological Monitoring



Green Communities is an exciting, Plymouth-based partnership project which is shaping neighbourhoods in Devonport, Central Park, Keyham and the West of the City.

We have written a series of case studies to highlight the breadth of work taking place with these nature neighbourhoods. You can read these case studies at greenmindsplymouth.com/greenhubs

Overview

We setup a new approach to ecological monitoring, to capture biodiversity data on a hyperlocal scale across more urban sites in addition to larger greenspaces.

Using three environmental indicators to measure project impact on biodiversity, we are demonstrating the importance of smaller habitats contributing towards the citywide Plymouth Local Nature Recovery Network.

Working alongside Devon Wildlife Trust, survey methods were trialled during 2024 and baseline data was collected. The feedback collated by the Green Communities rangers is now informing our approach going forward, and the methodology is being shared with other environmental teams to align ecological monitoring across the city.

What were trying to do?

The environmental indicators were co-designed with community members, with a focus on grassland sites:

1. Improved management of sites for nature
2. Improved biodiversity and habitat condition within sites
3. Improved biodiversity and habitat connectivity between sites

During 2024, the Green Communities rangers surveyed sites across Central Park, Devonport and Keyham. Many of these surveys were aligned with public events, to empower and upskill community members in surveying their local area.

At the end of the survey season, reports were produced to evidence progress against the three indicators, and inform management recommendations going forward.



ABOVE: Ecological monitoring with students from University of Plymouth at Central Park



Why are we doing ecological monitoring?

By capturing data on a hyperlocal scale as well as the conventional monitoring of larger sites, we are gathering information that might otherwise be missed. It allows us to directly compare, year on year, how things are changing following management interventions.

We are demonstrating the importance of urban spaces in local nature recovery, through methodology that can be applied across cities. The ecological data from Green Communities and other environmental teams will be used to inform the Plymouth Local Nature Recovery Strategy, and Plymouth's Plan for Nature & People.

The recognition of biodiversity in more urban spaces is also promoting their value to local communities, with ecological survey events facilitating green skills and nature connection on their doorstep.



When and where did it happen?

The environmental indicators were co-designed during 2023, followed by the Green Communities team creating and trialling methodology across Central Park, Keyham and Devonport over spring and summer 2024.

Who was involved?

- PCC (Natural Environment Service teams) & NT
- Devon Wildlife Trust
- Zebra Collective
- Local community members



LEFT: Using sweep netting to engage the local community with surveying in Devonport
Photo credit: Chris Parkes Photography & Pollenize

RIGHT: Grassland surveying at Mount Wise

What did we do?

A variety of methods were used to collect baseline data against the three environmental indicators:

1. Improved management of sites for nature:

To capture hyper local data, we created a nature category ranking system based on factors like site management, species diversity, community involvement and opportunities for biodiversity improvements. Each site was assessed and assigned one of the following categories:

- Nature First
- Nature Rich
- Nature Friendly
- Nature Limited

Sites will be reassessed annually to establish whether interventions have affected their nature category status.

2. Improved biodiversity and habitat condition within sites:

Focused on grasslands, species diversity was captured using walkover and quadrat surveys. Habitat condition was determined by completing a UK Habs assessment. These results will be compared each year to establish the impact of site interventions.

Where species of interest are present (for example, Autumn Lady's Tresses orchids at Mount Wise), additional monitoring is carried out to inform intervention and management approaches.

3. Improved biodiversity and habitat connectivity between sites:

Survey sites and contributing habitats are mapped to demonstrate project impact on habitat connectivity. Contributing habitats include spaces where hyper local biodiversity improvements have taken place; for example, along planters or school courtyards.

The annual mapping of sites, alongside counting the number and size of contributing habitats, will be compared each year to determine biodiversity changes on a landscape scale across neighbourhoods.

Complimentary methods

Additional data was collected by checking recordings on iNaturalist. To encourage further community engagement, we trialled methods for collecting insect data through sweep netting and POMS (UK Pollinator Monitoring Scheme).

During summer 2024, we also worked alongside Pollenize to co-deliver community 'Nature Counts' events. The sightings from these mini bioblitzes were analysed using iNaturalist / Floradix, which produced planting recommendations based on research relating to plant-pollinator interactions.



LEFT: The Green Communities team practicing plant identification in Keyham

RIGHT: Mapping of survey sites and contributing habitats across Devonport

What were the results?

Baseline data was collected and mapped during 2024, which was shared across PCC Natural Environment Service teams to be added to centralised city records. This also enabled hyper local data and community involvement to be referenced in Plymouth's Local Nature Recovery Strategy, and Plymouth's Plan for Nature & People.

In spring 2025, Green Communities hosted an ecological monitoring workshop for PCC Natural Environment Service teams, sharing our environmental indicators and methodology to align approaches citywide. Subsequently, an ecological working group was setup and we continue to collaborate across teams to develop a unified approach to ecological monitoring in Plymouth.

Key learnings

- Supporting the Green Communities rangers with identification training and resources improved confidence and efficiency when completing surveys over the season, and enhanced their professional development.
- We were able to upskill community members in plant identification and offer nature connection digital badges. Going forward, we plan to hold more regular surveying events tying in with existing community groups, instead of hosting ad-hoc style activities.
- To improve community engagement, we found that incorporating insect surveys or running guided walks (eg. lichens, bats) was better than focusing on grassland surveys alone. We are also considering methods to collect wildlife, as well as plant data.
- iNaturalist was a useful tool to verify recordings and capture data collected by members of the public. We are looking into using this app more consistently and promote use of it with local residents.
- The environmental indicators created were vital in capturing hyper local data that would have otherwise been missed. We found some standardised methods, like UK Habs, aren't necessarily appropriate or easy to do in more urban spaces, so we are researching alternatives for monitoring habitat condition.

RIGHT: Surveying with members of the local community in Devonport during a Nature Counts event.
Photo credit: Chris Parkes Photography & Pollenize



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Next steps

We are updating and refining our methodology based on learning from the survey seasons and working alongside other Natural Environment Service teams through an ecological working group. We continue to be involved with aligning methodology citywide and feed our approaches into citywide strategies.

To further promote community engagement, as well as holding more regular events, we are looking at the best ways to share survey results to better celebrate and understand the importance of meadows and nature in urban spaces. We'd also like to upskill and empower community groups to incorporate ecological monitoring in their local spaces.

We are also arranging for staff and community members to be more formally trained in plant identification and meadow management, as well as permaculture. This will support surveying going forward, and promote knowledge in identifying opportunities for biodiversity and better management recommendations on urban sites.

