

# The diversity of urban grassland within Paignton Zoo: Potential for increasing native wildlife conservation of a zoo site

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## Introduction

- Many zoos are considered urban and have areas of green space suitable for biodiversity enhancements
- High floral diversity provides benefits to invertebrates, birds and small mammals
- Provide an opportunity for education and recreational activities
- Improves the aesthetic value of grassland sites

## AIMS

To investigate the plant community structure and floral diversity of four grassland sites within Paignton Zoo.



# Methods

Four grassland sites within the zoo were selected

- Picnic lawn
- Ex-tortoise encl.
- Car park verges
- Stream area



## Vegetation surveys



A total of 48 randomised plots sampled over four sites to record:

- Percentage cover of all plant species
- Percentage cover of bare ground
- Average plant height

# Results

A total of 70 different plant species were identified across all sites

Location	No. of species
Picnic lawn	32
Car park verge	30
Stream	28
Ex-tortoise	22



Common knapweed *Centaurea nigra*

Some key findings include:

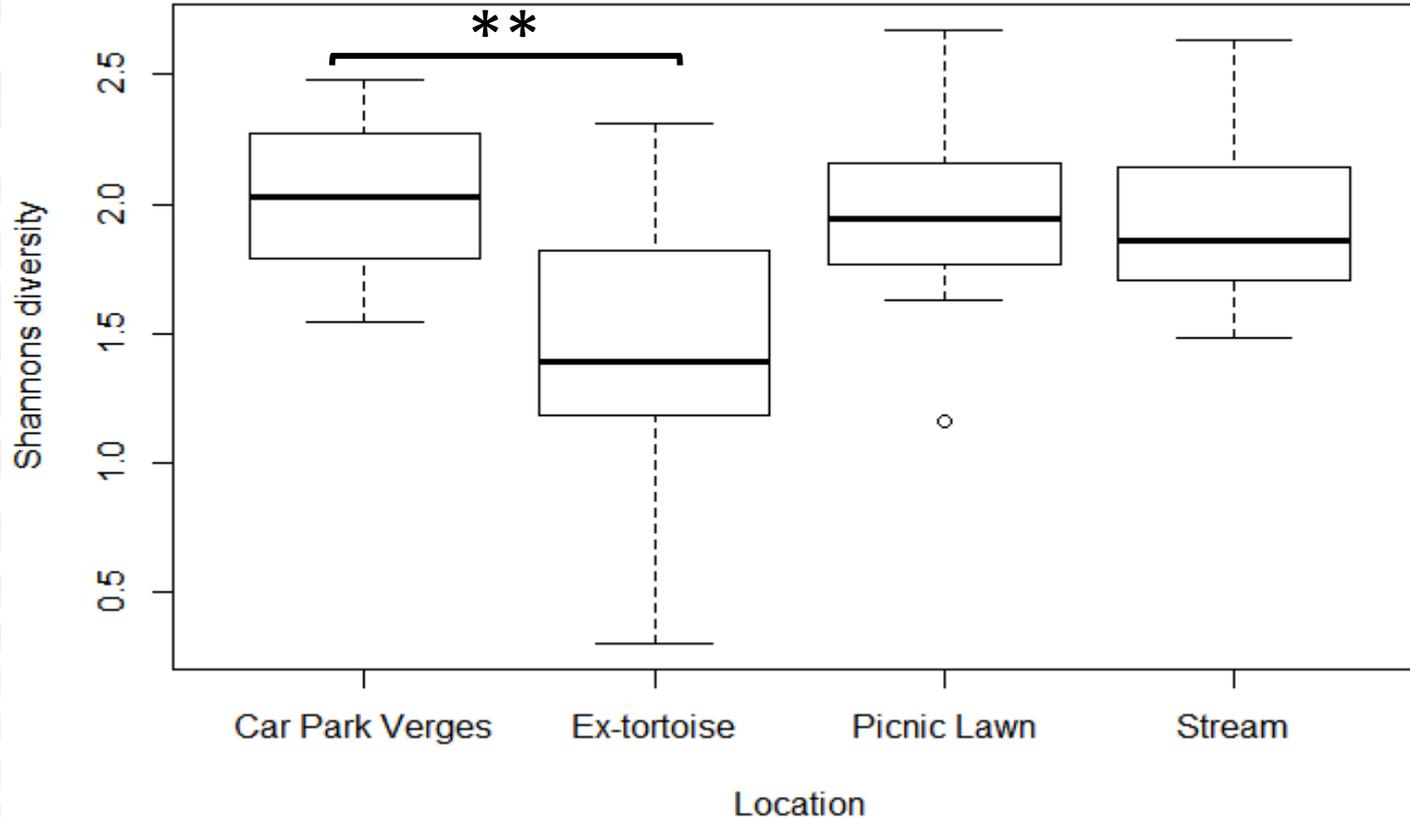
- No. of species suggests that each site had a different plant community
- Picnic lawn has the highest amount of species
- Beneficial wild flowers and fine grasses were identified



Sweet vernal grass *Anthoxanthum odoratum*

# Results

Biodiversity was calculated using the Shannon's Index of Diversity. The higher the value, the greater the diversity. **Diversity values of habitats typically fall between 1.5 and 3.5, 4-5 = high species diversity.**



\*\* = (F = 4.64, df = 3, p < 0.01)

# Results

Plant community structure of each site was investigated to assess suitable management and restoration techniques



## Community descriptions – NVC

### Car park verges:

An unmanaged grassland with coarse grasses.  
Often found on uncut road verges – MG1

### Ex tortoise enclosure:

Long-established fertilised grassland – MG6

### Picnic lawn:

Reseeded and fertilised grassland often used  
for recreational purposes – MG7

### Stream area:

Woodland plant community, with many shade  
tolerant plants – W24

## Actions

- Introduce suitable wildflowers to sites that require biodiversity enhancements.
- Sow seeds from local species rich donor sites such as Primley meadows.
- Change cutting regimes to encourage the growth of wild flower seedlings.
- **Monitor and review management**



# Conclusions

The results of the study:

- Gained a better understanding of the value and floral diversity of each grassland site
- Will inform a biodiversity enhancement plan for the zoo site
- Demonstrate a process that other zoos can follow

