



Joining up nature across central Scotland

**LIFE 13 BIO/UK/000428 EcoCo LIFE
Calachem green roof; EcoCoLife Monitoring Impact Report. (Action D.6.)**

CONTENTS

1.	Introduction	p.2
2.	Background	p.3
3.	Monitoring.....	p.5
4.	Future monitoring.....	p.6
5.	References.....	p.6
6.	Acknowledgements.....	p.6



Calachem green roof

1 Introduction

Green roofs act as important 'stepping stones' for wildlife and facilitate the movement and mixing of individuals across an urban area. Green roofs are a key tool in mitigating the effects of climate change. They play a major role in sustainable drainage, attenuating the flow of water from urban areas. They also protect the building fabric from the effects of solar radiation while also insulating the building and therefore reducing heating costs in the winter.

In January 2015, a launch event promoted the Glorious Green Roof project and explained the diverse benefits of green roofs to businesses throughout the Inner Forth area; at least 30 people attended this event (Figure 1). This event was held in partnership with the Inner Forth Landscape Initiative and was sponsored by CalaChem held in one of their buildings in Grangemouth. MSP Angus MacDonald launched the event and spoke about the project and importance of green infrastructure. It was at this event that CalaChem's Buildings and Estates Manager John Walker announced that they were participating in the project.



Figure 1. Launch event hosted by John Walker, Building and Estates Manager at CalaChem. The building selected for phase one of the project was CalaChem's Occupational Health building opposite their main reception off Earl's Road. The roof of this building is completely flat and is 143m² in size (Fig.2).



Figure 2: Aerial image of building selected for installation of a green roof and the area to be enhanced.

2 Background

This particular roof was selected as we had full support from CalaChem and they were able to offer financial support, which involved installing a ladder for access onto the roof (to ensure it would be managed), the use of a scaffold during the installation of the roof and installing a safety line on the roof itself for access to maintain it. The roof is overlooked by an adjacent building allowing staff to look into a greenspace and is opposite the main reception to CalaChem. When enhanced this roof is an important stepping stone allowing wildlife (particularly pollinators) to move across Grangemouth.

The green roof installed onto this building was designed for wildlife, especially invertebrates. The roof was designed so that it had a light weight and low nutrient substrate and this was planted into with a range of plug plants and wildflower seed (Figure 3; Table 1). The seed mix had 51 species of annuals (9 species), perennials (34 species) and grasses and sedges (8 species).

Table 1: Wildflowers planted into the roof and the number planted for each species.

Common name	Number
Autumn hawkbit	200
Bloody cranesbill	200
Germander speedwell	250
Meadow buttercup	200
Oxeye daisy	200
Thrift	100
Chives	100
Wood sedge	200



Figure 3: CalaChem roof getting planted with plug plants and seed scattered between the plants.

The green roof was installed in April-May in 2017. This followed a structural survey of the roof and a tendering process. An interpretation board was installed on the side of the building on completion of the roof highlighting the green roof and its importance (Figure 4). This will benefit staff and visitors in the knowledge that the site is benefitting wildlife and they can see the wildlife using the site.



Figure 4: The interpretation board on the Occupational Health building where the green roof is located being enjoyed by MSP Angus MacDonald who visited the green roof in April 2018.

3 Monitoring

A structural survey and health check of the flat roof was completed in April 2015, a year before the green roof was installed (Figure 5). It was determined that the roof was in good condition and that the current waterproofing layer wasn't leaking. It was identified that the roof was completely bare as it was and providing no habitat for wildlife.



Figure 5: Staff from Bauder checking waterproof layer of the roof before deciding if the roof was suitable for a green roof.

On completion of the project in May 2016, the roof was visited in late autumn to observe the change in plants and how they were faring. The roof was visited again in June 2017 to observe wildlife that may be using the site (Fig. 6). In its first year an oystercatcher was seen nesting (with one egg) and an invertebrate survey undertaken by Buglife staff recorded different bumblebee species, 7 spot ladybird and butterflies.



Figure 6: The green roof in June 2017.

The roof has since been visited in April 2018 with MSP Angus MacDonald and Bauder who then added more wildflowers to the roof to help further improve species diversity. It was again visited by Buglife in August 2018 to observe how the recently sown wildflowers were doing after the very hot and dry summer. The oystercatcher again nested on the roof in 2018.

4 Future monitoring

This green roof will be managed and maintained by the landowner CalaChem with advice from Buglife. The gardener at CalChem maintains the entire grounds and he has been trained by Bauder in how to manage the green roof. He has been provided with additional advice and offers of support from Buglife to ensure that weeds are removed and the area watered in very dry weather. Buglife will continue to visit the roof at least once a year to ensure it is being appropriately managed and monitor the wildlife using the roof.

5 References

Bauder CalaChem structural surveys and leak testing survey report April 2015 [A2126442](#)

6 Acknowledgements

Buglife would like to thank CalaChem in their support with this project. We would also like to thank Bauder who completed the structural survey free of charge to ensure the correct roof was selected for this project.