SRS Proposed Living Lab project brief –

Factors affecting the germination of Common rock-rose seed

Description of the paper

This paper provides a brief overview of a potential project that could usefully inform the SRS Department's work.

This is a template for a potential **MSc dissertation** Living Lab project that a member of staff would like to propose and should therefore equate to no more than **600** hours work. The question and research is intended to inform and/or make recommendations to the SRS Department's work areas. It should also align with one or more of the Sustainable Development Goals (see below for more context).

Key SRS contact for this project

Julie Wilson, Community Ranger, jwilso2@ed.ac.uk

The Vision for Change

Provide knowledge to empower communities to increase local biodiversity.

Draft research question

To investigate factors that affect the germination of common rock-rose seed and consider seed suitability for the Ochil Hills.

Background

The University of Edinburgh is creating woodland to help sequester carbon from the atmosphere, increase biodiversity, provide opportunities for learning, teaching, research and work with local communities. You can find out more about the Forest and Peatland programme on our website: The Forest and Peatland programme | Social Responsibility and Sustainability

At our site, Drumbrae near Bridge of Allan in Stirling, the Community Ranger is working with neighbouring landowners and community groups to boost the population of locally important plant species.

One of these species is Common rock-rose (*Helianthemum nummularium*); a low growing evergreen plant with bright yellow flowers. Common rock-rose provides nectar for various bees and is also the foodplant for several species of butterfly including the northern brown argus. We want to increase the Common rock-rose population to help support the northern brown argus butterfly which was previously believed to be locally extinct in Stirling after a 100 year absence. The northern brown argus butterfly was recorded in 2023 in Blairlogie. More information on this: Locally extinct butterfly makes remarkable return to Stirlingshire | Butterfly Conservation

Following this sighting, local community members and have been growing common rock-rose from seed with a view to them being planted out in the Ochil hills to help support the northern brown argus butterfly.

The local community has had mixed success growing the plants from seed, and are interested in research in this area to maximise the success of this community project.

The aim of this study is to examine factors that affect the germination of common rock-rose seeds and provide recommendations to maximise the successful germination of this plant, to support this community project.

There are many factors that could affect germination including seed viability, aiding germination by soaking and sanding seeds, the effect of chilling, heat, drought, or using mycorrhizal fungi. It is likely that suitable greenhouse or growing space will be required for this study. The Community Ranger will help secure space for this project, hopefully at Kings Buildings.

As part of this research project the student will have the opportunity to visit Drumbrae, and learn from local community members and organisations which could include Nature Scot, Scottish Wildlife Trust, Scotia Seeds, and Future Forest Company.

Objectives

- Examine factors that affect the germination of Common rock-rose seed,
- Explore if there are differences in seed germination rates from locally sourced seed compared to seed from a commercial nursery,
- Make recommendations that will assist community groups grow common rock-rose from seed for planting in the Ochil hills.

Data set provision

Data needed for this project	Data sets available from and contact information
Common rock-rose locations near Drumbrae	Location maps and GIS data, from Community Ranger
NBN Atlas data	Publicly available
Community consultation results	From Community Ranger

Secondary Output

*The project write up or dissertation will be a researcher's own piece of research. They will decide what they think the results show and draw their own conclusions. An additional **secondary output** is required of all SRS living lab dissertation projects. This output will be shared with colleagues within and out with SRS, so that we can try to make operations changes based on the researcher's recommendations.*

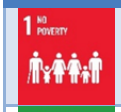
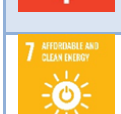
Output format	Insert not applicable or Yes (with further detail)
Presentation to a number of stakeholders	**Yes – to local community groups**
Mixed media resource for reuse	**Yes - tailored to community groups**
Report with operational recommendations	**Yes – tailored to community groups**
Resources for staff/student behaviour change	**N/A**
Resources for staff/student training	**N/A**

Other, please specify	
OR To be decided with student	Can be flexible with secondary output depending on student preference.

Transformational change with the SDGs

The Sustainable Development Goals showcase 17 things humanity must do to ensure peace and prosperity for people and the planet, now and into the future. This project contributes to the following SDGs.

The information in this table was obtained with permission from the UN sustainable goals website, https://www.un.org/sustainabledevelopment/sustainable-development-goals/

The Sustainable Development Goals for 2030		Yes (x), sub-SDG (s)	The Sustainable Development Goals for 2030		Yes(x), sub-SDG (s)
	Economic growth must be inclusive to provide sustainable jobs and promote equality.			The food and agriculture sector offers key solutions for development, and is central for hunger and poverty eradication.	
	Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development.			Obtaining a quality educations is the foundation to improving people's lives and sustainable development.	
	Gender equality is not only a fundamental human right, but a necessary foundation for peaceful, prosperous and sustainable world.			Clean, accessible water for all is an essential part of the world we want to live in.	
	Energy is central to nearly every major challenge and opportunity.			Sustainable economic growth will require societies to create the conditions that allow people to have quality jobs.	
	Investments in infrastructure are crucial to achieving sustainable development.			To reduce inequalities, policies should be universal in principle paying attention to the needs of disadvantaged and marginalised populations.	
	There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transport & more.			It's about doing more and better with less and decoupling economic growth from environmental degradation.	
	Climate change is a global challenge that affects everyone, everywhere.	s		Careful management of this essential global resource is a key feature of a sustainable future.	
	Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.	x		Access to justice for all, and building effective, accountable institutions at all levels.	
	Revitalise the global partnership for sustainable development.				

The University of Edinburgh Strategy 2030

Strategy 2030 can be found here:
https://www.ed.ac.uk/about/strategy-2030

The Social and Civic Responsibility Delivery Plan.

To deliver Social and Civic Responsibility at the University of Edinburgh, we have chosen three strategic objectives and one cross-cutting theme. The project's alignment with those is outlined in the table below.

The Social and Civic Responsibility Delivery Plan can be found here:
https://www.ed.ac.uk/files/atoms/files/social_and_civic_responsibility_delivery_plan_2020.pdf

Social and Civic Responsibility Delivery Plan – Objectives and one cross-cutting theme	**Briefly describe the project's link to the objectives, how it is relevant and how this project works towards those objectives.**
We will become a zero carbon and zero waste university - Increasing opportunities and raising aspirations by making education and employment an achievable goal for more people in Scotland and globally.	This project is part of the University's Forest and Peatland programme (FPP). The FPP will remove carbon from the atmosphere, increase biodiversity, connect woodlands, improve recreation and scenery for local communities, and preserve cultural heritage sites. The University will sequester its unavoidable carbon emissions produced by essential travel as part of our ambition to be zero carbon by 2040. Over the course of the programme, several thousand hectares of native woodland and peatland habitats will be established, creating a haven for plants and animals. This project will help increase local biodiversity at Drumbrae by furthering knowledge about common rock-rose, and help support the northern brown argus butterfly.
We will widen participation in higher education and support inclusion - Increasing opportunities and raising aspirations by making education and employment an achievable goal for more people in Scotland and globally.	
We will work together with local communities - to contribute to improve the lives of people across the Edinburgh City Region and beyond.	This project was proposed by local community members at our Drumbrae site. This research will increase knowledge in this subject area and contribute to the success of a community project.
Cross cutting theme: In our operations, research and teaching we will engage critically with, and contribute to the Sustainable Development Goals - including the promotion, protection and respect for human rights.	Clear relevance to targets of SDG 15 (Life on Land) with the potential to support the university's effort for biodiversity net gain but also to inform ongoing research and development efforts focused on rare species conservation.