

Stockholm University
Dept. Of Ecology, Environment and Plant Sciences
Roslagstullsbacken 21
SE-10691 Stockholm
Sweden

aelys.humphreys@su.se

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Subject: Research application. Fjallabak, Guðlaugstungur and Herdísarvík.

The Environment Agency of Iceland has received an application Aelys Humphreys, Stockholm University, dated 17. July 2018, for an ecological research within protected areas in Iceland during the period September-October 2018 and 2019.

Guðlaugstungur, and Fjallabak Nature Reserve are protected by Act no. 60/2013 on nature protection, cf. Regulations no. 1150/2005 Guðlaugstungur, 121/1988 Herdísarvík and 354/1979 Fjallabak Nature Reserve.

Description of the project:

The aim of the research is to test whether and how adaptation to geothermally heated soils affects cold tolerance, phenology and winter survival ability in grasses.

In 2018 the plan is to collect vegetative and seed material from common, widespread perennial grasses and to place climate loggers on site to record data for 12 months.

Return in 2019 to retrieve climate loggers.

Samples of leaf material and seed will be collected from widespread perennial grass species (*Poa pratense*, *Festuca rubra*, *Deschampsia flexuosa* and *Agrostis stolonifera*). Vegetative material will be sampled for 60 individuals per protected area and species. 400 seeds will be collected per protected area and species. Voucher material will be collected for two individuals per protected area and species. A climate logger on a wooden pole will be placed at each site of interest and left there for 12 months. No lasting disturbance is anticipated.

The plants, grown in heated and non-heated soils, will be planted in a common garden in Sweden together with plants from Swedish populations to compare the cold tolerance, phenology and winter survival ability of plants from different populations. Extract DNA from plants from heated and non-heated soils in Iceland and from Swedish populations to compare DNA methylation patterns plants from different populations and perform phylogeographic analyses.

Impact assessment:

Based on the information from the applicant the Environment Agency of Iceland does not consider the research likely to have negative impact on the conservation values of the area. The species collected are common in Iceland and don't have special protection and the sample collection are not considered to leave marks in the vegetation cover.

Conclusions and conditions:

The Environment Agency of Iceland hereby grants a permission for the research on its behalf on following conditions:

- Keep this letter with you on site during the project.
- The Environment Agency should be informed if there will be any changes to the project description.
- The Environment Agency should be notified, with at least 5 days notice, if possible, when the project starts. Otherwise as soon as possible.
- Please contact the rangers in the areas for advice on the acceptable places for samples collection within at least 24 hours' notice.
- Consult the rangers for location for the climate loggers.
- Off-road driving in Iceland is strictly prohibited.
- Crew members should always stay on authorized paths/tracks/roads.
- The permit conditions should be introduced to the staff before the work begins.
- Fauna, geological formations and landscape should not be disturbed more than the projects purpose demands.
- All disturbance to animals and wildlife is strictly prohibited.
- The project's staff is required to prevent all disturbance to the environment and make sure that all litter is removed from the sites.
- This permit is only valid for research purposes. It does not include permit to utilize the samples for commercial purposes. The samples cannot be signed over to third party for commercial use.
- Every measure should be taken to avoid damage to the sites and unnecessary disturbance while collecting the samples.
- Number of samples should be moderate.
- If any complications occur during the project please contact the ranger or the Environment Agency of Iceland, tel. +354 591 2000

If you wish to export samples from Iceland a special permit is needed from the Icelandic Institute of Natural History (www.ni.is).

Request:

The Environment Agency of Iceland wishes to be secured, free of charge, a copy of all reports and scientific articles that results from the research project.

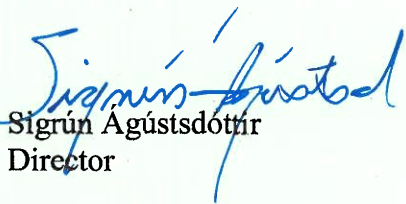
Permission fee:

The Environment Agency of Iceland notes that the agency charges a fee for processing applications for permits on the basis of Article 92 of Act no. 60/2013 on Nature Conservation. The fee for researches is 39.400 ISK according to art. 24. b. in the agency's tariff no. 535/2015.


Supervision:

The Environment Agency will supervise the project. The supervisor will be a ranger from the Environment Agency.

Sincerely,



Sigrún Ágústsdóttir
Director



Hákon Ásgeirsson
Team leader