



Kliimahariduse suveülikool Toulouse'is 8.-12.07.2024

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CESU 2024 - mis ja kuidas?

- Märts 2024 - kandideerisin Office for Climate Education (OCE) ja Météo-France'i korraldatud kliimahariduse suveülikooli
- 5 päevane loengute ja praktiliste töötubadega programm
Toulouse'is Lõuna-Prantsusmaal
- Veebileht; intervjuu Enri Uusnaga



CESU 2024 - programm ja tegevused 1

- Tippteadlaste (sh IPCC raporti koostajate) ettekanded kliimamudelitest; kliimat mõjutavatest teguritest
- Osalejate ettekanded
- Töötoad
- Mängud
- Programm



Mitte termokaamera, vaid IR-kaamera! Peegeldus=IR-kiirgus, mitte temperatuurimuutus.



CESU 2024 - programm ja tegevused 2

esm 2025 METEO FRANCE

Looking for cowslips

Citizen science project with *Primula veris*

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Introduction

Cowslip (*Primula veris*, Fig. 4.) can be used as an indicator of the ecological health of meadows in an area. By studying how well cowslip populations are doing we are able to say something about the surrounding landscape and the pollinators.

Methods

To collect large amounts of data on cowslip, a citizen science approach was used. The study was designed by the University of Tartu, and tens of schools all over Estonia participated (Fig. 2, but see also Fig. 3).

Heterostyly as a health marker

In a healthy population, the cowslips have equal proportions of two different types of flowers (Fig. 1). The S-type flowers (left) - female reproductive organs, pistils) need pollen from L-type flowers (and vice versa) to maintain genetic diversity which is vital for long term survival. Homostyly (all plants either S or L type) shows a less favourable habitat condition.

Citizen science

We participated in 2019 and 2020 with two different schools, and we made more than 200 cowslip observations. One of the schools, located in the countryside, witnessed a suitable landscape - S and L morphs were similarly abundant. For the other school in Tartu city, the cowslip population was too small and isolated, to draw concrete conclusions.

For me as a schoolteacher:

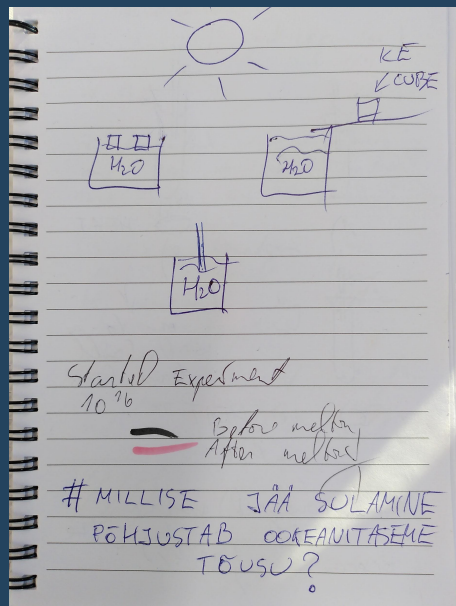
- An easy and engaging citizen science project
- Follow-up projects to map the species richness in the school neighbourhood (BioNet?)
- Catching approach for the kids: using apps to identify plants (Flora incognita).

Fig. 1. The S (left) and L (right) morphs of cowslip were S-morph has a short, and L-morph has a long stylum of the pistil.

Fig. 2. The cowslips were observed all around Europe in 2019 - 2023.

Fig. 3. All pictures from nurseries are

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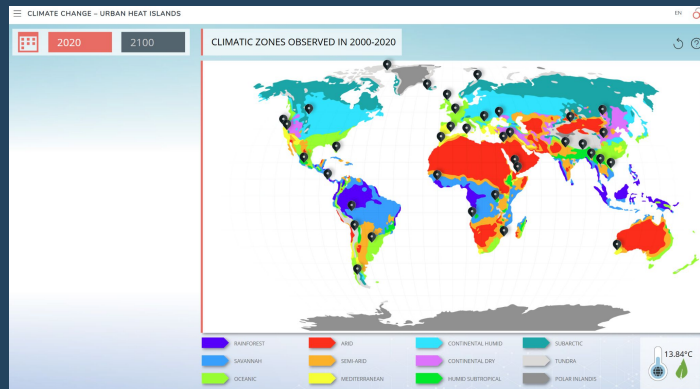
Osaleja ettekanne:
kodanikuteaduse projekt
Eesti otsib nurmenukke

TÕRVANDI
KOOL

Näide praktilisest tegevusest: mandrilise vs ookeanijää
sulamine ja mereveetaseme muutus



CESU 2024 - programm ja tegevused 3



Mäng soojusaartest
(Urban Heat Islands)



Mäng kliimat
mõjutavatest
teguritest



Rollimäng - saar,
erinevad
huvirühmad, muutuv
kliima



CESU 2024 jm ressursid

- [Mäng](#) soojusaartest
- OCE [veebileht](#)
- OCE [videoloengud](#)
kliimamuutustest
(näide Tartu Rahvusvahelisest
[Koolist](#))
- Õpetaja käsiraamat “[Climate change and land](#)” (eesti k tõlge
Pernova loodusmaja)
- [Kliimamuutused.ee](#)



CESU 2024 -
kliimautoopiate
esitlemine

