Challenges and opportunities of engaging citizen scientists in environmental decision-making: Estonian environmental practitioner's perceptions and a case study

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Introduction

Citizen Science (CS) projects in Eastern Europe are challenging, due to the socio-political transition history, low social capital and relatively short traditions in civic participation.

Natural history museums, governmental agencies and NGOs in Estonia are running **extensive CS programs** that are expected to support policy design. We studied their **contribution to decision-making**:

1) What are the actual **EXAMPLES** where CS data is used?
2) What **OBSTACLES** exist to using CS results?
3) How could CS results be **BETTER USED** in environmental decision-making?

Methods

- Interviews with CS project coordinators (3) and environmental practitioners (8)
- Short e-mail survey among Environmental Board specialists (3)
- Queries about vascular plants in the Nature Observations' Database (CS data) & Environmental Register (official data)
- GIS analysis: distribution of CS observations in Estonia

Results

EXAMPLES of CS data use

- as additional layer for official data
- alerts for decision-making, e.g. invasive species
- info source for environmental educators

OBSTACLES for CS data use

- perceived problematic data quality and reliability
- non-user-friendliness of databases
- in-accessibility of CS data in spatial forms

DRIVERS for CS data uptake

- improve user-friendliness
- promote pro's of CS data
- set wider goals for CS projects & improve their co-operation

Although the amount of CS data has been growing over 20142018, **only 11,4%** of this data has been **added to the official Environmental Register** in some form (Fig. 1).

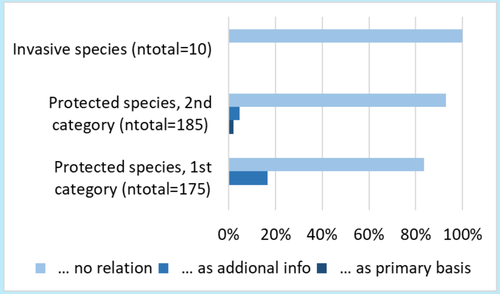

Fig. 1. Proportion of CS data (observations on vascular plants) transferred to the official Environmental Register (2014-2018).

However, the **interest** of governmental agencies **towards CS data** has been **increasing** during the last two years (Fig. 2).

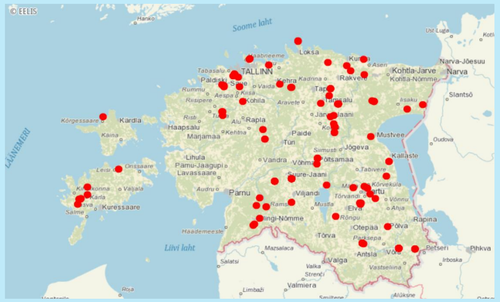

Fig. 2. Distribution of gathered CS data on amphibians (2020) Source: Environmental Agency.

Fig. 3. Observations of the nature at the festival „Digitally into Nature", 6.-8. August 2020 (photo: V. Runnel; Pähni Nature trail).

Discussion & Conclusion

Challenges

Obstacles to CS uptake by practitioners are similar to that highlighted in existing research, e.g. data reliability (Lukyanenko et al. 2016).

High expectations towards CS data quality (e.g. good spatial coverage) are major challenges inhibiting current data use.

Opportunities

Practitioners are increasingly interested in CS data and perceive CS volunteers as specialized, knowledgeable and enthusiastic, which would make their data reliable.

Leveraging trust and informal networks can support volunteer engagement in Eastern Europe (Vandzinskaite et al. 2010) and potentially aid better policy uptake of CS results in this region.

References

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