

Promoting scientific literacy in evolution through citizen science

Miriam Brandt, Quentin Groom, Alexandra Magro, Dule Misevic, Claire L Narraway, Dr. Anna Beniermann, Tom Holmgaard Børsen, Till Bruckermann, Josefa Gonzalez Perez, Sofie Meeus, Helen Roy, Xana Sá Pinto, Roberto Torres and Tania Jenkins

Evolutionary understanding is an essential prerequisite to understanding issues in everyday life.

Incorporating evolution education into citizen science, define key learning goals in the context of evolution, and suggest opportunities for designing and evaluating citizen science projects in order to promote scientific literacy in evolution.

Bringing together the perspectives of evolutionary biologists, citizen science practitioners and education scientists.

Showing the different levels, dimensions and goals of an evolution citizen science project for

- Evolutionary biologists
- Participants
- Societal perspective

Featuring 3 COST Actions: EuroScitizen, Citizen Science and AlienCSI.

Covering the four learning goals.

Content knowledge

Phenotypic variation; heritability of traits; selective pressure; adaptation.

Procedural knowledge

Observing variability within a population; recording changes in a certain trait over time; aligning DNA sequences; formulating hypotheses and designing studies.

Epistemic knowledge

Meaning of considering evolution as a 'theory'; understanding that scientific knowledge is constantly changing through the addition of new evidence; understanding that science is embedded in society and influenced by cultural norms.

Knowledge application

Understand, be able to discuss and/or make informed decisions about issues such as: the emergence of new SARS-CoV-2 strains and the impact of COVID-19 vaccines; the importance of crop biodiversity for food security; the impact of invasive species.

Opportunities:

Curriculum-based activities with school classes

Co-design projects to involve participants in developing research questions, study design, data analysis and/or communication

Provide training resources to underpin data collection, data analysis and background context.

Implement gamification of evolutionary content and/or of participation



Link to the publication:
<https://royalsocietypublishing.org/doi/10.1098/rspb.2022.1077>