



## EnviroCitizen: Citizen Science for Environmental Citizenship

### D5.11 Policy Brief 3

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## **Cultivating Environmental Citizenship in Youth through Birding & Citizen Science**

### **EnviroCitizen Policy Brief no. 3**

#### **Introduction**

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Since many nature-related citizen science (CS) activities such as birding combine playing an active role in scientific inquiry with being outdoors in nature, they have the potential to stimulate or strengthen environmental citizenship. Environmental citizenship is both about increasing awareness of environmental problems and raising ability to contribute to bettering environmental conditions. Environmental citizenship is crucial for achieving environmental sustainability and requires effective citizen engagement and civic participation.

Students, even at an early age, can adopt environmental attitudes and behaviors, make green choices, increase civic participation, and be aware of and apply their environmental rights and duties. Education incorporating an environmental citizenship pedagogical approach can be the mechanism for equipping students with the knowledge and willingness to make environmentally-sound choices.



#### **Evidence and Analysis**

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In our earlier research with adult birders, we found that their connectedness with nature goes hand in hand with a more ecocentric view on the human-nature relationship. We noted that there is a bidirectional relationship between citizen science and citizenship: participation in amateur birding may cultivate environmental citizenship, but this care for nature may also be a motivation for people to get involved in birding in the first place. We had also found that many people had gone



through phases of interest with birds, with early childhood and later adulthood being common high times for enjoying birding.

We therefore designed a school program for children in ages 10-14, with a focus on birds, birding, and participation in citizen science annual bird counts in order to counter the decline in environmental interest at that age. The program, called Citizens Count, created a set of school materials in English, which were then translated and tailored for local contexts. The school program was tested with students in Cyprus, Estonia, the Netherlands, Norway, Romania, and Spain.



## Main Results

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### 1. Birds are easy to think with.

Birds are everywhere – in the middle of cities and out in the countryside. Our school partners spanned locations in major cities and in rural settlements, yet all the students were similarly engaged with and by birds. Students were familiar with birds and could easily encounter them on walks. Students easily discussed and thought about the environment and environmental problems through birds and birding. Many students *wanted* to learn more about birds, so the learning program was both educational and pleasurable.

### 2. Adults are key to getting kids involved in environmental CS activities.

Teachers played a central role in promoting learning and caring about birds and the wider environment. Enthusiastic teachers were able to motivate their students and engage them in creative activities, such as curating art shows of their bird drawings. This led to family involvement, in some cases, which further strengthened the student interest in birding. Visits by the university researchers to the classrooms also sparked interest among the students. The students saw adults as actively interested in the environment and citizen science.



**3. Environmental citizenship education can bridge curriculum gaps.**

Our environmental citizenship activities expanded beyond the science classroom – subjects such as literature, history, and arts were also included in the Citizens Count program. This allowed for a thematic approach to environmental education, rather than relegating environmental education to science. We noted that teachers have many pressures to cover all of the learning outcomes and topics mandated by governmental curriculums. A program like Citizens Count can address many of the learning outcomes, but teachers sometimes had difficulty incorporating materials because they exist outside of the standard curriculum.

**4. Children need to have outside nature experiences.**

While some of the Citizens Count activities were inside, the program incorporated many outside experiences such as nature walks to identify birds, using field guides to train observational skills, and participating in the garden bird counts. We found that these were critical for the students' engagement with the environment.

**5. Birding and citizen science can be inclusive.**

Our educational program test locations included ones in impoverished rural areas, urban schools, schools targeting immigrant communities, and educational centres. All students regardless of their economic or ethnic background demonstrated enthusiasm for the program, birds, and the environment in general. This demonstrates that birding and citizen science programs tied to it have the potential to reach typically marginalized communities.





## **Policy Implications and Recommendations**

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On the basis of our findings, we have five recommendations for European education and environment programs.

### **1. Design educational programs around everyday nature.**

Educational curriculum, including that which promotes citizen science, needs to be designed to bring everyday environments into the classroom. The Citizens Count school program demonstrated that birds work well for this, but other nature such as insects/bees, gardening, and water sources are also ripe topics for engaging students in environmental concerns. While early childhood education has often incorporated outside nature activities, these are typically done less at the upper elementary and secondary levels. We urge countering that tendency with educational programs that explicitly harness commonplace nature even with older children. Educational programs need to make use of everyday environments and connect the local nature with global concerns.

### **2. Support education beyond the standard curriculum.**

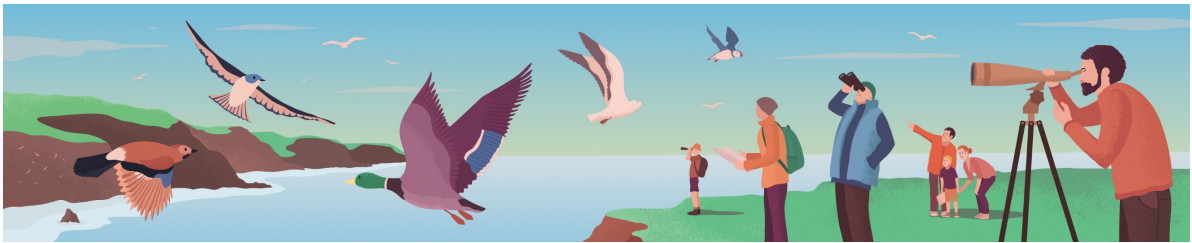
Complex environmental issues require thinking and acting over subject borders. Schools need to be allowed and encouraged to facilitate cooperation among subject teachers. This should be encouraged at higher policy levels in order to ensure that environmental citizenship education is not restricted to science teaching. Schools need to be given the freedom to adopt special focus activities like the Citizens Count program in order to drive forward environmental citizenship. The [Citizens Count program is freely available online](#) for schools to use and is available in Dutch, English, Estonian, Greek, Norwegian, Romanian, Spanish, and Ukrainian.

### **3. Promote young birding clubs.**

Despite some efforts to motivate and engage children and youngsters, in several of the participating countries we encountered concern about a lack of younger birders. Environmental CS and educational programs need to intentionally target these younger stakeholder groups. In clubs like this, intergenerational knowledge exchange can take place, which we have found is a critical aspect of cultivating care for the environment. Birding clubs organized at schools or with the help of schools would engage many students.

### **4. Design inclusive CS activities.**

It is important to reflect on how inclusive CS activities are to optimize the potential of CS as a pathway to environmental citizenship. Students from all backgrounds, knowledge levels, and competences can and should be integrated into CS activities. Programs built around everyday environments can be implemented without expensive equipment, lowering barriers to participation. Our program was delivered in a wide variety of situations, including to refugees and immigrant communities, and the students were highly motivated and engaged with the material.



## 5. Incorporate EEC principles into CS programs.

CS programs that deal with any kind of environmental issue need to incorporate EEC principles, such as civic participation and critical active engagement, planning actions, networking and sharing in scales, sustaining environmental and social change, and participant evaluation and reflection in programs. CS programs need to actively encourage their participants to act in society as agents of change. This needs to happen at all ages, including with children. This requires that the CS programs coordinate closely with schools and teachers to offer opportunities for student activities, including collective environmental citizenship actions. Projects should employ the Citizen Science for Environmental Citizenship (CS4EC) framework developed by the EnviroCitizen team (see figure below) in the planning and implementation phases of CS programs dealing with environmental concerns.

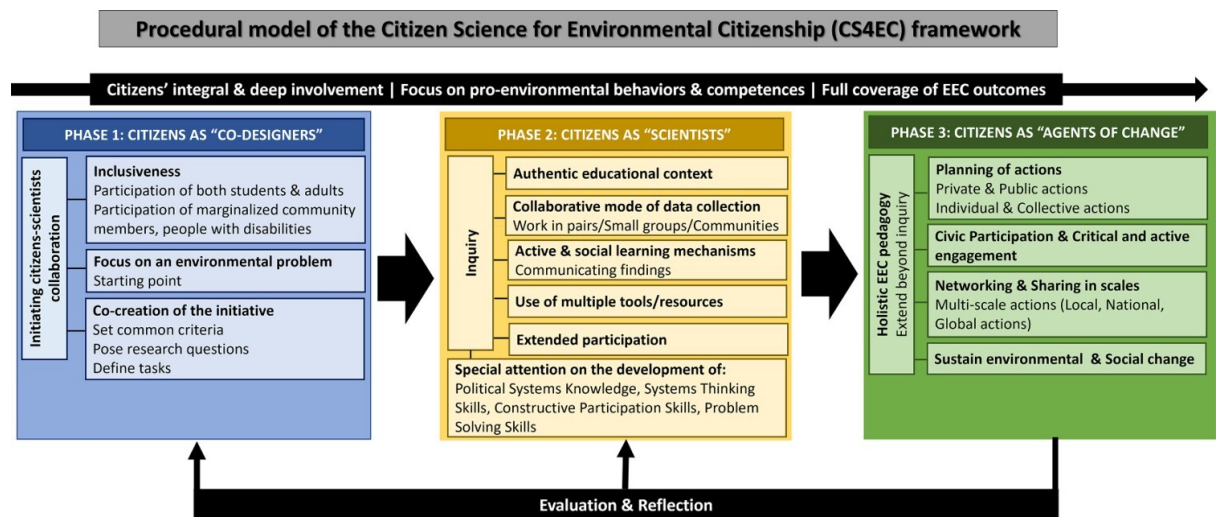
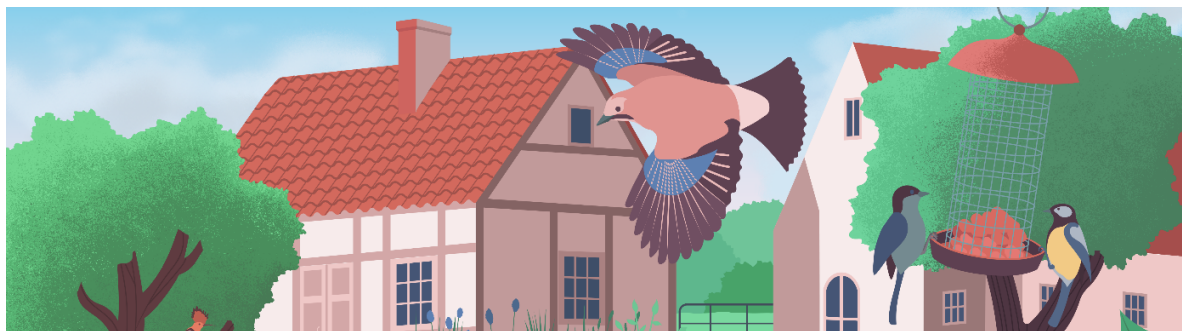


Figure 7 in Hadjichambis et al., 2023





### Further reading by the EnviroCitizen team

- Adamous, A., Georgiou, Y., Paraskeva-Hadjichambi, D., & Hadjichambis, A.C. 2021. [Environmental Citizen Science Initiatives as a Springboard towards the Education for Environmental Citizenship: A Systematic Literature Review of Empirical Research](#). *Sustainability* 13, 13692.
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- Hadjichambis, A., Paraskeva-Hadjichambi, D., Georgiou, Y., and Adamou A. 2023. [How can we transform citizens into 'environmental agents of change'? Towards the citizen science for environmental citizenship \(CS4EC\) theoretical framework based on a meta-synthesis approach](#). *International Journal of Science Education, Part B: Communication and Public Engagement*. <https://doi.org/10.1080/21548455.2023.2199129>
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### Project Identity

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