
Know Me to Help Me:

A nation-wide, school-based environmental program builds data and awareness on Cyprus' wild bee population.

What comes to mind when you think about climate change? Melting sea caps? Rising sea levels? Human-driven climate change can change the earth in big, drastic ways, but it can also have subtle, difficult-to-detect changes. One such change is the declining populations of bees and other pollinators. According to the food and agricultural organization of the United Nations "Pollinators play a crucial role from a social, economic and ecological point of view. Globally, there are several threats facing them: climate change, habitat loss, pests and diseases, and intensive agriculture (including pesticides), which are leading to the dramatic decline of both wild and managed species" (1). This is a very big problem. We need pollinators. The stability of the ecosystem depends, partly, on them, as does our own food supply. Bees and other pollinators cannot fight for themselves. We must fight for them. We need change.

One of the biggest obstacles to change is lack of awareness. Awareness can be developed. As can a sense of responsibility. Education has a crucial role to play in this. Education could, and should, build awareness. Awareness leads to political pressure. Political pressure leads to local and global change.

This year, students all over Cyprus are taking part in a project that aims, amongst other things, to environmental education and enhancement of the environment-society relationship. They are researching pollinators in general and a particular species of wild bee, the solitary bee. Through their research they are not just learning facts. They are postulating scientifically worded questions, discussing methodology, collecting data. They are building not only skills, but also developing awareness, firstly within themselves.

They are doing this because they are participating in The South Eastern Mediterranean Sea Project (SEMEP), a project in which Cyprus (and our school) participates. The project was created in 1993, after a Greek proposal and works under the aegis of UNESCO. The project has educational, sociological and environmental goals. It promotes scientific research in a way that encompasses technological, economic and social issues (2).

Traditionally, in Cyprus, as in other participating countries, each participating school would choose their own independent research project. This year, Dr. Constantinos Phanis, the national coordinator of the program, in collaboration with researchers from the Cyprus University of Technology (CUT), has all schools taking part in the project working on the same topic: The science of taxonomy of the wild bees of Cyprus.

We followed our schoolmates to the environmental educational center of Athalassa park where they collected their specimens from traps they had previously placed. We watched as they collected the insects in a specific way. This process was repeated monthly.



Students working in lab, on previously collected specimens.

Students practiced using the stereoscope and even started classifying their specimens so that each group could make its own dry specimen collection representing the corresponding habitat.

We also attended an event organized by Dr. Phanis at the CUT. Students from all over Cyprus participating in the SEMEP program gathered. All districts of the unoccupied part of the island were represented through 16 schools. Together with their teachers, they brought their specimens to the universities' lab where they were given a lecture by Ms. Androulla Varnava, a doctorate student whose PhD thesis focuses on the solitary bee (3).

Students working towards a goal: Making a dry specimen collection.



At the event students attended a presentation by Dr. Phanis and Dr. Menelaos Stavrinidis, assistant professor at the department of agricultural sciences, biotechnology and food science of CUT. They talked about various species of bees and other pollinators and emphasized their role in the ecosystem. They also gave an outline of what makes good scientific research and a good presentation. Lastly, and perhaps most importantly, the big picture was explained: All groups are using a similar methodology. Each group should take very detailed notes of the procedure followed. They should also take detailed notes and pictures of the habitat where the traps had been placed. The wild bee species will in future be authoritatively identified by leading experts from around the world. The combined data from all schools will provide data on the wild bee pollinators of the island and of the islands' ecosystem. The final data should be valid and reliable so as to further current efforts to document the diversity of Cyprus' wild bees so that measures can be taken for their protection.

We took the opportunity to talk to Dr. Stavrinides. He invested a lot of time and energy in this project- we asked why. He explained that his experience with his Cypriot students was that they lack knowledge and skills much needed in research. He thought that projects like SEMEP were valuable for teaching these. He was also inspired by the enthusiasm that other people had shown in this project. We talked to Dr. Phanis. What made him decide to bring all schools together this year? He said that he aimed to inspire students. He felt that students would be more motivated if they were part of a nation-wide team and had the chance to discuss issues in a wide community. He also felt that it would be a good opportunity for teachers to collaborate.

We also talked to students and teachers. What was their experience? What had they gained? The answers given were almost unanimous. Research skills, the chance to collaborate with schoolmates, students and teachers from across Cyprus. A chance to work as scientists, and with them. Perhaps most importantly, they found that with research come answers that lead to further questions, that lead to further research. They gained not just the “Whats”, but the “Hows” and “Whys” of science.



Interviewing teachers and students:
An enjoyable, interesting program.

Education can and does build awareness. But not through books. Through inspirational people. Through hard work. Through research and discussion and collaboration. Many of these young people may not grow up to work in a scientific field but they will forever respect science and trust the way it works.

Education can and does build awareness. People who are motivated will read books. Within the words accumulated by previous scientific research, students found the place of the bee and the human in the ecosystem.

1. <http://www.fao.org/pollination/major-initiatives/en/>
2. http://www.unesco.org.cy/Programmes-South_Eastern_Mediterranean_Sea_Project_SEMEP,EN-PROGRAMMES-01-06,EN
3. https://zookeys.pensoft.net/article/38328/?fbclid=IwAR1_G7ubn2BdtSaM4Oi23Amq86F4j_p9a6BjAIptJC6_bNgtV1Wm-DDSEkg

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