

Evolution in the back yard -- census of 750,000 banded snails leads to surprising results

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Thousands of members of the public across Europe have taken part in one of the largest evolutionary studies ever, by observing banded snails in their gardens and open public spaces.

More than 6,000 people in 15 European countries took part in the Open University's citizen science project between April and October 2009.

The project, Evolution MegaLab, is an online mass public experiment aimed at bringing Darwinian theory to life. It was launched in April 2009 to mark the 200th anniversary of Charles Darwin's birth.

People were invited to report their sightings of banded [snails](#) to the MegaLab project via a website at www.evolutionmegalab.org, and they received personalised interpretations of their observations in their own language.

Supported by the Royal Society and the British Council, the project team digitised more than 8,000 historical samples from the British Isles and continental Europe. More than 7,600 new observations were made in 2009.

The aim of the research was to find out whether the creatures have evolved in the past 40 years in response to known changes in temperature. It involved comparing samples collected by the general

public with data collected predominantly between the 1950 and 1990, with heavy sampling in the 1960s and 70s.

The results have just been published online in the scientific journal *PLoS ONE*.

The expectation was that snail shells would have become lighter, as protection from overheating in sunlight. This was only found to be the case for snails sampled in sand dune habitat, where it is harder for the snails to seek shelter from the heat of the sun. The [evolutionary change](#) that was seen everywhere, however, was an unexpected increase in the percentage of snails with a single dark spiral band around the shell.

Exactly what caused the change in bandedness is still a mystery. It does not appear to be related to [climate change](#) and researchers suspect it may be due to a decrease in bird predation or some small-scale [environmental change](#). But exactly what has gone on, is food for further thought.

Professor Jonathan Silvertown, who devised the Evolution MegaLab, said: "This is one of the largest evolutionary studies ever undertaken. Through mass observation we wanted to give the general public, including families and school children, the opportunity to do real science and to experience the fun and excitement of discovery for themselves. Finding unexpected results is what science is all about."

The article, written by Professor Silvertown in collaboration with authors from the project's partner institutions, says: "The findings show the power of getting lots of people to help out. These data set a benchmark for future studies of evolutionary change."

Evolution MegaLab is one of a number of citizen science projects being run by the Open University. In 2009, the OU launched Creative Climate which is a global diary to show how human beings respond to climate

change. It invites members of the public to post a diary and already the project has received hundreds of diary entries from across the world.

More recently the OU has created iSpot (ispot.org.uk) -- an award-winning social network for natural history where people can share their observations of wildlife and get help identifying what they have seen. Ten thousand people have joined to date and made over 43,000 observations of more than 4,500 species.

More information: Silvertown J, Cook L, Cameron R, Dodd M, McConway K, et al. (2011) Citizen Science Reveals Unexpected Continental-Scale Evolutionary Change in a Model Organism. *PLoS ONE* 6(4): e18927. [doi:10.1371/journal.pone.0018927](https://doi.org/10.1371/journal.pone.0018927)

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