Teaching natural history in undergraduate biology courses

Angus Westgarth-Smith

Natural history teaching in biology degree courses encourages a balanced understanding of the world and teaches us how to enjoy exploring it.

There is a need to reintroduce natural history into biology teaching. Natural history has disappeared from the vocabulary of British biology – what little remains has been disguised with names such as 'biodiversity' or 'animal and plant diversity'. Natural history brings together a range of skills and knowledge in animals, plants, geology, land use and meteorology. It requires that skills are developed for working in the environment in a manner that is enjoyable, safe and has respect for the organisms being observed.

Natural history modules would help restore the balance of biology degrees, which have now become very cell biology orientated. An understanding of natural history would help support studies in other areas of biology. For example, a familiarity with farmland birds would help students understand the concerns about crops which have been genetically modified to make them herbicide resistant. Students might see wild Cepaea and Drosophila, which would be relevant to Mendelian genetics courses, and observing agricultural crops and livestock could help demonstrate the importance of genetic diversity and artificial selection.

Each year I lead undergraduate field visits to a wetland site in London. I find that students gain considerable pleasure from the opportunity to observe wintering waterfowl, particularly as this may be the first time they see birds through telescopes and binoculars. Positive comments from the students make me ask whether including more 'whole' animal and plant courses in undergraduate degrees might increase the appeal of studying biology.

An important skill for a naturalist is to approach, observe and then move away from an animal without disturbing it – that is, operating with due consideration to the environment. Most field visits are made by coach, but this has a major disadvantage in that students arrive in groups of about 50. A wintering bird can be energetically vulnerable and being forced to waste time and energy flying away from 50 students is not helpful. I teach on the edge of London and use the public transport system to ferry students to and from field sites. This allows me to arrange for students to attend in much smaller groups, at different times during the day, and causes less disturbance to local wildlife.

A naturalist needs to be able to enjoy being out in the open and to travel safely. Many students are inadequately prepared for outdoor activities because they come from an urbanised indoor background. This can both contribute to their pleasure at entering a new environment and to an increased risk during a field course. I think we need to address a basic skills gap in preparing students for a field course. Outdoor skills could be introduced into core skills modules offered by many universities. Students would enjoy learning these skills, and would find that they form the basis for independent exploration of the countryside.

Eventually, natural history will involve working alone in the field. The suggestion of working alone seems to result in a paranoia that one is exposing oneself to a major safety risk. While lecturers strive to reduce risks to undergraduates, the lower level of disturbance created by one person allows better observations of wildlife, which are necessary for postgraduate research. Solitude is to be enjoyed, not feared. Proper planning for a field trip, including carrying a mobile phone or whistle, and an understanding of first aid, will enable the naturalist to deal with most situations.

Teaching outdoor skills would give students the self-reliance needed to work alone, including the common sense needed to reduce risks. Most of these skills are quite basic and quick to teach. They include an understanding of the importance of adequate food and clothing to stay warm. In my experience, many students turn up on a marsh in winter with inadequate clothing and hardly any breakfast! Students need to know the basics of how to use an Ordnance Survey map. Out of a group of 70 students, only two knew what time of day the sun would be due south of them. This information affects the distribution of wildlife and can be a useful navigational aid. An introduction to meteorology would help them to understand how weather affects animals and plants, and would help minimise risks associated with bad weather in remote locations.

I would like to contrast the lack of outdoor skills of many British students with those of a group of American students I taught in the Adirondack Mountains, New York State. The American students had skills in boat handling, camping, fire-lighting and cooking over a fire. They were completely confident in camping in forests where a visit by a black bear was a considerable possibility – we had already seen bears, and bear droppings had been found in our survey areas!

American - English differences are not restricted to skills. Naturalist is still an accepted term in the USA. I remember an organised wildlife trip in the USA where the guide for the day introduced herself as the 'naturalist'. The Americans I worked with used the phrase 'nature interpretation' instead of the English term 'environmental education'. The difference meant that the students were expected to look for beavers, loons, and ospreys. They were also expected to draw and paint animals they saw. They had no qualms about using a set of furs of every Adirondack mammal species from jumping mice to porcupines. In Britain we have sanitised wildlife, taken away the identity of individual species by using words such as 'biodiversity' or 'environment', and we get upset at seeing the fur of a dead animal.

In summary, teaching natural history can be fun for students. It allows them to develop a more rounded range of skills and might become a hobby, regardless of whether that student is subsequently employed in biology. Indeed, it might even increase student recruitment into biology.

Acknowledgements

The author thanks DA Saunders of State University of New York College of Environmental Science and Forestry for an opportunity to help train graduates and school teachers to be nature interpretation leaders. Also, thanks to staff of the Wetlands Centre, London, who help with Brunel University winter field visits.

Angus Westgarth-Smith *MA, MSc, PGCE, FRES trained as a zoologist and is a lecturer at the Department of Biological Sciences, Brunel University, UK. Angus leads wildlife field visits for people of all ages. Email: Angus.Westgarth-Smith@Brunel.ac.uk*