

# The reduction in the teaching of plant science and conservation in schools, a UK perspective

## Is the same challenge being faced elsewhere? Where are the success stories?

Christine Newton, Wakehurst Place, Royal Botanic Gardens, Kew

### UK Background

Kew like nearly all botanic gardens has a strong educational role set out in statute. It provides learning experiences for schoolchildren and their teachers during visits and training courses to the gardens.



Over the past fifteen years there has been a steady decline in the teaching of plant biology and conservation science in UK secondary schools (11 – 19 years).

This has come about as a consequence of:

- A reduction in the amount of plant science required to be taught through the National Curriculum.
- The capacity of teachers to teach plant science and conservation in ways that engage students, encouraging them to go on to study in higher education.

Other factors influencing the demise:

- Teachers themselves found these subject areas less interesting to relate to, understand – and so teach. (Wellcome Trust 2004)
- Teachers and their students think that plant science and conservation are less important than animal and human biology.
- Exam success – points mean prizes!

Schools are under pressure to get as many of their students successfully through their exams. Students want to achieve the highest grades to allow them the best choices for going onto higher education. There is an inequality between exam subjects, some have easier and less content than the sciences and are more fashionable, with more appeal, for example Leisure and Tourism and Media Studies. Plant science and conservation are thought to be less interesting than animal biology, so teachers opt to teach modules based on animal/ human reference.

These factors, coupled with the cost of letting students do practical biology (the fun part) and anxieties associated with taking students out of the classroom and into the field mean that it is no surprise that these pressures have contributed to the resulting decline in plant science.

### Partnership and credibility – a good place to start.

(This is one example of how the challenge is being tackled in the UK)

Faced with this trend and knowing what good experiences we in botanic gardens can give to both students and their teachers, we (Kew working with SAPS) decided to take on the challenge of changing the way plant science and conservation is taught in our schools. Our partner – SAPS (Science and Plants for Schools) has a proven track record for developing interesting programmes for teaching plant science through practical lessons in the classroom.

Individually we could go some way towards bringing about change; together we have begun to achieve a much stronger impact. HOW?

- Bring the teaching of plant science in and beyond the classroom up to date
- Underpin the science teaching in the classroom with examples of the 21<sup>st</sup> century methods regularly used in practice. (Hunt and Hay 2006).



- Understand the challenge faced by the teacher in the classroom, work through the difficulties of putting concepts over to students by developing interesting resources and practices that work within the time and financial constraints.
- Produce a suite of support materials that engage and inspire students and their teachers.
- Design practicals that work.
- Develop novel ways for students to learn challenging pathways such as photosynthesis and respiration.
- Produce revision resources that make this content more digestible.

- Deliver training courses for teachers and their support staff that build their competence, confidence, enjoyment and delivery in the classroom.

Underpin all of this with thorough evaluation of the process at all stages (test the rhetoric).

We set out to influence outcomes – unless plant science is properly represented in the curriculum and examination specifications then plant science and conservation will continue to wither on the vine!

We invited each of the examination authorities to visit Kew. With tremendous support from our most senior scientific and curatorial staff and SAPS personnel, we introduced the examiners to the full range of ground breaking conservation, research and its applications. We coupled this with examples of how this could be taught in the classroom and in the gardens. This approach has engaged their interest.

As a consequence, we are now working with them to review the writing of the new specifications, the practicals that they will include and practical examination content. Internationally this may impact upon students in your own countries if they sit UK based examinations. This approach is by no means complete; it is the story so far. We have yet to see the final examination specifications, still to see increased rating in the value judgments of teachers and students, yet to see more students coming through to higher education. But, we believe that this approach is a move in the right direction.



---

Returning to the title of this presentation, I would welcome your feedback on how you view the status of plant science and conservation teaching in your secondary schools, and can you share with me examples of successful practice that we could follow up ourselves?

### **References:**

University of Warwick for the Wellcome Trust 2004

Life Study: Biology A level in the 21st century

Hunt and Hay, 2006, Raising the awareness in UK Students of the need for plant biodiversity conservation: Seed longevity for the UK flora, BGCI Education Congress.

### **Acknowledgments**

With thanks to:

RBG Kew for allowing me to come to Wuhan to present this paper.

Paul Beaumont, Director SAPS

Sue Hunt who has driven these developments with vigour, insight and imagination.

The Gatsby Charitable Trust who generously funded the Kew and SAPS Education Research and Development Officer.