

Conserving the evidence

It's been a busy couple of years for **Bill Sutherland**. On top of moving to the University of Cambridge as the Miriam Rothschild Professor of Conservation Biology and coordinating projects bringing scientific research closer to the questions identified as most important by policy-makers, he's been plotting a global revolution in conservation practice. Bill spoke to **Tom Marshall** about his plans.



■ First of all, could you explain the need for evidence-based conservation?

There is a serious gap between science and practice. We have great ecological research, but most decisions are made independently of the science, while we learn little from our successes and failures. When visiting conservation projects I often pose two questions: 'Why did you decide to carry out this particular intervention' and 'How can others learn from your experience?' It's almost always a depressing exercise. We have also carried out research showing that few conservation management decisions are based upon the scientific literature and almost nothing is documented in a manner that is accessible to others.

This gulf between science and practice is understandable. Most hands-on conservationists lack the library access, time or training to use the primary literature. We need the structures to make it possible for practitioners to use the science.

■ Can you give us an example of the harm this state of affairs has done?

Reedbeds are important habitats, but if unmanaged they convert to woodland and lose their interest. One easy solution is to burn them occasionally, but this was forbidden because it killed soil invertebrates. We carried out an experiment to discover how long it took invertebrates to recover from burning but to our amazement found they were not killed at all. We obviously wanted to compare with the original studies underlying the policy but after considerable searching and consultation we concluded these didn't exist. In the

absence of evidence it may be sensible to make a reasoned guess, but we need to know whether practice is based upon a traceable body of science, an observation or just speculation.

■ How did you get the idea?

I was in an otherwise tedious meeting at UEA a decade ago when the pro-vice-chancellor for research, Graham Bentham, mentioned evidence-based medicine. I was intrigued, so asked Graham about it afterwards. Until the 1970s, hospitals often varied as to how they treated ailments, with the junior doctors learning from their seniors. That variation in treatment occurred even with clear published evidence of different effectiveness. Archie Cochrane argued that it was unacceptable for doctors to carry out practices known to be ineffective.

This all sounded terribly familiar. Conservation seems to be where medicine was in the 1970s. I then read how medicine has been revolutionised through evidence-based medicine providing the means for busy medics to base decisions on evidence without continually reading the primary literature. This inspired me and I decided that conservation needed a similar evidence-based revolution.

I then visited a Cambodian PhD student and was invited to a meal in Phnom Penh by a conservationist and his wife, Laura Watson. She was a medic and showed me the book *Clinical Evidence*, which summarises the evidence for effectiveness for each main treatment for each main ailment. It's the basis for global medical advice. I read in awe and immediately realised that the conservation equivalent could transform conservation practice.



Seeing this develop is really exciting – I believe it can transform global conservation.

■ So what did you actually do?

I did what academics do: I researched and wrote and gave lectures telling others what they should do. I gradually realised that it wouldn't happen unless I invested the time in developing it. I doubt if this is a good career move but I just felt I had blundered into a solution that could have a major impact, and I didn't want to just pontificate and criticise: I wanted the vision to become reality.

We set up the website www.conservationevidence.com on which we summarise research papers that document the

effectiveness of interventions, including those published in languages other than English. We have also established an online open-access journal *Conservation Evidence* for practitioners to document their results in a straightforward manner. We are in our fifth year and have 160 original papers and more than a thousand summaries of research papers including some in Japanese, Dutch and Spanish. We have the funding to add another thousand cases.

Another part of the jigsaw is the creation of systematic reviews as pioneered and promoted by Andrew Pullin at Bangor University (www.cebc.bangor.ac.uk). These use meta-analysis to bring together all the data to answer a specific question. They are especially important where there is a mass of conflicting data.

We are working towards creating the equivalent of *Clinical Evidence* that builds on the previous components to summarise the evidence for effectiveness for each intervention for each problem. Seeing that develop is really exciting as I believe this is the product that can transform global conservation. Practitioners can then find out what works and what doesn't, where the evidence is strong and where it is weak. If they don't believe the conclusions they can drill down to the sources. Most importantly it should act as a catalyst encouraging targeted monitoring to fill gaps in our knowledge.

■ How have you financed this?

We built it on a shoestring partly using money from consultancy work but with critical support from the British Ecological Society. The plan is to take it to the next stage and produce the volumes equivalent to *Clinical Evidence*. The Natural Environment Research Council (NERC) has funded us, in collaboration with a group of conservation organisations, to start this process by summarising

the global literature on the effectiveness of interventions that affect birds. It has been a real slog building up the material, but we seem to have reached the point where it is really taking off with masses of interest, encouragement and support.

■ Do you think similar initiatives could be helpful in fields outside conservation?

Almost everywhere! Consult almost any expert, be they in education, policing, architecture or business consultancy, and you discover they are using fragments of the literature, their own limited experience and untraceable second-hand information.

■ Can you tell me about another of your projects, the gratis book scheme?

My life has been changed by reading various books. I am struck by how often conservationists in developing countries have never seen the critical texts. Sometimes the books are so precious they are kept in a locked library and cannot be removed. I wanted to distribute books both for libraries but also for young conservationists who can get them creased by carrying them about or muddy by taking them out in the field.

I was writing a book – *The Conservation Handbook* – and I discovered that the cost of printing an extra copy roughly equalled the royalties. Ian Sherman at the publishers arranged to give me an extra copy for each one sold instead of royalties. We have given more than 3000 copies to ecologists, conservationists and libraries in 160 developing countries. Writing books is painful, and you don't write this sort of book to get rich – I always tell potential authors they would be much better off doing a paper round! You write academic books because you want to influence and educate people.

We have extended this scheme – the gratis book scheme – to include another ten books, giving away 200 copies of each. The publishers (Blackwell, Cambridge University Press and Oxford University Press) kindly print some extra copies for free, the British Ecological Society (BES) pays for postage and the NHBS environmental bookstore coordinates sending them out.

It is a win-win-win-win situation – conservation practitioners get books they would normally not have access to, the author gets more readers, www.nhbs.com gets more visitors and the books get extra publicity. However everyone participates because they believe it's a very cost-effective way of making a difference and improving global practice. The feedback from the recipients is incredibly warming and touching. ❖

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