

**The Royal Society of Edinburgh  
in partnership with the Scottish Consortium for Rural Research (SCRR)**

**Joint Annual Peter Wilson Lecture**

**Professor William Sutherland,  
Miriam Rothschild Chair in Conservation Biology,  
University of Cambridge**

***Policy Making in Uncertain Environments***

Monday 6 February 2017

Report by Matthew Shelley

***Introduction***

*The evening was chaired by RSE President Professor Dame Jocelyn Bell Burnell, who described the speaker as one of the world's leading academic conservation biologists, with a special interest in protecting species, especially birds, from the impact of environmental change. The lecture considered the potential for faster and more effective approaches to research, enabling policy makers to make well-founded decisions within days and weeks rather than months and years.*

Many scientific studies take months or even years to carry out, can be expensive and are prone to a variety of weaknesses. When it comes to science and policy, Professor Sutherland argued that faster and better approaches can and should be taken. The standard research model has been borrowed from the medical world and involves many stages. It often takes far longer than necessary to identify practical options for dealing with real-world problems within the time limits that policy makers need. It also frequently fails to identify, and make use of, large amounts of existing research from all round the world.

However, the approach developed by the Conservation Science Group, at the Department of Zoology, is very different. The Professor said: "What we do is tackle a really big subject area such as bird conservation; you then say 'what are all the threats that the group faces; what are all the options that we know of, for all of those threats?' Journals will be reviewed on an industrial scale. All of those topics will be reviewed simultaneously. Rather than picking search terms you search the journals."

In a process they call *solution scanning* they identify a problem – for example, predators eating birds – then they identify all the potential answers. This can throw up a huge variety of alternatives. In this instance the range goes from tried and tested ones, such as killing the predators, through to less evidence-based ones, such as a project which played Radio 4 to keep foxes away from swans.

Solution scanning produces an immediate benefit, according to Professor Sutherland. When practitioners are presented with a full list of studies into the problem that interests them, they only tend to be aware of around 60% of them. He said: "In my experience, that is true of almost all policy problems. If you like, they have got blinkers on ... and I think that's a serious problem."

By showing what all the existing options are, you enable people to identify new ones. Once a list is started, then it is relatively easy to keep it updated. It is, though, important

for data keeping to be independent of policy makers. If not, solutions may be ruled out before being properly considered because they are currently politically unacceptable.

Solution scanning is an intensive process – looking at bird predation demanded a search of 200 journals for papers that dealt with interventions. It has also highlighted shortfalls in the standard approach, which involves typing terms into search engines in order to track down relevant papers. A major one is that this is likely to miss research in other languages. The Professor estimated that this means researchers fail to identify around 35% of available information, much of it in Spanish or Portuguese. He said: “The problem is that there is this great big mass of research being done around the world that we just don’t know about.” Working with collaborators around the world, they have tackled the problem head on with a catalogue of non-English journal papers.

Another issue is the ‘grey literature’ produced outside normal academic publishing channels. Some of it may be of considerable value. The British Trust for Ornithology has 628 reports, of which 20 are about interventions – and 12 of them are unpublished. If such material were harvested on a global scale it would provide an immense resource and the Conservation Science Group has started to collate this literature.

Standard approaches normally need a meta analysis, so the questions they tackle are often broad in order to get a sufficient sample. Professor Sutherland’s method, by contrast, can get into far finer detail and look at much more specific questions by collating the information of the website [www.ConservationEvidence.com](http://www.ConservationEvidence.com). On policy issues, he said, it is very often the fine detail that is needed. For example, for bee conservation it is not much use knowing that managing field margins works, if you don’t also know that the range of potential interventions goes from ineffective to excellent, which is which and what specific environments they suit.

However, making the most of the available data remains a problem, as studies and outcomes are not easy to compare. One way in which the subject-wide evidence synthesis approach used by Professor Sutherland varies from the standard model is in its use of the Delphi technique to evaluate evidence. This involves giving the data about interventions to a group of experts and asking them:

- 1) how effective was it?
- 2) how certain was it?
- 3) how harmful was it?

The results are scored, discussed and then rescored, allowing the researchers to classify the effectiveness of given interventions.

The downside of subject-wide evidence synthesis is that there is a large upfront cost. The overwhelming plus is that around 100 times the number of reviews are done, meaning that a huge amount of information is available for a multitude of purposes. This means that research costs are ultimately much lower.

Illustrating the benefits, Professor Sutherland cited how a European review of ways to reduce seabird bycatch in the fishing industry took 34 months and cost €134,000. His own, slightly higher quality, review took a matter of moments and simply involved typing in search terms and calling up the gathered information.

“So we are trying to bring the review time down from months or even years to minutes, because that’s the way we believe policy making should work. You stack everything waiting and then you can look at it straight away.”

In most areas of policymaking, the local conditions matter. While the Delphi technique tells us what works at a global level, this may well be insufficient to meet the needs of a policy maker wanting answers about what interventions might be best in a given place or circumstances. The local evidence assessment tool has been developed to score studies so that their certainty and local effectiveness can be seen at a glance.

Extensive work is currently underway to refine the approaches and make it as easy as possible to ask a question and get an immediate response, showing material from all over the world presented in a format giving its quality and specific relevance. This is in a tabulated form so the pros and cons can be easily assessed.

According to Professor Sutherland, subject-wide evidence synthesis could be applicable in many aspects of social policy, including crime and education. His own team is already diversifying into areas such as poverty alleviation. He is looking forward to it becoming a means by which we start to deal with many of the big issues facing the world.

To be as effective as possible requires horizon scanning, to anticipate what questions are likely to emerge, and prioritisation, to decide where effort is best directed.

He concluded by saying that: "If we use all these tools combined we believe we can have better decision making and, with a bit of luck, end up with a better planet."

## **Q & A**

Asked if they are planning to use feedback to look at the effectiveness of the approach, Professor Sutherland said they have set up an online journal called *Conservation Evidence*. He said the sort of feedback they want is from people saying how they approached tackling a problem and what worked or what didn't. They also want to encourage inventiveness by getting people to have ideas and try them out.

On the issue of how to address problems for which there has been no direct research, the Professor replied that their experience has always been that there is always some evidence, but it can be too expensive and too much trouble to track down using the current model. Looking to the future, it's also where tools such as horizon scanning come in, so we can effectively anticipate issues.

Asked whether his approach would be applicable in medicine, Professor Sutherland suggested that there are areas, such as research into rare diseases, where it could bring benefits by significantly cutting the currently prohibitive costs.

The Vote of Thanks was offered by Professor Stuart Monro OBE FRSE.