

# Grumpy scientists: the ecological conscience of a nation

## Second plenary session

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**Martin Predavec (Royal Zoological Society of NSW):** Good afternoon. I would like to start with a question for Richard Kingsford. You had in your title, "Do we care?" We've seen the situation recently with the super-trawler where we had a huge groundswell of public support. Do we have a situation where the public probably cares, but they don't care about science? And how do we change that?

**Richard Kingsford** People do care, but the media hasn't caught that empathy in the public about the environment. In terms of science, our job as scientists is to convey our message and be advocates for the sorts of changes that need to happen. That may or may not be the sorts of major policy decisions like the super-trawler, but there are other things that we can have a say on, and influence public opinion.

The interesting thing to me is - and some of the things that Paul Ehrlich established may be very interesting - giving people an opportunity to say what they think in ways that weren't available in the past. You see the GetUp campaign and the social media, and how powerful a force that's becoming. It is much more difficult to get environmental issues into that media, because the main media outlets have removed their environment reporters. We must now think of all sorts of different ways of getting our message across, and that is where the social media comes in, along with campaigns like GetUp.

**Alan Jones:** My question concerns the questions of governance, and political systems and institutions. Churchill, I believe it was, said that democracy is pretty hopeless, but it's the best we've got. Given the circumstances under which democracy operates, where politicians feel they need to be popular within, say, three or four years, not to mention the hip pocket nerve, how can politicians be effective in giving leadership to issues which would be unpopular and demand sacrifice?

It may be better if the electorate were informed and principled, but we have an age of selfish individualism. Richard Kingsford mentioned some polls, which were not very encouraging, about public opinion. Environmental issues are also global in scale. The spatial scale is important, as indeed is the temporal scale. In terms of global issues - say, climate change - how effective is the United Nations? I'm not very optimistic. It all seems to be very slow.

The IPCC (International Committee on Climate Change) does a good job, but they're very conservative. They don't seem to have really influenced political leadership. If the planet goes to plus 4 degrees or, as it may well do - even worse, then that's fairly awful. I'm not sure about global scale institutions. How are things to change if we're interested in ultimate goals of sustainability and quality survival? Perhaps there might be some equivalent movement, like the 99 per cent movement, as it's called, the Occupy movement, a bottom-up movement. That appeals to me, but I'm not very confident.

I'm wondering if any of the speakers, including our earlier speakers, might have some ideas which are a bit more optimistic than my own feelings, which are more than grumpy, scared.

**Martin Predavec:** Frank Talbot, would you mind responding. Are our politicians being fairly self-serving in their decision-making at the moment?

**Frank Talbot:** I think that many politicians start off with wanting to do things for the good of the people, and they certainly state that when they stand on the hustings. But, from what one can see now - and I think Alan is right - many politicians want to stay in there, want to get the most out of parliament, rather than putting the most in. Selfishness is part of this and I don't know how you change that. On a wall somewhere in Sydney, I read that whoever you vote for, a politician gets in. Yes, we should all work with politicians, and encourage good information to get across. GetUp is one way of doing this, although it's now smeared by the opposition as a highly left-wing socialist set of idiots. There's lots of them, and I'm one of them, and I'm certainly not left-wing, and I believe that much of what they do is good.

I'd like to see us all work at both public and political levels: to build - and it might be that GetUp isn't the right place; Alan might like to start one himself - some groundswell of people who are thoughtful, who are concerned, and who are listening to the science. At that end, we try and work with the public, and at the top end try to have more impact on politicians, many of whom listen, and often, if they don't, their advisors do. We're going to be helped, as I said before, by the next catastrophe, but it is important to start before that happens.

**Harry Recher:** I'll try not to open a Pandora's box. What's happened is that democracy has been corrupted by politics. Democracy has failed. We need a new system of government in which there are no politicians. And I'm not the only person to suggest this. An option, an alternative, is the equivalent of the jury system, whereby the politicians, the people who sit in parliament, are selected from the population as a whole, using criteria which get around the points that Richard Kingsford was making about education levels, so that you have equal representation of males and females, and that the people in parliament have some educational background that allows them to make intelligent and informed decisions.

As with a jury, you're selected to sit in parliament only for a short period of time (say 3-4 years, with overlapping cohorts to maintain continuity). This would ensure that there is only a limited opportunity to become corrupted by the developers and big business. If we went down that path, the only thing we then have to consider is the corruption of the public service itself and we'd need mechanisms to ensure the public service is kept honest and impartial.

**Adrienne Grant** (University of Sydney): All of us care very much about biodiversity, so how do we get across to other humans that it's not a case of humans versus biodiversity or people versus the natural environment. As Andy Beattie said, every human endeavour is dependent upon biodiversity. Is that the only way we can get people to take an interest is by making them aware of the fact that there's something in it for them?

**Andy Beattie:** The answer to that is 'yes'. Traditional conservation methods have not worked and we should go to the marketplace - the world is a marketplace - and place biodiversity at the centre of all economies, which it is and which has been widely ignored. The experiment with traditional conservation has been tried, it has largely failed, so let's move on and try the next experiment.

I'd like to cite Stephen Schneider on this and other, larger problems. He was very much against alarmism. He spoke very strongly against NGOs forecasting immediate doom and gloom, and collapse and so forth. He was, I think wisely, very much an incrementalist, who said, "Let's identify a definite time period and then work with each major group, each major industry, give them a way out, give them a solution, show them how - over, say, 10, 20 or even 30 years - they could change, they could become part of the solution rather than being the solution." And I think it's too bad that he died. The world lost someone who I think could really have helped lead the way in seeing a way forward.

**Martin Predavec:** Pat, would you like to make a comment?

**Pat Hutchings:** As scientists, we have to communicate a lot better. For example, we recently had a big expedition to East Timor, and for the first time we took a professional blogger with us. Every night, even though we had terrible power failures in East Timor and lots of hassles, he managed to post a blog on the museum website as to what we were out there doing and what we have accomplished that day. The coverage we got was tremendous.

Maybe people were just interested in coloured pictures of reefs, but we need to be much better at getting information out in ways which the entire community can access. It is no longer acceptable to simply publish in scientific journals, especially as these are increasingly expensive and no longer accessible to many people. This is one of the points made by Richard Kingsford. We really need to look at alternative ways to communicate.

**Mike Watson:** I'm about as far away from your paradigm in terms of a scientific community looking at these issues as it can possibly be. I thought I'd be addressing this question primarily to Harry Recher and Paul Ehrlich, but it seems to be a pervasive issue for all of the presenters. If you had 37 years left till you get to an arbitrary line in the sand, which is 2050 - and I have a fundamental understanding of how quickly, spectacularly and uncontrollably complex systems can unravel - what does the end game look like, from a non-alarmist scientist's perspective? What are the milestones if we were heading towards a collapse? What are we looking for?

**Paul Ehrlich:** What are the sorts of things you look for? Well, you look for spikes in food prices. You look for reports of things going extinct. You look for the fact that you've got to drill much deeper to get anything at all, and that people are discussing, for instance, using tar sands as a source of energy. You look for things like fracking being used to find more fossil fuels that will add more carbon dioxide to the atmosphere. You look in general for diminishing returns on virtually everything, and that's what we're seeing. You look for solutions that say, "Let's make our cars more fuel efficient," while continuing to build a civilisation based essentially entirely on automobiles. You look for advertisements in magazines and so on showing more and more use of resources.

In fact, you would look for a society like we have today. You look for things like the destruction of most of the east coast of the United States, totally predicted as the sorts of things that are going to occur as we keep adding carbon dioxide and other greenhouse gases to the atmosphere. You look for horrendous droughts that, for example, just killed off much of the monarch butterfly populations in North America. Just one symptom: there's many, many other things, as Andy Beattie pointed out. When things like monarch butterflies start going extinct, there are thousands of other things going extinct that you don't see happening. You train people to understand that, when you lose habitats, you lose biodiversity.

There's no mystery about what's happening to biodiversity. The huge disaster is, of course, the loss of populations. Right now, we're seeing an incredible rate of extinctions of natural populations. The species are the last things to go out. When a species goes extinct, then of course you've lost all of its populations, but as any biologist who's been in the field can see, populations are going extinct all over the place all the time. These are not subtle symptoms. If you listen to your politicians, what do they want to do? They want to grow. Give them a little homework problem. Ask them that, if they actually grew at the rate they think is desirable, 3 or 5 per cent a year, in a 100 years how much economic activity there would be?

Teach them how to do arithmetic in exponential growth. Ask them a famous question: if you put a pond weed into a pond, and it doubles the amount of the pond that it covers every day, and at the end of a month it will cover the entire pond, how much of the pond is covered on the 29th out of 30 days? And the answer, of course, is just half of it is covered on the 29<sup>th</sup> day. You impress on people that a relatively long history of exponential growth tells you nothing at all about how much future exponential growth you can have. This is all super-obvious stuff. I wish we could start in kindergarten, training people to say not, "See Spot run," but, "See the plant grow in the sun," so that everybody would understand, after you had a reasonable education, how the world works.

And we're living in a world which, as Harry Recher wisely pointed out, hasn't got a clue. Most of our politicians are ignorant of how the world works, and that's the basic problem.

**Frank Talbot:** In a sense, Paul Ehrlich answered the sort of slow breakdown story. I think the breakdown will be much

quicker. It will be over food and energy, and it will lead us to wars, lots of wars. If you're asking, as Mike Watson did, what are the first signs - those are the first signs. Food and energy are what we're going to fight about, and as soon as you see those wars coming, you'll know those are the first signs. As Paul Ehrlich said, we've already had one or two over Afghanistan and Iraq, but in the breakdown of those early civilisations, fighting for food was one of the issues. The top guys tried to hold the food, the bottom guys fought for it and broke down the system.

**Ann Goeth:** I work for the Office of Environment and Heritage NSW. I've been in science for many years, but I've just worked for government for the last few years and have a view from both sides. Do zoologists know enough about what they can do to contribute to promoting their knowledge in New South Wales? And one example is what Pat Hutchings mentioned: there are various databases available that are rarely used by decision-makers when it comes to deciding the impacts of developments. I'd like to urge everybody to use databases, such as the New South Wales wildlife atlas, that are used by things such as BioBanking. Who has heard of BioBanking? That's a pretty scary new thing that's coming up in New South Wales. We need the expertise of zoologists to put the data into those databases, because it is used when decisions are being made about the impacts of big developments, including mining. Do you think that

biologists can do more, that zoologists can do more to use those databases and spread their knowledge?

**Pat Hutchings:** Those databases are great. I've been funded by ABRS to put data into the Atlas of Living Australia. But the time it takes me to enter those data could be time when I'm describing more of the fauna, that is, doing research. I think we've got to be careful about how we use our time and need to allocate funds so that I can employ a technician to enter data, rather than me, as a scientist who has the ability to identify the fauna. Databanks are only as good as the information that goes in., There is something of an obsession with getting the data in, but we've also got to create the data, to put in. I agree that it's useful, but we've also got to be aware of how you interpret that data.

I'll give you one example. I was trying to write a paper, and I thought, "Okay, I will find out where *Galeolaria caespitosa* occurs. It is a common serpulid along the intertidal area of New South Wales. How many records do we have in the Australian Museum collection? We had two, and yet it's all the way along the coast. Some of the databases can give misleading information, and we need to ensure that the experts are involved in the interpretation of the data. This means that we need to ensure the training and education of a new generation of zoologists.

**Martin Predavec:** Thank you.