Bio Sketch for Rachel Fewster

What area of statistics do you work in?

Ecological statistics

Tell us a bit more...

I'm interested in what we can find out about animals and their habitats. The sorts of questions we want to answer are:

- How many are there?

- Where did they come from?

- What are they doing, and why?

Some examples of these questions are:

• How many whales are there in the Southern Ocean? How many penguins in Antarctica? How are their numbers changing with climate change? We need to know how many there are in order to work out ways of managing and conserving the populations and their habitats.

• Footprints from rats were found on three different predator-free islands in the Hauraki Gulf recently. Each time, it cost the Department of Conservation thousands of dollars to find the rat and remove it. (Imagine: $10,000 to catch one rat!) Where did these rats come from? Did they swim from nearby shores? We use genetic fingerprinting to try to locate where these rats have come from, the same way the police use genetic fingerprinting to solve a murder. When we know where they come from, we can try to stop these invasions happening again.

• When you take a homing pigeon to a new place and let it go, how does it find its way home? Does it use the earth's magnetic field? Or does it just follow the motorways? We can use statistics to answer these questions too.

What areas of statistics do you follow from a purely interest standpoint?

Anything and everything! I like to read popular Maths books and Statistics magazines to keep up with interesting ideas. One example is seeing how statistics can be used to uncover fraud, like faked election results, or companies fraudulently reporting their pollution or tax returns. Real data will have patterns in it that the fraudsters don't know about! Another interesting area is how your lifestyle can impact on the sex of your baby. For example, men who go deep-sea diving are more likely to have daughters, and (maybe) so are vegetarian women. Nine months after an earthquake, there will be more girls born than boys. And so on! There are so many fascinating applications of statistics out there.

Rachel Fewster - continued

What were your best and worst subjects at school?

Best - Physics and Maths, and Music.

Worst - I didn't really have a worst subject because I liked everything. But I preferred Science and Maths because the answers were either right or wrong, whereas in English or art sometimes I'd get a low grade for what I thought were my best attempts!

When you decided you wanted to be a mathematical scientist and why

After 2 years of doing a Maths degree (age 20). I wanted to use Maths, but I wanted to use it in the real world. I'd always loved nature and wildlife as a hobby, so I realised that I could combine my hobby with my Maths by being a statistician.

What training (degrees and subjects) you've done

BA/MA in Maths at Cambridge

PhD in Statistics at St Andrews

What do you do for fun?

Go tramping in New Zealand!