NZASE scientist profile

Amanda Black

Born where and when

Tūhoe, Whakatōhea, te Whānau-ā-Apanui.
Whakatane, 1976.

Schools

Thornton Primary, Whakatane High School.

How she got into science

Amanda liked maths and art in school, and didn't get excited about science until her second year at university, when she found out about earth and environmental sciences.

"I liked the chemistry of the atmosphere and the ocean, and how soil and the earth works. I hated school but I loved university – don't despair, it's very different."

"Science is big, and what you learn at school is only the tip of the iceberg. Science changes really fast, and there's plenty of jobs."

Qualifications and jobs

Science degree in geology.
Masters degree in environmental science, both at University of Otago.
PhD in soil chemistry, Lincoln University.

Otago Regional Council: Making sure that companies were releasing only permitted chemicals into water, land or the air.
Mining industry research.

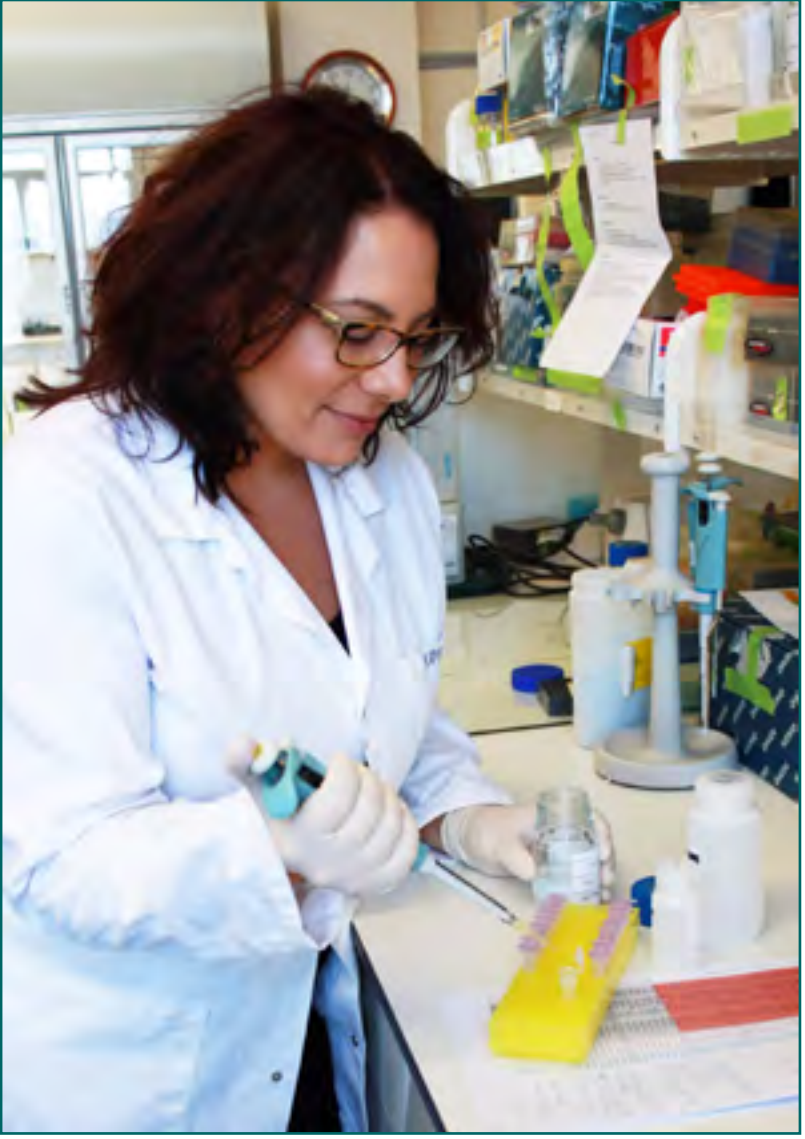
Field of science

Soil and water chemistry.
Applied geology.

What topics she studied

- Diseases that kill native trees, like kauri dieback.
- How to improve the productivity of marginal Māori land.
- Finding out which soils are improved by sewage sludge: "It looks like playdough with lots of hair – it's really disgusting!"
- The environmental effects of coal mining: "The impact lasts centuries, and we need to manage the regeneration of soil and plants."

Amanda in in Waipoua forest with her son Hugh Ariki Condron.



How she finds things out

- **Bio-assays**: Testing the effect of a treatment on a plant (like ryegrass) or soil.
- **Bio-control**: Testing whether one bacteria or other organism affects the growth of another bacteria.
- **Testing soils** for the presence of the water mould that causes kauri dieback.

Ngā Kupu (linked to audio files)

From Te Aka Maori Dictionary

Hapū – Kinship group made up of whānau sharing a common ancestor.
Mātauranga Māori – Māori knowledge
Rohe – Area, boundary.
Rongoā – Traditional Māori medicine.
Taonga tuku iho – Treasured ancestral knowledge.

Mātauranga Māori

Amanda worked with rongoā experts to find companion plants that may inhibit kauri dieback. She found that five plants had some effect on the disease in the laboratory, and is testing that effect in soil.

Amanda is also a member of the National Māori Biosecurity Network. She says that hapū were traditionally responsible for managing the environment in their rohe (areas), rather than iwi, and need to be part of making environmental decisions. Hapū have taonga tuku iho (ancestral knowledge) about subtle changes in forests. They value particular cultural species, and may see environmental impact differently from biosecurity regulators.

Most valuable results

1 Adding copper to soils reduces the emission of nitrous oxide, a greenhouse gas that traps the sun's energy and is part of climate change.

2 The water mould causing kauri dieback grows well in pasture and pine forest soils.

What she likes about science

"I can use my skills and qualifications to understand what's happening and solve problems".

Links

- **Profile of Amanda** on *Curious Minds*
- **Amanda quoted** about research on kauri dieback, *Stuff*
- **Amanda and another scientist's opinion** on kauri dieback, *NZ Herald*.