MEASURING RADIOACTIVITY AT SOUTH ALLIGATOR VALLEY

Looking for old uranium tailings around Gunlom area

Staff of the Environmental Research Institute of the Supervising Scientist ***(eriss)*** have been conducting research on the impact of mining in Kakadu National Park for about 20 years.

In the past year we have done quite a lot of research in the South Alligator River region on old mines and tailings left by past mining activities. We wanted to find out if the tailings are harmful to local Aboriginal people and the people who work and visit in the area.

This document summarises what research has been done and what we found.

Cedric Blitner and Beryl Smith advised ***eriss*** on what bushtucker is collected in the South Alligator valley area

South Alligator valley area

Bush potatoes grow in the region

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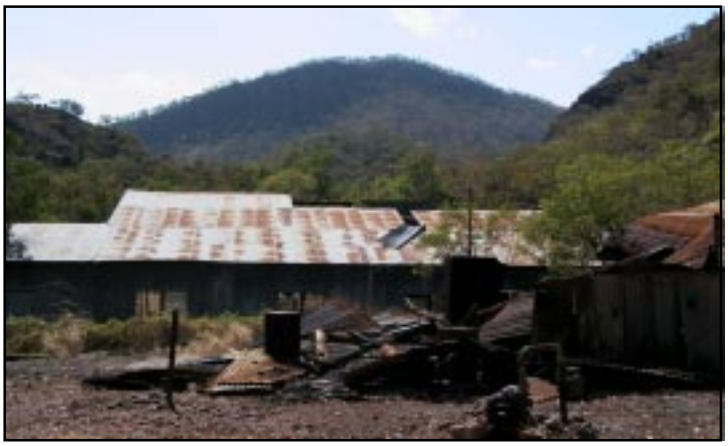
OLD MINING ACTIVITY IN THE GUNLOM AREA



Old buildings still remain at the former El Sherana camp

What has been left behind

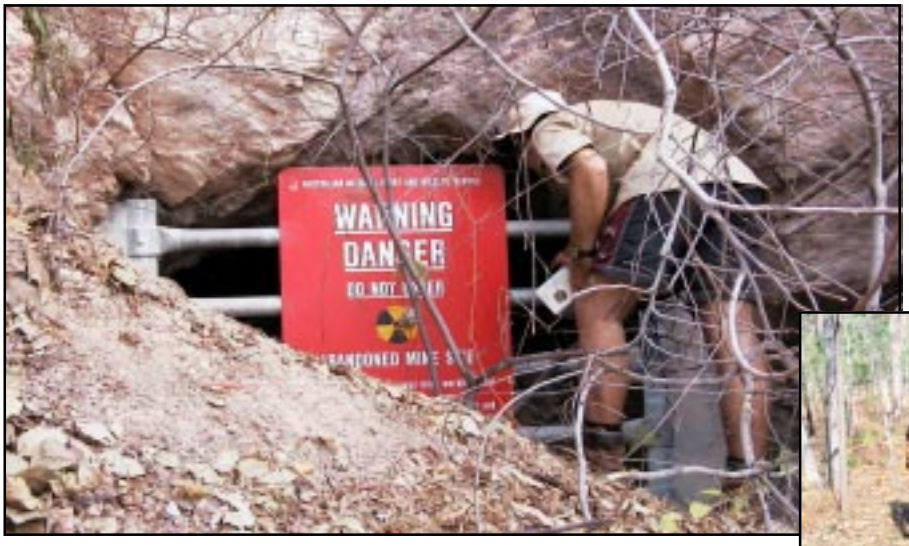
Around 50 years ago, there was a lot of uranium mining activity in the South Alligator valley area. During the peak, there were about 13 uranium mining and milling activities and nearly 150 miners lived permanently in the South Alligator and El Sherana camps.

In 1964, mining stopped and the camps were abandoned. There was no substantial effort made to rehabilitate or clean up the area properly.

Over the years, Wet season weathering has caused some of the old tailings to become exposed and Parks Australia wanted to find out how much uranium was exposed and was it harmful to Traditional Owners, Park rangers and tourists visiting the area.

A pit at El Sherana mine site

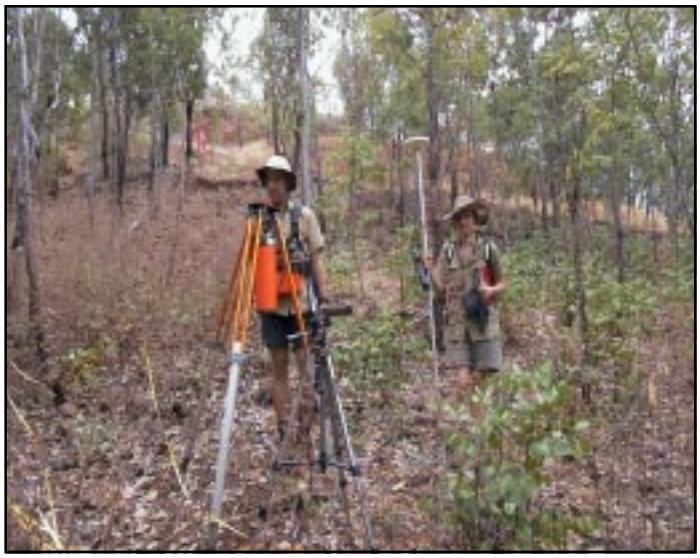
Many years have been spent conducting a range of tests to find out where the uranium is and if the radioactivity has had an impact on local Aboriginal people and those who live, work and visit in the area.



Mine shafts have been sealed off

Old car body left in the El Sherana camp area

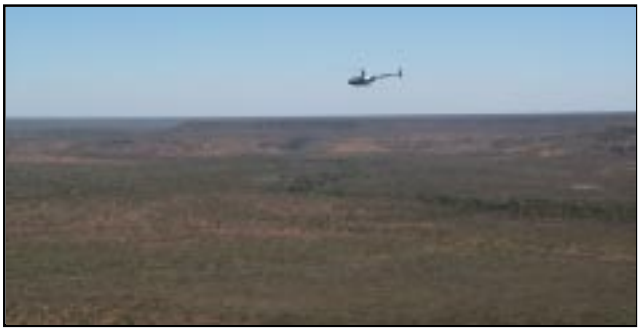
Different types of radioactivity – how we can be affected by it and how we test it



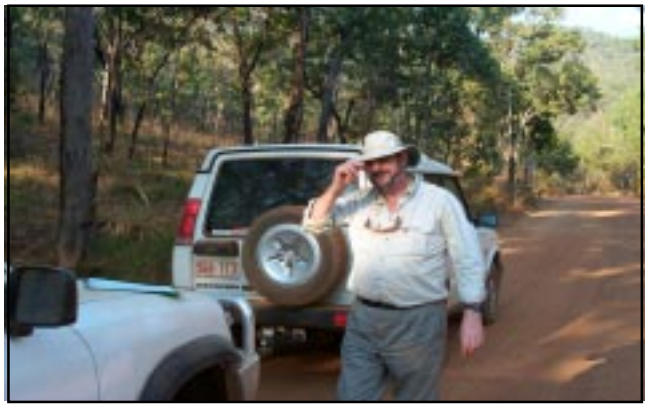
Supervising Scientist staff Andreas Bollhoefer (left) and Kirrilly Pfitzner (right) used special equipment to measure the radioactivity

Four different types of research were used to find out if people could be exposed to radiation from these four ways:

1 We tested mussels collected from the South Alligator River close to the tailings and the Rockhole Mine Creek. We also used information that we have on fish and other Aboriginal foods from our studies on the Ranger mine.



Pictures of the tailings were taken from the air



The scientists looked at four different ways that people living in the South Alligator River valley could be exposed to radiation:

1 By swallowing food and water with radioactivity in it

2 By breathing in radioactivity that is trapped in the air or dust

3 By breathing in radioactive gas in the air

4 From rays coming out of the ground and passing through the body, like when you have an X-ray

Collecting mussels for testing

3 We tested the radioactivity of the dust by driving a car along the road near the uranium tailings site.

2 We took measurements from the air called an airborne gamma survey. This allows us to get a picture of where the uranium is located. We then take measurements on the ground where the uranium is.

4 We used some research we did in 1991 when we measured radon gas.

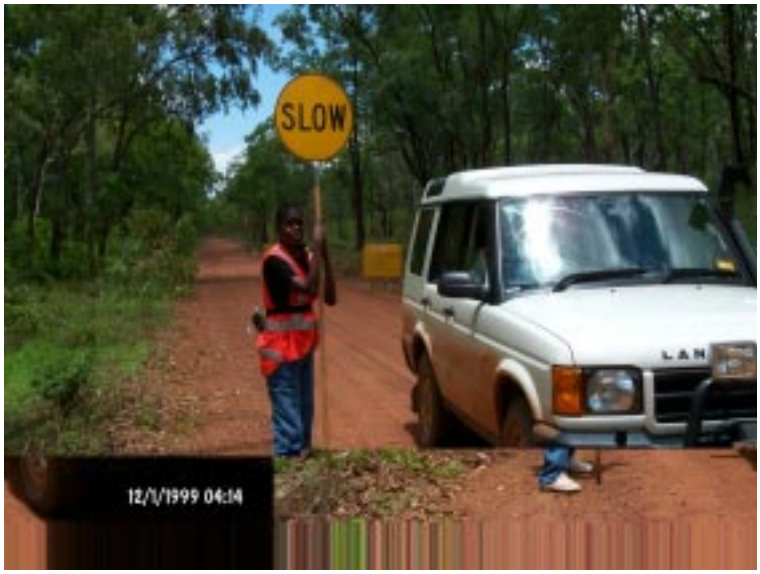
left: Peter Waggitt from the staff of the Supervising Scientist tested the dust from the Gunlom road

WHAT DID WE FIND?

Once the research was finished and we had spoken with Traditional landowners and Parks staff about what type and amount of bush foods people ate and where they spent their time, we could work out the radiation dose people are exposed to in the Gunlom and South Alligator valley area.

We broke this down into three groups: Traditional Owners, Parks staff and Park visitors.

We also had to work out the level of natural background radiation in the area and compare that to what the average Australian dose is. This is measured in units called millisieverts (mSv). In Australia, the average background level of radiation we are all exposed to is about 2.3 mSv per year.



Bessie Smith helps with traffic control during the cleanup of the Gunlom Road

Soil mixed with old tailings was removed from the side of Gunlom Road by Parks Australia

We found the following groups of people receive these extra doses:

Aboriginal people	0.3 mSv per year
Parks Staff	0.1 mSv per year
Park visitors	0.01 mSv per year

*(**SSD** Internal Report No.386, 2002)*

These are very small extra doses and are certainly not high enough to be of concern.

One way to compare these doses is with the doses you would receive from a X-ray of your feet or arms, which is about 0.3 mSv.

From a radiological perspective, there is no need to remove the mining residue in the area.

However, in keeping with the wishes of the Traditional Owners, and in order to maintain the values of Kakadu as a World Heritage listed area, we recommend the clean up of pockets of tailings and mining residues with high uranium concentrations.

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