



## Birds as Indicators Case Study

# Environmental Pollution



### 'Canaries' and Lead Contamination

In the past, miners carried caged canaries to warn them when gases down a mine were building up to deadly levels. Because the birds were highly sensitive to the poisonous gases, if they stopped singing and became lethargic, the miners knew that they had to get out of the mine fast, before they too were affected.

**This shows that birds can be very helpful in telling us about what is happening in the environment around us.**

In 2006, residents of Esperance (a busy port on the south coast of Western Australia) began reporting that some native birds were falling out of the sky, and that many others were found lying dead on the ground, scattered all around the town.

By March 2007, thousands of birds — mostly honeyeaters and nectar-eating Purple-crowned Lorikeets — had died, and the Department of Environment and Conservation discovered that the birds had been poisoned by a chemical known as lead carbonate. The chemical was also blamed for high levels of lead in the blood of the people who lived in the town.

Researchers used special tests (isotopes) to match the lead that they found in the poisoned birds (as well as in the soil and water from around the town) with the lead that was being transported by train to the port of Esperance.

### Focus questions for students:

- How does that make you feel? (Lots of birds died; people could have got very sick, the water could have become unsafe to drink etc.)
- What was the lead used for? Why do we need lead? (Lead carbonate is a white pigment that contains lead; it is used mainly in paints but also in certain cement, putty, paper, etc.) Why would lead in pellets be safer than lead in powdered form?
- What did the mining company do wrong? Why do you think they didn't do the right thing? Who pays for the damage done (e.g., the clean-up)? What did the government departments do wrong? (e.g., they failed to make sure that the license was being adhered to, and the lead was being transported safely)
- What can you do? (e.g. be alert for signs that things are not right in the environment; tell other people what you have learned; do not be afraid to complain if you think the environment is being damaged or people are at risk; watch/listen to the birds!).

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The mining company responsible for digging up the lead carbonate (Magellan Metals) had been granted a licence to export it but was only allowed to ship it off in pelletised form (the size of a chocolate smartie); instead, they had been shipping it as a dusty powder. When the wind blew (as it often does in Esperance) clouds of the dust blew out of the railway cars and it blew all over the town, where it settled on everything. It even contaminated the flowering plants in people's gardens, and when the honeyeaters fed on the nectar of the flowers, they also ate some of the lead, which poisoned them.

A 2007 parliamentary committee inquiry into the contamination found that the mining company, the local port authority and two government departments failed to properly exercise their responsibilities.

Just like the miners' canaries, if honeyeaters had not started mysteriously falling out of the sky near Esperance, no one would have known that anything was wrong; they wouldn't have noticed that the town was contaminated with lead. Because the birds showed us that something was wrong, the problem was able to be fixed, and the town was cleaned up. If the birds hadn't died and alerted the town to the lead pollution, many of the people who live in Esperance, especially the children, would have become very sick from the lead that had poisoned their homes, their gardens, their schoolyards and even their drinking water.

Birds can tell us so much about what is going on our environment; what is going wrong with it, as well as what is going right. We just have to listen to what they say.

*Thanks to Contributors: Text Dr Penny Olsen Photos: Frank Spolc*



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### **Sources for teachers**

[http://portal.environment.wa.gov.au/portal/page?\\_page-id=157,6427791&\\_dad=portal&\\_schema=PORTAL;](http://portal.environment.wa.gov.au/portal/page?_page-id=157,6427791&_dad=portal&_schema=PORTAL;)  
[www.health.wa.gov.au](http://www.health.wa.gov.au)

### **Related reading for students**

Dr Seuss(1971)The Lorax. Random House (and other publishers).

Video online at: <http://video.google.com/videoplay?docid=6650219631867189375#>

### **Action:**

- Reduce the amount of chemicals you use in your school
- Conduct a chemical audit



[www.birdsaustralia.com.au](http://www.birdsaustralia.com.au)

