Life of a can

WHAT HAPPENS to your aluminium soft drink can after you place it in the community recycling bin? Chances are it could be reincarnated as a car part in Japan.

After collection, empty cans are transported to processing plants in Auckland, Wellington, Christchurch or Dunedin. Steel cans, nails and any other contaminants are separated before the aluminium is crushed into 25-kg bales.

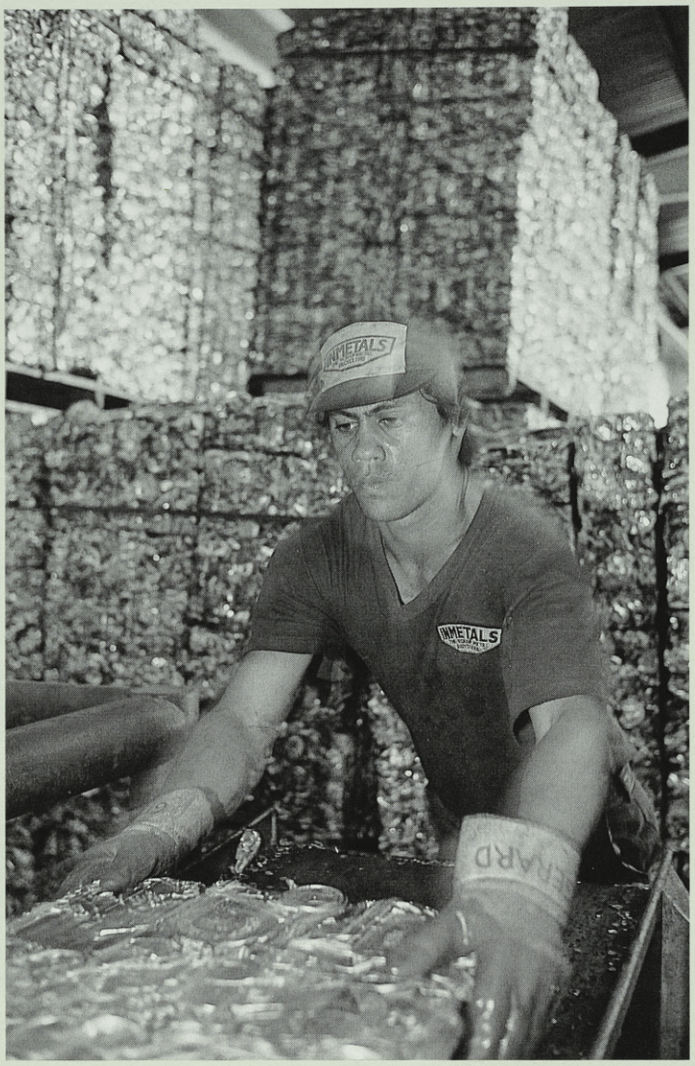
At present there are no facilities for recycling aluminium cans in New Zealand and the crushed cans are all exported. Comalco's Auckland agent Inmetals sends close to a third of its returns to an aluminium re-melt plant outside Sydney where any remaining impurities are removed and the metal melted down into aluminium sheet for processing into new cans.

The remaining aluminium is exported to the market paying the highest price – usually Japan where it is most likely to end up as car parts.

Aluminium can be remelted again and again with a metal recovery rate of about 88-90 percent. Producing aluminium from recycled material also requires 95 percent less energy than primary aluminium production. The energy efficiency of the recycling process increases with the volume of recycled cans.

The initial energy input required for the manufacture of aluminium cans is greater than tin-plate and glass, but the energy savings from transporting the lighter-weight cans – at one third the weight of their steel alternative and many times lighter than the equivalent glass container – are considerable. For aluminium cans the life-cycle equation is dependent not only on the level of recovery achieved, but also on energy used in collection and delivery of containers for reprocessing.

New Zealand's return rate for aluminium cans has jumped sharply since the launch of Comalco's recycling scheme in 1987 and is one of the fastest-growing voluntary schemes in the world. The link between the recycling programme and the kakapo recovery project has also helped boost the recovery rates. The current rate, around 46 percent, is still considerably lower, however, than return rates in the US (55 percent), Canada (65) and Sweden (85).



The Inmetals crushing plant at Penrose, Auckland.

But return rates may not be all that they seem. Recent research suggests that used aluminium cans retain beverage residue or moisture up to 20 percent of their empty weight. Therefore recovery rates calculated by comparing clean virgin cans coming into the market place with the weight of baled cans containing moisture and dirt may artificially inflate the return rates.

A new environmental worry has recently arisen in the aluminium industry. Two of the waste gases given off in primary production – tetrafluoromethane and hexafluorethane – have been identified as significant greenhouse gases. Although emitted in small quantities, molecule for molecule they are over 8,000 times more effective greenhouse contributors than carbon dioxide. Research is being done in Canada to see if the production process can be changed to avoid the creation of these gases. The gases are not produced when cans are recycled. Large amounts of carbon dioxide are also emitted in the production of aluminium.

Last year New Zealanders returned over 158 million cans for recycling. As well as the energy and resource savings achieved through the recycling, the increased recycling rate resulted in an additional donation by Comalco to the kakapo recovery programme of $25,000.

Chris Wratt

Mobile stoats

A STUDY of the behaviour and ecology of stoats in Fiordland has considerable implications for the control of these pests and the protection of endangered wildlife.

Elaine Murphy from DoC's Science and Research Division and John Dowding used radio-tracking equipment to follow the movement of stoats in the beech forests of the Eglinton Valley.

The study covered a stoat plague year (as occurs following a beech seeding year) with a follow up in 1991-92 when stoat densities were lower.

The stoats were well-travelled. One young female was found 65 kilometres away after only a month, and the stoats regularly moved over two kilometres in only two to three hours often, to the inconvenience of the researchers, crossing the Eglinton river in their foraging.

Much to the surprise of Murphy and Dowding, stoats were also found in comparatively high numbers in the year following the plague year, although with an older age structure.

Another finding was that the trapping of stoats was only effective for the duration of the trapping. The interval before stoats recolonised a cleared area was very short even in a non-plague year.

This has considerable implications for the management of sensitive localities containing endangered species such as Maud Island which is within stoat-swimming distance of the mainland. These localities are at risk not only in plague years, when many juvenile stoats are dispersing, but also at other times.

Source: Rare Bits (Department of Conservation)