Keeping birds off the radar

They've been blasted with noise, even shot at, but birds – common and endangered – seem to gravitate to airports, creating a flight hazard. New Zealand authorities are looking at two low-impact solutions to the bird-strike problem.

New Zealand AgResearch scientist, Chris Pennell, calls them flying bullets. 'Their bodies are so dense they're like a stiletto heel and when they fly into engines they cause massive damage, especially in flocks.'

Pennell is talking about starlings, one of the species commonly involved in bird strike, which costs the global aviation industry over a billion US dollars each year. Since the first fatal air crash attributed to bird strike was recorded in 1912, there have been several others and the risk of further fatalities is increasing with the expansion of global air traffic.

Paradoxically, the success of wildlife conservation and environmental projects has increased the risk of bird strike. The population of double-crested cormorants around the Great Lakes in the US, for example, has exploded from 89 to 115 000 pairs in the past 30 years.

Bird strike occurs most frequently during aircraft take-off and landing because birds – commonly seagulls, plovers, geese and ducks – are attracted to the grassy expanses in and around airports.

Most airports tackle the problem by trying to scare the birds away and have employed an extraordinary range of novel devices, including cannons, metallic streamers that crackle like fire, bird kites and sirens. Efforts have also been made to keep insect numbers down and limit nearby ponds, where birds might be tempted to roost.

Shooting and poisoning programs are used 'as a last resort' according to most airport management reports.

Pennell thinks he has found a less drastic and more permanent method of persuading birds that the green pastures around airports are not good for them.

A first-hand experience of bird strike several years ago got Pennell thinking about the possibility of using his research on endophytes to develop a 'bird-scaring grass'.

Meanwhile Watercare, Auckland's regional water and wastewater service provider, has opted for the 'carrot' rather than the 'stick' approach to bird strike.

'Endophytes are fungi which live between plant cells,' says Pennell. 'The plant hosts the fungus and the fungus protects the plant from overgrazing by producing a toxin if the plant is stressed, such as the ryegrass endophyte that causes staggers in animals,' he says.

Pennell has isolated ryegrass endophytes that can make birds sick but not kill them. The birds, it seems, remember the experience for many months and subsequently avoid grazing in these areas.

As Pennell explains, overgrazing or insect attack causes the grass's endophytes to release the alkaloid that induces sickness.

'We can produce seed inoculated with a specific endophyte that enhances the natural insecticide properties and puts birds off eating the grass for months, so it works for both herbivorous and insectivorous birds,' says Pennell.

At $30 000 for inoculating 50 seeds, the method is not cheap, but if the current trial at Christchurch Airport is successful, commercial production could be underway within a year or so.

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Six years ago, as part of New Zealand's largest coastal restoration project, Watercare began draining and excavating old oxidation ponds at the Mangere Wastewater Treatment Plant near (but not too near!) Auckland Airport.

The ponds were opened up to allow the sea in – an invitation to native shorebirds such as wrybills, pied stilts, bar-tailed godwits and dotterels.

The project was completed in 2004. Subsequent research by the Ornithological Society of New Zealand shows that the birds are choosing to roost there rather than around the airport, a finding that is backed up by statistics from Auckland Airport which indicate a reduction in the rate of bird strike.

● **Marilyn Head**