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GUEST EDITORIAL: DON MERTON

Don Merton, originally from Gisborne, has had a life-long interest in *wildlife, and particularly* in *bird conservation. On leaving school Don Merton started work with the New Zealand Wildlife Service, then a part of the Department of Internal Affairs and now the Department of Conservation. Currently he* is *Operations Co-ordinator, Threatened Species Unit and leader of the Kakapo Recovery Programme. Achievements include discovery of the significance of the ritualised courtship behaviour of the kakapo, participation* in *establishment of a second population of the endangered noisy scrub-bird of Western Australia, implementation of a recovery strategy for the rare Mauritius echo parakeet, eradication of rabbits from Round Island, Mauritius (said to support more threatened species than any comparable area), and designation of a National Park on Christmas Island to protect Abbott's booby and a unique ecosystem. In New Zealand Don* is *best known for devising the successful recovery programme*
for the Chatham Island black robin. Don's work continues to focus on conservation, particularly the kakapo.

In 1989, Don was awarded the Queen's Service Medal; in *the following year he received the Royal Society of New Zealand's Sir Charles Fleming Memorial Award for Environmental Achievement; and* in 1992 *Massey University acknowledged his contribution to conservation with the granting of an honorary Doctor of Science.*

THE LEGACY OF "OLD BLUE"

Through the ages, in most countries, animal heroes have emerged and been immortalised in legend. Most, however, seem to have been fictitious characters such as Lassie (collie), Black Beauty (horse), Bambi (fawn), Akela (wolf), Ka (python), Tarka (otter), Bagheera (panther), Shere Khan (tiger), Moby Dick (whale), Rin Tin Tin (alsation) and Rikki Tikki Tavi (mongoose). Others, generally more recent, were factual characters such as Didget (mountain gorilla), Elsa (lioness), Smokey (bear), Tex (whooping crane), Martha (the last passenger pigeon), Spotty (Iyrebird), and closer to home, Pelorus Jack and Opo (dolphins), Z12 (the yellow-eyed penguin) and Grandma (royal albatross). All of these undoubtedly deserved their hero status and advanced the causes of animal-kind, and of biological awareness and conservation. However, not one of these "world-famous" animals achieved what "Old Blue", an aged female black robin in the Chatham Islands did; not only did she capture the hearts and conscience of a nation and make a massive contribution to the conservation cause but she also saved her species from extinction. "Old Blue's" story must surely be unique - it is a true tale of a New Zealand animal personality whose deeds unquestionably saved a unique life-form from certain extinction.

Some, not familiar with the black robin rescue saga, acted out in the Chatham Islands during the late 1970s and 19808, may ask why such a fuss about a tiny black bird? What is the biological and conservational significance of all this, who was "Old Blue", and what was so special about this nondescript little lady that she became a household name, that she should be regarded a national hero, that her death should be announced by a cabinet minister and be mentioned in newspapers around the world, and that a plaque should be erected in her honour?

The retreat of the Chatham Island black robin *(Petroica traversi* Buller) to virtual oblivion is symptomatic of that which has, and is, affecting countless animal and plant species, communities and systems everywhere, particularly those of oceanic islands. Endangerment and extinction are of course natural processes - but the current extinction rate is not. This century there has been a massive increase in frequency; most recorded extinctions have occurred in the last 150 years. The current global extinction rate is said to be around one thousand times greater than perceived "normal" levels. We are in the midst of a global species crisis!

Although islands represent only about 3% of the Earth's land area, around 90% of recorded avian extinctions have occurred on islands, and over 50% of those species regarded as "threatened" are island species.

These figures highlight the fragility and greater vulnerability of island communities, plants and animals, a sad fact that we of the New Zealand archipelago know only too well. The enormous shrinkage, extinctions and changes that have occurred in our biota since human settlement began around 1000 years ago amount to a collapse. There has been an almost total loss of lowland forests; most of our wetlands have been drained and there has been a massive invasion of alien plants and animals. Exotics now dominate or control most mainland and many island systems. A unique avian-herbivore/plant system has been totally lost. Of an endemic land-bird fauna comprised of around 94 species, 35 (37%) were
extinct prior to the first European contact (most, if not all, during the Polynesian era), and a further II (18% of remaining species) have become extinct since European colonisation. Thus, half of New Zealand's endemic land-bird species are now extinct. Of the 48 surviving endemic species at least 23 (48%) are regarded as threatened with extinction. In all, some 600 New Zealand plant and animal taxa are nationally threatened, some with populations numbering 100 or fewer individuals.

A disproportionately high number of New Zealand's threatened birds, including the black robin, occur only in the Chatham Islands where the impacts of human settlement have been particularly severe. A high level of endemism exists within Chatham plants and animals, and as elsewhere the endemics have proved most vulnerable to changes associated with human settlement. All land-bird species have undergone a massive retraction in range and numbers. Twenty six avian extinctions are known from a fauna of 68 indigenous breeding forms, eight of them since European colonisation began 150 years ago. Currently, ten local endemic species are considered threatened, eight with populations of 200 individuals or fewer. Six of the eleven surviving endemic land-birds are virtually or entirely confined to the few small offshore islands, and all but three are considered threatened.

One of the endemic Chatham land-bird species seriously affected, but which miraculously evaded extinction, was the black robin. When described by Travers in 1871 the species was already confined to Mangere and Little Mangere Islands. Earlier last century it had apparently been widespread on the main island and Pitt Island, but had quickly disappeared from these following the arrival of cats and Eurasian rats together with the widespread clearing of woody vegetation. Soon after Travers' visit cats were introduced to Mangere (to control rabbits), and the robin along with eleven other bird species was lost from the island. Fortuitously, a small population of robins persisted on Little Mangere (18 ha) in about 7 ha of scrub-forest.

The species was rediscovered here in 1938 by the late Sir Charles Fleming, Graeme Turbott and Alan Wotherspoon who, with difficulty, scaled the 200 m cliffs. The species was next recorded by Brian Bell and Ian Hogarth who visited Little Mangere in 1961. The next record of the black robin was in 1968 when Ian and Margaret Ritchie, John Kendrick and I landed by helicopter. As a consequence of this visit, awareness and concern mounted for the tiny remnant population - estimated at 20-35 pairs by Fleming, but almost certainly much smaller than this - marooned for 90 odd years on the wooded cap of a remote rock -stack in the path of the infamous "roaring forties". Soon after, the Wildlife Service recruited Doug Flack from the United States to investigate the species' biology and ecological requirements with a view to ultimately establishing a second population. Using the South Island robin as an analogue, a research and management thrust was instigated. Over the subsequent two decades this would not only save a species from extinction but would also playa major role in changing social and political attitudes to biological conservation and lead to an innovative new concept in managing threatened species.

Doug's involvement was fortuitous, for barely had he begun his field research on Little Mangere than it became apparent that all was not well. Woody vegetation atop the rock-stack was rapidly degrading, and the robin population was at an unexpectedly low level and in steep decline (18 birds in 1973, the first comprehensive census).

In the drama which followed the entire species was relocated on Mangere Island (the cats and rabbits having previously died out); then followed a tense wait as the species teetered on a knife-edge, declining to just five birds, including a single viable pair, then the daring innovation to intervene in breeding cycles to induce production of additional eggs; and the fostering of these to the nests of other free-living species as a means of boosting productivity from the last remaining pair! Fortunately it worked. The robin recovered (currently the population stands at about 138 individuals on two islands) and a new management concept - close order management - was born.

"Old Blue", the only surviving productive female from 1979-1981 was hatched on Little Mangere Island in about 1970. Her life was studded with remarkable and fortuitous events (so much so in fact that it's hard to believe that there wasn't a little "divine intervention" involved):

- That she ever hatched and reached adulthood on Little Mangere, at a time when the habitat was fast diminishing and degrading, and few chicks survived; only one other bird from that era survived to breed.
- That Doug Flack and team discovered the plight of the last few robins in time.
- That in spite of rough seas and huge cliffs, and the few (inevitable!) bureaucratic hurdles we were successful in transferring all seven survivors (including the last

two females) to big Mangere in 1976-77.
- That all, including "Old Blue", survived the transfer and surf landings.
- That "Old Blue" changed mates in 1978 and paired with what proved to be the only successful breeding male surviving at that time - "Old Yellow". (With the exception of one and two year old birds, pair-bonds are generally maintained for life.)
- That she survived a massive avalanche in 1977 which demolished about a third of the Mangere bush: two of the seven robins weren't so lucky!
- That she lived so incredibly long and was productive to the end; an average robin life-span is 5-6 years - "Old Blue" began her productive life at about 9 years!
- That we happened to visit the island in 1979 when "Old Yellow" was severely crippled by his leg-band, and were able to remove the band; "Old Yellow" was one of only two males alive then - and proved to be the only viable one!
- That as a child I had fostered goldfinch nestlings to my grandmother's canary and, 35 years on, was able to incorporate this childhood prank in devising a rescue strategy to dramatically boost production in a species that, unaided, lacked the ability to recover quickly due to its naturally low productivity ("K-selected").
- That "Old Blue" and "Old Yellow" allowed us to take their eggs and that cross-fostering (untried in any endangered passerine recovery programme involving free-living birds) proved a practical and effective means of boosting productivity.
- That we were able to devise a means of circumventing imprinting problems.
- That genetic problems associated with prolonged, close inbreeding did not arise. (The species had presumably already survived an intense bottle-neck during its 90 year ordeal at perilously low numbers on Little Mangere.)
- Finally, in her last days "Old Blue" (with our help) evaded a high level proposal to take and preserve her as a stuffed specimen!

"Old Blue" was a delight to work with and seemed to enter into the spirit of the rescue operation. She lived at least 13 years (died late 1983 or early 1984), considerably longer than any robin since then and more than twice the lifespan for most robins. (We thought each year must surely be her last.) Further she and her mate "Old Yellow" were the only effective breeders from 1979 to 1981, and she raised 11 chicks once she got going. All the black robins alive today are descended from "Old Blue" and "Old Yellow". They unquestionably saved their species from extinction. The black robin is probably the most intensely inbred wild bird species, and the only avian species living in the wild where the parentage and lineage of every individual is known and can be traced to a common ancestor.

Was it all worthwhile? What was the social, biological and ecological significance of "Old Blue's" contribution?
- "Old Blue" is dead. Her legacy, the black robin species, lives on, and there is no reason to suppose that the species is any less secure than any other of the Chatham endemics now effectively confined to the two larger rodent-free islands - Mangere and South East. The ultimate goal, that of returning the robin and other species with similarly restricted distributions to Pitt Island (also rat-free, but mice are present) is dependent upon cats first being removed, but local politics would seem to exclude this as an option, at least in the short-term.
- Mangere and South East (Rangatira), the two larger rodent-free islands remaining in the Chathams, have been acquired and designated nature reserves. Black robins are now established on both.
- A new forest, derived in part from the planting of 120000 rooted cuttings taken from local stock, is regenerating on Mangere.
- Seven of the 12 species of birds lost from Mangere following the introduction of cats have recolonised - three with our assistance. Sadly, a further three of these for whom Mangere was their final refuge are now extinct.
- The robin recovery programme is an example where species-driven management has facilitated very effective ecological conservation and recovery.
- Support for biological conservation and appreciation of biological values, initially at a remarkably low ebb in the Chatham Islands, has over the twenty years of the robin programme increased to the point where Chatham Islanders are now actively involved at all levels in local conservation issues and projects. They are especially proud of *their* black robin!
- Through media coverage, and in particular TVNZ Natural History Unit's three "Wild South" documentaries on the black robin rescue, this project has generated unprecedented public interest both within New Zealand and beyond. This seems to have been a key factor in bringing about the massive upsurge in public and political awareness and support for biological conservation apparent within New Zealand during the last decade.
- Finally, this management concept, and some of the techniques, are now being applied in a last-ditch effort to save New Zealand's critically endangered giant, flightless, nocturnal parrot, the kakapo. Early indications are that not only is it now feasible to induce breeding, it is also possible to increase the frequency of breeding.

The black robin rescue has unwittingly given rise to an innovative new recovery strategy and range of management techniques, some of which are modifications or adaptations of classic avicultural techniques; in effect, a more direct, interventionary approach to species'

recovery has been ushered in. Close order management may be described as manipulation of behaviour and/or physiology, based on free-living individuals with the aim of boosting productivity through enhancement of production and/or survival. Besides providing a means of boosting production in animals with the low natural reproductive rates typical of many of our endemics it may, where habitat is seriously degraded, provide a "life-line", a means of "buying time", or an alternative to relocation, captivity - or extinction. Normally it would be of short-term duration, to facilitate recovery beyond immediate danger to a point where a less intense and longer-term strategy, perhaps at the ecosystem level, can effectively take over.

Close order management techniques have since been adapted and applied with success in recovery programmes for such threatened species as the black stilt, takahe, Chatham Islands oystercatcher, the Mauritius kestrel, pink pigeon and echo parakeet of Mauritius, the helmeted honeyeater of Victoria, and the Seychelles magpie robin whose predicament bears some remarkable parallels to that of the black robin during the 1970s and early 1980s, and whose response to intensive management methods adapted from the black robin programme, has brought similarly spectacular results.

Contrary to the claims of some, I believe that throughout its short history New Zealand has put a very significant part of its biological conservation resources and effort into conservation of communities and ecosystems, and very little by comparison into single species' conservation. We were amongst the first in the world to set aside "sanctuaries" (Little Barrier, Kapiti and Resolution Islands), national parks and other protected areas. *All* our subtropical and subantarctic islands are nature reserves or scientific reserves set aside not for single species but for protection of all indigeneous plant and animal life and the systems they are part of. About 24% of New Zealand's land area is in fact reserved or protected in some way. The cost of creating and maintaining all this is many orders of magnitude greater than that expended on individual species. And, until recently the latter has been confined to those species that are critically endangered and attracting much attention. Single species management is by and large a recent innovation which has emerged in the last thirty years. However, most *surviving* endemic animals and plants are heavily or totally dependent for their well-being or survival on ecosystem conservation. They are found or breed largely or entirely on island reserves, forest reserves, national parks, coastal reserves etc.

Management too has been heavily weighted towards ecosystem conservation - acquisition and protection of forests, wetlands, islands, coastal areas, marine reserves; also the exclusion and eradication of aliens: our history of deer, goat, possum etc. control by Wildlife Service/New Zealand Forest Service/Department of Conservation, and the more than one hundred instances where alien animals have been eradicated from over sixty New Zealand islands.

The ecosystem approach has proved largely ineffective on the New Zealand *mainland* in conserving some natural systems and communities. Interacting elements have been lost in spite of intense physical and legislative protection; e.g., the huge retraction in range and numbers of most indigenous animal forms within many protected areas, the fact that kakapo, kokako, and others have been lost from national parks/reserves, and the structure and composition of plant communities often greatly degraded or modified by introduced mammals in spite of gallant efforts to protect and manage these areas.

On the other hand the ecosystem approach has been spectacularly successful in aiding some of New Zealand's (and the world's) *island* communities, species and interacting systems to survive. Most notable are the reptile/invertebrate/breeding-seabird systems of our rodent-free islands, which must be amongst the least modified natural terrestrial systems anywhere.

On the mainland, implementation of this concept (during the last 100 years) was of course far too late to save our giant avian-herbivore/plant system, and has been ineffective in preventing the dramatic decline in range and numbers - and extinction in some instances - of indigenous vertebrates. Hence, the necessity to focus specifically on the needs of certain animal forms (often at the species level) to ensure their continued survival.

I believe it is extremely important that "Old Blue's" story is told. We have made huge advances in both physical and legislative protection of the biota. We've set aside national parks and priceless island gems - we've even restored ailing species, communities and ecosystems. But without an appreciation of and a firm commitment to these the next generation might simply undo all with little more than the stroke of a pen.

The black robin's rescue would not have been possible without extraordinary dedication, determination and hard work by a great many people both within the New Zealand Wildlife Service/Department of Conservation and beyond: the many volunteers, the Pitt Islanders and Chatham Island community who provided transport and support throughout the 12 years of the rescue programme; the team members' spouses, partners and families for their huge personal sacrifices and the ongoing inconvenience through being abandoned sometimes for months on end each year, the tomtits - the unsung heroes of the rescue - and above all the robins themselves! Together they have shown that even in the midst of a global species survival crisis it is possible to turn the tide - to bring about recovery at the species level; direct action applied to a free-living, critically endangered species can be highly effective, and even in the most extreme circumstance - just one surviving productive pair - recovery is possible.