

Translocations in a Global Context
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Nearly 100 species have been translocated within New Zealand, not including the introduction of at least 25,000 exotics that are known about. (*1) Add to this total all of the genetic tinkering and agricultural hybridizing, habitat fragmentation and climate change, and one gets a very blurred picture of what evolution may have in store for this, and other countries like it, given the heavy hand of humanity.

Looking into the future, amid a wild profusion of likely extinctions, the tool of translocation clearly invites consideration of perhaps not what is best, but what is doable; not what is ideal, but what has to happen if we as a species are to be sensible and make some concerted effort towards what I would call evolutionary amends with respect to the natural world.

About 100 years ago Richard Henry gleaned some harsh lessons about the challenges and complexities of translocations on Resolution Island and later on Kapiti. According to historian David Young, Henry had implored the Tourist and Health Resorts Department of New Zealand to publish nothing "about the birds" as he deemed them "defenceless" and any information in those days was likely to be exploited, rather than appreciated. Moreover, his one-man scientific expedition had not given him the knowledge that certain mustelids could swim the 1.5 kilometres from the mainland to Resolution, where kakapo, for all of their applied wisdom to breed in sync with the masts, could not protect themselves from predators or a largely indifferent human society. (*2)

If the New Zealand experience, a hotspot, called by some the "capital of extinctions", seems pretty rough going, it is worth noting that few countries are any better, and many are worse. Moreover, good or compromised, it's what we've got to work with, and pretty remarkable, needless to say. New Zealand retains a robust proportion of good seed sourcing habitat, with the exception of wetlands, and well-doctored tools for restoring that dawn chorus.

Compare Hawaii, which yields one of the saddest legacies of all. Of the 71 endemic Hawaiian bird taxa, 23 are extinct, and the 30 remaining are endangered or threatened. (*3)

Endemic to Hawaii for at least several hundred thousand years, and still occupying its historical range as recently as 1890, the crow, or alala -an icon of Hawaiian indigenous spirituality- presently has no more individuals in the wild, but rather several dozen birds in captivity on two islands, Hawaii and Maui. The last wild pair disappeared, apparently, in 2002, victims of habitat loss, particularly koa wood extraction, non-native fountain grass wildfires in the alala's dry forest domains, domestic cattle grazing, and the predatory habits of numerous non-native mammals, including the mongoose, dogs and feral cats, as well as hunters taking advantage of the bird's extreme tameness or naivety, introduced diseases like malaria and pox, and the expansion of competing bird territories, like that of the Io, or endemic Hawaiian hawk. Inbreeding suppression has affected, not surprisingly, those remaining alala in captivity.

While the goal remains the reintroduction of successfully sustained alala populations in the wild, the establishment of such has been hampered by numerous factors, as well as a five-year price tag set at nearly twelve million dollars for recovery. Efforts to create a fence and remove ungulates in 1999 failed as a result of complex legal disputes over land ownership. More predator fencing trials in 2002 showed that such a fence was a key element to the species' recovery, as well as a so-called Safe Harbor Program on any of five recommended re-introduction sites. Prior to the bird's disappearance in the wild, several attempts to re-introduce wild-caught individuals were made. (*4) In each instance, however, their return to sites that were not predator free resulted in their deaths. Some have argued that a true antidote for the future requires some small predatory pressure to remain in place, whether native or non-native, if evolution is truly to be complied with, or prepared for. In the five-year plan, no complete predator-free area is being set forth, but rather, a site with an 80 percent reduction of non-native predators. Others have speculated that no matter how we try to fix it, we are going to end up with what they term "genetic ghettos" (*5). Given the requirements for learned behavior by young crows in the wild, among a host of other physiological factors that would translate, ultimately, into a job well done, the Hawaiian public, or the government has yet to get it right with this species for whom the bell has nearly toll. One representative of a Hawaii indigenous land trust has voiced the belief that it would be better to let the animal die out, sparing her the indignity of continued heavy human manipulation.

Zoologist Richard Dawkins points out that natural selection has no foresight when it comes to human-induced events, and adds that our recent penchant for manipulation may have so called "chosen benefits" that are "counter to genetic benefit(s)." (*6)

The chosen benefits in South Africa, are often times political and economic. While the 2003 Great Limpopo Transfrontier Park initiative involved the successful translocation of some 1,000 animals from South Africa to Mozambique in order to re-establish traditional territories for impalas, wildebeest, zebras and elephants, the effort also was intended to show political good-will between the two nations, following years of turmoil and poaching. Translocation work in South Africa has become an industry focused on streamlining Standing Operating Procedures to further enhance the opportunities for moving animal around, 130,000 so called game animals at present that are translocated annually throughout a country where big game hunting ranches exist in a mosaic that philosophically ascribes to the notion that animals, however rare, must earn their keep in conservation or be culled.

Some nations in Africa are actually considering the translocation of entire national parks in response to concerns about climate change, notwithstanding the enormous hurdles of finding suitable new sites of sufficient size. Such a concept would never work in a nation like India where the fast-declining population of Asiatic Gir lions appear trapped on their island, with no other suitable habitat to be found for them. Some Chinese entrepreneurs are looking to translocate their few remaining big cats to other countries, like South Africa for that reason. Some reintroductions will be increasingly judged on their merits if they have factored in the likely short, and long term

consequences of global warming. The Biosphere 2 project many years ago in Arizona, and the failed koala habitat translocation from Australia to a Japanese zoo, showed just how difficult it is to wrap one's collective mind around large ecosystem restoration efforts, or even to recreate partial habitat, although developers in Los Angeles have argued that wetlands recreated from near scratch can eventually meet RAMSAR criteria.

We hear many say that translocations are about building up the species. But conservation biology has become increasingly an animal rights enterprise, and translocations not so very different than similar human rights repatriation efforts. With animal rights-driven conservation comes also the recognition of each individual, whether of Old Blue, or 86 individual kakapos. Scarcity multiplies each individual's proportionate contribution to a gene pool, of course. But whether IUCN-listed, or not, every individual is important to what I would call the ethical landscape. A history of koala translocations with dire results has made movement of that species a last resort at this point. Since 1990, and despite an enormous cadre of wildlife care-givers, particularly in Queensland, 70% of koala transports have resulted in mortality. Just as people wept at the release of the first two kiwis on Mount Maungatautari, there are silent tears shed for every single koala, or kokako, or kiwi who doesn't make it.

In South India, where the pachyderms are still referred to frequently as "rogues", translocations have involved something very different than concern for the well-being of species and individuals. Three-to-four ton elephants have been dragged by wire snares for days, kicked, beaten into captivity where their spirit and their bodies are broken down, the animals essentially lobotomized so that they might be rehabbed for the tourist or construction trade and a lifetime of servitude.

Elsewhere, large herbivores have been translocated very differently. In Indonesian Sumatra, the Rhino Sanctuary in Way Kambas National Park effected the successful relocation of the massive young Rosa by simply walking her quietly and gently through a village, untethered even by a leash. She helped herself into a waiting truck, appeared by all accounts delighted with the attention, and was moved to a park where she needn't ever fear again for poachers after her horn.

But efforts to move 50 per cent of the last wild Northern White Rhinos -a mere 5 individuals- from a refuge in the Democratic Republic of the Congo to a reserve in Kenya, failed, as the translocation endeavor became mired in political differences.

The Southeastern United States is the number one region in the world where translocations of wild vertebrates has been occurring in the last quarter century, over 400 translocations per year since 1973. (*7)

Disease has been one of the major constraints to such animal relocations, whether among whooping cranes, parrots, desert tortoise, red fox, bighorn sheep or waterfowl. Recently Giant Condors were successfully translocated from Southern California to the Grand Canyon. But in their home range of the Central California Coast, they are being poisoned by lead in bullets, by DDT in marine mammals migrating from Mexico, and second generation rodenticides used by ranchers on perceived local pests. In Virginia, there are actually in place rules against any translocations of wildlife other than back to the precise

property where an animal may have been taken from, because it has allegedly interfered with a 15-state anti-rabies campaign affecting raccoons.

Worries about disease outbreaks have certainly been crucial to understanding the future of amphibia and suitable translocation sites, and the same has been said for the translocation of mountain gorillas where the beringei sub-species could be put at risk due to small numbers and their minute distribution, as well as concerns about maintaining their strict differentiation from lowland gorillas. (*8) With the small number of remaining Northern Muriqui, the primate flagship species of Brazil, a single wildfire or serious pathogen could spell the doom of too many eggs in one basket. Similarly, the risk of augmented exposure to various infectious diseases, particularly malaria, has been documented among free-ranging orangutans taken from the wild for translocation purposes. (*9)

Other kinds of data reveal further translocation impediments: in Canada, the Swift fox shows less survivability among females than males in post-translocation regimes. (*10)

In Texas and Florida, the emphasis has been on saving the Florida panther from extinction by breeding it with members of a sub-species, the Texas Cougar. This has raised some concerns amongst taxonomists that it might set a dangerous precedent. Others in the biological sciences, however, are leaning more towards Buffon than Linnaeus when it comes to defining sub-species, a genetic difference now being pointed out amongst we humans ourselves. In any case, happily, numbers of *Felis concolor*, also known as the mountain lion or puma, have resurged from nearly 30 to well over 90 in less than a decade following the Texas/Florida endeavor. Still, without a turnaround in the public's appreciation of mountain lions, and hence a strong educational outreach component to translocations in general, that animal's future remains in doubt. A critical element of the panther's recovery, as outlined in the Multi-Species Recovery Plan for South Florida, is a set of strong incentive programs for landowners and South Florida land managers, as well as annual workshops, just like this one.

In Southern California, the last couple of mountain lions roam the 300,000 acres of the greater ecosystem of the Santa Monica mountains, penned in by the largest freeways in the world and nearly twenty million people. Two tiny underpasses allow for ecological release. One of the lions has tried 18 times in one month to get across the 405-freeway and failed. A male mountain lion's territory is approximately all 300,000 acres encompassed by the region in question. He can tolerate a few females, but has killed at least two of his own young. The situation is certainly dire, but park service authorities are not even considering, as yet, any translocation protocols for a number of reasons best thought of as evolutionary. The species is not threatened within the U.S., only within Southern California. And there are some guarded reasons for optimism, however. The local transportation authorities are enthusiastically working with biologists to expand the options for free-ranging individuals to cross below freeways, using European examples as their model. Overpasses in Switzerland, for example, built as native frog corridors.

This sort of tool within the urban wildlife mitigation arena affects

one of the most endangered and smallest mammals in North America, the Pacific pocket mouse (*Perognathus longimembris pacificus*) whose few individuals live in just three populations near to one another, at a large military base that has done great work to ensure their survival, and among the multi-million dollar mansions in Laguna Beach. This pocket mouse lives in an evolutionary cul-de-sac, within a strict feeding zone no more than four kilometers from the Pacific Ocean. Translocations to other habitat are being explored, but until the American public can celebrate this little guy with the same enthusiasm as if he were Mighty Mouse, the future looks pretty dire.

These are just some of the kinds of issues future translocation workshops around the world are going to have to come to grips with.

1 - *See "Reintroduction in New Zealand; Reintroduction Specialist Group, Australasian Section," by D.P.Armstrong, Massey University, New Zealand.

2 - *See p.95, *Our Islands, Our Selves -A History of Conservation in New Zealand*, by David Young, University of Otago Press, Dunedin, 2004.

3 - *See "Hawaii's Endemic Birds," by James D. Jacobi and Carter T. Atkinson, <http://biology.usgs.gov/s+t/noframe/t018.htm>.

4 - *See "Draft Revised Recovery Plan for the Alala [*Corvus hawaiiensis*]," October 2003, U.S. Fish and Wildlife Service, Portland Oregon.

5 - *See p.224, "Conservation units and translocations: strategies for conserving evolutionary processes," Craig Mortiz, *Hereditas* 130: 217-228 [1999], p.224.

6 - *See *p.10, *California Wild*," The Magazine of the California Academy of Sciences, Winter 1998, Vol. 51:1, www.calacademy.org/calwild/1998Winter/stories/Darwin.html.

7 - *See *Captive Propagation, Introduction, and Translocation Programs for Wildlife Vertebrates*, by Joshua Dein, Kathryn Converse, and Christy Wolf," *Journal of Zoo and Wildlife Medicine*, 24:265-270, <http://biology.usgs.gov/s+t/noframe/u219.html>.

8 - *See "Should We Consider the Translocation of Gorilla Populations?" by John E. Cooper, *Gorilla Journal* 13, December 1996.

9 - *See "Vector-Borne and Zoonotic Diseases - The Impact of Ecological Conditions on the Prevalence of Malaria Among Orangutans," by Nathan D. Wolfe, et.al., Mary Ann Liebert, Inc. - Vector-Borne and Zoonotic

Diseases -2(2): 97,
www.liebertonline.com/doi/abs/10.1089/153036602321131896.

10 - *See "Movement and survival parameters of translocated and resident swift foxes *Vulpes velox*," by Axel Moehrenschrager and David W. Macdonald, *Animal Conservation* (2003), 6: 199-206 Cambridge University Press, From Abstract.