

Clean, green, and cruelty free?

Catherine Amey

Clean, green, and cruelty free

The true story of animals in New Zealand



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Published by Rebel Press
P.O. Box 9263
Te Aro
Te Whanganui a Tara (Wellington)
Aotearoa (New Zealand)
Email: info@rebelpress.org.nz
Web: www.rebelpress.org.nz

National Library of New Zealand Cataloguing-in-Publication Data
Amey, Catherine

Clean, green, and cruelty free? : the true story of animals in New Zealand / compiled by
Catherine Amey for the Animal Protection Society.

ISBN 978-0-473-13340-5

1. Animal welfare --New Zealand. 2. Animal welfare --Moral and ethical aspects --New
Zealand. 3. Agriculture --Moral and ethical aspects --New Zealand.

I. Title

636.08320993—dc22

Printed on 100% recycled paper.

Cover design and layout: Valerie Morse.

Bound with a hatred for the State infused into every page.

Set in 11pt Adobe Garamond Pro. Titles in 18pt Maiandra GD.

Dedicated with love to Tabby, who faithfully kept my knees warm while preparing this document. She is also solely responsible for any typographic errors!

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Introduction

Life in New Zealand is based around animal abuse. About a sixth of our national export earnings come from the dairy industry, and another tenth from meat exports;¹ deer velvet and wool also form a significant part of the export market. Enormous numbers of animals are killed to satisfy our appetites. In 2006, each person ate 37 kg of poultry (up from 28 kg in 2000),² 34 kg of beef, and 20 kg of pork.³ Two iconic New Zealand dishes are lamb chops and pavlova made from battery eggs, served with whipped cream from the dairy industry – dishes eaten by Kiwi blokes who spend their spare time hunting, fishing, and at the races.

Every year we slaughter around 24 million lambs, 2.2 million beef cattle, 1 million dairy calves, 650,000 deer, 700,000 pigs, 67 million chickens, and three quarters of a million tonnes of fish. Many of these animals have endured appalling lives. Around 2.5 million battery chickens are crowded into tiny cages, unable to spread their wings. Thousands of pregnant sows endure boredom and frustration, biting at the bars of stalls too cramped to allow them to turn around. Tiny foetal calves are induced prematurely, so that their blood can be drained away for the profits of the blood products export industry. Many animals suffer for human entertainment, in circuses, zoos, aquariums, racetracks, and rodeos. Thousands are hunted for sport every year, or mistreated as companion animals. Still more animals are trapped, shot, or poisoned because they have been defined as pests, or endure pain in laboratory experiments to increase the profitability of the agricultural industry.

Relatively little has been written on animal suffering in New Zealand. This booklet gathers together some facts about animal life and death in this country. It is a work in progress, and more details can be found by consulting the texts referred to in the footnotes. While the emphasis is on animal suffering, some environmental information has been included in the section on fisheries. Commercial fishing has a devastating impact on both fish and other species. However, the philosophical arguments for animal rights are not covered, as there are already many books that explain these in detail.

We hope this information will be useful when writing leaflets, submissions, or letters to the editor, and we intend to update it regularly. There are compelling environmental arguments against animal-based agriculture, and we plan to incorporate information about the environmental impacts of animal exploitation into future editions. Information is a first step towards creating a cultural change in the way we interact with animals.

For the world can change, even within the space of a single lifetime, and cruel practices, no matter how profitable, can be abolished. At the end of the 18th century, over three-quarters of all humans alive were slaves or serfs of some kind. This was a time when, as historian Seymour Drescher puts it, “freedom, not slavery, was the peculiar institution.”⁴ Yet, by 1837, legislation had been passed outlawing slavery within the British Empire, and by the end of the 19th century, slavery was outlawed almost everywhere, at least in theory. One of the first British anti-slavery campaigners, Thomas Clarkson, lived to see the abolition of slavery throughout the British Empire, as on August 1, 1838, 800,000 enslaved men, women and children officially became free,⁵ causing a huge loss to the economy of the British empire. Even though abolishing slavery came at a tremendous economic cost (1.8 per cent of Britain’s annual national income over more than half a century⁶), the right of all human beings to liberty was recognised as a moral imperative.

More and more people in this country are concerned about animal suffering. In a 2002 Colmar Brunton poll, 79 percent of respondents said that they would be prepared to pay higher prices for their eggs, if hens could be liberated from battery cages, and insisted that battery cages should be banned as soon as possible.⁷ In the same year the Minister of Agriculture received over 64,000 submissions calling for a total ban on sow stalls.⁸

Despite an overall trend towards increased meat consumption, some people are avoiding animal products for health or ethical reasons. A survey conducted by A.C. Nielson on behalf of Sanitarium found that while only two percent of the population was strictly vegetarian, 20 percent of people preferred vegetarian food, and almost a third had reduced their meat consumption in the previous two years.⁹ Many people overseas are boycotting meat products, and the value of New Zealand’s meat exports is decreasing.¹⁰ Best of all, there is a growing movement of people speaking out against animal suffering, with groups such as Animal Action, Save Animals From Exploitation, National Anti Vivisection Campaign, and numerous local grassroots groups gaining momentum in their campaigns against animal cruelty.

This book ends with a vision of a gentler Aotearoa New Zealand, where animals are no longer defined as property, and where human relations with non-human animals are based around respect, care, and pleasure in each other’s company, rather than on profit and suffering. There are many ways in which we can work towards realising this vision. Lobbying, education, protest, and direct action are all vital. As more people become informed and ethically motivated, we can work to stop both animal and human suffering.

Notes

1. "Agricultural production," Te ara: the encyclopedia of New Zealand, accessed Mar. 12, 2006. <<http://www.teara.govt.nz/NewZealandInBrief/Economy/2/en>>
2. "Poultry meat," Ministry of Agriculture and Forestry, accessed June 16, 2006. <<http://www.maf.govt.nz/mafnet/rural-nz/statistics-and-forecasts/sonzaf/2004/2004-sonzaf-21.htm>>
3. Rennie, Richard, "Beef bears down on chicken," Country-wide, accessed June 15, 2007. <<http://www.country-wide.co.nz/article/7840.html>>
4. Hochschild, Adam, *Bury the chains : prophets and rebels in the fight to free an empire's slaves* (Boston: Houghton Mifflin Co., 2005): 2.
5. Hochschild 348.
6. Hochschild 5.
7. "SPCA condemns battery cage indecision," 30 Aug. 2004, SPCA New Zealand, accessed Apr. 1, 2006. <http://www.rspcanz.org.nz/news/press_releases/040830-battery cage.doc>
8. "Sow stall ban in sight!," 7 Feb. 2002, SPCA New Zealand, accessed Apr. 1, 2006. <http://www.rspcanz.org.nz/news/press_releases/sowstallbaninsight.doc>
9. Bidwell, Pam, *Living a good life* (Wellington: Wellington Branch, New Zealand Vegetarian Society, 2002).
10. Gregory, Neville G, *Meat, meat eating and vegetarianism: a review of the facts*, MAF Policy Technical Paper 97/16 (Wellington: MAF Policy, 1997).

Chapter 1

Animals and the law

The Animal Welfare Act 1999 sets out the general legislative framework for the treatment of animals in New Zealand. More detailed instructions are specified in a set of animal welfare codes drawn up by the National Animal Welfare Advisory Committee. Each animal welfare code is supposed to be reviewed at least once every ten years, with New Zealanders having the opportunity to write and present submissions on the content.

While the Act is an improvement on previous legislation, animal rights law expert Deidre Bourke believes that “vast numbers of animals have yet to see any tangible improvement in their living conditions. Their day to day lives and their welfare remains largely unchanged.”¹ The Act offers only very general guidelines for the care of animals. In theory, the Animal Welfare Act guarantees most animals (apart from shellfish and insects) “five freedoms.” These include food and water; adequate shelter; the opportunity to display normal patterns of behaviour; appropriate physical handling; and, protection from injury and disease. It also includes provisions relating to humane slaughter. However, these do not apply to animal experimentation, hunting (including “canned hunts” in safari parks), fishing, or “pest” control. The codes of animal welfare, which provide more precise standards, have the legal status of regulations, and are scrutinised by the Regulations Review Committee of Parliament. These codes specify both minimum standards and recommendations for best practice. Minimum standards are legally binding, and failure to comply with these can be used as prosecuting evidence if an offender is charged under the Animal Welfare Act. Recommendations, however, have no legal force, and are often ignored.

When the new Act came in force, many of the existing codes of welfare (including those for broiler chickens, layer hens, pigs, rodeos, zoos, and circuses) breached the Act. In particular, these codes did not comply with the requirement for animals to have the “opportunity to display normal behaviour patterns.” However, the old codes have been allowed to stand while industry revises them. This has proved to be a process of continuous stalling. Industries are continuing to draw up their own codes, which often have lower standards than those specified in the Act. In effect, codes of welfare have become oriented towards protecting companies rather than animals.²

While the Act provides little protection for wild or “pest” animals, it enables restrictions to be placed on the types of traps and devices used in trapping animals, and for animals caught alive (for example during pest control) to be killed humanely.³ In theory,

the Minister of Agriculture and Forestry (MAF) can prohibit traps if they cause “unacceptable pain or distress.” “Unacceptable distress” is usually taken to mean that the animal is not killed immediately, but suffers in agony for three minutes or longer. However, traps such as the Fenn trap and leghold traps have not been banned, despite breaching the Act. These devices are still used extensively.

Great apes

The Animal Welfare Act makes it illegal to experiment on great apes (chimpanzees, gorillas, orang-utans) in New Zealand, unless the project is carried out with the approval of the Director-General of the Ministry of Agriculture. Any such research can only be approved if the Director-General is satisfied that the experiment is in the best interests of the individual ape concerned, or that it is in the interests of that species and the benefits to the species outweigh any harm to the individual animal. In practice, this legislation is largely symbolic, as there are only 30 or so chimpanzees and orang-utans held captive in New Zealand zoos, and no experimentation has ever been carried out on them.⁴

Marine mammals in the wild

The Marine Mammals Protection Act 1978 and the Marine Mammals Protection Regulations 1992 regulate human interactions with wild marine mammals.⁵ The Marine Mammals Protection Act 1978 provides for the protection, conservation and management of marine mammals in New Zealand and its territorial waters. These include the sea within 12 nautical miles of the Ross Dependency and the internal waters of the Ross Sea. The Department of Conservation administers this Act, and a permit from the Minister of Conservation is required to capture or kill a marine mammal (seal, whale, dolphin, porpoise, dugong or manatee). The Act also provides for marine mammal sanctuaries.

The Marine Mammals Protection Regulations 1992 regulate recreational activities such as whale watching and “swimming with dolphins.” These regulations are also administered by DOC, who randomly place staff incognito on boats and aircraft to monitor the activities of commercial tourism operators.⁶

However, despite this legal protection, large numbers of marine mammals are trapped and die in commercial fishing nets every year. Between 1988 and 2003, 7,759 seals died in hoki fisheries, and at least 2,000 New Zealand sea lions have been killed in the Auckland Islands squid fishery since 1980.⁷

Animal experimentation

Part 6 of the Animal Welfare Act 1999 sets out the procedures which regulate the use of live animals in research, testing and teaching. In particular, the Act specifies that all institutions using live animals must hold a Code of Ethical Conduct, and an Animal Ethics Committee must approve each experiment or project. The members of the Animal Ethics Committee must include an animal welfare organisation member, a vet, and a member of the public appointed by the local regional council. The legislation specifies

that researchers should weigh the likely benefits of the research against the harm caused to the animals. They should also consider whether they can reduce the number of animals used, refine the techniques to minimise harm and maximise benefits, and replace animals with non-living or non-sentient alternatives where appropriate.

The system of animal ethics committees is overseen by the National Animal Ethics Advisory Committee (NAEAC), which once a year releases an annual report summarising the numbers of animals used in experiments in New Zealand. Experiments are graded in categories, from those described as causing “little or no suffering”, right up to those causing “severe suffering.” However NAEAC reports usually contain little information about the experimental procedures, institutions or individual researchers involved. It is extremely hard to obtain details about specific experiments. The statistics NAEAC provides are very general, and tend to include large numbers of projects based around non-invasive conservation research (tagging of birds etc.), so that the proportion of animals experiencing suffering appears artificially low. NAEAC is now proposing to change the “manipulation severity scale,” so that experiments are graded as causing “impacts” rather than “suffering.”⁸ A sixth category of “unacceptable impact” will be added. Such “unacceptable” experiments are limited to procedures that will never be carried out in New Zealand, and this category seems designed to make the experiments that do occur appear less reprehensible.⁹

In theory, animal ethics committees should be able to provide some kind of protection for animals. However, in practice it is difficult for these committees to operate with any real independence. The animal welfare representatives are usually untrained and outnumbered by the researchers (who have a vested interest in animal experimentation). Even the veterinarians on the committee may be involved in animal experimentation, or have clients in the industry. It is also difficult for the public representatives on the committee to provide effective representation, as the Regional Councils who manage the process rarely make their contact details known, or allow the wider public to become involved in the selection process. There is considerable secrecy surrounding the animal ethics committees and their decisions, and it is very difficult to find out who actually are the committee members.

National anti-vivisection organisation (NAVC) considers that the harm-benefit assessment process as outlined in the Act is deeply flawed. NAVC has pointed out that there are no guidelines for weighing the benefit of the research against the level of animal suffering, and the death of animals in experiments is not taken into account. There is no consideration given to the wider risks of research involving technologies such as genetic engineering and xenotransplantation. There is also little evidence that researchers put genuine effort into seeking reductions in the number of animals, refinements in experimental technique, or replacement of animal experiments – it appears that they often just need to tick a box to fulfil the requirements of the Act.¹⁰

In summary, the entire regulatory process is surrounded with secrecy, the public and animal rights/welfare community has little or no voice, and there is no serious attempt to reduce animal suffering. The number of animals experimented on has been increasing in recent years: 263,214 live animals were used in research, testing or teaching in 2005 — up by almost 20,000 from 2004.¹¹

Notes

1. Bourke, Deidre, "Codes of welfare: are they really working to protect animals?" ARLAN, accessed July 4, 2006. <<http://www.arlan.org.nz/articles/Codes%20welfare.htm>>
2. Bourke.
3. The Animal Welfare Act, Biosecurity New Zealand, accessed Aug. 11, 2006. <<http://www.biosecurity.govt.nz/legislation/animal-welfare-act/index.htm>>
4. "Family obligations," Massey, 14 (2002), accessed Dec. 23, 2006. <http://masseynews.massey.ac.nz/magazine/2003_April/stories/primate.html>
5. Constantine, Rochelle, "Effects of tourism on marine mammals in New Zealand," *Science for Conservation* 106 (Wellington: Dept. of Conservation, 1999): 7.
6. Baxter, Andrew S. and Michael Donoghue, "Management of cetacean watching in New Zealand," accessed Jan. 2, 2006. <<http://www.helsinki.fi/~lauhakan/whale/newzeala/manage/manage.html>>
7. "Marine mammals," *Te ara : the encyclopedia of New Zealand*, accessed Jan. 2, 2006. <<http://www.teara.govt.nz/EarthSeaAndSky/OceanStudyAndConservation/MarineConservation/3/en>>
8. Research results 2004/05 research final report summaries, *MAF Policy Information Paper* 06/01, accessed Jan. 2, 2006. <<http://www.maf.govt.nz/mafnet/rural-nz/research-and-development/research-results/2004-2005/researchresults04-05final.pdf>>
9. *NAEAC news*, no. 25 (2007): 1.
10. National Anti Vivisection Campaign, *A critique of the animal ethics committee system*, 2005 (Wellington: National Anti Vivisection Campaign, 2005).
11. National Animal Ethics Advisory Committee June 2005, accessed Jan. 2, 2007. <<http://www.biosecurity.govt.nz/animal-welfare/naeac/annual-report/naeac-ar-05.pdf>> p. 19.

Chapter 2

Animals in Agriculture: a pastoral idyll?

The agricultural industry is the major source of animal suffering and death in New Zealand. Every year, hundreds of thousands of beings are born, fattened, and slaughtered. Their lives are measured in months, sometimes in weeks. Their mothers are continually pregnant, and their babies are continually taken from them. When the mother's fertility declines, she too is killed.

When we consider the sheer numbers of livestock in New Zealand, it can be hard to remember that farm animals are individual, sentient beings, and that each calf or piglet experiences pain and joy as vividly as any puppy or kitten. Farmers often treat animals as production units. A recent New Zealand farm management textbook talks much about inputs, outputs, and benchmarks, and little about the animals on which the industry is based. The book does however, describe animals as "inventory items," defining a newly purchased lamb as "raw material," a growing lamb as a "WIP (work in progress)," and a lamb sent to slaughter as "finished goods." The text discusses the difficulties of stress management for the farmer and his family, but never mentions the fear and pain suffered by the animals.¹

Yet we know that thousands of cows suffer from mastitis and lameness, and a million tiny calves die every year as a direct result of the dairy industry. Male calves who are not slaughtered at a few days of age are castrated without anaesthetic. Thousands of merino sheep have hunks of flesh ripped from their hindquarters, in a process called "mulesing." Hens are crammed into cages so small they are unable to spread their wings, while sows spend much of their lives trapped behind the bars of barren crates. Thousands of broiler hens and ducks are imprisoned in dark sheds.

Almost all agricultural animals end their lives at the slaughterhouse. Industries and activities linked to agriculture cause much animal suffering. Animal experimentation is closely associated with the agricultural industry. Every year, over 100,000 live animals are experimented on in attempts to make them grow faster, give birth to more babies, or produce tastier flesh or modified milk. Pest control is also linked to agriculture. Possums are trapped, poisoned and shot because they carry bovine tuberculosis, which threatens the dairy industry. Rabbits are shot, poisoned, and infected with disease because they eat the grass that farmers require for their sheep. Wild goats, pigs, and geese are perceived to threaten farm incomes, and are hunted and poisoned. In 2002, there were at least 30 abattoirs in New Zealand.² At Wellington slaughterhouse Taylor Preston, over

1,300,000 animals are slaughtered on the sheep and lamb chain every year, while the beef chain slaughters 60,000.³

Dairy Cows

In 2005, there were 5.1 million dairy cows⁴ in New Zealand, 80 per cent of these in the North Island. In the year ending September 2006, the dairy industry was worth 5,709 million dollars to the New Zealand economy, a figure that seems likely to rise in 2007.⁵

The life of the dairy cow

- cows endure a continuous cycle of pregnancy and lactation
- 80 percent of cows are artificially inseminated
- the calf is separated from the mother cow at just 2 days of age
- up to a million young dairy calves are slaughtered every year
- cows are killed at 8-10 years of age or earlier
- 20% of cows are culled each year
- up to 55% of all beef is from the dairy industry
- many cows suffer from painful swollen udders (mastitis), lameness, and lack of shelter

Even though cows generally live outdoors, rather than in barns and feedlots, there is tremendous suffering associated with the dairy industry. Cows naturally live 25 years or more. However New Zealand dairy cows are killed at 8-10 years of age, usually at the end of the milking season. Around 20 percent of all dairy cows are killed each year, because they are considered “too old”, or have failed to become pregnant⁶ (although farmers often fail to correctly identify pregnant cows).⁷ Cows form strong relationships with other cows, spending most of their time in “friendship groups” of two to four cows who lick and groom each other,⁸ and this annual slaughter is distressing to their friends in the herd. Cows are intelligent animals who enjoy challenges and feel excitement when they finish a task or use their intellect to overcome an obstacle. According to researcher Donald Broom, “The brainwaves showed their excitement; their heartbeat went up and some even jumped into the air. We called it their Eureka moment.” The dairy industry is closely integrated with the meat industry. Up to a million male dairy calves are slaughtered for meat every year. Cross-bred dairy heifers are mated once, to a beef bull, and then slaughtered at the age of 30-32 months, along with their calves.⁹ Up to 55 per cent of all beef produced is from cattle bred for the dairy industry.¹⁰

Cows are notoriously “horny,” yet many New Zealand cows never meet a bull. 80 percent of cows are artificially inseminated with sperm from genetics companies such as Livestock Improvement and Ambreed.¹¹ Only cows who fail to become pregnant artificially are allowed to mate with a bull.¹² Livestock Improvement Corporation is the dominant player in the artificial insemination market, collecting semen from 15 bulls to inseminate three quarters of New Zealand’s dairy cows. Sperm is collected every few days during the spring season. Castrated steers are held in metal pens, their heads secured between metal bars, with the aim of “teasing” the bulls until they are sexu-

ally aroused. The bull's penis is then ejaculated into a sleeve called an "AV" or artificial vagina.¹³

During her short life, each cow endures a continuous cycle of pregnancy and lactation, producing on average over 3,700 litres of milk during the 300-day milking season,¹⁴ and giving birth to 4-10 calves. Drugs may be used to artificially induce her labour, so that she is in milk for longer.¹⁵ Around 7 per cent of cows are induced in 53 per cent of New Zealand herds.¹⁶ Induction of calving is stressful, and is associated with increased retention of the afterbirth, and diseases such as acute collapse syndrome.¹⁷ An induced cow may not produce enough colostrum, and this will impair her young calf's immune system.¹⁸ There have been some moves to ban the induction of dairy cows, and the draft Animal Welfare (Dairy Cattle) Code of Welfare 2006 recommends that induced calving should be used for management purposes only as a "last resort."¹⁹ However the final decision is left up to the farmer. Farm workers often also perform pregnancy examinations. These involve a farmer examining the cow by feeling up her rectum, or performing an ultrasound scan. Such examinations are often inaccurate, and can lead to painful or fatal rectal perforation.²⁰

When the calf is only 4 days old, he or she is taken away, and either sent to slaughter immediately, or reared in a calf paddock until weaning.²¹ In the 6-8 weeks after calving, cows lose weight and condition rapidly, as their bodies consume themselves to provide milk for the absent calves²² – so that we can buy milkshakes to wash down burgers made from the body of those same calves. Researchers have estimated that a modern dairy cow is under as much metabolic strain as a cyclist in the Tour de France.²³

Cows are usually milked twice a day, and often walk up to two or three kilometres to be milked by machine. Many dairy cows suffer from lameness due to these long walking distances, or from standing on concrete surfaces while being milked. Lameness is an agonizing condition, and sometimes cows are in too much pain even to be able to stand. Lameness often goes untreated.²⁴ A recent survey found that almost half of all herds included some lame cows, with up to a third of cows suffering from lameness.²⁵ Cows also have the ability to learn from each other, another indication of their intelligence, which is comparable to that of a dog and a bit higher than that of a cat. If an individual cow in a herd is shocked by an electric fence, the rest will become alarmed and learn to avoid it.²⁶

Around a quarter of New Zealand dairy cows suffer from mastitis at some time in their lives.²⁷ Symptoms include hot, swollen, acutely painful udders, fever, and loss of appetite. The cow's udder may become so inflamed that it is as hard as a stone, and blood bubbles into her milk, which becomes clotted and watery.²⁸ Severe cases of mastitis can kill a cow in 24 hours.²⁹ A recent study carried out by Chris Compton from the Animal Health Centre in Morrinsville found that 25 per cent of all heifers suffered from clinical mastitis within 14 days of calving,³⁰ while a 1999 study of cows of all ages found that around 10 percent suffered from mastitis.³¹ Modern cows have been bred for milk production to the point where the teats of their enlarged udders dangle close to the ground, and become muddy and infected. In fact, for each centimetre increase in distance between the ground and the cow's teat, the risk of mastitis decreases by 7 per cent.³² Some farmers are moving to a once-a-day milking system, which is less work for the farmer. While this means cows spend less time walking, the new system tends to increase udder pressure in high yielding cows, causing extra stress and mastitis risk.³³

Although tail docking is not as common in cattle as in sheep, the tails of some dairy cows are amputated using a tight rubber ring, or a searing iron, in order to “improve comfort for milking personnel, and enhance milking efficiency,”³⁴ or to try and stop mastitis. However, the scientific evidence for mastitis prevention is inconclusive. A US study by researcher Dan Weary found no health benefits in chopping off cows’ tails.³⁵ Amputation is very painful, as the cow’s tail is richly supplied with nerves and blood vessels. Cows need their tails to swat away insects, and possibly to communicate with other cows. Docked cows try in vain to flick their tail stumps, and are likely to suffer from neuropathic pain, similar to the “phantom limb” pain experienced by human amputees.³⁶ Cattle may also be branded for identification. The RNZSPCA is opposed both to the docking of the tails of dairy cows, and to the use of hot branding.

Many dairy cows live in bare paddocks without shelter, and suffer from heat in summer and cold winds in winter. In a recent survey, 30 percent of dairy farmers had no shelterbelt on their farm. Of those who did, only 17 percent had shelterbelts near more than half their paddocks. In the South Island, shelterbelts of established trees have been demolished in recent years. This provides wide open pastures for dairy cattle, but also exposes them to wind and chill from southerly and westerly storms which can persist for days.³⁷ The survey found that only 6 percent of farmers provided overhead shade for cows waiting to be milked in summer (though 40 percent did use sprinklers for cooling). On 54 percent of farms, cows had to wait an hour or more to be milked, often in exposed conditions.³⁸ In wet winter conditions, cows are often confined in cramped “stand-off areas” or “sacrifice paddocks” to prevent pasture damage by their hooves.³⁹

New Zealand herds often contain over 300 cows, and sometimes up to 3,000 cows.⁴⁰ These large herd sizes are stressful, as each cow can only easily relate to up to 100 other animals. In large herds, cows become tense and aggressive, and the relatively intensive stocking rates make it difficult for cows to maintain their “personal space.”⁴¹ With the recent expansion of dairy farming in the South Island, numbers of lactating cows and calves have increased dramatically. Farms have become large corporate structures, where profits are paramount, and where there is little room for concern about the welfare of the animals.⁴²

Recently, intensive farming systems for dairy cows have been introduced into New Zealand (though these are not intensive on the same scale as battery hen or intensive pig farms). The July 2005 issue of *New Zealand dairy exporter*⁴³ describes a farm in South Taranaki, where the cows are fed mainly maize, and stocked at a density of 4.8 cows per hectare. They are also milked throughout the year, without the winter respite allowed to cows on conventional farms.

Organic dairying

While cows may have better lives on organic farms, they are still treated as milk producing machines, and are killed as soon as their milk production declines. A study showed that cows on Swiss organic farms were slaughtered at a young age, just like their counterparts on conventional farms.⁴⁴ Organic standards such as those promulgated by IFOAM still allow the castration and dehorning of cattle.⁴⁵

Slaughter

Most dairy cows end their lives at the slaughterhouse. “Bobby calves” in particular suffer terribly on their first and final journey. Transported as young as 4 days of age, they endure cold and hunger, fasting for up to 30 hours, while trying to maintain their footing in the cattle truck. There is no legal requirement of calves to be fed before being transported. While struggling down the ramp of the truck, the tiny calves frequently fall and are injured.⁴⁶ A 1998 study⁴⁷ looked at 7,169 young dairy calves who arrived at a Wanganui abattoir after a 7-hour journey in cattle trucks. The research found that 27 arrived in an “unacceptable condition” – lying down, unable to walk, extremely weak, or seriously injured. A further four percent were “marginal,” with “a wet umbilicus, were hollow-sided, apparently immature, or weak and slow and unsteady on their feet.” While these numbers may not seem large, the fact that a million dairy calves are slaughtered every year means that thousands probably arrive at slaughterhouses in a critical condition, and tens of thousands are seriously unwell after the journey.

“Beef” cattle

There are 4.4 million beef cattle in New Zealand (mostly from the Hereford and Angus breeds). 2.2 million of these are slaughtered every year,⁴⁸ for domestic consumption, but also for export to be used in American hamburgers and other processed meats. Beef was worth around 2,110 million dollars to the New Zealand economy in the year ending September 2006.⁴⁹

Cattle bred and killed for meat

- 2.2 million slaughtered every year, at 18 to 32 months of age
- half a million calves castrated every year without anaesthetic (using rubber rings, surgery, or a clamp to crush the spermatic cord)
- branded and tails docked without anaesthetic
- hormone implants used in some cattle raised for the export market

Typically a steer is slaughtered at the age of 18-20 months, before he has seen his second winter. Hill country cattle, who gain weight more slowly, may live 30-32 months before being sent to the slaughterhouse.⁵⁰

Every year, more than half a million male calves⁵¹ are castrated at the age of two to four months, in order to improve the quality of their flesh, and make them easier to handle.⁵² Carcasses from bulls command lower market prices than carcasses from steers.⁵³ Most commonly, the farmer applies a tight rubber ring so that the testes wither and drop off, causing chronic pain and abscesses. Other farmers surgically remove the testes, usually by pulling them out through an incision in the scrotum, and then scraping or cutting the spermatic cord with a knife, or simply pulling it until it breaks.⁵⁴ Less frequently, farmers apply a clamp to crush the spermatic cord, or place a high-tension latex band around the scrotum. All these techniques are extremely painful, as the calf’s testes and scrotum are richly supplied with nerves.⁵⁵ Yet a MAF survey found that only 3 percent of calves received any pain relief.⁵⁶ Surgical castration (used on 18 percent of

calves) can cause haemorrhage, infection, and prolapse of the intestine into the scrotum.⁵⁷ Equipment is generally not sterilised. Castrated cattle are in so much pain that they lose their appetite, and eat dramatically less for around a week after surgery.⁵⁸

Calves are often dehorned to prevent the risk of damage or bruising to their carcasses at slaughter. The calf's horns are removed either at the horn bud stage, or by amputation in older animals. Disbudding techniques include thermal cautery, caustic chemicals, and surgery. Cautery entails burning the horn bud with a hot iron causing third degree burns.⁵⁹ An older calf's horns may be amputated with guillotine shears, embryotomy wire, scoop dehorner, or a butcher's saw. This causes pain, bleeding, and exposure of the frontal sinuses in older animals.⁶⁰ Even when pain relief is given, the pain often outlasts the local anaesthetic,⁶¹ with dehorned calves still obviously in pain six hours after dehorning.⁶² Anaesthetic is not used on animals who are dehorned or castrated on organic farms, as this will cause loss of certification.⁶³

Cattle may be branded for identification (usually freeze branded with carbon dioxide) and their tails are sometimes docked. After enduring either branding or docking, cattle show their pain by bellowing, stamping their feet, shaking their head and tail, and flicking their ears.⁶⁴ Calves are moved around the farm, into stockyards and onto trucks with lead-loaded stock whips (either leather or synthetic), electric prodders, stock canes, or strips of plastic pipe.

Traditionally New Zealand cattle have lived in reasonably spacious paddocks. However, an increasing number of beef cattle are being grazed in intensive systems, where a large amount of their diet comes from supplementary feed. Significant mortality rates have been reported on a few of these farms, along with concerns that animals sometimes have little or no access to shade and shelter.⁶⁵

There is one large-scale feedlot in New Zealand. Five Star Beef Whakanui in Ashburton confines cattle for up to 255 days in concrete floored pens. The feedlot contains six rows of such pens, each one kilometre long. The cattle arrive at about 18 months of age to be fattened on wheat, barley, molasses, and maize silage. When they reach individual weights of around 800 kg they are trucked to slaughter at Canterbury Meat Packers, and their bodies exported to Taiwan, Japan, and Korea.⁶⁶ The feedlot holds up to 15,000 steers at a time. In 2003, 25,000 cattle were fattened by Five Star Beef.⁶⁷

While hormone implants are not generally used in beef production, the export market is an exception, with 750 New Zealand farmers using hormone implants in 2004/2005 to produce beef for the US hamburger market.⁶⁸

Sheep

In June 2005, there were around 40 million sheep on New Zealand farms. Around 30 million lambs are born each year, 24 million of whom are slaughtered for meat.⁶⁹ Around 4.5 million adult sheep are killed for their flesh.⁷⁰ Lamb and mutton was worth 1,806 million dollars to New Zealand in the year ending September 2007.⁷¹ Sheep wool is also a major source of export earnings, generating around 550 million dollars a year. New Zealand is the world's largest producer of coarse wool used for products such as carpet. The life cycle of a sheep begins when the mother ewes are mated in February or March to give birth in August or September. At this time weather is still cold, particularly in the South Island, and lambs often suffer and die from exposure.

“Teazer rams” are paraded past ewes to induce them to ovulate early, so that they will give birth in early August.⁷² This lets farmers supply meat companies with early spring lambs ahead of competitors. However, in the south of New Zealand, heavy snowfalls regularly kill thousands of lambs. A 1999 survey estimated that 6-10 percent of all lambs born in West Otago and Southland die of exposure.⁷³ In the severe snows of 1992, up to 50 percent of sheep on Canterbury farms died of suffocation, exposure, stress, starvation, or drowning, with one farm seeing nearly 4,000 sheep die.⁷⁴ According to Hawke’s Bay live sheep exporter George Assaf, the annual sheep mortality on New Zealand farms averages at around 11 per cent.⁷⁵ Ewes are physiologically designed to produce just one lamb after a 5 month gestation. However, due to genetic selection, multiple births are now commonplace. Births involving twin or triplet lambs are more likely to be difficult, with a high incidence of lamb deaths in multiple births. A 2005 study of 20 flocks found that the mortality rate for lambs born as triplets was 29 percent between birth and weaning. Overall, about 14 per cent of lambs die between birth and weaning.⁷⁶

Increasing numbers of ewes undergo artificial insemination. Companies such as Invercargill-based Genetic Gains Ltd⁷⁷ collect semen from “superior” rams by hand

The life of sheep

- 24 million lambs slaughtered every year
- thousands of early born lambs die of exposure
- merino lambs are “mulesed”, by slicing large chunks of flesh and skin from their backsides, without anaesthetic, leaving a bleeding, gaping wound
- male lambs are castrated and have their tails docked, without pain relief

masturbation or electrical stimulation. Ewes are then inseminated by squirting the semen into the cervix or vagina, or directly into the uterus with a laparoscope – a highly invasive and stressful procedure.⁷⁸ Embryo transfer technology is also used by some New Zealand farmers. Donor ewes are superovulated, which means that they are injected with hormones to increase the number of eggs produced. The fertilised eggs are then flushed out of the ewe’s uterus, and implanted surgically into recipient ewes.⁷⁹

Although the most common New Zealand sheep breed is romney, merinos make up about 7 percent of the New Zealand flock. In an attempt to prevent flystrike, half of all merino sheep are mulesed. Mulesing involves slicing large chunks of skin and flesh from the backsides of live merino sheep to prevent blowfly infestation.⁸⁰ Strips of skin are removed from either side of the perineum and from each side of the tail, usually without any pain relief,⁸¹ leaving a bleeding, gaping wound. This eventually heals, creating a large area of scar tissue devoid of wool. Mulesing causes extreme pain both at the time it is carried out and during the healing process. There is also a risk of infection and flystrike of the wound itself.⁸² A series of research studies showed that lambs were still in extreme pain 24 hours after mulesing, and some were still in pain 2 days later. Mulesed lambs remembered the traumatic procedure for a long time and avoided the handler for weeks afterwards.⁸³ Farmers who do not mules use a variety of conventional practices to manage fly strike, including spray washing and diet regulation. Others simply avoid the problem by raising sheep who have been bred to have smooth skin or a bare breach.⁸⁴ Few people realise that mulesed sheep are actually still vulnerable to flystrike. An Aus-

tralian study found that 35 percent of mulesed and crutched merino ewes were affected by flystrike.⁸⁵

Hungry sheep on the Yorkshire Moors (Britain) taught themselves to roll 8 feet across hoof-proof metal cattle grids and raid villagers' valley gardens. According to a witness, "They lie down on their side, or sometimes their back, and just roll over and over the grids until they are clear. I've seen them doing it. It is quite clever, but they are a big nuisance to villagers."⁸⁶

Lambs' tails are routinely docked to prevent the formation of dags and flystrike. The tail is amputated surgically without pain relief using a rubber ring or a hot searing iron.⁸⁷ This is an agonising procedure. Docked lambs show nervous system changes which indicate that they experience long term post-amputation pain.⁸⁸ In fact, tail docking is not necessary – there are breeds of sheep who have naturally short tails, and in some countries lambs are never docked.⁸⁹

Pizzle dropping is carried out on a few farms in the South Island, to prevent pizzle rot in castrated male merino sheep. The skin that holds the prepuce against the belly is cut with modified mulesing shears so that the end of the intact prepuce hangs free of the abdomen.

Most male lambs are castrated without pain relief. A survey carried out in 2000 found that 41 percent of male lambs were partially castrated (using the "short scrotum" technique), 39 percent of male lambs were left entire, and 20 percent were fully castrated, producing wethers.⁹⁰ The methods used are the same as for calves — rubber rings, surgical castration, high tension bands, and clamping the spermatic cord. The long term consequences of tail docking and castration include chronic pain, hyperalgesia, phantom pain, and neuropathic pain.⁹¹

Being shorn is extremely stressful to sheep. They are mustered, isolated from other sheep, handled by humans (sheep are usually very afraid of humans, reacting to people in the same way that they do to wolves and other predators), captured, and held upside down.⁹² Before shearing, adult sheep who are not pregnant are held in bare yards without food for 18-32 hours, and without water for 12-24 hours. This makes the shearer's job easier, and keeps the wool clean.⁹³ During the shearing process, sheep frequently experience skin cuts that may become infected with bacteria, causing caseous lymphadenitis. As the sheep's fleece normally provides protection from both cold and sun, sheep are vulnerable to hypothermia for 2 to 4 weeks after shearing.⁹⁴

Pigs

In 2005 there were over 340,000 pigs on New Zealand farms,⁹⁵ most of them destined to be eaten by New Zealanders. As two litters per sow are usually raised each year, the total number of pigs killed in the year ending September 2005 was 765,000.⁹⁶ The pork industry is worth 185 million dollars to the New Zealand economy.⁹⁷ While pigs are farmed both outdoors and indoors, much of the pork industry is based around intensive, indoor factory farms.⁹⁸ Standard industry practices such as the use of sow stalls, farrowing crates, and boar stalls deprive pigs of the opportunity to express their natural instincts, and lead to psychologically disturbed behaviour and health problems. A 1999 survey found that 67 percent of sows were confined in farrowing crates, and 32 percent in dry sow stalls.⁹⁹

A few years ago, it became legal in New Zealand to inject pigs with the growth hormone Porcine Somatotropin (PST), which is produced from genetically engineered bacteria, and makes pigs grow by up to 20 percent more in the last month of their lives. While it is not certain whether local pig farmers have started using PST, overseas studies have shown that the series of injections can cause abscesses and lameness.¹⁰⁰ New Zealand pigs may also be fed chemicals that have been banned overseas. These include furazolidone (a carcinogenic nitrofurantoin drug) and dimetridazole.

Some young pigs are imported alive into New Zealand from countries such as Australia¹⁰¹ and New Caledonia¹⁰²— a journey by ship during which the pigs must endure excessive heat, cramped conditions, and rough seas. They are not allowed straw or hay for bedding. The pigs spend long lonely periods isolated in quarantine for 45 days before the voyage and 30 days after the voyage.¹⁰³

20,000 sows (around 55 per cent of all sows) are kept in dry sow stalls for part or all of their 115-day pregnancy. Sow stalls are bare narrow cages, averaging around 0.6 metres wide and 2 metres long.¹⁰⁴ Usually no bedding materials are provided. When confined in stalls, sows do not even have enough room to turn around. Living in such a barren environment causes boredom, frustration, abnormal behaviour patterns,¹⁰⁵ aggression, unresponsiveness, weak bones and muscles, urinary tract infections, and abnormalities of bone and muscle development.¹⁰⁶ The bored pigs often chew in frustration on the metal bars of their cages. While the National Animal Welfare Advisory Committee has recommended a reduction in the use of dry sow stalls, the new regula-

The life of pigs

- over 60,000 breeding sows are confined in barren cages (the dry sow stall or the farrowing crate), causing extreme psychological and physical suffering
- boars are kept in isolation, in pens or cramped cages
- young pigs are raised in crowded pens, and slaughtered at 5-6 months of age
- pigs on commercial pig farms are terrified of humans

tions do not come in force until 2015, and still allow sows to be kept in stalls after farrowing, and also for the first 4 weeks of pregnancy.

Some pig farmers do not comply with even the very limited space requirements of the *Animal welfare (pigs) code of welfare 2005*.¹⁰⁷ Colin Kay, a director of the New Zealand Pork Board, owns a farm near Levin. There many sows are confined in cages even smaller than the dimensions specified in the code which he himself helped write.¹⁰⁸ When animal advocates objected, the MAF decided to reinterpret the code as describing the outer wall dimensions of the crates, rather than the space available to the pigs.

When about to give birth, many sows are moved to farrowing crates. Here they are kept in cramped stalls (on average 0.8 metres wide and 2 metres long)¹⁰⁹ for up to six weeks, until the piglets are weaned. Industry sources claim that this is to prevent the sow rolling over and crushing the piglets. However, the scientific evidence on this is uncertain, and the sows certainly suffer appallingly from their confinement, unable to build nests for their piglets, or mother them properly. Sows in farrowing crates also suffer an increased risk of lameness and diseases of the urogenital system.¹¹⁰ Over 60,000 New Zealand sows spend their entire lives in cramped confinement, either in the sow stall or the farrowing crate.¹¹¹

On an intensive farm, a piglet's life begins with her eyeteeth cut and her tail docked within 3 days of birth. She is likely to be dosed with drugs and antibiotics, with about 50 percent of piglets being dosed within 4 days of birth with the antimicrobial toltrazuril.¹¹²

Although in nature piglets suckle from their mothers for 12 weeks, on factory farms the tiny pigs are weaned and separated from their mothers at only 3-5 weeks of age,¹¹³ and moved to cramped pens with concrete floors. Here they are fattened in groups of a 100 to 200 pigs before slaughter. When fully grown, there is not enough space for the pigs to lie on their sides without touching other animals, which is extremely uncomfortable in hot summer weather.¹¹⁴ There is not enough space for the pigs to express their normal behaviour patterns. Piglets have natural exploratory instincts to nose, root or chew, and often show disturbed behaviour such as biting each other's tails when unable to do this.¹¹⁵ Rather than allowing the piglets more space, farmers routinely cut off the piglets' tails. Unsurprisingly, pigs on intensive pig farms are terrified of humans, showing a chronic stress response.¹¹⁶ In nature pigs prefer a separate toilet area, but in factory farms there is no room for this — the piglets sit or lie in their own excrement.

The young pigs are slaughtered at around 5 months of age.¹¹⁷ Transportation to their deaths at the slaughterhouse is the final terrifying experience of their lives, and is often accompanied by physical injuries. Overseas studies indicate that 25 percent of transported pigs suffer from bruising, leg fractures, or other injuries.

Food products sold in New Zealand do not have to be labelled with the country of origin, and the pork that consumers buy may come from countries where the animal welfare standards are even worse than those in New Zealand. In April 2007 Green MP Sue Kedgley criticised Wairarapa company Premiere Bacon for selling bacon under the logo "Country goodness from the heart of the Wairarapa"¹¹⁸ when the bacon was actually imported from overseas.

Boar stalls

Boars are generally kept alone, either in pens or in cages (boar stalls) of similar size to the farrowing crate (on average 0.7 metres wide and 2 metres long).¹¹⁹ Like sows, boars isolated in crates suffer from boredom, frustration, and lack of exercise. They are also vulnerable to urine scald.¹²⁰

Free range pig farms

Free range pigs certainly have richer lives than their cousins on intensive farms — they are able to roam, graze and wallow freely, socialize, and build nests for their young. However, their lives are cut dramatically short by the slaughterhouse. On some free range farms, pigs are killed at 4 to 8 months of age¹²¹ — on others, they live just 14-17 weeks.¹²² In 1999, 92 percent of free range pigs had rings, clips, or wires stabbed through their noses — a painful procedure damaging the sensitive tissue of their noses — in order to prevent rooting. Sometimes two or three clips at the same time are inserted.¹²³

Professor Stanley Curtis of Penn State University found that pigs play and excel at joystick-controlled video games. He observed that they are "capable of abstract repre-

sentation” and “are able to hold an icon in the mind and remember it at a later date ... there is much more going on in terms of thinking and observing by these pigs than we would ever have guessed.” Pigs are much smarter than dogs, according to the research, and even did better at video games than some primates.¹²⁴

Notes

1. Shadbolt, Nicola and Sandra Martin, *Farm management in New Zealand* (Melbourne: Oxford University Press, 2005): 147.
2. *MIA directory of member companies/plants* (Wellington: Meat Industry Association of New Zealand, 2002).
3. Taylor Preston Limited, accessed July 4, 2006. <<http://www.taylorpreston.co.nz/main/contents.cfm?WebPageID=17>>
4. "Hot off the press agricultural production statistics," Statistics New Zealand, accessed June 16, 2006. <<http://www2.stats.govt.nz/domino/external/pasfull/asfull.nsf/4c2567ef00247c6a4c2567be0008d2f8/4c2567ef00247c6acc257142000da8bf%3FOpenDocument&e=15235&ei=WE2TRJuKM6fwoQLpvJDBAg>>
5. "Industrial structure and principal economic sectors," Treasury, accessed May 30, 2007. <<http://www.treasury.govt.nz/nzefo/2007/05.asp>>
6. McQueen, Robert J. [et al.], "The WEKA machine learning workbench: its application to a real world agricultural database," University of Waikato, Dept. of Computer Science, accessed Mar. 26, 2006. <<http://www.cs.waikato.ac.nz/~ml/publications/1994/McQueen94-WEKA.pdf>>
7. Lawton, D.E.B., Mead, F.M., and R.R. Baldwin, "Farmer record of pregnancy status preslaughter, compared with actual pregnancy status post-slaughter, and prevalence of gross genital tract abnormalities in NZ dairy cows," *New Zealand Veterinary Journal* 48 (2000): 160-165.
8. Leake, Jonathon, "The secret life of moody cows," *Sunday Star Times* Jan. 27, 2005: 13.
9. "Beef cattle productivity from pasture," New Zealand Agritech, accessed Mar. 11, 2006. <<http://www.agritech.org.nz/beef.shtml>>
10. "Statistics," Beef New Zealand, accessed Mar. 11, 2006. <<http://www.beef.org.nz/statistics/sld011.asp>>
11. "Pasture-based dairying the New Zealand way," New Zealand Agritech, accessed Mar. 11, 2006. <<http://www.agritech.org.nz/dairy.shtml>>
12. Parkinson, Tim, Frear, Mark and Dan O'Leary, "Use of bulls in large dairy herds," *Proceedings of the 2nd Dairy Conference* (Palmerston North: Massey Agricultural Centre for Professional Development, 2003) 41.
13. Hoare, Rose, "The price of milk," *Sunday Star Times magazine*, Apr. 22, 2007: 24-27.
14. "Statistics," Beef New Zealand, Mar. 11, 2006. <<http://www.beef.org.nz/statistics/sld011.asp>>
15. Beukes, P.C. et al., "Modeling the effects of zero-induction on profitability in dairy systems," *Proceedings of the New Zealand Society of Animal Production* 65 (2005): 127-131.
16. Compton, Chris, "Do the wheels fall off, if you stop inducing cows?," *New Zealand Dairy Farmer* 80.12 (2005): 57-58.
17. D.P. Hayes, Pfeifer, D.U. and R.S. Morris, "Effects of calving induction on subsequent milk yield and reproductive performance of cows from seasonally mated New Zealand dairy herds," *New Zealand Journal of Veterinary Science* 46 (1998): 111-113.
18. Hargreaves, A.L., Matthews, L.R., and G.A. Verkerk, "Is the welfare of dairy cows at risk from current farm practices," *Proceedings of the New Zealand Society of Animal Production* 53 (1993): 48-52.
19. *Animal welfare (dairy cattle) code of welfare 2006 : confidential industry draft (May 06)*, accessed June 17, 2006. <http://www.dairyinsight.co.nz/downloads/Draft_Dairy_Code_May_06.pdf>
20. *Animal welfare (dairy cattle) code of welfare 2006 : confidential industry draft (May 06)*.
21. "Pasture-based dairying the New Zealand way," New Zealand Agritech, accessed Mar. 11, 2006. <<http://www.agritech.org.nz/dairy.shtml>>
22. "Weight loss after calving," *New Zealand Dairy Farmer* 80.12 (2005): 73.
23. Webster, J., *Animal welfare: a cool eye towards Eden* (Oxford: Blackwell Science, 1994).
24. Tacon, Terry, "New practices can reduce lameness," Stuff, accessed Mar. 26, 2006. <<http://www.stuff>>

- co.nz/stuff/0,2106,3598310a3600,00.html>
25. "First for New Zealand! Farmers able to breed for soundness," *Livestock Improvement*, accessed Mar. 26, 2006. <http://www.lic.co.nz/main.cfm?menuid=1&sub_menuid=46&page_n=2&news_id=196>
 26. Leake, Jonathan, "The secret life of moody cows," *Sunday Times*, February 27, 2005. <<http://www.timesonline.co.uk/article/0,,2087-1502933,00.html>>
 27. "An empty rate to be proud of," *New Zealand Dairy Exporter*, accessed Apr 1, 2006. <www.dairymag.co.nz/archives/ViewEditorial.asp?EditorialID=19445&pubcode=DXP ->
 28. McDougall, S.M., "Prevalence of clinical mastitis in 38 Waikato dairy herds in early lactation," *New Zealand Veterinary Journal* 47 (1999): 143-149.
 29. "Milking it to the max," *New Zealand Lifestyle Block*, 27 (2006): 57.
 30. Lee, Anne, "Many factors in heifer mastitis," *New Zealand Dairy Exporter* 80.13 (2005):34.
 31. McDougall, S.M., "Prevalence of clinical mastitis in 38 Waikato dairy herds in early lactation," *New Zealand Veterinary Journal* 47 (1999): 143-149.
 32. Lee 34.
 33. *Animal welfare (dairy cattle) code of welfare 2006 : confidential industry draft (May 06)*.
 34. *Animal welfare (painful husbandry procedures) code of welfare 2005* (Wellington : National Animal Welfare Advisory Committee, 2005) 24.
 35. "Scientists let the tail wag their research," *Chronicle of Higher Education* 46 (2000): 22.
 36. Ladewig, J. and L.R. Matthews, "The importance of physiological measurements in farm animal stress research," *Proceedings of the New Zealand Society of Animal Production* 52 (1992): 77-9.
 37. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc. on the Animal Welfare (Dairy Cattle) code of welfare 2006 : public draft dated 4 November 2006*, RNZSPCA, accessed May 6, 2007. <http://www.rnzspca.org.nz/submissions/submission_dairy_cattle_code.doc>
 38. Tucker, C.B. et al., "Animal welfare in large dairy herds: a survey of current practices," *Proceedings of the New Zealand Society of Animal Production* 65 (2005): 127-131.
 39. *Animal welfare (dairy cattle) code of welfare 2006 : confidential industry draft (May 06)*.
 40. Shadbolt, Nicola and Sandra Martin, *Farm management in New Zealand* (Melbourne: Oxford University Press, 2005): 6.
 41. Hargreaves, A.L., Hargreaves, L.R. and G.A. Verkerk, "Is the welfare of dairy cows at risk from current farm practices," *Proceedings of the New Zealand Society of Animal Production* 53 (1993): 48-52.
 42. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc. on the Animal Welfare (Dairy Cattle) code of welfare 2006 : public draft dated 4 November 2006*.
 43. Waugh, John, "Intensive farming on a cliff top," *New Zealand dairy exporter* 80.12 (2005): 6-7.
 44. Morris, Michael, "Animal welfare and the beef and dairy industry," *Organic NZ* 62 (2003): 47.
 45. Morris 47.
 46. Hargreaves, A.L., Hargreaves, L.R. and G.A. Verkerk, "Is the welfare of dairy cows at risk from current farm practices?" *Proceedings of the New Zealand Society of Animal Production* 53 (1993): 179-182.
 47. Stafford, K.J., "The physical state and plasma biochemical profile of young calves on arrival at a slaughter plant," *New Zealand veterinary journal* 49.4 (2001): 142-149.
 48. "Agricultural production," *Te ara: the encyclopedia of New Zealand*, accessed Mar. 12, 2006. <<http://teara.govt.nz/NewZealandInBrief/Economy/2/en>>
 49. "Industrial structure and principal economic sectors," Treasury, accessed May 30, 2007. <<http://www.treasury.govt.nz/nzefo/2007/05.asp>>
 50. "Beef cattle productivity from pasture," New Zealand Agritech, viewed Mar. 11, 2006. <<http://www.agritech.org.nz/beef.shtml>>

51. Stafford, K.J. et al., "The cost of alleviating the pain caused by the castration of beef calves," *Proceedings of the New Zealand Society of Animal Production* 65 (2005): 123-126.
52. *Animal welfare (painful husbandry procedures) code of welfare 2005* (Wellington : National Animal Welfare Advisory Committee, 2005): 14.
53. Faulkner, P.M., Eurell, T., W.J. Tranquili, et al., "Performance and health of weaning bulls after butorphanol and xylazine administration at castration," *Journal of Animal Science* 70 (1992): 2970–2974.
54. Stafford, K.J., Mellor, D.J. and C.M. Meekan, "A survey of the methods used by farmers to castrate calves in New Zealand," *New Zealand Veterinary Journal* 48 (2000): 16-19.
55. *Animal welfare (painful husbandry procedures) code of welfare 2005*, 21.
56. Mellor, David. "Assessment of calf castration methods," Ministry of Agriculture and Forestry, accessed Mar 19, 2006 <http://www.maf.govt.nz/mafnet/rural-nz/research-and-development/research-in-progress/1999-2000/rip99-2000-10.htm#P1288_65123>
57. *Animal welfare (painful husbandry procedures) code of welfare 2005* 23.
58. Carragher, J.F. et al, "Measures of stress and growth suppression in surgically castrated bulls," *Proceedings of the New Zealand Society of Animal Production* 57 (1997): 100-104.
59. Petrie N.L. et al, "Cortisol responses of calves to two methods of disbudding used with or without local anaesthetic," *New Zealand Veterinary Journal* 44 (1995): 9-14.
60. *Animal welfare (painful husbandry procedures) code of welfare 2005* 27.
61. "Animal welfare," Ministry of Agriculture and Forestry, accessed Mar. 19, 2006. <<http://www.maf.govt.nz/mafnet/rural-nz/research-and-development/research-in-progress/1996-1997/respro07.htm#E10E51>>
62. McMeekan, C. et al., "Effects of a local anaesthetic and a non-steroidal anti-inflammatory analgesic on the behavioural responses of calves to dehorning," *New Zealand Veterinary Journal* 47 (1999): 92-96.
63. "Organic animal health and welfare," Lifestyleblock.co.nz, accessed May 27, 2006. <http://www.lifestyleblock.co.nz/articles/organics/05_organic_animal_health.htm>
64. McMeekan, C. et al., "Effects of a local anaesthetic and a non-steroidal anti-inflammatory analgesic on the behavioural responses of calves to dehorning," *New Zealand Veterinary Journal* 47 (1999): 92-96.
65. Taylor, Marie, "Intensive farming to face scrutiny," *New Zealand Farmer* Nov. 2, 2000: 36.
66. Taylor, Sandra, "Feedlot urges adoption of global genetics," Heartland Beef, May 1, 2006, accessed May 6, 2007. <<http://www.country-wide.co.nz/article/5159.html>>
67. "Our visit to Five Star Beef," *Croy's Ltd Newsletter* Winter 2004, accessed May 6, 2007 <<http://www.croys.co.nz/newsletter-winter2004.htm>>
68. "What's in our food: is that a bug in your steak?" *New Zealand Herald*, Jan. 11, 2005.
69. "Sheep," New Zealand Agritech, accessed Mar. 11, 2006. <<http://www.agritech.org.nz/sheep.shtml>>
70. *Meat & Wool New Zealand 2004-2005 annual report* (Wellington, N.Z.: Meat & Wool New Zealand, 2005) 22.
71. "Industrial structure and principal economic sectors," Treasury, accessed May 30, 2007. <<http://www.treasury.govt.nz/nzefo/2007/05.asp>>
72. Smeaton, D.C., Webby, R.W., and G.W. Sheath, "Use of the teaser ram effect to advance lambing date in a farm systems study," *Proceedings of the New Zealand Society of Animal Production* 57 (1997): 256-258.
73. Pollard, J.C., "Shelter benefits for lamb survival in southern New Zealand. I. Postal survey of farmers' opinion," *New Zealand journal of agricultural research* 42 (1999): 165- 170.
74. Scales, G.H., *Snowfall risk management 1992 snows : a survey of management practices used by Canterbury farmers to minimise the impact of snow*, MAF Policy Technical Paper 94/11 (Wellington:

- Ministry of Agriculture and Fisheries, 1994): 14.
75. Bain, Helen, "Sheep shipping stopped by MAE," *Sunday star times* Jan. 16, 2006: A6.
 76. Kerslake, J.J., Everett-Hincks, J.M., and A.W. Campbell, "Lamb survival : a new examination of an old problem," *Proceedings of the New Zealand Society of Animal Production* 65 (2005): 13-18.
 77. "General information about laparoscopic AI," Genetic Gains Ltd, accessed May 14, 2006. <<http://www.genetic-gains.co.nz/info.htm>>
 78. Donovan, A., Hanrahan, J.P. and T. Lally, "AI for sheep using frozen-thawed semen," Irish Agriculture and Food Development Authority, accessed May 14, 2006. <<http://www.teagasc.ie/research/reports/sheep/4047/eopr-4047.htm>>
 79. "General information about MOET," Genetic Gains Ltd, accessed May 14, 2006. <<http://www.genetic-gains.co.nz/info.htm>>
 80. "Mulesing alternatives to be rolled out this year," Jan. 25, 2006, *Rural News*, accessed Mar. 19, 2006, =article&subtask=show&item=9493&pageno=1>
 81. Sudesh Kissun, "Boycott of Oz merino could extend to NZ," *Rural news*, accessed Mar. 26, 2006, <<http://www.ruralnews.co.nz/article.asp?channelid=42&articleid=7517>>
 82. *Code of recommendations and minimum standards for the welfare of sheep*, Code of Animal Welfare No. 3 (Revised) (Wellington: Animal Welfare Advisory Committee, 1996)
 83. Michael Morris, "Organics, sheep husbandry, and flystrike," *Organic NZ* 64.2 (2005): 40-41.
 84. Kissun.
 85. K.A. Rathe, M.L. Tierney and J.C. Mulder, "Assessing Wiltshire Horn-Merino crosses. I. Woolshedding, blowfly strike, and wool production traits," *Australian journal of experimental agriculture* 34 (1999): 717-728.
 86. 'Clever sheep foil cattle guard,' *BBC news*, July 2004 < <http://www.sheep101.info/stupidsheep.html>>
 87. *Code of recommendations and minimum standards for the welfare of sheep*.
 88. Morris 40-41.
 89. D.R. Scobie, A.R. Bray, D. O'Connell, "The ethically improved sheep concept," *Proceedings of the New Zealand Society of Animal Production* 57 (1997): 84-87.
 90. "Research results 2000-2001," Ministry of Agriculture and Forestry, accessed June 15, 2007 <http://www.maf.govt.nz/mafnet/rural-nz/research-and-development/research-results/2000-2001/2000-01-research-results-01.htm#P217_15426>
 91. D.J. Mellor and K.J. Stafford, "Acute castration and/or tailing distress, and its alleviation in lambs," *New Zealand veterinary journal* 48 (2000):33-43
 92. N.J. Beausoleil, K.J. Stafford, D.J. Mellor, "Can we use change in core body temperature to evaluate stress in sheep?," *Proceedings of the New Zealand Society of Animal Production* 64 (2004): 72-75.
 93. "Fasting of sheep prior to shearing," accessed May 13, 2006 <<http://www.ash.govt.nz/publications/factsheets/fastingsheep.htm>>
 94. *Code of recommendations and minimum standards for the welfare of sheep*.
 95. "Livestock and grain crops," Ministry of Agriculture and Forestry, accessed Mar. 26, 2006 <<http://www.maf.govt.nz/statistics/primaryindustries/livestock/index.htm>>
 96. *Meat & Wool New Zealand 2004-05 annual report* (Wellington: Meat & Wool New Zealand, 2005) 23.
 97. "Industrial structure and principal economic sectors," Treasury, accessed May 30, 2007 <<http://www.treasury.govt.nz/nzefo/2007/05.asp>>
 98. *Animal welfare (pigs) code of welfare 2003 report*, Biosecurity New Zealand, accessed Apr. 14, 2006 <<http://www.biosecurity.govt.nz/files/animal-welfare/codes/pigs/pigs-report.pdf>>
 99. N.G. Gregory, C.D. Devine, "Survey of sow accommodation systems used in New Zealand," *New Zealand journal of agricultural research* 42 (1999): 187.

100. Sue Kedgley, "Pig growth hormone sneaks into New Zealand," Feb. 17, 2002, Green Party of Aotearoa New Zealand, accessed Apr. 22, 2006 <<http://www.greens.org.nz/searchdocs/PR5066.html>>
101. *Import health standard for the importation into New Zealand of live pigs from Australia*, Biosecurity New Zealand, accessed Apr. 28, 2006 <<http://www.biosecurity.govt.nz/imports/animals/standards/piganiic.aus.htm>>
102. *Import health standard for the importation into New Zealand of pigs from New Caledonia*, Biosecurity New Zealand, accessed Apr. 28, 2006 <<http://www.biosecurity.govt.nz/imports/animals/standards/piganiic.nca.htm>>
103. *Import health standard for the importation into New Zealand of live pigs from Australia*.
104. N.G. Gregory, C.D. Devine, "Survey of sow accommodation systems used in New Zealand," *New Zealand journal of agricultural research* 42 (1999): 191.
105. *Animal welfare (pigs) code of welfare 2003 report*.
106. *Animal welfare (pigs) code of welfare 2003 report*.
107. *Animal welfare (pigs) code of welfare 2005*, Biosecurity New Zealand, accessed June 22, 2006 <<http://www.biosecurity.govt.nz/animal-welfare/codes/pigs/index.htm>>
108. Campbell Live, June 22, 2006.
109. N.G. Gregory, C.D. Devine, "Survey of sow accommodation systems used in New Zealand," *New Zealand journal of agricultural research* 42 (1999): 191.
110. *Animal welfare (pigs) code of welfare 2003 report*.
111. Michael C. Morris, "Sow stalls and farrowing crates," *Organic NZ* 2003: 38-39.
112. "Regulatory control of antibiotics to manage antibiotic resistance annual report: 2004," New Zealand Food Safety Authority, accessed May 1, 2005 <<http://www.nzfsa.govt.nz/acvm/subject/antibiotic-resistance/2004arreport-final.htm>>
113. Jocelyn McIlraith, "Happy healthy pigs," *New Zealand lifestyle block* 23 (2006): 25.
114. *Animal welfare (pigs) code of welfare 2003 report*.
115. Hannah Velten, Jessica Buss, "Playtime research may boost pig performance," *Farmers' weekly* 136:6 (2002): 38.
116. P.H. Hemsworth, J.L. Barnett, and G.J. Coleman, "Improving productivity with better stock handling," *Proceedings of the New Zealand Society of Animal Production* 53 (1993): 215-217.
117. T.S. Brand, "Utilisation of growing-finishing pig diets containing high levels of solvent or expeller oil extracted canola meal," *New Zealand journal of agricultural research* 43 (2000): 32.
118. "MP to grill another bacon firm," *Sunday star times*, Apr. 8, 2007
119. N.G. Gregory, C.D. Devine, "Survey of sow accommodation systems used in New Zealand," *New Zealand journal of agricultural research* 42 (1999): 192.
120. *Animal welfare (pigs) code of welfare 2003 report*.
121. Lindsay Wright, "Heritage breed farm flourishes," *New Zealand lifestyle block* 23 (2006): 20-23.
122. Jocelyn McIlraith, "Happy healthy pigs," *New Zealand lifestyle block* 23 (2006): 25.
123. N.G. Gregory, C.D. Devine, "Survey of sow accommodation systems used in New Zealand," *New Zealand journal of agricultural research* 42 (1999): 193.
124. "What the experts say," The Hidden Lives of Pigs. <http://www.goveg.com/f-hiddenlivespigs_experts.asp>

Chapter 3

Wild animals on New Zealand farms

Pigs, sheep and cows have lived with human beings for thousands of years. However, animals farmed in New Zealand include species such as deer, ostriches, emu, and rabbits who still show wild behaviour patterns, and for whom farm environments are highly unnatural. While humans have raised bees for a longer time, their propensity to sting their keepers shows that they are far from tame. Goats and alpacas have a long association with humans, but still show wild traits, and survive very successfully in freedom. Even possums have been farmed for their flesh in New Zealand in recent years, though it is not certain whether this practice still continues.

Deer

In 2005, there were 1.7 million deer on New Zealand farms. Deer are raised for their flesh, and for velvet, much of which is exported to be used in Asian medicine.¹ In the year ending September 2006, venison and velvet were worth 213 million dollars to the New Zealand economy.² In 2004, around 650,000 deer were slaughtered.³ There is also a growing trophy deer farming industry in New Zealand, with farmers raising fallow deer to be hunted and killed by wealthy American tourists.^{4 5} Deer farming has its own set of associated cruelties and deprivations.

The farm environment is very unnatural for deer, who are essentially wild animals. Red deer, for example, are a woodland species. Wild hinds enjoy living close to their mothers, while stags leave their mothers at 2-4 years of age, and form loose relationships with other stags. On farms, however, large numbers of deer of the same sex and age are crowded together, in bare paddocks without shelter or shade. Deer enjoy wallowing, which helps with tick control, and staying cool in summer. Wallowing is a highly social behaviour.⁶ However, many farmers try to stop deer wallowing, by draining damp areas, or by only providing small drinking troughs. Although deer form strong relations with other deer, deer friendships are often broken up when the animals are moved around to suit farm management routines.⁷

Deer raised for their flesh are slaughtered when they reach a target weight, usually from the age of 12 months onwards.⁸ Hinds who fail to become pregnant are also sent to slaughter, with industry spokesperson Andrew Macfarlane recommending that 25

percent should be “culled” every year. This means that the average young hind would be slaughtered after only three years in the herd.⁹

Deer are extremely afraid of humans, and they find it traumatic to be handled. On New Zealand farms, deer are routinely handled during weaning, tagging, weighing, drenching, and TB testing.¹⁰ Artificial insemination (with the associated stressful handling) is also becoming popular with deer farmers.¹¹ Fawns are generally tagged before they are 5 days old. This is a terrifying experience for both fawn and mother, and fawns often cry out with the shock.¹²

Deer farming

- 650,000 deer are slaughtered every year
- farm environments make normal deer social structures impossible
- fawns separated from their mothers mourn and pace the paddock fence line for at least 3 weeks
- hinds who do not become pregnant are routinely sent to slaughter
- harvesting of velvet involves a stag’s antlers being sawn off - a traumatic and stressful process
- “trophy deer” are farmed to be shot by wealthy tourists

Young deer are separated from their mothers much earlier than in nature. Red deer, for instance, are weaned and taken away from their mothers at 3-4 months of age to “facilitate farm management.” This is extremely disturbing for the fawns, who pace along the fence lines of the paddock searching for their mothers. Stressed and depressed, they are more likely to catch disease. Research has shown that fawns are still distressed three weeks after separation from their mothers.¹³

Deer also suffer considerably when herded into bare yards and transported for sale or slaughter. In crowded conditions, deer can suffer from bruising, heat stress and trampling. Deer yards are particularly traumatic, with studies showing that simply herding deer into yards can cause the frightened animals to exhibit high stress hormone levels.¹⁴ Deer easily become frightened and aggressive.¹⁵ They have large sensitive areas of nasal tissue and suffer from the high ammonia levels from urine and faeces in deer holding facilities.¹⁶ Red deer in particular do not like being moved around, and an article in industry magazine *Deer farmer* recommends shifting them by shoving them off balance from behind.¹⁷ Recently some young deer have been made to go through the process of CT scanning, which involves being anaesthetised and restrained. In 2005, twenty young Wapiti bulls were scanned, to provide “the image of a slice through the body of the live animal,” so the farmer can measure the distribution of meat, fat and bone.¹⁸

Deer velvet is “harvested” by sawing the antlers off. Although usually performed under local or general anaesthetic, this procedure is still stressful to the animals. The deer are mustered, restrained, anaesthetised, and a cut is made about 1 cm above the pedicle of the antler, using a medium-toothed saw.¹⁹ If a local anaesthetic is used, the stag is held in a crush with his head immobilised. However, despite the anaesthetic, studies have shown that deer show stress symptoms, such as a pounding heart.²⁰ Even administering the anaesthetic can be frightening to the animal,²¹ and a painful rubber band tourniquet is sometimes applied before pain relief is given.²² Antlers in velvet have a well developed

nerve and blood supply, and the wounds created by their removal can become infected.²³ Lignocaine, the standard anaesthetic used, may also cause tissue irritation.²⁴

Tight bands called “NaturO rings” are used to remove velvet from yearling fallow deer.²⁵ These are similar to the rubber rings used to castrate adult cattle.²⁶ Two rubber elastrator rings are applied to the pedicle of each antler, cutting off the supply of blood. Sometimes the rings later break, allowing the blood to flow through, and causing pain and swelling.²⁷

Although most New Zealand deer live outside, a significant number are kept indoors over winter, in cramped confinement. The SPCA is strongly opposed to the intensive farming or rearing of deer in indoor facilities²⁸, and hopes for a ban on indoor wintering. According to MAF Policy consultant Gary Rose, “Deer confined indoors ... have shown higher levels of aggression, and skin damage.”²⁹

Deer these days are often farmed very intensively with indoor wintering, feeding pads, and a winter diet based on brassica crops. The deer industry, of course, is keen to maintain the illusion of a natural life, stating that “People in the marketplace perceive deer to be managed extensively on open country with natural shelter available. This perception of New Zealand deer farming must be maintained.”³⁰

Goats

In New Zealand, goats are farmed for meat, milk, and fibre. The industry has declined in recent years, and in 2002, there were 153,000 goats on local farms.³¹ These included 40,000 dairy goats. As in the dairy cow industry, the goat milk and meat industries are closely integrated, with the bodies of slaughtered does and male kids contributing to goat meat production.³² 130,000 goats were slaughtered in the year ending June 2005,³³ and 1,300 tonnes of New Zealand goat meat were exported to 17 countries. Four main breeds of goat are farmed in New Zealand – Boer goats for their flesh, Angora goats for mohair, and Saanen and Anglonubian for milk. Goats are milked by hand or machine either once or twice a day, producing up to 6 litres of milk per goat. Does have to be made pregnant regularly so that they continue lactating, and they are usually milked throughout most of their 5 month pregnancy. After the kids are born, they are often separated from their mothers and fed from automatic feeders.³⁴

Fine goat’s down (cashmere) is harvested by shearing goats before they moult their down in late winter or early spring. As goat hair grows back much more slowly than sheep’s wool, shorn goats may suffer or die from exposure.³⁵ Goats are generally shorn in the same manner as sheep, even though the traditional method of combing is more humane. Combing removes the goat’s down but leaves the outer guard hairs to protect the animal from heat and cold. However, modern farmers find combing too time-consuming and expensive.

The young kids may be dehorned, or have their horns tipped, typically at four days of age. As with calves and sheep, young bucks are castrated at four to six weeks of age, without anaesthetic. Three main methods are used - knife, emasculatine, and elastrator bands. The elastrator method is most commonly used. By law, all registered goats must be tattooed, usually in the ear, although La Mancha goats generally have their tails tattooed.³⁶

Alpacas

There is a small but growing alpaca industry in New Zealand, with approximately 10,000 alpacas on 600 farms. The industry tends to be polarised between small farmers with a few animals on lifestyle blocks (who may treat them more like pets), and large corporate enterprises. Alpacas are farmed for their fleece, which is shorn once a year, and then spun into alpaca yarn. Males not used for breeding are usually castrated under local anaesthetic at two to three years of age. While alpacas often have better lives than other farm animals, they are social animals who are very susceptible to stress. They are adapted to cool climates, and can suffer from heat stress in the warmer parts of New Zealand.³⁷

The larger alpaca farmers are beginning to use artificial insemination and embryo transfer technology in their breeding programmes.³⁸ These are invasive processes that can be traumatic to the animals. In 2005, alpaca embryos were transplanted into 120 recipient females, and the first embryo transfer cria were born at Homestead Farm, near Ashburton.³⁹

Intensive rabbit farming

In the 1980s, thousands of rabbits were farmed in cages, supplying the 'pet', meat, fur, skin or fibre markets. Many farmers would over breed rabbits, producing as many as 10 litters per year. The stress led to does as young as 18 months old dying of exhaustion.

Fortunately, the industry is now much smaller. National animal rights advocacy group SAFE believes that there are now just three main rabbit producers, who farm around 25,000 animals annually. Rabbits raised for their meat are killed as soon as they reach the desired slaughter weight at 8-12 weeks of age. Each doe and her litter lives in a wire-floored cage approximately 1m x 70 cm x 50 cm. Sheds are filled with rows of rabbit cages, each building housing up to 100 does. Bucks are often confined in isolation except at mating time.⁴⁰ Pauatahanui meat rabbit farmer David Kerr has described keeping 230 rabbits in cages in an 800 square foot shed during the 1990s.⁴¹

Angora rabbits are shorn like sheep for their fur. SAFE director Anthony Terry has described visiting a rabbit farm where the rabbits were restrained by being stretched out on a shearing rack, and then shorn using modified sheep clippers, causing considerable distress to the animals.⁴² New Zealand's main angora rabbit farm "The Shearing Shed" is just outside Waitomo.⁴³

The Palmerston North based New Zealand Rabbit Farmers Association appears to still exist, and the Rabbit Council of New Zealand includes in its mission statement the aim 'to encourage the production, marketing and consumption of the products of the rabbit. (i.e. fur, wool and flesh).'⁴⁴

Bees

Bees have complex societies and are able to communicate to each other the distance and direction of food sources. Scout bees in swarms will dance to indicate the position of potential nesting sites.⁴⁵ However, bees are not protected by animal welfare legislation in New Zealand. In 2000, around 5000 beekeepers produced over 9,000 tonnes of honey, from 312,000 hives.⁴⁶ A standard industry practice is to kill the queen honey bee

every two years. The new queen is then introduced.⁴⁷ If the queen begins laying drones rather than worker bees, she will also be killed.⁴⁸ Queens' wings are sometimes clipped with a sharp pair of scissors to record their age, or marked with nail polish.⁴⁹ Sometimes queen bees are artificially inseminated using instruments to inject semen from preferred drones into the oviduct. Beekeepers often collect semen by crushing the head and thorax of the drone in their fingers. In the throes of death, the bee everts his penis and ejaculates semen. The queen is then anaesthetised with carbon dioxide and semen is inserted into her vaginal orifice with a syringe.⁵⁰

Bees do not have a sweet life ...

- the queen bee is killed and replaced every two years
- bees are often crushed when the hive is checked, or honey harvested
- hives may starve to death over winter, if too much honey is taken
- diseased hives, or hives with aggressive bees are burnt

When the beekeeper harvests the honey, he usually removes the bees from the hive by brushing, smoking, or with the help of a "bee blaster." Bees are often crushed while the hive is being checked, or while honey is being harvested. If too much honey is harvested, and not enough sugar supplies are provided to replace this, the hive may die of starvation over winter. If a hive becomes diseased, or if the bees behave too aggressively towards the humans who rob them of honey, a standard practice is to burn the hive.⁵¹ When hives in the South Island became infested with the Veroa mite in 2006, thousands of bees were killed.

Ostriches and emus

Ostriches are farmed in New Zealand for their meat, eggs, skin, oil and feathers. While ostriches have a natural life span of some 70 years, chicks raised for meat are slaughtered at only 10-14 months of age.⁵² Emus are farmed mainly for their meat, and oil, which is used in cosmetics. Emu hens produce about 20 chicks per season, who are slaughtered at 12-14 months of age.⁵³

Ostriches are the only birds to dance at times other than at mating. Holtzhausen and Kotze from South Africa explain: "Especially in the early morning, a few birds in a group will suddenly receive a mystic, inaudible cue and begin to dance in circles on tip-toes, with outspread wings. Very soon the whole group will join spontaneously in the twirling dance. This maybe a primeval urge or simply an expression of the joy of being alive." Ostriches and emus are wild birds, and suffer greatly under farm conditions. According to the Council of Europe, ostriches succumb more often to disease and have a much higher death rate than other domesticated farm animals.⁵⁴ Even the roar of a passing farm bike can cause the birds to panic, leading to injury and death.

Some NZ ostrich and emu chicks are reared intensively in sheds for the first 3 months of life, though older chicks are generally farmed outdoors.⁵⁵ As intensively farmed chicks never see their parents, they will imprint on the human farm workers who feed them. However, farmers generally have little time to spend with the chicks, who then feel deserted. Dr F W Huchzermeyer of the Onderstepoort Veterinary Insti-

tute explains: “Whenever ostrich chicks find themselves deserted they call with a gentle “kr kr kr”. To the uninitiated it gives the impression that the birds are happy and content. Far from it, this is the sound of utter despair and distress.”⁵⁶ If this ‘desertion stress’ is repeated often enough, it can trigger stomach ulcers. Stress lowers the chick’s immune system, making her susceptible to disease. Chicks may stop eating, and starve to death, leading to an extraordinarily high death rate amongst farmed chicks. Overseas studies indicate that it is common for 50 per cent of chicks to die. Sometimes 100 per cent of chicks may die.⁵⁷

As there are only eight ratite slaughterhouses in New Zealand, emus and ostriches are often transported long distances to death, a terrifying experience for the birds. Overseas studies have shown that the birds’ hearts pound, their skin temperature is elevated, and their behaviour “could not generally be considered normal at any stage.” Fighting, pecking or stepping on one another causes injury or even death, particularly if birds are loaded too tightly. Ostriches who have to stand in a stressed state for long periods in trucks can suffer from “capture myopathy” - muscle breakdown leading to brain damage, paralysis or death. The birds are often hooded, leaving them disoriented and terrified.⁵⁸ While there is little New Zealand research on ratite transportation, the American Ostrich Association describes transportation as “dangerous and stressful for both man and beast. Most injuries are related to activities of handling and transport.” Loading and transportation makes the birds “unsettled and nervous ... what do you think happens to a bird standing on two legs if you slam on the brakes?”⁵⁹

Once at the slaughterhouse, birds are decapitated, bled to death, or have their necks broken.⁶⁰ Birds may be stunned electrically, but may also be slaughtered without stunning. Even the New Zealand Ostrich and Emu Standards Council considers that “This section [of the animal welfare code] urgently needs revisiting in line with current animal welfare legislation.”⁶¹

Possum farming and the possum meat industry

Surprising as it seems, there have been possum farms in New Zealand in recent years. Until a couple of years ago, Auckland company Arex International exported possum carcasses to Taiwan, Hong Kong and Malaysia for human consumption under the brand name “Kiwi Bear.” Whangarei-based Exotic Game Meats supplied the possum flesh. The trade ceased when the company went into liquidation following the SARS scare in Asia. Pukekohe’s Easterbrook Farms also seem to have been possum farmers, supplying possum meat pies to Northland Regional Council for use at the Northland Agricultural Field Days at Dargaville in 2005.⁶²

A South Island company, Pete’s Possum Pies and Pates sells a range of products based on possum meat. Pies are sold under names such as Road Kill, Headlight Delight Pie, Guess that Mess, Shovel Flipped Roadside Pizza. Owner Pete Salter claims that you are “helping the environment” by purchasing his pies. However, the possum meat used is actually long frozen meat from the stocks left over when Whangarei’s Exotic Game Meats closed down. Salter bought 5 ½ tonnes of the meat and put it in his freezer.⁶³ In 2007, there do not appear to be any possum farms left in New Zealand.

There is, however, a petfood industry based around the flesh of trapped possums. In 2001 farmer Bryan Bassett-Smith launched Possyum, a canned pet food made from

possum carcasses, developing the product with the help of a government grant. Bassett-Smith and his wife run a company called Wildenz, which hires trappers to kill possums, who are then processed into cat and dog food in the Dawson Furs factory, based in Whakatane. Possum petfood is sold in New Zealand and exported under the brand name “Addiction” to Hong Kong, Singapore and Malaysia.⁶⁴

Notes

1. *New Zealand deer farming annual* 2005: 9.
2. "Industrial structure and principal economic sectors," Treasury, accessed May 30, 2007 <<http://www.treasury.govt.nz/nzefo/2007/05.asp>>
3. Trevor Walton, "Kill space critical," *Deer farmer* Feb./Mar. 2005: 1.
4. Lyn McKinnon, "Fallow land with a future: Millichamp optimistic about trophy farming," *Deer farmer* Dec. 2005: 8-9.
5. "Fallow deer ready for the rifle," Aug. 22, 2000, *Fallow farming*, accessed Apr. 22, 2006 <<http://www.nz-fallow.co.nz/cgi-bin/viewnews.cgi?newsid1035409335,71153>>
6. *New Zealand deer farming annual* 2005: 33.
7. J.C. Pollard and R.P. Littlejohn, "Activities and social relationships of red deer at pasture," *New Zealand veterinary journal* 47 (1999): 83-87.
8. "Best feeds for deer," *Deer farmer* Apr. 1998: 11.
9. "Hot droppings newsflash!" *Deer farmer* Aug. 2005, accessed Apr. 23, 2006 <<http://www.deerfarmer.co.nz/inewsflash-2005-08.htm>>
10. Mike Harbord, "Deer welfare and handling," *Deer farmer* Nov. 2005: 7-8.
11. Mike Harbord, "Go after genetic improvement," *Deer farmer* Nov. 2005: 7-8.
12. *Deer farmer* Nov. 2005: 20.
13. J.C. Pollard, C.G. Mackintosh, R.P. Littlejohn, "Neuroleptic treatment of red deer calves at weaning," *New Zealand veterinary journal* 46 (1998): 111-113.
14. "How is pain measured in animals," *Deer farmer* Oct. 2003: 4.
15. Pollard and Littlejohn.
16. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc. on the animal welfare (deer) code of welfare 2005*, Dec. 8, 2004, RNZSPCA, accessed May 7, 2007 <http://www.rnzspca.org.nz/submissions/submission-deer_code.doc>
17. Mike Harbord, "Deer welfare and handling," *Deer farmer* Nov. 2005: 7-8.
18. Sam Post, "It's big, but is it muscle?" *Deer farmer* Feb./Mar. 2005: 9.
19. David Yerex and Ian Spiers, *Modern deer farm management* (Wellington: GP Books, 1990): 123-234.
20. Murray R. Woodbury et al., "Comparison of lidocaine and compression for velvet antler analgesia in wapiti," *Canadian veterinary journal* 43:11 (2002): 869-875.
21. "Stress and pain assessment of velvet antler removal from Elk (*Cervus elaphus canadensis*) and Reindeer (*Rangifer tarandus*)" *Online journal of veterinary research* 9:1 (2005); 24-36, accessed Apr. 22, 2006 <<http://www.comcen.com.au/~journals/elkabs2005.htm>>
22. "Tourniquets get provisional OK," *Deer farmer* Oct. 2003: 5-6.
23. *Code of Recommendations and Minimum Standards for the Welfare of Deer During the Removal of Antlers Animal Welfare Advisory Committee* (Wellington: Ministry of Agriculture and Fisheries, 1992) Code of Animal Welfare No. 5 accessed May 1, 2007 <<http://www.biosecurity.govt.nz/animal-welfare/codes/antlers/index.htm>>
24. Gilbert van Deenen, "The new drugs on the block," *Deer farmer* Oct. 2003: 5-6.
25. "Tourniquets get provisional OK," *Deer farmer* Oct. 2003: 5-6.
26. Harbord 7-8.
27. *Guidelines for the welfare of yearling fallow deer during the use of rubber rings to prevent antler/pedicle growth* (Wellington: Animal Welfare Advisory Committee, 1997) accessed Apr. 22, 2006 <<http://www.biosecurity.govt.nz/animal-welfare/codes/deer-rings/index.htm>>
28. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc. on the animal*

- welfare (deer) code of welfare 2005*, Dec. 8, 2004, RNZSPCA, accessed May 7, 2007 <http://www.rnzspca.org.nz/submissions/submission-deer_code.doc>
29. Lyn McKinnon, "Days numbered for indoor winterers," *Deer farmer* Nov. 2004: 18-19.
 30. "South Island deer," Ministry of Agriculture and Forestry, accessed Apr. 2, 2007 <<http://www.maf.govt.nz/mafnet/rural-nz/statistics-and-forecasts/farm-monitoring/2002/deer/deer-05.htm>>
 31. "Tour of New Zealand agriculture," Ministry of Agriculture and Forestry, accessed Mar. 26, 2006 <<http://www.maf.govt.nz/statistics/primaryindustries/livestock/slideshow/tour13.htm>>
 32. *Goat industry: an overview* (Wellington: Meat & Wool New Zealand, 2005): 2.
 33. *Meat & Wool New Zealand, 2004-05 annual report* (Wellington, N.Z.: Meat & Wool New Zealand, 2005): 23.
 34. Adele Thackray, "Not just kidding," *New Zealand lifestyle block*, 6(2004); 16-22.
 35. *Goats and pastoral farming: cashmere* (Wellington: Meat & Wool New Zealand, 2005): 1.
 36. "Beginner's guide to goat farming," *The goat farmer*, accessed May 26, 2006 <<http://www.caprine.co.nz>>
 37. Peter Aitken, *Alpacas : a basic veterinary reference* (Palmerston North : Vetlearn, 2006)
 38. "Alpaca industry update," *New Zealand lifestyle block*, 26 (2006): 29.
 39. Lyn McKinnon, "Alpaca stud on fast track," *New Zealand lifestyle block*, 17 (2005): 28.
 40. Anthony Terry, "Boxed rabbit surprise! Unwrapping New Zealand's rabbit industry," *Animals today* 11:2 (2003): 8.
 41. "Rabbits breed like ... rabbits," *Country living*, 15 (1992); 24-25.
 42. Terry 8.
 43. "Attractions & other activities," May 7, 2007 <http://tourism.waitomo.govt.nz/attractions_and_other_activities.htm>
 44. Rabbit Council of New Zealand, accessed Dec. 27, 2006 <<http://www.rabbits-nz.co.nz/resources/forum/default.asp>>
 45. Andrew Matheson, *Practical beekeeping in New Zealand* (Wellington: GP Publications, 1993): 21.
 46. "Agricultural production," *Tē ara: the encyclopaedia of New Zealand*, accessed Mar. 12, 2006, <<http://www.teara.govt.nz/NewZealandInBrief/Economy/2/en>>
 47. Matheson 80
 48. Matheson 59.
 49. David R. Woodward, *Queen bee biology, rearing and breeding* (Balclutha: Telford Rural Polytechnic, 2007): 65.
 50. Woodward 123-125.
 51. Matheson 114.
 52. "Ostrich/emu summary," Ministry of Agriculture and Forestry, accessed June 3, 2006, <<http://www.maf.govt.nz/mafnet/sectors/animals/emu.html>>
 53. "Ostrich/emu summary."
 54. "Ostrich farming overview," Vetservice.co.nz, accessed 3 June 2006 <http://www.vetservice.co.nz/content/print_feature.php?post_feature_id=212>
 55. *Code of recommendations and minimum standards for the welfare of ostrich and emu, 1998*, accessed May 27, 2006 <<http://www.biosecurity.govt.nz/animal-welfare/codes/ostriches-emus/index.htm>>
 56. F.W. Huchzermeyer, *Ostrich news* Winter 1997.
 57. "Ostrich farming overview."
 58. "Transport of ratites: implications for welfare," *Surveillance* 29:4 (2002): 18-20.
 59. "Ostrich farming overview."

60. *Code of recommendations and minimum standards for the welfare of ostrich and emu, 1998.*
61. *Ostrich and Emu processing standard 5, Amendment 1, September 2002*, Ostrich and Emu Standards Council, accessed June 3, 2006 <<http://www.nzfsa.govt.nz/animalproducts/meat/meatman/oeps5/oeps5.pdf>>
62. "Possum pie on menu at Regional Council field days display," Feb. 17, 2005, Northland Regional Council, accessed May 27, 2007 <http://www.nrc.govt.nz/reports.and.news/media.releases/2005/february/mr_180205_possum_pies.shtml>
63. Pete's possum pies and pate, accessed May 27, 2007 <<http://www.pukekura.co.nz/possum/index.htm>>
64. Natasha Mitchell, "Turning pests into petfood," RD1, May 27, accessed 2007 <http://www.rd1.com/web/content?in_section=10&in_item=947&in_page=2607>

Chapter 4

Birds in barns and cages

Most New Zealanders are aware of the plight of battery hens, as the mass media have presented us with many images of caged hens in recent years. However, few people know much about the conditions in which broiler chickens are kept. There is also little public awareness of the suffering of intensively farmed ducks and turkeys.

Broiler farms

Seventy-seven million broiler chickens are farmed in New Zealand each year. 90 per cent of these are owned by just three corporations: Tegel Foods Ltd, Inghams Enterprises (NZ) Pty Ltd, and PH van den Brink Ltd. ¹ Smaller numbers of turkeys, ducks, quail, poussin and pheasants are also raised, often by the same companies. Chickens originated in the trees of Asia, and are more intelligent than most people realise. According to Sydney scientist Chris Evans, chickens make referential food calls that are arguably at the fringe of language. Chickens make at least 20 distinct sounds with separate meanings, can recognize at least 80 individuals in a flock, learn from each other, and perform spectacular courtship displays.

Tegel Foods Ltd. is New Zealand's largest producer of chickens and turkeys, responsible for the suffering of more than 44 million chickens and thousands of turkeys every year. In 2005, activists from Auckland Animal Action began a 6-month investigation into Tegel chicken farms in the Auckland area, obtaining footage which showed chickens obviously in distress, unable to walk or stand. ²

The life of a broiler chicken begins with an egg laid at a "breeder farm." Breeder farms are intensive farms containing the parent birds, who are housed in crowded sheds containing flocks of 4000-5000 birds, in around 1,000 square metres floor space. By around 14 months of age, the breeding birds are usually exhausted, and are killed. ³

The eggs are not actually incubated by the mother hens, but are transferred to hatcheries, where they are placed on racks in a "setter room" for 21 days. After hatching, the chicks are examined, graded and sometimes sexed. Surplus or "substandard" chicks are gassed to death, or minced alive in a process called "instantaneous fragmentation". ⁴ The animal welfare code for broiler chickens does not provide any standards for this process, leaving it up to the farmer to determine how they are killed. ⁵ The day-old chicks are then moved to broiler sheds, each of which can contain up to

45,000 broiler chicks.⁶ The Animal Welfare (Broiler Chickens: Fully Housed) Code of Welfare 2003 allows farmers to keep up to 20 full grown, 1.7 kg birds in a square metre of space,⁷ too little space to allow the chicks to extend their wings. The European Commission, Health and Consumer Protection Directorate-General released a report in March 2000 concluding that such high stocking rates results in “breast blisters, chronic dermatitis and leg disorders” and that the walking ability of chickens is “severely affected.”⁸

Broiler chickens

- raised in crowded sheds containing up to 45,000 birds, with up to 20 full-grown birds in one square metre of space
- routinely fed antibiotics to increase growth rates
- transported to slaughter in cramped crates at only six weeks of age

The air within a typical broiler shed stinks of ammonia, and the vast numbers of animals crowded together means that it is difficult for the chickens to express normal patterns of behaviour, or even to manoeuvre about.⁹ Broiler chickens have been bred to put on weight at an unnatural rate, and this puts a tremendous strain on their young hearts and bones. The chicks are fed from feeders and water sippers that are gradually raised as the birds grow. Chicks who are injured, or who do not grow as fast as their peers are unable to reach these, and die of thirst and starvation.¹⁰ Around 3 percent of birds (over 2 million per year) die prematurely. The chicken’s feed includes antibiotics that are routinely added to increase growth rates, and prevent the diseases that would otherwise spread rapidly in such crowded conditions. By 1999, 57 per cent of all antibiotics used in New Zealand were used on animals – two thirds of these mixed in with the food of intensively farmed chickens.¹¹ Such practices encourage the spread of anti-biotic resistant strains of bacteria, and endanger human health. According to microbiologist Greg Cook,¹² the anti-biotic resistant bug VRE has already spread from chickens to humans. Chicken feed contains other ingredients that the birds would never consume in nature - such as meat, bonemeal, bloodmeal, and tallow.¹³ The fouled litter within the shed is only changed when the birds are taken away to be slaughtered, and sometimes not even then.¹⁴

Usually the birds are slaughtered at around 33 to 42 days of age,¹⁵ the average being 38 days.¹⁶ Some are killed as young as 28 days of age.¹⁷ At the end of their brief lives, the chickens are seized by the legs by teams of “catchers,” eight chickens at a time being carried by the catcher.¹⁸ With such large birds, there is considerable risk of distress and injury. Catching can lead to hip damage, or the chickens may panic and smother each other. After catching, the birds are placed in crates, at densities up to 65 kg (over 30 birds) per square metre, and transported to the slaughterhouse.¹⁹ The crates are only 21 cm high, too small for the birds to stand up in.²⁰ At the slaughterhouse, each chicken is held by both legs, and shackled upside down to a chain. As the chain moves along, the chicken’s head dips into a waterbath stunner. Workers then slice across the back of the chicken’s neck.²¹ The waterbath stunner does not actually kill the bird. Occasionally a bird may regain consciousness, but be unable to move because the spinal cord has been

cut – and the slaughterhouse worker will not be able to tell that the chicken is awake and aware. This means that some chickens will die miserably through having their heads pulled off by the “automatic head puller” machine while still alive and conscious.²²

Layer hens

In 2003, there were just over 3 million layer hens in New Zealand,²³ 92 per cent of whom were kept in cages.²⁴ A few huge companies dominate the egg industry. The largest of these is Mainland Poultry Ltd, who sell mainly battery eggs under the “Farmer Brown” label.²⁵ New Zealand food safety regulations heavily favour large battery egg producers. Most egg farmers must have a Risk Management Protocol, and be audited by MAF, a process which costs about \$5000-7000 over the first two years. Such costs are crippling to small free range farmers.²⁶ Exemptions can be applied for, but are limited to farmers with 100 hens or less (whether or not these are currently laying). This makes it economically difficult for small farmers to continue to care for older hens, who have stopped laying. Farmers with exemptions are also not allowed to sell their eggs through normal retail channels such as shops.²⁷

Battery hens

- 92 percent of New Zealand’s 3 million layer hens are kept in cages, with less than an A4 sheet of paper’s space per bird
- male day-old chicks are gassed or minced alive (instantaneous fragmentation)
- young chicks are debeaked before the age of 10 days
- hens suffer from osteoporosis, deformed feet, feather loss, boredom and frustration

Like broiler chickens, layer hens begin their lives in hatcheries. The day-old chicks are sexed, and the males killed by gassing or “instantaneous fragmentation.” The surviving chicks are moved for a week to windowless houses where they are kept under continuous lighting.²⁸ The young chicks often have their beaks trimmed with a hot blade²⁹ when they are less than 10 days old – a painful process. Debeaked hens show forms of neuroma indicating chronic pain.³⁰

The chicks are then moved to tiers of barren cages on the battery farm, where they are unable to forage, dust bathe or nest. Young birds are kept at a density of 15-17 birds per cage; this is reduced to 5-7 birds per cage once they begin laying.³¹ Cages are typically 35-40 cm high, with an uncomfortably sloping floor (so that the eggs roll down). The total amount of space adult chicken is tiny – only 450-500 square cm per bird in many existing cages. Recently the National Animal Welfare Advisory Committee increased this to 550 square cm, for new cages³² – still less than an A4 sheet of paper per chicken. Younger birds have even less space with only 370 square cm per bird, and up to 27 birds per square metre.³³ Older cages are usually made of wire, while newer ones may be made of plastic or galvanised steel.

Cages stop the chickens from displaying normal behaviour such as flying, running, and walking.³⁴ Cages also often lead to feather loss and skin damage, from rubbing against the sides of the cage, and foot and claw deformation due to standing on a sloping wire floor.³⁵ According to poultry behaviour expert Ian Duncan, caged hens suffer considerably from lack of space, stressful social crowding, lack of opportunity to perch

or dust bathe, and lack of exercise leading to skeletal weakness. As a caged hen cannot nest, she will spend much of the pre-laying period of up to one and a half hours frantically trying to find an enclosed nest site, and frustrated at being unable to do so.³⁶ Caged hens also often suffer from hunger and thirst (when the automatic feeding systems within the shed break down), fear and distress, osteoporosis, fatty liver haemorrhagic syndrome, claw injuries, injuries during handling and transport, chronic inflammation, skeletal deformities, and skin blisters.³⁷ While there are few New Zealand statistics on the suffering of battery hens, a 1993 study found that 64 percent of battery hens had foot injuries, most suffered from curled claws, and there was an annual mortality rate of around 10 per cent.³⁸

Many battery cage farmers add canthaxanthin, a fat soluble dye, to the chicken feed, in order to give the pallid egg yolks some colour. A loophole in the Food Act and Regulations means that they can avoid telling consumers that their eggs are artificially coloured.³⁹ Flocks of battery hens may also be routinely fed antibiotics such as zinc bacitracin.⁴⁰ Mainland Poultry feed hens a mixture that includes GE soy.⁴¹

Forced moulting is an artificial process which shocks the hens so much that they stop laying, shed their feathers, and then resume laying, allowing farmers to extend egg production into a second laying period. A forced moult is usually induced by denying the hens feed and water. While only a few New Zealand producers carry out forced moulting (in which food and water are withdrawn for up to 24 hours), forced moulting is legal if replacement pullets are unobtainable. It is a cruel process, causing severe physiological stress and resulting in the death of some birds. Mortality levels in New Zealand flocks are approximately 1.25-3.0% during moulting.⁴²

By the time they reach 64-72 weeks of age, battery hens are usually worn out, and the entire flock is sent to slaughter.⁴³

In 2004, Auckland activists discovered an abandoned Glenbrook battery farm, filled with the decomposing bodies of thousands of hens, with some live hens sharing cages with their dead companions. According to one report "Dozens of rats were all over the premises, many were seen inside the cages living off the dead birds. Heaped piles of the putrid, rotting bodies of hens were found throughout the building. The flooring was covered in excrement which was, in some places, several inches thick."⁴⁴

In May 2006, there was a glimmer of hope, as Parliament's Regulations Review Committee found that the *Animal welfare (layer hens) code of welfare 2005* was in breach of the Animal Welfare Act 1999. This put pressure on the egg industry to devise a new code that did comply with the Animal Welfare Act by phasing out battery cages.⁴⁵ However in July 2006, Jim Anderton, the Minister of Agriculture, decided that the government could "not ... accept the Committee's findings that this standard does not comply with the obligations of the Animal Welfare Act 1999." He claimed that more research was needed, putting off the development of a new welfare code for layer hens until at least 2009.

Barns and free range hens

3.9% of hens are reared in barns and 4.5% in free-range systems.⁴⁶ While barn eggs come from hens who are not confined in cages, the birds are kept indoors in windowless sheds, usually with a wire netting floor.⁴⁷ They may have access to perches, nesting

boxes and dirt bathing areas, but are unable to forage for insects, or bask in the sun. The vast numbers of birds in each barn means that hens are unable to maintain their normal social hierarchies. The allotted space per bird is only 1428 square centimetres (7 birds per square metre),⁴⁸ and hens may still have their beaks trimmed.

Free range chickens have richer and more natural lives than either barn or battery hens. However, male chicks and older hens who are laying fewer eggs, are routinely killed. Sometimes the farmer may kill chickens on the farm, by holding the bird upside down by the legs, and twisting his or her neck.⁴⁹ Even free range producers such as Eco Eggs send their entire flock of hens to the slaughterhouse, once egg production begins to decrease. Free range chickens may still be debeaked,⁵⁰ and artificial lighting may be used to increase egg production. Free range producers buy their chicks from commercial operators who kill male chicks by instantaneous fragmentation. Eggs are not always what they seem. In 2002, egg producer Willem Klaas Stolle was fined \$10,000 for selling barn eggs under a free range label.⁵¹ Free range eggs are often sold as a sideline by a factory farmer, whose main business is producing and selling battery eggs, so consumers who buy free range eggs may still be supporting battery farmers.

Turkeys, ducks and geese

Small numbers of turkeys, ducks, geese, quails and pheasants are raised for meat or eggs in New Zealand. In 2002 the agricultural sector produced 655 tonnes of duck meat, 100 tonnes of goose, and 1,100 tonnes of turkey meat.⁵² Fortunately the production of foie gras is illegal in New Zealand.

The NZ duck industry is largely based around Pekin ducks. At Canter Valley Farm, the South Island's largest duck farm, Pekin ducks are slaughtered at just 6 weeks of age. The baby ducklings are not reared by their mothers. Instead they hatch in incubators, before they are moved to brooding rooms, and then to enormous sheds, where they live in similar conditions to those of broiler chickens,⁵³ under artificial lights, and with no access to the outside world. Feather pulling and debeaking are common. In fact, most ducks reared for their flesh suffer more than broiler chickens do, as water is essential for normal duck behaviour. In the wild, ducks will spend about 80 percent of their time in water. However, farmed ducks rarely have access to water to swim or play in. A review of duck welfare published in December 2005 in the *World poultry science* journal found that ducks without water show abnormal behaviour such as head shaking. Their beaks, nostrils and eyes become dirty, and they suffer from heat stress. The Council of Europe recommends that ducks should have access to deep enough water so that they can cover their heads and splash their backs. Ducks use vocalizations and body language to communicate. Researchers at Middlesex University in Britain recently reported that ducks even have regional accents, just like humans! These scientists found that city ducks have more of a "shouting" quack so that other ducks can hear them above the hustle and bustle, while country ducks have softer, smoother voices.⁵⁴

Most ducks reared for their eggs live in similar unnatural conditions. They start laying at 26 weeks of age, and will lay an egg a day for the next 40 weeks, by which time they are worn out, and are slaughtered.⁵⁵

New Zealand turkeys are usually reared in windowless sheds, though there is a small free-range industry. Typically, broiler turkeys are slaughtered at 28-52 days of age.

Smaller breeds of free-range turkey may live somewhat longer, with males slaughtered at 16-24 weeks of age, and females at 16 to 20 weeks of age.⁵⁶

Notes

1. "Poultry farming in New Zealand," Poultry Industry Association of New Zealand, accessed Apr. 15, 2006 <<http://www.pianz.org.nz/PoultryFarming.htm>>
2. *Campaign against Tegel cruelty website*, June 22, 2006 <<http://www.tegelchicken.co.nz>>
3. "Poultry farming in New Zealand," Poultry Industry Association of New Zealand, accessed Apr. 15, 2006 <<http://www.pianz.org.nz/PoultryFarming.htm>>
4. *Animal welfare (broiler chickens: fully housed) code of welfare 2003* Code of animal welfare; no. 1 (Wellington: Animal Welfare Advisory Committee, 2003): 13.
5. Gum, Cherie, "New code of welfare in place for broiler chickens – it is new, but is it improved?," ARLAN, accessed June 4, 2006 <http://www.arlan.org.nz/articles/Broiler%20code_Cherie.htm>
6. "Poultry farming in New Zealand," Poultry Industry Association of New Zealand, accessed Apr. 15, 2006 <<http://www.pianz.org.nz/PoultryFarming.htm>>
7. Anna Claridge, "Critics say chicken code legalises abuse," *Press*, June 28, 2005: A4.
8. Gum.
9. *Animal welfare (broiler chickens: fully housed) code of welfare 2003* 19.
10. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (Broiler chickens 2001) code of welfare 2001 : public draft dated 30 October 2001*, Jan. 14, 2002, SPCA, accessed May 8, 2007 <<http://www.rspcanz.org.nz/submissions/submission-broilerchickenscode.doc>>
11. "What's in our food: is that a bug in your steak?," *New Zealand herald*, Jan. 11, 2005.
12. "What's in our food: is that a bug in your steak?"
13. Poultry farming in New Zealand," Poultry Industry Association of New Zealand, accessed Apr. 15, 2006 <<http://www.pianz.org.nz/PoultryFarming.htm>>
14. *Animal welfare (broiler chickens: fully housed) code of welfare 2003* 27.
15. *Animal welfare (broiler chickens: fully housed) code of welfare 2003* 20.
16. Kim Knight, "The wisdom of nuggets," *Sunday star times*, Oct. 3, 2004: D3.
17. *Regulatory control of antibiotics to manage antibiotic resistance annual report: 2004*, New Zealand Food Safety Authority, accessed May 1, 2005 <<http://www.nzfsa.govt.nz/acvm/subject/antibiotic-resistance/2004arreport-final.htm>>
18. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (broiler chickens 2001) code of welfare 2001 : public draft dated 30 October 2001*.
19. *Animal welfare (broiler chickens: fully housed) code of welfare 2003* 31-33.
20. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (broiler chickens 2001) code of welfare 2001 : public draft dated 30 October 2001*.
21. *Animal welfare (commercial slaughter) code of welfare 2006: draft code of welfare 10* (Wellington: National Animal Welfare Advisory Committee, 2006)
22. N.G. Gregory, J.K. Robins, and T.A. Stewart, "Blood spots in chicken meat after slaughter : a humane alternative," *New Zealand veterinary journal* 47 (1999): 77-78.
23. *Animal welfare (layer hens) code of welfare 2004 report*, Apr. 19, 2004, accessed Apr. 15, 2006 <<http://www.biosecurity.govt.nz/files/animal-welfare/codes/layer-hens/lhc-report.pdf>>
24. *Animal welfare (layer hens) code of welfare 2005*, accessed Apr. 15, 2006 <<http://www.biosecurity.govt.nz/animal-welfare/codes/layer-hens/index.htm>> p. 1.
25. "Mainland Poultry Ltd," MarketNewZealand.com, accessed July 4, 2006 <<http://marketnewzealand.com/MNZ/Profiler/0/1666/Mainland-Poultry-Ltd.aspx?Buyer=true>>
26. Perry Spiller, "RIP : the demise of free range eggs : three generation family tradition fo framing free-range hens destroyed," *Organic NZ*, 63(2004): 26-28.

27. "Information for Egg Producers," New Zealand Food Safety Authority, accessed Jan. 21, 2007 <<http://www.nzfsa.govt.nz/animalproducts/subject/eggs/eggsfactsheet.htm>>
28. *Animal welfare (layer hens) code of welfare 2005.*
29. *Animal welfare (layer hens) code of welfare 2005.*
30. W. Temple and T.M. Foster, "The welfare status of egg production in New Zealand," *Proceedings of the New Zealand Society of Animal Production* 53 (1993): 215-217.
31. *Animal welfare (layer hens) code of welfare 2004 report*, Apr. 19, 2004, Biosecurity New Zealand, accessed Apr. 15, 2006 <<http://www.biosecurity.govt.nz/files/animal-welfare/codes/layer-hens/lhc-report.pdf>> p. 8.
32. *Animal welfare (layer hens) code of welfare 2005.*
33. *Animal welfare (layer hens) code of welfare 2005.*
34. *Animal welfare (layer hens) code of welfare 2005.*
35. *Animal welfare (layer hens) code of welfare 2004 report.*
36. Anthony Raizis, "Looking after hens," *Organic NZ* 64.4 (2005): 40.
37. Raizis 40.
38. W. Temple and T.M. Foster, "The welfare status of egg production in New Zealand," *Proceedings of the New Zealand Society of Animal Production* 53 (1993): 215-217.
39. Perry Spiller, "RIP: the demise of free-range eggs," *Organic NZ* 63.5 (2004): 28.
40. *Regulatory control of antibiotics to manage antibiotic resistance annual report: 2004.*
41. "Farmer Brown eggs (Mainland Poultry)," *GE free food guide*, Greenpeace New Zealand, accessed July 4, 2006 <<http://www.greenpeace.org.nz/truefood/master.asp?http://www.greenpeace.org.nz/truefood/proddetail.asp?AisleID=14&ProductID=3526>>
42. *Animal welfare (layer hens) code of welfare 2004 report* 12.
43. *Regulatory control of antibiotics to manage antibiotic resistance annual report: 2004.*
44. "Battery Hen Farm Horror," Feb. 12, 2004, Scoop Independent News, accessed June 22, 2006 <<http://www.scoop.co.nz/stories/PO0402/S00078.htm>>
45. "Cruel hen cages move closer to phase-out," May 9, 2006, Scoop Independent News, accessed May 27, 2006 <<http://www.scoop.co.nz/stories/PA0605/S00209.htm>>
46. *Regulatory control of antibiotics to manage antibiotic resistance annual report: 2004.*
47. Karen Stade, "Cracking the market," *Nelson mail*, Jan. 28, 2003: 9.
48. *Animal welfare (layer hens) code of welfare 2005.*
49. "Choosing chooks. Part 2," *New Zealand lifestyle farmer* Apr. 2006: 30-31.
50. "Bio Eggs production standards," Eco Egg Company Limited, May 14, 2006 <<http://ecoegg.co.nz/bioegg/biostandards.htm>>
51. "Logo provides guarantee," *Animals' advocate* Summer 2002: 1.
52. "Economic overview," *New Zealand country review* 2006: 47.
53. Lyn McKinnon, "Grow fast Pekin ducks," *New Zealand lifestyle block*, 22 (2006): 28.
54. "The Hidden Lives of Ducks and Geese," <http://www.goveg.com/f-hiddenlivesducks.asp>
55. "No ducking growing demand: a Warkworth couple are aiming to make New Zealanders dedicated duck consumers," *New Zealand growing today* 18:11(2004): 19-20.
56. "Turkeys for Christmas," *New Zealand growing today* 18:11(2004): 23.

Chapter 5

Blood harvesting, ships, trucks, and slaughterhouses

Blood is extracted from live horses, cattle, sheep, and goats for research and commercial purposes. Increasing numbers of commercial companies are collecting blood, and exporting it to countries such as the United States and Japan. Blood and blood products are used in diagnostic tests, and in cosmetic and pharmaceutical products.¹

If too much blood is drawn too quickly or frequently, animals may develop hypernoea, and go into a state of shock. In the longer term they may suffer anaemia and muscle weakness. If irritant adjuvants are used, this may result in inflammation or abscesses at the site of the wound.² 15 to 25 per cent of the total blood volume may be removed from adult animals.³

Foetal calf blood is obtained by inducing calves up to six weeks prematurely. The tiny immature calf is not allowed to drink milk or colostrum, and is killed within twenty four hours of its birth, either on the farm or in a slaughterhouse. The calf is first stunned, and then its blood collected by inserting a needle into its heart.⁴ Foetal calf blood is sometimes obtained by collecting blood from the heart of an unborn calf within the uterus of a cow who has been freshly slaughtered.⁵ Anaesthetics are not used, even though the baby calf usually has a gestational age of at least 6 months, and has a well-developed nervous system capable of feeling severe pain. According to the National Animal Ethics Advisory Committee, 780 unborn baby mammals were “manipulated” in 2005 – many of these would have suffered to provide blood for the blood products industry.

Foetal blood is used in biological tests, tissue culture and in the manufacture of animal vaccines such as those for canine distemper and feline enteritis, both for domestic use and for export to countries all around the world. One NZ company profiting from blood products is South Pacific Sera, which sells bovine serum and calf serum to be used in cell cultures for pharmaceutical production and animal virus testing. The company specialises in custom antibody production, and also sell a range of whole blood products and plasma products extracted from sheep, horses and other farm animals for use in microbiology.⁶

Agri-lab Co-Products are a particularly unpleasant company, selling blood and blood products (including foetal blood and serum) from cattle, sheep and deer to clients in Germany, USA, Canada, Australia, Japan, Korea, Taiwan, Singapore and Hong Kong. In 2004 Agri-lab opened a purpose-built, specialised processing facility in the Hawke's Bay region. Agri-lab is also a world leader in the supply of placentas from live and

slaughtered animals, as well as marketing animal brain extracts such as ceramides (used in cosmetics), and deer embryos (used for traditional Chinese medicine).⁷

Other companies include ICP Biotechnology Ltd, an Auckland-based enterprise which exports bovine albumin for cell, embryo, and tissue culture use (including the preparation of monoclonal antibodies), and Richmond Pharmaceuticals Division, a slaughterhouse-based company, which sells both whole animal blood and foetal calf serum.

Live exports

The export of live animals is a small but important component of the New Zealand agricultural industry. Animals are sent on long journeys by ship, and often suffer from extreme heat, cramped conditions, sea sickness, and diseases. If the ship is delayed, large numbers may die. Back in 1990, almost 10,000 sheep died in terrible heat on a voyage from New Zealand to Saudi Arabia.⁸ In 2003, 5000 Australian sheep aboard the Cormo Express died and a further 43,000 were trapped for two months stranded in the Persian Gulf after the ship was refused permission to unload in Saudi Arabia. This led to MAF stopping the export of 70,000 live sheep from Hawke's Bay to Saudi Arabia in January 2005⁹ amid public concern about the fate of the sheep and protests by animal rights groups. However, the live sheep export trade continues – the most recent shipment being a batch of 35,000 New Zealand crossbred two-tooth ewes, who were sent to Mexico at the end of April 2007.¹⁰ Exported sheep are confined in pens on open decks for weeks on end with only 0.27 to 0.4 square metres of space per animal.¹¹ The SPCA would like the export of live sheep to be banned, commenting that “the live sheep trade is a barbarous and cruel business, with sheep kept in tightly-packed pens on open decks. For weeks on end, they endure a man-made hell, with all too many of them dying from infections, from extremes of temperature or other hazards of the voyage.”¹²

Live exports

- animals shipped overseas must endure heat, crowded conditions and rough seas
- live exports of sheep to the Middle East are currently embargoed
- thousands of live cows are shipped to harsh lives in China and Mexico
- clones of stud bulls are exported to China
- Tegel chickens are exported alive to China
- thousands of crayfish are exported alive

Over 50,000 cattle were sent overseas in 2004,¹³ mainly to China¹⁴ and Mexico. The trade to China has since decreased somewhat, though thousands were still sent in 2005. Many cattle are shipped to Mexico. At the end of April 2007, a ship carrying 7000 Holstein-Friesian heifers left from Timaru for Mexico, a journey of 17 days, in very hot conditions. Once in Mexico, the cattle would not have survived long. Cows in Mexico are milked three times a day, producing up to 75 litres of milk, which puts tremendous strain on their bodies.¹⁵ Conditions in China are also very harsh.

As well as cows, a few stud bulls are exported. In January 2006, four clones of two bulls were exported to Wanjing by Ambreed and AgResearch – the first live export of

New Zealand bulls to China.¹⁶ According to Green MP Sue Kedgley “reports ... obtained under the Official Information Act detailing the conditions on live shipments show the atrocious conditions the animals endure on these long sea voyages.’ During one 20-day voyage to China, cattle were at times “a foot deep in shit” according to the ship’s veterinarian, and at one point 50 cattle were lame. The ship’s ventilation broke down resulting in stifling heat and ammonia fumes on the decks where cattle were housed. Two animals died on the voyage, another was rejected by the Chinese government and another was seriously ill when unloaded. A report from another voyage shows that cows did not have constant access to water and eight died, including three from heat exhaustion.¹⁷

Chickens are also sent overseas alive. In 2004 Tegel Foods sent 400,000 breeding birds from North Taranaki factory farms by air to Asia.¹⁸ Other live animal exports include small numbers of deer (32 animals were exported in 1999),¹⁹ and thousands of crayfish every day to cities around the world.²⁰

Transportation and slaughter

Most New Zealanders would like to believe that the animals they eat had painless and “humane” deaths. However, animals often suffer considerably while waiting to die. They are mustered, confined, transported in trucks, and handled by unfamiliar workers and dogs, all the while without food. The geography of New Zealand means that animals are often transported long distances to their deaths.

Animals are often stressed by mustering, before the journey even begins. Stock canes, stock whips, or lengths of plastic piping are used to beat them into movement, and electric prodders may be used on adult cattle and deer. In a recent article in *Wilderness* magazine, Diana Zadavec describes the mustering process “dogs bully the cows, which snort and attack ... the stock whips crack ... the bellowing of the separated cows and calves is deafening.” She also describes a calf being lassoed.²¹ Animals usually have to fast for the last four to six hours before being transported, and during the journey.

A MAF study of long-haul road journeys involving sheep, cattle and deer, found that lambs in particular suffered from the high temperatures, humidity and ammonia levels during inter-island journeys – especially during ferry travel where mean environmental temperatures were elevated 4-6°C above ambient and relative humidities reached 90 percent.²²

Pre-slaughter procedures usually take at least 3 days from start to finish. In every export meatworks in New Zealand, some or all sheep are forced through a swim wash before being slaughtered – which means being pushed through a 20 metre race of cold water. This is very stressful, particularly for thin or weak sheep.²³ Unweaned bobby calves and lambs, and adult pigs, deer, and horses are held unfed in “lairage”, in bare concrete yards, for up to 24 hours before slaughter. Adult cows and sheep may be held for longer.²⁴ Deer often go to slaughter stressed from human brutality, with multiple wounds. A study found that around a quarter of all deer suffered bruises at one slaughter plant, and that pre-slaughter handling caused “at least moderate stress, and a high level of muscular exertion and damage.” 80 per cent of slaughtered deer had cuts and abrasions, and often suffered from dehydration, as they were too stressed to drink much water while held in lairage.²⁵

Generally animals are stunned before being slaughtered. Three main methods are used: penetrating captive bolt, non-penetrative percussive stunning (usually just used on cattle), or electrical stunning using a current of up to 1 amp for sheep and goats and up to 1.3 amps for pigs, cattle and red deer.²⁶ The first two methods cause immediate collapse. Electrical stunning results in an epileptiform seizure, with immobility followed by convulsions with kicking and paddling movements. Calves may cry out.²⁷ A MAF study of slaughterlines in New Zealand found that nine percent of animals were not stunned effectively by electrical means, due to a poor initial contact, or an interrupted current flow, and this was not “satisfactory from an animal welfare perspective.”²⁸ Even when the captive bolt method was used, the pistol did not always effectively penetrate the skulls of very large sows or boars.²⁹

After being stunned (or not), the animal is slaughtered by bleeding. Two main methods are used. The first method involves cutting the chest open between the first two ribs so that the anterior vena cava and the bicarotid arterial trunk are severed, with a gush of blood.³⁰

The second method, used in halal slaughter, involves a slash across the surface of the neck. Sometimes only one of the carotid arteries is severed, or the severed ends of the arteries become blocked, so that loss of consciousness and death are considerably delayed. Calves take much longer than other animals to die after throat cutting – sometimes over 2 minutes. Even if the cut is clean, blood is carried to the brain by vertebral arteries, so the tiny calves remain conscious, and in pain.³¹ Many animals are slaughtered using halal methods. New Zealand is the world’s largest exporter of halal sheep meat, sending 95,000 tonnes of meat overseas every year to over 60 countries.³²

The horse meat industry

New Zealand exports horse meat overseas for human consumption, and in 2004 about 500 tonnes of meat were exported. The horses slaughtered include ex-racehorses, ex-sport and farm horses and Kaimanawa wild horses. The main slaughterhouses are Belgian-owned, and include Clover Export Ltd at Gore in the South Island, and Alpine Export Ltd at Tauranga, in the Bay of Plenty. Clover Export Ltd sends horsemeat overseas to the luxury European market, and also sells to domestic retailers, such as the exclusive Wellington restaurant “General Practitioner”, which lists horsemeat steaks on the menu.³³

Clover Export owns a block of land where horses are kept in reserve waiting to be slaughtered, ensuring that the slaughterhouse can operate at optimum efficiency at all times.³⁴ There have been several animal welfare complaints about the company. In 2003, the RNZSPCA issued a press release expressing concern at the emaciated state of some of the horses waiting to be killed. Following a TV programme exposing the company, the Ministry of Agriculture and Forestry investigated and one horse was euthanased on the instructions of a MAF vet.³⁵

Notes

1. *Guidelines for the welfare of livestock from which blood is harvested for commercial and research purposes* (Wellington: Animal Welfare Advisory Committee, 1996): 4.
2. *Guidelines for the welfare of livestock from which blood is harvested for commercial and research purposes* 5.
3. *Guidelines for the welfare of livestock from which blood is harvested for commercial and research purposes* 6.
4. *Guidelines for the welfare of livestock from which blood is harvested for commercial and research purposes* 13.
5. *Guidelines for the welfare of livestock from which blood is harvested for commercial and research purposes* 6.
6. South Pacific Sera, accessed Jan. 2, 2006, <<http://southpacificsera.co.nz>>
7. Agri-lab Co-Products Limited, accessed Jan. 2, 2006, <<http://www.agri-lab.com>>
8. McInerny, Paul, "Livestock torture cruise," *Illawara mercury*, Sept. 27, 2003.
9. Helen Bain, "Sheep shipping stopped by MAF," *Sunday star times* Jan. 16, 2005: A6.
10. "Big live sheep export from NZ," *New Zealand farmers weekly*, Apr. 27, 2007
11. Sue Kedgley, "New Zealand's shameful live sheep shipments resume, 6 Mar. 2005," accessed 9 Sept. 2006, <<http://www.greens.org.nz/searchdocs/PR8369.html>>
12. "SPCA calls for total ban on live sheep exports," RNZSPCA, Sept. 25, 2003, accessed May 6, 2007 <http://www.rnzspca.org.nz/news/press_releases/030925-sheepexportban.doc>
13. Kelly, John, "Livestock exports keeping dairy stock demand high," *New Zealand herald*, Oct. 3, 1004.
14. Geoff Taylor, "Box seat' for NZ in live cow sales to China," *Waikato times* Sept. 28, 2004: 15.
15. Jill Galloway, "More heifers off to Mexico," *Manawatu standard* Mar. 21, 2006: 12.
16. Stephen Ward, *Dominion post*, Jan. 11, 2006: C3.
17. Sue Kedgley, accessed 9 Sept. 2006 <<http://www.greens.org.nz/searchdocs/PR8369.html>>
18. Rochelle West, "Flu ruffles Asian feathers but Taranaki chickens soar," *Taranaki daily news* Feb. 4, 2004: 1.
19. John Cutt, "Farmer recalls deer farming's early days," *Southland times* Apr. 14, 2000: 15.
20. Bryn Somerville, "Crayfish tales: making a meal of crays," *Press*, July 21, 2001: WE1.
21. Diana Zadravec, "Mustering magic," *Wilderness*, Jan. 2006: 38-43.
22. Matthews, Lindsay, "Improving conditions and welfare on stock trucks," accessed Mar. 26, 2006 <http://www.maf.govt.nz/mafnet/rural-nz/research-and-development/research-results/2000-2001/2000-01-research-results-01.htm#P217_15426>
23. Clive Dalton and Marjorie Orr, *The sheep farming guide* (Christchurch: Hazard Press, 2004): 108.
24. *Code of recommendations and minimum standards of the welfare of animals at the time of slaughter at licensed and approved premises*, Code of animal welfare; no. 10 (Wellington: Animal Welfare Advisory Committee, 1994): 2.
25. Lyn Mckinnon, "Tailgate slaughter research gets the thumbs-down," *Deer farmer* 2004: 7-8.
26. *Code of recommendations and minimum standards of the welfare of animals at the time of slaughter at licensed and approved premises* 6-7.
27. *Code of recommendations and minimum standards of the welfare of animals at the time of slaughter at licensed and approved premises* 16.
28. "Electric Current profiles during Livestock Stunning," accessed Mar. 19, 2007 <http://www.maf.govt.nz/mafnet/rural-nz/research-and-development/research-results/2000-2001/2000-01-research-results-01.htm#P217_15426>

29. *Code of recommendations and minimum standards of the welfare of animals at the time of slaughter at licensed and approved premises* 15.
30. *Code of recommendations and minimum standards of the welfare of animals at the time of slaughter at licensed and approved premises* 8.
31. "God's own chosen meat," *New statesman*, 33, no. 4695 (2004): 22-23.
32. Matthew Dick, "Halal exports : big business for New Zealand," *Primary industry management* 5:3 (2002): 23-24.
33. Tom Cardy, "Chef takes a punt with horses for courses," *Dominion post*, May 26, 2007, accessed May 27, 2007 <<http://www.stuff.co.nz/hawkesbay/4072923a6479.html>>
34. "Horse slaughter and horsemeat : the facts," accessed Jan. 23, 2007 <<http://www.users.bigpond.com/berrime/slaughter.htm>>
35. "Meat exporters urged to uphold animal welfare standards," RNZSPCA, April 2004, accessed May 5, 2007 <http://www.rnzspca.org.nz/news/press_releases/meat-exporters-welfare-0404.doc>

Chapter 6

Aquaculture

Aquaculture is as cruel and environmentally destructive as any other form of intensive farming. It is worth \$320 million to the New Zealand economy,¹ with around 1,000 marine farms along the N.Z. coastline.² Aquaculture is especially popular in the Auckland region. A moratorium on permits for new fish farms ended in 2006, so there are soon likely to be many more.

The main species farmed in New Zealand are salmon, spiny lobsters, Pacific oysters and Greenshell mussels.³ It seems likely that finfish farming will be carried out on a greater scale in the future, with extensive research into kingfish farming currently carried out by the crown research institute NIWA.⁴ There is also a growing freshwater eel farming industry, and trout are bred commercially and released into rivers for recreational fishers. There are two seahorse farms in New Zealand, in which seahorses are bred for Chinese medicine or aquariums. Seahorses used for breeding experience very curtailed lives. The potbelly seahorse, for example, lives to the age of ten years in the wild, but only six years in captivity.⁵

Animals used in aquaculture are wild species unused to human handling. Reared in captivity, they are likely to experience stress from water pollution, parasitic diseases⁶ and crowding. Fish may find it hard to adapt to the artificial diets provided. Handling and management procedures such as netting, grading, pumping, vaccination, injection, disease treatment, transportation and slaughter are all stressful. Most species used in aquaculture are carnivorous, and outbreaks of cannibalism are common, especially with finfish species such as kingfish.⁷

Caged fish are unable to express natural behaviours such as migrating or swimming to deeper water during storms, and suffer injuries when their skin is abraded against the walls of the cage. They also experience stress when handled by humans, and cannibalism is common. Fish who escape from fish farms may carry disease into the surrounding waters.

When they have reach the required size, the farmed fish are killed. Slaughter methods include clubbing the fish to death with a small club called a “priest,” stunning with carbon dioxide followed by exsanguination, overdosing with isoeugenol, emersion, exsanguination fully conscious, and electrocution.⁸ Exsanguination involves tearing or cutting one or both gill arches and leaving the fish to bleed to death. Fish that have not been stunned show convulsive movements and muscular spasms for a considerable length of time.⁹ Carbon dioxide stunning entails tipping the fish into CO₂ enriched

water. The fish jump and swim about, desperately trying to escape before they lose consciousness.

Salmon are farmed in floating coastal cages or nets. The crowded conditions in the cages can lead to disease, scale loss¹⁰, and aggression between individual fishes. Crowding also leads to poor water quality in net cages, especially if the nets are clogged with algae.¹¹ While the “recommended” stocking rate is 15 kg per square metre for salmon, some fish farms have densities as high as 40 kg per square metre.¹² Over time, some fishes grow faster than others, and smaller fish may be attacked by larger fish. The salmon are moved around into different cages several times during their short lives. Such handling can lead to wounds, physical injuries, stress, or suffocation. Injuries to the snout and fins are common in caged salmon.¹³ Salmon are fed an unnatural diet of pellets of concentrated fish products that contain colorants such as astaxanthin and canthaxanthin, so that their flesh is pink.^{14,15}

There was considerable public concern when it was discovered that aquaculture companies King Salmon and Sanford feed their fish ground up chicken feathers. King Salmon have also acknowledged using the anti-parasite treatment formalin, a cancer-causing agent, in small quantities in their salmon hatcheries.¹⁶

Salmon are kept in cages for 18 months to two years or so until, at 3 to 5 kg, they are large enough to be slaughtered.^{17,18} Usually they are anaesthetised in water saturated with carbon dioxide, and their gills are then cut.¹⁹ A global study of farmed salmon, published in *Science* in 2004 found high levels of carcinogenic PCBs in fish all around the world, and increased levels of 13 other toxic contaminants, including dioxin, DDT, dieldrin and toxaphene. The US-based Environmental Working Group has recommended that consumers should eat farmed salmon no more than once a month.²⁰

Eel aquaculture in New Zealand is still in its early stages. Wild baby eels, known as glass eels, are captured, and then farmed in tanks or ponds. These conditions represent a very unnatural environment, as New Zealand shortfin eels normally live in rivers for 10-12 years, then swim out to sea, to their spawning grounds near Tonga. The young then drift back home to New Zealand.

Farmed eels are sometimes transported long distances in foetid water and sold live. Eels are often killed by being placed alive in a container of salt, where they thrash around for up to two hours, gradually absorbing salt until they die.²¹

In late 2004, the Parengarenga fish farm opened in Northland. It is the largest land-based fish farm in the Southern Hemisphere, raising thousands of kingfish in its raceways. The kingfish begin their lives at a NIWA facility in Bream Bay, where they are bred from wild-caught parents. After 70 days in tanks, the fingerlings are transferred in tankers to the fish farm. The fingerlings bred in captivity frequently show jaw abnormalities or suffer from parasites, and there are outbreaks of cannibalism. Physical abnormalities are common,²² with up to 10 per cent of fish showing deformities. Farmed kingfish suffer from frequent stressful handling by humans as they are transferred from the tankers to nursery tanks, and then shifted to the raceways of the fish farm, where they are regularly graded and separated.

Fish farming is extremely polluting. Organic matter builds up on the seabed beneath the cages, creating anaerobic conditions that may kill animals living under the fish farm.²³ In particular, the seafloor directly beneath New Zealand mussel farms is degraded by sedimentation from mussel faeces and pseudo-faeces.²⁴ Marine farms impact

particularly on native wading birds feeding in the intertidal zone. Overseas studies have shown increased mortality and lowered condition in wading bird populations.²⁵ Marine farms can have considerable impact on dolphin populations, as the cages and nets obstruct normal dolphin foraging behaviour. In 2004, Texas scientist Tim M. Markowitz published research examining the impact of New Zealand's growing green-lipped mussel farming industry on dusky dolphins. He and his team found that dusky dolphins strongly avoided mussel farms.²⁶ Many proposed marine farms are located within dolphin habitats, and as the New Zealand aquaculture industry grows, many dolphins will lose their feeding areas.

Notes

1. "Aquaculture," New Zealand Seafood Industry Council, accessed May 30, 2007 <<http://www.seafood.co.nz/aquaculture>>
2. *Briefing of the Minister of Fisheries*, 20 Sept., 2005: 69.
3. Statistics New Zealand, *Fish monetary stock account, 1996-2003* (Wellington: Statistics New Zealand, 2004): 8.
4. Michale Bruce, "Kingfish are a real alternative," *NZ aquaculture* May/June 2006: 6-9.
5. *NZ aquaculture*, Sept./Oct. 2005: 6-8.
6. Ben Diggles, "Proactive approaches to disease problems in aquaculture," *NZ aquaculture*, Mar./Apr. 2005: 6-7.
7. Wayne Hutchinson, "The housing and handling of shellfish and finfish," *Farm animals in research : can we meet the demands of ethics, welfare, science, and industry* (Adelaide: ANZCCART, 2001) 91-95.
8. Gregory 10.
9. "Exsanguination alone," *Report on the welfare of farmed fish*, Farm Animal Welfare Council, accessed Aug. 11, 2006 <<http://www.fawc.org.uk/reports/fish/fishr077.htm>>
10. Gregory 10.
11. Snorre Henrikson et al., "Consequences of pain perception in fish for catch and release, aquaculture and commercial fisheries," *Kurs i dyreforsøkslære ZO 8091* (2003): 13.
12. Gregory 10.
13. Gregory 10.
14. Sue Kedgely, "Salmon that are fed chicken feathers..." *Food for thought*, March 2004, accessed Apr. 7, 2007 <<http://www.greens.org.nz/searchdocs/other7372.html#salmon>>
15. "Art of raising and preparing," New Zealand King Salmon, Apr. 7, 2007 <<http://www.kingsalmon.co.nz/ArtofRaisingandPreparing/>>
16. Sue Kedgely accessed Apr. 7, 2007 <<http://www.greens.org.nz/searchdocs/other7372.html#salmon>>
17. Áquaculture, Sanford Limited, accessed Apr. 7, 2007 <http://www.sanford.co.nz/mainpage_susSeafood_aqua.asp?category=susSeafood¤tPage=aqua>
18. "The art of raising and preparing," New Zealand King Salmon, accessed June 15, 2007 <<http://www.kingsalmon.co.nz/ArtofRaisingandPreparing/>>
19. Henrikson 15.
20. "Farmed salmon," *Ecologist* Oct. 2004: 32.
21. Gregory 10.
22. Michelle Hollis, "Research is the key to kingfish aquaculture," *NZ aquaculture* Jan./Feb. 2005: 6-7
23. *Aquaculture in the greater Wellington Region : a discussion document* 15.
24. Matthew Slater and Guy Caren, "Is there value in mussel faeces?" *NZ aquaculture* Mar./Apr. 2006: 4-5.
25. Graeme J. Inglis, Barbara J. Hayden, Alex H. Ross, *An overview of factors affecting the carrying capacity of coastal embayments for mussel culture*, NIWA client report CHC0069 (Christchurch: NIWA, 2000): 14.
26. Tim M. Markowitz et al, "Dusky dolphin foraging habitat: overlap with aquaculture in New Zealand," *Aquatic conservation* 14:2 (2004): 133-149.

Chapter 7

Commercial fishing

“Give a man a fish, and he can eat for a day. But teach a man how to fish, and he’ll be dead of mercury poisoning inside of three years”-Charles Haas.

While we do not know the number of individual fishes killed, 750,000 tonnes of fishes are caught every year in New Zealand waters. Commercial companies carry out 80 percent of the kill. Fishing is a major industry, earning \$1,173 million export dollars in the year ending September 2006.¹ The domestic market is also significant, with the average New Zealander eating 26.5 kg of fish every year.²

Fishing is carried out throughout New Zealand’s 200 mile exclusive economic zone (EEZ), which is the world’s 4th largest fishing area.³ The EEZ contains over 1,000 species of fish, and many diverse ecosystems. The ten main species caught in New Zealand waters are hoki, rock lobster, snapper, orange roughy, paua, squid, ling, hake, oreo, dori, and tarakihi. However, more than 300 different species of marine fish are caught commercially. Some freshwater fish, such as eels, are also caught commercially, or farmed in ponds by aquaculture businesses. 80 percent of fish are caught by commercial companies, and 20 percent by private companies.⁴ The most important export species are green-lipped mussels, hoki, mackerel, squid and tuna. Rock lobster, paua and orange roughy represent smaller volume but high value exports.

Commercial fishing methods include deep water and middle depth trawling, deep-water longlining, tuna purse seining and tuna and ling longlining.⁵ Every year 2,000 commercial fishing vessels fish in New Zealand waters, setting 10,000 km of nets and 50 million hooks, and making 100,000 trawls and 90,000 dredge tows.⁶ Squid are caught in nets 60 metres high and over 150 metres wide, towed by large trawlers, which sweep up everything in their wake. Deepwater fishing has led to the decimation of orange roughy fish populations, with the orange roughy Challenger fishery collapsing to below 3% of its original initial biomass.⁷ Deepwater trawling also disturbs the bottom fauna, which includes long-lived, slow growing corals.⁸

Few people think of the suffering of fish when they are caught. Yet fish show a definite stress response in traumatic situations, and there is considerable evidence that they can feel pain and experience fear.⁹ Sea fish caught by line or net show very high adrenaline levels and other physiological changes indicating extreme stress. According to Culum Brown, a zoologist at the University of Canterbury, the cognitive power of fish match or exceed those of “higher” vertebrates in many areas. “Fish can not only

recognise individuals, but can also keep track of complex social relationships.” Recent research has uncovered fish species that use tools, build houses, and show evidence of long-term memory. Some fish can gather information by “eaves-dropping” on others.¹⁰ According to marine biologist Sylvia Earle, “I never eat anyone I know personally. I wouldn’t deliberately eat a grouper any more than I’d eat a cocker spaniel. They’re so good-natured, so curious. You know, fish are sensitive, they have personalities, they hurt when they’re wounded.” A recent issue of *Fish and Fisheries* cited more than 500 research papers on fish intelligence, proving that fish are smart, that they can use tools, and that they have sophisticated social structures. The introductory chapter noted that fish are “steeped in social intelligence, pursuing Machiavellian strategies of manipulation, punishment and reconciliation ... exhibiting stable cultural traditions and cooperating to inspect predators and catch food.”¹⁵

Aside from the cruelty of fishing, Forest and Bird have assessed that New Zealand commercial fishing is not environmentally sustainable.¹¹ When the environmental group assessed all 68 New Zealand fisheries, it found that none had a management plan and most caused significant habitat damage. Some fishing areas were severely over-fished and many commercial fishers killed seabirds or marine mammals as they went about their business.¹² While the Marine Stewardship Council has designated the New Zealand hoki fishery as sustainable, fish populations are declining, and Forest and Bird and the World Wildlife Fund have opposed recertification. McDonalds’ outlets around the world use thousands of tonnes of hoki in their Filet-O-Fish burger. Two hundred tonnes of hoki are used in New Zealand stores alone every year.¹³

Eating fish is hazardous to human health as well as to the environment. In 2004 Food Standards Australia New Zealand revised its advice on mercury in fish, recommending that people limit their consumption of fish such as shark, Orange Roughy and blue fin tuna, as these may contain high levels of mercury. The exact mercury and toxicity levels are unknown, as no official testing has been carried out to verify this.¹⁴

Trawl fishing, seine netting, gillnets, trolling, longline fishing, and jigging

All methods of fishing are likely to cause considerable suffering. Trawl fishing involves guiding fishes to the mouth of an enormous net, then exhausting and overrunning them. As the fish pass down the trawl net they reach the point where the net tapers to a funnel. Crowded together, they start to panic, swimming fast, and colliding into each other. By the time they reach the cod-end of the net, some have skin and scale damage, and others are dying from compression and asphyxiation. The high pressures exerted on the fishes when the net is hoisted out of the water causes their intestinal contents to be expelled and prolapse.¹⁶

Purse seine fishing involves encircling a school of fish with a large net. The fishes are surrounded and herded by ropes and a net, at a relatively slow speed, so that the fishes do not become frightened and escape. The fishes suffer from bruising, injuries, and finally asphyxiation as they are hoisted aboard or pumped automatically from the seine net.¹⁷

Gillnets are used to catch large numbers of fish in a short period of time. They work in a similar manner to the infamous driftnets, but are smaller, and are equipped with

weights at the bottom and floats at the top, usually anchored at each end. Gillnets are used in coastal waters.

Struggling fishes caught in monofilament gillnets suffer considerable damage to skin and scales, the netting cutting through their skin. Once hauled on deck, the fishes are bled to death by cutting their throats or their heads are chopped off with a knife.¹⁸

Trolling involves catching fishes with a hook in the mouth or gills. This is especially painful when the hook becomes caught in the gills, an extremely sensitive area.¹⁹ In some longline and trolling fisheries, fish are landed, and then a narrow spike is pushed through the top of the head and rotated to macerate the brain. In fisheries specialising in smoked fish production, fish may be bled to death.²⁰

Longlining involves setting a line with a series of baited hooks into the water. Longlines can be set throughout the water column, on the seabed (demersal longlining), floated off the bottom at various fishing depths (semipelagic longlining) or suspended from floats drifting freely at the surface (pelagic longlining). Sometimes the longline fishing industry uses live animals as bait, attaching a struggling fish to a hook and drawing it through the water to attract other fish species that the industry wants to catch.²¹ Birds are often attracted to the caught fish, become tangled in the fishing gear, and die. Scavenging seabirds can open their beaks very wide and are able to swallow large food items whole; this increases their likelihood of getting caught on longline hooks.

Jigging involves attaching a grapnel to a line, which is manually or mechanically jerked in the water to snag the fish in its. Jig fishing usually happens at night, and artificial lights are used to attract the fish.²²

Legally, undersized fishes must be returned to the ocean. However, often the animals are shocked and traumatised, and do not survive long after they have been released. A study of salmon troll fisheries showed that 18 per cent of undersized fish died within 4-6 days of being returned to the water. In theory, small fishes should be able to escape through the mesh of a trawl net and evade capture in the first place. In practice, the survivors are likely to die of shock. A study showed that between 30 to 72 percent of undersized fishes escaping from a herring trawl net died within 7 days.²³

Shark finning

Shark finning involves cutting the fins off a shark for the Asian delicacy shark fin soup. Although live shark finning is illegal in New Zealand, it is difficult to police this practice. It seems likely that some commercial boats and longliners catch sharks accidentally as bycatch, and then fin the live fish before tossing them back into the water. The wounded sharks sink to the bottom of the sea and die in pain. There have been attempts by countries such as Australia, USA, Canada, and the European Union to obtain an international agreement banning shark finning. However, the New Zealand government has opposed such a ban. Shark populations are declining, and more than 50,000 sharks are killed in New Zealand waters every year.

Bycatch of seabirds, marine mammals, and other fishes

Every year, commercial fishing operations result in the death of dolphins, sea lions, seabirds, and non-target fish species.

New Zealand is an important breeding ground for about eighty seabird species, including albatross and petrel species that breed nowhere else in the world. Many seabirds become entangled in trawl nets, or are caught on the hooks of longline fisheries. Others die in set nets or pots. Birds are often attracted to fishing bait or caught fish. They dive on the catch, and then become trapped and are dragged under the water and drowned. In 2003/2003 (the most recent year figures are available from Ministry of Fisheries), at least 595 seabird captures were observed, the majority from the hoki and squid trawl fisheries, with substantial numbers from the tuna and ling longline fisheries. The seabirds most commonly caught were white-chinned petrel, sooty shearwaters, white-capped albatrosses, and grey petrels.²⁴ Since 1996, 13 albatross and 17 petrel species have been recorded as having been caught during New Zealand commercial longline and trawl fishery operations.²⁵ According to the World Wide Fund for Nature, the Gibson's albatross population is in decline, with a 63 percent drop over the period 1973-1997, and the Salvins albatross population has fallen 35 per cent over the past 20 years.²⁶

In theory, fur seals are completely safeguarded by the New Zealand Marine Mammals Protection Act of 1978. However, every year, hundreds of fur seals become entangled in nets, caught on tuna and ling longline hooks, or trapped in salmon sea cage farms. While some seals are released traumatised but alive by the fishermen, many more are drowned, especially in the trawl fisheries. There are few scientific observers and thus little data on the exact numbers of seals captured. The most recent 2002/2003 figures show that Ministry of Fisheries observers saw at least 122 fur seal captures – mostly in the hoki and squid trawl and tuna longline fisheries.²⁷ Forest and Bird estimate that between 1989 and 2000, over 6200 fur seals have drowned in the West Coast hoki fishery alone, and over 12,000 throughout New Zealand's Exclusive Economic Zone.²⁸ Plastic waste floating at sea, dumped from fishing, recreational and other boats or blown from land also endangers fur seals in New Zealand waters. Seals become entangled, leading to death by drowning, starvation, or wound infection.²⁹

Hooker's sea lion is another rare species of marine mammal, and was designated a threatened species under the Marine Mammal Protection Act in August 1979. Hooker's sea lion breeds almost exclusively on New Zealand's subantarctic islands. The main breeding colony is on Dundas Island in the Auckland Islands. In 1998 an unknown illness during the breeding season killed over 50 per cent of the years pups, and probably around 20 per cent of the adult population. Since squid trawling around Auckland Islands began in 1979, over 2000 Hooker's seal lions are estimated to have been drowned. Sea lions have also been reported drowned in the orange roughy, scampi, and southern blue whiting fisheries around the Auckland Islands.³⁰ Every year the Minister of Agriculture sets the allowed kill limit for the squid trawl fishery, which operates from February until April or May each year, or until the fishing related mortality limit for sea lions has been reached. In the period 2005-2006, 110 sea lions were killed.³¹ There are only around 12,000 Hooker's sea lions estimated to be in existence, and the sea lion pup population has declined 30 per cent over the past eight years.³² However, the allowed kill limit for 2007 was set at 93 sea lions (down from 150 in 2006, but still an unsustainable number).³³

There are several species of endangered cetaceans in New Zealand waters. It is estimated that there are only around 7,800 Hector's dolphins still alive, and less than 100

Maui's dolphins.³⁴ Dolphins frequently become entangled in fishing gear, resulting in traumatic lesions, contusions, haemorrhaging, and asphyxiation. A 2001/2002 study found the bodies of several Hector's dolphins entangled in set nets.³⁵ Recent research indicates that bycatch in gillnets is threatening several Hector's dolphin populations.³⁶

Thousands upon thousands of "non-commercial" fishes are caught by accident and are thrown back dead into the sea as "discards." The main bycatch species are hake, ling, silver warehou, frostfish, and rattails. It is estimated that within the hoki trawl fishery alone, 51,000 to 60,000 tonnes of "non-target" fishes are caught every year, and of these 11,000 to 14,000 tonnes are thrown back as "discards."³⁷

Notes

1. "Industrial structure and principal economic sectors," Treasury, accessed May 30, 2007 <<http://www.treasury.govt.nz/nzefo/2007/05.asp>>
2. "Industry fact file," New Zealand Seafood Industry Council, accessed May 30, 2007 <<http://www.seafood.co.nz/factfile>>
3. *Statistics New Zealand, Fish monetary stock account, 1996-2003* (Wellington: Statistics New Zealand, 2004): 8.
4. *Statistics New Zealand, Fish monetary stock account, 1996-2003* 8.
5. *Briefing of the Minister of Fisheries, 20 Sept., 2005* (Wellington: Ministry of Fisheries, 2005) 78.
6. *Best fish guide.*
7. *Best fish guide.*
8. *Briefing of the Minister of Fisheries, 20 Sept., 2005* 39.
9. Lynne Sneddon and Scott Peddie, "Is fish welfare in the UK relevant to New Zealand?" *NZ aquaculture* May/June 2005: 12.
10. Culum Brown, "Clever fish : not just a pretty face," *New scientist* 182, no. 245 (2004): 42-43.
11. *Best fish guide.*
12. *Best fish guide.*
13. Kim Knight, "Fish in troubled waters," *Sunday star times* Mar. 25, 2007: A9.
14. Sue Kedgely, "FSANZ says avoid mercury in fish – but how would we know?," *Food for thought*, March 2004, accessed Apr. 7, 2007 <<http://www.greens.org.nz/searchdocs/other7372.html#salmon>>
15. *Fishing: what's wrong with it?* accessed Apr. 12, 2007 <<http://www.nofishing.net/feat-hiddenfish.asp>>
16. N.G. Gregory, "Animal welfare in the fish industry," *Surveillance* 27, no. 2 (2000): 8.
17. Gregory 8.
18. Gregory 8.
19. Gregory 8.
20. Gregory 9.
21. Gregory 9.
22. Leigh S. Bull, A review of methodologies for mitigating incidental catch of seabirds in New Zealand fisheries, *DOC research & development series* 263, Department of Conservation, 2006, accessed Apr. 27, 2007 <<http://www.doc.govt.nz/upload/documents/science-and-technical/drds263.pdf>>
23. Gregory 9.
24. S.J. Baird, Incidental capture of seabird species in commercial fisheries in New Zealand waters, 2002-03, New Zealand fisheries assessment report 2005/2 (Wellington, N.Z.: Ministry of Fisheries, 2005) 3.
25. Bull.
26. "How is fishing a threat to albatrosses," *Factfile*, WWF, Aug. 6, 2006 <<http://www.wwf.org.nz/conservation/albatross.cfm>>
27. Baird 3.
28. "New Zealand fur seals," Forest and Bird, accessed Aug. 6, 2006 <<http://www.forestandbird.org.nz/Marine/furseals.asp>>
29. "New Zealand fur seals."
30. "New Zealand sea lion," Seal Conservation Society, accessed Aug. 5, 2006 <<http://www.pinnipeds.org/species/nzslion.htm>>

31. "New Zealand sea lions and the squid fishery," Royal Forest and Bird Protection Society, accessed June 15, 2007 <<http://www.forestandbird.org.nz/Marine/sealions/squidfishery.asp>>
32. "Sealion slaughter must be reviewed, 7 June 2006" Scoop, accessed Aug. 6, 2006 <<http://www.scoop.co.nz/stories/PA0606/S00075.htm>>
33. Jim Anderton, "Improved environmental performance in squid fishery," accessed June 15, 2007 <<http://www.scoop.co.nz/stories/PA0706/S00047.htm>>
34. Pdraig K. Duigan, Nadine J. Gibbs, and Gareth W. Jones, *Autopsy of cetaceans incidentally caught in commercial fisheries and all beachcast specimens of Hector's dolphin 2001/2002*, DOC science internal series 176 (Wellington, N.Z.: Dept. of Conservation, 2002): 5.
35. Duigan 16.
36. "The impacts of fishing," New Zealand Whale & Dolphin Trust, accessed June 15, 2007 < <http://www.whaledolphintrust.org.nz/fishingimpacts.html>>
37. O.F. Anderson and M.H. Smith, *Fish discards and non-target fish catch in the New Zealand hoki trawl fishery, 1999-2000 to 2002-03*, New Zealand fisheries assessment report 2005/3 (Wellington: Ministry of Fisheries, 2005)

Chapter 8

Hunting and fishing

Tens of thousands of New Zealanders hunt and kill animals for fun. Hunting may be a family outing; conversely, it may offer a chance for Kiwi blokes to get away from the women and bond with their mates. Some may seek a romantic ideal in the idea of men pitted against wild beasts, in primeval combat. However, few ordinary New Zealanders realise that wealthy hunters often pay to go to game parks, where they shoot trophy animals who have been bred specifically so that the rich and privileged may enjoy killing them.

The most recent hunting census was carried out in 1985, and there are few statistics available on hunting in New Zealand. However, we know there must be thousands of recreational hunters. Fish & Game New Zealand has issued 34,500 hunting licenses, and as licenses are not generally required for big game hunting, hunter numbers are likely to be even higher. Hunters in New Zealand use rifles, pistols, bows and arrows, shotguns, semiautomatic and automatic weapons and dogs to kill birds, deer, pigs, goats, rabbits, hare, possums and many other species. Hunters may chase animals on foot, or from horseback or four-wheel drive vehicles. There are few restrictions on big game hunting in New Zealand. In most cases there is no limit on the number of game animals that can be taken, no licence requirement and the season is open all year round.¹

Sport fishing is also a major industry. Fish & Game has sold over 123,000 fishing licenses to “sportsmen”,² and there are numerous game-fishing clubs around the country. Sports fishers use hooks and lines, spears, or bows and arrows to capture “trophy” fish. Sometimes they do not kill fish, but release them back into the water. However the fish are likely to die later from stress and shock.

Duck shooting

Every year around 30,000 NZ duckshooters kill thousands of wild ducks, geese, swans and pukeko. Up to 75,000 birds are maimed and injured and one million killed in the autumn hunting season of May to July.³

Ducks and other birds are generally shot for entertainment, rather than for food. Commercial companies such as “Trout’n Trophy”⁴ and Ryders Professional Fly Fishing & Hunting Charters organise shooting excursions for rich tourists.⁵ At least 20,000 and possibly as many as 50,000 pukeko are slaughtered every year. According to SAFE

spokesperson Hans Kriek, pukeko are seldom eaten - they are shot for fun and left to rot where they fall.⁶ The native grey duck, and Paradise shellduck are shot in their thousands. Pheasant, chukor, and quail are also hunted in New Zealand.⁷

For every bird shot and killed, it is estimated that 2-3 more are wounded. As there are hundred of pellets in a single shotgun cartridge, birds flying in flocks will often be hit by pellet spray and may be seriously injured but not killed.⁸ Often such birds are never retrieved by the hunters, resulting in a slow, painful death for the wounded birds. Quail and pheasants are particularly difficult to find after they have been shot down.^{9,10} An overseas study involving 75,000 shooters concluded that ducks sustained injuries 30 per cent of the time and geese 36 per cent. According to the author of the report, ballistics expert Tom Roster, "The problem is the horrible image it portrays of hunters. It is hard to make a case that water-fowling is a nice, honourable activity when wounding rates are that high."¹¹ Duck and quail hunting is now banned in several Australian states.

Lead shot and abandoned fishing tackle pollute New Zealand's waters and poison waterfowl. Quantities of lead have been dumped into New Zealand lakes and wetlands by hunters and fishers. A 1992 study of Kaikorai Lagoon in Otago found shotgun pellets at densities of 387,000 per hectare. Waterfowls sometimes eat lead shot and lead fishing sinkers as grit for their digestion. A Waikato study found that 14 per cent of mallard ducks had lead pellets in their gizzards, poisoning the birds. Lead poisoned birds lose the ability to fly and walk, and may lose as much as 40 per cent of their body weight.¹²

Restrictions have been placed on the use of lead shot in recent years. However, this is far from a total ban. Hunters using small gauge or black powder loaded shotguns can still legally use lead shot, as can hunters shooting waterfowl over paddocks, or hunters shooting birds other than waterfowl. As duck shooting is carried out over vast and remote areas of New Zealand, it is difficult to enforce the regulations that do exist.

Trophy hunts

There is a growing trophy hunting industry in New Zealand. Private hunting preserves have been legal in New Zealand since 2001, and in 2004 there were eight such preserves. Trophy hunting also takes place on public land, with companies such as Trout'n Trophy organising hunts throughout the South Island. Wealthy tourists pay thousands of dollars to hunt red stag, fallow stag, thar, chamois, wild boar, and goats.¹³ Hasst-based Heliventures takes the very wealthy to the scene of the hunt by helicopter, offering a "triple challenge" of killing a red deer, fly fishing a trophy trout and surf casting a sea fish in under four hours – for a price of \$4800. Stalked by helicopter, the deer have little chance.¹⁴

"One day as I sowed the seed I heard the baying of hounds on American Ridge to the north. Before long I felt something touch my leg, and turning, I saw a doe deer standing close to me. Her eyes were dilated, she was breathing heavily, and she dripped with perspiration. Obviously she was near exhaustion, and she had come to a man for help. I had heard of such things before but had never believed them. I hesitated but a second, and then depositing my bag of seed on the ground, said to the deer, "Come with me," and I started walking the half-mile or so to Bumping River. She kept at my heels like a puppy dog. When

we reached the river I gave her a pat on the rump; she entered the water and slowly swam to the opposite shore, where she stopped, looked back as if to say good-bye, and entered a stand of alder. In an instant the dogs had arrived, baying frantically as they tried to find the scent that had disappeared at the river's edge." William O Douglas *Go East, Young Man*¹⁵

For those who only want to pay hundreds of dollars, smaller outfits, such as Wild Safaris, offer tourists 3 to 5 hour hunting safaris by four wheel drive in Waimate. Here you can spend your night shooting wallabies, opossums, rabbits and hares.¹⁶ Ryders offer the experience of hunting opossums in a "fun expedition using 4x4 vehicles and spot lights to pin-point the prey."¹⁷ Ryders also offers pig hunting. Wild pigs are chased and cornered by dogs, then shot or stabbed by the hunter.¹⁸

At private hunting preserve "Central Hawke's Bay Gamebirds," a thousand pheasant chicks are hatched from incubators every year. The fledged chicks are released to be hunted by clients with dogs, who pay \$975 per day to shoot up to 15 birds.¹⁹

Hunting is a terrifying experience for the victims. Trophy hunting is particularly cruel, as animals may not be killed outright, and often suffer severe pain, dying slowly or undergoing repeated botched attempts at killing by inexpert tourists.²⁰

Hunt clubs, rabbits, and hares

Another cruel but little-known practice is hunting a hare or rabbit with hounds (usually harrier hounds or beagles), from horseback. In 1875, the first New Zealand club was formed in Pakuranga, and by 2003, there were 28 hunt clubs in New Zealand, with over 4,400 members.²¹ Some clubs are profitable incorporations with investments in commercial property. Hunts usually take place on private land, and last two and a half to five hours, with the hunting season beginning around late March or early April and running through until July. The Egmont-Wanganui club even encourages children to hunt, organising three pony club hunts.²² Hunting can be hard on the horses, who are sometimes injured trying to jump the wire farm fences. The New Zealand SPCA is opposed to horseback hunting of animals with hounds.²³

Although the "Easter bunny" is a common symbol of Easter, in practice rabbits are shot at rather than celebrated in New Zealand. Every Good Friday, there is an annual rabbit shoot in Otago, and in 2004, over 21,000 rabbits and hares were killed.²⁴

Sport fishing and angling

The sport-fishing season begins on the 1st of October each year. The main fish species slaughtered are trout, salmon, char, tench, rudd and perch. Marlin, sharks, tuna and kingfish are also hunted for fun. According to a recent Colmar Brunton survey, 25 per cent of the New Zealand population goes fishing at least once a year.²⁵ The Animal Welfare Act specifically exempts fish caught recreationally or commercially from any kind of protection.

The capture process is generally considered part of the sport of fishing. Often anglers call this the "fight" or "play", and prolong this stage as long as possible. "Playing" fish is particularly cruel. When fish such as carp are hooked, they display behaviours such

as rapid escape movements, coughing and spitting, head shaking, fleeing, belching gas from the swim bladder, sinking, and lying on the streambed.²⁶ In 2003, an American tourist caught and “played” a 369-kg broadbill in Northland, torturing the fish for 14 hours. Several complaints were made to the SPCA, who investigated, but were unable to make a prosecution. The SPCA has been opposed to game fishing for many years. In particular, the SPCA opposes the use of light tackle to land large fish who weigh many times the breaking strain of the tackle. Such fishing methods prolong the pain and distress suffered by the fish.

Some fish (such as carp) are shot with bow and arrow,²⁷ others are speared, and nets may be used. However, the most popular method is hook and line. While a range of hook styles are used, all cause trauma, and all injure the victim. Large hooks cause tissue damage, while small hooks may hook in or near vital organs. “J-style” hooks are the most popular kind of hook, and frequently cause organ damage.²⁸ If barbs and tangs are present, these inflict further tissue damage and bleeding. Treble-style hooks can often lead to a long handling time and increase the stress and discomfort for the fish.²⁹ Sometimes fish escape with the hook still embedded in their flesh. The hook may stay there for years, causing infection. If the line breaks, this can leave the fish semi-permanently impaled by a hook with a line trailing behind.³⁰

Live bait is often used. In marlin fishing, a common practice is to “bridle” live fish. This involves stitching a live fish to a large hook, and towing it behind a boat as bait.³¹ Landing nets may also be used with large fish, and the net can get tangled with the hook, link and fish, causing painful injuries, and abrading the fishes’ skin and gills. If the fish is later released with skin damage, he or she is likely to suffer from fungal infections.³²

After hooking, large fishes are sometimes controlled with a “gaff,” a pole with a sharp hook fixed at the end. This is used to penetrate the flesh and bone of the fish, causing injury and bleeding. Sometimes the fish will bleed to death. After catching, fishes are usually killed by methods such as percussive stunning (striking the cranium with a small club or “priest”), bleeding, pithing or spiking, decapitation, hypothermia or asphyxia.³³ Sometimes fish are not killed immediately after capture, but stored alive in “keep-nets,” “live-wells,” fish baskets, stringers, or “tuna-tubes,” causing further suffering through confinement.

Spear fishing is used to kill large fishes, such as kingfish, snapper, tarakihi, giant boarfish, John Dory, and striped marlin. Fishing clubs around the country hold regular spearfishing competitions. Spear fishing is prohibited in some parts of the world, including several Canadian provinces. While there is little NZ data, studies in the Pacific have shown that spearfishing has caused severe population declines and local extinctions of reef fish.³⁴

All fishing methods cause extreme physiological and psychological stress.³⁵ Marine fish show increased plasma levels of catecholamines, lactate, sodium and potassium ions, creatinine phosphokinase, and cortisol.³⁶ Recreational fishing also has significant environmental impacts. According to fisheries scientists Cooke and Cowx, the destructive effect of recreational fishing has been consistently understated and under-reported.³⁷ Research indicates that recreational fishing can cause ecosystem degradation comparable to the devastation caused by commercial fishing.³⁸

Catch and release

Some people consider that catching fish and then throwing them back into the water is a humane alternative to killing. However, there is evidence that up to 50 per cent of large game fish who are caught and released later die as a direct result of the stress they experience through being captured. Most such fish have been “played” for extended periods of time.³⁹ Fish who are “played” become stressed, and lose their osmotic homeostasis, and this can be lethal. As little as 6 minutes of “playing” may kill 40 per cent of trout. The fish lose balance 1-2 hours before they die, rolling onto their backs, and their breathing becomes shallow and rapid. They eventually stop breathing and develop cardiac arrest.⁴⁰ Using live baits results in high mortality rates, as the fish will often swallow the bait whole and the hook causes internal bleeding. Fish who have been caught and then thrown back into the water may also suffer from barotrauma (expansion of gas in the gas bladder), or damage to the mouth or eyes that makes it difficult for them to feed. If they survive release, they are likely to grow more slowly than normal, fail to breed successfully, and be more susceptible to disease.⁴¹ The RNZSPCA deplors the tagging and release of large game fish.⁴²

Catching fish in nets

Some recreational fishermen use set nets in an attempt to catch fish species such as eels, flounder, moki, and butterfish. Nets are also used to catch smaller fish to be used as bait, and hand-held nets are used to catch inanga (whitebait). Set nets tend to catch fish indiscriminately, and a large proportion of those caught are dead by the time that the net is checked, and are discarded as “waste.” When set nets are thrown out or lost at sea they may continue to ‘ghost fish’ for years because they are made of long-lasting synthetic plastic. Birds, fish and marine mammals are caught in the discarded nets and drown. Lost nets can also cause problems for boats and divers. According to the Royal Forest and Bird Protection Society:

“Set nets kill nearly every fish, bird and marine mammal that swims into them. They are perhaps the most wasteful and indiscriminate fishing method ever developed. Set nets are used widely in New Zealand waters by recreational and commercial fishers. Yet they are as deadly as drift nets. They should be banned to help make New Zealand’s waters safer for all marine life ... The following birds, marine mammals and turtles have been reported caught in set nets in New Zealand waters: crested grebe; sooty shearwater; fluttering shearwater; Hutton’s shearwater; yellow-eyed penguin; blue penguin; Fiordland crested penguin; gannet; black shag; pied shag; little black shag; little shag; Stewart Island shag; spotted shag; brown teal; harrier hawk; New Zealand dotterel; black-backed gull; scamperdown beaked whale; orca; bottle-nosed dolphin; dusky dolphin; Hooker’s sea lion; fur seal; leathery turtle; Hector’s dolphin.”²⁴³

Notes

1. "Sport, fitness, and leisure," Statistics New Zealand, accessed June 4, 2006 <<http://www.stats.govt.nz/quick-facts/industries/sports-fitness-and-leisure.htm>>
2. "Facts and figures," Fish & Game New Zealand, accessed June 4, 2006 <http://www.fishandgame.org.nz/SITE_Default/SITE_info/Fact_Sheet/facts_and_figures.asp>
3. *Duck shooting : a blood sport that costs lives* (Christchurch: SAFE, 2006)
4. "Canadian Geese and Duck Hunting in New Zealand," Trout'n Trophy, accessed June 4, 2006 <<http://www.troutntrophy.co.nz/goose.asp>>
5. "Game bird shooting," Ryders professional hunters and fly fishing charters, Ryders, accessed June 4, 2006 <http://www.fishnhunt.co.nz/guides/ryder/game_bird_shooting.html>
6. "50,000 pukeko will be shot, group says," May 5, 2006, Stuff.co.nz, accessed June 4, 2006 <<http://www.stuff.co.nz/stuff/0,2106,3657995a7693,00.html>>
7. "Upland gamebirds," Fish & Game New Zealand, accessed June 4, 2006 <http://www.fishandgame.org.nz/SITE_Default/SITE_info/Fact_Sheet/upland_gamebirds.asp>
8. *Duck shooting : a blood sport that costs lives*.
9. "Quail hunting," Fish & Game New Zealand, accessed June 4, 2006 <http://www.fishandgame.org.nz/SITE_Default/SITE_info/Fact_Sheet/quail_hunting.asp>
10. "Pheasant hunting," Fish & Game New Zealand, accessed June 4, 2006 <http://www.fishandgame.org.nz/SITE_Default/SITE_info/Fact_Sheet/pheasant_hunting.asp>
11. "Duck shooters served notice to obey law" SAFE, May 1, 2007, Scoop, accessed May 3, 2007 <<http://www.scoop.co.nz/stories/PO0705/S00009.htm>>
12. Kate Camp, "Lead levels rising : duck shooting and fishing leave waters fouled by poisonous lead," *Soil and health* May/June 1999: 20-21.
13. "Hunting in New Zealand," Trout'n Trophy, accessed June 4, 2006 <<http://www.troutntrophy.co.nz/hunting.asp>>
14. "Hunting safaris," Heliventures Ltd, accessed July 22, 2006 <<http://www.heliventures.co.nz/cm-hunting-and-fishing-safaris.php?#hunting saf>>
15. William O Douglas, *Go east, young man*, accessed July 22, 2006 <<http://www.animalintelligence.org/2006/08/07/go-east-young-man/#more-6>>
16. "New Zealand Hunting Safaris," Wild Safaris, accessed June 3, 2006 <<http://www.wild-safaris.co.nz/hunting.htm>>
17. "Small game shooting," *Ryders professional hunters and fly fishing charters*, Ryders, accessed June 4, 2006 <http://www.fishnhunt.co.nz/guides/ryder/small_game_shooting.html>
18. "Wild boar hunting," *Ryders professional hunters and fly fishing charters*, Ryders, accessed June 4, 2006 <http://www.fishnhunt.co.nz/guides/ryder/wild_boar_hunting.html>
19. Brad Parkes, "Designer hunting," *North and south* 218 (2004): 32.
20. Catriona MacLennan, "Flawed act fails to protect animals," Apr. 13, 2004, *New Zealand herald* accessed June 4, 2006 <<http://www.nzherald.co.nz/storydisplay.cfm?thesection=news&thesubsection=&storyID=3560101&reportID=1162637>>
21. Sarah Milne, *The thrill of the chase* (Auckland: Tandem Press, 2003):22
22. Milne 70.
23. "Animal welfare policy: blood sports," Royal Society for the Prevention of Cruelty to Animals, accessed Feb. 5, 2007 <<http://www.rspca.org.nz/policies/7-bloodsports011205.doc>>
24. "These bunnies must die," News24.com, accessed Apr. 15, 2006 <http://www.news24.com/News24/Backpage/Offbeat/0,,2-1343-1347_1915618,00.html>
25. "Industry fact file," Seafood Industry Council, accessed May 30, 2007 <<http://www.seafood.co.nz/>>

n403,56.html>

26. N.G. Gregory, "Animal welfare in the fish industry," *Surveillance* 27, no. 2 (2000): 8.
27. "Bowfishing carp," New Zealand Bowhunters Society, accessed June 5, 2006 <http://www.nzbowhunters.co.nz/bowfishing_carp.htm>
28. P.S. Davie and R.K. Kopf, "Physiology, behaviour, and welfare of fish during recreational fishing and after release," *New Zealand veterinary journal* 54, no. 4 (2006): 164.
29. I.P. Muniz, "Management measures related to recreational fishing for anadromous salmonids : a literature review on the 'catch and release'-concept," *NINA oppdragsmelding* 482 (1997):1-28.
30. Davie and Kopf 166.
31. Davie and Kopf 166.
32. Davie and Kopf 166.
33. Davie and Kopf 165.
34. R. Gillett, and W. Moy, *Spearfishing in the Pacific Islands: current status and management issues* (Noumea: Secretariat for the Pacific Community, 2006)
35. Gregory 9.
36. Gregory 9.
37. S.J. Cooke, and I.G. Cowx, "The role of recreational fishing in global fish crises', *Bioscience* 54:9 (2004): 857-859.
38. S.J. Cooke, and I.G. Cowx, "Contrasting recreational and commercial fishing: searching for common issues to promote unified conservation of fisheries resources and aquatic environments," *Biological conservation* 128 (2006): 93-108.
39. National Animal Welfare Policy 2005, Royal New Zealand Society for the Prevention of Cruelty to Animals, accessed Dec. 1, 2006 <<http://www.rspcanz.org.nz/policies/spca-policies-011205.doc>>
40. Gregory 10.
41. Davie and Kopf 168-169.
42. *Animal welfare policy : blood sports*, Royal New Zealand Society for the Prevention of Cruelty to Animals, Dec. 1, 2005, accessed Feb. 6, 2007 <<http://www.rspca.org.nz/policies/7-bloodsports011205.doc>>
43. "Set nets – walls of death," Royal Forest and Bird Protection Society, accessed Feb. 6, 2006 <<http://www.forestandbird.org.nz/Marine/fishingmethods/setnets.asp>>

Chapter 9

Animals in Entertainment: from Rodeos to Ecotourism

Rodeos have been banned in many countries,¹ but are still legal in New Zealand, with events such as calf roping, bull riding, steer wrestling and saddle or bareback bronc riding popular in many rural areas. In 2006 there were twelve rodeo clubs in the North Island, and 15 in the South Island.² According to the RNZSPCA:

“Many aspects of rodeos subject animals to pain, fear and distress. The animals used in rodeos are often coerced into becoming aggressive and violent through the use of electric prods, flank straps, spurs and ropes. This often results in stress, torment and fear for the animals, and exposes them to the likelihood of pain, injury and sometimes death.”³

Horses frequently break legs, and calves and steers may break bones, break their necks, sever their windpipes, or become paralyzed after running into fences and being flipped by ropes. Rodeos have many aspects that contravene the Animal Welfare Act 1999. When a new rodeo animal welfare code was issued in 2003, this was condemned by the RNZSPCA as “simply rubber-stamping the continuance of rodeos.” The RNZSPCA considers that “rodeos instil values which are directly contrary to the spirit of the Animal Welfare Act 1999 and involve blatant displays of humans dominating animals in a cruel, callous and violent way.”⁴ The new code does not even require water to be available at all times to animals in holding pens and allows the use of electric prods.

Calf roping is particularly cruel, with the calf sometimes being jerked over a meter off the ground. This can cause severe neck injuries, such as stretched ligaments. Strapping the noose tight over the calf’s throat can cause neck bruising and breathing difficulties, and the speed with which the calves are roped⁵ can lead to broken bones and torn ligaments. Typically, a cowboy will catch the calf with a lariat, then throw her to the ground, and tie up three of her legs.⁶ The same calf may be roped up to three times a day.⁷

Bronc and steer riding involves tightening a flank strap around the belly of the animal so that it bucks to try and get rid of the pain and irritation. The Rodeo Association euphemistically describes the strap as a “tickle strap”.

Steer wrestling, in which a steer is chased and wrestled to the ground, can also cause severe injuries to the animal, including spinal injuries and broken and splintered horns. Dr C G Haber, a veterinarian who spent 30 years as a US federal meat inspector, worked in slaughterhouses and saw many animals discarded from rodeos and sold for slaughter. He described steers as being “so extensively bruised that the only areas in which the skin was attached to the flesh were the head, neck, leg and belly. I have seen animals with six to eight ribs broken from the spine and at times, puncturing the lungs. I have seen as much as two to three gallons of free blood accumulated under the attached skin.”⁸ Steer wrestling has now been banned in Texas.

Another distressing practice is “team roping,” in which two riders on horseback chase and rope a running steer. The “header” throws a rope around the animal’s neck or horns, hauls him or her around, and then the “heeler” ties the steer’s hind legs.⁹

Rodeos and country shows sometimes include children’s events such as rooster catching, greasy pig, sheep riding and calf riding. The inexperience of the children means that these events are particularly likely to cause injury and terror to the animals.¹⁰

Rodeo operators and breeders often show little concern for their animals. In 2002 the Kaitaia Rodeo Association was fined \$10,000 after pleading guilty in a prosecution brought by the Royal New Zealand SPCA over a mare used for breeding rodeo horses. The mare was emaciated, and also suffering from severely overgrown and cracked hooves. She was lying on her side, unable to rise and had cuts, bruises and skin loss. She was later euthanased.¹¹

Racing

Horse racing and greyhound racing are the main forms of animal racing in New Zealand. Horse racing includes thoroughbred horse racing (galloping) and harness racing (trotting and pacing). The New Zealand Racing Board is the industry organisation for horse racing in New Zealand.

Horse racing

Every year, many racehorses suffer fatal and near-fatal injuries. Broken bones, ruptured ligaments, and other painful conditions are all extremely common. However, it is hard to find New Zealand figures for the total number of racehorse injuries. According to a 1993 US study, in one year 840 horses suffered fatal injuries while racing, and a larger number were killed following injuries sustained while training. Around 3,500 horses experienced non-fatal injuries that prevented them from completing their races.¹² New Zealand research indicates that musculo-skeletal injuries (including tendon, ligament, cartilage, bone, and muscle injuries) are common in racehorses, and may result in the horse being sent to slaughter. The risk of injury increases with the age of the horse, and is linked to the type of training.¹³

Steeplechase races in particular put horses at risk of severe injury, and the RNZSPCA opposes this form of racing. Endurance races are also extremely dangerous for the horses, who become stressed and exhausted.¹⁴ Steeplechases and endurance races occur regularly in New Zealand.

Whips are routinely used on racing horses, even though a British study carried out by Animal Aid indicated that horses perform better if they are not whipped. The study

found that most horses in most races were whipped, however there was a negative correlation between frequent whip use and winning.¹⁵ New Zealand Thoroughbred Racing's guidelines for the use of the whip allow the jockey to hit the horse with a whip up to six times. He or she is then supposed to allow the horse to take six strides before reapplying the whip.¹⁶ Horses can get weals on their skin from the blows of the whip. Horses may also be drugged to improve their performance. In 2005 there was a scandal when trainer Mark Purdon admitted administering the performance enhancing substance "blue magic" to a horse.¹⁷

Aside from racing injuries, horses frequently suffer from stomach ulcers. A 2003/2004 New Zealand study found that 88 percent of the 171 racehorses studied had gastric ulcers.¹⁸

Old or injured racehorses are used for breeding, or, more commonly, sold to slaughterhouses. While NZ statistics are not available, it is estimated that in the United States, 75 per cent of all racehorses end up at the slaughterhouse. New Zealand sends horsemeat (including the flesh of ex-racehorses) overseas for human consumption, and there is also a very small domestic market. In 2004 about 500 tonnes of horsemeat was exported.¹⁹

Greyhound racing

According to national body Greyhound Racing New Zealand, there are 9 greyhound racing clubs in New Zealand. Greyhound racing is a big industry. There are 5 race classes for greyhounds in New Zealand, with the highest classes competing for stakes as high as 60,000 dollars.²⁰

Greyhounds often have a short, harsh life. Greyhound puppies are earbranded at around two months of age. The puppies are then separated from their mothers and placed in rearing facilities until they are 12 months old. From 12-18 months of age they are "broken in" as racing dogs. They then begin competing. Racing dogs spend most of their days in tiny cages, where they may be kept from 18 to 22 hours a day; they also spend much time in transit being transported to races. At 3 to 4 years of age they are considered too old to make money for their owners on the racetrack. Lucky ones may be rehomed,²¹ but many are put down. Subsequent to retirement, a greyhound's training and conditioning are discontinued and she spends up to 22 hours a day in a crate.²²

In March 2006, Greyhound Racing New Zealand set up Greyhounds as Pets, a trust proposing to rehome retired greyhounds. The trust is run out of a kennel facility in the Manawatu and claims to have rehomed 90 greyhounds in its first year of operation.^{23,24} However, it seems likely that many ex-racing greyhounds are still condemned to death. The numbers of dogs being retired from the industry are such that the rehoming project may represent a public relations exercise by the racing industry rather than a genuine attempt to save greyhound lives. A posting on the Greyhound NZ Racecafe forum from "Lyla" complains "The public do not, or indeed not, need to know the negative side of our sport. It's about not airing our dirty laundry. I commend Jacqui and all the others who attempt to re-home retired greyhounds, BUT, of the 50 odd re-homed, there are 100s of others who aren't so lucky. Encourage too much attention about this subject, and you will have someone "picking it up" and "running with it". If someone inquires about the actual [sic.] numbers of dogs euthanised, and, they can they can get the numbers from the Assoc., well we will have a lot more to worry about then. ... Personally, I

would love to see ALL retired greyhounds re-homed, BUT, in the “real world”, it is an unrealistic expectation, and, those who think otherwise are living in a different world.”²⁵

Unfortunately, we have been unable to obtain the numbers of dogs euthanased from Greyhound Racing New Zealand. In the United States, the Greyhound Protection League estimates that twenty to twenty-five thousand racing dogs are put down every year, while only ten thousand are adopted.

Circuses

There are currently few performing animals in New Zealand circuses. However, we have included a short survey and history of the circus industry, as the facts that emerge offer a damning indictment of animal-based circuses in general. It is vital that no more performing animals be brought into New Zealand circuses in future.

Until quite recently, there were five N.Z. circuses exhibiting captive animals. However Leonardos, Harrises, and Tommy Phillips have all closed down, and now New Zealand has just two circuses which display performing animals as a regular part of their act. These are the Whirling Brothers Circus from the Waikato region and the Ridgeway Circus from Auckland. The Weber Brothers circus show also features a short act with football playing dogs. They sometimes use ponies, but most of their show does not rely on animals.

Circus animals spend much of their lives in small cages in trailers, being hauled around the countryside. The New Zealand animal welfare code for circuses²⁶ specifies that exotic animals should be allowed 8 hours a day exercise – except when the circus is being erected, dismantled, or during transport. This, of course, is most of the time. Electric prodders may be used during training, and the exercise areas specified are sadly inadequate – only 50 square metres for lions, and large primates, 20 square metres for small primates, and 500 square metres for one or two elephants. Wild African elephants may roam areas of up to 5000 square kilometres. Wild females form strong bonds with related females and offspring in matriarchal groups. The New Zealand SPCA wants exotic animals to be banned from circuses: “Our considered view is that exotic animals in circuses inevitably suffer.”

The Whirling Brothers Circus has been owned by Tony Ratcliffe for nearly 30 years. Until very recently, they had four Cappucian monkeys, 12 donkeys, a dwarf horse, four poodles, three lions and a 28 year-old, female African elephant called Jumbo,²⁷ who was imported into New Zealand in 1978. However, in late 2005, workers at the circus became concerned about the way the animals were treated, and secretly filmed them and their living conditions. The footage was later show on TV3’s Campbell Live. The workers reported seeing Jumbo banging in frustration against the side of her enclosure, animals without drinking water, and the dogs not being exercised. One monkey was kept alone for weeks in a small cage, and was videoed in an extremely distressed state, trying to escape. The cage was bare, with no food or water to be seen.

A few days later another monkey, Joanna, died of heat exhaustion. In an interview, Hanks Kriek, the director of SAFE, commented “We believe the recent death of a young monkey at Whirling Brothers Circus was preventable, SAFE made a complaint to MAF about concerns we had for the monkey’s well-being, and a week later the poor creature was dead. Had MAF officials properly followed up on this complaint, as they

are legally required to do, the young monkey would probably still be alive.” He added, “It illustrates that circus animals are not adequately protected and breaches of animal welfare legislation go unpunished”.²⁸

Circus animals are also vulnerable to abuse from uneducated members of the public. In February 2005, drunken youths at an A&P show in Gore teased the Whirling Brothers lions, and a drunken man tried to climb into Jumbo’s enclosure. The next month, in Ashburton, drunken circus patrons threw beer bottles at Gypsy the lion, and a can of beer at Jumbo the elephant.²⁹

In February 2006, Tony Ratcliffe announced that he was retiring, and wanted to put the circus up for sale, with an asking price of \$1 million.³⁰ The horses and lions have since been passed on to Orana Wildlife Park, and the surviving three monkeys and donkeys are now living in a New Zealand animal sanctuary, where they are being rehabilitated. However, Jumbo the elephant’s future remains uncertain.

The Ridgeway Circus no longer displays exotic animals, but has performing ponies, dogs and lamas. It has consistently failed to meet even the very inadequate standards in the animal welfare code governing circus animals. Despite this, the Ministry of Agriculture and Forestry has never prosecuted the circus and Ridgeway’s licence has been renewed despite many breaches of the animal welfare legislation. According to ARLAN lawyer Deirdre Bourke: “Records released under the Official Information Act show that over a 9 year period Ridgeway Circus was permitted to operate unregistered for over two and a half years, and while regulations required MAF to carry out a minimum of 27 inspections during that time, only 3 were documented.”³¹

Up until a few years ago, Ridgeway Circus displayed performing chimpanzees as part of their act. Their last adult chimpanzee Lola, spent the entire 37 years of her life in captivity, giving birth to more captive chimpanzees. In 1997, the circus decided to euthanase her. However, after a campaign by animal rights activists, Lola was not reprieved, and she was allowed to stay with her baby until the baby was approximately 18 months old.³² However, the story does not have a happy ending. In 1999, Lola was sold to a circus in Samoa, and was later found dead at the airport. She had died of dehydration after being left in her packing crate for 7 days in sweltering 40-degree heat.³³ Fortunately SAFE managed to negotiate freedom for her son Buddy, and he now lives at Chimfunshi Wildlife Orphanage in Zambia.³⁴

Public aquariums

Aquariums are a popular source of family entertainment in New Zealand. However, there are many cruelties associated with keeping live animals in aquariums. According to a study by the UK-based Captive Animal Protection Society, animals in public aquariums frequently exhibit abnormal “stereotypic” behaviours, such as pacing, circling, head bobbing and swinging and spiralling (continuously spinning through the water).³⁵ Rays and sharks are particularly likely to show this kind of behaviour. 74% of UK public aquariums have animals with physical health problems, such as wounds, lacerations, scars, eye disease, deformity, infection, and growths.³⁶

The aquarium industry has devastating environmental impacts. It is estimated that over 95 per cent of marine species sold in the aquarium trade are collected from the wild. Chemicals such as cyanide are used to stun coral reef fish, causing heavy mortality

both among the captured fish, and animals living in the reef. An Indonesian study has indicated that 49-80 per cent of captured animals die on the way to their final destination.³⁷

Particularly infamous is Napier's Marineland, which has seen many captive dolphins die over the years. In April 2006, 36 year-old Shona (a common dolphin) died after being ill for seven weeks, and there is now only one performing dolphin (Kelly), left alive. Aquarium customers, including children can pay to swim with her, or to feed and touch her³⁸ - a potentially stressful experience for lonely Kelly, who may suffer from their rough hands. Kelly has spent over 30 years in a 30m x 15m x 4.5m concrete tank. She was first captured in 1974 at the age of two.

As well as dolphins, Marineland displays performing seals, penguins, otters, and a California sea lion. The aquarium would like to capture more wild dolphins to replace the ones who have died, but there has been public outrage around this plan. According to Massey University marine mammal expert Mark Orams "These dolphins live offshore and range over great distances and do not respond well to being constrained. They are plucked from a highly-evolved, highly structured society and placed in an alien environment – the stress kills them ... My understanding is that there has been a high mortality rate among dolphins captured to stock Marineland over the years."³⁹ Dolphins navigate and communicate through echolocation, and when they are confined in tanks and pools, their sounds bounce back at them, causing considerable distress. According to WSPA, more than 60 dolphins have died at Napier Marineland since it opened in 1965.⁴⁰ Dolphinariums around the world are closing. In the 1970s, the UK had 36 aquariums with dolphins, but these are now all gone.⁴¹ While proponents argue that aquariums can be stocked with captive-bred dolphins, in practice, so many dolphins die in captivity that it is impossible for breeding programmes to keep up.⁴² The educational role of dolphin exhibits is questionable. There are 50 dolphinariums in Japan, through which millions of people pass every year, and are presumably educated. Yet Japan continues to slaughter 20,000 dolphins every year.

Other aquariums include the Trust Bank Aquarium, Kelly Tarlton's Underwater World in Auckland, Napier's National Aquarium of New Zealand, and Picton's Sea-house World Aquarium. The latter has seahorses, shark rays, jellyfish, octopus, fresh and saltwater fish, and a giant squid exhibit. There is even an aquarium in Stewart Island, with the Empress Visitor Centre in Oban exhibiting pipefish, seahorses, paua, and brachiopods. Despite local opposition, a new \$20 million aquarium is planned for the southern coast of Wellington, at Te Raekaihau Point.

Tourism and marine mammals

Many commercial companies offer tourists the opportunity to come into close contact with marine mammals in the coastal waters or along the shores of New Zealand coasts. Over seventy commercial operators take tourists up close to species such as dusky dolphins, common dolphins, bottlenose dolphins, Hector's dolphins, orca, sperm whales, Bryde's whales, fur seals, and sea lions.⁴³ Tourism is accompanied by noise from boat engines, water disturbance, and the presence of human swimmers in the water. In Kaikoura, there may be as many as 365 boat trips per week, enabling tourists to watch or swim with marine mammals.⁴⁴ These seem likely to have considerable impact on the

animals. There have even been reports of commercial operators chasing fur seals into the water so people can swim them.⁴⁵

Recently the New Zealand Whale & Dolphin Trust has been carrying out research projects on the effects of tourism on the behaviour, movements and sound production of sperm whales, dusky, bottlenose and Hector's dolphins in the presence and absence of boats and swimmers. All the populations studied have shown the clear effects of human disturbance. Sometimes the effects have been minor,⁴⁶ but in other cases more serious. A four year study of the impact of whale watching found that:

“Several aspects of whale behaviour were significantly affected by the presence of whale watching vessels. Blow interval (mean and median) decreased in the presence of the research vessel and/or whale watching boats. Whale watching boats and aircraft, individually or together, caused increases in the time whales spent at the surface and in the frequency and amount of heading changes ...”⁴⁷

Zoos

The 3 major zoos in New Zealand are Auckland Zoo, Wellington Zoo, and Orana Wildlife Park. There are many criticisms that can be levelled at zoos. Although modern zoos claim to promote conservation, most animal species exhibited in zoos are not critically endangered. Despite much talk about breeding programmes for threatened animals, only a small proportion of zoo animals are allowed to reproduce, and few wild animals are ever returned to nature. The zoo captive breeding programmes that do exist mostly supply animals to other zoos. At Auckland Zoo, only some native birds and tuatara have ever been returned to their original habitats.⁴⁸ Zoos can also divert attention away from the need to protect animals in their natural environment. There is a strong argument that wild animals are mistreated simply by being held in captivity. Bored and isolated captive animals often display abnormal behaviours, such as bar biting, neck twisting, tongue playing, excessive grooming, head bobbing, coprophagia, vomiting and self mutilation. The New Zealand animal welfare code for zoos allows a number of cruel practices such as the feeding of live animals to predators such as lions.⁴⁹ The educational role of zoos is also uncertain, with many zoos tending to provide “edutainment,” rather than offering the public a meaningful level of information.⁵⁰

Wellington Zoo is New Zealand's oldest zoo, established in 1906 following the gift of a captive lion known as “King Dick” to the city of Wellington. The zoo is largely funded by Wellington City Council, which pays 2.3 million of the zoo's 4.1 million-dollar operating expenses. The zoo and its five hundred animals occupy limited space in the southern suburbs, and many of the enclosures are cramped and dingy. Even operations manager Mauritz Basson has admitted that half the zoo needs a serious upgrade.⁵¹ While modern zoos are much better than they were, zoos still engage in many questionable practices. Wellington Zoo has a “rent-a-cheetah” programme that has drawn international condemnation. For \$2,500, Wellington Zoo will bring two juvenile cheetahs to your party, dinner, or shop opening. Overseas zoos have criticised the programme. Wijbren Landman, from Emmen Zoo in the Netherlands has said, “We are completely opposed. We would never do something like that. Actions like this demand that the animals are very tame and we strive to keep them as wild as possible. We don't

allow keepers between the animals, let alone strangers. It's not educational either". Bas Lukkenaar from Burgers Zoo, also in the Netherlands says "Our zoo strives to keep the animals in an as natural as possible environment. This initiative from Wellington Zoo is not acceptable by our standards. The animals are used in a manner that does not benefit their welfare. Cheetahs are wild animals. That's why they are and will remain potentially dangerous for people if they get stressed or end up in unnatural situations."⁵²

To date, Wellington Zoo has hired out the cheetahs to private functions, the National Bank, university lectures, an A&P show, and the opening of a Wainuiomata pet shop. The visits last up to 90 minutes. There is also a \$250-a-couple cheetah encounter available, which allows couples to spend half an hour stroking a cheetah at the zoo.⁵³ Massey University animal psychologist Arnold Chamove has questioned whether the programme is safe, as the animals have no control over the situations they find themselves in, they cannot move away, and if alarmed, they are likely to attack.⁵⁴ In fact, in August 2006, a cheetah attacked a zookeeper and a volunteer at a Wellington Zoo staff meeting, biting the keeper on the neck and the volunteer on the ankle. Witnesses said the trainer then pinned the animal to the ground with his body and punched it hard several times in the face. It appears that the incident was "hushed up" by zoo managers.⁵⁵

Auckland Zoo was built in 1922, and the layout is reminiscent of past elephant rides and chimpanzee tea parties. While animals are not hired out to parties, you can purchase animal encounters on the zoo premises - \$95 for a cheetah encounter, \$120 for an elephant, \$120 for a tiger, and \$60 for a hippopotamus. Animals have also been hired out for TV commercials – the Telecom meercats, famous in the 1990s, were rented from the zoo.⁵⁶ Auckland Zoo has a controversial history. In June 1994, there was a MAF investigation into the zoo, after former staff members accused the zoo of cruelty and needless animal deaths. While the investigation report exonerated the zoo,⁵⁷ many questions remain. Of 20 giraffe calves born in the period up to 1994, only 6 survived, and Tsavo, the bull giraffe, spent long periods confined alone in a concrete pen before his premature death in 1993. Four healthy baboons were euthanased in August 1990 following an increase in the baboon population, and a male bonnet macaque was kept in isolation in a small holding cage from October 1, 1990 to 15 February, 1992, when he was killed.⁵⁸ Auckland Zoo now only has one chimpanzee, Janie, who used to perform in chimpanzee "tea parties." However, the zoo has two elephants, and the SPCA recently refused to approve the import of two more elephants from Thailand.⁵⁹ Groups such the Humane Society International and International Fund for Animal Welfare have raised serious concerns about the welfare of elephants in zoos. They suffer particularly from the lack of space and stimuli, and are also likely to contract diseases such as arthritis, obesity and ovarian cysts. If elephants are bred, high infant mortality rates and stillborn calves are likely. Male elephants often show low sperm counts. In zoo enclosures, elephants have little exercise, and suffer excruciatingly from foot damage and joint injury caused by standing and walking on flat concrete floors.⁶⁰ Detroit Zoo recently closed their elephant exhibit on animal welfare grounds.

Orana Wildlife Park in Christchurch does allow its animal residents more space, and offers a more natural environment than conventional zoos. However, with over 400 animals from 70 species in 80 hectares of grounds, the range of some animal species is very restricted compared to what it would be in the wild. Orana still focuses on exotic animals as entertainment, specialising in allowing visitors to get "up close and personal

with the animals". Like other zoos, it offers on-site animal encounters, such as meeting a white rhinoceros, hand-feeding giraffes, and patting llama.⁶¹ Orana also hosts functions such as weddings, dinners, and conferences.

Craig Busch's Zion Wildlife Gardens in Whangarei is a zoo with 21 large cats. These include 12 Barbary lions, four white Bengal tigers, an orange Bengal tiger (which has recently given birth to a cub) and a small family of Seville cats. There are also deer, and a baboon. There are only 70 white Bengal tigers in the world, and it seems very odd to import 4 of them to New Zealand.⁶² Like Wellington Zoo, Zion Wildlife Gardens hires animals out to functions. In 2004, Auckland property developer Andrew Krukziener had two young male lions greet guests at his wedding, apparently at a cost of \$10,000.⁶³

Crowded and lacking in resources, small zoos often keep animals in very poor conditions. Mark Vette runs Franklin Zoo, a small zoo in the Bombay Hills south of Auckland. The zoo has 250 animals, cared for mostly by volunteers. Some of the animals have been hired out to films such as *The Lion*, *The Witch and the Wardrobe*, and for use in TV commercials (such as Shamus the baboon, who appeared in a Vodafone commercial). In 2004, a zoo volunteer complained about inadequate veterinary care, badly constructed cages, inexperienced staff and poor hygiene. The SPCA inspected the zoo, and found more than 80 rats in one cage, and a rat infestation in the zoo's overcrowded and dirty aviaries. They also discovered monkeys suffering from dermatitis, a lion suffering from an eye infection, and a dead swan with a swollen gland the size of a golf ball beneath its beak. A SPCA veterinary report found the bird had starved to death. There was little natural light in the zoo's turtle enclosure, and some of the turtles had mould on their shells.⁶⁴

There appear to have been many animal deaths at Hamilton Zoo in recent years. Six Asian otters died of a mystery illness between in 2004 and 2005. Also in 2005, a camel died aged at 18 years of age and a young Asian golden cat died after being put under anaesthetic in December 2006.

Notes

1. Anthony Terry and Karen Petersen, *Animal welfare (rodeo and live entertainment) code of welfare 2001 public draft, 11 December 2001, SAFE submission*, SAFE, accessed June 20, 2006 <<http://www.safe.org.nz/pdfs/rodeo.pdf>> p. 5
2. "Rodeo dates," New Zealand Rodeo Cowboys Association, accessed July 14, 2006 <<http://www.rodeonz.co.nz/RodeoDates.htm>>
3. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (rodeos and live entertainment) code of welfare 2001 public draft dated 11 December 2001*, RNZSPCA, June 5, 2006 <<http://www.rnzspca.org.nz/submissions/submission-rodeoscode.doc>>
4. "SPCA condemns weak new rodeo code," RNZSPCA, Dec. 5, 2003, accessed May 6, 2007 <http://www.rnzspca.org.nz/news/press_releases/031205-rodeocoderelease.doc>
5. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (rodeos and live entertainment) code of welfare 2001 public draft dated 11 December 2001*.
6. "Event descriptions," New Zealand Rodeo Cowboys Association, accessed July 14, 2006 <<http://www.rodeonz.co.nz/EventDescriptions.htm>>
7. *Animal welfare (Rodeo and live entertainment) code of welfare*, Code of welfare no. 2 (Wellington: National Animal Welfare Advisory Committee, 2003): 25.
8. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (rodeos and live entertainment) code of welfare 2001 public draft dated 11 December 2001*.
9. "Event descriptions," New Zealand Rodeo Cowboys Association, July 14, 2006 <<http://www.rodeonz.co.nz/EventDescriptions.htm>>
10. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the Animal welfare (rodeos and live entertainment) code of welfare 2001 public draft dated 11 December 2001*.
11. *Royal New Zealand Society For The Prevention Of Cruelty To Animals for immediate release: Friday 17th May, rodeo operators fined \$10,000 for ill-treating horse*, May 17, 2002, SPCA Wellington, accessed June 20, 2006 <http://www.wellingtonspca.org.nz/downloads/inthedia/pressrelease/313_HORS/RODEO_OP.DOC>
12. "Breakdowns," *Sports illustrated* Nov. 1, 1993: 80.
13. NR Perkins, SWJ Reid, and RS Morris, "Risk factors for musculoskeletal injuries of the lower limbs of thoroughbred racehorses in New Zealand," *New Zealand veterinary journal* v. 55, no. 3 (2003): 171-183.
14. Royal New Zealand Society for the Prevention of Cruelty to Animals, *National animal welfare policy 2005*, accessed June 15, 2005 <<http://rspcanz.org.nz/policies/spca-policies-011205.pdf>>
15. Joanne Marshall, "Racing's sore point," *New Zealand thoroughbred racehorse owner* 7 (2005): 26.
16. Marshall 27.
17. "Harness racing fails supporters," *Waikato times*, Aug 25, 2005: 6.
18. R.J.W. Bell, J.K. Kingston, T.D. Mogg and N.R. Perkins, "The prevalence of gastric ulceration in racehorses in New Zealand," *New Zealand veterinary journal* 55.1 (2007): 13-18.
19. Food and Agriculture Organisation of the United Nations, accessed Jan 23, 2007 <<http://faostat.fao.org/>>
20. Lynnley Driver, "Going to the dogs," *Lifestyle farmer* Nov. 2004: 38-40.
21. Greyhound Racing New Zealand, accessed Aug. 19, 2006 <<http://www.nzgray.org.nz>>
22. Judy Kody Paulsen, "Heat stroke in greyhounds: A very real threat," accessed Dec. 28, 2006 <http://www.greyhoundresearch.com/research_articles.php?aid=144>
23. "Minister Peters to launch new adoption programme Monday, 20 March 2006," Scoop Independent News, accessed Dec. 28, 2006 <<http://www.scoop.co.nz/stories/CU0603/S00152.htm>>
24. "GAP on the street today - first anniversary," Scoop Independent News, Mar. 29, 2007, accessed Apr.

- 7, 2007 <<http://www.scoop.co.nz/stories/AK0703/S00334.htm>>
25. Posting, Jan 2, 2006, accessed Jan 31, 2007 <<http://www.racecafe.co.nz/forum/showthread.php?t=19617&page=4>>
 26. *Animal welfare (circuses) code of welfare 2004*, Code of Welfare No. 6, National Animal Welfare Advisory Committee, accessed July 20, 2006 <<http://www.biosecurity.govt.nz/animal-welfare/codes/circus/index.htm>>
 27. "Veteran ringmaster ready to call it a day," *Wairarapa times age*, Feb 6, 2006, accessed July 15, 2006 <<http://times-age.co.nz/localnews/storydisplay.cfm?storyid=3671458&thesection=localnews&thesubsection=&thesecondsubsection=>>
 28. "New Zealand officials slammed for ignoring evidence that lead to death of monkey," *Release: news from the Captive Animals Protection Society* Summer 2006: 13.
 29. "Beer beckons for lion," *Townsville bulletin* Mar. 30, 2005: 12.
 30. "Veteran ringmaster ready to call it a day," *Wairarapa times age*, Feb 6, 2006, accessed July 15, 2006 <<http://times-age.co.nz/localnews/storydisplay.cfm?storyid=3671458&thesection=localnews&thesubsection=&thesecondsubsection=>>
 31. Deidre Bourke, "A movement to create greater protection for great apes in New Zealand," A.R.L.A.N, accessed July 15, 2006 <<http://www.arlan.org.nz/articles/Great%20Apes.htm>>
 32. "About us," *Primates for primates*, July 15, 2006 <<http://www.primates4primates.org/about.htm>>
 33. Bourke <<http://www.arlan.org.nz/articles/Great%20Apes.htm>>
 34. "New Zealand Circus Chimp Rescued," *Animals today* 8.2 (2000): 11.
 35. *Suffering deep down: an investigation into public aquaria in the UK* (Preston, England: Captive Animals Protection Society, 2004): 4.
 36. *Suffering deep down* 4.
 37. *Suffering deep down* 7.
 38. "Dolphin swins," Marineland of New Zealand Napier, accessed July 19, 2006 <<http://www.marineland.co.nz/whatson.php>>
 39. "Expert advises against Marineland dolphin re-stock," *Massey news*, accessed July 19, 2006 <http://masseynews.massey.ac.nz/2006/Press_Releases/07-04-06.html>
 40. "Captive for an audience," WSPA, accessed July 27, 2006 <http://www.wspa.org.nz/urgent_free.asp>
 41. Mike White, "The future of zoos," *Metro*, Sept. 2006: 57.
 42. White 57.
 43. Rochelle Constantine, *Effects of tourism on marine mammals in New Zealand* (Wellington, N.Z.: Dept. of Conservation, c1999): 8.
 44. Constantine 11.
 45. Constantine 15.
 46. Christopher Richter, Steve Dawson, Liz Slooten, "Impacts of commercial whale watching on male sperm whales at Kaikoura, New Zealand," *Marine mammal science*, 22:1(2006): 46-63.
 47. C.F. Richter, S.M. Dawson, E. Slooten, *Sperm whale watching off Kaikoura, New Zealand: effects of current activities on surfacing and vocalisation* (Wellington: Dept. of Conservation, 2003) accessed June 15, 2007 <www.doc.govt.nz/upload/documents/science-and-technical/SFC219.pdf>
 48. Mike White, "The future of zoos," *Metro*, Sept. 2006: 61
 49. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the animal welfare (zoos) code of welfare, public notification draft dated 15 February 2004*, RNZSPCA, Apr. 26, 2004, accessed May 10, 2007 <http://www.rnzspca.org.nz/submissions/submission_zoo_code.doc>
 50. David Hancocks, *A different nature: the paradoxical world of zoos and their uncertain future* (London: University of California Press, 2001): 178.

51. White 58.
52. "Wellington Zoo cheetah day excursions condemned," 25 Oct. 2006, accessed Jan. 2, 2006 <<http://www.scoop.co.nz/stories/PO0610/S00256.htm>>
53. White 58.
54. Emily Watt, "Zoo hires out its big cats for parties," *Sunday star times* June 25, 2006 : A3.
55. Ruth Hill, " Claims zoo hushed up cheetah attacks," Mar. 18, 2007, accessed Apr. 8, 2007 <<http://www.stuff.co.nz/3997125a11.html>>
56. Pamela Stirling, "The zoo-keeper of the future?" *Listener* Mar. 30-Apr. 5 1992: 12.
57. "The zoo report: the official version," *Metro* Sept. 1994: 116-122.
58. "The great zoo debate III," *Metro* Oct. 1994: 96-100.
59. White 62.
60. "A mammoth undertaking : saving elephants in zoos," *Guardians* Spring 2007: 16-18.
61. "Orana Wildlife Park," accessed Jan. 11, 2007 <<http://www.oranawildlifepark.co.nz/about.htm>>
62. "Life of a lion tamer," *Dominion post* June 15, 2004: TV 3.
63. Emily Watt, "Zoo hires out its big cats for parties," *Sunday star times* June 25, 2006 : A3.
64. Libby Middlebrook, "Concerns prompt SPCA probe into zoo," *Sunday star times* Aug 29, 2004: A:4.

Chapter 10

The pet industry

The pet industry causes tremendous suffering. Pet shops sell young and appealing puppies, kittens, and other animals at inflated prices, often charging several hundred dollars for pedigree animals.

Animal breeders

Dogs are often raised in “puppy mills,” breeding kennels which may be cramped and unclean. In March 2007, the SPCA seized more than 100 cats and dogs from kennels near Woodville run by animal breeder David Balfour. Cats were caged in a disused pig-gery, with food and waste littering their cages. Over 50 per cent of them were diseased. More than 100 dogs were kept in cages, most showing serious behavioural problems.¹ There is evidence that New Zealand dog breeders are being targeted as a source of dogs for human consumption in Asia. At least one New Zealand breeder has been approached to supply Saint Bernard puppies to China, allegedly for service as police dogs. However, no countries in the world currently use Saint Bernards as police dogs.²

Pet shops

Pet shops often sell sick and injured animals to the public, and fail to provide proper veterinary care. They may keep animals in crowded and unsanitary conditions, or kill sick and unwanted animals in inhumane ways. The SPCA advocates the compulsory regulation of pet shops. However, there is no legal requirement for this as yet. Animals may be sold by pet shops at very young ages, as young as 2 weeks for guinea pigs, 8 weeks for puppies, and 6 weeks for kittens. Animals may have little exercise. There is a legal obligation for puppies to have 15 minutes of exercise a day, but older animals have no exercise entitlement.³ Even though vast numbers of unwanted cats and dogs are abandoned in this country, the pet industry continues to grow, with the pet shop chain Animates opening 3 new stores in 2005. There is even an online pet store www.hippo.co.nz that sells live invertebrates (mussels and snails).⁴ In the past, native animals such as geckos have been hunted and captured to sell in pet shops.⁵

How we treat “pet” animals

Once the animal has been bought, a happy and secure life is by no means certain. While there are many responsible and loving “pet owners,” others cannot cope with the demands of looking after an animal, and may have little understanding of the animal’s behaviour and needs. Every year the SPCA receives over eleven thousand complaints of animal abuse and neglect, largely relating to cats and dogs and other companion animals. This figure does not include complaints made to other agencies, such as MAF and the New Zealand Police. As much abuse is never reported, the true level of companion animal suffering is impossible to establish. Every year the Royal New Zealand SPCA publishes a “list of shame” citing the 50 or so worst cases. In 2006 these cases included a litter of kittens from Lower Hutt with the ends of their tails cut off, three Whangarei cats who suffered slow and painful deaths from poisoning, an elderly cockatoo beaten with a dog chain and stomped to death by Masterton teenagers, a puppy beaten and dumped in a Motueka rubbish bin and a Northland colt that died after being castrated without anaesthetic. There were also many incidents in which animals were injured by airguns or more powerful weapons. Two cats and a dog in Greymouth were wounded with slug gun pellets and an Auckland cat, dying from cancer, was shot in the head with a slug gun. As well as deliberate cruelty, the list cites many instances of callous neglect, including many sick and emaciated dogs and cats.⁶

Thousands of animals are abandoned by their caregivers. Often baby animals are bought when they are cute and cuddly, but are deserted when they approach adulthood, or free-roaming animals are not desexed, resulting in unwanted kittens and puppies. Sometimes so many animals are dumped that animal shelters cannot cope. In June 2006, the Auckland SPCA faced a crisis when they had to turn puppies away, asking people to return them the following week or try to re-home them privately.

Often unwanted cats are dumped in parks or rural areas, where their former owners think they can hunt their own food. This, along with the failure of caregivers to spay and neuter cats has led to the formation of colonies of starving and diseased cats in areas such as Christchurch. A lost or abandoned house cat will usually only survive about 3 years. Most female wild cats become pregnant every year. Toms get into fights and the resulting untreated wounds eventually kill them.⁷ Overseas, such colonies of wild cats have been successfully managed by feeding the animals combined with a trap/neuter/release programme.⁸ A Christchurch animal advocate has recently set up Cat Rescue (Christchurch), a neuter and release programme. The project also tries to rehome abandoned cats who are tame and friendly enough to live with humans.⁹

Even animals who are well cared for physically, may lead miserable lives. Dogs in particular are social animals, who need company and stimulation. They are highly prone to separation anxiety. Yet many city dogs spend long lonely days chained in suburban back yards, and pedigree cats may be kept indoors in what are essentially luxurious jails. Rabbits, who love the company of others of their kind, are often kept in small garden hutches, lonely and neglected. Budgerigars, who naturally live in flocks, are often confined alone in small cages, with only a mirror for company.

In rural areas, people often keep pet goats tethered by the side of the road to keep the verge tidy. Goats are very sociable animals, who also have specific food requirements and a small area of dusty, oily grass by the roadside is not adequate food. Tethered goats

are often left without shelter from the wind and rain, and are highly vulnerable to attacks by dogs or to being hit by vehicles. There have been cases of deliberate cruelty to goats by passing humans.¹⁰

Docking dogs' tails

For aesthetic reasons, breeders routinely amputate the tails of certain breeds of newborn puppies, even though the puppies feel pain and wriggle and squeal. Most breeders carry out the procedure themselves, often with scissors or a rubber band, and without anaesthesia, even though docking involves cutting through muscle, tendons and nerves. Docking shuts off blood supply to the puppy's tail, which drops off after about 3 days.

Tails are important to dogs as an aid to motility, balance and communication. Docking can lead to complications such as blood loss, infection, faecal or urinary incontinence, improper development of the muscles at the base of the tail, reduced support for the rectum and anus, and rectal dilation. The tail stump may always be painful to the dog because of nerve damage.¹¹ In 2004, Dianne Yates' private member's bill restricting the docking of dog tails was drawn from the ballot in the New Zealand Parliament. The Animal Welfare (Restriction on docking of dogs tails) bill proposed that docking should only be allowed to be carried out by veterinarians for the welfare of the individual dog (if, for example the tail had been damaged by injury or disease). The bill was supported by the RNZSPCA and the New Zealand Veterinary Association, but opposed by the New Zealand Council for Docked Breeds, and the Kennel Club.¹² Unfortunately the bill is still making its way very slowly through the Parliamentary bureaucracy, and has not yet been enacted into law.

Domestic abuse and animal cruelty

There is growing international evidence that there are links between child abuse and cruelty to animals. Researcher Frank Ascione found that 71 per cent of women with pets who entered women's refuges in the state of Utah described how their partners had harmed or threatened to harm their animals in the previous year. According to SPCA chief executive Robyn Kippenberger, violent men in New Zealand have thrown animals across rooms, and kicked them or killed them as a threat to make their partners do what they wanted. "There was a fellow in Lower Hutt last year whose partner was going to leave him, so he put the cat in the oven and killed the kittens to stop her from leaving him, to scare her ... Often they won't touch the partner, but will kill the cat in front of her or hit the dog."¹³

Notes

1. "SPCA raids Woodville farm," Tvnz.co.nz, accessed Mar. 5, 2007 <<http://tvnz.co.nz/view/page/423466/1012399>>
2. Elly Maynard and Deidre Bourke, "Fighting the international dog meat trade," ARLAN, accessed Jan 1, 2006 <<http://www.arlan.org.nz/articles/dogmeat.htm>>
3. *Code of recommendations and minimum standards for the sale of companion animals*, Code of animal welfare no. 11, September 1994, accessed Jan. 1, 2006 <<http://www.biosecurity.govt.nz/animal-welfare/codes/companion-animals/index.htm>>
4. "This is not a puppy love," *New Zealand retail* July 2005: 10-12.
5. Philip English, "Pet shop gecko trade deplored," *New Zealand herald* 14 Aug 1996, s.1: 24.
6. "SPCA issues annual list of animal abuse cases," 19 Oct. 2006, accessed Dec. 27, 2006 <<http://www.scoop.co.nz/stories/PO0610/S00214.htm>>
7. Sonya Ash, "Christchurch City Council must act on feral cats," 24 November 2003, accessed Jan 1, 2006 <<http://www.scoop.co.nz/stories/AK0311/S00169.htm>>
8. "The stray and feral cat issue," *Paws for thought* 21 (2005): 7.
9. *Cat Rescue (Christchurch)*, accessed Apr. 8, 2007 <http://www.cisforcats.co.nz/rescue/cat_rescue_christchurch.htm>
10. "A dog's life for the sociable goat," RNZSPCA, June 21, 2004, accessed May 5, 2007 <http://www.rnzspca.org.nz/news/press_releases/040621-sociable_goat.doc>
11. Catherine Green, "Private member's bill aims to abolish the unnecessary "tail docking" of dogs," ARLAN, accessed Apr. 1, 2007 <<http://www.arlan.org.nz/articles/Tail%20docking.htm>>
12. "Dockers versus doctors," *New Zealand lifestyle block* Nov. 6-12 (2004): 34-35.
13. "Child, animal agencies link up to report maltreatment," *New Zealand herald* Aug. 23, 2006, accessed June 15, 2007 <http://subs.nzherald.co.nz/organisation/story.cfm?o_id=356&objectid=10397523>

Chapter 11

Animal “pests”

Most New Zealand conservationists argue that introduced animals living in the wild should be eradicated wherever possible. Otherwise they should be “managed” – a euphemism for poisoning, trapping, hunting, and exterminating. However, a small number of ecologists argue that species composition naturally changes over time.¹ New species appear, while others die out. In the prehistory of many countries, the introduction of foreign animals has occurred often, and without human intervention. It can be argued that change is a natural aspect of New Zealand forests, which pass through cycles hundreds of years long. There is a point of view that it may be more realistic to allow introduced species adapt to the new environment, rather than eradicating new species, and trying recreate past habitats.

The impact of introduced species on ecosystems varies greatly. If the resilience of the ecosystem is high, a new species may be absorbed without having a significant effect on the existing inhabitants. A study of a high altitude breeding colony of Hutton’s shearwaters in New Zealand showed that the birds had survived happily enough in the presence of stoats for over 100 years,² even though stoats and rats have had a much greater effect on smaller, lower altitude colonies.

The kiore, or Polynesian rat, arrived with Māori many hundreds of years ago. Kiore have often been blamed for contributing to the decline of native species, for example by eating birds’ eggs. However, some scientists argue that kiore have been here so long that they now forms part of native ecosystems, and killing them off may harm some native species, who would then face greater competition for food. Many Māori consider kiore to be a taonga, who should be protected under the provisions of the Treaty of Waitangi. As scientists MacDonald, King and Strachan note,

*“The distinction between natural and unnatural movements of species is increasingly opaque ... Clearly, the consistent treatment of introduced species is a challenge. The pivotal question of when a species should be considered naturalised (and treated as native) is a cultural matter, rife with ‘speciesism’ and illogicality ... For example, in Britain, the fallow deer, *Dama dama*, introduced in the tenth century, is widely accepted whereas the muntjac, *Muntiacus reevesii*, a late nineteenth century arrival, is deplored.”³*

In New Zealand, some introduced animals, but not others, are designated as pests, without apparent logic. Domestic cats prey on a wide range of native species,⁴ but there is little public support for killing cats.

It can also be argued that poisoning and trapping programmes often unintentionally kill or injure native animals, and that focussing on “pest control” takes attention away from adverse human impacts on the environment, and human destruction of natural habitats.⁵ Sometimes introduced species only survive because humans perpetuate the habitats that they live in. Rabbit populations are most problematic in areas grazed heavily by sheep, while in places where the grass is allowed to grow longer, rabbits are usually far fewer.

While “pests” such as possums cause damage in some areas, other forest ecosystems may be relatively resistant to them. In fact, much of the research investigating the impact of possums on native ecosystems is inconclusive. Introduced animals such as possums are also blamed for destroying gardens and orchards. However, it is possible to find ways in which possums and horticulturists can co-exist. In Australia, for example, where possums are legally protected, orchardists often wrap the trunks of fruit trees in sheets of tin and thus protect their crops.

Political and economic forces have influenced the campaign against possums. Possums spread bovine tuberculosis, which impacts on the meat, dairy and venison export industries,⁶ and possum skins are an economically valuable by-product of the pest control industry. The issues surrounding pest control are extremely complex. What is certain, however, is that introduced species are here through no fault of their own.

Meanwhile, vast numbers of animals are poisoned, trapped, and shot by government departments such as Department of Conservation (DOC) and Landcare, by regional councils and by private landowners. DOC spends around \$20 million dollars a year on killing introduced mammals.

Poisoning introduced mammals - brodifacoum, 1080, phosphorus, cyanide, pindone and cholecalciferol

The main poisons used to kill introduced mammals such as possums, stoats, and ferrets are brodifacoum, 1080, phosphorus, cyanide, pindone and cholecalciferol. All are deadly.

Brodifacoum is a derivative form of warfarin, an anticoagulant poison. It is highly toxic to mammals and birds. The symptoms of poisoning include vomiting, bleeding gums, internal bleeding, and excessive bleeding from minor cuts. Severe poisoning causes haemorrhagic shock, coma, and death. Possums poisoned with brodifacoum take a long time to die. Because brodifacoum persists in the environment and in animal tissues, animals not killed directly may die by from feeding on other, poisoned animals. Over the period 1978 to 1994, DOC exterminated 13 populations of kiore on offshore islands with brodifacoum. Weka and pukeko were severely affected in areas where the poison had been laid.⁷

1080 (sodium monofluoroacetate) has been used in New Zealand to kill introduced mammals since the 1950s. It is incorporated into carrot, cereal, paste, and gel baits, and is often used in aerial poison drops. Poisoned animals show symptoms such as rapid and laboured breathing, tremors and muscle spasms, convulsions and death.⁸ 1080 at-

tacks the poisoned animal's heart, lungs, liver, kidneys, testes, or unborn foetus. Other animals may die or be harmed after eating the bodies of the original victims. Dogs in particular are at high risk of secondary poisoning, and suffer a horrific death, with acute convulsions.⁹ 1080 may remain contaminating the environment for quite some time, particularly in cold dry conditions, where the chemical breaks down very slowly. There has been considerable public debate around the use of 1080. The Australian SPCA recently conducted a review of the use of 1080, and concluded that "1080 baiting cannot be considered to be a humane control technique." The New Zealand SPCA is generally opposed to the use of 1080, particularly for the control of cats, mustelids, and deer.

Cyanide is also used to kill possums. It is the active ingredient in Feratox baits, which contain encapsulated cyanide pellets. Feratox baits have been known to kill weta and livestock.¹⁰

Cholecalciferol is also used as an active ingredient in poisoned baits for opossums. It is an acute toxin, which acts by mobilising stored calcium from the animal's bones into its blood stream, resulting in hypercalcemia and tissue calcification in the cardiovascular system, kidneys, stomach, lungs, and muscles. Death occurs as a result of renal or cardiac failure.¹¹

Kill traps and leghold traps

Traps are used extensively to kill introduced mammals, and the Department of Conservation is one of New Zealand's largest users of kill traps. DOC uses the Fenn trap to kill mustelids, even though experiments carried out by Landcare have shown that these traps fail to quickly and consistently kill stoats and ferrets, and breach the Animal Welfare Act 1999.¹² The Victor snapback kill trap also causes considerable suffering, and fails the requirements of animal welfare legislation.¹³

Recently, DOC has developed a new range of traps (the DOC 150, 200, and 250) to kill stoats, rats, hedgehogs, and ferrets. These are supposed to be more "humane" but are not yet in general use. The aim of the trap is to strike the victim on the head, causing a skull fracture. However if the trap is incorrectly set, or if the animal enters the trap a certain way, he or she may receive a nose or foot injury only. This can cause terrible suffering, especially as there is no legal requirement for kill traps to be checked regularly,¹⁴ and the animal may spend days trapped, starving, and injured.

Leg-hold traps such as the Lanes-Ace, the Victor No. 1 ½ and the Victor No. 3 are still legal and in use in New Zealand. The Lanes-Ace gin trap has serrated jaws which cause prolonged suffering to the trapped animal, who, in trying to escape, will often break his or her leg on the corner of the right angled jaws.¹⁵ Domestic cats may also be caught in gin traps. In June 2005, a young female cat was discovered by a group of children in a gin trap near Hokitika. The cat's front right paw had rotted and atrophied and she was dehydrated and suffering from starvation. According to the RNZSPCA, "Gin-traps ... are barbaric, antiquated implements and it is time for Parliament to ban their use nation-wide."¹⁶ While the Ministry of Agriculture and Forestry admits that leg-hold traps "may cause an animal considerable suffering," the use and regulation of traps is at the discretion of councils across the country. Leg-hold traps have been banned in over 89 countries, and serrated jaw traps have been outlawed in the UK for over 40 years.¹⁷

Killing possums

New Zealand uses 90% of the world's 1080, a poison widely banned in the United States, dumping it from the air on possum-infested areas.¹⁸ After poisoning with 1080, possums take up to 18 hours to die.¹⁹ Large numbers of possums are also killed by poisoning with sodium cyanide paste or brodifacoum, trapping (both leghold and kill traps), and shooting. Even school children are co-opted into the hate campaign against possums. In June 2006, hunters (including school pupils) shot more than 1000 animals during the Apiti School Annual Possum Hunt. The possums were sold to a fur processor to raise funds for the school.²⁰ This annual possum hunt encourages young hunters especially, with a lower entry fee and separate prizes in the junior hunters' category.²¹

Possums are killed ruthlessly even in areas where their ecological impact is likely to be insignificant. A primary reason for the campaign against possums seems to be that they carry TB, a disease that threatens New Zealand beef and dairy export earnings. The lucrative possum fur industry also offers a strong incentive to trap and kill possums. Companies such as Snowpeak Ltd sell high fashion "merinomink" garments made from a blend of wool from mulesed merino sheep and fur from trapped possums. Possum pelts were selling for \$12 to \$14 each in 2004.²² Possum fur is also exported for use in the manufacture of full length fur coats or jackets, for lining overcoats and for collar and cuff trims.²³ Despite the cruelty of the fur industry, there is considerable public acceptance of possum fur in New Zealand as an environmentally responsible fashion choice.

At first glance, the environmental argument for destroying possums can seem compelling. However, there is evidence that killing possums may simply result in larger rat and mice populations (as opossums and rodents compete for food).²⁴ The campaign against possums can be lethal for the very animals it is supposed to help. Morepork, rifleman, whiteheads, grey warblers, tomtits, New Zealand robins, silvereyes, kokako, and saddlebacks have all been found dead after 1080 poisoning operations. Brown teal and kiwi have been killed by brodifacoum. Toxic residues in native invertebrates, and reduced invertebrate numbers have been observed after 1080 poison drops.²⁵

The leg-hold traps commonly used to trap possums catch, injure and maim huge numbers of non-target animals. These include native species such as kiwi and weka and also domestic cats and dogs. A North Island brown kiwi known as "Tahi" needed a prosthetic leg after being caught in a leg-hold trap early in 2006. He is now confined to Wellington Zoo, and will be unable to breed with other kiwi.²⁶

Deer as "pests"

Thousands of wild deer are hunted or poisoned as pests every year. DOC carries out widespread aerial drops of carrots or cereal bait poisoned with 1080. The youngest and smallest deer tend to be the most vulnerable.²⁷ The killing is carried out even though the effect of deer on vegetation is variable, and does not always seem to be adverse.

Stoats, ferrets, and weasels

Large numbers of stoats and ferrets are killed by trapping, even though the major prey of stoats is mice, and that of ferrets is rabbits – both non-native species. Weasels are also trapped and killed, even though it is not certain whether weasels are a major predator of native wildlife.²⁸ The Fenn trap is the most common trap used. It is usually set within a trap cover or tunnel. When an animal running through the tunnel presses the treadle, the jaws of the trap close across her body, and crush the spine, causing massive trauma but not necessarily killing her.²⁹ A Landcare study found that most stoats trapped in the Fenn trap were still conscious 5 minutes later.³⁰

Leghold traps such as the Victor and Bridger, and cage and box traps are still sometimes used. Leghold traps cause physical and psychological trauma to the captured animal, who will suffer pain and infection if she manages to escape while injured, or face starvation and dehydration if the trap is not checked regularly. Trapped mustelids may try to escape from a leghold trap by chewing their foot off, or drag the trap away.³¹ Leghold traps also often catch hedgehogs.³²

Mice, rats, and hedgehogs

DOC kills hedgehogs and mice, claiming that they may eat some native invertebrates. However, there is no conclusive evidence that either species has a significant impact on invertebrate populations.³³ Hedgehogs are killed deliberately, and as “bycatch” in stoat and ferret traps. Mice are blamed for eating and possibly destroying native plants, even though a recent environmental study found that no proof of this. The researchers reported:

“No consistent effect of rodents (primarily house mice) on seedling establishment or species composition was detected after 2 years, and rodent exclosures did not significantly affect survival of seedlings (Griselinia littoralis and Aristotelia serrata) planted as an index of rodent herbivory pressure.”³⁴

Canada geese

Canada geese were introduced into New Zealand as a game bird. However many farmers consider them a pest, and there have been concerns that the geese may cause bird-strike near airports. Canada geese are hunted recreationally, and also killed by rounding them up while they are moulting, shooting nesting birds from the ground, shooting by helicopter, and poisoning. Moulting culls are a major means of killing the birds, and involve rounding up moulting geese in late December to early January when they are unable to fly. The geese are rounded up into holding pens, stunned and beheaded. The average annual South Island cull from 1993 to 2004 was 7,255 birds. Geese are sometimes poisoned with alphachloralose mixed with grain such as barley. If the birds eat sufficient bait they fall into a stupor and die from exposure. Sometimes native species such as paradise shelduck may consume the bait and die too.

However there are more humane ways of managing Canada geese. Overseas, the birds are often managed through scaring them away from crops and airports, rather

than slaughtering them. In the UK, current research into the management of several goose species is based largely on developing scaring techniques and devising ways to avoid bird damage, rather than on the destruction of the birds.³⁵

Rabbits and hares

Thousands of rabbits are poisoned, trapped, and shot every year by landowners and regional councils, even though there are more humane ways of excluding rabbits from crops, gardens and pasture. These techniques include habitat modification, exclusion fencing (with a fence 80 cm in height and reaching 20-cm into the ground), wrapping netting cylinders around young trees, and using repellents.³⁶

Instead of using such approaches, rabbits are often poisoned with Pindone, a chemical that causes internal haemorrhaging, and slow death. Rabbits must consume two feeds of bait contaminated with Pindone before they die.³⁷

There has been considerable discussion in NZ about the use of RHD (rabbit haemorrhagic disease, also known as RCD) to kill rabbits. RHD is a highly contagious disease, which damages the liver, intestines, and lymphatic tissue and causes terminal massive blood clots. Symptoms include fever, lethargy, loss of appetite, spasms, and death. Some affected rabbits have a foamy nasal discharge, and about 90 per cent of infected rabbits die. RHD causes a sudden fall in the rabbit population, which can in itself have a considerable environmental effect. According to Professor Walter Clark of the University of Canterbury “predators and scavengers will face first a glut of virus laden food, and then starvation. They will then eat whatever they can. Birds, lizards, insects will be oppressed. Some may be eliminated. Prey switching is inevitable. Poisoning reduces predators along with rabbits through secondary poisoning. Vegetation will change.”³⁸

In 1997, North Canterbury farmers illegally released the RHD virus in New Zealand. Infected rabbits took weeks to die following the consumption of baits containing RHD, and their ears rotted away while they were still alive.³⁹ High levels of RCD antibodies were found in animals known to consume wild European rabbits in New Zealand, indicating that rabbit predators also experienced some level of cross-infection.⁴⁰ Since the introduction of RCD, rabbit populations have declined, but hare numbers have increased.⁴¹ Hares themselves have a detrimental effect on native vegetation.

Yet RHD was legalised in 1998, which allowed regional councils and other bodies to spread the disease over all of mainland New Zealand. Rabbits eventually developed immunity to the virus, and there have been recent moves to introduce a new strain of RHD into New Zealand. In June 2006, a consortium of ten regional councils gained approval from the Environmental Risk Management Authority (ERMA) to import the virus from New South Wales Department of Agriculture,⁴² with Auckland Regional Council, Northland Regional Council, and Environment Waikato all releasing the disease in July 2006.

The campaign against wild goats

There are around 300,000 wild goats in New Zealand, in an area comprising around fourteen percent of the country. Goats were first introduced into New Zealand in the 1770s, and are descended from domestic breeds such as Old English, Angora, Cash-

mere, Swiss, and Saanen. Goats are playful and intelligent, and herds of wild goats will cavort and play exuberantly in the evenings. In 2002, the Department of Conservation spent \$16 million on killing goats.⁴³ Goats are too smart to eat 1080 pellets, and the young kids quickly learn what is safe to eat from their mothers. The standard killing method used by DOC employees is rifle shooting from the ground. If a hunter comes across the herd, he/she will usually try and kill the leader of the herd, who is usually an older nanny goat.⁴⁴ Many hunters also hunt with dogs. Sometimes hunters will catch a goat, and tag her with a tracking device, so that they can find and slaughter the entire herd. Goats are generally not killed for food, though some hunters kill them for dog meat.

While goats do eat both native and introduced plants, they have strong food preferences, and leave a wide range of plants untouched. There are so many goats on New Zealand farms that hunting may have little effect, as there is “a limitless supply” of potential recolonisers on farms all around the boundary. According to Landcare scientist John Parkes “On Egmont [Mt Taranaki], they’ve probably spent over \$100 million [on goat eradication] since 1928 in today’s terms. And there’s probably 1000 or so goats still there.”⁴⁵

The slaughter of wild pigs

The wild pig, *Sus scrofa*, first arrived in New Zealand in 1769, and pigs were well established by the 1840s. Wild pigs are hated by the Department of Conservation and the agricultural lobby because they destroy vegetation, including native plants, and root up the ground in their search for food. They also carry bovine tuberculosis. Until recently, DOC carried out extensive poisoning operations with brodifacoum. However, when brodifacoum was found in the livers of pigs hunted for food, DOC stopped using the poison in aerial operations, though it is still used in bait stations. Pigs are now mainly hunted with dogs. However, hunting can be very environmentally destructive, and pig dogs represent a major threat to wildlife. In May 2004, a pig dog was found wandering on Motuara Island in the Marlborough Sounds, an island which is home to 14 kiwi chicks. In 2003, pig dogs left in Te Urewera National Park killed nine out of sixteen monitored kiwi in the northern part of the park. DOC found kiwi carcasses covered in dog bites, and dog faeces containing kiwi feathers.⁴⁶

Stray and feral cats

The Department of Conservation and some regional councils kill stray or wild cats, as these are considered a threat to native birds. In June 2006, there was media controversy over Taranaki Regional Council’s cat slaughter programme. Council officers were catching stray cats in traps, then killing them by hitting them over the head with a hammer – a practice condemned by the Auckland SPCA.⁴⁷ A 2001 study of the three traps (Steve Allan Conibear-like trap, Conibear 220, and BMI 160) used by DOC to kill feral cats, found that none of these traps killed cats consistently or quickly.⁴⁸

Kaimanawa horses

Wild horses have been roaming the central plateau of the North Island of New Zealand for over a hundred and fifty years. In 1981, a protection order was placed on the horses. The horses are genetically unique – they carry a protease not seen in other horses, and are one of the few viable herds of wild horses left in the world. The FAO has listed the horses in its register of “biologically unique equines.” A population of at least 1000 horses is needed for the herd to remain genetically viable.

However, in 1996, the Department of Conservation became concerned about the impact of the horses on the tussock grasslands. DOC produced a Kaimanawa Horse management plan, which proposed to reduce the horse population to 500, and eventually possibly to zero – ostensibly to protect indigenous plants in the Moawhango region. DOC originally planned to shoot the horses from helicopters in autumn 2006. However, public pressure managed to stop the cull and instead a large number of horses were mustered and auctioned in 1997. Many did not find homes, and were killed.

Since 1997, DOC has continued to muster horses by helicopter around the middle of June each year, trucking them to stockyards in Waiouru. The horses are now confined to the southern section of the Waiouru Military Training Area.⁴⁹

Over two thousand wild horses have been removed or shot.⁵⁰ The annual muster is traumatic, and sometimes horses are injured. In recent years, the Kaimanawa Wild Horse Preservation Society has arranged new homes for some of the horses. However many are killed each year. In 2004, homes were found for 90 out of 225 horses - the remainder were sent to abattoirs to be processed into petfood,⁵¹ or exported to Europe for human consumption.

The Moawhango region where the horses live is home to 10 endangered indigenous plant species. Many of these were extremely common prior to European settlement – the red tufted sedge once populated at least half of the North Island. Several of these endangered species (such as buttercups and bidibidi) are not even grazed by the horses. Army exercises are performed in the area, causing environmental impacts through bombardments, deliberate targeting of wet areas (which are most vulnerable), waste disposal, road construction, and accidental fires caused by shelling. The Army itself acknowledges that military activities impact on vegetation and soils, however it has been decided that such activities should be seen as “part of the ecosystem.”⁵² It appears that the Army has been lobbying to kill the horses for decades, as they interfere with the movements of soldiers on exercises. The Army opposed the 1981 protection order on the horses, and has been lobbying to exterminate them since 1988.

Most of the area that the horses roam on is Māori land, which is either leased out to the Army, or has been taken over by proclamation. The hapu Ngāti Tama Whiti of Ngāti Tuwharetoa has lodged a claim (WAI 588) with the Waitangi Tribunal, claiming ownership of the horses and land. The hapu Ngāti Whitikaupeka also see the horses as part of their heritage, as the herd is descended from animals released by Māori over 150 years ago. Under Treaty of Waitangi provisions, Māori should have been involved in the drawing up of the Kaimanawa horse plan. However, the tangata whenua of New Zealand were not consulted at any point.

Notes

1. M.L. Rosenzweig, "Reconciliation ecology and the future of species diversity," *Oryx* 37 (2003): 194–205.
2. R. Cuthbert, R. & L.S. Davis, "The impact of predation by introduced stoats on Hutton's shearwaters, New Zealand," *Biological conservation* 108 (2002): 79–92.
3. David W. MacDonald, Carolyn M. King, and Rob Strahan, "Introduced species and the line between biodiversity conservation and naturalistic eugenics," accessed June 15, 2007 <http://bio.waikato.ac.nz/pdfs/staff/cmking/macdonald_king_and_strahan_2007.pdf>
4. B.M. Fitzgerald, and D. Turner, "Hunting behaviour of domestic cats and their impact on prey populations." In *The domestic cat: the biology of its behaviour*, ed. D.C. Turner & P. Bateson (Cambridge: Cambridge University Press, 2002): 152–175.
5. MacDonald, King, and Strahan 2.
6. *Technical review of sodium monofluoroacetate (1080) toxicology*, Animal Health Board, Manaaki Whenua Landcare New Zealand, accessed Jan 21, 2007 <http://www.landcareresearch.co.nz/publications/downloads/AHB_1080_review.pdf> p. 2.
7. Department of Conservation, *Assessment of environmental effects for the eradication of Norway rats, kiore, and feral cats from Tuhua (Mayor Island)* (Wellington: Department of Conservation, 2000) cited in: Debra Donohue, "A test of conservation and conflicting legal demands: kiore on Little Barrier Island," *ARLAN newsletter*, 1:3 (2002): 2.
8. *Technical review of sodium monofluoroacetate (1080) toxicology* 5
9. *Submission by the Royal New Zealand Society for the Prevention of Cruelty to Animals Inc on the use of 1080*, Pest Control Animal Health Board (Inc) and Department of Conservation, July 2004, accessed May 6, 2007 <<http://www.rnzspca.org.nz/submissions/submission-1080.doc>>
10. "Reducing non target interference with Feratox," *Kararehe kino* Dec. 2005:7-8.
11. L.H. Booth, P. Fisher, V. Heppelthwaite, and C.T. Eason, *Risk of FeraCol baits to non-target invertebrates, native skinks, and weka*, Science for conservation ; 239 (Wellington: Dept.of Conservation, 2004): 7.
12. Nick Poutu and Bruce Warburton, *Effectiveness of the DOC 150, 200, and 250 traps for killing stoats, ferrets, Norway rats, ship rats, and hedgehogs*, May 2005, Landcare Research, Aug. 5, 2006 <<http://www.predatortraps.com/downloads/doctrapsmanereport.pdf>>
13. B. Warburton, Nick Poutu, and Ian Domigran, *Effectiveness of the Victor snapback trap for killing stoats*, DOC science internal series 83 (Wellington, N.Z.: Dept. of Conservation, 2002)
14. Poutu and Warburton.
15. David Blair, *Mustelid trapping field guide* (Dunedin, N.Z.: Yellow-Eyed Penguin Trust, 2005): 5.
16. "SPCA urges gin trap ban," RNZSPCA, June 21, 2005, accessed May 5, 2007 <http://www.rnzspca.org.nz/news/press_releases/050627-gintrapban.doc>
17. Blair 28.
18. <<http://www.flatrock.org.nz/topics/animals/hunting.htm>>
19. C.T Easton, M. Wickstrom, and N. Gregory, "Product stewardship, animal welfare, and regulatory toxicology constraints on vertebrate pesticides," *Proceedings of the fiftieth New Zealand Plant Protection Conference* (1997): 206–213, cited in: *Technical review of sodium monofluoroacetate (1080) toxicology* 5.
20. "Dead possums help school," *Manawatu standard*, June 26, 2006, accessed July 16, 2005 <<http://www.manawatustandard.co.nz>>
21. "Possums under fire," *Manawatu standard*, June 18, 2006, accessed July 16, 2005 <<http://www.manawatustandard.co.nz>>
22. Peta Carey, "Making possums pay," *New Zealand geographic*, accessed June 14, 2007 <<http://www.nzgeographic.co.nz/articles.php?ID=117>>

23. "Possum skins information," *New Zealand possum products*, accessed June 14, 2007 < <http://www.nzpossumproducts.co.nz/industry/possumskins.htm>>
24. P.J. Sweetapple et al, *Effect of reduced possum density on rodent and stoat abundance in podocarp-hardwood forests*, DOC research and development series 231 (Wellington, N.Z.: Dept. of Conservation, 2006)
25. E.B. Spurr and R.G. Powlesland, *Impacts of aerial application of 1080 on non-target native fauna*, Science for conservation 62 (Wellington, N.Z.: Dept. of Conservation, 1997)
26. "Kiwi needs fake leg after trap injury," Scoop, May 13, 2006, accessed July 16, 2006 < <http://www.stuff.co.nz/stuff/0,2106,3667225a7693,00.html>>
27. *Technical review of sodium monofluoroacetate (1080) toxicology* 11
28. Blair 5.
29. Blair 18.
30. Warburton, Poutu, and Domigan 4.
31. Blair 18.
32. Blair 25.
33. C. Jones and R.J. Toft, *Impacts of mice and hedgehogs on native forest invertebrates: a pilot study*, DOC research & development series no. 24, 2006, accessed May 1 ,2007 <<http://www.doc.govt.nz/Publications/004-Science-and-Research/DOC-Research-and-Development-Series/PDF/drds245.pdf>>
34. Debra J. Wilson, Wendy A. Ruscoe, Larry E. Burrows, et al., "An experimental study of the impacts of understorey forest vegetation and herbivory by red deer and rodents on seedling establishment and species composition in Waitutu Forest, New Zealand," *New Zealand journal of ecology* 30:2 (2006): 191-207.
35. Eric B. Spurr, Jim D. Coleman, *Review of Canada Goose population trends, damage, and control in New Zealand*, Landcare research science series ; 30, Landcare, 2005, accessed May 10, 2007 <http://www.mwpress.co.nz/store/downloads/LRSS_30_Spurr4Web.pdf>
36. "Rabbits," Environment Waikato, accessed Aug. 6, 2006 <<http://www.ew.govt.nz/enviroinfo/pests/animals/rabbits.htm>>
37. "Rabbits," Environment Waikato, accessed Aug. 6, 2006 <<http://www.ew.govt.nz/enviroinfo/pests/animals/rabbits.htm>>
38. Walter C. Clark, "Rabbit disease: can we afford the risks?" accessed Aug. 6, 2006 <<http://members.iinet.com.au/~rabbit/clark.htm>>
39. R.G. Clark et al, "A chondropathy of the pinna in rabbits associated with rabbit haemorrhagic disease," *New Zealand veterinary journal* 47.1 (1999): 8-12.
40. Richard Heyward, John Parkes and Grant Norbury, "Antibody status of predators, scavengers and hares following RHD epidemics," accessed Aug. 6, 2006 <<http://members.iinet.com.au/~rabbit/nzrcdsem.htm>>
41. G. Norbury, R. Heyward, J. Parkes, "Short-term ecological effects of rabbit haemorrhagic disease in the short-tussock grasslands of the South Island, New Zealand," *Wildlife research* 29 (2002): 599–604.
42. "Rabbit Haemorrhagic Disease (Calicivirus) to be released, 12 June 2006," Auckland Regional Council, accessed Aug. 6, 2006 <<http://www.arc.govt.nz/arc/index.cfm?88F08791-BCD4-1A24-9DE9-E5E959F47B1C&entryID=D5DD4F13-BCD4-1A24-99BD-D607A3A81EA0>>
43. Dave Hansford, "No high noon for Billy and the kid," *Forest & bird* 315 (2005): 33-35.
44. "Feral goats," Horizons.mw, accessed July 22, 2006 <<http://www.horizons.govt.nz/images/Feral%20Goats.pdf>>
45. Hansford 33-35.
46. Dave Hansford, "The pig's back," *Forest & bird* Aug. 2004: 20-23.
47. "Moggie lover slams TRC cat killers," *Taranaki daily news* June 29, 2006: 3.

48. B. Warburton and N. Poutu, *Effectiveness of three trapping systems for killing feral cats* (Wellington, N.Z.: Dept. of Conservation, c2002): 4.
49. *Kaimanawa wild horses working plan 2004 – 2009*, Department of Conservation, accessed Jan. 29, 2007 <<http://www.doc.govt.nz/templates/MultipageDocumentPage.aspx?id=40027>>
50. "Fight to save desert ponies not over," Kaimanawa Horse Breed Society, accessed Jan. 8, 2007 <<http://www.horsetalk.co.nz/kaimanawahorses/articles/jan03-sst.shtml>>
51. "Annual muster," Kaimanawa Wild Horse Welfare Trust Inc. accessed Jan. 7, 2007 <<http://kaimanawa.homestead.com/AnnualMuster.html>>
52. *Kaimanawa wild horses working plan 2004 – 2009*.

Chapter 12

Animal experiments

Our story of animal suffering and abuse in New Zealand ends with vivisection, which in turn links us back to agriculture. Every year, over a hundred thousand animals are used in agricultural research procedures. Farm animals are experimented on in an attempt to make them grow faster, have more babies, use their food more efficiently, or to improve the quality of their milk or flesh. New veterinary treatments for disease and parasites may also be trialled. Rather than improving animal welfare, such new therapies are often designed to enable farmers to raise animals more intensively, creating more stress for the animals.¹ Procedures range from surgical manipulation and infection with parasites, to genetic manipulation.

However, the agricultural industry is not the only source of animal suffering. Institutions and companies use many animals in commercial, medical, “pest” control, aquaculture or psychological research projects. Researchers may carry out mutilations or live dissections. They also infect animals with diseases, inject them with drugs, or poison them with toxic chemicals. A small but significant number of animals are used for teaching purposes in schools or tertiary institutions. In recent years, the numbers of animals used in genetic modification or cloning experiments has increased dramatically. Over 250,000 live animals suffer in laboratories every year in this country. Universities, commercial companies, and crown research institutes perform experiments on live sheep, mice, cows, pigs, rabbits, rats, birds, cats, dogs, guinea pigs, horses, deer, and many other species.

Every year the National Animal Ethics Advisory Committee (NAEAC) reports on the number of animals used in research, testing, and teaching. The Committee grades experiments as causing from “little or no suffering” to “very severe suffering.” The numbers reported each year vary, as the animals used in long term experiments are only reported either when the project finishes, or once every three years. It is therefore difficult to make year to year comparisons. However, hundreds of thousands of animals continue to suffer every year. The figures supplied by NAEAC are fairly limited in their application. They do not recognise the pain of animals who die in the course of experiments, or are slaughtered when the research is complete. The official statistics also fail to acknowledge the boredom, loneliness and frustration that many animals suffer while confined in barren and cramped laboratory cages.² In particular, caging animals in metabolism crates and stalls where their movements are extremely restricted leads to stress and abnormal and stereotypic behaviours.³ Standard laboratory procedures such as taking blood sam-

ples or catheterization can cause considerable pain and distress. In cattle, simply placing a catheter in the jugular vein (a common procedure) causes the animal to show increased levels of the stress hormone cortisol for up to two hours.⁴

Experimental animals often end their lives as petfood. In 2003, 60 sheep who had had the hormone zeranone tested on them were sent to Medallion Petfoods to be slaughtered for dogfood. However, there was a scandal when the sheep were sent by mistake to Frasertown Meat Co, north of Wairoa, for export for human consumption.⁵

There has been considerable controversy over whether human health can be advanced through animal experiments. C. Ray and Jean Greek outline many of the arguments against animal testing in their book, *Sacred cows and golden geese*, pointing out that research based on manipulating laboratory animals is expensive, unnecessary, and inaccurate due to the extensive physiological and biochemical differences between humans and animals.⁶

Animal experimentation statistics for 2005

In 2005, 263,214 animals were used for research, testing or teaching by 104 organisations or companies.⁷ These figures were up by almost 20,000 on the previous year. A quarter of all animals were used to test chemical or pharmaceuticals, while a further 20% were used in basic biological research.⁸ 79,000 sheep underwent experiments, along with 67,000 mice, 37,000 birds and 28,000 cattle, 765 cats, 697 dogs, and 577 pigs. These numbers included 780 unborn baby mammals. Around half of all these animals died or were killed as a result of experiments, while around 5% had previously been used in experiments.⁹ 40% of all animals were used by universities, 21 percent by crown research institutes, and 38 percent by commercial companies. Schools, polytechnics, and government departments also used small numbers of animals.¹⁰ 16,000 animals, mainly rats, mice, sheep and cattle (but also 9 cats and 2 pigs) endured experiments which researchers described as causing severe or very severe suffering. Nearly 30,000 animals were subjected to procedures causing moderate suffering.¹¹

An overview of institutions carrying out experiments on animals: AgResearch, Landcare New Zealand, NIWA, Otago University Animal Breeding Centre, Massey University, Auckland University, Canterbury University, Schering Plough, Living Cell, Valley Animal Research Centre

The crown research institute AgResearch is the single largest user of animals in experiments, killing thousands in agricultural research experiments. AgResearch refused to supply its animal experimentation figures in 2005. According to figures obtained under the Official Information Act, AgResearch experimented on 61,160 animals in 2004. 55 animals (ferrets, mice, and rats) were subjected to “severe” suffering, and 473 animals experienced “very severe” suffering.¹² In recent years AgResearch has performed genetic modification and cloning experiments on cows and sheep, and parasite research on sheep, in which sections of their gut are cut away.

Landcare New Zealand, another crown research institute, carries out numerous “pest control” experiments, testing traps and poisons on hedgehogs, opossums, stoats, ferrets,

and cats, rats, and pigs. Landcare designs some of the cruellest experiments in the country, causing severe or very severe suffering to 2,586 animals in 2005.

The crown research institute NIWA carries out aquaculture-related experiments on fishes and shellfish. In 2005, NIWA used 2008 fish, 12 lobsters, and 20 birds in experiments, including 361 fish in moderate suffering experiments.

Universities also use large numbers of animals in experiments which often seem chiefly designed to further the careers of university academics, and the prestige of the university.

The University of Otago uses thousands of animals every year. According to figures obtained under the Official Information Act, the University of Otago experimented on 33,717 animals in 2005 (principally mice, rats, birds and fishes). This is a large increase from 23,962 animals used in 2004, and 13379 used in 2003. The figures included 11,820 SPF (specific pathogen free) mice and 2155 transgenic mice, along with 51 rats used in severe suffering experiments. One marine mammal was killed, though there are no further details about the experiment. The Otago University Animal Breeding Centre in Mosgiel breeds and supplies large numbers of rabbits, guinea pigs, rats and mice to vivisection laboratories around New Zealand. Animal researchers at Otago University include Paul Smith and Cynthia Darlington who have been carrying out guinea pig brain experiments, and David Bilkey who performs brain damage experiments on rats. Mike Colombo has in the past carried out brain experiments on pigeons.¹³

Massey University is a major centre of animal experimentation, and is closely linked to the agricultural industry. Massey refused to divulge the number of animals used in 2005, but we know that 14,950 animals were used in experiments in 2004. The University experiments on cats and dogs, as well as rats, mice, sheep, cattle, goats, rabbits, horses and deer. 50 possums were subjected to severe suffering in veterinary research experiments, and a small number of fish also endured severe suffering. Massey University has a cat-breeding unit, which holds about 200 cats, and carries out cat nutrition and pet food research, though no cats were killed in 2004. The university also maintains a dog breeding unit, with about 40-50 dogs, who are used in small numbers for biological, medical, and veterinary experiments. In 2004, 8 dogs were killed, and 53 dogs were retained for further experiments. Massey University also buys dogs from farms and commercial suppliers. Some of the dog research involves nutrition experiments, in which dogs are kept in individual cages for a few months, and then killed and dissected.¹⁴ Massey University runs the Animal Health Services Centre (AHSC), commercial animal testing facility described as New Zealand's "premier contract animal research centre ... able to assist with all your animal manipulation requirements." The AHSC was established in 1986, and has been performing increasing numbers of animal tests for overseas companies. It specialises in toxicity, "safety," and residue determination experiments. In 2005, the AHSC used 471 animals, including cattle, deer, guinea pigs, rats, and rabbits. In 2007, part of AgResearch moved to Massey University. The Hopkirk Research Institute, a collaborative venture between AgResearch and Massey, opened on March 23, 2007. The Institute cost \$17 million to establish, and employs 70 scientists. Its main focus is research into farm animal productivity, with emphasis on investigating parasitic diseases and developing new vaccines.¹⁵

Auckland University also uses many animals, though numbers have declined in recent years. The University experimented on 9,946 animals in 2005, including 941

transgenic mice and 5 transgenic fish. 107 sheep were used in severe suffering experiments, and 71 dogs were used in veterinary research experiments (though these were described as causing little suffering). In 2004, 35 dogs were used in a veterinary experiment. They were obtained from a laboratory animal breeding unit, and later “disposed of”, which may mean that they were put down or returned to the laboratory breeder.

In 2005, the University of Waikato and Victoria University of Wellington used relatively small numbers of animals in experiments. The Christchurch School of Medicine uses mice, rabbits, sheep and rats in experiments. In 2005 they used 1109 animals, including 856 transgenic mice and 20 sheep. Very little is known about this research, however the National Anti Vivisection Campaign believes that researchers Chris Charles and Miriam T. Rademaker are using the sheep in heart failure and heart surgery experiments.¹⁶

Canterbury University used 2901 animals in 2005, most of these rats or fish. Published research indicates that Professor John Dalrymple-Alford has been researching the effects of brain damage on rats’ ability to remember,¹⁷ Rob Hughes has been administering CNS drugs to rats, and the late Larry Kokkinidis and his team were performing fear conditioning experiments on rats in 2006.¹⁸

Lincoln University has consistently refused to disclose any details of experiments or the number of animals used.

Nearly 40 percent of all experimental animals are used by private companies. The majority of these have refused to release details of the experiments carried out or number of animals used. However, we know that Schering Plough Animal Health, located in Upper Hutt, is a particularly unpleasant company, performing very severe suffering experiments on guinea pigs. In Auckland, Living Cell performs xenotransplantation experiments on mice and pigs, while South Pacific Sera, in South Canterbury produces blood products for the biotechnology market, which involves extracting large quantities of blood from live animals. The Valley Animal Research Centre Ltd is a contract research establishment with facilities in Hastings and the Manawatu. The Centre carries out experiments for the pharmaceutical, biotechnology, and medical device industries. These include tests on domestic and companion animals, and in particular experiments on beagle dogs.¹⁹ It is headed by Allen Goldenthal, who describes himself as an ‘in vivo’ and biopharmaceutical specialist. Goldenthal was involved in toxicity testing on animals at Pasteur-Merieux-Connaught’s Animal Resources and Pathology Centre²⁰ before he became director of Massey’s Animal Health Services Centre (now Estendart Ltd.) and now the Valley Animal Research Centre.

Animal experiments carried out for the agricultural industry

The majority of live animal experiments are performed to enhance the profits of the agricultural industry. Every year, agricultural chemicals, vaccines and other veterinary products are tested on around 60,000 animals. 44,000 animals are used directly in animal husbandry experiments, and a further 40,000 in veterinary research. While some of this research is non-invasive, many experiments cause moderate or severe suffering. Nutrition and parasite research involves some very painful and intrusive procedures. The testing of veterinary products causes severe suffering to thousands of mice.²¹ Genetic

manipulations (described later) are carried out on farm animals to increase their productivity.

In recent years, the Crown Research Institute AgResearch has carried out some very unpleasant internal parasite research in sheep in recent years. Between 1996 and 2000, AgResearch published the results of 15 experiments which involved surgical manipulations or other intrusive procedures. In some experiments, the sheep endured “cut and paste” operations where sections of their intestines were cut out and separated from the rest of their gut, so that manipulations could be carried out on their intestines. Some of these experiments had no short-term application, or the only application was in increasing agricultural productivity, while others duplicated previous research.²²

In another parasite experiment, published in 2006, six week old lambs were deliberately infected with nematode parasites and left untreated to investigate whether suckling from their mothers had any effect on the severity of infection. The lambs were then killed and dissected at 84, 112 or 140 days of age.²³

Massey University scientists carry out large numbers of experiments for the agricultural industry. Massey University professor David Mellor is the former chairperson of the National Animal Welfare Advisory Committee. Ironically, he is also a researcher who performs pain and stress experiments on animals. He and his colleagues have performed large numbers of experiments on cattle and sheep to investigate the suffering that they experience as part of normal farm practices. These experiments often involve more pain and suffering than the animals would experience on the farm, and produce predictable results that seem to add little to the body of scientific knowledge. In March 2002, Mellor examined the response of calves to different methods of castration with or without anaesthetic. All methods caused significant pain and distress, but, unsurprisingly, administering an anaesthetic reduced the pain to some extent.²⁴ Mellor has also carried out lamb castration and tail docking experiments,²⁵ and cattle dehorning research. Recently Mellor has carried out pain and stress experiments on baby wallabies (Massey University has a colony of captured wild tammar wallabies²⁶). Researchers squeezed the paws of joeys of various ages with forceps for 30 seconds, while measuring their EEG. The experiment was designed to determine when foetal animals become capable of suffering during neonatal development.²⁷

Also at Massey, veterinary neurophysiologist Dr Craig Johnson has been performing experiments to measure pain and stress in farm animals. In 2005, he and his team castrated 2 and 4 week-old lambs, and measured their brain activity with electroencephalograms to investigate how their perception of pain varied with age.²⁸ Johnson claims to have developed a “painless method of measuring pain in animals,” by performing painful procedures under anaesthetic, then measuring brain activity.²⁹ However, manipulations such as castration cause prolonged pain that outlasts the duration of any anaesthetic. Specifically, castrating lambs can lead to long term consequences such as chronic pain, hyperalgesia, phantom pain, and neuropathic pain.³⁰ The question still remains – why does he wish to devise a seemingly tautological method to measure pain in the first place? Surely it is better simply to avoid causing pain to animals.

Nutrition research also involves large numbers of animals. Although nutrition research sounds fairly innocent, such experiments are often extremely invasive. Many nutrition studies involve pregnant animals being starved, or malnourished. In one such experiment, published in 2006, pregnant rats were fed a protein deficient diet. Their ba-

bies were then killed and dissected to examine their pancreatic tissue, which was found to be abnormal.³¹ Both AgResearch and Massey University perform nutrition research on cows, which involves fitting a plastic window or “fistula” into the gut wall. The contents of the gut are then manipulated through the fistula, and samples of partly digested food are removed to investigate the cow’s digestion.

Massey University has also placed windows in the stomachs of deer. In one such experiment (designed to investigate blood ascorbic acid levels in red deer at slaughter), large quantities of ascorbic acid were inserted into the stomach of fistulated deer, who were then kept indoors without food for 30 hours. Blood and stomach fluid samples were regularly removed.³²

Schering Plough Animal Health is an Upper Hutt company that manufactures sheep and cattle vaccines for farmers. The National Anti Vivisection Campaign believes that each batch of vaccines is tested on guinea pigs, who are then infected with painful diseases such as pulpy kidney, to test whether the vaccine is effective. Schering Plough refused to release the numbers of animals they used in 2005. However the figures from previous years indicate that hundreds of guinea pigs are subjected to very severe suffering experiments every year. The company exports over 80 per cent of their products to Australia, the European Union, North America and Africa.

Transgenic and cloned animals

In recent years, many animals have been genetically modified and/or cloned in agricultural research experiments. While many New Zealanders are concerned about the health and environmental implications of genetic engineering, little consideration has been given to animal suffering. National animal advocacy group SAFE was the only voice for animals allocated “interested person status” by the 2003 Royal Commission on Genetic Modification. The manipulation of animal eggs and embryos is not regulated by the Animal Welfare Act, even though such manipulations can cause pain and suffering both to the surrogate mother and the baby animal.

Transgenic animals are created through transferring a gene from one species into another, usually either to “improve” the animal in some way (for example so that her flesh contains more muscle and less fat), or to produce commercial quantities of a pharmaceutical. In New Zealand, animals such as cows, goats, sheep, and rabbits have been genetically modified to produce pharmaceuticals in their milk. According to figures obtained under the Official Information Act, universities and medical schools performed experiments on nearly 4,000 transgenic mice and five transgenic fish in 2005.

The creation of cloned animals causes much suffering. Cloned animals are produced either through the splitting of early stage embryos to produce multiple identical animals, or through “somatic nuclear transfer.” In the latter process, cells from a donor animal are cultured in vitro, and the cell nucleus is extracted and fused with an egg cell from which the nucleus has been removed. The egg cell is then inserted into the uterus of a surrogate mother animal, with the hope that it will grow into an embryo and eventually a young animal, genetically almost identical to the original donor.³³ The extraction of eggs and insertion of embryos into surrogate mothers can be extremely painful to the female animals involved. Sometimes surgical operations are used to implant the embryos. Cloning experiments also show a high rate of failure. Cloned embryos often

abort or die inside the uterus; babies that survive to be born often exhibit terrible birth defects,³⁴ die early, or suffer from chronic diseases.³⁵ Foetuses that survive are likely to be unusually large, necessitating a Caesarean section delivery, and causing pain and trauma to the mother.³⁶ A 2002 study of cloned cattle showed that there were only 106 births for 2,170 implanted embryos. Of the 106 live calves, 24 died soon after birth. 11 of these showed severe abnormalities, such as digestive abnormalities, skeletal problems, deformities in the urinary tract, or respiratory failure.³⁷ A survey of research published in 2002 indicated that the maximum recorded success rate for live and viable offspring was only 18 per cent.³⁸ A more typical success rate was 2 %, meaning that for every 100 embryos implanted in surrogate mothers, 98 failed to produce live animals.³⁹

The multinational corporation PPL Therapeutics attracted much media attention when it produced Dolly, a cloned sheep. In 1996 the company carried out New Zealand's first field trial of genetically modified animals. Researchers inserted human genes into sheep at the Whakamaru research farm in the Waikato, with the aim of producing the human protein AAT in sheep's milk. PPL Therapeutics claimed that the protein could be used in medicines to treat cystic fibrosis and emphysema. However, the work was put on hold after PPL's partner company Bayer shut down the trials, saying they were too costly. In 2003, the flock of three thousand genetically modified sheep and one thousand normal sheep were slaughtered. Clinical trials have since shown AAT to be relatively ineffective in treating cystic fibrosis in humans.⁴⁰

In 1998 and 1999, sheep and cow cloning experiments were carried out at AgResearch. Researcher David Wells flushed out donor eggs from a superovulated ewe, and he and his team implanted cloned embryos into 37 ewe surrogate mothers. Only 3 lambs were born, all by caesarean section. One of these lambs only survived for 10 minutes after birth, while other lambs aborted, or died inside the uterus. One ewe was killed to remove her dead foetus.⁴¹ AgResearch has also attempted to make cow clones, using cells from the last surviving Enderby Island cow. However, only two calves were born from 22 implanted cows. One of the calves had digestive system defects, and was euthanased after two days, and one of the surrogate mother cows suffered from water in the placenta⁴².

Aquaculture research

As New Zealand's aquaculture industry grows, increasing numbers of fish experiments are being carried out. Aquaculture research makes use of stressful handling procedures such as tagging, injections, implants, and biopsies. Even if fish are anaesthetised first, this in itself may be stressful. Injections are commonly used to induce spawning, and blood samples are taken (usually from the caudal vein of anaesthetised fish). Pellet hormone implants are administered intramuscularly into broodstock, and ovarian biopsy techniques are used to assess sexual development. Such biopsies involve inserting a cannula through the genital pore of the fish into the ovary, and removing a small sample of tissue.⁴³

In 2005, Canterbury University carried out experiments on salmon in which a condition called Gastric Dilation Air Sacculitis syndrome was induced in salmon. The syndrome causes a distended abdomen, gastric dilation, osmoregulatory dysfunction and increased mortality.⁴⁴

At Otago University Dr Mark Lokman has been carrying out stress experiments on seahorses, aiming to investigate the stress response in pot-bellied seahorses when they are transported for use in Chinese medicine or sold to aquariums. A 2005 study indicated that both containment and transportation of the seahorses caused a chronic stress response,⁴⁵ the fishes' cortisol and glucose levels rising significantly.⁴⁶ The study concluded, however, that seahorses did not suffer more during transport than other fishes, so no special treatment was warranted. Seahorses therefore gained no benefit from the research.

Medical experiments

The National Anti Vivisection Campaign has obtained information about guinea pig brain experiments carried out over the past ten years at Otago University by a team headed by Professors Paul Smith and Cynthia Darlington. This research involved destroying the inner ear organs of guinea pigs on one side of the head, in a surgical procedure called "unilateral labyrinthectomy."⁴⁷ The team has also performed similar research on rats. In one such study, the inner ear organs of rats (vestibule and labyrinth) were destroyed by drilling. The rats were then decapitated, and their brains removed, dissected, and studied to determine the effects of the surgery,⁴⁸ and particular any changes in gene expression within the affected tissues. Also at Otago University, researcher David Bilkey has performed numerous brain damage experiments on rats. One such experiment involved inflicting brain lesions on rats and implanting electrodes into their brains, to investigate the effects of injury on the rats' memories.⁴⁹ In 2005 Otago University infected baby mice with rotavirus, causing the mice to experience severe diarrhoea. The mice were killed at just 18 days of age.⁵⁰

At Canterbury University, researchers Chris Charles and Miriam T. Rademaker have been using sheep in heart failure and heart surgery experiments. In 2002 they published the results of research which involved inducing heart failure in sheep, and then injecting them intravenously with hormones.⁵¹ ⁵² In one such experiment, they inserted catheters into the heart, pulmonary artery, and bladder of 16 sheep, and stitched an electrode to the left ventricle of the heart. They then induced heart failure in the sheep through electrical pacing of the left ventricle at 225 beats per minute for 7 days. 18 of the sheep then received an intravenous infusion of human adrenomedullin. The sheep were kept in cages throughout the experiment.⁵³

Living Cell Technologies is an Auckland-based company that uses animals in xenotransplantation experiments. The company breeds specific pathogen free (SPF) pigs, and then uses cells from the piglets in xenotransplantation studies which involve mice and pigs, aiming to develop new diabetes treatments. In one such experiment, insulin-producing pig cells were injected into the peritoneal cavity of diabetic mice and nondiabetic monkeys.⁵⁴ The primate experiments have all been carried out overseas, often in Singapore.⁵⁵

Pig-based xenotransplantation procedures pose a considerable risk to human health. According to Health Research Council chief executive Bruce Scoggins, "There are very real concerns about the transfer of viruses from animals to humans,"⁵⁶ with the possibility of porcine endogenous retroviruses triggering disease in human transplant recipients. When Living Cell (then called Diatranz), transplanted insulin-producing pancreas

cells from pigs into a human patient in Mexico, there was considerable scepticism as to whether the experiment was successful.⁵⁷ A proposed Russian trial that plans to implant pig pancreatic cells into diabetics has been strongly criticised by researchers and ethicists.⁵⁸

Living Cell has reported one possible human success. Ten years ago, the company implanted pig pancreatic cells in the abdominal cavity of Auckland diabetic Michael Helyer. Since then, Helyer's diabetic condition has improved. However it is uncertain whether this is due to the pig cells, and Helyer's improvement may well be due to lifestyle factors.⁵⁹

Living Cell also performs experiments which involving transplanting brain cells from pigs into animals whose brains have been deliberately injured. These experiments aim to find treatments for stroke victims and Huntington's disease patients.⁶⁰ In one such experiment, researchers introduced quinolinic acid, a nerve poison, into the brains of seven primates, causing lesions in the striatum area of the brain. Three of the monkeys were then injected with live pig brain cells.⁶¹ These trials were carried out in Rhode Island. Living Cell claims to be concerned about human health. However, even if such procedures work in humans, ethical concerns remain around the injection of live animal cells into human brains, and there is still the risk of pig viruses being transmitted across species.

Also in Auckland, physiology professor Simon Malpas of Auckland University performs 'severe suffering' experiments on rabbits, while researching the role of the renal nerve in the control of blood pressure. Electrodes and cannula are implanted into living rabbits,⁶² and sometimes high blood pressure is artificially induced⁶³. Many of these experiments are performed on fully conscious animals.⁶⁴ ⁶⁵ In a typical experiment performed in 2006, 12 rabbits were experimented on. Researchers performed abdominal surgery on the animals to insert radiotelemetry transmitters. Cannulas were inserted into the rabbits' arteries, with the bulk of the transmitter inserted into the abdominal cavity. The rabbits' baroreceptor nerves were cut, or, in the case of a control group of animals, a "sham" surgery was performed in which the nerves were exposed but not cut. Intravenous lines were also inserted into the rabbits' ear veins, and their hearts infused with phenylephrine and sodium nitroprusside. Two weeks after the arterial surgery, electrodes were inserted through the rabbit's flanks. The rabbits were kept throughout in tiny cages (45 x 65 x 65 cm)⁶⁶.

In South Canterbury, the company South Pacific Sera Ltd produces blood and blood products for the biotechnology market, including polyclonal antibodies. Animals used to produce blood products include sheep, horses, and other farm animals. Typically, animals are injected with chemicals to induce the production of antibodies. This often causes acute pain, distress, and pathological changes in the animal. Animals can be injected in any part of their bodies, including lymph nodes, spleen, footpad or penis, and their blood is later extracted to harvest the antibodies.

Animals killed for teaching purposes

School and university students use a small but significant number of animals in experiments. In 2005, there was a 7.5 fold increase in the number of live animals used for research and teaching. While some of the research was non-invasive, students and teachers used birds, cats, dogs, sheep, cattle, and mice in a wide range of experiments and manipulations. The official figures do not include the thousands of animals who die so that their bodies can be dissected.

Psychological experiments

Most animal-based psychological experiments in New Zealand are carried out on rats in university laboratories. These include drug addiction, brain damage, and fear experiments.

Susan Schenk and Dave Harper from Victoria University have been performing drug experiments on rats. Harper has administered the drug scopolamine to rats, and then tested whether they can remember which lever to press to obtain food. He has also injected rats with ecstasy, and investigated the drug's effect on their memory and ability to run mazes.⁶⁷ Susan Schenk specialises in drug addiction (metamphetamine, cocaine and ecstasy) experiments on rats. In a recent study, she and her team administered ecstasy (MDMA) to rats, and studied the effect on their behaviour, excitement and activity levels.⁶⁸ In earlier studies, she investigated the effect of drugs on the memory of rats. Typical experimental protocols involved implanting a tube into the jugular vein of rats, who had been starved until they had lost 15 per cent of their bodyweight. The rats were then trained to press a lever to the left when a light was on, and to the right when a light was off. Different drugs were injected through the tube into the jugular vein, and the rats were tested again to see what effect the drug had on their memory. Rats were routinely killed at the end of experiments. Schenk also carried out experiments in which rats pressed a lever to administer ecstasy or cocaine to themselves.⁶⁹ ⁷⁰ Also at Victoria University, Jan Lauwereyns has been performing neurophysiological and psychopharmacological experiments on rats. Lauwereyns and his team administer drugs to rats, to determine how this affects the animals' ability to perform spatial-discrimination tasks.

Such experiments are usually justified with the argument that they may provide insights into drug addiction in humans. However, there are vast psychological and physiological differences between rats and humans. It seems more useful to carry out clinical studies involving volunteers from the vast pool of people who are already taking drugs. Focussing on animal-based research draws attention away from the social and environmental factors that lead many people to seek refuge in drugs.

Neil McNaughton from the University of Otago has been performing experiments involving the anti-anxiety drug chlordiazepoxide. The drug was administered to rats, who were then made to run a radial maze, testing their ability to remember which arms of the maze were baited with food.

At Canterbury University, a team lead by John Dalrymple-Alford has been performing brain damage experiments on rats. Dalrymple-Alford and his team systematically create lesions in different parts of rats' brains, and then investigate how this affects the animals' ability to perform tasks such as running through and remembering the

different parts of a maze.⁷¹ Also at Canterbury University, the late Larry Kokkinidis and colleagues have carried out fear conditioning experiments in rats. According to their website, “the primary aim of their research is to study in laboratory rats the neural mechanisms underlying the expression of fear and anxiety following electrical brain stimulation of kindling sensitive neural regions.”⁷² Electrical shocks and/or loud sudden noises are used to create fear in caged rats. The cages are specially designed to measure the amount the rat moves. Sometimes drugs are administered to the rats first, to see how this affects the fear response. At the time of his death in September 2006, Kokkinidis was working on a project which involved causing irreversible damage to different areas of the forebrains of rats, and testing how they responded when their paws were electrically shocked.⁷³

For over 20 years, Canterbury researcher Rob Hughes has led a research programme into the pre- and early post-natal effects of CNS drugs on the behaviour of laboratory animals. He is currently supervising a thesis on the “Effects on rats of treatment during adolescence with benzylpiperazine.”⁷⁴

Toxicity testing

While personal or household products do not appear to be tested on animals in New Zealand, a number of New Zealand institutions do test pharmaceutical, veterinary or agricultural products on animals.

Registering a pesticide or animal remedy that contains a new active ingredient or chemical requires a full toxicology assessment under New Zealand law. For compounds such as pesticides, a maximum residue limit (MRL) is set. This assessment is undertaken by the Agricultural Compounds and Veterinary Medicines Group (ACVMG), and may include mammalian toxicology data, environmental fate and environmental toxicological data. Mammalian toxicology studies can include acute oral studies, acute dermal studies, acute inhalation studies, skin irritation/corrosion studies, eye irritation/corrosion studies, skin sensitisation studies, subchronic toxicity studies, reproduction studies, developmental studies, carcinogenicity studies, genotoxicity studies, long term toxicity studies, metabolism/toxicokinetic studies, or other target organ studies.⁷⁵ The details are specified more precisely in the ACVM Registration Standard for Toxicology and Environmental Toxicology. In 2005, over 60,000 animals, mostly mice, had chemicals tested on them. Most commonly this involved agricultural chemicals, vaccines and other veterinary products. Neither the LD50 toxicity test nor the Draize eye irritation test appear to be currently used in New Zealand. The Lethal Dose 50 Test (LD50), which involves giving animals chemicals in sufficient amounts to kill half of them, is an extremely unreliable indicator of toxicity, and was removed from the OECD’s test guidelines in 2002. However the 3 tests which replace it all require the use of live animals, and two of the three tests require animals to die as a result of the experiment.⁷⁶

Every year, thousands of mice die in very severe suffering experiments conducted for the seafood industry. The New Zealand Food Safety Authority manages the programme for testing marine biotoxins in shellfish. The NZFSA contracts scientists to perform bioassays on mice, poisoning them with algal toxins such as saxitoxins, which cause paralytic shellfish poisoning. Apart from causing terrible suffering to animals, the mouse bioassay method is also unreliable. According to the German Federal Institute for Risk

Assessment, the mouse bioassay does not recognise health-relevant toxins on a sufficient scale and the results vary depending on the mouse strain, gender and weight of the animals. The mouse bioassay cannot be used to monitor compliance with maximum levels for algae toxins. Germany prefers chemico-physical methods to detect algal toxins,⁷⁷ and 2 of the 4 categories of marine biotoxin found in New Zealand are already tested using non-animal methods such as liquid chromatography mass spectrometry (LC-MS).⁷⁸

Environmental research

Birds, fishes and marine mammals are often tagged to monitor their movements, and non-invasive methods such as acoustic studies and aerial surveys are also used. Much environmental research causes relatively little harm to animals. However, in 2004, the Department of Conservation carried out a satellite tagging trial on Hector's dolphin, a rare dolphin species. There are only around 7,800 Hector's dolphins still alive.⁷⁹ The trial was carried out despite opposition from DOC's own marine mammal scientists, independent experts, and conservation and animal welfare groups. The experiment involved bolting tracking devices onto the dorsal fins of dolphins. In March 2004, 3 dolphins were captured. Each animal had four holes drilled into his or her dorsal fin, to allow the satellite transmitter tags to be bolted on. The dolphins were released with the transmitters, which worked for around 90 days. However, the tags must have remained attached to the fins for many months before the bolts eventually rusted and broke. Overseas studies of similar procedures found that the tags first became loose and could cause severe damage by ripping the dolphins' dorsal fins. According to zoologist and dolphin expert Liz Slooten, non-invasive research methods, such as acoustic, boat-based, and aerial surveys, can give the same data without the potential for trauma and damage to the dolphins.⁸⁰ The intention of the trial was to test the process in preparation for large scale tagging of the very rare Maui's dolphin. While the Department of Conservation claims that the initial trial involving three dolphins was successful, no more dolphins appear to have been tagged.

“Pest control” experiments

Every year, Landcare New Zealand and the Department of Conservation carry out experiments to try and determine more efficient ways of killing wild animals who have been designated as pests. In 2005, 2196 possums, 9 wild cats, 2 pigs, 7 hedgehogs, 9 ferrets, and 14 stoats endured severe or very severe suffering in experiments designed to test the killing power of poisons, toxic baits and new trap designs.

Landcare designs some of the cruellest experiments in the country, causing severe or very severe suffering to 2,586 animals in 2005. These included trap and poisoning experiments involving cats, hedgehogs, and pigs. In May 2005, seven hedgehogs died in a severe suffering experiment designed to test new traps, the justification being that hedgehogs may eat some native invertebrates. The experiment was carried out even though Department of Conservation researchers have found no conclusive evidence that hedgehogs have a significant impact on invertebrate populations. Last year, Landcare carried out diphacinone poison experiments on piglets, investigating the possible use of diphacinone as an alternative poison to brodifacoum. A group of 12 piglets was kept in

a 10 x 12 meter pen with a concrete pen and fed poison mixed into sugar dough. Two of the pigs were euthanased before the trial finished, due to severe haemorrhage of their leg joints causing increasing lameness.⁸¹ Landcare researcher C.E. O'Connor and team have just published the results of a very cruel experiment on possums. The scientist captured 18 wild possums and poisoned them with phosphorus paste. The poisoned possums crouched in agony and two thirds retched or vomited. They died slowly over a 25-hour period, remaining conscious until around 1 hour before they died, "implying that they were able to experience pain and distress from the effects of ingestion of phosphorus for almost the entire period of illness."⁸²

We also know that in 2002 Landcare carried out 1080 poisoning experiments on farm animals, investigating the elimination of 1080 from the milk of sub-lethally exposed livestock.⁸³

While the Department of Conservation does not torture animals on the same scale, in 2005 DOC used a kereru in a severe suffering experiment and five tui in moderate suffering experiments.

The crown research institute NIWA has also carried out experiments related to pest control. In 2006, NIWA carried out 1080 bait experiments on crayfish,⁸⁴ and a set of lethal experiments on freshwater "pest" fishes. Researchers killed carp, tench, perch and rudd by immersing them in increasing concentrations of salt water until all the animals were dead.⁸⁵

Notes

1. Andrew Brennan, "Research with farm animals: some moral queries," in: *Farm animals in research : can we meet the demands of ethics, welfare, science and industry* (Adelaide: ANZCCART, 2001): 111.
2. Ellen Jongman, "Environmental enrichment for experimental farm animals : science and myths," in: *Farm animals in research : can we meet the demands of ethics, welfare, science and industry* (Adelaide: ANZCCART, 2001): 64.
3. Andrew Fisher, "Are your experimental livestock "normal"? : minimising the potential effects of experimental conditions on their physiology and behaviour," in: *Farm animals in research : can we meet the demands of ethics, welfare, science and industry* (Adelaide: ANZCCART, 2001): 61.
4. M.G.S. Alam and H. Dobson, 'Effect of various veterinary procedures on plasma concentrations of cortisol, luteinising hormone and prostaglandin F2a metabolite in the cow,' " *Veterinary record* 118 (1986): 7-10, in: *Farm animals in research : can we meet the demands of ethics, welfare, science and industry* (Adelaide: ANZCCART, 2001): 61.
5. Anna Wallis, "Hormonal hoggets headed for Sunday roast," *Manawatu standard* June 11, 2004: 1.
6. D. Ray Greek and Jean Swingle Greek, *Sacred cows and golden geese : the human cost of experiments on animals* (New York: Continuum, 2000)
7. *National Animal Ethics Advisory Committee annual report 2005*, National Animal Ethics Advisory Committee, accessed Sept. 9, 2006 <<http://biosecurity.govt.nz/files/animal-welfare/naeac/annual-report/naeca-ar-05.pdf>>
8. *National Animal Ethics Advisory Committee annual report 2005* 24
9. *National Animal Ethics Advisory Committee annual report 2005* 22.
10. *National Animal Ethics Advisory Committee annual report 2005* 23.
11. *National Animal Ethics Advisory Committee annual report 2005* 24.
12. *A critique of the animal ethics committee system, 2005* (Wellington: National Anti Vivisection Campaign, 2005): 7.
13. M. Colombo, N. Frust, and W. Steedman, "Responses of ectostriatal neurons during delayed matching sample behaviour in pigeons (Columbia livia)," *Brain research* 917 (2001): 55-66.
14. A critique of the animal ethics committee system 10.
15. "Hopkirk Institute opening signals new era in animal health research," *Massey news*, accessed Apr. 27, 2007 <http://masseynews.massey.ac.nz/2007/Press_Releases/03-23-07.html>
16. *A critique of the animal ethics committee system* 10.
17. A.S. Mitchell and J.C. Dalrymple-Alford, "Dissociable memory effects after medial thalamus lesions in the rat," *European journal of neuroscience* 22(2005): 973-985.
18. "Neural regions that mediate the fear-arousing effects of footshock," Van de Veer Institute for Parkinson's & Brain Research, accessed Jan. 19, 2007 <<http://www.vanderveer.org.nz/research/projects/project.php?id=91>>
19. "Valley Animal Research Centre Ltd : science for a healthier world," *NZBioReport 2006*, accessed May 15, 2007 <<http://www.nzvca.co.nz/Pdfs/NZBioReportNovember06.pdf>>
20. "Allen Goldenthal," Massey University Institute of Veterinary, Animal & Biomedical Science, accessed May 17, 2007 <http://ivabs.massey.ac.nz/staff_indiv.asp?id=261>
21. *National Animal Ethics Advisory Committee annual report 2005*: 26.
22. Michael C. Morris, "Issues Associated with Research on Sheep Parasite Control in New Zealand – a Descriptive Ethic," *Journal of agricultural and environmental ethics* 16 (2003): 187-207.
23. S.O. Iposu, et al, "Further studies on the role of suckling in the parasite status of very young lambs infected with *Teladorsagia circumcincta*," *Proceedings of the New Zealand Society of Animal Production* 66 (2006): 187-92.
24. K.J. Stafford, D.J. Mellor, S.E. Todd, R.A. Bruce, R.N. Ward, "Effects of local anaesthesia or local

- anaesthesia plus a non-steroidal anti-inflammatory drug on the acute cortisol response of calves to five different methods of castration," *Research in veterinary science* 73 (2002): 61-70.
25. D.J. Mellor and K.J. Stafford, "Acute castration and/or tailing distress, and its alleviation in lambs," *New Zealand veterinary journal* 48 (2000):33-43.
 26. R.G. Lentle, M.C. Kruger, D.J. Mellor, M Birtles, PJ Moughan, "Limb development in pouch young of the brushtail possum (*Trichosurus vulpecula*) and tammar wallaby (*Macropus eugenii*)," *Journal of zoology* 270.1 (2006): 122–131.
 27. T.J. Diesch, C.B. Johnson, D.J. Mellor, R.G. Lentle, "EEG in the developing tammar wallaby (*Macropus eugenii*)," *ANZSCPB proceedings* 22(2005): 28.
 28. C.B. Johnson et al, "Effects of age on the electroencephalographic response to castration in lambs anaesthetised using halothane in oxygen" *New Zealand veterinary journal* 53.6 (2005):433-437.
 29. "Animal ethics award for veterinary scientist," *Massey news*, accessed June 15, 2007 <http://masseynews.massey.ac.nz/2006/Press_Releases/11-16-06.html>
 30. D.J. Mellor and K.J. Stafford, "Acute castration and/or tailing distress, and its alleviation in lambs," *New Zealand veterinary journal* 48 (2000): 33-43.
 31. M.P.G. Barnett, A.R.J. Phillips, P.M. Harris and G.J.S. Cooper, "Impaired insulin secretion in perfused pancreases isolated from offspring of protein malnourished rats," *Proceedings of the New Zealand Society of Animal Production* 66 (2006): 77-82.
 32. Tom N Barry, Roger Littlejohn, Joanne Stevenson-Barry et al., "The effect of supplementing red deer (*Cervus elaphus*) with different forms of ascorbic acid upon the concentration of ascorbic acid in rumen fluid and blood plasma," *Journal of the science of food and agriculture* 82.15(2002): 1816-1822.
 33. Michael Morris, "Genetic modification: never fear—you won't be the first to suffer," *Organic NZ* Mar./Apr. 2003: 48.
 34. Peter Fennessey, "Biotechnology for New Zealand livestock: an overview," *Primary industry management* 6 no. 2 (2003): 20.
 35. Autumn Fiester, "Ethical issues in animal cloning," *Perspectives in biology and medicine* 48:3 (2005): 22.
 36. Fiester 332.
 37. M. Pace, "Ontogeny of cloned cattle to lactation," *Biological reproduction* 67 (2002): 334-339, cited in: Fiester 332.
 38. B. Oback and D. Wells, "Donor cells for nuclear cloning: many are called by few are chosen," *Cloning and stem cells*, 4 (2002): 147-168, cited in Michael Morris, "Genetic modification: never fear—you won't be the first to suffer," *Organic NZ* Mar./Apr. 2003: 48-49.
 39. Fiester 22.
 40. S. Lorraine Martin, Damian Downey, Diana Bilton et al., "Safety and Efficacy of Recombinant Alpha1-Antitrypsin Therapy in Cystic Fibrosis," *Pediatric pulmonology* 41:2(2005):177-183.
 41. D.M. Wells, et al., "Cloning sheep from cultured embryonic cells," *Reproduction, fertility and development*, 10 (1998): 615-625, cited in: Michael Morris, "Genetic modification: never fear—you won't be the first to suffer," *Organic NZ* Mar./Apr. 2003: 48-49.
 42. D.M. Wells, P.M. Misica, and H.R. Tervit, "Production of cloned calves following nuclear transfer with cultured adult mural granulosa cells," *Biology of reproduction* 60 (1999): 996-1005, cited in Michael Morris, "Genetic modification: never fear—you won't be the first to suffer," *Organic NZ* Mar./Apr. 2003: 48-49.
 43. Wayne Hutchinson, "Aquaculture: the housing and handling of finfish and shellfish," *Farm animals in research: can we meet the demands of ethics, welfare, science, and industry?* (Adelaide: ANZCCART, 2001): 94.
 44. L.G. Forgan, M.E. Forster, "The gastrointestinal physiology of chinook salmon, *Oncorhynchus tshawytscha* (Walbawum) affected by Gastric Dilatation Air Sacculitis (GDAS)," *ANZSCPB proceedings* 22 (2005): 30.

45. K.A. Wright and P.M. Lokman, "How stressed do seahorses get? a study into the stress response of the pot-bellied seahorse (*Hippocampus abdominalis*)" *ANZSCPB proceedings* 22 (2005): 359.
46. K.A. Wright, C.M.C. Woods, B.E. Gray, P.M. Lokman, "Recovery from acute, chronic and transport stress in the pot-bellied seahorse *Hippocampus abdominalis*," *Journal of fish biology* 705 (2007): 1447–1457.
47. *A critique of the animal ethics committee system* 11.
48. Arata Horii et al., "Microarray analysis of gene expression in the rat vestibular nucleus complex following unilateral vestibular deafferentation," *Journal of neurochemistry* 91 (2004): 975–982.
49. *A critique of the animal ethics committee system* 11.
50. Frances M. Wolber et al., "Supplementary dietary whey protein reduces rotavirus-induced disease symptoms in suckling mice," *Journal of nutrition* 135 no. 6 (2005): 1470-1474.
51. MT Rademaker, et al., "Beneficial hemodynamic, endocrine, and renal effects of urocortin in experimental heart failure: comparison with normal sheep," *Journal of the American College of Cardiology* 40(2002): 1495-505.
52. Miriam T. Rademaker et al., "Long-term adrenomedullin administration in experimental heart failure," *Hypertension* 40(2002): 667.
53. Rademaker et al. 667.
54. R.B. Elliott, L. Escobar, R. Calafiore et al., "Transplantation of micro- and macroencapsulated piglet islets into mice and monkeys," *Transplantation proceedings* 37(2005): 466-499.
55. "Living Cell Technologies at the cutting edge," NZBio, accessed Jan. 7, 2007 <<http://www.nzbio.org.nz/files/detail.asp?PageSubID-1065>>
56. Chris Barton, "Pig cells offer hope of miracle cure," *New Zealand herald*, May 21, 2005, accessed Jan. 22, 2007 <http://www.nzherald.co.nz/section/story.cfm?c_id=5&objectid=10126647>
57. Karen Birmingham, "Skepticism surrounds diabetes xenograft experiment," *Nature medicine* 8 (2002): 1047.
58. Simon Grose, "Critics slam Russian trial to test pig pancreas for diabetics," *Nature medicine* 13.4(2007): 390-391.
59. *Andy Coghlan*, "Man's pig cell implants still active 10 years on," *New scientist* 2598 (2007): 8.
60. Barton, accessed Jan. 22, 2007 <http://www.nzherald.co.nz/section/story.cfm?c_id=5&objectid=10126647>
61. Gaia Vince, "Pig cell implants in Huntington's trial," *New scientist* 2512 (2005): 20.
62. Simon C. Malpas, Rohit Ramchandra, Sarah-Jane Guild, David M. Budgett, and Carolyn J. Barrett, "Baroreflex mechanisms regulating mean level of SNA differ from those regulating the timing and entrainment of the sympathetic discharges in rabbits," *American journal of physiology, regulatory, integrative and comparative physiology* 291 (2006): R400-409.
63. Carolyn J. Barrett, Sarah-Jane Guild, Rohit Ramchandra, and Simon C. Malpas, "Baroreceptor denervation prevents sympathoinhibition during angiotensin II-induced hypertension," *Hypertension* 46 (2005): 168.
64. Rohit Ramchandra, Carolyn J. Barrett, Sarah-Jane Guild, and Simon C. Malpas, "Evidence of differential control of renal and lumbar sympathetic nerve activity in conscious rabbits," *American journal of physiology, regulatory, integrative and comparative physiology* 290 (2006): R701-708.
65. Ramchandra, Carolyn J. Barrett, Sarah-Jane Guild, f. McBryde, and Simon C. Malpas, "Role of renal sympathetic nerve activity in hypertension induced by chronic nitric oxide inhibition," *American journal of physiology, regulatory, integrative and comparative physiology* 292 (2007): R1479-85.
66. Carolyn J. Barrett, Sarah-Jane Guild, Rohit Ramchandra, and Simon C. Malpas, "Baroreceptor Denervation Prevents Sympathoinhibition During Angiotensin II-Induced Hypertension," *Hypertension* 46 (2005):168.
67. K. Bremen and S. Schenk, "Initial deficit and recovery of function after MDMA preexposure in rats," *Psychopharmacology* 184 (2006): 239-246.

68. Bremen and Schenk 239-246.
69. S. Schenk, and D. Gittings, "Effects of SCH 23390 and eticlopride on cocaine-seeking produced by cocaine and WIN 35,428 in rats," *Psychopharmacology* 168 (2003):118-123.
70. S. Schenk, et al., "Development, maintenance and temporal pattern of self-administration maintained by Ecstasy (MDMA) in rats," *Psychopharmacology* 169 (2003):21-27.
71. A.S. Mitchell and J.C. Dalrymple-Alford, "Dissociable memory effects after medial thalamus lesions in the rat," *European journal of neuroscience* 22(2005): 973-985.
72. "Research theme : neural cognition," Van de Veer Institute for Parkinson's & Brain Research, accessed Jan. 19, 2007 <<http://www.vanderveer.org.nz/research/themes/theme.php?id=3>>
73. "Neural regions that mediate the fear-arousing effects of footshock," Van de Veer Institute for Parkinson's & Brain Research, accessed Jan. 19, 2007 <<http://www.vanderveer.org.nz/research/projects/project.php?id=91>>
74. "Rob Hughes," University of Canterbury, accessed Jan. 19, 2007 <<http://www.psyc.canterbury.ac.nz/people/hughes.shtml>>
75. Chris Geering, *The application of mammalian toxicological data to establish maximum residue limits (MRL) for novel active ingredients in New Zealand pesticides*, accessed Jan. 22, 2007 <<http://www.nzfsa.govt.nz/acvm/publications/information-papers/pty-final.pdf>>
76. "OECD Test Guideline 401 will be deleted: a major step in animal welfare: OECD reaches agreement on the abolishment of the LD50 acute toxicity test," OECD, accessed Apr. 1, 2007 <http://www.oecd.org/document/52/0,2340,en_2649_34377_2752116_1_1_1_1,00.html>
77. *Mouse bioassay not suitable as a reference method for the regular analysis of algae toxins in mussels*, BfR Expert Opinion No. 032/2005 of 26 May 2005, Federal Institute for Risk Assessment, accessed Jan. 23, 2007 <http://www.bfr.bund.de/cm/245/mouse_bioassay_not_suitable_as_a_reference_method_for_the_regular_analysis_of_algae_toxins_in_mussels.pdf>
78. "Natural toxin monitoring," Cawthron, accessed June 15, 2007 <<http://cawthron.org.nz/analytical-laboratory/downloads/natural-toxin-monitoring.pdf>>
79. Pdraig K. Duigan, Nadine J. Gibbs, and Gareth W. Jones, *Autopsy of cetaceans incidentally caught in commercial fisheries and all beachcast specimens of Hector's dolphin 2001/2002*, DOC science internal series 176 (Wellington, N.Z.: Dept. of Conservation, 2002): 5.
80. Kim Griggs, "Satellite tags to save dolphins," *BBC news*, Mar. 2, 2004, accessed Jan 22, 2007 <<http://news.bbc.co.uk/1/hi/technology/3523337.stm>>
81. P. Fisher, *Persistence of residual diphacinone concentrations in pig tissues following sublethal exposure*, DOC Research & Development Series (Wellington: Dept. of Conservation, 2007)
82. C.E. O'Connor et al, "Behavioural, biochemical, and pathological responses of possums (*Trichosurus vulpecula*) poisoned with phosphorus paste," *New Zealand veterinary journal* 55.3 (2007): 109-112.
83. *Technical review of sodium monofluoroacetate (1080) toxicology* 7.
84. Alastair M. Suren and Martin L. Bonnett, "Consumption of baits containing sodium fluoroacetate (1080) by the New Zealand freshwater crayfish (*Paranephrops planifrons*)," National Institute of Water and Atmospheric Research Limited, 2006, Royal Society of New Zealand, accessed Jan. 22, 2007 <<http://www.rsnz.org/publish/nzjmf/2006/013.php>>
85. F.E. Matheson, A.M. Dugdale, R.D.S. Wells et al., *Efficacy of saltwater solutions to kill introduced species and sterilise freshwater fishing nets*, DOC research & development series, 261 (Wellington: Dept. of Conservation, 2006): 8.

Chapter 13

Imagining animal liberation – a personal view

“And man ... no longer now he slays the lamb that looks him in the face, and horribly devours his mangled flesh” - Percy Bysshe Shelley

Today, it seems hard to visualise a future where human life is no longer based on animal suffering. If we decide to stop exploiting animals, our society will change fundamentally. Our daily lives may be affected in many ways, as we learn to relate to animals as sentient beings who are different to us, but who also experience pain and joy, fear and desire. While changing our behaviour seems difficult now, it may ultimately allow humans, as well as animals, to enjoy richer and fuller lives.

Hard as it is to predict social change, there are many small reasons for hope in the 21st century. Countries such as Sweden and Austria have recently implemented progressive animal welfare legislation, recognizing animals in their constitutions, and banning some forms of intensive farming. While New Zealand has made little progress in this regard, the New Zealand members of the Great Ape Project did manage to get a clause prohibiting experimentation on great apes included in the Animal Welfare Act 1999. More significantly, millions of vegans and vegetarians around the world show us that it is possible to live healthily and joyfully without relying on the products of animal suffering. Increasing numbers of commercial companies no longer test products on animals, and others produce goods that are free of animal products. Even some supermarkets are refusing to stock battery eggs – the southern part of the North Island is well on its way to becoming a battery egg free zone.¹ Vegan and vegetarian foods and meat alternatives are now widely available in shops and supermarkets. In the world of academia, there is a growing body of animal rights literature, encompassing philosophy, religion, and law. This literature can be a source of inspiration as to how we can rework our lives to enable us to live ethically with non-human animals. Universities are starting to take notice of animal rights. In 2006, Ian Roberts taught the first ever New Zealand animal law course at the University of Canterbury, which also hosts the New Zealand Centre for Human Animal Studies, an academic department that focuses on analysing the cultural and social meanings of animals, and human-animal relationships.

At a practical level, animal sanctuaries in many countries perform essential work to save lives, while educating humans about animal abuse. Such sanctuaries arguably provide models of how humans and animals can live together in non-exploitative and

mutually enriching ways. More and more people are taking action to save animal lives, whether by sheltering abandoned animals, reporting the actions of animal abusers to protection agencies such as the RNZSPCA, or directly rescuing animals from factory farms. Many New Zealanders, though lacking any concept of animal rights, still treat the companion dogs and cats who live in their homes with care and respect. Humane education programmes in schools by organisations such as SAFE and the SPCA teach children how to treat animals with compassion and understand their needs.

Here I will examine a few of these trends in a little more detail, as within these we can find hope for a more animal-friendly future. Beginning at the most practical level of alleviating suffering, refuges and sanctuaries have been established in many countries. Usually a sanctuary is defined as a place where animals are brought to live and be protected for the rest of their natural lives. Sometimes, sanctuaries may take in animals temporarily, and care for them until a good home can be found. Sanctuaries aim to be safe havens, where animals can live as naturally as possible, in the company of others, and where they are not caged and confined. Animals are, fed, sheltered, and provided with veterinary care. Animals are not bought, sold, or traded, nor are they experimented on. However they are often restricted in breeding (by sterilization, contraception, or physical separation of the sexes), so that more animals are not born into captivity. Animals are only euthanased on veterinary advice, if terminally ill, or if their quality of life has deteriorated to a point at which it is cruel to keep them alive. The difference between a sanctuary, and institutions such as shelters, zoos, and safari parks, is the philosophy that the animals come first. Sanctuaries act on behalf of the animals, and the caregivers tend to consider that all animals in the sanctuary, human and nonhuman, are of equal importance. Sanctuaries are not open to the public in the way that zoos are, and the caregivers try not to allow any activity that would cause stress to the animals. However, many sanctuaries do run programs to educate the public, aiming to change the way that humans think of, and treat, non-human animals.²

There are several animal sanctuaries in New Zealand. Near Upper Hutt, Pakuratahi Farm Animal Sanctuary provides care for over a hundred animals, and rehabilitates and rehomes many more. The sanctuary continues to grow and improve its facilities, and the residents include sheep, cows, horses, hens, roosters, ducks, geese, pigs, goats, doves, turtles, monkeys and 4 humans. The founders describe it as “a place where farm animals are allowed to live out their lives to a natural age. Where chickens and pigs are free of cages and overcrowding. It is a place where animals are treated with respect and not merely as financial stock units ... but as individual sentient beings”³ They have recently set up “The Ark”, a humane education programme, which teaches children to treat animals with respect and compassion.

The Arapawa Wildlife Sanctuary in the Marlborough Sounds is a particularly inspiring project. Here veteran animal rights activist Betty Rowe looks after around 50 Arapawa goats, who are descended from animals left on Arapawa by Captain James Cook and other early European visitors to New Zealand. Wild sheep, pigs, and hens also live in the sanctuary, which was set up in the 1970s, and has 300 acres of land, mostly fenced and secured, for the animals to roam freely on. In the 1970s and 1980s Betty and her husband organised a campaign to protect the goats from extermination by the Department of Conservation, which led to groups of protesters directly confronting Forest Service shooters.⁴ The Arapawa Wildlife Sanctuary also protects resident

native birds, leads efforts to save the small East Bay population of endangered Hector's dolphins, and runs a campaign to rid the East Bay of floating mussel farms which are a threat to the dolphins, and a source of pollution.

If in the future animals are no longer imprisoned for their flesh, milk and eggs, there will be much less need for sanctuaries. Some animals may be able to live wild, perhaps with occasional human intervention on their behalf. We can imagine that wild animals not native to New Zealand (such as deer, ostriches, and emus) will be cared for in sanctuaries, but their reproduction will be restricted. "Farm" animals such as domestic cows, pigs, sheep, and goats have a long association with humans. However these animals still retain their natural instincts, and are able to live successfully in the wild. Some such animal populations (such as the Kaimanawa horses and Arapawa goats and sheep) have lived in Aotearoa for hundreds of years, and arguably have become integrated into the indigenous ecosystems. We can imagine such animals enjoying lives that are as natural as possible with humans intervening in emergency situations, for example by providing extra food in times of drought or snow. Humans may also take orphaned baby animals or old or sick animals who unable to fend for themselves into care in a sanctuary-type setting. Such sanctuaries will also provide people with opportunities to learn more about animals and how to care for them.

Will "pet" animals still exist? This is a difficult question. Some people claim that all pets are slaves, a claim that has much truth in the case of caged birds, aquarium fish, and domestic rabbits, who often spend their lives in tiny hutches, neglected and lonely. On the other hand, domestic cats and dogs have lived with humans for thousands of years, and many will argue that a companionship or guardianship relation can be beneficial both to the human and the animal. Nutritionally balanced vegetarian cat and dog food is now available, so there is no need to slaughter animals for the pet food industry. ⁵However, animals in living in the wild should be allowed to remain free and not captured for the pet trade, nor should animals be displayed for human entertainment in circuses or zoos. In the future, most of our energy will be directed towards protecting animals in their natural habitats, rather than breeding animals into captivity.

What will happen to "pests"? As human beings, we often pride ourselves on our intelligence, and our ability to behave ethically, and these qualities may enable us to find a better solution than killing and poisoning and maiming. We may be able to devise vaccines to limit the reproduction of animals such as opossums (though this has its own ethical ramifications), or fence off the most vulnerable areas of indigenous forest. We may also need to acknowledge that some introduced species are here to stay. It could be better to focus our resources on protecting natural areas, such as offshore islands, which are still free of introduced animals.

There has been much discussion about potential conflicts between the right of indigenous people to hunt in a traditional manner (and in particular, kill whales) and the efforts of animal rights activists to save individual animals. The animal rights movement in Aotearoa is a largely Pākehā movement, and it does not seem appropriate, or useful, to make judgements about traditional Māori practices such as harvesting kai moana. Pākehā hold the economic power in this country, and it is largely Pākehā who profit from animal exploitation. Before the arrival of Pakeha, animal-based farming did not exist in this country. It is worth noting that in Māori culture, animals are regarded as taonga "treasures" rather simply as exploitable economic resources - certainly a step up

from the average Pākehā view! The Māori Party is opposed to factory farming, with an animal welfare policy that is nearly as progressive as that of the Green Party.

Sometimes indigenous activists and animal rights activists have found common cause. In 1997 the Ngāti Whiritikaupeka hapu of Ngāti Tuwharetoa worked alongside the Kaimanawa Horse Action Network and Wellington and Auckland Animal Action in a campaign to stop the Department of Conservation “culling” a herd of wild Kaimanawa horses. Ngāti Whiritikaupeka supported the animal rights activists, offering them their marae as a place to stay. In turn, when Ngāti Whiritikaupeka occupied the central Waiouru picnic ground, Wellington animal rights activists arrived to support their land claim, and right to protect the horses.⁶

A vegetarian or vegan lifestyle and tino rangatiratanga (self-determination) may be compatible. According to vegetarian Māori activist Ross Nepia Himona “tino rangatiratanga starts at home. For me it starts with my own body, and with my own health. ... To me, to succumb to the Western lifestyle, including poor nutrition, too many harmful substances, and lack of exercise; and to accept the degenerative diseases that result from that lifestyle choice is to surrender my tino rangatiratanga. ... So I choose to be vegetarian, I choose not to smoke, I choose not to drink alcohol, and I choose to exercise regularly. The way I see it, I choose tino rangatiratanga.”⁷

As we learn to respect animals more, it is likely that we will want to change our way of living to avoid hurting animals. Veganism is a “philosophy and way of living which seeks to exclude — as far as is possible and practical — all forms of exploitation of, and cruelty to, animals for food, clothing or any other purpose; and by extension, promotes the development and use of animal-free alternatives for the benefit of humans, animals and the environment.”⁸

Although it is hard to find figures outside the United Kingdom and the United States, there must be millions of vegans around the world. In 2005 it was estimated that there were around 350,000 in the UK alone. Numbers are also increasing. In 1993 only 0.2 % of the population in the UK was vegan, however from 2003-2005, the estimates range from 0.5-1% of people - at least a doubling! It also appears that around 1 % of people in the United States are vegan.⁹

In a future Aotearoa, we can imagine that children will be brought up to respect the dignity of animals as beings with inherent value. At schools and tertiary institutions, we will learn about how to understand and care for animals, rather than how to exploit them or experiment on them. We will no longer prize the taste of animal flesh over the delight of the living animals. Is it possible that instead of roast lamb and pavlova, the national dish may one day be vegetarian lasagne, followed by vegan chocolate cake with organic fruit salad?

Changing values may be reflected in the legal framework of the country. In recent years, some European countries have passed progressive animal welfare legislation. In 2004, the Austrian Parliament unanimously voted that the Austrian constitution be amended to include animal protection. The new constitution now reads “The state protects the life and well-being of animals in its responsibility for them as fellows of mankind.” A system of animal solicitors was established at the same time. Every province in Austria now has an animal solicitor appointed and funded by the state, who can intervene on behalf of the animals in cases concerning animal welfare law. These animal solicitors have been active since January 2005 - they can intervene, bring animal abus-

ers to court, appeal bad decisions, and make sure abusers are prosecuted. According to Austrian activist Martin Balluch, “animal solicitors are a big step towards animal rights, since their instalment essentially means that for the first time the rights of all animals (be they great apes or lobsters) are being officially recognized and represented before the courts at the political level.”¹⁰ Fur farming and wild animal circuses are now illegal in Austria, and battery hen farming will be completely banned by 2009. Austrian activists have also achieved bans on ape experiments, and on the display of cats and dogs in pet shops. The latter has reduced the pet shop trade by 60 per cent.¹¹

The constitution of Germany formally protects animals. In June 2002, the German legislature ratified the addition of this sentence to the constitution “The state takes responsibility for protecting the natural foundations of life and animals in the interest of future generations.”

Sweden has some of the best animal protection laws in the world. A few years ago, an animal welfare ministry was created. As a Swedish activist notes “the animal abuse industries hate it, so there must be something good in it.”¹² Sweden banned the use of farrowing crates back in 1988, and dry sow stalls are also illegal.¹³ Dry sow stalls have been banned in the UK and Finland, and will be illegal in Switzerland from 2007. Laws, of course, have their limitations. Countries such as India have passed legislation that sounds promising on paper, but in practice is often ignored. There are laws against murder and rape and child abuse, yet all of these still happen. Laws tend to protect privilege and power, and are unlikely to be as far-reaching as animal rights activists would like. However, the passing of progressive legislation may still be welcome, as it reflects a more mainstream acceptance of animal rights. Even the process of drawing up bills and passing laws provides a platform for the discussion of animal rights issues in the mainstream media and parliamentary debates. Progressive legislation in one country may act as a precedent to achieve change in other nations. Austrian activist Martin Balluch argues that we can “view laws as attacks on the animal industry.” Passing laws which cost animal abusers money can act as “economic sabotage,” making it difficult for them to continue operating, and saving animal lives.¹⁵

So, if governmental and legislative processes still exist in recognizable forms in the Aotearoa of the future, we can imagine that there will be legislation that protects the rights of animals. This may involve establishing a Ministry for Animal Welfare, or Commissioner for Animals. Cruel practices such as intensive farming will of course be abolished, and laws will make it impossible for animal abuse to be profitable. Any legislation is likely to include the right of animals not to be treated as property. As Gary Francione notes, “The property status of animals renders completely meaningless ... the humane treatment principle, or animal welfare laws ... because animals are merely property, we are permitted to ignore their interests, and inflict the most horrendous pain and suffering or death on them when it is economically beneficial to us.”¹⁶ If animals are no longer property, we will not be able to farm them for profit, nor will we be able perform invasive experiments on them.

There may, of course, be no legislation or animal protection bureaucracy at all. Instead, we will create a culture that respects animals as individuals, and does not measure their value in dollars and kilograms of flesh. We will not experiment on animals, nor will we imprison them in circuses and zoos for our entertainment. Our economy will not longer be based around exporting the fragmented bodies of animals and the milk

that they produce for their young. Many people will find such ideas both radical, and economically dangerous. Yet it seems very sad that we should have such a limited vision that we think that our economy and society is the only possible one that could be viable.

Without wishing to underestimate the difficulties, it is worth noting that economies and societies do change. In many countries, including New Zealand, life has changed almost unrecognisably over the last few hundred years. Not all of this change has been good, but human beings at their best are adaptable and imaginative, and New Zealand is a small country, with a tradition of social experimentation. There are compelling environmental reasons for change. Nearly half of New Zealand's greenhouse gas emissions come from agriculture, and methane from cattle, sheep, deer and goats accounts for 31.8 percent of our total emissions. The greenhouse gas nitrous oxide, produced from animal urine and dung, is also a significant greenhouse gas.¹⁷ Animal-based agriculture is neither environmentally nor ethically sustainable. Any such change is likely to be gradual, but perhaps we can hope that our economy will eventually be based around diverse industries or collectives producing goods ranging from organic plant crops, high technology/electronic products, and ecotourism. As animal farming requires great areas of land and water, an animal-friendly economy could enable larger reserves of native bush to be set aside for birds to flourish in, and for humans to enjoy.

Some people will argue that the meat and dairy industry are good for animals, in the sense that millions of animals only exist because of these industries. This seems a rather sad argument, that animals cannot exist unless they “pay their way” in human society with their bodies. It also seems very sad that the cow should have to pay for a few years of life by having her milk, and each successive baby taken away from her, before she herself goes to the slaughterhouse. We can also consider broiler chickens, paying with their bodies for a few weeks of existence in a crowded, windowless shed, stinking with their own excrement. If we can learn to be compassionate enough to stop exploiting animals, there is hope that we will care enough to look after animals for their own sake, without demanding something saleable in return. We already do this, in the case of cats and dogs. There still can be animal sanctuaries and reserves with room for cows and sheep and goats and pigs and chickens.

Change is difficult, of course, and our future world is unlikely to be perfect. If we campaign for animal rights, we must consider the rights of human animals – is a just and compassionate society compatible with capitalism? Are animal rights and *tino rangatiratanga* both achievable? Or is it plausible that animals could be respected and not farmed or treated as property, but also sometimes hunted for food (on a small, sustainable scale) according to indigenous traditions? Although hunting is cruel and traumatic, birds and fish hunted according to traditional practices still can live a natural life while they are alive. And what will we decide about opossums, stoats, rats and rabbits – those animals we define “pests”? We may question whether it is fair that humans sit in judgement on other species, when we ourselves have caused so much environmental destruction. Whatever we choose, there will certainly be protest and disagreement. Working towards a better world will be an ongoing process, and perhaps that is a good thing.

Without having to decide all the details in advance, we can still work towards a future in which animals can enjoy lives which are as full of natural joys, and as free from suffering, as possible, whether in the wild, in sanctuaries and parks, or in the care of

human companions. Our diet and way of living will change, as we learn to appreciate animals for themselves, rather than for their flesh, or their skins, or their ability to entertain us. However the greatest change will be in our hearts.

Notes

1. "Battery free zone develops in the south of the North Island," RNZSPCA, accessed Nov. 21, 2006 <http://www.rnzspca.org.nz/news/press_releases/061121-battery-free.doc>
2. "Animal sanctuaries," Wikipedia, accessed Dec. 23, 2006 <http://en.wikipedia.org/wiki/Bird_sanctuary>
3. Pakuratahi Farm Animal Sanctuary, accessed Dec. 27, 2006 <<http://www.farmsanctuary.org.nz/>>
4. Betty Rowe, *Arapawa: once upon an island* (Auckland: Halcyon Press, c1988): 133-149.
5. Veganpet, accessed Dec. 29, 2006, <http://www.veganpet.co.nz/>
6. C. Amey, "Tino rangatiratanga, animal rights & the Kaimanawa horses," *Liberate* 6 (1997): 8-9.
7. "Old minds with new programmes : health & rangatiratanga," *Tē Putatara : a newsletter for the kumara vine* no. 3/00 (2000), accessed Apr. 3, 2007 <http://www.maorinews.com/putatara/puta_037.htm>
8. "Articles of Association," Vegan Society, accessed Sept. 26, 2006 <http://www.vegansociety.com/html/about_us/memorandum.php>
9. "Vegan statistics" Vegan Research Panel, accessed Dec. 23, 2006 <<http://www.imaner.net/panel/statistics.htm>>
10. M. Balluch, "Martin Balluch," *Bite back magazine* 10 (2006): 14-17.
11. "On politics and protest," *Arkangel* 31 (2007): 17.
12. "5 questions with the Swedish ALF SG," *Bite back magazine* 11 (2006): 23.
13. *Animal welfare (pigs) code of welfare 2003 report*, Biosecurity New Zealand, accessed June 20, 2006, <<http://www.biosecurity.govt.nz/files/animal-welfare/codes/pigs/pigs-report.pdf>>
14. *Animal welfare (pigs) code of welfare 2003 report*.
15. Balluch 14-15.
16. Gary L. Francione, *Introduction to animal rights: your child or the dog?* (Philadelphia : Temple University Press, 2000): xxiv-xxv.
17. "Agriculture," New Zealand Climate Change, accessed Feb.5, 2007 <<http://www.climatechange.govt.nz/sectors/agriculture/index.html>>

