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News

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Conflicts of interest affecting the role of veterinarians in animal welfare

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There is a simplistic view that sees veterinarians as working either for the animal or for the client. It's certainly true that, in some cases at least, this division is as clear-cut as it sounds. Take Bernard Rollin's (*Can. Vet. J.* Vol 42, Dec. 2001) example of the divergent responses to a client's request to put down a healthy pet. For those who believe their primary obligation is to the animal, "there is never a good reason for killing a healthy animal". For those who do not "see animal life as morally requiring preservation, the issue is clear; animals may be killed at an owner's behest".

However, while it is true that the Code of Professional Conduct for Veterinarians (New Zealand Veterinary Council) quite rightly puts the welfare of animals as of paramount importance, in practice the issues are seldom as black and white as the above example; a veterinarian will take account of the needs – whether conflicting or not - of both animal and client when coming to any decision.

In fact, of course, there is the potential for more than just a two-way conflict of interests. For in any veterinary consultation in any branch of the profession, there are three interested parties: the client, the animal and the practitioner him- or herself. The veterinarian's role in attempting to balance the interests of all three participants, whether they be individuals or groups, in a way that maximises the benefits to all is not always an easy one. At times, the one solution will be ideal for all three; at others, the interests will be in conflict in one way or another.

In identifying where these potential conflicts of interests lie, it is essential to first establish what the interests of the various parties are.

Animal Interests

Whether we consider animals on an individual or a collective basis, it is usual to assign them interests in having their physical, health and behavioural needs met. More specifically, this includes being provided with:

1. proper and sufficient food and water;
2. adequate shelter;
3. opportunity to display normal patterns of behaviour;
4. physical handling in a manner which minimises the likelihood of unreasonable or unnecessary pain or distress;
5. protection from, and rapid diagnosis of, any significant injury or disease.

Client Interests

Client interests in relation to the animals in their care will depend on the particular relationship each person has with those animals – sometimes a purely economic one; sometimes as complex as any close human relationship; and usually somewhere in between. However, client interests may include:

1. maximising production and/or performance, whether physical or reproductive, of their animals;
2. ensuring successful outcomes of experimental, testing or teaching protocols involving animals;
3. ensuring the physical and mental health of captive wild animals;
4. maintaining a relationship with - and a quality of life for - a companion animal.

Veterinary Interests

1. It is a given that the veterinary profession accepts the use of animals by humans. ["The Council recognises the need for society to make use of animals for companionship, work, production, teaching, research, recreation and sport" - Code of Professional Conduct for Veterinarians issued by the Veterinary Council of New Zealand]. However, the profession is made up of men and women who are as diverse in their attitudes as any educated group within society. On an individual basis then, veterinarians will have different

Contents ...

philosophies concerning the relative moral standing of animals in society.
2. The very nature of veterinary science establishes that veterinarians have an interest in preventing and relieving animal suffering, on both an individual animal and a collective basis.
3. Suffering apart, veterinarians have an interest in maintaining and enhancing the health, productivity and well-being of animals.
4. Last but not least, veterinarians have to make a living, and have an obvious interest in running a successful business or maintaining an income. As part of this, they need to establish good relationships with their clients and employers as well as maintaining their professional standing within the community in which they live.

In many circumstances, the diverse interests of the three parties will coincide and the appropriate course of action for the veterinarian is clear. The detrimental effects on animals of less than optimal conditions is generally well known for instance, so that in the research area, maintenance of animals in a healthy and stress-free state is recognised as essential to the successful outcome of many experiments, while in the farming sector, maximisation of production is dependent on keeping animals healthy and reducing the stress that lowers performance.

However, inevitably there are areas where veterinarians will be forced into the position of making ethical choices where interests conflict.

1. ***Collision of philosophies***
Attitudes to animals vary widely. There's a large gap, for instance, between those loosely termed "animal exploiters" who engage in such sports as dog fighting and bear baiting, and the animal liberationists, who regard even the owning of pets as a form of slavery and feel justified in using violence in their attempts to get their point across. Between these two extremes, attitudes vary from those who feel animals can be used to meet human needs, with no justification necessary; those who think limits should be set on animal use for human purposes; and those who believe animals have intrinsic rights that should be protected in the same way as human rights are. Veterinarians, of course, will hold a range of views - although it's doubtful that any are at either of the two extremes of the debate. Conflicts of interest can arise, then, when a veterinarian's philosophical stance on animals is at odds with those of a client or employer. Does one take a principled stand and risk losing the client, or the job? This has been alluded to previously in the Bernard Rollins example of euthanasia of healthy animals, but also arises around issues of cosmetic surgery such as tail-docking. In the research field, veterinarians may feel that experimental use of animals can be justified in medical and veterinary research, but not in military research, for instance.

2. ***Conflicts arising from obstacles to the prevention or minimisation of suffering***
There are many examples here. For instance, a client may not always agree with a veterinarian's assessment that an animal's suffering is such that it should be destroyed. This may be a companion animal whose owner is holding on to a desperate hope of recovery; a production animal whose owner is holding on to a hope of recovering something in an economic sense; or perhaps an experimental animal whose removal from a study may jeopardise the scientific results.

The New Zealand Animal Welfare Act 1999 gives veterinarians the power to destroy animals, in the first two instances at least, without the authority of the owner, although the latter can request a second opinion on the matter. However, there is clearly the potential in such situations for damage to the client-owner relationship that will take all the veterinarian's empathy and communication skills to avoid. In the case of experimental animals, the setting of humane endpoints is an increasingly important issue. The recent banning in Europe of the LD50 test is evidence of the progress being made in this area.

Another area of difficulty lies in research which requires veterinarians to deliberately induce disease states in animals - during vaccination trials for example. Practitioners involved in this kind of work regularly speak of the cost in terms of the inner conflict caused by the reduced ability to relieve suffering.

The plethora of pain medications now available mean there are very few circumstances in clinical practice where a veterinarian cannot relieve pain in one way or another if they need to. Conflicts may arise within practices where veterinarians have differing attitudes to pain relief, but by and large, the treatment of pain has made great strides in veterinary practice. Circumstances do arise in research, however, where scientists claim that introducing pain relief will add yet another experimental variable with the potential to confound the outcome, particularly in studies whose results depend on the measurement of physiological changes. Whereas this should not mean that no pain relief is used at all, local wound infiltration having minimal systemic effects for example, it may mean that that relief is less than optimal.

Economic and/or pragmatic considerations mean that, as veterinarians, we treat some species of animals in a "less sensitive" way than others. The study of the anatomy of the different species indicates that the sensory systems of the common species are remarkably similar. Behaviour - how animals respond to stimulation of that sensory nervous system - varies widely of course, and can lead us to believe that some animals, noticeably the prey species, "feel" less than others, a stoicism which actually owes more to the remarkable survival instincts that have evolved than to any significant differences in sensory perception. The fact is, we accept procedures being done on production animals that we don't on companion animals for instance - and these are pragmatic decisions. We live in countries with agriculturally based economies, where human use of animals is accepted by the majority of the population – including, quite obviously, the veterinary profession. So, in accepting such use, and given the competitive and global nature of the agricultural business of today, it's inevitable that farmers' aims are constantly to improve efficiency of production so as to be able to keep costs as low as possible. However, the line between increasing productivity and animal welfare cost is a fine one. A combination of a greater understanding of the effects of stress on animals as well as increasing scrutiny from society in general means that there is a continuing shift - that may be incremental but is also persistent - as to where that line is drawn.

Conflicts may also arise where a decision to treat animals is precluded by other legislation. An example from the poultry industry would be that some conditions of an infectious nature could occur late in the growing cycle, for example, within the week before slaughter, where the requirement to withhold antibiotics could preclude treatment. This occurs rarely but bone or joint infections would be an example. The veterinary dilemma from a welfare point of view becomes whether and when to treat.

3. ***Conflicts arising from obstacles to the maintenance of health and productivity***
In most cases, it is clear that productivity depends upon the maintenance of health in animals. However, if one interprets

"productivity" in a wider sense to include the production of traits deemed desirable for human ends, it is equally clear that productivity and health do not necessarily go hand in hand. The development of animal models of disease is a good example of a direct conflict between human needs and animal health and welfare. As is the development of the so-called "double-muscled" breeds that have the potential to cause birthing problems. Some of the dog breeds that have been bred to conform to a human visual standard are so far from an optimal functional standard as to be almost medically unviable - the English Bulldog is the classic example. So the conflict arises in deciding how much manipulation or alteration of an animal's natural state is acceptable for human ends and advising accordingly. Where is the line between what the client wants and what is in the animal's best interests?

The deliberate induction of disease, as discussed previously, also conflicts with the veterinarian's interest in maintaining health. Along with research into methods of pest control involving evaluation of different poisons, as well as toxicity testing, these projects, where the aim is to harm rather then heal, require those involved to take the wider view - the sacrifice of the few in the interests of the majority.

4. ***Conflicts arising out of the need to make a living***

While it is true that animal welfare should be a prime focus for veterinarians in all branches of the profession, the reality is that it's not the animals who pay the bills. Like anyone else, veterinarians need an income and maintaining that income is dependent on good client or employer relationships. Although most of those who care for animals have the welfare of their charges at heart, the veterinary art of balancing the needs of animals alongside those of their owners can be a delicate one at times. Assessing the ability of an owner to cope with the terminal illness of his or her pet, for instance, might result in a veterinarian allowing a suffering animal to live just a little longer so as to give the owner more time to come to terms with the impending loss. Likewise, the way perceived animal welfare shortcomings are pointed out to an owner or the person in charge of animals can make the difference between working towards resolution or losing a client - or a job.

The issue of "dobbing in" clients to welfare authorities has always been a contentious one. The Code of Professional Conduct put out by the New Zealand Veterinary Council requires all veterinarians to report instances of animals suffering unreasonable or unnecessary pain or distress if they have been unsuccessful in eliciting a change through their professional advice. This would seem tailor-made for losing income one way or another, and as such, can put a veterinarian in a conflicting position. Once again, communication is the key. Losing the "dobbing in" mentality is perhaps the first step in turning this from a negative experience into an educative one, more likely to lead to resolution. Certainly, in New Zealand at least, the Special Investigations Group which is the MAF unit that investigates animal welfare concerns, aims first to educate, and only prosecutes as a last resort.

The truth is that veterinarians are uniquely placed to educate those in charge of animals, whether that be on farms, in zoos, in research institutions, in homes or in the wild, as to the benefits of looking after the animals' welfare. The ever-increasing amount of research showing the advantages of reducing stress, whether that be through adequate nutrition, provision of shelter, appropriate handling, disease prevention or attention to provision for behavioural needs, means that it is easier than ever for veterinarians to demonstrate to their clients the advantages of enhancing their animals' welfare. Taking the educative rather than the confrontational approach means that more often than not, animal, client and veterinarian needs will coincide rather than conflict.

Good Practice Guide for New Zealand

The National Animal Ethics Advisory Committee (NAEAC) of New Zealand has recently published the *Good Practice Guide for the Use of Animals in Research, Testing and Teaching.* The publication sets guidelines for "good practice" in the management of animals in these fields, and replaces and updates the "Code of Recommendations and Minimum Standards for the Care and Use of Animals for Scientific Purposes".

For further details, contact -

National Animal Ethics Advisory Committee
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PO Box 2526
Wellington
NEW ZEALAND

Housing for Laboratory Rodents

A review by Bryan R. Howard, of ANZCCART's publication *Housing for Laboratory Rats, Mice, Guinea Pigs and Rabbits* (by Ann L. Hargreaves), appeared in a recent publication of Alternatives to Laboratory Animals (*ATLA* **30:** 352-553, 2002). In the review, Bryan Howard makes the pertinent point that: "Laboratory animals spend the greater part of their lives in environments that differ considerably from those which would have satisfied their wild ancestors. It is incumbent upon those concerned for their well-being to continually question and innovate, in an attempt to better match the animals' needs with care conditions". ANZCCART publications, including the one referred to above, can be ordered through the web site:

http://www.adelaide.edu.au/ANZCCART/

Note from editor:

Conservation, the central theme of the following two articles, is an area that has received little prominence in past editions of *ANZCCART News,* perhaps because it has been seen to fall "outside" ANZCCART's brief, which focuses on the promotion of excellence in the care of animals in **research and teaching**. However, as these two articles illustrate, research, teaching **and conservation** are, in many cases, inextricably linked and thus subject to common animal ethics and welfare considerations.

From menagerie to conservation centre – the changing role of zoos in worldwide conservation programs

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From the dawn of time, mankind has been interested in animals. Initially, animals were regarded as a source of food, or something to be feared as a predator. Later in our evolutionary history, animals became our companions and sometimes joined mankind in the hunt.

For thousands of years, we have kept animals in captivity and originally certainly not with the lofty ideals in mind that today's animal keepers promulgate. Well known early examples of zoos include those of Aztec emperors and Chinese emperors with the earliest records of animals being kept in captivity perhaps recorded at Luxor in Egypt. One is carved on the tomb of Hatshepsut, the first woman to rule Egypt, in the fifteenth century B.C. The other was painted 3,500 years ago in the tomb of the vizier Rekhmire (Allin, 1998).

It would appear that for a long period after these early menageries and zoos, our attitude to exotic and wild animals was something of which we have every reason to be ashamed. Julius Caesar brought the first giraffe back to Europe in 46 B.C. In Rome, it accompanied Caesar's triumphal procession of hundreds of caged lions and leopards and black panthers and other "strange and dangerous beasts". Soon after, in the games celebrating the dedication of Caesar's Forum, he made a gift of this giraffe to his fellow countrymen and treated them to the spectacle of having it killed by lions. Pliny the Younger reported that 400 lions were also sacrificed at those opening games of the Forum.

Many early natural historians started their careers as animal collectors and made a living from sending specimens, alive and dead, stuffed, skinned, pinned or preserved back to museums, botanic gardens and zoological gardens around the world. Such a person was Alfred Russell Wallace who collected both in South America and the islands of Indonesia in the 19th Century. Wallace is, of course, famous for the "Wallace Line" and is also credited, by some, as developing the concept of 'natural selection' before Darwin. Closer to our own time is Gerald Durrell who started his career as an animal collector and later founded the Jersey Zoo and Jersey Wildlife Trust. The well-known television personality and maker of wildlife documentaries, Sir David Attenborough, also started his career as an animal collector for London Zoo and has retained a strong interest in zoos.

The collections sent back to 'civilization' by these early collectors were housed in varying conditions in what, in most cases, could best be described as menageries. As Dale Jamieson (1995) stated, "early zoos were explicitly meant to demonstrate and celebrate the domination of nature by man". The history of the present day zoo began in the late 18th and early 19th Century with the formation of zoos in Vienna (1752), Paris (1793) and London (1826). These zoos were followed quickly by numerous other institutions in Europe, North America and other parts of the world.

It would appear that the establishment of a Botanical Garden and a Zoological Garden were seen as signs of a civilized society in 'the colonies' with Melbourne Zoo in Victoria, Australia being opened in 1852 and Adelaide Zoo, South Australia in 1883. Many of the early zoos were established to serve the interests of society members, as with the Zoological Society of London, the charter of which had the aim "to create a collection of living animals such as never yet existed in ancient or modern times…… to be applied to serve useful purpose, or as objects of scientific research, not of vulgar admiration" (Olney, 1980).

Despite these lofty ideals, economic reality triumphed and zoos became more available to the public, partially to assist with finances, but also as it became clear that the public had a strong interest in exotic animals. To a large extent, while the governing bodies of zoological institutions continued to espouse their ideals, zoos in many cities were regarded as a place to promenade and view unusual animals. As the 19th Century gave way to the 20th Century, many zoos arranged their collections in taxonomic order so that they could educate the public. Unfortunately, some zoos increased their collections to a point where animals were held in conditions which made it easy for the public to view them, but with little regard to the needs of the animals. There was also a perception that, "if an animal dies, we can always get another one", and animal trading was extremely common.

Thankfully, from the mid 20th Century onwards, there has been a growing, indeed accelerating, movement to wipe out this legacy and to truly become centres for education and conservation. It is my belief that foremost among those who pressed this message was Gerald Durrell. One can not get away from the fact that there are STILL many zoos in the world which do not subscribe to the tenets which I will mention, but thankfully, pressure is mounting, both from the profession and from the public, to either change these institutions or close them down.

Bill Conway, former Director of the Bronx Zoo, in his usual eloquent way, states the case for zoos very clearly, "it is a paradox that so many human beings agonize over the well-being of a individual animal yet ignore the millions brutalized daily by the destruction of their environments. We have long eaten them, skinned them, studied them and now displaced them, and now we surround them. For most, the only hope of survival lies in our care for them." (Conway, 1995).

Most, if not all, modern zoos have adopted Mission Statements or Aims and Objectives which state, in one form or another, the following objectives:-

* Conservation (or captive breeding);
* Scientific Research;
* Education;
* Passive Recreation.

It is my strong contention that zoos only have the right to hold animals in captivity if they satisfy one (or both) of the following criteria:

1. The animals must be part of a managed population with the eventual aim of a 'release-to-the-wild' program in mind. Such a program may be five years away or five generations away but it should be our goal. All zoos should strive to link *ex-situ* conservation with *in-situ* conservation programs.

Or, as Lindburg and Lindburg (1995) expressed it, "Captive breeding programs for endangered species are not ends in themselves. Conceptually, they are intended to provide a safe environment for short-term increases in population numbers to a size permitting reintroduction to the wild habitat".

2. The animals form part of a structured conservation education program. Having a few species signs scattered around the zoo giving details of weight, diet, longevity, distribution, etc., does not constitute a structured program. Professionally trained educators, keeping staff and docents should be giving sound education information. In the words of Ardith Eudey, (1995) "the major function of zoos in protecting biodiversity may prove to be conducting education programs designed to raise the public's ecological awareness".

I should make it clear at this point that there are many cases, in each continent of the world, where release programs using captive bred animals have been attempted and proven successful. Among them are some which have achieved 'icon' status, to use that overworked word. These include the Californian Condor, Przewalski's horse, Mexican Wolf, Arabian oryx, Black-footed ferret, Western swamp tortoise, Golden bell frog, Partula snail and even a cricket (the last two in the U.K.).

I will discuss two programs, one local and one international, in which we [The Royal Zoological Society of South Australia - RZSSA] have been involved. The first is our release of Yellow-footed rock wallabies to the Flinders Ranges. The second is our involvement with the Golden lion tamarins in Brazil. Let me say at this point that I believe that success can only occur if the local population is committed and I hope to demonstrate this in these two examples. The assistance of other organisations is also critical to any success.

Yellow-footed Rock Wallabies

In 1996, the Society released a group of ten (2 male, 8 female) Yellow-footed rock wallabies to Aroona, in the northern Flinders Ranges of South Australia. This only happened after a great deal of consultation with the National Parks SA organisation, a $10,000 donation from The Electricity Trust of South Australia (ETSA), as it was then named, and $5,000 each from Melbourne Zoo and Taronga Zoo.

Aroona Sanctuary was chosen for a number of reasons; amongst these were the fact that it was known that the company (ETSA) which owned Leigh Creek, a coal-mining community, was committed to the program. Staff members at the site had a strong environmental commitment. Yellow-footed rock wallabies were known to have existed at the site until, probably, the early 1980s, but were no longer extant. A large amount of work had to be done to eliminate rabbits and goats and a cat removal program had been conducted at one stage in the town. It was recognised that, if the program was to be a success, a fox-eradication program had to be initiated and, only when there had been no fox sighting for six months, could we then release animals.

The fox is regarded as the most important predator of Australian mammals and the joeys were regarded as being at considerable risk as they are left unattended for long periods in caves while the mother seeks food.

The first contact with the local population was mixed and a number of the pastoralists were unwilling to assist in spreading fox bait in a 10km radius buffer zone in case it affected their dogs. A breakthrough occurred following a visit to the local radio station and school by zoo veterinarian, Sue Conaghty. At this point the children became enthused and through them their parents, both in the town and in surrounding pastoral properties. This demonstrates the need to select the right personnel for the project.

The measure of the success of the projects includes:-

* A population of 29 which now includes a couple of third generation young is still in existence.
* The relationship between the RZSSA and National Parks has strengthened greatly.
* The buffer zone has been increased from a radius of 10 km to 30 km.
* Lambing percentage has increased.
* A Biodiversity Group, which has been successful in gaining Natural Heritage Trust funding, now exists.
* The program, all animals having been radio-collared initially and those young captured also radio-collared, has been used to give training in GPS technique to tertiary students.
* A great deal has been learned about release programs.
* Remote tracking data have given the children at Leigh Creek Area School a wonderful opportunity to learn. Perhaps one day a conservationist will come from this group.
* The company, in conjunction with the RZSSA funded a PhD scholarship to study rock wallabies and release programs. We have learned more about this group of animals and a young South Australian has been assisted to realize his academic potential.

Golden Lion Tamarins

Adelaide Zoo has been holding, among other tamarin species, a group of Golden lion tamarins since 1980. As part of the information being given about this species was the fact that, in 1972 there was a total of 69 Golden lion tamarins in captivity and only 500 existing in the wild. A concerted effort was made to stop the slide towards extinction of this beautiful New World monkey and Adelaide Zoo became heavily involved in the co-operative breeding program.

Ownership of the animals is now vested with the Brazilian Government and all animals outside that country are regarded as being "on loan". The current status of the captive population is somewhere around the 1,100 mark worldwide and a Studbook Keeper decides which zoo will be allowed to breed and from what animals. Animals from Adelaide Zoo have been sent to other zoos around the World to maintain the genetic integrity of the captive stock. While none of our animals has yet gone back to the wild it is believed that their progeny may have.

While the captive component of the plan was being constructed, a group which came to be called the Lion Tamarin Group was working with the Brazilian government to arrest the habitat clearance, the major cause (in conjunction with the pet trade) of the decline in the species. A series of reserves has been established and local land-holders have been encouraged to retain and expand areas of natural vegetation on their properties.

At last count, the wild population stood at more than 750 and was regarded as being fairly secure, although still not out of danger.

In 1993, we decided to become more heavily involved in this species and started our 'Golden Coin for a Golden Animal' campaign. In this program, visitors to the Zoo are encouraged to place a $1 coin in a slot and are treated to a video clip discussing the plight of the species. This video clip originally featured Gerald Durrell but, following his death, was redone featuring his wife, Dr Lee Durrell.

A commitment of US$3,000 per annum was made to the program and I asked that the money be used to employ a field assistant in Brazil. This allocation of money, which since the weakening of our dollar I have reduced to US$2,000, makes us the second or the third largest contributor to the program. I estimate that 60% of the funds donated come from the video machine, so in

this way, the Adelaide Zoo visitor is contributing directly to conservation in Brazil.

Despite the fact that this society is involved in, at last count, 27 conservation programs around the world, the biggest contribution we can make is through education. On my arrival at Adelaide Zoo in 1991, we had one teacher in our Education Department who was seconded from the SA Government. As the society has as one of its objectives, the promulgation of Environmental and Conservation education, the decision was taken to expand our Education Services.

I am delighted to report that in Adelaide Zoo we now have four full-time teachers, one seconded from the State Government and three paid for by the society. Three of these teachers take lessons at the Zoo while the other is responsible for our Mobile Zoo. In addition, we employ two teachers on a casual basis to run our Zoo-Snooze program and our Adult Education programs. Approximately 40,000 children are educated by this group of teachers each year .

At Monarto Zoological Park, we have recently employed our first teacher and hold out high hopes for this to be, not only a viable service, but a service which will spread the message about conservation and ensure that succeeding generations offer better stewardship than their parents and grandparents have done.

I take a very broad view of the term "Education", and believe that those people who listen to our keeper talks, observe our Blue and Gold Macaw Free Flight program and are conducted on a tour of the Adelaide or Monarto Zoological Park by our Volunteers are being educated.

Some years ago, I read a figure (which I cannot now track down) which stated that only 3% of the world's endangered species are held in zoos around the world; the balance of species are "doing it tough" in the wild. I believe that this figure is probably too high and may only be applicable to mammals and that the situation for birds, reptiles, fish and insects would be worse.

What this tells me is, that important as it is that we breed and return to the wild, we are only touching the problem. Maintenance of the habitat is the key to the survival of animal species. These species with which we work, and they tend to be the more charismatic ones, should be used as flagship species and the message of the need to conserve will be all the more effective if people can see, in the flesh, some of these wonderful creatures which are being lost to us.

While maintaining and expanding the breeding programs we are undertaking at the present time, we need to put extra resources into education, otherwise our work will be for naught and there will be no "wild" to which we can return the animals.

In the words of Kuan Tyu, Chinese poet in 500BC

"If you are thinking one year ahead - **sow seed**.

If you are thinking 10 years ahead - **plant a tree**.

If you are thinking 100 years ahead - **educate the people**".

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News Items

UFAW Symposium

The Universities Federation for Animal Welfare, UK (UFAW) is holding a Symposium at the University of Edinburgh in April 2003 entitled: "Science in the Service of Animal Welfare". Details can be obtained from scioff@ufaw.org.uk

Utrecht Department of Laboratory Animal Science website

This site presents information on international courses and contains several links to sites relevant for the field of laboratory animal science, animal alternatives, welfare and ethics.

The web site address is:
http://las.vet.uu.nl

Animals in Research

The Humane Society of the United States (HSUS) is dedicated to "creating a world where our relationship with animals in guided by compassion".

Animals in Research is an electronic newsletter, published by HSUS, that provides up-to-date stories and interpretive analyses pertaining to the use of animals in research and education.

The HSUS web site addess is:
http://www.hsus.org/research

CALAS Symposium

A Symposium entitled "From theory to practice: Revisiting the 3Rs", organised by the Canadian Association for Laboratory Animal Science, will be held in Quebec, Canada, from June 21 - 24, 2003.

For details, contact:
http://www.calas-acsal.org

Use of pouch young removal and cross-fostering techniques to accelerate breeding and recruitment in the threatened Brush-tailed Rock Wallaby, *Petrogale penicillata*

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Introduction

The brush-tailed rock wallaby or Shadow, as it has been nicknamed, is critically endangered in Victoria and Southern New South Wales and is considered extinct within the Australian Capital Territory. On a national scale it is listed as Vulnerable (*Environment Protection and Biodiversity Conservation Act 1999*). In Victoria this species is now restricted to three small isolated colonies along the upper reaches of the Snowy River Gorge with the last animal removed from the Grampians, in the state's west, and brought into captivity in November 1999. Like all small populations of animals, the remaining colonies of brush-tailed rock wallabies are highly vulnerable to local catastrophes, normal fluctuations in annual reproductive success and sex ratio, inbreeding, competition and predation. In 1996, as a result of this species' status in Victoria, its genetic importance (Browning *et al*. 2000), and the poor prospect for a natural recovery, the Victorian Brush-tailed Rock Wallaby Recovery Team was formed. This team adopted a two-pronged approach toward the conservation of brush-tailed rock wallabies in Victoria. The first prong was to maintain and expand the existing wild populations *via* predator control, monitoring and re-introduction. The second, was to establish a captive breeding strategy for the species to maximize breeding and recruitment, maintain genetic diversity and to provide animals for re-introduction.

The development of a 'Captive Breeding and Management Strategy' for a threatened marsupial species is something that has been overlooked by most threatened species Recovery Teams in Australia. Currently, there are few such documents developed in association with Recovery Plans or Action Statements. This type of document, however, should be a vital component of all Recovery Plans, as essential as having a 'Field Management Plan' in place for the species in the wild or a 'Reintroduction Plan' formulated prior to any reintroductions occurring.

There are several critical scenarios when Recovery Teams should consider a Captive Breeding Strategy for a threatened marsupial species. These include:

* The species' status throughout its range is vulnerable or endangered.
* There has been poor recent natural recruitment, with no obvious increase in the population in recent years.
* The causes of decline have not been identified, or are still affecting the population.
* Reintroduction stock needs to be quickly and cheaply produced.
* There is no detailed breeding strategy in existence.

The tools available for developing a captive breeding strategy include natural mating and captive husbandry procedures, genetic techniques, and a variety of assisted reproductive technologies. The method of choice depends upon the species in question, its conservation status, the amount of information available on the species' reproductive biology, and the desired outcomes.

Assisted reproductive technology is well established in wildlife conservation programs in eutherian mammals (Taggart *et al.* 1997). The development and application of this technology in marsupials, however, is a relatively new field and until recently had not been applied in a direct effort to help conserve any threatened marsupial species.

The following is an overview of the captive breeding strategy that was developed, and is being implemented for the brush-tailed rock wallaby in Victoria. This centres around the use of a reproductive technique termed cross-fostering, which potentially offers the most immediate benefit, in terms of marsupial conservation.

Cross-fostering in a captive population

Cross-fostering refers to the rearing of young by foster mothers of a different species, and in marsupials has a distinct advantage in that it can potentially occur as early as Day one of pouch life when the young weighs < 1g. In terms of marsupial conservation, the aim of this procedure is to curtail the period of lactational anoestrous or lactational quiescence in the natural mother's reproductive cycle, thus permitting her to undergo a series of pregnancies with a minimum of intervening lactation, thereby enhancing her reproductive rate. Cross fostering is not a new idea - it was developed over 30 years ago by Merchant and Sharman (1966).

In order to accelerate breeding and the production of brush-tailed rock wallaby young for conservation purposes, cross-fostering was trialled between 1996-97 on Kauwau Island brush-tailed rock wallabies located at Tidbinbilla Nature Reserve near Canberra. In these trials pouch young (between 1 g and 106 g in weight) from 13 brush-tailed rock wallabies were transferred into the pouch of tammar wallaby or yellow-footed rock wallaby foster mothers, following removal of their natural young. Re-attaching pouch young took on average less than one or two minutes to complete (Figure 1.). Of the 13 brush-tailed rock wallaby pouch young transferred, nine were moved to tammar wallaby, and four to yellow-footed rock wallaby foster mothers. Of these pouch young, 11 were up to 25% smaller in size than the natural young of the foster mother at the time of pouch young removal. Nine of these young survived until weaning. Two of the cross-fostered brush-tailed rock wallaby pouch young were up to 15% greater in size than the natural young of the foster mother at the time of transfer. Neither of these brush-tailed rock wallaby young survived long term following cross-fostering (Taggart *et al.*, 2003a).

Of the nine brush-tailed rock wallaby pouch young successfully cross-fostered, seven were reared by tammar wallaby foster mothers and two by yellow-footed rock wallaby foster mothers. All foster-reared pouch young grew at the same rate as the natural young of the foster species to which they had been transferred. Likewise, cross-fos-

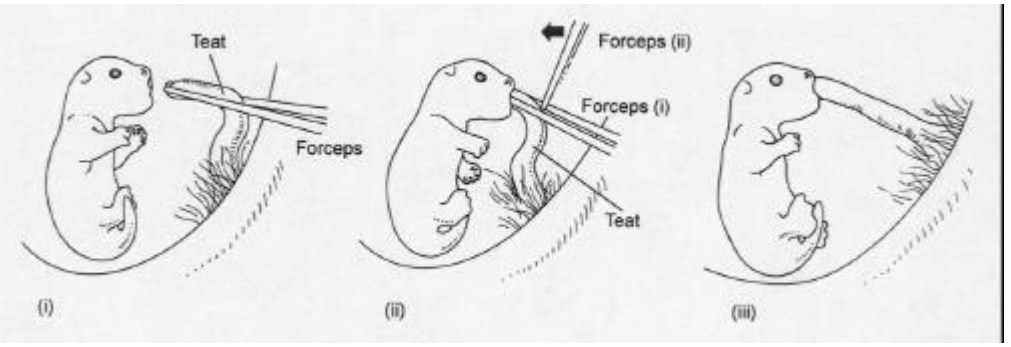

Figure 1: Following the removal of pouch young for cross-fostering from their natural mother, the pouch young, as small as one gram (depicted here) must be re-attached to the teat of their foster mother. Re-attachment involves three main steps. (i) Position the tip of the nipple at the end of the forceps and hold the head of the pouch young securely between your fingers; (ii) The teat is inserted into the mouth with the blades of the forceps perpendicular to the long axis of the body. One blade of a second pair of forceps is then used to hold the teat in position whilst the first set of forceps is withdrawn; (iii) Reattachment is complete and the young is placed into the pouch of its foster mother and checked 30 minutes post-attachment (from Taggart *et al*., 2000a, with permission).

tered young were weaned at the same age as young of the foster species to which they had been transferred (Taggart *et al*. 2003a; ~280 days - tammar reared BTRW pouch young; ~230 days – yellow-footed rock wallaby pouch young).

Removal of pouch young from brush-tailed rock wallaby females resulted in the birth of another young approximately 30 days later. Births occurred all year round, therefore by using the technique of pouch young removal and cross-fostering, the number of pouch young produced by a single brush-tailed rock wallaby female per year can be increased from one young annually to ~ six to eight young annually (Figure 2). This of course hinges on the availability of suitable foster mothers.

To date, in 2002 alone, two breeding pairs of rock wallabies at Adelaide Zoo have produced ten pouch young with two more due to be born and fostered to surrogate mothers before the end of the year.

Potential problems

The breeding of so many young, from so few females in such a short period of time creates some problems. The most obvious is the need to access new genetic stock for the captive breeding population so that the genes of a few individuals are not over-represented in the captive group such that the population rapidly becomes inbred.

The second problem is associated with access to new genetic stock from the wild. As the Victorian brush-tailed rock wallaby is critically endangered in the wild with fewer than 30 individuals remaining, the removal of adults from the wild may prove detrimental to the long-term survival of the remaining wild colonies. In addition, previous experience has also shown that adult animals do not adapt well to captivity, and often wont breed for many years, if at all, after being taken into captivity.

Removal and short-term isolation of pouch young from wild populations

In an effort to get around these problems the Recovery Team decided to explore the idea of recruiting small pouch young directly from the wild for foster rearing by a surrogate species in captivity. This approach has several advantages:

* Valuable wild adults which do not adapt well to captivity could be left *in situ* to continue breeding with minimal disturbance.
* The captive breeding population would get access to new genetic stock and therefore more closely reflect the genetic diversity found in the wild.
* Removal of wild-born pouch young would result in accelerated breeding in the wild population.

Cross-fostering trials commenced in 1998-1999 using tammar wallabies to determine (i) whether pouch young (<1gm - ~50gms) could survive a six hour period of isolation from their mother's teat; (ii) what the optimal temperature and humidity were in order for pouch young to survive teat isolation; and (iii) what effect pouch young size has on survival following a six-hour isolation period.

A variety of isolation conditions were tested and results indicated that the optimal temperature and humidity at which to isolate pouch young for short periods (six hrs) was 23°C and 100% humidity (Taggart *et al.*, 2003b). At this temperature and humidity all pouch young survived isolation, losing less than 1% of body weight, and when returned to the teat, grew normally.

As a result of these studies, two brush-tailed rock wallaby pouch young have been recruited directly from East Gippsland into the captive population in October 2002.

Summary

Pouch young removal and cross-fostering techniques present a relatively easy, non-invasive and highly effective method for accelerating breeding and recruitment in threatened populations of rock wallabies. As small, isolated populations of animals are highly vulnerable to local catastrophes, and therefore at high risk of extinction, the primary aim of using these techniques in this manner is to rapidly reduce this period of increased risk and provide animals rapidly and cheaply for re-introduction and species recovery. These studies clearly show the value of formulating a targeted Captive Breeding and Management Strategy for a threatened species and in using a multi-disciplinary approach to solving conservation problems. Application of pouch young removal and cross-fostering techniques not only provides hope for the long-term survival and rapid expansion of the brush-tailed rock wallaby in Victoria, but also for many other threatened marsupial species or genetically important marsupial populations around the country.

Trials are now underway to apply these techniques to the critically endangered Gilberts potoroo (*Potorous gilbertii*).

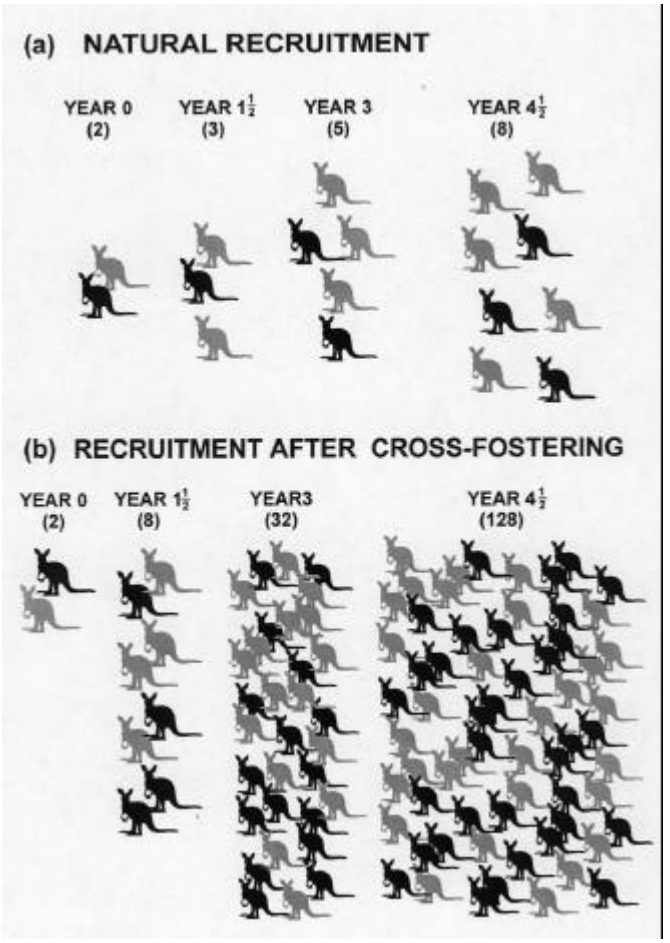

Figure 2: A comparison between natural recruitment and recruitment after cross-fostering in the brush-tailed rock wallaby over a four and a half year period commencing with a single pair of animals at Year 0. For the purposes of this diagram we make several assumptions; (i) no mortality; (ii) equal sex ratios (males depicted in black; females in grey); (iii) females reach sexual maturity at about 18 months of age; and (iv) that using pouch young removal procedures each female will produce six pouch young for cross fostering annually (from Taggart *et al.* 2000a, with permission).

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NEWS

What's new at ILAR?

ILAR (the Institute for Laboratory Animal Research) has moved its office.

The address is now -
National Academies Building
500 Fifth Street, NW
Washington, DC 20001

Their telephone and fax numbers remain the same.

They also have a re-designed website.

The address is -
www.national-academies.org/ilar

This website has a new look and several new functions.

House of Lords report on animal research

While endorsing the use of animals in medical research, a committee of the House of Lords in the British Parliament has recommended that greater effort be made to reduce the number of animals used for these purposes.

Source: BBC News:

http://news.bbc.co.uk/1/hi/uk_politics/2148065.stm

ANZCCART 2002 Conference: *"Animal Welfare and Animal Ethics Committees: Where are the goalposts now?".*

This Conference was held from Thursday 17 – Saturday 19 October at the Gold Coast in Queensland. The theme was chosen to attract a much wider range of participants than usual, especially those that act as Category C (with welfare experience) and Category D (lay persons) members on Animal Ethics Committees as defined in the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes. A total of 153 attended the conference with 20 visitors from NZ and close to half of the total being C and D Members of AECs. This was the largest attendance thus far at an ANZCCART Conference in Australia.

The conference was divided into eight Themes or Sessions and embraced topics such as effective operation of AECs, education and communication, the public/user interface, dealing with external applications to do research work, achieving good animal welfare outcomes, dealing with thorny issues and ethical conundrums and the special issues raised in dealing with research on GMOs. The meeting got off to a good start with the QDPI Group play acting as an AEC which displayed many of the difficult behaviours which are faced by AEC members. This set the tone for an extremely good-humoured but frank interchange of ideas and personal views throughout the remainder of the conference.

A number of issues were identified which ANZCCART and others can take forward and address in the future. The issue of effective monitoring of experimental animal use was a recurrent theme. On behalf of the Board I wish to thank all of those who contributed to the organization and sponsorship of what seemed to be generally agreed to have been a spectacularly successful conference, as well as those who attended, for their good-spirited participation.

Mike Rickard.
CHAIRMAN
ANZCCART

Rory Hope, Director of ANZCCART, presenting Tammie Roy from the Department of Anatomy, School of Biomedical Sciences, University of Newcastle with the ANZCCART Conference 2002 Student Award.

Tammie's paper, which was entitled "Building partnerships between animal ethics committees and researchers: a successful case study", will appear in the forthcoming ANZCCART Conference Proceedings.

The Student Award is worth A$1,000 and its purpose is to encourage attendance and involvement at ANZCCART conferences by Honours and Postgraduate students. Students are required to submit an abstract on an animal welfare theme relevant to the conference and be prepared to give a short talk and/or a poster at the conference. The next round of applications for the Award will be advertised on the ANZCCART web site during 2003.

Letter

A letter to Dr Rory Hope, current Director of ANZCCART,
from Dr Robert Baker, Director of ANZCCART from February 1992 to February 2002

"Some Thoughts about ANZCCART"

Dear Dr Hope,

I was interested to read the article by Dr Lyndal Scott *Animal welfare in institutions of teaching and research: Where have we come from and where are the goal posts now?* published in the June, 2002 issue of *ANZCCART News*. In her article, Dr. Scott reflected on the progress of laboratory animal science and animal welfare in Australia. She referred at the end of her article to a number of future goals, including the desirability of rationalising the roles and responsibilities of professional societies and organisations such as ANZCCART, ANZSLAS [Australian and New Zealand Society for Laboratory Animal Science] and AATA [Australian Animal Technicians Association], to which should also be added AVERT [Australian Veterinarians in Ethics, Research and Teaching]. I would like to comment on this and add some further thoughts on the present and future roles and responsibilities of ANZCCART.

There has undoubtedly been a significant and continuing improvement over the last 20-30 years in Australia and New Zealand in the welfare of animals used in research and teaching, due to a number of factors:

* The combination of the regular updating and expansion of the "Australian Code of Practice for the Care and Use of Animals for Scientific Purposes " and its New Zealand counterpart, together with more effective animal welfare legislation in most Australian States and Territories and in New Zealand;
* Effective and well-resourced animal experimentation ethics committees;
* Increased awareness by researchers of the need for better animal welfare;
* Publications, policy statements and other activities of the NHMRC's Animal Welfare Committee;
* The establishment by a number of governments of animal welfare offices, in some cases including research facility inspectorates;
* Pressure exerted by animal welfare and animal rights organisations;
* The creation of specialised animal welfare officer positions by most major universities and biomedical research institutions;
* The emergence of laboratory animal science as a discipline and as a career path for veterinarians; and finally,
* The effectiveness of ANZCCART since its formation in 1987 in fulfilling its objectives relating to the humane use of animals in research and teaching.

I would like to make a few observations about ANZCCART's role since its formation and in the future. ANZCCART's first ten years of history were described in the December 1997 issue of this newsletter. It has now been operating, albeit with some difficulty financially, for a further five years and I hope will continue to represent its stakeholders' interests and the interests of experimental animals for many years to come. ANZCCART has always been a rather cumbersome beast in its structure [reflected by its difficult acronym] and in the need to operate closely with nine governments in Australia and another in New Zealand, as well as with a diverse membership. It has no legislative power, literally or *de facto* and to succeed has had to work closely with other stakeholders, some of whom have interests which overlap or even over-ride those of ANZCCART. While this has caused considerable difficulties, it has succeeded. Its structure was modelled most closely on the Canadian Council on Animal Care [CCAC], with the major difference being the absence of any inspection or accreditation role for ANZCCART. This is one of the major functions of the CCAC, which has not only performed this difficult role well, but whose financial viability as well as public visibility have been greatly helped by it.

While such a function has been the subject of discussion by the Board of ANZCCART on a number of occasions, it has not been supported by at least two of ANZCCART's major sponsors. The most recent example followed the demand by the animal rights group Animals Australia for the introduction of inspection and monitoring programs for animal-based research and teaching in all Australian States and Territories. In my opinion, ANZCCART is ideally placed to oversee this, working as a contractor to those agencies which do not have this capability, and acting once again as the "honest broker". A variation on this concept was introduced in New Zealand some years ago by ANZCCART on behalf of the New Zealand National Animal Ethics Advisory Committee [NAEAC].

However, this is not to be the case, with the result that there remains no national and unified means of addressing this requirement, one which, while not seen as a high priority by some government agencies, is certainly likely to be supported by the public and is an example that some things "not only need to be done, but need to be seen to be done".

There are also no national data available on animal use in Australia for scientific purposes. Despite an offer by ANZCCART to undertake a coordinating role on behalf of the States and Territories, this was not adopted and such data are still not available. This needs to be done, as the absence of such data is unacceptable. The New Zealand data are collated by NAEAC and published annually.

ANZCCART has performed very well in its 15 years of existence. It has held excellent conferences and workshops and its publications have been well received by the international scientific community. But it has now reached something of a crossroad in its history, with its income from sponsors substantially reduced. This is disappointing, as it is very difficult for any organisation, particularly one as small as this, to retain staff and to operate with any certainty for the future when funding is insecure.

ANZCCART's major area of responsibility has traditionally been the biomedical research community and it is pleasing that the Board held a very positive meeting earlier this year with representatives from the major biomedical societies to discuss the possible provision of funding support.

The current problems with funding must be resolved, so that the Board and staff can plan further than one year ahead. The need for an organisation such as ANZCCART was recognised in 1987 and remains today. It must continue to be supported by its stakeholders, which include all of the government agencies responsible for animal welfare leg-

islation. The nine Australian governments together currently contribute less than 5% of ANZCCART's very modest annual operating budget. While some "in kind" contributions are made, this is still far too low.

With resources so limited, it is tempting to argue for some form of rationalisation of the activities of organisations working in this area in Australia and New Zealand, such as ANZCCART, ANZSLAS, AATA and AVERT. While there is some logic in this, each has its own reason for being and set of objectives. All work closely and while there is overlap in membership and in conference content, all appear to be meeting their members' needs. Together, they have achieved a lot for animal welfare.

The conclusions made by Dr. Scott re the importance of ensuring that science meets its ethical and practical obligations to minimize harm to animals used in teaching and research through the implementation of the Three Rs of William Russell and Rex Burch reinforce the very reason for ANZCCART's existence.

This is why ANZCCART is so important and why it must not only survive, but prosper. I look forward to its silver anniversary in 2012.

Robert Baker

Coming up

NABR Conference 2003
Marriott and Metro Center
Washington, D.C.
23-25 February, 2003

Details can be found at website:
www.nabr.org

UFAW Symposium
Science in the service of
Animal Welfare
Edinburgh, Scotland
2-4 April, 2003

Contact: UFAW Scientific Officer
email: scioff@ufaw.org.uk

Further details can be found at website:
www.ufaw.org.uk

Housing of Rabbits - Correction

In our last edition of *ANZCCART News*, in the General News section, a website address was given for downloading the draft guidelines on the housing of rabbits in scientific institutes. This was incorrect and the correct address is:

http://www.agric.nsw.gov.au/reader/14098

Comments on the draft can be sent to Lynette Chave, Senior Veterinary Officer, Animal Welfare Unit, NSW Agriculture, PO Box A970, Sydney, NSW 1232

or

Email: lynette.chave@agric.nsw.gov.au

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The opinions expressed in *ANZCCART News* are not necessarily those held by ANZCCART Ltd.

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