

ROUNDHOUSE



Newsletter of the
Veterinary Science Foundation
of the University of Sydney

December 2007

Mining immune genomes: *the case of Australia's marsupials*



The University of Sydney



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From the Director

I'm pleased to report that work has begun on the canine section of the University Veterinary Hospital. Construction is due for completion in late February, a date we are all looking forward to, especially the hospital staff!

The first area to be completed will be the facility for the new MRI & CT scanner, scheduled for December. This will allow the equipment to be installed and ready for action on the clinic's completion. Over the past six months the Veterinary Science Foundation has focused on two key events. The first was to continue to fundraise for the building of the canine hospital. Thanks to everyone who responded to our mid-year appeal we raised over \$60,000 and have approximately \$150,000 to go.

Our second key event was organising Animalia for which I'd like to particularly thank the Animalia Committee for their hard work. Thanks to our seven partners, Link Market Services, KPMG, Inghams, North Shore Veterinary Specialist, The Academy Network plus the McMurtrie and Balfour Families, our guests enjoyed the best of everything on the night. Our sponsors are too numerous to mention, but their support made the evening with flautist, Jane Rutter, base baritone Morgan Pearse and chanteuse Monica Trapaga, a resounding success. You can see the highlights of the evening on page 11. Last, but by no means least, may I introduce you to the latest member of my family, Max the puppy. Each morning he is warmly greeted by all we meet. He is taken for walks by the students, cuddled by the staff and when one student excitedly greeted us, I asked 'what's my name?' the response, 'Max's mum'. Through Max I have learnt a lot about the faculty, its staff and students – thanks my little mate!

Jacqueline Booth



From the Dean

Welcome to our last edition of *Roundhouse* for the year. It's been a busy and fruitful six months.

We had a favourable response from The Veterinary Schools Accreditation Advisory Committee's (VSAAC) comprehensive review of the Faculty. The VSAAC team noted that we had undergone significant reorganisation and believes the restructure will allow the Faculty to flourish into the future.

The review highlighted several key points which included the efforts of the Faculty to provide student exposure to live animals throughout the early curriculum. They also noted that our content review, redevelopment, revision and process in place for the improvement of the curriculum were encouraging. Our leaders in this area were considered to have real vision and drive.

We were also commended on our ongoing push to develop high quality experiential learning in Year 5. Staff planning, development and PM&D reviews were considered to be Faculty strengths. And finally the review recognised that staff activities reflect the Faculty's encouragement of research.

The Faculty now has full professional accreditation in Australia, North America (AVMA) and Europe (RCVS). Provet was once again proud to be the major sponsor of the Partners in Veterinary Education Conference held in July. We would also like to thank Boehringer Ingelheim for becoming the support partner. This year over 150 vets attended presentations on veterinary oncology and one of the most important parts of the event was the sharing of experiences in supervising final year students.

Thank you to the faculty, staff, volunteers and donors for another great year.

Leo Jeffcott

Filling the gaps: the benefits of cross-regional partnerships

The Faculty is increasing its presence in regional projects and in the process strengthening bilateral relations.

In Karachi, Pakistan's biggest and most prosperous city, 100,000 farm hands milk the city's one million buffalo twice every day.

Their efforts help make Pakistan the fourth largest dairy producer in the world. But at the same time the productivity per cow is four times lower than in Australia, and Pakistan's milk comes from more than 15 million dairy farmers compared with Australia's farming population of less than 10,000.

The figures reveal deep-rooted productivity and cost-efficiency issues. But Associate Professor Peter Wynn from the Faculty of Veterinary Science is currently administering a project that aims to develop and improve Pakistan's dairy industry, bringing education, health training and new technology into local practices.

The project is one of a number of partnerships the faculty has fostered in the Asia Pacific region, including cattle production projects in Laos and Cambodia and shrimp farming in Indonesia. Part of the process involves identifying gaps in scientific knowledge, and then forming cross-regional partnerships to solve industry challenges.

"As partners, we get a better or more immediate understanding of the problem to be addressed," said Professor Gareth Evans, Associate Dean of Research in the faculty. "It's a mutually beneficial relationship as we can access facilities or materials that the University's resources can't stretch to, and the farming or veterinary community gets immediate access to research developments."



For Professor Wynn and Dr Russell Bush, working through a commission linked to the Australian Centre for International Agricultural Research (ACIAR), the immediate task is to develop training modules for extension workers who then advise farmers in Pakistan on how to improve their farm productivity.

The group works closely with officials in Pakistan to produce the modules, consolidating technical information available in both countries. "We envisage Pakistani universities and research institutions, both government and private, will have an important role in knowledge enhancement, identifying key research objectives and forming academic linkages," said Professor Wynn.

In Cambodia Professor Peter Windsor's project aims to improve cattle production among smallholder producers as a means of addressing rural poverty. Professor Windsor believes the rural poor, who manage the majority of cattle in Cambodia as a source of income reserve, need to find ways to share in the economic growth which has characterised South East Asia over recent years.

"The surging economy of the region has produced a significant increase in demand for animal protein, particularly beef," he said. Smallholder producers

can take advantage of this by improving their system of production through better feeding, health, management and marketing of their animals.

The project involves close liaison with the Cambodian Government's Department of Animal Health and Production. But according to Professor Windsor this type of project doesn't happen without a range of partners. "To achieve our goal of addressing rural poverty we will need the cooperation of the many stakeholders in the cattle industry in Cambodia," he said.

Regional projects have allowed the faculty to be more than simply a research provider: they have led to real and valuable partnerships with rural industry practitioners.



Delegates at the Cambodia Workshop

Inside the dog house: the University's new canine centre



From February 2008 get ready for something entirely new at the University's Veterinary Centre: a state-of-the-art canine centre that will complement the already refurbished Valentine Charlton Cat Centre.

The current building has all the hallmarks of the 1970s: a brown brick linear façade, flat roof, small oblong windows and a maze-like interior. But the new \$2.3 million centre will be the culmination of a massive upgrade of the

University Veterinary Centre, providing a world-class research base and a valuable facility for the general public.

Dr Julia Beatty, the clinic's director, said: "The Valentine Charlton Cat Centre opened in November 2004 and has been a resounding success. We see a huge feline caseload, both primary accession cases and referrals from other veterinarians.

"The new canine centre offers exciting prospects for the University Veterinary Centre and will be a real asset to the University."

The refurbishment includes not only a new building but also state-of-the-art equipment, such as three-dimensional imaging in the form of MRI facilities, a multi-slice CT scanner, scintigraphy and a wide range of endoscopy and endosurgical equipment. The new facilities will place the centre at the peak of veterinary hospital services in NSW.

Professor Leo Jeffcott, Dean of Veterinary Science, said: "Just the promise of this cutting-edge technology is stimulating international interest and we are looking at establishing Australia's first Chair in Diagnostics Imaging and attracting an orthopaedic surgeon skilled in diagnostic imaging.

"The combination of world-class teachers and a world-class facility means better care for animals, now and into the future," said Professor Jeffcott.

The new centre will provide new options for student training, and the faculty has recently expanded its postgraduate coursework options, allowing post-graduate veterinary students to link their coursework to clinical internship programs at the veterinary centre.

Work on the new centre began in September, although it has been business as usual at the veterinary centre which has remained open to the public for its usual hours six days a week.

Dr Vanessa Barrs, head of small animal medicine, said: "The public face of the hospital is very important to us. We're here to provide top quality veterinary services to the pet-owning public."



L-R: Prof Leo Jeffcott, Dean; Dr Julia Beatty, Hospital Director; Mr Craig Lord, Practice Business Manager.

An itch and a scratch: fleas that bite

Cats are often seen as part of the family but they also harbour infectious disease.

Roundhouse explores one such emerging disease in humans, flea borne spotted fever.



Clinical research by scientists at the Faculty's small animal clinic has provided groundbreaking insight into an emerging new infectious disease of humans – flea borne spotted fever, also known as cat flea typhus.

The disease is caused by *Rickettsia felis*, a bacterium that can be transmitted when cat fleas bite humans. The disease causes flu-like symptoms in people including headache, fever and muscle pain, and a spotted rash.

Flea borne spotted fever has recently been identified in humans overseas, but no cases have been recorded yet in Australia. However, a research study conducted by Dr Vanessa Barrs (pictured) showed that the bacterium is well and truly present in Australia – 20 percent of a population of cat fleas from Australian cities were found to harbour the *Rickettsia felis* bacterium.

Rickettsia felis differs from other cat-related organisms, such as *Bartonella*, because it has so far only been found in the cat's fleas, not in the cats themselves. "We have found *Rickettsia felis* present in fleas but not in the blood of cats harbouring the fleas. We believe that cats may be resistant to infection by the organism," said Dr Barrs.

With cats remaining resistant to infection, the research has important implications for feline and human interaction. While fleas remain, untreated cats can be carriers of agents that cause human disease.

The findings are part of a multi-centre study undertaken by Dr Barrs at the Faculty of Veterinary Science in collaboration with Professor Michael Lappin at Colorado State University. "The study aimed to look at the prevalence of certain parasites in the blood of cats and their fleas," said Dr Barrs. As part of the study blood and flea samples were collected from 100 cats presented to veterinary clinics in Melbourne, Brisbane and Sydney. From these samples the investigators searched for seven organisms, including *Rickettsia felis*, *Bartonella* species and haemotropic mycoplasmas.

Bartonella henselae is the cause of cat scratch disease in humans. Cats act as reservoirs for the bacterium, infecting other cats through flea transference. *Bartonella henselae* survives in flea faeces for days after being passed by infected cat fleas. Infected flea faeces are likely to contaminate cat claws during grooming and then *Bartonella* are inoculated in to humans if they are scratched. *Bartonella* has received much research attention – in the US 24,000 people are infected each year, 2000 of them requiring hospital treatment.

Dr Barrs recently conducted a national speaking tour where she disseminated the study's findings to veterinary practitioners. A more in-depth analysis of the data is currently under way but Dr Barrs has already identified two key points from the research. "Flea control is essential if we are to prevent certain infectious diseases in cats, for example infectious anemia, which can be life-threatening. And flea control is important step in preventing certain zoonotic infections in humans such as cat scratch disease," she said.

"What we are saying is that cat owners need to be vigilant about flea control."



Mining immune genomes: the case of Australia's marsupials



Dr Kathy Belov

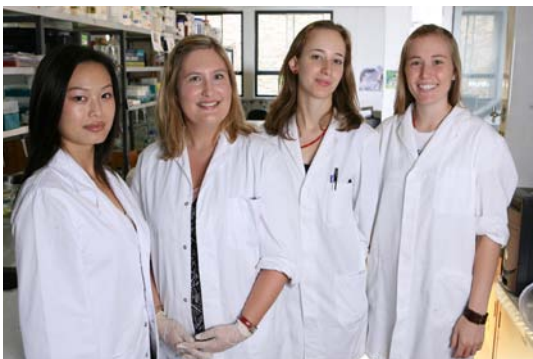
Rapid advances in genetics has produced startling achievements in the field of immuno-genetics. *Roundhouse* talks with Dr Kathy Belov about the Faculty's contribution to genetics research.

In a small lab in the University's RMC Gunn Building, Dr Kathy Belov heads a team of young, motivated scientists. The origins of the group – all of them women – can be traced back to a comment made by Dr Belov's honours supervisor. "There's this fellow," he said, "who believes that marsupials don't have IgA (the main antibody found in body secretions such as tears and sweat of placental mammals). Why don't you go and see if you can find it."

It was all the motivation Kathy Belov needed and a decade later she is leading a highly talented research group working in the field of genomes and immuno-genetics. Any scientific papers dealing with the sequencing of immune genes in marsupials over the past two years is likely to have a number of their names attached to it.

In October 2007 Dr Belov and a member of her team, PhD student Hannah Siddle, published a paper in the *Proceedings of the National Academy of Sciences* on a contagious cancer found in Tasmanian devils. The cancer takes the form of a facial tumour giving it the name Devil Facial Tumour Disease (DFTF). Its spread has been well documented – the disease is prevalent on Tasmania's east coast and as yet there is no cure.

But Dr Belov was interested in finding out why the devils were not recognising the tumour as a 'non-self' and therefore mounting an immune response to it.



L-R: Emily Wong, Dr Kathy Belov, Camilla Whittington, Claire Sanderson.



Her conclusion was that Tasmanian devils lack genetic diversity in the important immune genes of their genome, the Major Histocompatibility Complex (MHC), rendering them unable to mount a defence against the cancer.

“We’ve found the MHC genes of different individual devils are alike but also that the tumour contains the same MHC genes,” said Dr Belov. “Basically the immune system doesn’t see the cancer cell as foreign.”

This lack of genetic diversity is most probably attributable to a genetic bottleneck which saw large population crashes followed by a revival involving a small number of surviving animals. This has resulted in the east coast population of the devil sharing the same MHC code. “MHC genes are the most polymorphic genes in the genome and it is really unusual for two genomes from unrelated individuals to have the same MHC type,” said Dr Belov.

The cancer is thought to be transmitted through biting that occurs during feeding and mating. In an effort to control the spread of the cancer, diseased individuals have been removed from the wild and a captive breeding program of healthy devils has been implemented across a number of zoos and reptile parks. At the same time Dr Belov and her team are hoping to find solutions to the devastating disease in the devils’ genomes. They have already started looking at isolated populations in the hope of finding new MHC types which can be interbred to create greater genetic diversity in the population. Greater genetic diversity, it is hoped, will allow the devils to respond to the cancer cells.

Dr Belov says the results so far have been “promising” but the researchers are battling against the clock. “In the last 10 years the population has dropped from 150,000 to about 50,000. It’s predicted the disease will cross the entire range in the next five years and it will face extinction in the next 10 years. It’s quite a frightening prospect,” said Dr Belov. The work has been made easier by the rapid advances in genome sequencing, firstly by the complete sequencing of the human genome in 2003, and later by sequences of various animal genomes.

Sequencing provides the starting point from which all kinds of analysis is possible. “Genetics has been made so much easier by having whole genome sequences available. This allows us to target areas of the genome that we’re interested in,” said Dr Belov.

Dr Belov and her team of researchers have focused on the genetics of the immune system and MHC genes in particular, leading to collaboration with scientists and organisations all over the world. “Collaboration is really important for our work. Obviously America has a lot more funding to throw at research but

“It’s predicted the disease will cross the entire range in the next five years and it will face extinction in the next 10 years.”

it’s also intellectually stimulating to work at a peer level with other prestigious organisations,” she said.

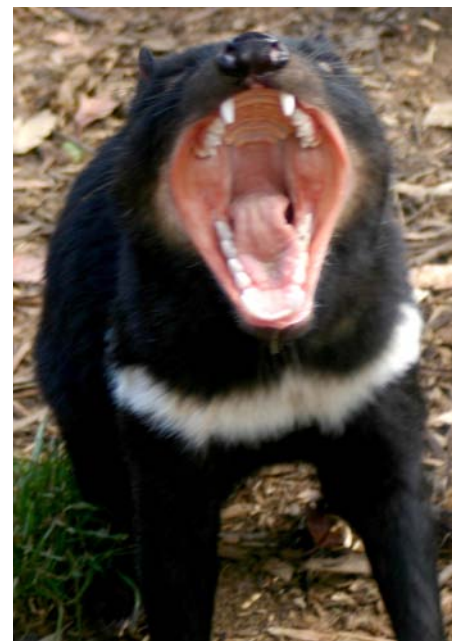
The sequencing of genomes usually involves international collaboration. In 2006 the Sydney research group collaborated with the Broad Institute in the US to sequence the first marsupial genome, the South American opossum. They have also collaborated with Washington University on the sequencing of the platypus, a monotreme. Using this sequence information, together with Professor Philip Kuchel at the University’s School of Molecular and Microbial Biosciences they have determined the origin of platypus venom.

While most sequencing comes out of America, Australia has embarked upon its first genome project involving the Tammar wallaby. Dr Belov’s group is working closely with the ARC Centre for Kangaroo Genomics on this project. “There is a big immunogenetic field overseas but very few people are working on marsupials. We’ve got charismatic marsupials here in Australia and we’re lucky to have this niche that gives us a high profile,” said Dr Belov. “We’re fortunate that people come to us looking for collaboration.”

The research being carried out also holds out exciting possibilities in the area of comparative genetics. Opossums, for example, are the only species other than humans to develop melanomas from UV light alone. There is also much that might one day be learnt from the contagious cancer afflicting the Tasmanian Devil. “It’s about using animal genomes as a comparison to human genomes in these areas of disease. The links mightn’t be particularly obvious right now but down the track we might find things that are applicable to humans,” said Dr Belov.

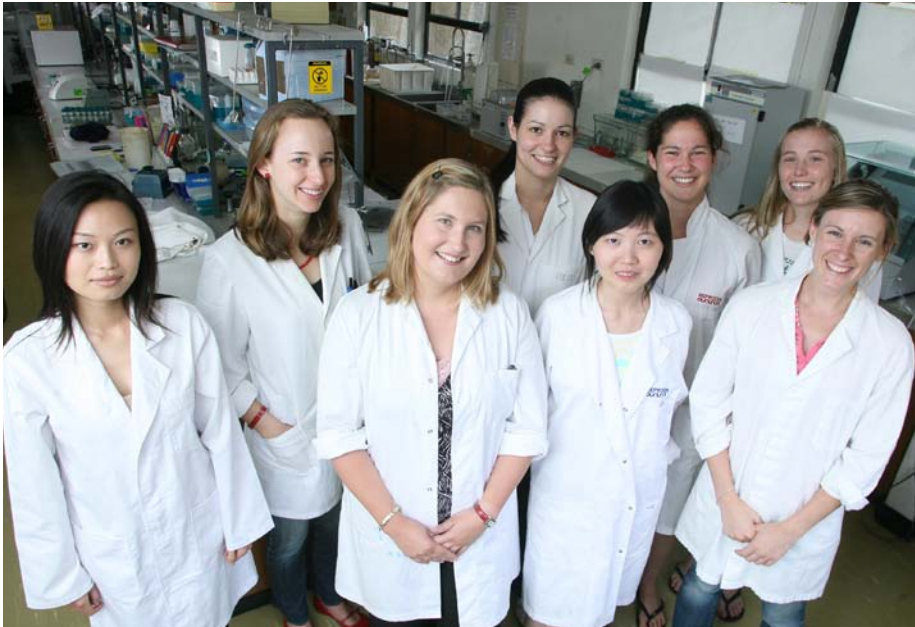
The group is currently working on one such link in the birth of underdeveloped marsupial young. They are born the size of a jellybean and have no immune system. “These young then live in a grotty pouch which we know to be full of awful bacteria yet somehow they survive. Understanding how these young survive while they’re immune-compromised will help us to treat immune-compromised humans,” said Dr Belov.

With so many questions still unanswered, genetics will continue to provide insight into the basic biology of disease. “There have been rapid advances. I couldn’t have foreseen being part of all these projects even three years ago,” said Dr Belov. “When I did my PhD I cloned half a dozen genes and that was considered a big achievement. Now my students are publishing papers with 1500 genes at a time. Sometimes it’s hard to believe that it’s all moving so quickly.”



Dr Kathy Belov is conducting research that could help to save the Tasmanian devil. She is categorising the immune genomes of a range of devils in the hope of finding greater genetic diversity to fight the cancer. But it costs \$200 every time an animal is categorised; if you’d like to make a donation to help fund this ongoing research please contact Jacqueline Booth, director of the Veterinary Science Foundation, on 9351 8024.

Meet the team: The Australasian Wildlife Genomics Group



L-R: Emily Wong, Camilla Whittington, Kathy Belov, Sarah Jobbins, Yuanyuan Cheng, Bridget Murphy, Claire Sanderson, Hannah Siddle.

When Kathy Belov first walked in to Lab 311 of the RMC Gunn Building two years ago she was confronted by a neglected relic: a forgotten laboratory cluttered with empty benches and old equipment, and storage cupboards filled with chemicals dating back to the 1970s. From these inauspicious beginnings the lab is now home to the Australasian Wildlife Genomics Group. And the lab is a thriving success, with one postdoctoral research fellow, seven student researchers and another four to come in 2008. Dr Belov is disinclined to see herself as a leader but the young and dynamic group of researchers surrounding Dr Belov suggests otherwise. All are at the beginning of their careers, yet the calibre of their work is already propelling them to the forefront of wildlife genetics research.

Hannah Siddle (PhD student)

Hannah is collaborating with Dr Stephan Beck and his team from the Sanger Institute in the UK. She is sequencing the entire MHC of the wallaby using overlapping clones. This project is funded by a large ARC Discovery Grant. She has also discovered that Tasmanian devils lack diversity in MHC genes, explaining why DFTD has spread so readily.

Claire Sanderson (PhD student)

Claire has discovered a massive expansion of genes which code for Natural Killer Cell receptors in the platypus. These cells kill cancer cells and cells infected by microorganisms. She is also mapping immune genes in the Tammar wallaby.

Emily Wong (PhD student)

Emily is a bioinformatician. She is using computers to discover highly divergent immune genes in the opossum, platypus and wallaby genomes. Previous attempts to identify these genes in the lab were unsuccessful, but Emily has used statistical models to identify patterns in DNA sequence and found genes which share as little as 30 per cent identity with their human counterparts.

Camilla Whittington (PhD student)

Camilla is working on platypus venom. She has discovered that venom molecules in reptiles and the platypus were co-opted independently from the same gene families. One of these gene families codes for anti-microbial peptides and Camilla is now looking at expression of these peptides in wallabies to determine the role they play in protecting immunologically naïve young.

Sarah Jobbins (PhD student)

Sarah is working with the Koala Infectious Disease Research group on the genetics of chlamydial disease susceptibility in the koala. She has found low levels of MHC diversity in koalas on Kangaroo and French Islands, raising conservation concerns about these populations. While they seem to be thriving, the introduction of a disease in the islands could have devastating consequences.

Yuanyuan Cheng (Masters student)

Yuanyuan is developing MHC-linked microsatellite markers to develop a cheaper and quicker method to characterise MHC diversity in the Tammar wallaby.

Bridget Murphy (Honours student)

Bridget is working on the evolution of viviparity (live birth) in skinks. While viviparity evolved once in mammals (monotremes lay eggs, while marsupials and placentals give birth to live young), viviparity has evolved independently more than 100 times in skinks. Bridget is co-supervised by Professor Mike Thompson from the School of Biological Sciences.



Sarah Jobbins



Claire Sanderson

Staff Profile

Aitor Arteaga



You arrived in Sydney last year; what prompted you to move from Glasgow?

I came here to take up the position of senior registrar in small animal medicine. A large part of my decision to come to Australia was based on the prospect of the new canine centre. I've also had the opportunity to be on the planning committee for the new centre and it's exciting to see it evolving around me. There will be a range of state-of-the-art equipment as part of the upgrade which means no veterinary hospital in NSW will have facilities on a par with ours.

How do you think the new centre will impact on your work?

My area of expertise is canine medicine so for me personally it has been a great benefit to have exposure to feline specialists. In general, I think we will be able to provide an enhanced quality of service to our clients. I expect our case-load will increase as we have facilities no-one else has and I think our students will also benefit from having greater exposure to wider and more challenging cases.

How does Australia's veterinary program compare with other international programs?

I think there's really good exposure to the various disciplines within the degree here. Students rotate through the hospital, primary care and referral surgery. This allows for broad exposure and it provides highly qualified vets who are well-prepared for the real world.

What's the most unusual case you've seen since being here?

Probably things I wouldn't see in Europe. For example a fungal infection in a German Shepherd. Typically the fungal infection occurs in the nose cavity but in Australia it can be found throughout the dog's body. It's something you read about but now I've actually seen it and treated it.

How are you adapting to Australia?

I have to say that adapting to Sydney isn't too hard. I lived in the UK for nine years and the quality of life here really is better. I've just been to North Queensland and the variety of plants and birds is truly amazing. And then there's the snorkeling and the rainforest.

Alumni Profile

Alison and Audrey Shen

You're twins and you are both vets. How did that happen?

Since the age of about ten we talked about becoming vets. We studied the same subjects at school in England and then moved to Sydney in 2001 to study veterinary science. We graduated in 2005 and after working in other practices we decided to open our own. It seems a natural progression that we ended up working together.



Your new practice, Happy Tails, opened in August. How did it come about?

The building used to be an old glass warehouse and we were in a position to design it exactly how we wanted from scratch. We've both worked in other surgeries and had a good idea of what works and what doesn't. It's been a family affair: Alison's husband built it and our father, an engineer, helped with the design.

What do people find when they come in?

We have VIP boarding for cats and dogs, prescription foods, grooming, boarding and puppy school, as well as hospital facilities such as X-ray and surgery. Everywhere in the world people are becoming more obsessed with their pets and we're trying to provide for that. You could call the practice a pet well being service. We have a great team with similar attitudes, we're animal crazy, but we also have specialist interests that complement each other. We work with another vet, Charlotte, three nurses, a puppy school teacher and two groomers.

Do we pamper our pets too much?

There are a lot more career-oriented people in today's world who see their pet as a companion. I think we're slowly moving towards pets as part of our society rather than some animal in the backyard. In Europe animals are allowed on public transport and in the home. Your pet is seen as one of the family and Australia is a long way behind in that sense. The health of your pet really reflects your own health.

Any unusual pet requests?

Some owners who bring their pets in for boarding leave us two page essays on their pet's needs. They range from favoured petting spots to what treats they can have and when. They often ask for the meals to be divided up into separate boxes as well. We love our pets, so we can appreciate their fussiness.

Volunteer Profile

Samantha George

How did you first get involved with the University Veterinary Hospital?

I had just purchased a German Coolie and was telling a friend I didn't know of any other Coolie owners around Sydney. He put me in contact with a friend of his who also owned a German Coolie and it turned out to be Paul McGreevy from the Veterinary Science faculty. I asked Paul if there was any volunteering I could do around the uni and that's how I ended up assisting in teaching.

Your dogs were also part of the program?

I would bring in 3 or 4 of them and either have them in the dog handling classes I was teaching or leave them in the dog class while I went off to help teach the cat class. For Clancy, my German Coolie, it was the highlight of his week. When we'd arrive, he'd first greet the students on the lawn having lunch with an excited "I'm here, I'm here" then parade through the building as though he lived there.



Why volunteering?

I'd retired from veterinary nursing and had always thought of doing volunteer work. Most people volunteer in rescue work or at shelters but I'd spent some time in my work life euthanising animals and I was really looking to contribute in a more positive environment. There are so many opportunities for volunteering in this area, if you find pounds distressing then look for other places like the University.

You've finally hung up your boots with the University, what's next?

I've been volunteering here for the past six years. I have seven dogs now and looking after them takes up a lot of my time. I'm also working more with Oz Collie Rescue. Our Australia-wide network saves Collies in pounds from euthanasia, provides foster care, financial help, transporting and the re-homing of Collies in need.

You currently have seven dogs, can you ever have too many?

Yes. I think you definitely need to think about where you draw the line. I'm very conscious that animal "lovers" can inadvertently become "collectors". I have a great relationship with my vet and I've always said to him stop me when you think I've rescued too many to not be able to care for them properly.

Faculty Achievements



L-R: Ms Melanie Robson and Dr John Baguley, winners of the 2007 Carrick Award.

2007 Carrick Award

The Faculty of Veterinary Science's Year Five team has been awarded the 2007 Carrick award. John Baguley, Christine Hawke, Melanie Robson, Federico Costa and Susan Matthew won the \$10,000 award which recognised their achievement in developing assessment and feedback methods for the final year internship program of the Veterinary Science degree. Their assessment procedures were deemed to effectively foster independent, lifelong learning attitudes and abilities.

The Year Five team received further recognition in the awarding of the Faculty's first Carrick Grant, in association with Murdoch University, for improving communications training in the curriculum. The team continues the Faculty's proud track record in local and national teaching awards.

The Urrbrae Award

Professor Chis Maxwell has won the prestigious Urrbrae Memorial Award for his work in the livestock industry, particularly reproductive technologies. The award is also recognition of the benefits of long-term University-based research

in providing outcomes within the agricultural industry.

The Award is presented biannually to recognise outstanding contributions to the science and practice of Australian agriculture.

"I have worked with livestock industries, particularly the wool sheep industry, throughout my career and I see this as recognition of the contributions of a number of research teams," said Professor Maxwell. "Together we have worked on linking genetic and artificial breeding technologies to the productivity of animal breeders and to the genetic improvement of Australian livestock."

Professor Maxwell's future work will concentrate on the practical application of in-vitro embryo technologies to livestock breeding and will continue to focus on improving the productivity of the Australian livestock industries.

Student Achievements

Young Scientist Award for best poster at the AAABG conference
Mini Singh

First Prize in the Young Speakers Program at The Australian College of

Veterinary Scientists' Science Week
Elissa Kluger

Best overall student presentation
Hannah Siddle

Best presentation in Comparative Genomics at the Genetics Society Australasia conference
Camilla Whittington

Meat and Livestock Australia New Scientist Award at the Australasian Society for Reproductive Biology (SRB)
Kiri Beilby

Society's TJ Robinson Travel Fellowship to represent the SRB's young scientists and present a lecture at next year's International Congress on Animal Reproduction in Budapest
Katherine Morton

Chris Baldock Prize for achieving the highest score in the membership examinations for the ACVSc Epidemiology Chapter
Navneet Dhand

Successful completion of the membership examinations for the ACVSc Epidemiology Chapter
Sam Hamilton

Staff Achievements

ARC Linkage project grant
Associate Professor Peter Windsor

Awarding of the Company Directors Diploma
Professor Paul Canfield and Dr Peter Williamson



Prof Chis Maxwell

ANIMALIA

Jane Rutter and Monica Trapaga star in ANIMALIA 2007!

Two of Australia's most accomplished female performers entertained over 200 guests at this year's ANIMALIA gala in the University's Great Hall. ANIMALIA is the Veterinary Science Foundation's annual fundraiser; money raised goes towards the important work of our Veterinary Hospital and the training of tomorrow's young vets.



Jane Rutter and Morgan Pearse

Jane Rutter is one of the few classical flautists in the world with the ability to combine the worlds of pop and classical music. She began the night with a wonderful performance inspired by the great George Gershwin. Jane was joined on stage by a major new talent, classical singer Morgan Pearse.



Monica Trapaga

Post-supper entertainment was provided by jazz singer Monica Trapaga and her band The Bachelor Pad. Their vivacious style of music had guests up and dancing the evening away.



Roger Massey Green and Deborah McMurtrie

Dr Chris Brown, Channel 9's star vet, was MC for an evening that featured the popular 'Fly Ball Demonstration' with renowned trainer Steve Austin on the University's front lawns.

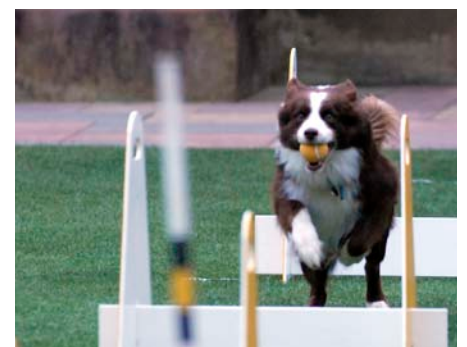


Fiona and James Balfour

Over \$45,000 was raised from the evening's two auctions. These funds will enable the VSF to continue its vital work supporting Australia's leading Veterinary School. It will also contribute to the completion of the Veterinary Hospital's new state-of-the-art Dog Clinic, a welcome addition to the already acclaimed Valentine Charlton Cat Clinic.



Alex and Richard Churcher



Flyball demonstration

A big thank you to all who made the night such a wonderful event.