NEW WILDLIFE HEALTH AND CONSERVATION CENTRE
ONWARDS AND UPWARDS FOR THE FACULTY OF VETERINARY SCIENCE

I have been Dean of the Faculty of Veterinary Science for just two years, and it has been an exciting time for me and a very productive one for the Faculty. We have achieved many of our strategic goals in teaching, research and service to the University and community.

Notable highlights include benchmarking our BVSc course internationally with the American Veterinary Medical Association, the successful launch of the new Animal Veterinary Bioscience degree, continued increase in our research activities at both Sydney and Camden campuses, and the improved performance of the Veterinary Teaching Hospitals.

A significant challenge faced this year has been the major restructure of the University. With the cessation of the College system, we have been placed in a group of facilities with Science and Agriculture, and this will provide excellent opportunities for collaboration and growth of our future academic programs.

One of the most immediate opportunities for the Faculties of Veterinary Science and Agriculture, Food and Natural Resources (FANR) is the development of the rural campus at Camden, a vital part of our Faculty for over 50 years. Veterinary and agricultural research at Camden has resulted in a number of world firsts, and the teaching hospital, the University Veterinary Centre Camden (UVCC), with its Equine Performance Laboratory has received international acclaim.

Recognising the importance of Camden, the Faculty has been striving to improve its facilities: currently some $13 million investment in teaching, research and UVCC facilities is planned. This includes the Wildlife Health and Conservation Centre (WHCC) with its new Director recruited from the US, Associate Professor David Phalen.

The WHCC and extensive teaching facilities housing the planned expansion of Learning and Teaching activities have just been completed at a cost of $5 million.

Funds of $3.7 million have been secured for the next phase - a 250-seat Lecture Theatre and Conference Centre, located in the vicinity of the WHCC, new teaching and research facilities, and Veterinary Bioscience Research, The Shute Building.

Exciting news for the UVCC is the support being provided by the University with more than $4 million of state-of-the-art diagnostic imaging, surgical, medical and pathological equipment to be installed for large and small animals.

Our next goal is to seek much-needed support to develop Camden as a major campus for the University. The University restructure and implementation of shared services gives us, and the Plant Breeding Institute (FAFNR), a great opportunity to expand the horizons of Camden and achieve a truly unique rural centre for agricultural and veterinary bioscience research and education.

At Camden, we currently have over 170 staff, nearly 200 students, and a research income of over $10 million pa in plant and veterinary biosciences, figures that are expected to increase significantly over the next few years. However, the current campus comprises 19 separate educational units with little coordination or central University support. We are submitting a strategic plan to the University asking for integrated and shared facilities on the campus to facilitate optimum growth and expansion of all of its activities. I believe the potential for Camden is enormous, with its wide range of rural activities and the opportunities to partner with other research and educational organisations.

For these reasons, I am optimistic the Faculty is on course for an “onward and upward” trajectory within the University of Sydney.
A Centre focusing on the role of veterinarians in all aspects of conservation biology had long been the dream of the Faculty’s Associate Professor Tony English. That Centre – the Wildlife Health and Conservation Centre (WHCC) – has, he says, come to reality, with construction just under way. I am calling this our ‘Roundhouse’.

WHCC MISSION

WHCC objectives of research, teaching and wildlife clinical medicine aim to:

- provide referral and primary care to non-traditional pet species including birds, reptiles, ferrets, rabbits, rodents, fish and zoo animals
- work with local rehabilitation organisations to provide primary and referral care to injured and diseased wildlife
- use the WHCC clinical service, in combination with courses in the curriculum, to provide a foundation in wildlife and exotic animal medicine and conservation biology to veterinary students
- develop and facilitate wide-ranging research programs using the diverse talents of Faculty of Veterinary Science staff and other Faculties at the University of Sydney, and to collaborate with other government and non-government national and international institutions that identify and seek to reduce threats to biodiversity
- continue ongoing research into the health issues of exotic pets
- provide postgraduate education at both the Masters and PhD level through the above programs
- actively engage and involve the community in the activities of the WHCC

WHAT IS THE WHCC?

The most visible WHCC resource is the new veterinary clinic on the Faculty’s Camden campus, designed to facilitate top quality medical and surgical care for wildlife and client-owned exotic pets. Scheduled to open in January 2007, it includes wet and dry dens and other cageing customised for a wide range of species. The clinical service will initially be operated by the Director, a full time veterinarian, and a veterinary nurse, and the building provides office space for postgraduate and veterinary students. Specialised laboratory facilities for bench top research are located in the adjacent Shute building.

TEACHING

With opportunities to train in the WHCC clinic, it is hoped that veterinary students at the University of Sydney will have access to one of the premier programs in this field in Australia. Undergraduate veterinary students will begin practical rotations through the WHCC clinic by December 2007, and an internship or residency program is planned to commence in early 2008. Year 2 veterinary students already undertake a 4 credit course on veterinary conservation biology, and units relating to wildlife and exotic pets are included in anatomy, histology and medicine. A Master’s degree in Wildlife Health and Population Management, pioneered by Associate Professor Tony English and Professor Chris Dickman, is now in its sixth year and attracts an increasing number of students from around the world. Their research projects have already resulted in a number of important discoveries and publications.

RESEARCH AND LINKAGES

Dr Phalen emphasises the most important resource of the WHCC is Faculty staff. “There are more than twenty members of the Faculty of Veterinary Science who already have a strong involvement in conservation biology and wildlife research. This number increases dramatically if we include staff in other science faculties, many of whom are already collaborating with veterinary science researchers.”

The diverse wildlife-related projects already underway include molecular studies of the evolution of marsupials, work on the Taiwanese Devil facial tumour, infectious diseases of the koala, birds and fish, Australian sea lion mortality and other studies of marine mammals in the Antarctic, reptile phylogeny, and the impact of invasive species on native fauna. Many new projects are in the pipeline and Dr Phalen hopes they will ultimately include local Camden/Campbelltown programs such as restoration of the Nepean River.

A key strength of Faculty staff is their connection to other dynamic organisations. These include the Australian Wildlife Health Registry, Australian Wildlife Health Network, Taronga and Western Plains Zoos, Australian Marine Mammal Research Centre, the Australian Museum, Cooperative Research Centre for Invasive Animals, Wildlife Information and Rescue Service, National Parks and Wildlife Service, Botanic Gardens, the Blue Mountain World Heritage Institute, the Schubot Exotic Bird Health Centre at Texas A&M University, and the Australian veterinary community.

It is anticipated the WHCC will develop linkages with state and federal governments, and with regional, national and international conservation organisations and universities. Efforts are underway to establish linkages to similar programs in New Zealand, Southeast Asia, the United States of America, South America, and Europe.

BIOSCURITY

Dr Phalen is continuing work begun at Texas A&M University relating to mycobacterial diseases of birds, avian herpesvirus, and Mephisto ornithogaster. “I want to use my training to study diseases of captive birds that originate outside Australia, and that may pose a threat to native Australian species. I am also eager to identify pathogens which affect exotic species and aviculturists and pet bird owners as well as veterinarians regarding avian influenza and other issues that may affect exotic pets,” he said.

Associate Professor Phalen believes the Wildlife Health and Conservation Centre will reflect its members: “The WHCC will be a very inclusive organisation whose fundamental belief is that resources are too limited for competition and that conservation and health issues can only be resolved with cooperation and innovative initiatives.”

If you have an interest in the WHCC programs, please contact the Director at dphalen@unsw.edu.au.

ADOPT A WILDLIFE HEALTH AND CONSERVATION CENTRE PATHOLOGIST

The Wildlife Health and Conservation Centre (WHCC) will be led by Associate Professor David Phalen DVM, PhD, Dipl. ABVP (Avian). Dr Phalen was appointed following an international search for a leading senior academic, wildlife specialist, researcher and teacher. He is also an experienced media presenter with an understanding of fundraising.

Dr Phalen graduated from the University of Chicago with a BA in Biology in 1979, followed by a DVM in Veterinary Medicine from Cornell University in 1983. He completed his PhD in Veterinary Microbiology at Texas A&M University in 1992, and in 1997 gained board certification with the American Board of Veterinary Practitioners as an Avian Specialist.

Dr Phalen brings significant clinical and research experience relevant to many exotic animal and bird species, from both private practice and university centres. Since 1989 he has been located at Texas A&M University, commencing as a Veterinary Clinical Associate at the Schubot Exotic Bird Health Centre, Department of Pathobiology – he later became the Centre’s Assistant Director. From 1993 Dr Phalen joined the Department of Large Animal Medicine and Surgery where he was part of a team that managed the day-to-day operations of the Zoological Medicine Clinical Service.

Prior to his arrival at Camden in June 2006, Dr Phalen already had a strong network across the Australian veterinary, zoo and scientific community. He has been an International Reviewer for Australian PhD students, presented papers at Australian conferences, and undertaken joint research projects with Australian scientists, including staff at the Faculty of Veterinary Science. He has published work on diseases of budgerigars, cockatoos and cockatiels.

One of the requirements for the role of WHCC Director was a proven research track record and Associate Professor Phalen has enjoyed an extraordinarily accomplished research career, including some world firsts. His current research interest, to be continued at Camden, is the fungus Macrorhabdus ornithogaster (see page 4). His academic publications are extensive, he is co-author of the book Pathology of Exotic Birds and has contributed chapters in many veterinary textbooks.

Dr Phalen has served on the editorial boards of prestigious specialist journals, including the Journal of Avian and Wildlife Surgery. He is the recipient of many awards and honours, including an Association of Avian Veterinarians award for Outstanding Service and Commitment to Advancing and Promoting Avian Medicine and Stewardship, and an Excellence in Avian Research Award from the American Veterinary Medical Foundation. He also received awards from Bird Clubs of Virginia (Medical Research Progress to Benefit Aviculture) and the George Award from the National Parrot Rescue and Rehabilitation organisation.

OUR NEW WHCC DIRECTOR

The Wildlife Health and Conservation Centre (WHCC) will be led by Associate Professor David Phalen DVM, PhD, Dipl. ABVP (Avian). Dr Phalen was appointed following an international search for a leading senior academic, wildlife specialist, researcher and teacher. He is also an experienced media presenter with an understanding of fundraising.

Dr Phalen graduated from the University of Chicago with a BA in Biology in 1979, followed by a DVM in Veterinary Medicine from Cornell University in 1983. He completed his PhD in Veterinary Microbiology at Texas A&M University in 1992, and in 1997 gained board certification with the American Board of Veterinary Practitioners as an Avian Specialist.

Dr Phalen brings significant clinical and research experience relevant to many exotic animal and bird species, from both private practice and university centres. Since 1989 he has been located at Texas A&M University, commencing as a Veterinary Clinical Associate at the Schubot Exotic Bird Health Centre, Department of Pathobiology – he later became the Centre’s Assistant Director. From 1993 Dr Phalen joined the Department of Large Animal Medicine and Surgery where he was part of a team that managed the day-to-day operations of the Zoological Medicine Clinical Service.

Prior to his arrival at Camden in June 2006, Dr Phalen already had a strong network across the Australian veterinary, zoo and scientific community. He has been an International Reviewer for Australian PhD students, presented papers at Australian conferences, and undertaken joint research projects with Australian scientists, including staff at the Faculty of Veterinary Science. He has published work on diseases of budgerigars, cockatoos and cockatiels.

One of the requirements for the role of WHCC Director was a proven research track record and Associate Professor Phalen has enjoyed an extraordinarily accomplished research career, including some world firsts. His current research interest, to be continued at Camden, is the fungus Macrorhabdus ornithogaster (see page 4). His academic publications are extensive, he is co-author of the book Pathology of Exotic Birds and has contributed chapters in many veterinary textbooks.

Dr Phalen has served on the editorial boards of prestigious specialist journals, including the Journal of Avian and Wildlife Surgery. He is the recipient of many awards and honours, including an Association of Avian Veterinarians award for Outstanding Service and Commitment to Advancing and Promoting Avian Medicine and Stewardship, and an Excellence in Avian Research Award from the American Veterinary Medical Foundation. He also received awards from Bird Clubs of Virginia (Medical Research Progress to Benefit Aviculture) and the George Award from the National Parrot Rescue and Rehabilitation organisation.
Historical commercial harvesting and the recovery of the Australian sea lion from investigating the factors impacting on the Gray, with Professor Paul Canfield, is

The impact of harvesting is one of the serious issues of the current conservation status of the sea lions. A grey nurse shark injured by a fishing hook. A juvenile Australian sea lion at Seal Bay.

Populations of many shark species are declining rapidly around the world. Their life history and ecological characteristics make them particularly vulnerable to anthropogenic impacts such as harvesting, and habitat degradation or loss.

Add to these environmental threats the almost non-existent knowledge of functional parameters such as population structuring, dispersal, and effective population size: unlike other wildlife species, data collection relying on direct observation can be logistically challenging in sharks. This has led to information gained through molecular methods becoming increasingly critical for conservation management.

Dr Kyall Zenger, ReproGen Research Fellow in the CRC for Innovative Dairy Products, also applies his genetic expertise to support wildlife conservation. Kyall is part of an international team using molecular methods to investigate shark and marine population biology. Core project partners include Dr Adam Stow, Associate Professor Robert Harcourt and Professor David Brincke of Murdoch University, and Dr Victor Peddemors, University of KwaZulu-Natal, Durban, South Africa.

Kyall has developed genetic analysis tools for investigating the population dynamics and evolutionary genetics of numerous diverse taxa – tools readily applied to the grey nurse shark (Carcharias taurus), a species listed as globally vulnerable by the World Conservation Union and critically endangered in eastern Australian waters (2003 population estimate was 500).

“We need both demographic and genetic knowledge to understand the evolutionary origins of the venom proteins. As Camilla says “It’s very exciting to be working on an animal that is both unusual and that we know so little about. The important phylogenetic position of the platypus as an early offshoot from the mammalian lineage means this research has the potential to provide us with information about the evolutionary origins and functions of venom peptides as well as our own body proteins.”

Conservation

A threatened species

The Australian sea lion, Neophoca cinerea, the only pinniped endemic to Australia’s coastal waters, is now listed as a Threatened species. Vulnerable category under the Environment Protection and Biodiversity Conservation Act of 1999. It currently breeds on the coast and at least 50 offshore islands from Western Australia to South Australia. A 1994 study estimated the population at 9,000 to 12,000 individuals.

A Faculty research project will soon contribute to the conservation and future management of the species. Dr Rachael Gray, with Professor Paul Cantlie, is investigating the factors impacting on the recovery of the Australian sea lion from historical commercial harvesting and the Populations of many shark species are declining rapidly around the world. Their life history and ecological characteristics make them particularly vulnerable to anthropogenic impacts such as harvesting, and habitat degradation or loss.

Add to these environmental threats the almost non-existent knowledge of functional parameters such as population structuring, dispersal, and effective population size: unlike other wildlife species, data collection relying on direct observation can be logistically challenging in sharks. This has led to information gained through molecular methods becoming increasingly critical for conservation management.

Dr Kyall Zenger, ReproGen Research Fellow in the CRC for Innovative Dairy Products, also applies his genetic expertise to support wildlife conservation. Kyall is part of an international team using molecular methods to investigate shark and marine population biology. Core project partners include Dr Adam Stow, Associate Professor Robert Harcourt and Professor David Brincke of Murdoch University, and Dr Victor Peddemors, University of KwaZulu-Natal, Durban, South Africa.

Kyall has developed genetic analysis tools for investigating the population dynamics and evolutionary genetics of numerous diverse taxa – tools readily applied to the grey nurse shark (Carcharias taurus), a species listed as globally vulnerable by the World Conservation Union and critically endangered in eastern Australian waters (2003 population estimate was 500).

“We need both demographic and genetic knowledge to understand the evolutionary origins of the venom proteins. As Camilla says “It’s very exciting to be working on an animal that is both unusual and that we know so little about. The important phylogenetic position of the platypus as an early offshoot from the mammalian lineage means this research has the potential to provide us with information about the evolutionary origins and functions of venom peptides as well as our own body proteins.”

Conservation

A threatened species

The Australian sea lion, Neophoca cinerea, the only pinniped endemic to Australia’s coastal waters, is now listed as a Threatened species. Vulnerable category under the Environment Protection and Biodiversity Conservation Act of 1999. It currently breeds on the coast and at least 50 offshore islands from Western Australia to South Australia. A 1994 study estimated the population at 9,000 to 12,000 individuals.

A Faculty research project will soon contribute to the conservation and future management of the species. Dr Rachael Gray, with Professor Paul Cantlie, is investigating the factors impacting on the recovery of the Australian sea lion from historical commercial harvesting and the Populations of many shark species are declining rapidly around the world. Their life history and ecological characteristics make them particularly vulnerable to anthropogenic impacts such as harvesting, and habitat degradation or loss.

Add to these environmental threats the almost non-existent knowledge of functional parameters such as population structuring, dispersal, and effective population size: unlike other wildlife species, data collection relying on direct observation can be logistically challenging in sharks. This has led to information gained through molecular methods becoming increasingly critical for conservation management.

Dr Kyall Zenger, ReproGen Research Fellow in the CRC for Innovative Dairy Products, also applies his genetic expertise to support wildlife conservation. Kyall is part of an international team using molecular methods to investigate shark and marine population biology. Core project partners include Dr Adam Stow, Associate Professor Robert Harcourt and Professor David Brincke of Murdoch University, and Dr Victor Peddemors, University of KwaZulu-Natal, Durban, South Africa.

Kyall has developed genetic analysis tools for investigating the population dynamics and evolutionary genetics of numerous diverse taxa – tools readily applied to the grey nurse shark (Carcharias taurus), a species listed as globally vulnerable by the World Conservation Union and critically endangered in eastern Australian waters (2003 population estimate was 500).

“We need both demographic and genetic knowledge to understand the evolutionary origins of the venom proteins. As Camilla says “It’s very exciting to be working on an animal that is both unusual and that we know so little about. The important phylogenetic position of the platypus as an early offshoot from the mammalian lineage means this research has the potential to provide us with information about the evolutionary origins and functions of venom peptides as well as our own body proteins.”

Conservation

A threatened species

The Australian sea lion, Neophoca cinerea, the only pinniped endemic to Australia’s coastal waters, is now listed as a Threatened species. Vulnerable category under the Environment Protection and Biodiversity Conservation Act of 1999. It currently breeds on the coast and at least 50 offshore islands from Western Australia to South Australia. A 1994 study estimated the population at 9,000 to 12,000 individuals.

A Faculty research project will soon contribute to the conservation and future management of the species. Dr Rachael Gray, with Professor Paul Cantlie, is investigating the factors impacting on the recovery of the Australian sea lion from historical commercial harvesting and the Populations of many shark species are declining rapidly around the world. Their life history and ecological characteristics make them particularly vulnerable to anthropogenic impacts such as harvesting, and habitat degradation or loss.

Add to these environmental threats the almost non-existent knowledge of functional parameters such as population structuring, dispersal, and effective population size: unlike other wildlife species, data collection relying on direct observation can be logistically challenging in sharks. This has led to information gained through molecular methods becoming increasingly critical for conservation management.

Dr Kyall Zenger, ReproGen Research Fellow in the CRC for Innovative Dairy Products, also applies his genetic expertise to support wildlife conservation. Kyall is part of an international team using molecular methods to investigate shark and marine population biology. Core project partners include Dr Adam Stow, Associate Professor Robert Harcourt and Professor David Brincke of Murdoch University, and Dr Victor Peddemors, University of KwaZulu-Natal, Durban, South Africa.

Kyall has developed genetic analysis tools for investigating the population dynamics and evolutionary genetics of numerous diverse taxa – tools readily applied to the grey nurse shark (Carcharias taurus), a species listed as globally vulnerable by the World Conservation Union and critically endangered in eastern Australian waters (2003 population estimate was 500).

“We need both demographic and genetic knowledge to understand the evolutionary origins of the venom proteins. As Camilla says “It’s very exciting to be working on an animal that is both unusual and that we know so little about. The important phylogenetic position of the platypus as an early offshoot from the mammalian lineage means this research has the potential to provide us with information about the evolutionary origins and functions of venom peptides as well as our own body proteins.”

Conservation

A threatened species

The Australian sea lion, Neophoca cinerea, the only pinniped endemic to Australia’s coastal waters, is now listed as a Threatened species. Vulnerable category under the Environment Protection and Biodiversity Conservation Act of 1999. It currently breeds on the coast and at least 50 offshore islands from Western Australia to South Australia. A 1994 study estimated the population at 9,000 to 12,000 individuals.

A Faculty research project will soon contribute to the conservation and future management of the species. Dr Rachael Gray, with Professor Paul Cantlie, is investigating the factors impacting on the recovery of the Australian sea lion from historical commercial harvesting and the
HELPING TO SOLVE THE TASSIE DEVIL RIDDLE

The Faculty is contributing to concerted national efforts aimed at understanding the infectious tumour that has devastated the Tasmanian Devil population, reducing numbers by 90% over the past 10 years. Dr Kathy Belov and PhD students Hannah Sidde and Claire Sandersen, of the Faculty's Australasian Wildlife Genomics Group, are collaborating with Dr Stephen Pyecroft and Ms Erin Noonan, Tasmanian Department of Primary Industries and Water, to undertake a genetic study of immunological recognition of the disease.

During a recent visit to Launceston Hannah saw first hand the impact of the disease. “Seeing affected animals motivated me. We need to understand why devils don’t appear to mount an immune response to these tumours so populations can be managed and, hopefully, the disease controlled,” she said.

The group’s previous studies and Hannah’s PhD project, characterising the major histocompatibility complex (MHC) genes of the tammar wallaby, have provided an important model and starting point (Roundhouse, November 2005). The MHC is a significant cluster of immune genes found in all vertebrates that plays a role in antigen recognition.

Tasmanian Devil Facial Tumour Disease (DDFT) is passed between devils through biting. Necrotic lesions develop around the mouth and face that ulcerate and eventually cause starvation. The disease has geographic boundaries: while it is decimating devil populations in eastern Tasmania, devils in northwest Tasmania remain disease-free. Are these devils free of DDFT or yet to come into contact with the disease?

In early 2006 it was demonstrated that tumour cells taken from samples across Tasmania have an identical, vastly knarry genotype. An altruistic theory of tumour transmission was proposed, meaning the tumour could be the result of an infectious cell line. The only other reported transmissible tumour is the cancer in cattle transmissible sarcoma (CVTS), which occurs in dogs and is passed during coitus.

The Faculty group has two genetic-based hypotheses as to why the spread of DDFT has been so patchy and devasting. The tumour may ‘escape’ the immune system by down-regulating (decreasing) MHC class II expression and modifying MHC class I expression - this is basically how the CVTS operates. Or, devils MHC lacks diversity at class I and class II loci, resulting in a failure to recognise the tumour as ‘foreign’. Hannah and Claire have constructed a cDNA library from the spleen of a devil, isolated MHC class I and MHC class II genes and begun further work, including designing gene specific primers. Their preliminary results will now enable them to apply for grants to further support this important research.

The Faculty is contributing to concerted national efforts aimed at understanding the infectious tumour that has devastated the Tasmanian Devil population, reducing numbers by 90% over the past 10 years. Dr Kathy Belov and PhD students Hannah Sidde and Claire Sandersen, of the Faculty’s Australasian Wildlife Genomics Group, are collaborating with Dr Stephen Pyecroft and Ms Erin Noonan, Tasmanian Department of Primary Industries and Water, to undertake a genetic study of immunological recognition of the disease.

During a recent visit to Launceston Hannah saw first hand the impact of the disease. “Seeing affected animals motivated me. We need to understand why devils don’t appear to mount an immune response to these tumours so populations can be managed and, hopefully, the disease controlled,” she said.

The group’s previous studies and Hannah’s PhD project, characterising the major histocompatibility complex (MHC) genes of the tammar wallaby, have provided an important model and starting point (Roundhouse, November 2005). The MHC is a significant cluster of immune genes found in all vertebrates that plays a role in antigen recognition.

Tasmanian Devil Facial Tumour Disease (DDFT) is passed between devils through biting. Necrotic lesions develop around the mouth and face that ulcerate and eventually cause starvation. The disease has geographic boundaries: while it is decimating devil populations in eastern Tasmania, devils in northwest Tasmania remain disease-free. Are these devils free of DDFT or yet to come into contact with the disease?

In early 2006 it was demonstrated that tumour cells taken from samples across Tasmania have an identical, vastly knarry genotype. An altruistic theory of tumour transmission was proposed, meaning the tumour could be the result of an infectious cell line. The only other reported transmissible tumour is the cancer in cattle transmissible sarcoma (CVTS), which occurs in dogs and is passed during coitus.

The Faculty group has two genetic-based hypotheses as to why the spread of DDFT has been so patchy and devasting. The tumour may ‘escape’ the immune system by down-regulating (decreasing) MHC class II expression and modifying MHC class I expression - this is basically how the CVTS operates. Or, devils MHC lacks diversity at class I and class II loci, resulting in a failure to recognise the tumour as ‘foreign’. Hannah and Claire have constructed a cDNA library from the spleen of a devil, isolated MHC class I and MHC class II genes and begun further work, including designing gene specific primers. Their preliminary results will now enable them to apply for grants to further support this important research.

The Faculty is contributing to concerted national efforts aimed at understanding the infectious tumour that has devastated the Tasmanian Devil population, reducing numbers by 90% over the past 10 years. Dr Kathy Belov and PhD students Hannah Sidde and Claire Sandersen, of the Faculty’s Australasian Wildlife Genomics Group, are collaborating with Dr Stephen Pyecroft and Ms Erin Noonan, Tasmanian Department of Primary Industries and Water, to undertake a genetic study of immunological recognition of the disease.

During a recent visit to Launceston Hannah saw first hand the impact of the disease. “Seeing affected animals motivated me. We need to understand why devils don’t appear to mount an immune response to these tumours so populations can be managed and, hopefully, the disease controlled,” she said.

The group’s previous studies and Hannah’s PhD project, characterising the major histocompatibility complex (MHC) genes of the tammar wallaby, have provided an important model and starting point (Roundhouse, November 2005). The MHC is a significant cluster of immune genes found in all vertebrates that plays a role in antigen recognition.

Tasmanian Devil Facial Tumour Disease (DDFT) is passed between devils through biting. Necrotic lesions develop around the mouth and face that ulcerate and eventually cause starvation. The disease has geographic boundaries: while it is decimating devil populations in eastern Tasmania, devils in northwest Tasmania remain disease-free. Are these devils free of DDFT or yet to come into contact with the disease?

In early 2006 it was demonstrated that tumour cells taken from samples across Tasmania have an identical, vastly knarry genotype. An altruistic theory of tumour transmission was proposed, meaning the tumour could be the result of an infectious cell line. The only other reported transmissible tumour is the cancer in cattle transmissible sarcoma (CVTS), which occurs in dogs and is passed during coitus.

The Faculty group has two genetic-based hypotheses as to why the spread of DDFT has been so patchy and devasting. The tumour may ‘escape’ the immune system by down-regulating (decreasing) MHC class II expression and modifying MHC class I expression - this is basically how the CVTS operates. Or, devils MHC lacks diversity at class I and class II loci, resulting in a failure to recognise the tumour as ‘foreign’. Hannah and Claire have constructed a cDNA library from the spleen of a devil, isolated MHC class I and MHC class II genes and begun further work, including designing gene specific primers. Their preliminary results will now enable them to apply for grants to further support this important research.

The Faculty is contributing to concerted national efforts aimed at understanding the infectious tumour that has devastated the Tasmanian Devil population, reducing numbers by 90% over the past 10 years. Dr Kathy Belov and PhD students Hannah Sidde and Claire Sandersen, of the Faculty’s Australasian Wildlife Genomics Group, are collaborating with Dr Stephen Pyecroft and Ms Erin Noonan, Tasmanian Department of Primary Industries and Water, to undertake a genetic study of immunological recognition of the disease.

During a recent visit to Launceston Hannah saw first hand the impact of the disease. “Seeing affected animals motivated me. We need to understand why devils don’t appear to mount an immune response to these tumours so populations can be managed and, hopefully, the disease controlled,” she said.

The group’s previous studies and Hannah’s PhD project, characterising the major histocompatibility complex (MHC) genes of the tammar wallaby, have provided an important model and starting point (Roundhouse, November 2005). The MHC is a significant cluster of immune genes found in all vertebrates that plays a role in antigen recognition.

Tasmanian Devil Facial Tumour Disease (DDFT) is passed between devils through biting. Necrotic lesions develop around the mouth and face that ulcerate and eventually cause starvation. The disease has geographic boundaries: while it is decimating devil populations in eastern Tasmania, devils in northwest Tasmania remain disease-free. Are these devils free of DDFT or yet to come into contact with the disease?

In early 2006 it was demonstrated that tumour cells taken from samples across Tasmania have an identical, vastly knarry genotype. An altruistic theory of tumour transmission was proposed, meaning the tumour could be the result of an infectious cell line. The only other reported transmissible tumour is the cancer in cattle transmissible sarcoma (CVTS), which occurs in dogs and is passed during coitus.

The Faculty group has two genetic-based hypotheses as to why the spread of DDFT has been so patchy and devasting. The tumour may ‘escape’ the immune system by down-regulating (decreasing) MHC class II expression and modifying MHC class I expression - this is basically how the CVTS operates. Or, devils MHC lacks diversity at class I and class II loci, resulting in a failure to recognise the tumour as ‘foreign’. Hannah and Claire have constructed a cDNA library from the spleen of a devil, isolated MHC class I and MHC class II genes and begun further work, including designing gene specific primers. Their preliminary results will now enable them to apply for grants to further support this important research.

The Faculty is contributing to concerted national efforts aimed at understanding the infectious tumour that has devastated the Tasmanian Devil population, reducing numbers by 90% over the past 10 years. Dr Kathy Belov and PhD students Hannah Sidde and Claire Sandersen, of the Faculty’s Australasian Wildlife Genomics Group, are collaborating with Dr Stephen Pyecroft and Ms Erin Noonan, Tasmanian Department of Primary Industries and Water, to undertake a genetic study of immunological recognition of the disease.

During a recent visit to Launceston Hannah saw first hand the impact of the disease. “Seeing affected animals motivated me. We need to understand why devils don’t appear to mount an immune response to these tumours so populations can be managed and, hopefully, the disease controlled,” she said.

The group’s previous studies and Hannah’s PhD project, characterising the major histocompatibility complex (MHC) genes of the tammar wallaby, have provided an important model and starting point (Roundhouse, November 2005). The MHC is a significant cluster of immune genes found in all vertebrates that plays a role in antigen recognition.

Tasmanian Devil Facial Tumour Disease (DDFT) is passed between devils through biting. Necrotic lesions develop around the mouth and face that ulcerate and eventually cause starvation. The disease has geographic boundaries: while it is decimating devil populations in eastern Tasmania, devils in northwest Tasmania remain disease-free. Are these devils free of DDFT or yet to come into contact with the disease?

In early 2006 it was demonstrated that tumour cells taken from samples across Tasmania have an identical, vastly knarry genotype. An altruistic theory of tumour transmission was proposed, meaning the tumour could be the result of an infectious cell line. The only other reported transmissible tumour is the cancer in cattle transmissible sarcoma (CVTS), which occurs in dogs and is passed during coitus.

The Faculty group has two genetic-based hypotheses as to why the spread of DDFT has been so patchy and devasting. The tumour may ‘escape’ the immune system by down-regulating (decreasing) MHC class II expression and modifying MHC class I expression - this is basically how the CVTS operates. Or, devils MHC lacks diversity at class I and class II loci, resulting in a failure to recognise the tumour as ‘foreign’. Hannah and Claire have constructed a cDNA library from the spleen of a devil, isolated MHC class I and MHC class II genes and begun further work, including designing gene specific primers. Their preliminary results will now enable them to apply for grants to further support this important research.
**STUDENT PROFILE**

SATOKO KAWAJI

What are your qualifications?

I completed a Bachelor of Veterinary Science at Ohiro University Agricultural and Veterinary Medicine, Hokkaido, Japan in 2000. This was followed by a National Veterinary Registration Examination by the Ministry of Agriculture, Forestry and Fisheries of Japan to become a Doctor of Veterinary Medicine.

Tell us what led you to Australia and the University of Sydney

I always wanted to work with large animals, so after graduation I started working as a veterinarian at a public livestock animal health station. My duties were to conduct bacteriological tests to determine contagious diseases in livestock animals, and to give advice to clinical veterinarians and farmers. Through this role, I became more and more interested in infectious diseases and transferred to the National Institute of Animal Health (NIAH), Japan, to start research work. As I was particularly interested in Johne's disease, I began my first research project in this field. When I thought that I would like to continue studying and get a PhD degree, there were no universities focusing on John's disease in Australia and transferred to the University of Sydney in 2004.

Tell us about your research project

When I was in the NIAH in Japan, we developed a new diagnostic method for Bovine Johne's Disease (BVD) using real-time PCR. Now I am applying this method to sheep as the first study in my PhD course. So, my current study is "Detection of Mycobacterium avium subsp. paratuberculosis in Sheep Feces by Direct Quantitative PCR". I am also interested in the survival strategy of the bacteria during its antibiotic treatment. I completed a major research project on skin testing in horses, and it is now working on a clinical trial on pyoderma in dogs.

The project involved skin testing 40 normal horses (similar to prick-testing in humans) with allergens known to cause atopic dermatitis in horses, small animals and humans. Allergens included pollens, dust mites, insect particles and mould spores. Tina determined the most appropriate concentrations of these allergens for skin testing in horses with allergies—a world first for all but insect allergies. "There was controversy over a suspected high incidence of 'false positives' through use of incorrect allergen concentration. My research clearly identified the most appropriate concentrations. We also skin tested the same horses over three seasons to check for seasonal variation – the first time this had been done," said Tina.

Tina's second research project is a clinical trial of 60 dogs investigating alternative treatments for pyoderma, a common superficial bacterial skin infection in dogs. Pyoderma clinical lesions include marked itchiness, hair loss, scaling, redness, skin thickening and increased pigmentation. Effective treatment is vital, to relieve patient discomfort and allow the underlying causative diseases to manifest and be treated appropriately. Dr Vogelstein emphasises the importance of Virbac's funding.

"Tina's residency has only been possible due to the wonderful generosity of Virbac. Their support is enabling Tina to sit her specialist dermatology examinations, and is underpinning research that will help us treat common skin diseases in animals more effectively," said Linda.

**FUNDING ADVANCES IN DERMATOLOGY**

In 2003 Virbac Australia proposed very generous funding of $125,000 to support a Dermatology Resident in the Faculty of Veterinary Science.

Dr Tina Baxter is now in her third year of the Residency. She works at both Sydney and Camden teaching hospitals, gaining clinical experience in dermatology cases under the guidance of Specialist Veterinary Dermatologist, Dr Linda Vogelstein. Tina has completed a major research project on skin testing in horses, and is now working on a clinical trial on pyoderma in dogs.

The project involved skin testing 40 normal horses (similar to prick-testing in humans) with allergens known to cause atopic dermatitis in horses, small animals and humans. Allergens included pollens, dust mites, insect particles and mould spores. Tina determined the most appropriate concentrations of these allergens for skin testing in horses with allergies—a world first for all but insect allergies. "There was controversy over a suspected high incidence of 'false positives' through use of incorrect allergen concentration. My research clearly identified the most appropriate concentrations. We also skin tested the same horses over three seasons to check for seasonal variation – the first time this had been done," said Tina.

Tina's second research project is a clinical trial of 60 dogs investigating alternative treatments for pyoderma, a common superficial bacterial skin infection in dogs. Pyoderma clinical lesions include marked itchiness, hair loss, scaling, redness, skin thickening and increased pigmentation. Effective treatment is vital, to relieve patient discomfort and allow the underlying causative diseases to manifest and be treated appropriately. Dr Vogelstein emphasises the importance of Virbac's funding.

"Tina's residency has only been possible due to the wonderful generosity of Virbac. Their support is enabling Tina to sit her specialist dermatology examinations, and is underpinning research that will help us treat common skin diseases in animals more effectively," said Linda.

**MOTOR LATERALITY DO DOGS KNOW THEIR LEFT PAW FROM THEIR RIGHT?**

Senior Lecturer and welfare scientist Dr Paul McGreevy has worked with service dog organisations for more than 10 years, particularly the Guide Dogs NSW/ACT and the NSW Police Force. Their guest lectures support animal training and management teaching of veterinary students, and Dr McGreevy provides assistance such as health care workshops.

The only veterinary ethologist working in an Australian university, Paul has just won an Endeavour Japan Award to establish the significance of a dog’s preferred use of left or right paws. This will increase efficiency in the selection and training of guide and police dogs. This is the first study of laterality in working dogs, and already it is the largest - Paul and his team have now tested more dogs than any other research group worldwide.

It is already confirmed that males are more likely to be left pawed than right, while females are the opposite: significant as both sexes are recruited for police and guide dog work. And, while it is accepted that a wide range of animals have a preferred side (employing modern species inherited brain lateralisation from a common ancestor), growing evidence links behavioural traits in animals with their handedness or ‘laterality’.

For example, studies have linked canine anxiety (thunderstorm phobia) and lateralisation - if left pawed dogs are consistently more fearful and suspicious, service dog providers may not recruit them to avoid wasting resources (training guide dogs costs around $65,000 and approximately 50% fail to graduate). Similarly, aggression towards other dogs frequently causes failure in trainee guide dogs, and research has linked right-pawedness with aggression.

The project will test 90 trainee guide dogs and 45 trainee police dogs for temperament and laterality (100 times per dog) at 4-6 months of age, then 14 months, and at 18 months if dogs complete training. Repeat testing will determine if early laterality scores are durable over time, reflect temperament, and ultimately predict the trainability and working attributes of guide and police dogs.

Through DNA samples, the research will also investigate the genetic origins of the dog’s foreleg motor preference, providing the first estimation of heritability for guide dog preference in dogs and an advance in canine behavioural genetics.

**PROVET PARTNERS IN VETERINARY EDUCATION CONFERENCE**

The 4th Proviet Partners in Veterinary Education Conference, held in July, again attracted an excellent attendance from the Faculty’s valued veterinary practitioner and industry partners. DogNSW/ACT is a key part of the new curriculum and symbolises the importance of the partnership between the profession and the Faculty. The Faculty extends warm appreciation to Proviet for its continuing generosity as the conference’s naming rights sponsor.
Hannah Forsyth (above) is Sub Dean for Postgraduate Coursework and manages the Veterinary Public Health Management degree, recent winner of a Carrick Teaching Award.

The University of Sydney received 8 of the 2006 Carrick Teaching Awards – and 2 of those went to Veterinary Science. The Carricks are highly competitive national awards presented after an intensive selection process. Faculty winners are:

• Hannah Forsyth, Dr Jenny-Ann Toribio, Professor Richard Whittington and Dr Meg Vost for an innovative, holistic curriculum and learning environment for relevant postgraduate education in Veterinary Public Health.

• Associate Professor Jennie Hodgson and Dr Jacquie Norris for an innovative, clinically-applied Veterinary Microbiology course that provides constructive and collegial learning environments for developing evidence-based, critical thinking skills in undergraduates.

Associate Professor Tony English has been awarded a Member (AM) in the General Division in the 2006 Queen’s Birthday Honours for services to veterinary science in the field of wildlife health and conservation through research, education and professional organisations (story page 8).

Research Fellow in the CRC for Innovative Dairy Products, Dr Kyal Zenger, received 1st prize for his poster Genome-wide SNP analyses of Holstein Frisian cattle reveal new insights into Australian and global population variability at the 30th International Conference on Animal Genetics in Porto Seguro, Brazil.

Dr Kate Bosward Dr Mark Krochenberger, Gerard Marcus and Federico Costa have won a Pearson Education UniServe Science Teaching Award for Innovations in Veterinary Pathology Learning and Teaching, particularly for eLearning activities that enhance the student learning experience and improve learning outcomes.

Dr Damien Higgins has won the Barry Munday Achievement Award, given by the Wildlife Diseases Association to recognise individuals who have made an outstanding contribution to wildlife health in Australia over the past five years.

New academic staff appointments include Lecturer in Veterinary Pathology Dr Derek Spielman, Dr Kendra Davis, Research Fellow Innovations Module, Postdoctoral Fellow Dr Marta Jover, and Research Fellow Dr Anne Lehnert.

Dr Pietro Ceill, Lecturer in Ruminant Production and Health and Sub Dean for Animal Husbandry, has received the Young Scientist’s Award for Best Short Communication by a scientist under 36 at the 2006 ASAP (Australian Society of Animal Production) Conference.

Dr Robert Dixon, Sub Dean for Animal Welfare, has been appointed a Visiting Professor in Animal Welfare Education at Shand Agriculture University, China.

Dr Jorgen Agerholm, a world authority on the pathology of genetic diseases of cattle from the Royal Veterinary University at Copenhagen, is visiting the Faculty on sabbatical.

Dr Kathy Zhu received the Biannual Weibe Visser International Dairy Nutrition Prize 2006 for her PhD and work as a research officer at the Faculty between 1999 and 2005.

HEALTHY DOGS

Dr Sophie Considine (left) with friend, Whisky the dog, Indigenous artist and Editor of the Taboo community Karen Fleming, and Dr Roselyn Dixon (right).

Dogs in Aboriginal and Torres Strait Islander communities are valued for their companionship, protection and physical warmth. They are also often left to fend for themselves, with dog health care occurring sporadically and only in a very small number of communities.

Indigenous communities in the Northern Territory have expressed the desire for veterinarians to share their dog caring knowledge. A pilot project underway in Yuendumu in the Northern Territory is exploring ways of bringing vets, health researchers, Elders and community members together to share dog caring information and effect long term change in dog health and welfare.

The multidisciplinary project team is led by Dr Robert Dixon, the Faculty’s Subdean for Animal Welfare, Dr Roselyn Dixon, Lecturer in Special Education from the University of Woollongong, currently developing a best practice module for Indigenous education, and Dr Sophie Considine, a veterinarian who is completing a Masters at the University of Newcastle in Indigenous Education.

Education is important for dog health and welfare for people in any society, but the failure of past health-related programs has shown the educational paradigms of our dominant western culture are often culturally inappropriate for Indigenous Australians in remote communities. The Healthy Dogs, Healthy Communities project aims to develop an educational program through partnering Indigenous intra- community dog caring knowledge with extra-community experts in veterinary science, human and veterinary epidemiology, public health, environmental science, education and sociology. It will focus on cultural interpretation and relevancy and be tailored for each community in their language. It will also be evidence-based through monitoring the dog health programs and collecting data on dog disease and welfare.

The team believes Indigenous people have a deep understanding of the link between the health of the people and their animals to land management and spiritual health. The project will explore ways of sharing dog caring knowledge to create sustainable solutions for dog health issues in each community.

RURAL PUBLIC PRACTICE

The program delivers to ‘big picture’ issues in veterinary science such as disease control policy, research and extension.

What are your qualifications and current position in the Faculty?

After completing school in Germany, I studied veterinary science at the Hannover School of Veterinary Medicine. This was followed by a Doctorate in the Institute of Animal Breeding and Genetics and 2 years postdoctoral research in animal genetics.

In 1997, I received a U2000 Postdoctoral Research Fellowship from the University of Sydney to work on inherited disorders in Australian sheep and cattle with Professors Herman Raadsma and Frank Nicholas of the Faculty’s ReproGen. In 2002, I was appointed a Sesqui Lecturer in Animal Biotechnology. I completed a part-time Masters in Education (Higher Education) at the University of Sydney and was promoted to Senior Lecturer in 2006. I have also undertaken various administrative roles and have been Sub Dean Camden from early 2006.

What do your various roles encompass?

I teach units of study in the Faculty’s two degrees: veterinary science and animal genetics. My research activities focus on inherited disorders in livestock and I supervise postgraduate students in different aspects of animal genetics.

In my new role as Sub Dean Camden I facilitate communication between all stakeholders, assist in future planning for Camden and chair the Camden Advisory Committee, which addresses issues relevant to this campus.

As postgraduate coordinator I work to improve the postgraduate experience and help stage the annual postgraduate conference.

How did your career begin?

I grew up in Germany, the daughter of a cattle veterinarian and granddaughter of dairy farmers - from the age of 3 I knew that I wanted to be a vet. I ended up in animal genetics by accident as I was interested in the clinical characterisation of an emerging inherited disorder in cattle. I’ve never regretted this choice as it’s a very exciting, inspiring and quick-evolving field in science that eventually brought me to Australia and the Faculty of Veterinary Science.

What are your career highlights?

As I’m rather new to teaching my career highlights are linking my own research on inherited disorders benefit the livestock industries and provide some hope for families with Batten Disease; and supervising excellent postgraduate students who do amazing work!

What do you look forward to in the future?

As someone who has enjoyed working for the last 9 years in Camden with extremely committed and motivated colleagues, continuation of the current upgrades and new infrastructure developments. And, improved integration between the 2 campuses to ensure a vibrant and sustainable Camden campus that is recognised as a crucial ‘half’ of our Faculty.

What do you do in your spare time?

I spoil my two dogs, enjoy the rare time horse riding and work together with my partner Terence on the house and garden.

Who or what inspires you and why?

Colleagues and students with a compassion for animals and humans and those that are motivated by the quest for knowledge.
ASSOCIATE PROFESSOR TONY ENGLISH AM

Associate Professor Tony English AM has been awarded a Member (AM) in the General Division in the 2006 Queen’s Birthday honours, recognising his services to veterinary science in the field of wildlife health and conservation through research, education and professional organisations.

Dr English was the committed driver behind the inclusion of veterinary conservation biology into the Faculty’s curriculum, and played a critical role in the realisation of the new Wildlife Health and Conservation Centre. He is President of the World Association of Wildlife Veterinarians, and was founding President of the Australian Association of Veterinary Conservation Biologists.

Dr John Copland, well-known Research Program Manager for ACIAR (Australian Centre for International Agricultural Research), was awarded an Officer in the Order of Australia in the 2006 Australia Day Honours. Dr Copland received his award for services to veterinary science, particularly in the areas of veterinary parasitology and fish pathology, and the application of this research to agricultural programs in developing countries.

An alumnus of the Faculty of Veterinary Science, Dr Copland completed his PhD at the University of Sydney, and a Master of Science (Aquaculture) at the University of Stirling, United Kingdom.

Dr Copland has been responsible for establishing and driving major animal health and production projects in Australia and Asia. Prior to joining ACIAR in 1983, he spent 7 years in the livestock sector in Papua New Guinea (PNG), returning to Australia in 1976 to become Foundation Director of the North East Regional Veterinary Laboratory in Victoria. In 1980, he established the National Fish Health Reference Laboratory in Benalla, Victoria.

His numerous ACIAR projects have included successful rodent control programs in Southeast Asia, and developing a thermostolerant vaccine for Newcastle Disease for village and commercial poultry production systems, now widely adopted in Africa and Southeast Asia. Early in his career, he established the ACIAR fisheries program, with a major emphasis on the management of the giant clam, and management of coconut crabs and bait fish for South Pacific tuna fisheries.

Among his awards and honours are the PNG Independence Medal in 1976, the 1996 Kesteven Medal for International Animal Health Research and Development, and in September 2006, an Honorary Doctorate of Science from Universiti Putra Malaysia.

A 1966 graduate of the University of Queensland, Tony spent time in cattle practice before gaining his PhD in 1976 and joining the staff of the Faculty of Veterinary Science in Sydney.

In the Faculty, he was responsible for cattle health and production teaching but also worked to develop a strong focus on wildlife. This included administering the Master of Veterinary Studies (Wildlife Medicine and Husbandry), a successful program that helped to train many of Australia’s zoo veterinarians. Tony is co-Chair of the Master of Applied Science (Wildlife Health and Population Management) program, now in its sixth year. He continues his 30-year research record in cattle, deer and wildlife, and supervising postgraduate students.

Possibly best known as a deer veterinarian, Tony is a Fellow of the Australian College of Veterinary Scientists in the medicine and management of deer. He established the University’s Deer Research Unit at Camden in 1979 and – in the direction his career would take – balanced a strong interest in the deer farming industry with an involvement in the conservation and management of Australia’s wild deer populations.

Tony is a Ministerial appointment to the NSW Zoological Parks Board, sits on the Game Council of NSW, and recently retired from the Board of the Blue Mountains World Heritage Institute. He is a member of the federal Australian Animal Welfare Strategy’s Wild Animal Working Group.

In 2000, Tony retired a Colonel after 38 years in the Army Reserve. In 1998 he combined his military and veterinary careers in the ATSIC-Army Community Assistance Program, with the development and delivery of dog health and population control programs in remote Aboriginal communities. This led to him co-founding the federally-funded Animal Management in Rural and Remote Indigenous Communities.

Tony retired from full-time employment in December 2005, but continues to contribute with a 4 year appointment as Honorary Associate Professor.

NEW ADVANTIX FOR DOGS. ZAPS TICKS AND FLEAS.

Protecting your dog from killers like paralysis ticks and parasites like fleas isn’t easy. For years there have been no major advances in treatment. Leaving you with little choice.

New Advantix changes all that. Applied to your dog’s skin, its unique formulation repels and kills ticks, and kills fleas. It also repels and kills mosquitoes and sand flies.

Don’t risk your dog’s health with products you no longer trust. Ask your vet for Advantix for dogs. And zap ticks, fleas and other biting insects with the latest technology.

ADVANTIX® is a registered trademark of Bayer A.G. Leverkusen, Germany. BA107275