Once again Animal Care Services has been busy across a wide range of activities and initiatives and while this tests and involves ACS staff at every level, it also provides a fantastic foundation for the future of animal care and for the services we provide.

As we have our eyes set firmly on strong international collaborative commitments, we haven't lost sight of the little things that will enable us to achieve this.

The representation of UWA at international conferences, the successful hosting of our national ANZLAA conference, the continuing reached milestones of the facilities management software implementation and the successful signing of agreements to continue delivery of Certificate III training for staff in conjunction with the Animal Resources Centre, are all remarkable in their own right.

With these developments and a now renovated BRF, ACS will be able to continue to care for the research animals to the levels expected and have staff able to assist in the development and support of research projects for all the right reasons.

**Tick@lab is coming!**

The Animal Management System (AMS) ‘tick@lab’ is a new electronic database due to go live in 2014.

The need for a system that could report on animal holdings was revealed in the 2010 External Trienniel Review. ACS and Information Services staff have been working hard to configure, install and deliver this system.

**Benefit to ACS**

For the first time, we are entirely confident that we will significantly reduce the amount of paper used and manual handling of documents. We will be able to update animal status and health status so that there will be better communication and reporting across all aspects of our operations.

**Benefit to researchers**

Researchers will be able to access the status of their animals, electronically respond to any concerns staff might have and be able to better manage their ordering and breeding colonies of animals in a real time manner. This will be done as a web based application.

**Reports that can be produced**

For the first time, we will be able to create custom reports against the information that we collect such that reporting of animal numbers approved / used / transferred will be available to researchers and to ACS staff in a meaningful way. Reports can be generated such that researchers can be informed in timely way of the progress and development of their animal colonies and interact / contribute to some of the decision-making in the event of issues. And this also allows us to align ourselves with the type and style of reporting many of our international and national collaborators are familiar with.
AAALAC accreditation

The Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) is a non-profit organisation that encourages the humane treatment of animals in science. To gain accreditation, institutions must demonstrate a commitment to responsible animal care and use. This involves a two phase process: an extensive internal review of all aspects of the animal care and use program description followed by an external evaluation. The process considers animal care policies and responsibilities, animal housing and veterinary care. Animal Care Services is planning to submit the program description in December 2013.

Accreditation has the following benefits:

- To demonstrate that Animal Care Services is dedicated to providing the highest standards of animal care and welfare comparative to international standards.
- To provide quality assurance to stakeholders (including affiliated / reciprocal institutions).
- To enhance funding opportunities. Government agencies such as the US National Institutes of Health and US Department of Defence will only fund organisations that have AAALAC accreditation.
- To demonstrate that Animal Care Services has a willingness to go beyond minimum standards required by law.
- The confidential peer review will lead to improvements in animal care and welfare.

Facility renovation

The final stage of the BRF renovation has been recommissioned and OGTR certified. The work of the staff involved in the complicated task of recommissioning has been greatly appreciated.

Zone CC of the M Block Small Animal Facility has been reconfigured to accommodate housing of animals returning from imaging procedures in other facilities along with quarantine of projects where required. The zone is now formally known as the ‘High Risk Return Area’ and also hosts the CMCA imaging facility.

Staff Profile

Large Animal Coordinator

Andy Wilson joined Animal Care Services at the University of Western Australia in early 2000 after emigrating from the UK. Andy started his career working for Edinburgh University and spent 19 years working with rats, mice, guinea pigs, rabbits and pigs. He qualified as an animal technician with an Intermediate Certificate through the Institute of Animal Technology in Newcastle UK.

Andy started work for UWA in the BSAU before moving to the M Block facility at QE2. When M Block was renovated in 2004 the rabbit and guinea pig colonies moved back to BSAU and continued to provide good quality research animals. With the opening of the new Biomedical Research Facility (BRF) at Shenton Park in 2006, Andy and the guinea pig and rabbit colonies were transferred to Zone J.

During this time Andy became more involved with the management of the animal facilities housing larger species including the Large Animal Facility (LAF), both the Native Animal Facility and Sheep Research Facility, (now known as the Biological Resources Support Facility) and Royal Perth Hospital facility. Andy works with key personnel in these facilities to ensure all facets of our responsibilities are met and adhered to. Our facilities provide the opportunity to work in first class conditions with high quality staff to provide support where required.

Once again in 2011, due to significant building renovations in the BRF, the rabbit and guinea pigs were on the move, this time to be housed at the LAF where they are present.

Andy can be contacted by email on andrew.wilson@uwa.edu.au for any large animal research project or workshop queries.

New staff

Welcome to our our new General Assistant, Michael Colvin, and our new animal technicians Gabe Kovesi, Laura Balling, Travis Murray, Helen Kershaw and Giovanni Cataldo.
The RPH animal facility houses mice, sheep, pigs and rats for various research and clinical groups. No breeding occurs within the facility.

Small animal research is conducted with a small PC 1 facility holding no more than 600 rodents at any one time. The majority of studies focus on dietary research e.g. diabetes.

No surgical studies are conducted on live animals and there minimal procedural work occurs such as tail vein bleeds and injections, I.P and gavaging.

All studies occur within a maximum of 12 – 16 weeks duration.

The facility is also used for clinical training in various techniques: microsurgical training, emergency / trauma procedures, endoscopic gastroenterology, regional anaesthesia including epidurals and laparoscopic surgery, and interventional radiology.

ACS staff are responsible for the anaesthetics during procedures. The surgeries are equipped to maintain and monitor anaesthesia for the duration of clinical training sessions with essential equipment such as anaesthetic and surgivet machines, microscopes, surgical instruments and specialist equipment (e.g. camera stacks, scopes, diathermy, etc.).

Epigenetics explained

You are what you eat but science suggests you’re also what your grandparents ate. We’ve always known that the genes of our ancestors are passed on through generations, but could they pass on something more than just their genes? Epigenetics is the study of mechanisms that modify DNA structure and change gene expression without changing the DNA sequence.

Experiment: Female C57/Bi6j (standard inbred a/a) mice were mated with Male Agout Yellow mice (Avy mice are sensitive reporters of epigenetic programming). Pregnant females were given 10% ethanol ad libitum from day of fertilisation up to mid gestation. 2 genetic groups were born, Avy allele mice and a/a mice. In the Avy group, there was a significant increase in percentage of agouti coloured offspring which says that there was transcriptional silencing at this particular locus of this Avy allele. This demonstrates that ethanol can affect the adult phenotype by altering the epigenotype of the early embryo. Interestingly, detection of postnatal growth restriction and craniofacial dysmorphology reminiscent of fetal alcohol syndrome was seen in the a/a siblings. This proves that there is a possibility that the long-term physical effects of alcohol exposure during pregnancy are mediated by epigenetic changes established in the fetus and then faithfully remembered for a lifetime.
The conference included three main themes – Health, Welfare and Legal Issues, Animal Facility Management and LAS Applied Research. Of particular interest in my role as Manager, Animal Facilities were the ‘Animal Facility Management’ sessions. Some of the conference highlights were:

Equipment

Animal Care Services is reviewing options for purchasing a significant item of equipment to maintain the viability of the M Block facility. Working models of machines were viewed and other facility managers presented the pros and cons of tunnel wash systems versus rack wash systems. It is important to calculate the true cost of ownership when making purchases of large items of equipment. Significant costs over the lifetime of the equipment must be included both during the selection (allowing true objective analysis) and budgeting process (e.g. 5 to 10% of capital costs per annum will be required to maintain the equipment calibrations). Energy efficiency considerations should also be included in the review of equipment options along with labour efficiencies. Review of cage wash machine options can also take into consideration sustainable development approaches to facility design.

Robotic systems are being increasing installed in new facilities and retro-fitted in existing facilities as purchase costs are being reduced. Once labour savings are taken into consideration, these systems are proving to be a sound investment and will see a significant impact in staff occupational health and safety and facility efficiencies.

Occupational Health and Safety

European facilities are examining the management of laboratory animal allergens and dust (including from clean bedding dispensing practices). Many facilities invest substantially in fully enclosed bedding preparation and disposal systems (including robotic). Australia will most probably follow this trend in the near future so knowledge gained from the conference has allowed ACS to be proactive in addressing this health and safety issue.

In the area of biosafety management, it is critical to define roles and responsibilities of those managing and working within the facilities. Staff competency in the area is crucial. A team of experienced, dedicated and stable staff will play a major role in ensuring a facility runs well. The session ‘Occupational Health and Safety Program in an Animal Imaging Facility’ defined the dangers of the three I’s in this context: invisible pathogens, invisible radioactive substances and invisible magnetic fields.

An OHS training program in working with radioactive substances within an animal imaging facility should incorporate different levels of supervision leading to persons becoming accredited as supervisors.

Transportation of Animals

European animal activist lobby groups have been very successful in ensuring that most airlines and sea transport companies no longer transport research animals including laboratory species. The impact on the continuity of supply has led to the Integrated Strategy to Support Airline Companies. The importance of maintaining a good channel of communication with transport companies was highlighted. While this is not an issue in Australia, it may only be a matter of time until lobby groups become more active. Perth’s isolation would add to this having a significant impact on the industry. Direct support to the individual companies by providing information about the research is encouraged as is demonstrating that the transport of the animals is legal and carried out under good conditions which meet national welfare laws.

“Animal well-being is everyone’s responsibility - Report concerns immediately.”
2013 ANZLAA Conference, Perth, W.A.

The 2013 ANZLAA Conference was held this year 4th - 6th September. The conference theme was ‘The Balancing Act: Animal Welfare, Good Science, Cost” and international speakers included Charles Clifford, Matthew Leach, Polly Taylor, Mike McGarry and Matthew Leach. Local keynote speakers were Professors Fiona Wood and Barry Marshall. Workshops were conducted by Ralph Bunte, Laura Conour and William Singleton.

Scholarship

Keren Muthsam, Technician-in-Charge of the Biological Resources Support Facility, was awarded an ANZLAA scholarship to attend the 2013 ANZLAA Conference as well as a ticket the conference dinner. Keren presented a talk at the conference on ‘Improvements in emus housing at UWA’.

Award

Nick Grainger, Chief Technician at the Royal Perth Hospital facility was awarded the ANZLAA trophy for best technical presentation on ‘An animal model for the training of clinical staff in the ‘can’t intubate, can’t oxygenate’ scenario’.

Well done Keren and Nick!

ANZLAA conference presentation

‘The scientific case against animal research’
A summary by Neill Wilson, Animal Care Services

Malcolm France’s lecture ‘The scientific case against animal research’ challenged the very job that we are all involved in. Critics of animal research typically base their arguments on either moral or ethical grounds. They question the benefits of animal research against the cost paid by research animals. There are, however, also scientific arguments against such research and this lecture focused on these criticisms. The scientific arguments against animal research are based on 2 perspectives: the re-telling of history and systematic reviews.

Using the discovery of penicillin as an example, the re-telling of history argument focuses on putting key facts together to combat the validity of the study. This method falters in its critiquing of the science in the way these facts are misrepresented. Facts are often cherry-picked, taken out of context and manipulated to make the case against animal research. This can provide the illusion that an objective critique of animal research has been made when in fact it is merely propaganda against animal research dressed up with cherry-picked data and made to look scientific. Under close scrutiny, this kind of criticism does not stand up.

Systematic reviews are done under the most stringent criteria, focusing on quality and relevance to the topic, and are used to minimise bias and pool data from meta-analyses to reach objective conclusions on the research gathered. A study of 6 systematic reviews of animal research all found high rates of methodological flaws. What is important to take from these systematic reviews is that poor methodology is not unique to animal research. It is a problem in all life sciences.

In conclusion, while the re-telling of history can be viewed as nothing more than propaganda and does not stand up to close scrutiny, systematic reviews can provide useful information on the design flaws in research, information which can be used to further improve the quality of animal research. It is important to remember that just because animal research is not perfect, it does not mean it should not be carried out.
ANZLAA conference presentation

‘Native Animal Dietary Practices’
A summary by Tom Riedel, Animal Care Services

Peter Mawson of Perth Zoo discussed the dietary needs of native animals within a captive zoo environment with a focus on creating a diet that incorporates as much of their naturally occurring diet as possible as well as artificially supplementing their diets where needed.

The native animals that Mawson discussed included numbats, western swamp tortoise and white/yellow bellied frog.

Numbats
Perth Zoo’s captive breeding program was established in 1992. Thus far it has successfully released 2,646 native animals into the wild across nine species. Of these species, Mawson began by discussing the numbat, an endangered carnivorous insectivore that is related to both quolls and the Tasmanian devil. Perth Zoo houses twelve breeding animals that produce about 12-19 young per year. To date, 167 numbats have been bred.

Numbats are specialist feeders whose diet in the wild consists solely of termites averaging around 15,000 to 20,000 termites per day. This amount of termites is not viable in a captive environment but Perth Zoo sources live termites from surrounding jarrah forests. The method in which they harvest the termites consists of stuffing a 20 litre drum with karri timber. This is then covered with black plastic bags and then left for 2-8 weeks to attract the termites. Numbats are also fed a ‘crumble’ that comprises of digested cellulose from the karri wood which is a waste product produced by the termites that are held within the drums. The diet of the male numbat in Perth Zoo consists of only 10% termites whilst the females have higher termite content so the remainder of the numbat diet has to be artificially made.

When creating this specialty diet, the quality of food must be a nutritional match which can sustain the animals and be of a taste, smell and consistency that they like because, not having suitable teeth, they mainly lick their food and will often starve to death if they do not like it. It must also support prolonged lactation of up to 11 months and neither attract flies or ants nor be effected by weather so that it doesn’t oxidize or set hard.

Stress related factors are capture and health issues. Capture causes a lot of stress to the animal which can lower their appetite and cause females to lose their pouch young (i.e. they may not eat for 1-3 days due to stress after the repeated handling involved in weighing). Health issues such as diarrhoea can cause a suppressed appetite resulting in weight loss.

Western Swamp Tortoise
The Western Swamp Tortoise is extremely endangered due to habitat loss and increased use of pesticides and insecticides. In the wild their diet consists of invertebrates, small fish, tadpoles and frogs. Sourcing this food from the wild can be an issue due to transfer of disease. Young Western Swamp Tortoises need to be fed a diet of live food up until the age of 8 months. Adult Western Swamp Tortoises were originally fed brine shrimp however this food source is now unavailable in Australia. As a result they are currently being fed a ‘pudding’ mix consisting of either beef heart or oily fish.

“Animal well-being is everyone’s responsibility - Report concerns immediately.”

ANIMAL CARE SERVICES| PHONE 6488 6606 | FAX 6488 6688 | WWW.RESEARCH.UWA.EDU.AU/ANIMAL-SERVICES
White and Yellow Bellied Frog
At birth, White and Yellow Bellied Frogs weigh 0.02-0.05g and are housed in clear plastic drinking cups along with a food source for nutrition. This food source consists of live Collembola, wingless Drosophilae and 1-2 day old crickets all of which are reared in house at Perth Zoo. Adult Frogs are full grown and consume live crickets. White and Yellow Bellied Frogs are prone to calcium deficiencies as brittle bone syndrome and seizures due to their fast growth rate in captivity. However this can be prevented by gut loading, dusting live feed with calcium and calcium gluconate baths.

Peter Mawson’s knowledge and experience was invaluable. Having the opportunity to listen to him talk about dietary practices within a captive zoo environment has not only opened my eyes to the considerations involved in prepping and distributing the food but also the important role that this food has on the animal in developing it’s natural behaviour for the future once it is released into the wild.

Reference list

Quality Control

To maintain vigilance and compliance with quality assurance standards within ACS facilities, procedures are in place to provide the ‘best practice’ environment for the breeding of and experimental use of animals in research and teaching.

- Laboratory animal potable water is maintained at an acidified pH2.5 – 3.0. The pH is verified continuously through an automated system at the BRF and is additionally checked weekly to ensure the correct pH.
- Gaseous hydrogen peroxide (vapour) system decontaminates entire rooms, equipment and consumables. The success of this process is confirmed after every run, using the incubation of Geobacillus stearothermophilus spores.
- Food, bedding and cages are sterilised by the autoclave process (3 at BRF, 1 at M Block and 1 at LAF) and these are monitored using autoclave indicator strips and biological indicators to challenge the sterilisation process.
- Within all animal zones records are kept and monitored daily for environmental parameters, such as temperature, humidity, air pressure, and light cycles, to maintain correct husbandry conditions for laboratory animals.
Reminders

Is there enough space for your animals?

At least 4 weeks before the AEC submission deadline, please:
a. meet with the technician-in-charge of the facility in which you wish to house your animals
b. call the Admin Officer to arrange a subsequent meeting with the Director, ACS for final questions regarding your application.


If you have any questions regarding this process including making an appointment with the Director of ACS, please call Geraldine Stewart, Administrative Officer, on 6488 6606.

SOPs (Standard Operating Procedures)

Please make sure that you have the most recent version by liaising with the ACS facility Technician-in-Charge.

AEC Applications

Researchers are reminded to submit new applications and amendments on the most up-to-date forms located at http://www.research.uwa.edu.au/staff/forms/animals

Please only source your forms from this page to ensure that you have the most recent form.

Conference Dates

AALAS Baltimore, USA 28th-31st Oct 2013 http://nationalmeeting.aalas.org/

If you are interested in presenting or follow ups from national or international Animal Lab Sciences meetings, please contact Animal Care Services.

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