

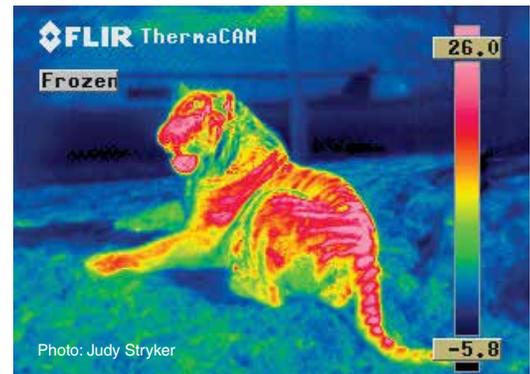
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*Promoting animal welfare through research and education*

## Thermal Images give Insight into Zoo Animal Comfort

By Judy Stryker



*Regular and thermal images of Vitali, the male Siberian tiger at the Toronto Zoo, panting in the winter at about -5°C*

Coming from the chilly arctic, balmy tropics, and everywhere in between, zoo animals face a unique challenge. In North America's temperate climate many zoo species may experience environmental conditions that differ greatly from their natural environments. Although enclosures are usually designed to resemble the native environment, it is not always the case that thermal conditions are considered or easily controlled in outdoor enclosures. So, how does this affect their husbandry, health, and welfare?

Studying animal thermoregulatory behaviour and using thermal images is one method that can provide clues into how an animal is feeling and/or coping with its thermal environment. When physiological means such as controlling

blood flow and metabolic rate are not sufficient for body temperature maintenance, behavioural means are also used. Behavioural thermoregulation includes huddling or curling up to reduce surface area available for heat loss in the cold, or loining and exposing and water bathing to release more heat from the body in the heat. When animals are displaying these active behavioural means of thermoregulation that require energy, it can be an indication of their comfort level.

As part of my PhD program, I have been working with Dr. Esther Finegan in the Department of Animal and Poultry Science, gathering information on the thermal comfort of the big cats of the *Panthera* genus, such as the African lion, tiger, jaguar, leopard, and snow leopard as

well as the cougar and cheetah. I am conducting a comparative behaviour and welfare assessment of these cats, using an infrared thermal camera to monitor body surface temperatures in relation to thermoregulatory behaviours, during summer and winter. I would also like to investigate the potential for using the camera for non-invasive estrus detection in female felids.

My working hypotheses are as follows;

1. Daily maintenance and thermoregulatory behaviours in captive felids will differ across species and provide information that can be used to enhance the housing and welfare of these animals.
2. Thermal imaging of body surface temperature, paying particular attention to eyeball surface, the inside of the ear, and urine and fecal material as they are being voided from the animal body, may provide a non-invasive means of accurately estimating core body temperature. The core body temperature may change throughout the day (24 hours) showing a circadian rhythm, and may differ depending on species.
3. Thermal imaging of the female felid, in association with behavioural and micro-climate observations, may provide a non-invasive means of estrous detection

This spring, our lab has planned a collaborative research study with Busch Gardens, Tampa, Florida, to continue thermoregulatory behaviour studies with several species. We will be collecting infrared images every 15 minutes, as well as minute by minute behaviour observations and meteorological information (eg. wind speed, temperature and relative humidity).

In addition to my big cat work, our lab has done thermoregulatory behaviour work with zoo species including African and Asian elephants, hippopotamus, tapir, white rhinoceros, giraffe, grevy zebra, tigers and lions. A major benefit of thermal imaging is the potential for immediate application, as animal caretakers address thermal comfort issues and adjust husbandry practices to maximize comfort. For example the elephants at Toronto Zoo are now given the choice of going out or remaining indoors during winter because it was found that they were not able to dissipate enough body heat during the evening if they were kept inside all night. In other words, they were getting too hot.

There is also the potential for using a thermal image and correction factor for estimating core body temperature. This would be a valuable tool for keepers of dangerous carnivorous animals where a thermometer may not be practical.

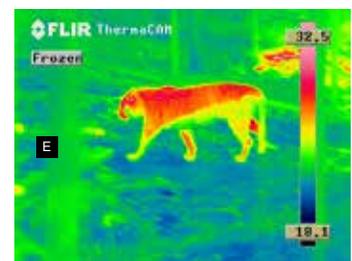
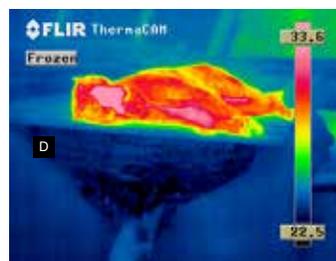
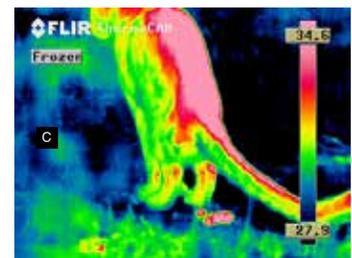
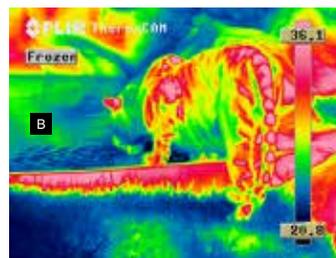
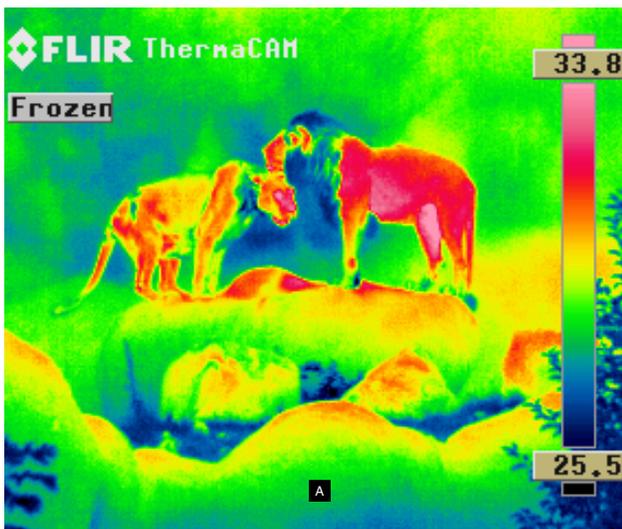
The more we understand the thermal comfort of animals in relation to environmental conditions, the better we can provide for their thermal comfort needs in captivity and understand thermal needs of endangered species when reintroduced into the wild. †



Our elephant study was recently featured on BBC Nature's web site January 24, 2012

<http://www.bbc.co.uk/nature/16657090>.

Judy Stryker is a PhD candidate in the Department of Animal and Poultry Science, University of Guelph



Examples of thermal images of; A) Two male African lions. Note the temperature variation between the male and female coat patterns. B) Male Amur tiger demonstrating the surface temperature differences across the body associated with colour variation between stripes. C) Male cougar defecating. Note the high temperature of the fecal matter and sun on the dorsal surface. D) Black female jaguar yawning. E) A Sumatran tiger. Note the water line from the fore leg-body junction to the base of the tail as the animal leaves the pool. (Images by J. Stryker, using a FLIR ThermoCAM SC 2000 infrared camera).

## Calling all Parrot Owners!!!

Do you have a pet parrot? Would you like to learn more about your parrot's behaviour? So would we!



The Campbell Centre has partnered with the University of Utrecht in the Netherlands, and we are seeking parrot owners or caretakers who are willing to participate in an online survey focusing on their parrot's behaviour and living environment. We are interested in all psittacine species: from budgerigars, to cockatoos, to macaws – and all species in between. We would like to collect information on both healthy, problem-free birds and those with health or behaviour problems.

We invite you, as the owner of a pet parrot or parakeet, to participate in this international research project! You can be assured that your important contribution will help to improve the welfare of captive parrots. And, who knows? Maybe you'll learn some new and interesting things about your own parrot in the process...

### *What do we ask of you?*

As a survey participant, you will complete an online questionnaire about your parrot. The questionnaire will take between 30 and 45 minutes to complete (over as many sessions as you like). To participate in this survey, you'll need to first register yourself. We can then send you a personalized link that you'll use to access, complete, and submit the questionnaire online. You can even store your answers if you'd like to complete the questionnaire over more than one session. Register here: [www.parrotsurvey.com](http://www.parrotsurvey.com)

*We thank you for your consideration and hope that you will decide to participate in the survey!*

Heather Kinkaid, Researcher, Animal Welfare & Behaviour Group, University of Guelph, Canada and Yvonne van Zeeland, DVM, MVR, Resident in Avian Medicine and Surgery Faculty of Veterinary Medicine, University of Utrecht, The Netherlands 🇳🇱

### *Why are we studying this?*

This survey is part of a large, international research project that aims to collect information about the demographics, husbandry, and behaviour of pet parrots worldwide. We will use this information to study differences among parrots of different species that have different biological characteristics. Also, parrots in captivity may develop various behaviour problems (e.g., "feather plucking") that are difficult to prevent or treat because there is little scientific information available about what causes them. For this reason, another important goal of our study is to identify risk factors for some common behaviour problems of pet parrots.

Your contribution will be extremely valuable! Not just to us, but also to parrots in captivity worldwide, since the information you share will improve our understanding of normal parrot behaviour in captivity and highlight factors that may play a role in the development of common behaviour problems. With this knowledge, we can make informed predictions about how to best optimize our parrots' living environments – or about which solutions might best reduce, or even prevent, problem behaviours from occurring.

**Want to learn more or participate in the survey?** Visit [www.parrotsurvey.com](http://www.parrotsurvey.com)



# At a Glance: Organic Dairy Research at Alfred Campus

By Lena Levison



Growing numbers of conventional dairy farms are converting to organic status as a result of the increasing consumer demand for organic dairy products; the number of organic producers in Canada has doubled since 2003. Many aspects of dairy farming are similar between conventional and organic systems. However, following the Canadian Organic Standards creates some unique management challenges for organic milk producers such as restricted pesticide use, and standards surrounding outdoor access.

The Centre for Organic Dairy Research at Alfred College, part of the University of Guelph's network of Ontario Agriculture College campuses and research stations, is working to investigate solutions to management challenges producers face daily. Research at the centre is currently led by animal behaviour scientists Dr. Renée Bergeron and Dr. Elsa Vasseur, and enotmologist Dr. Simon Lachance. Research projects are conducted on commercial farms as well as on Alfred campus at the free-stall organic dairy, milking 35 cows, that was officially certified in 2008.

Flies can tremendously irritate cattle; the conventional approach to abate this welfare concern is through the use of pesticides. Currently, the application of essential oils as an effective fly control method for cows at pasture is under investigation. As well, the first phase of a multi-stage project is underway to explore the incorporation of chicory and the legume 'birdsfoot trefoil' into cow diets as natural pest management for internal parasites.

Another area of research underway at Alfred is: do cows like to be outdoors during the winter months? The idea stems from the Canadian Organic Standards, which require animals to have outdoor access through all seasons. Preference testing was conducted this past winter and a summer replicate will

begin shortly to establish where cows spend their time when given the opportunity to choose. A second replicate of the testing is planned for the summer of 2013, which will include the use of shade structures on pasture management. Finally, a project based out of Guelph main campus with collaborator and principal investigator Dr. Trevor DeVries and involving 59 dairy farms is working to examine levels of health, welfare and milk composition on organic and conventional dairy farms in Southern Ontario. The study utilizes producer questionnaires, on-farm animal based assessments as well as feed and milk sample collections.

Many research projects on commercial organic and conventional farms are planned and awaiting funding. The research will strive to address dairy cattle welfare as well as dairy management practices (e.g. transition cow management). Although this research has an organic focus, management practices are being investigated that can benefit both organic and conventional cows and their producers. The Center for Organic Dairy Research at Alfred campus has a variety of collaborating partners (e.g. Guelph main and Kemptville campuses, Université Laval in QC, and Agriculture and Agri-food Canada in BC) and has assembled an advisory committee, which will determine the current and future research needs for the organic dairy industry and strive to identify more interested research partners. †

*Lena Levison is an MSc student in the Department of Animal and Poultry Science, University of Guelph*



*Organic cows are required to have outdoor access throughout the seasons. But, do cows want to be outside during the winter? This is one of the many questions being investigated at The Center for Organic Dairy Research at Alfred campus*

# Rehabilitating the Bile-Farmed Moon Bear

By Kimberly Sheppard



*This monument made of tiny bile farm “crush cages” contrasts starkly with the moon bear enrichment structure, being used here by a number of bears in rehabilitation*



Photos: Jamie Ahloy Dallaire

Over 10,000 captive Asiatic black bears (also known as moon bears or white-chested bears) are farmed for bile, used in Traditional Chinese medicine in China, Vietnam, and Korea. Bears are both wild-trapped and captive-bred, and transferred to a bile farm where they are placed in small “crush cages” so that bile can be extracted from their pancreases via a catheter or fistula.

In addition to solitary confinement and frequent bile extraction (daily to every three days), bile bears suffer extreme physical restriction and malnutrition. These animals’ poor welfare is manifest in physical health problems such as chronic infection, and behavioural changes such as excessive fear of keepers and abnormal repetitive behaviours like self-sucking or head rolling. Bears born in captivity (80% of rescued bears) are usually maternally deprived, being weaned at 3 months of age rather than the 1.5 years common in the wild.

Bears from some closed bile farms are rehabilitated at the Animals Asia Foundation’s (AAF) sanctuary in China’s Sichuan province. There, they live in large outdoor enclosures with environmental enrichments intended to improve their welfare: opportunities to forage, to climb, to manipulate objects, to swim, and to interact with other bears.

However, many of the AAF bears are missing a leg, usually as a result of being snared in the wild, or are visually impaired. Jamie Dallaire, former MSc student and current PhD candidate with Dr. Georgia Mason, wondered if these bears use environmental enrichments less than able-bodied bears, because this might put them at risk for unsuccessful rehabilitation. As part of his MSc research, he travelled to China, to observe the bears using the various enrichments.

From late May to late June 2010, Jamie studied the residents of five houses, containing between 11 and 18 bears each, for a total of 63 research subjects. Of these, 19 were amputees and 9 were visually impaired, and subjects had been in the sanctuary for anywhere between 16 months and 10 years. Of the amputees, 12 were missing one forelimb below the elbow, 2 were missing a forepaw, 1 was missing a

forelimb above the elbow, 1 was missing both a forelimb below the elbow and the other forepaw, 2 were missing one hind limb below the hip, and one was missing a hind limb below the knee. Of the visually impaired, some (with severe cataracts) likely had some degree of sight, while others were obviously completely blind (e.g. 2 had no eyes due to prior medical issues).

Jamie observed the bears’ behaviour for two hours in the morning and three hours in the afternoon while they were in the enriched yard, as well as inside their dens for one hour each morning. He found that disabled bears were less active and ate less food than able-bodied bears. Amputees also spent more time sitting or lying, and moved between different areas of the yard less often than other bears. Jamie says that more observations are needed to determine whether standing and walking are particularly painful or tiring for

amputees, and to establish whether disabled bears had difficulty foraging, or whether they simply needed less food because they were less active.

Disabled bears used most other types of enrichment as much as able-bodied bears. Amputees climbed structures and manipulated objects just as often as non-amputees, and disabled bears did not seem to have



Photo: Vincent Tsang, AAF

*A moon bear in a crush cage*



Photo: Jamie Anloy Dallaire

Each bear has its own den and sleeping basket at the sanctuary

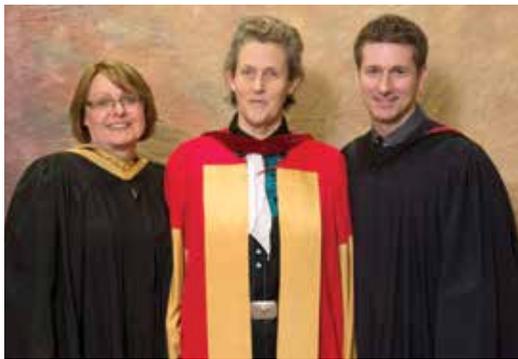
any problems related to social interactions. However, visually impaired bears tended to manipulate objects less often than did sighted bears.

Some disabled bears also showed interesting adaptations – for example, one visually impaired bear appeared to navigate by feeling textures on the ground with her paws. In conclusion, disabled bears do in fact benefit from enrichment and rehabilitation, and Jamie feels that future enrichments should be designed to take advantage of these behaviours and allow bears to work around their disabilities. †

*This project was funded by the Ontario Veterinary College Care-a-Thon Animal Welfare Research Scholarship, the Keyes Family Scholarship and the UFAW Animal Welfare Student Scholarship.*

To learn more about the work of Animals Asia Foundation, please visit: [www.animalsasia.org](http://www.animalsasia.org)

## Feature



# Dr. Temple Grandin Receives Honorary Doctorate at Winter Convocation

By Nancy Orso

*Dr. Temple Grandin with Drs. Tina Widowski and Derek Haley at the winter OAC/OVC convocation ceremony*

Temple Grandin, the renowned animal scientist, bestselling author and consultant to the livestock industry on animal welfare and behaviour, received an honorary doctorate of science at the winter convocation for the Ontario Agricultural College (OAC) and the Ontario Veterinary College (OVC).

“As founding colleges of the University of Guelph, we are thrilled to jointly recognize Dr. Grandin with this honorary degree” said Rob Gordon, dean of OAC. “She is a welcome and frequent visitor and friend to our University and we have all benefitted from her insights and knowledge, particularly the Campbell Centre for the Study of Animal Welfare.”

Grandin, a professor of animal science at Colorado State University, is a person with high-functioning autism and knows the anxiety of feeling threatened by her surroundings. Motivated by

“Temple Grandin has made immeasurable contributions to the health and welfare of farm animals and sustainable agricultural practices. This is what contemporary agriculture is all about”

OAC Dean, Dr. Rob Gordon

this, she has introduced and designed humane handling systems for livestock-processing facilities across the U.S., Canada, Europe, Mexico, Australia and New Zealand, and consults with the meat industry to develop animal welfare guidelines.

“Temple Grandin’s contributions are an inspiration to all veterinarians who are bound by a solemn oath to promote animal health and welfare and relieve animal suffering,” said Dr. Elizabeth A. Stone, OVC dean.

Grandin earned her bachelor’s degree in psychology from Franklin Pierce College, her master’s degree in animal science from Arizona State University, and her doctoral degree in animal science from the University of Illinois at Urbana-Champaign in 1989. She has published over 400 articles in scientific journals and livestock periodicals on animal handling, welfare, and facility design. She is also one of the world’s most accomplished and recognized people with autism. She invented a device used to treat people with hypersensitivity, was the subject of the Emmy Award-winning film “Temple Grandin”, and in 2010 was named one of Time Magazine’s 100 Most Influential People in the World. †

*Nancy Orso is Communications Assistant with the Ontario Agricultural College*



## Spotlight on Faculty: Dr. Alice Hovorka

By Dr. Susan Nance

*Dr. Alice Hovorka with "Mabel"*

When Alice Hovorka asked me to speak to her class this past semester, I was quite intrigued. "Alice is a geographer. What is she up to asking me to visit her students?" I wondered. I am a historian of animals and Alice had asked me to reprise my talk on the nature of animal celebrity, which I gave as a Campbell Centre Animal Behavior and Welfare Seminar last Winter semester. Although I was happy to say yes, at first I wasn't sure how I might contribute to Alice's course. As I discovered, she had an ingenious plan.

Dr. Hovorka is associate professor of Geography and an associated faculty member of the Campbell Centre for the Study of Animal Welfare. Her main body of research concerns food production, gender, urban and rural space in the African nation of Botswana where she has spent many months talking with women who run home-based poultry farms. She found that many women have thusly empowered themselves economically while fuelling increased consumer demand for chicken in Botswana, a nation traditionally rooted in cattle ranching by men and boys and beef consumption. At the same time, these women's success has alerted male investors to the potential of poultry. They have begun attempting to reshape the chicken business by establishing large-scale chicken farms that threaten to squeeze out the smaller, women-run operations.

As it turns out, Alice's work in Botswana got her thinking about the many ways animals shape human life by marking out gender relations, political and economic differences, and more. The University of Guelph is one of the largest institutional users of animals in Canada, so she knew it would be an ideal place to teach a course that would explore how animals structure our space, work, identities and life closer to home. "I really imagined it as a crash course for me and the students in human-animal relations that would help us to understand all the different ways academics, students and

the public look at animals, and all the different ways my colleagues on campus understand and use animals," she told me.

The course is one of the First Year Seminars offered by the University this year. Innovative, interdisciplinary courses taught by faculty all over campus, each seminar holds only eighteen students so allows them discussion-oriented learning experiences focused around the instructor's research

specialty and topical issues that really energize undergraduates. "Animals are everywhere and so indispensable to everything we do, yet we often ignore or don't notice them. I wanted the course to get my students to really see the animals around them and think about the choices we make that affect them," Alice explains. She structured the course around the tasks of defining, placing, encountering and assessing animals in human contexts in order to help students think about the

many contradictions that characterize our attitudes to animals. "It was less about answering questions than about seeking those questions," she says of this open-ended approach.

Students who enrolled in the course came from European Studies to Environmental Biology and everything in between, bringing together an ethically diverse group, "from those with unexamined attitudes to animal rights advocates to determined utilitarians," she says. The course gave them plenty of first-hand engagement with an equally interdisciplinary group of scholars--philosophers, veterinarians, human psychology researchers, economists, animal welfare scientists and me the historian - all studying how we interact with other species.

"I made sure that they did plenty of experiential learning that would make the course readings and the abstract ideas we talked about very real for them because we could go see the abattoir and the dairy barn and the Toronto Zoo."

**"Animals are everywhere and so indispensable to everything we do, yet we often ignore or don't notice them. I wanted the course to get my students to really see the animals around them and think about the choices we make that affect them" – Alice Hovorka**

At the Toronto Zoo, the class was hosted by CCSAW associated faculty member Dr. Dave Barney, an exotic animal specialist. Over five hours one Saturday, Dr. Hovorka and the students were able to talk with staff about vet care and feeding protocols for zoo animals, and about how they perceived the Zoo's mandate and the public controversies around animal captivity. They also went behind the scenes at the lion and rhino displays. "Some of my students called up their parents on their cell phones when we were in the rhinoceros exhibit and said: 'Hey Mum, I'm petting a rhino right now!' So, many of the trips were really a lot of fun while also getting us to scrutinize the grey-zone between how we aspire to treat animals and how we actually treat animals."

Dr. Hovorka's students came away from these experiences reporting that animals had simply become more visible to them, giving them an appreciation for how central animals are to human life and how complex our responsibilities to them are. The big insight of the semester for the instructor, Alice says: "How impressed I was by how collegial, accommodating and open the researchers and scholars on campus and off have been. I would very happily teach this class again." †

*Susan Nance is Associate Professor of History and associated faculty with the Campbell Centre.*

## Feature

# Animal Welfare in Taiwan – How Times Have Changed!

By Ian J.H. Duncan

I first visited Taiwan in 1994 at the invitation of Professor Liang Hsia whom I met many years ago when he studied for his PhD at Edinburgh University. We are in fact 'academic brothers' since we both had the same academic father or supervisor, Professor David Wood-Gush. Dr. Hsia's speciality was the behaviour of sows and while he studied in Edinburgh he also became very interested in animal welfare. In 1994 he tried to stimulate a general interest in the welfare of farm and companion animals by organizing two conferences, one at his home university, the National Pingtung University of Science and Technology in the south of Taiwan, and an identical conference in the capital, Taipei, in the north.

He invited some animal welfare scientists from Europe and North America to make presentations at these conferences together with a few local scientists who were beginning to take an interest in welfare.

Last year, Dr. Hsia invited me to Pingtung to give a lecture course on animal welfare. I stayed there for two months and had the opportunity to see the strides that Taiwan

has made in improving animal welfare. It was in the treatment of stray dogs that I saw the greatest difference. Eighteen years ago, Taiwan had a huge stray dog problem. No one knew exactly how many stray dogs there were. I heard estimates of between 7 and 10 million! The problem was that dogs are highly valued as companion animals and owning a dog would be a high priority for any Taiwanese family. However, having the pet spayed or neutered was not such a high priority nor was keeping it confined to the house or yard. It seems to be part of the culture, perhaps based on Buddhist or Confucian teaching, that pet animals should be 'free'.

Of course, the combination of free-roaming, un-neutered dogs and a tropical climate meant that lots of animals whelped away from home and the pups grew up as feral animals. In 1994, there



*An interesting phenomenon in Taiwan is that the type of dog owned seems to be driven by fashion; If a film is released featuring a husky, there will be a demand for huskies (yes even in a tropical country!) and this will be reflected sometime later in the stray dog population. These stray dogs are ready for leash training (i) huskies, (ii) retriever-type and (iii) hounds.*

were stray dogs everywhere. Taipei is built amongst volcanic hills covered in tropical rainforest and the dogs lived there, emerging into the streets to scavenge for food. Taiwan is free from rabies, so the stray dogs were not a human health hazard.

On the other hand, they were a major cause of traffic accidents, and from time to time local government officials would order a round-up of stray dogs. This job fell to the garbage collectors and it was very crudely done. Dogs were caught using piano-wire nooses on long poles, thrown into the back of large cube vans and transported to the local pound. I saw one of the large pounds on the outskirts of Taipei, and it was awful! There were 3 or 4 large outdoor pens each with several hundred dogs running loose. Many of the dogs were injured while others were sick. When the caretakers were asked “Why don’t you euthanize the badly injured and sick dogs?” they said that they were dependent on donations to buy food for the dogs, and if word got out that dogs were killed in the pounds, then donations would dry up. I suspect that once again this is related to the Buddhist/Confucian culture. This meant that there was never an opportunity to rehabilitate some of the dogs and get them adopted. It was a huge vicious cycle with thousands of animals living and dying in miserable conditions.

How things have changed! Professor Hsia has organized the stray dog program in Pingtung County financed by local government. There are now specially-trained dog catchers who use very large ‘butterfly nets’ to catch the dogs. There

are trucks with individual crates to transport the dogs to the pound on Pingtung University campus. The dogs are housed in small groups in well-designed pens with nice inside shelters. On arrival at the pound, each dog is bathed and de-wormed, gets a veterinary inspection, and when required is spayed or neutered. Graduate students also give the dogs some basic training including walking on a leash.

The most promising aspect of the whole program is that more and more dogs are being adopted which means that fewer dogs have to be euthanized. Professor Hsia told me that he felt the program had made a big break-through in the past year because now people from the neighbourhood are bringing unwanted dogs to the pound. Professor Hsia has also introduced a ‘Caring for your Pet Dog’ program into the local elementary schools in the hope of educating more responsible pet ownership.

It can be seen from the photographs (page 8) that the dogs are in good condition and are being kept in very nice clean pens. This combination makes it much easier to get the dogs adopted and the adoption rate is gradually climbing. Of course many dogs still have to be euthanized. However, compared with what was happening 18 years ago with virtually no adoptions and dogs being ware-housed until they died in miserable conditions, this is a huge improvement. †

*Dr. Ian Duncan is Professor Emeritus and Emeritus Chair in Animal Welfare in the Department of Animal and Poultry Science, University of Guelph*

## Feature

# 5th International Conference on the Assessment of Animal Welfare at Farm and Group Level (WAFL2011)



In August, we hosted the 5th International Conference on the Assessment of Animal Welfare at Farm and Group Level (WAFL2011). The conference was a great success with nearly 300 delegates from over 20 countries in attendance, making it the largest WAFL ever. In addition to a group of world-renowned speakers, many of the world’s leading experts in animal welfare science presented their work at the poster sessions.

The proceedings, including 123 scientific abstracts and a selection of full peer-reviewed papers from the conference, will be published in a special issue of the journal “Animal Welfare” (UFAW). We were delighted that a variety of delegates from government and professional organizations, together with food retailers and leaders in the farm animal industries were in attendance, providing fantastic opportunities for networking.

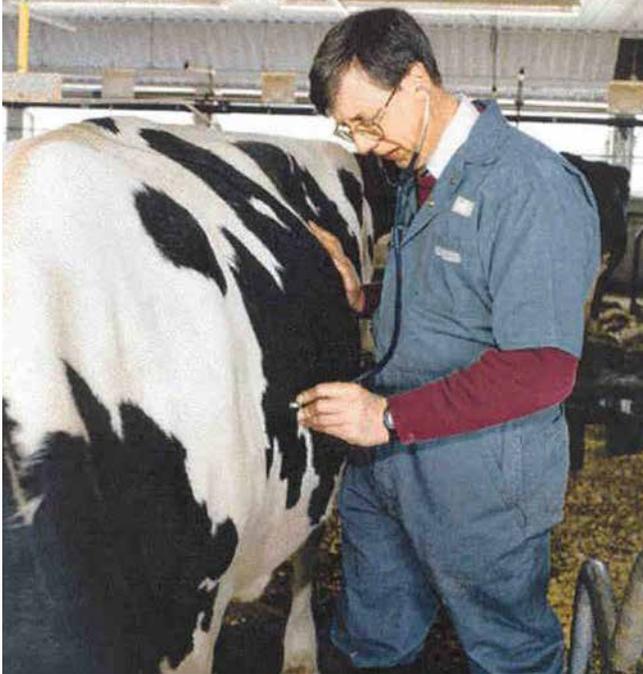
Once again, we would like to thank our many sponsors for helping to make this conference such a success. The proceedings from the WAFL conference are available online: [www.uoguelph.ca/ccsaw/wafl](http://www.uoguelph.ca/ccsaw/wafl)

The 2014 WAFL Conference will be held in, Clermont-Ferrand, France, with organization headed by Dr. Isabelle Veissier. †



# Dr. Ken Leslie: Making Strides in Dairy Welfare Improvements

By Janet Higginson Cutler



*Dr. Ken Leslie, working toward improved welfare for dairy calves and cows*

recently his work has included pain management and the study of behaviour for identification of animals at risk for poor welfare. Some of this research has led to the approval of meloxicam, an anti-inflammatory drug, for pain management during both dehorning and cases of diarrhea in dairy calves. Continuing research is examining the use of meloxicam in adult dairy cows during calving and mastitis infections. Leslie also served on the Campbell Centre Steering Committee from 2007-2009.

Leslie's extension and continuing education efforts have led to successful programs such as the Dairy Research Communication and Extension Event, an annual conference for producers that presents ongoing research at the University of Guelph. Continuing education for veterinarians is provided through the Dairy Health Management Certificate Program, which enhances the skills and knowledge of dairy cattle veterinarians. Both of these programs work to improve welfare in cattle through translation of information on health and welfare to producers and veterinarians.

In 2012 Leslie was awarded Professor Emeritus status, and is still busy at work organizing the Dairy Cattle Welfare Symposium that will be held October 24-26 in Guelph. This international conference has attracted keynote speakers from North America and Europe. †

*Janet Higginson Cutler is a PhD candidate in the Department of Population Medicine, University of Guelph*

In the world of dairy science, the name Ken Leslie is synonymous with quality research and student success. Leslie has contributed enormously to research in this field, improving the health and welfare of dairy cattle. Leslie received his DVM degree in 1974 from the Ontario Veterinary College and then went into bovine veterinary practice for three years. Following this, he returned to the University of Guelph to teach as an assistant professor where he also completed his requirements for an MSc, and in 1993 he became a full professor.

Throughout his career, Leslie has authored over 175 articles in refereed journals and has written or edited several textbooks and book chapters. However, one of the most significant contributions Leslie has made to academia surrounds his mentorship of students. Throughout his career thus far, he has been on the advisory committee or supervised 66 graduate students. His excellent mentoring skills led to being the recipient of the 2010 American Association of Bovine Practitioners and Intervet/Schering-Plough Animal Health Mentor of the Year Award.

With a research program that has focused on the health aspects of cattle welfare throughout his career, more



**Dairy Cattle Welfare Symposium**, October 24th-26th, 2012, Delta Hotel and Conference Center, Guelph, Ontario, Canada. This symposium will provide a forum to share recent research findings and recommendations for dairy cattle welfare, discuss solutions to the current issues facing dairy farms, learn opportunities for identifying welfare issues on farm, and network with producers, researchers and industry professionals.

**To learn more or to register, visit: <http://www.dairycattlewelfaresymposium.ca>**

# Alternative Housing Systems for Laying Hens: Research into the Way of the Future

By Kimberly Sheppard

Consumer and retailer concerns about the welfare of laying hens in conventional cages are impacting the ways that eggs are produced and marketed around the world. The criticism



*Hens exiting the nesting area of a furnished cage*

stems from the design of conventional cages, as they provide little space per bird and do not contain enrichments that allow hens to express natural behaviours – such as nest boxes, perches, dust baths and foraging areas.

Global changes include the European Union's ban on the use of conventional cages by January 1, 2012; California's Proposition 2, which stipulates that hens must have space to fully spread wings without touching another bird or the sides of the enclosure; and Manitoba Egg Producers' policy that any new or renovated hen housing after 2018 meet the "Five Freedoms" which are animal welfare guidelines respected by veterinarians, poultry specialists and animal welfare researchers around the world. Free-run, certified organic, or enriched/furnished housing would be acceptable.

A variety of alternative housing systems for laying hens have been developed and include enriched colonies, single and multi-tiered aviaries and free-range systems. Each system has its own set of welfare benefits and challenges. To learn more about the costs and benefits of each system, see "Egg labelling and hen welfare: What does it all mean?" in Issue 17 of CCSAW News (available at [www.uoguelph.ca/ccsaw](http://www.uoguelph.ca/ccsaw)).

There are still many questions about how to optimize management in the various alternative housing systems, and how they impact the bottom line. For example: What is the best rearing environment for pullets going into those systems? How do different management options such as density or group size affect health, welfare and productivity of the hens in those systems? How will cost of production compare?



*Hens using the perch and scratching area in a furnished cage – note the food sprinkled on the red scratch pad to the left*

A research team at the University of Guelph is delving into these questions by conducting a series of laboratory experiments and field trials that address the behaviour and health of hens in alternative housing systems. Their first series of experiments will focus on: Comparing the welfare and productivity of hens in different group sizes of enriched colony housing; Examining how pullet-rearing environment affects behaviour, bone health and welfare of hens in enriched colonies; Determining prevalence of bone breakage and welfare challenges in commercial and conventional non-cage (free run) systems; and Comparing costs of producing eggs in conventional cages and enriched colony housing.

This project will generate knowledge to inform Canadian egg producers about alternative production systems that meet consumer expectations and enhance the welfare of hens. †

## The Research Team:

**Tina Widowski**, animal welfare scientist with expertise in poultry behaviour and welfare, and Egg Farmers of Canada Chair in Poultry Welfare

**Steve Leeson**, world class expert in poultry nutrition with expertise in bone biology, University of Guelph

**Stephanie Torrey**, research scientist in poultry welfare for Agriculture Canada

**Michele Guerin**, poultry veterinarian and epidemiologist, Ontario Veterinary College

**Leanne Cooley**, nutrition and poultry specialist for Gray Ridge Farms

## Our Funding Partners:

Clark Ag Systems Ltd.

Egg Farmers of Canada

Poultry Industry Council

Ontario Ministry of Agriculture, Food and Rural Affairs

## Out in the Work Force

### Campbell Centre Graduates Taking Different Directions Toward a Common Goal

By Kimberly Sheppard

The ultimate goal of students enrolled in animal behaviour and welfare graduate training at the University of Guelph is improvement of animal welfare in practice. But how we all reach that goal can take many forms. Two great examples are MSc by coursework graduate Graham Duggan, now working with Turkey Farmers of Canada, and PhD graduate Amy Stanton, who has accepted an Assistant Professorship position in the Department of Dairy Science at the University of Wisconsin - Madison.



Graham Duggan joined Turkey Farmers of Canada (TFC) in October 2010, as their 'On-Farm Programs Assistant' to cover a maternity leave. The job's main duties surrounded the TFC On-Farm Food Safety Program, a set of required management practices to be implemented on-farm, in an effort to enhance food safety at the farm level. Duggan was responsible for ensuring this new

program was technically sound, coordinating the distribution of Food Safety and Flock Care Programs, and playing an active role in training auditors on the updates.

Duggan then filled a second leave replacement as 'Interim Associate Manager - Technical Affairs - Science and Regulation'. In this role, Duggan is much more involved with research, monitoring regulatory updates, and maintaining the TFC Flock Care Program, with a greater focus on turkey welfare. Duggan is currently sitting as a staff representative of TFC on the National Farm Animal Care Council (NFACC) Code Development Committee for the current review of the poultry code of practice (meat birds).

"The Animal Behaviour and Welfare Masters by coursework program provided me with a great foundation in academic research and industry applications" says Duggan. "My major project involving turkeys helped me to understand the workings of the poultry industry, poultry disease, animal welfare and food safety - all of which have been crucial in fulfilling the requirements of my current position." †



Dr. Amy Stanton has just become the newest faculty member in the Department of Dairy Science at the University of Wisconsin - Madison. Coming from a very large dairy farm herself, Stanton plans to focus her research

program on youngstock, examining management practices for milk fed and weaned dairy calves that will contribute to improved health and wellbeing. She will also be continuing to focus on sickness behavior, the topic of her PhD dissertation. An initiative Stanton will be pressing to start soon is benchmarking current welfare practices in Wisconsin, in order to categorize the strengths and weakness of the industry in terms of dairy welfare.

"I am most looking forward to working with producers and farm staff to improve the welfare of dairy cattle in Wisconsin" says Stanton. "There are a lot of very active and enthusiastic producers in Wisconsin who are very interested in learning more about animal welfare science and how it can benefit their cattle." †

## Graduate Theses Successfully Defended!



**Rebecca Meagher, PhD.**

The welfare significance of inactivity in captive animals using mink as a model



**Kristi Bovey, MSc.**

An investigation into the behavioural and physiological responses of swine to routine surgical procedures

# U of G Sweeps Animal Welfare Judging Competition!

## U of G News Service

The University of Guelph swept the 2011 animal welfare judging competition, besting teams from across North America to win first place in all three divisions: undergraduate, DVM and graduate student.

Held at Michigan State University (MSU) last fall, the event attracted 20 teams from across the continent. It was sponsored by the American Veterinary Medical Association, MSU and Dean Foods, one of the largest retailers of dairy products in the United States.

“The success of our students at this competition reflects the strength of the University’s animal welfare program and the dedication of faculty and students to excellence,” said Tina Widowski, director of the University’s Campbell Centre for the Study of Animal Welfare and a professor of animal and poultry science.

U of G’s undergraduate team consisted of students from across the Ontario Agricultural College. Members of the DVM team came from the Ontario Veterinary College (OVC), and the graduate team had members from both colleges.

“What is unique about the Guelph teams is that we train all of our students together,” Widowski said. “The students bring different skill sets and different viewpoints to the teams; they build on each others’ strengths.”

Widowski served as a team coach along with Ian Duncan, an internationally recognized animal welfare expert and a retired animal and poultry science professor, and Derek Haley, a faculty member in OVC’s Department of Population Medicine who studies farm animal behaviour and animal welfare. Veteran competitors, graduate student Janet Higginson and DVM student Kait Link also devoted many hours to developing mock scenarios and participating in the training.

Competing teams conducted an assessment at a working animal facility. They were also challenged to make animal welfare recommendations for scenarios involving farm, domestic and exotic animals.

One of this year’s judges was Temple Grandin, a renowned animal welfare scientist and bestselling author.

“It’s a fantastic exercise,” Widowski said. “It fosters the skills students need to critically examine a situation, gather unbiased information and use that information to make a subjective but educated assessment of welfare quality.”



University of Guelph teams and coaches, left to right: (Back) Jackie Jacobs, Tara Jones, Laura Boerner, Elyse Germain, Kristyn Hale, Prof. Derek Haley (coach), Prof. Ian Duncan (coach), Nicole Stone, Lena Levison, Prof. Tina Widowski (coach). (Middle) Julie Fish, Shannon French, Christie Ryan, Hillary Esdon. (Front): Madeleine Cosentino, Michelle Lam, Francesca Small

“The education gained here translates past the competition and into the ‘real world,’ where these skills will be applied practically as students embark on their careers.”

Undergraduate team members coached by Duncan were Laura Boerner, Madeleine Cosentino, Elyse Germain, Kristyn Hale, and Julie Fish.

Haley coached the DVM team of Nicole Stone, Shannon French, Christie Ryan, Hillary Esdon and Francesca Small.

Widowski coached the graduate team of Jackie Jacobs, Tara Jones, Michelle Lam and Lena Levison. †

## The 12th Annual Intercollegiate Animal Welfare Judging and Assessment Contest

will be held at the University of Guelph for the first time on November 17th–18th, 2012. If you are a university student and are interested in participating, or if you would like more information, visit: [www.uoguelph.ca/csaw/awjac2012](http://www.uoguelph.ca/csaw/awjac2012)

## Measuring the Unmeasurable: The Objective Assessment of Animal Emotion

*Dr. Georgia Mason Delivers Henry Spira Memorial Lecture*



*Dr. Georgia Mason delivering the Henry Spira Memorial Lecture*

In early spring, Dr. Georgia Mason was invited to deliver the prestigious Henry Spira Memorial Lecture at the annual conference for Public Responsibility in Medicine and Research (PRIM&R) in Boston, MA. Mason's talk was on the topic of: "Measuring the unmeasurable: the objective assessment of animal emotion".

PRIM&R is dedicated to the consistent application of ethical standards in both medicine and research. This conference is attended by 600-700 individuals who are involved with animal care and use programs, researchers, research staff members, federal representatives, industry representatives and other sponsors, lawyers, ethicists, journalists, advocates, and more. Congratulations to Dr. Mason for being invited to deliver this prestigious lecture!

To purchase a code to view the proceedings of the conference, including a video of this lecture, please visit: <http://www.primr.org> or contact Ariella Green ([agreen@primr.org](mailto:agreen@primr.org)). †

### Students

## Student Chapter Going Strong!

By Kimberly Sheppard



*(Left) Past Student Chapter executive (left to right): Janet Higginson, Kristi Bovey, Krysta Morrisey*



*2012-2014 Student Chapter executive (left to right): Jackie Jacobs, Jessica Zaffino, Tara Jones, and Teresa Casey-Trott*

The Campbell Centre Student Chapter executive turned over this winter, with members finishing up their graduate work and stepping down, while a brand new student executive took over.

We would like to send out a hearty "Thank-you!" to Janet Higginson (President), Kristi Bovey (Vice President) and Krysta Morrisey (Event Coordinator/Treasurer), for their dedication and hard work engaging students in animal welfare for the past few years. They enthusiastically breathed new life into the Student Chapter, creating a growing momentum that has persisted. They engaged new students at club days, promoted events and opportunities to undergraduates, organized lectures especially for students becoming interested in animal welfare, organized an annual behind the scenes zoo trip where students learn about welfare implications of various housing and enrichment

challenges, and raised funds for events through bake sales. They have also been working away on developing educational materials for school-aged children.

New student chapter members are Teresa Casey-Trott (President), Jackie Jacobs (Vice-President), Jessica Zaffino (co-Event Coordinator/Treasurer), and Tara Jones (co-Event Organizer/Treasurer). They have started off with a bang, initiating a monthly newsletter, holding a lunch time seminar "What is Animal Welfare?" by Dr. Ian Duncan, and organizing a seminar by Dr. Esther Finegan on Zoo Animal Research and Welfare, in preparation for this year's zoo tour.

In addition, many of our Student Chapter members volunteer to help run Campbell Centre events and volunteer on organizing committees, showing a true passion and dedication to their field. *Thank you to all!* †

## 5th Annual Animal Welfare Research Symposium

By Kimberly Sheppard



Dr. Andrew Luescher

The 5th Annual Animal Welfare Research Symposium was held this spring. We were delighted to welcome University of Guelph Alumnus, Dr. Andrew Luescher (Purdue University) back to U of G, as he was one of the first associated faculty of the Campbell Centre and served on our Steering Committee for a number

of years. Dr Luescher gave the keynote lecture on the topic of “For the Love of Dog: The Welfare of Animals we Profess to Love”. This talk discussed welfare issues in species that are not of primary economic interest (although they are also exploited in that way), but supposedly are objects of our love and admiration, such as dogs, cats and pet birds. Aside from competitions and satisfaction of personal pride, it is often people’s attraction to the unusual and absurd that causes welfare



concerns. The interest in deviations from normal is only natural but has resulted in the selection for features that are barely compatible with life. Extremes in size, hairlessness, colorations that go along with neurological deficits, crippled conformation and behavioral abnormalities are but a few examples of such traits. Luescher concluded that our attraction to and love for living beings is led astray by our self-centered desire to manipulate and distort nature to satisfy our whims.

We also heard nineteen impressive research talks from students and faculty on a range of disciplines and species from welfare of donkeys in Botswana to pigs and poultry on local farms. †

You will find all of the day’s abstracts here:

[www.uoguelph.ca/ccsaw](http://www.uoguelph.ca/ccsaw)

“It is often people’s attraction to the unusual and absurd that causes welfare concerns... Extremes in size, hairlessness, colorations that go along with neurological deficits, crippled conformation and behavioral abnormalities are but a few examples” – Andrew Leuscher

### Students

## Scholarship Supports Training of Highly Qualified Personnel

### Three Campbell Centre graduate students awarded OMAFRA/UoG HQP scholarship

By Kimberly Sheppard

Graduate students Teresa Casey, Tara Walsh and Hillary Dalton have all been awarded OMAFRA/UoG HQP graduate scholarships to support their preparation for entering the work force after graduation. The scholarship is designed to produce HQP (highly qualified personnel) that have not only an academic specialty, but workplace and business-savvy as well.

Students are awarded a scholarship based on three conditions. Firstly, they must undertake a one-semester work/job shadowing exercise at an off-campus location. This work semester may be with the corporate sponsor of the research program, with OMAFRA at one of their locations within Ontario or at other mutually agreed upon business or government sites. Secondly, the students’ graduate program must contribute to OMAFRA research priorities. Finally, all students must enroll in a 2-semester course called “Integration of Science and Business in Agrifood Systems”.

With this funding, Teresa Casey worked with Farm and Food Care, to produce a training video for humane euthanasia of non-thriving piglets on the farm. Based on results from Casey’s masters research, the video will be available for distribution through Farm & Food Care. Tara Walsh, whose MSc project is focussed on maternal care in farmed mink, worked at NAFA (North American Fur Auction) where she learned how to sort mink pelts based on size, quality, colour and clarity. She also learned about rules of the fur trade and the various species involved, and interacted with clients during the auction to gain a better understanding of the mink industry. Hillary Dalton has recently received award and will be working with with Dr. Ben Wood at Hendrix Genetics looking at turkey flock activity as a potential monitoring tool for feather pecking outbreaks in commercial turkey facilities. Hillary will also be helping with behavioural assessments of turkey generations bred for survival attributes to evaluate if these birds show a decreased tendency to feather peck and thus, have improved welfare. †



## Dairy Cattle Welfare Symposium, October 24th–26th, 2012, Delta Hotel and Conference Center, Guelph, Ontario, Canada.

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<http://www.dairycattlewelfaresymposium.ca>

## Annual OVC Animal Welfare Forum, October 13th, 2012

This year's topics include welfare issues for wildlife in Ontario, livestock transportation in Canada, the welfare of captive elephants, animal pain, and building relationships with shelters and humane societies to improve animal welfare. Details will be posted as they become available: [www.uoguelph.ca/~awc](http://www.uoguelph.ca/~awc)

## The 12th Annual Intercollegiate Animal Welfare Judging & Assessment Contest, November 17th–18th, 2012

*What is the contest all about? See page 13.* If you are a university student and are interested in participating, or if you would like more information, visit: [www.uoguelph.ca/ccsaw/awjac2012](http://www.uoguelph.ca/ccsaw/awjac2012)

## The F.W. Presant Memorial Lecture, November 28, 2012

This lecture will be delivered by Dr. Jayson Lusk, Professor at Oklahoma State University, on the topic of the economics of farm animal welfare. Dr. Lusk holds a PhD in Agricultural Economics from Kansas State University, and a BSc in Food Technology from Texas Tech University. He conducts research related to consumer behaviour and decision making, food and livestock marketing policy, and non-market valuation. Location and other details will be posted on our website as they become available: [www.uoguelph.ca/ccsaw](http://www.uoguelph.ca/ccsaw)

### The Campbell Centre for the Study of Animal Welfare

To learn about how you can support the centre or to join our e-mail list, go to:

[www.uoguelph.ca/ccsaw](http://www.uoguelph.ca/ccsaw)

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