

# CSAW NEWS

The Colonel K.L. Campbell  
CENTRE for the STUDY of  
ANIMAL WELFARE

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## Is Castration Necessary? Solving the Problems of Boar Aggression

BY LAURA DIXON

**M**ale piglets are routinely castrated throughout North America and in many other countries. Surprisingly, this common practice is actually quite inefficient from a production standpoint. Performing the procedure is labour intensive for pig producers, and removes the

*The procedure is considered a welfare issue, as it causes stress and acute pain.*

source of natural androgens that stimulates lean growth. Boars (intact males) have better feed conversion and produce leaner meat compared to barrows (castrated males) and gilts (females).

Castration involves slitting the scrotum of the piglet and quickly removing the testes without the use of anaesthetic. The procedure is considered a welfare issue, as it causes stress and acute pain. Several European countries have banned



**The two boars at centre are involved in an aggressive encounter, fighting shoulder to shoulder.**

piglet castration, effective in 2009, based on welfare concerns.

So, why are we still castrating our piglets? From a production perspective, piglets are castrated to avoid the potential of 'boar taint', an off flavour and off-odour in the meat produced by a small number of boars. Solutions to this problem are being investigated by physiologist Dr.

Jim Squires at U of G, who is researching the use of genetic markers to reduce boar taint. In addition to reducing boar taint, male pigs are castrated in order to reduce aggressive and sexual behaviour that could lead to injury and so reduce welfare.

To determine if sexual and aggressive behaviour actually is a problem when boars are kept for meat production, David Svab designed a project to quantify the levels of these behaviour patterns compared with barrows, as part of his MSc. work with Drs. Ian Duncan and Jim Squires. Boars and barrows were kept in groups of eight, and observed during the final 12 weeks of production (10 to 22 weeks of age). Boars did display somewhat higher levels of aggressive and sexual behaviour patterns compared to barrows but, as expected, had a superior feed to gain ratio.

Taking this information into account, it is difficult to decide if using boars

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results in an overall increase in pig welfare; they do not experience the stress and pain of castration, but are subject to higher levels of stressful, potentially injurious behaviour later in life.

The problem of aggression becomes even more serious when groups of unfamiliar pigs are mixed, resulting in much higher levels of aggression than would occur in stable groups of familiar pigs. This is because mixing causes a disruption of the social hierarchy in a group of pigs, and intense fighting occurs to re-establish this order. Although pigs may be mixed a few times on farm, one of the most stressful situations occurs in the lairage or resting area at the slaughter plant, where pigs are commonly mixed. If castration is to be stopped,

and boars used in our production system, the only way to improve overall welfare is to find methods of reducing aggression, especially while mixing animals. Svab thought this might be possible through the use of the boar's own pheromone, androstenone.

Androstenone is normally secreted in the saliva of boars and encourages receptive females to stand for mating. There is also evidence that

*Boars treated with androstenone showed a tendency for decreased aggression.*

androstenone reduces aggression if applied topically to young grower pigs before mixing, as it may also have a

role to play in determining dominance status. Svab's second experiment evaluated topical application of androstenone to market-weight boars and barrows after transport and mixing, to determine its effects on aggressive behaviour.

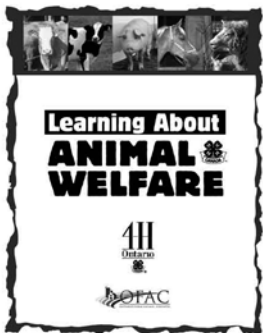
Boars treated with androstenone showed a tendency for decreased aggression in the first two hours after mixing compared to untreated boars. These results are encouraging, as topical androstenone may indeed be a practical solution for decreasing aggression and improving overall welfare. Although more research is needed, this investigation suggests that it may soon be possible to eliminate painful piglet castration, and use boars in North American swine production systems.



## In the News...

### OFAC Launches New 4-H resource

The Ontario Farm Animal Council (OFAC) and 4-H Ontario have partnered to produce a new 4-H resource called "Learning About Animal Welfare" (LAW). The resource, adapted



from Alberta's L.A.W. program, is designed to provide youth with an understanding of issues related to animal welfare, and what industry

is doing to promote responsible animal care. It offers members the opportunity to examine their own animal care practices through work on their project animals, and develop a personal strategy for responding to animal welfare concerns. The booklet includes components for all 4-H members, regardless of age, and provides leaders with valuable information. The resource is currently being distributed to 4-H leaders including beef, dairy, swine, vet, horse, and poultry across the province by 4-H Ontario.



To obtain a copy of LAW, or for more information on the resource, please visit:  
[www.ofac.org](http://www.ofac.org)

### CFIA Forms Committee to Plan for Mass Poultry Euthanasia

The Canadian Food Inspection Agency have formed a committee comprising welfare scientists, poultry scientists, engineers and veterinarians, to form a plan for euthanizing large numbers of poultry should an outbreak of Avian Flu make this necessary. The committee have had several teleconferences to date and have been joined by experts from the USA, the UK, the Netherlands, Sweden and Australia.



## Students...

# OVC Student Improves Rabbit Welfare

BY KIMBERLY SHEPPARD

**R**abbits may soon have improved welfare at the slaughter plant, thanks to the efforts of OVC student Jeff Rau, with cooperation from a number of players. Rau first suspected that rabbit welfare might be in jeopardy

*“I recall at the time thinking that, if we can stun beef cattle efficiently and humanely, surely there had to be a more humane, accurate and safe way of stunning rabbits.”*

while working in the US, where he observed the methods by which rabbits in slaughter houses are rendered unconscious before bleeding and processing. The method, which had been accepted in Canada until June 2005, involves delivering a blow to the head or neck region using a hand-held wooden club.

Rau felt that this method, in addition to being aesthetically unappealing, left too much room for error, “I recall at the time thinking that, if we can stun beef cattle efficiently and humanely, surely there had to be a more humane, accurate and safe way of stunning rabbits.” It was this thought, combined with Rau’s role as a director of CanFACT (the Canadian Farm Animal Care Trust) that led to the development of a device to make this possible.

The development of this device stemmed from a similar tool, a pneumatic captive bolt gun, which had been designed in the UK for poultry. The gun is placed directly against the head of the animal and uses compressed air to drive

a short metal bolt at great speed and accuracy through the skull. If done properly, the animal loses consciousness immediately before bleeding, as opposed to slowly during bleeding. Rau suggested that the gun, although designed for poultry, might also be a viable option for use with rabbits. CanFACT agreed, and with the cooperation of OMAFRA (The Ontario Ministry of Agriculture, Food and Rural Affairs) the gun was tested in Ontario. However, although initial reports were encouraging, improvements in design, cost and reliability were necessary if the gun were to be used in a practical setting.

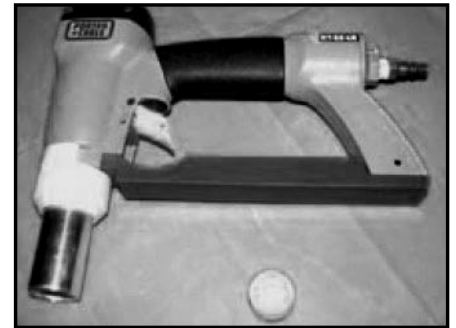
Therefore, Rau took on the challenge of conducting a research project that would address these concerns, as part of a 2nd year OVC project elective. The project involved designing, testing, and outlining operating procedures for a cost-effective, reliable, user-friendly, and above all, humane and effective stunning device for meat rabbits. Mario Paroutis, of the University of

*All food animals must be stunned and rendered unconscious by a method that causes immediate loss of consciousness.*

Guelph Physics Department Machine Shop, and workshop supervisor Bill Morton worked with Rau to build the new devices, which had mushroom heads and did not penetrate the skull. A scientific trial was then run in which efficiency of stunning and humaneness were measured.

The device was, in fact, so successful that OMAFRA made

regulatory changes prohibiting the old method of rabbit stunning by means of clubbing. They moved to replace the Provincial Meat Inspection Act with the Food Safety and Quality Act in June of 2005. The new act states that and all food animals must be stunned and rendered unconscious by a method that causes immediate loss of consciousness, and in a manner



**The Zephyr Stun Gun, pictured here, is a humane alternative for stunning meat rabbits.**

that ensures that the animal does not regain consciousness before death.

Rau says that development of the new stun gun “directly addresses the change in regulation by providing a viable and humane alternative to the old method of clubbing.” Rau is in the process of preparing a scientific paper on his findings, and plans to travel to other provinces during the summer demonstrating the device, with hopes that the stun gun will be adopted by the meat rabbit industry across Canada.



**For more information on the new Food Safety and Quality Act, please visit:  
<http://www.e-laws.gov.on.ca>**

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occurred in Europe, states Rollin.

It is obvious from these many examples that a new ethical thinking is emerging. Somewhat less obvious is why this is happening. Historically, the ethic regarding animal treatment has been very minimalist – basically covering anti-cruelty, defined as the deliberate wilful infliction of pain and suffering on animals or outrageous neglect, such as not feeding or watering. There has, however, evolved

*Both lab animal researchers and animal rights activists will admit that that laboratory animal legislation has improved both animal welfare and science.*

a social dissatisfaction with this definition, as it does not cover most sources of animal suffering today.

Rollin feels that one of the most significant contributors to the changing ethic is the precipitous and dramatic changes in animal use that occurred after World War II. Major conceptual changes in the nature of agriculture have occurred, and animal research and testing has significantly increased. Before the War, traditional agriculture was called animal husbandry - roughly a fair contract between people and animals, where both sides won. Animals provided for humans and in turn received an excellent environment in which to live, protection from predation, food, water, and medical attention. In this situation, producers did well only if the animals did well, and self-interest virtually assured good treatment.

After the war this contract was broken by humans. Animal husbandry became animal science – the application of industrial methods to the production of animals. This was in response to a need for cheap food.

It was discovered that technology allowed mass production of animal product (meat, milk and eggs) through the use of mechanization, hormones, vaccines, antibiotics, and ventilation systems. It was now possible to place animals into environments where they suffered in ways irrelevant to productivity, while ignoring their needs and natures.

Rollin points out that this new approach to animal agriculture was not the result of cruelty, bad character, or even insensitivity. Rather, it developed out of perfectly decent, plausible motives in response to a need.

Today, suffering rarely arises from overt cruelty, but rather through our agricultural practices, scientific research, toxicological safety testing, use of animals in teaching, and so on. The traditional ethic of anticruelty and the laws expressing it had no vocabulary for labelling the suffering caused by such things, since researchers did not maliciously intend to hurt the animals. As public awareness for these types of suffering increased, the concern for its mitigation grew; society in general is now looking for new moral notions necessary to talk about the treatment of animals in today's world.

Rollin emphasized that the new ethic is not an abolitionist one, dictating that animals cannot be used by humans – but rather it is an attempt to constrain how they can be used, so as to limit their pain and suffering. The new ethic is in fact very conservative. Like all rights ethics, says Rollin, it accepts that some benefits to be gained by unbridled exploitation will be lost and that there is a cost to protecting the animals' natures. In agriculture, for example, the cost may be higher food prices. This, however, is a small price to pay to ensure proper treatment of objects of moral concern.

As stated above, the success of

a business depends on operating solidly in harmony with changing and emerging social ethics. Rollin says that both lab animal researchers and animal rights activists will admit that that laboratory animal legislation has improved both animal welfare and science and reassured public moral concern. His goal is to galvanize the same sort of adherence to social ethical concern about farm animals. He feels that the social ethics for production agriculture must be proactively met, so as not to lose autonomy to ill-conceived legislation.

*The Basil Capes Memorial Lecture is organized by CSAW as part of the OAC (Ontario Agricultural College) Public Lecture Series, and is sponsored by the Animal Welfare Foundation of Canada. This article contains excerpts from Dr. Rollin's presentation, which is also published in the Journal of Animal Science, 2004, Volume 82, p 955-964.*



## Public Lectures...

# Pursuing the Edge: The Ethics of Performance Enhancement in Horses

BY MICHELLE DRISSLER

*The OVC Animal Welfare and Equine clubs, with support from the Ontario Racing Commission, invited 5 panelists to take part in a discussion on the definition and implications of performance enhancement in horses. Panelists included: Dr. B. Rollin Colorado State professor, renowned for his contributions in the area of animal ethics; Dr. D. Furness, Standardbred practitioner; Dr. M. Weber, Manager of Veterinary Services of the Canadian Pari Mutuel Services; G. Wood, Thoroughbred breeder and trainer and L. Laframbois, former national team eventer and coach. The panel was moderated by Dr. Physick-Sheard, large animal cardiologist at the OVC.*

“Performance Enhancement,” according to Dr. Rollin, “can take one of two forms: innocuous, as in training and conditioning and noxious, as in the use of drugs, firing, nerving, soring and brutal training.” Similarly, Ms. Laframboise defined performance enhancement as the path to excellence for a specific type of animal, and noted that this path involves many choices. The choices that stimulated the most audience discussion were the use of both illegal and therapeutic pharmaceutical agents.

In particular, some audience members questioned the use of pharmaceuticals in lieu of providing adequate rest time for an animal. In addition to the potential for long-

term physical damage, inadequate rest may decrease a horse’s psychological well-being. According to Dr. Furness, a “happy” animal is the product of proper training and minimal invasive

*In addition to the potential for long-term physical damage, inadequate rest may decrease a horse’s psychological well-being.*

procedures. Citing examples from livestock production where decreasing fear in animals improved production and reproductive rates, Dr. Rollin suggested that psychological factors are often undervalued. He challenged the audience to reflect on differential treatment of losing and winning animals, insinuating that treating losers differently could be detrimental to their future success.

In addition to allowing for increased rest time, some audience members questioned whether racehorses would benefit from changing the age at which horses start to race from two to three years of age. Ms. Wood argued that delaying initiation of racing would create increasingly unmanageable Thoroughbreds, given that these animals are bred for rapid maturation. She also suggested that injuries would be suffered regardless of starting age. Dr. Furness disputed the latter statement saying that the bones of 2-year-old horses are softer than those of 3-year-olds, and therefore more prone to strain.

Although research has suggested that

horses raced as 2-year-olds perform better overall, Dr. Physick-Sheard cautioned that this does not account for the fact that trainers are selective in their choice of horse, being careful to use those horses that are most likely to succeed at this young age. The racing industry has, to some extent, already responded to these concerns by shifting some of the major stakes races further into the season by 2 weeks for Thoroughbreds and 2-3 months for Standardbreds.

Animal wastage also invited significant commentary, especially as one third of Standardbreds and two thirds of Thoroughbreds do not even make it to the track. Discussion on this issue ranged from the quality of alternate homes, to the potential for pain in retired animals, to the acceptability of euthanasia and human

*One third of Standardbreds and two thirds of Thoroughbreds do not even make it to the track.*

consumption of horse meat.

Although there are no simple solutions to the ethical concerns surrounding performance enhancement, this forum afforded participants the opportunity to explore, discuss and consider various aspects of this topic. As a result, participants left with increased knowledge to aid in more informed choices regarding the pursuit of equine excellence.



# Rat Welfare Problems: Sniffing Out Solutions

BY KIMBERLY SHEPPARD

**F**or the complex lab rat, “home” may be a small space, but how this space is managed is no small matter. In fact, the lab rat’s housing can affect not only welfare, but also results of studies in which the rat is involved.

Charlotte Burn, PhD candidate from the University of Oxford (advised by Dr. Georgia Mason), recently visited U of G to shed some light on the sensory world of the rat, and the importance of considering this for housing management.

Before attempting to understand how rats should be housed, it must first be recognized, as Burn pointed out, that sensory perception is species-specific, and that our own

*The rat’s sensory modalities are much wider ranging than that of human beings.*

human perception is limited. The rat’s sensory modalities are much wider ranging than that of human beings. Therefore, aspects of the environment that are seemingly innocuous to us may have profound effects on them.

The rat, being a nocturnal species that is by nature active at night, has not evolved to require excellent visual acuity, meaning objects are blurrier for it than for us. In lieu of fine-tuned vision, however, rats have evolved with an excellent sense of hearing, touch, and smell.

The rat’s sense of hearing surpasses that of human hearing, which ranges from 16Hz to 20kHz. Rats perceive sounds within the 250 Hz to 65kHz range, and communicate ultrasonically – which raises the

possibility that they can hear noise produced by such things as computer monitors and lights. This, says Burn, is a concern due to the fact that these aspects of a lab animal’s environment are uncontrolled both within and across labs, and are potentially harmful.

The rat’s ability to detect scent is also highly developed, with a further ability to detect pheromones via the highly specialized vomeronasal organ. Scent and vocal signals are used by rats to communicate information about themselves, the environment,



**Rats have a highly developed sense of smell.**

and food sources. They are also innately fearful of predator odour.

Variability of these factors, says Burn, could affect experimental outcomes. Scents drifting between cages can influence both behaviour and physiology, such as alarm, frustration and reward odours that rats communicate to one another. Of particular concern is the fact that distress vocalizations and scents can cause stress reactions in other rats in the room, potentially affecting results of these measures.

Burn was especially interested in the aspect of cage cleaning and whether disruption of scent markings affected male dominance or maternal care. As part of her PhD work Burn investigated this, as well

as rat preference for clean cages, and ammonia levels in cages between cleanings (which occurred as often as bi-weekly, to as infrequently as every 3 weeks). Burn found no effect of cleaning frequency on male dominance or ammonia levels and no preference by rats for clean or scent-marked cages. Frequently cleaned cages did lead to higher levels of cannibalism, however, amongst breeding rats. She recommends that, for this group, cleaning be limited but frequent enough to avoid risk of illness.

Another area of great concern is the fact that the rat’s nocturnality has led to light sensitivity, and even light aversion. Normal room illumination causes rapid degeneration of the retina, which is especially notable in albino rats. Combine this light sensitivity with the fact that virtually all research is carried out when rats naturally rest, and under bright lights, and you’ve got a recipe for seriously bad science and welfare, says Burn. An excellent example of this is the study of light therapy for depression in humans, using rats as models.

*Distress vocalizations and scents can cause stress reactions in other rats in the room.*

This illustrates well the importance of recognizing and accounting for species-specific traits. Ignoring perceptual differences can have profound effects on both welfare and experimental outcomes, and must be considered when caring for and using not only lab animals, but all animals kept in confinement.



# The Basil Capes Memorial Lecture: Emerging Social Ethics for Animals

BY KIMBERLY SHEPPARD

*CSAW recently had the honour of hosting Dr. Bernard Rollin, world famous ethicist and distinguished professor of both philosophy and physiology at Colorado State University. Dr. Rollin has been a leader in the animal welfare debate since the 1970s, and gave a very engaging Basil Capes Memorial Lecture, discussing society's growing moral concern for animals and the many facets contributing to a newly emerging social ethic.*

**D**uring the last 50 years, says Rollin, we have witnessed a dazzling array of social and ethical revolutions in Western society. Moral movements have been far-reaching, including such areas as feminism and pro- and antiabortion

*Historically, the ethic regarding animal treatment has been very minimalist – basically covering anti-cruelty.*

activism, environmentalism, antiwar activism, public rejection of biotechnology, among others, and all have forever changed the way governments and public institutions comport themselves.

This also holds true for public enterprise, “To be successful, businesses must be seen as operating solidly in harmony with changing and emerging social ethics” says Rollin. This can be seen in the billions forestry and oil companies spend to persuade the public of their environmental commitments, and in the message cigarette companies press upon the public: cigarettes kill.

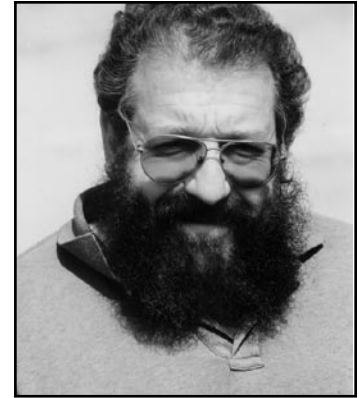
Not only is success tied to social ethics, says Rollin, but even more fundamentally, freedom and autonomy are as well. Every profession, be it medicine, law, or agriculture, is given freedom by the social ethic to pursue its aims. This freedom to self-regulate, particularly

by professions that society understands too little to regulate, is based on a societal trust. If this trust is broken, then society will be forced to regulate, despite, says Rollin, a lack of understanding.

A major social ethical concern that has developed over the past three decades is a significant emphasis on the treatment of animals used by society for various purposes. For example, twenty years ago one would have found no bills pending in the U.S. Congress relating to animal welfare, whereas the last 6 to 7 years have witnessed 50 to 60 such bills annually, with even more proliferating at state level.

The federal bills range from protection of marine mammals to curtailing the parrot trade, and a high number of state laws now prevent shelter animals from being used in biomedical research. Even without legislation, some animal uses seen as frivolous by the public have been reduced, such as toxicological testing of cosmetics, and greyhound racing in the United States.

Likewise, societal force on agriculture has not gone unheeded. As early as 1965, British society acknowledged society's concern with industrialized agriculture by chartering the Brambell Commission, a group of scientists who affirmed that any agricultural system failing to meet the needs and natures of animals was morally unacceptable. The report has influenced European



**Dr. Bernard Rollin, ethicist and professor at Colorado State University**

social thought ever since. In 1998, the Swedish parliament met little opposition when it moved to abolish confinement systems in a series of timed steps – confinement systems that still dominate North American agriculture. The European Union is moving in a similar direction, abolishing sow stalls by the year 2013. With activists turning their attention

*Today, suffering rarely arises from overt cruelty, but rather through our agricultural practices, scientific research, toxicological safety testing, use of animals in teaching, and so on.*

to animal agriculture and pressuring chain restaurants and grocery chains, it is reasonable to expect that U.S. Society will eventually demand changes similar to those that have

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## Where are they now?

Uncertainty comes with the territory - the thesis has been handed in, the defence is scheduled. Graduate studies will soon come to an end, leading virtually every student who reaches this landmark to ask: "Now what?" Over the next several issues, CSAW News will feature updates on where some students have headed after completing their studies in animal behaviour and welfare, and what they are up to now.

Derek Haley (MSc. 1997). After completing a thesis on causes of non-nutritive sucking in dairy calves under the supervision of Drs. Ian Duncan and Anne



Dr. Derek Haley

Marie de Passillé, Haley worked in Lennoxville, Quebec, as a research assistant at Agriculture and Agri-Food Canada with Drs. Jeff Rushen and Anne Marie de Passillé. There he studied the effects of stall design on lactating dairy cows. A few years later he headed to Saskatoon to begin a position as research assistant with Dr. Joseph Stookey at the Western College of Veterinary Medicine. Haley began a PhD with Stookey several months later, focussing on reducing weaning stress in beef cattle. This research has led to the marketing of Quietwean, a two-stage, low-stress method of weaning. Haley completed his PhD this past June. During the course of his studies, Haley has been honoured with an award for excellence by the International Society for Applied

Ethology (ISAE) for his presentation skills, and was also recognized as an Academic All-Canadian in Varsity Track and Field at the University of Saskatchewan. Haley served as ISAE Canadian Regional Secretary for six years and has been serving as the ISAE Communications Officer for the past three years. During the course of his studies, Haley accepted the position of Provincial Livestock Welfare Specialist with Alberta Agriculture, Food & Rural Development, and he is currently involved in both research and extension. Some projects his group is working on include on-farm options for the euthanasia of spent laying hens and developing alternative housing systems for sows and laying hens by modifying existing facilities.



## Congratulations!

Congratulations to Colleen Doherty, who defended her Masters thesis on April 21st. The title of Colleen's thesis is: "The effect of learning, morphology and behaviour on female directed aggression in male broiler breeders". Colleen is currently working as a Meat Inspector for OMAFRA (The Ontario Ministry of Agriculture, Food and Rural Affairs). Good luck in all your future endeavours Colleen!

Sara Sutherland defended her masters thesis, entitled "Sheep behaviour and risks of transmission of foodborne zoonotic pathogens in riparian areas in Southwestern Ontario" on June 2nd. Sara has been accepted to the Bachelor of Veterinary Science program at Massey University Vet School in New Zealand. Congratulations Sara, and good luck in vet school!



## F.W. Presant Memorial Lecture

**Building a better world for dairy cattle - the science and practice of improved care and housing for animals.**

Dr. Dan Weary, Professor of Agroecology, NSERC Industrial Research Chair in Animal Welfare, University of British Columbia. Wednesday September 27. 7pm. 1714 Lifetime Learning Centre, Ontario Veterinary College. Refreshments following.



## 7th Annual Animal Welfare Forum

The 7th Annual Animal Welfare Forum will be held on September 30th, 2006. The forum is organized by the OVC Animal Welfare Club (AWC), and attracts world-renowned experts in animal ethics, behaviour and welfare.

Please visit the AWC webpage for more information:  
<http://www.ovc.uoguelph.ca/Associations/AWC>

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## MISSION STATEMENT

As a group of individuals with diverse interests and views, our primary goal is to promote the welfare of animals through research and education.



The Colonel K.L. Campbell  
CENTRE for the STUDY of  
ANIMAL WELFARE