



# Animal Welfare Information Center BULLETIN

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## Congress In Session

### • H.R. 1726 To promote more humane treatment of farm animals.

Introduced on March 28, 2007, by Peter A. DeFazio (D-Oregon) and subsequently referred to the Oversight and Government Reform Subcommittee on Government Management, Organization, and Procurement and to the Agriculture Subcommittee on Livestock, Dairy, and Poultry. This act may be cited as the "Farm Animal Stewardship Purchasing Act."

Prohibits the federal government from purchasing any product derived from a covered animal unless the animal is raised with: (1) adequate shelter which allows the animal to stand, lie down, walk, and turn around completely and fully extend all limbs or wings without touching any part of an enclosure or other animal; (2) daily access to adequate food and water; (3) adequate veterinary care; and (4) in the case of a mammal, the offspring of a dam that was kept in compliance with such provisions during pregnancy.

States that this Act shall not apply to a covered animal: (1) during lawful transport; (2) in lawful

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## The Use of Databases, Information Centers and Guidelines When Planning Research That May Involve Animals

*Adrian J. Smith<sup>1</sup> & Tim Allen<sup>2</sup>*

<sup>1</sup>Laboratory Animal Unit, Norwegian School of Veterinary Science, Oslo, Norway

<sup>2</sup>Animal Welfare Information Center, US Department of Agriculture, Beltsville, Maryland, USA

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### Abstract

Researchers planning studies that may involve the use of animals are required by law in many countries to examine the possibilities for Replacement, Reduction or Refinement (the three Rs) of these experiments. In addition to the large literature databases there are now many specialist databases addressing the three Rs. Information centres with a mandate to help scientists and laypeople alike to locate information on the three Rs have been established. Email discussion lists and their archives constitute another, albeit less quality-controlled, source of information. Guidelines for the care and use of animals in research have been produced both by regulatory bodies and scientific organisations. The growth of the Internet has put an enormous amount of data into the public domain, and the problems of accessing relevant information are discussed. Suggestions are also given for search strategies when using these information sources.

### Keywords

database, information centre, guidelines, replacement, reduction, refinement, laboratory animal welfare, three Rs

### Introduction

Many countries have now a regulatory requirement that researchers document that they have conducted a search for possible alternatives when applying for permission to perform animal research. While researchers may be experts on the scientific literature in their field, they may not have the same overview of the literature addressing the three Rs of Russell & Burch (1959) (Replacement, Reduction, Refinement, [http://altweb.jhsph.edu/publications/humane\\_exp/het-toc.htm](http://altweb.jhsph.edu/publications/humane_exp/het-toc.htm)). This situation is complicated by the fact that much of the information on alternatives needed to reach a conclusion on the acceptability of a research protocol is contained in specialist databases and publications. One or two simple searches in general literature databases such as Medline do not constitute an adequate search of the literature on the three Rs.

Work to develop specific guidelines addressing the more complex or controversial areas of animal use in research is generally welcomed by researchers and laboratory animal personnel alike, but many of these

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Animal Welfare Information Center, 10301 Baltimore Avenue, Beltsville, MD 20705  
Phone: (301)504-6212 Fax: (301)504-7125 E-mail: [awic@nal.usda.gov](mailto:awic@nal.usda.gov)

guidelines have been criticised by scientists for not being science-based. An inherent reluctance to adopt guidelines produced in other countries, or lack of information on existing guidelines, may also hamper the implementation of the three Rs.

This paper provides an overview of databases, bibliographies and guidelines that provide useful information on alternative methods when planning research that may involve animals. The challenges faced when searching for alternatives to the use of animals in research and teaching are also discussed.

## Databases

Most researchers and librarians are well acquainted with literature databases such as Medline, EmBase, Agricola, CAB, and Biosis. Although they are not thought of as alternatives databases, they index the results of millions of peer-reviewed biomedical studies and technical papers. Consequently, these authoritative databases and other similar resources should be the databases of choice when conducting the initial literature review. These databases are particularly useful for locating information on Reduction and Refinement alternatives. For example, since the number of animals used in a study is partially dependent upon the variability in the response of the animals, reviewing literature from similar work may assist researchers in determining appropriate animal numbers. If invasive procedures are to be performed on animals, investigators should also review the appropriate veterinary literature to be certain that less invasive techniques are not available and also that, for potentially painful procedures, the best possible analgesic and general care protocols are employed. Similarly, studies that require the successive killing of animals at various time points may involve the use of large numbers of animals. The general biomedical and veterinary literature should be reviewed to determine if imaging techniques, biomarkers or other non-lethal sampling methods could be used instead. This type of information will come from the large multi-disciplinary databases.

Patron access to information on the three Rs in the large databases has been facilitated by the development of the Agricola Thesaurus for Animal Use Alternatives and the use of terms such as animal welfare, animal use alternatives, animal testing alternatives, and alternatives to animal testing. When special indexing terms are mentioned for individual databases, it should be understood that these terms alone are not sufficient when examining the literature for information on the three Rs. They are mentioned to indicate that database compilers are aware of the legal and scientific interest in such information and have adapted their indexing strategies to accommodate these needs.

Until the mid 1990's there were few sources of information on specialised databases that addressed the three Rs. However, several fields, most notably toxicology and education, began developing and implementing alternative techniques into their research, testing, or teaching strategies.

At the 1st World Congress on Alternatives and Animal Use in the Life Sciences held in Baltimore, Maryland in 1993 (<http://www.worldcongress.net/2002/worldcongress/baltimore.htm>) more than 40 representatives of government, industry and animal welfare groups met to discuss the need for an international directory of organizations that maintained

databases or provided information on alternatives to animals in research. This led to the publication of the Directory of Resources on Alternatives and Animal Use in the Life Sciences ([http://altweb.jhsph.edu/publications/alt\\_resources/intro.htm](http://altweb.jhsph.edu/publications/alt_resources/intro.htm)) by the Animal Welfare Information Centre (AWIC), Beltsville, Maryland, USA. This information has since been incorporated into the AWIC website.

The first European initiative to collect such information and make it readily available, was the ECVAM workshop in Neubiberg, Munich in September 1996 (Janusch et al., 1997). Information experts constructed an overview of the approximately 20 databases (<http://oslovet.veths.no/databases.html>). This overview has since been updated, and several other similar sites have been constructed by organisations such as AltWeb (<http://altweb.jhsph.edu/databases/databases.htm>), FRAME (<http://www.frame.org.uk/links/databases.htm>) and the Netherlands Centre for Alternatives to Animal Use (<http://www.nca-nl.org>). Some of these specialist databases are described below.

### Examples of specialist databases

These may be broadly grouped into:

1. Bibliography and literature databases
2. Clearinghouses for information on the three Rs
3. Databases of alternatives within teaching & training
4. Databases of alternatives to research procedures

#### 1. Bibliography and literature databases

The Agricola database, produced by the U.S. National Agricultural Library, and CAB Abstracts, produced by CAB International in the UK, provide extensive coverage of the world's veterinary and laboratory animal medicine/science literature. Both databases index appropriate citations with "animal welfare" or "animal testing alternatives" tags. Agricola also uses "animal use alternatives", "alternative toxicity testing", "endpoints", "animal use reduction", "animal use refinement", "animal use replacement", as well as the broad category "laboratory and experimental animals." CAB uses "laboratory animal science" to allow users to hone in on that specific body of literature. Topics covered include veterinary analgesics and anesthetics, animal behaviour, the three Rs, animal husbandry, animal handling, as well as basic research. Agricola is available at <http://agricola.nal.usda.gov/>. CAB Abstracts is available through vendors such as Dialog, Ovid, SilverPlatter, and others; users may also search CAB Abstracts (and CABI's Global Health database) by subscribing to CAB Direct at <http://www.cabdirect.org/>.

AltBib is a bibliography on alternatives to animal testing produced by the National Library of Medicine in Bethesda, Maryland, USA (<http://toxnet.nlm.nih.gov/altbib.html>). The bibliography has not been updated since 2001, but a live search of NLM databases is now available.

Biosis is a multi-disciplinary database that covers biomedical research, biological research, veterinary science, pharmacology, and other life science topics. It contains more than 13 million records dating back to 1969. Because of its broad coverage of the life sciences, it is an extremely useful database for finding information on alternative techniques.

*Databases, Information Centers and Guidelines  
continued on page 8*



# Equine Welfare Issues in the United States: An Introduction

by Carolyn L. Stull, PhD  
Department of Veterinary Sciences  
University of California, Davis

Horses are found on every continent in the world; perhaps this is an indication of the enormous utilitarian value which this versatile species has given to societies throughout the world. As these societies developed in different ways, it was perhaps inevitable that differing views of how horses should be treated also developed. Over the centuries, people of diverse cultural and ethnic origins have settled in the United States and have utilized horses for transportation, food, draft power, sport, pleasure, and companionship. The history of equine welfare and legislation in the U.S. is a reflection of the traditional views and background of its diverse society.

Colonial Massachusetts was the first country in the world to provide legal protection of farm animals, which included the horse. In 1641, the Massachusetts Bay colony drafted a law which forbade cruelty to farm animals, including horses. In another law, it was stated that rest, feed, and water should be provided to animals led, driven or ridden. States have historically addressed differing equine welfare issues through legislation. For example, California's statute of 1905 forbade the docking of horses' tails, which was defined as the removal of the lower portion of the tail for the purposes of shortening it. The docking of tails was primarily practiced on driving horses to prevent the entanglement of the tail with the driving lines. However, it remains today to be a prohibited practice in California, but not in other neighboring states. A variety of state legislation has been enacted over the years and currently enforces activities such as the prohibition of the poling of jumping horses, the misuse of specific medications in sport horses, and the elimination of some rodeo events in both traditional and Mexican-style rodeos.

Horses pulling wagons, carts coaches and city streetcars were used for transportation in the early nineteenth century. New York City was especially overcrowded with carriages, and the first horse drawn street railway was developed in 1832. These streetcars often were packed with too many passengers, and horses had to endure slippery, icy and salted streets during the bitter cold winter months. Henry Bergh became concerned about the overcrowding of the streetcars and the filthy housing conditions of these horses. There were numerous news-

paper editorials ridiculing Henry Bergh as he stopped these streetcars and refused to allow traffic to continue until excess passengers disembarked. Henry Bergh continued with his crusade against the abuse of horses by developing legislation in the state of New York to charter the American Society for the Prevention of Cruelty to Animals. The Society focused mainly on the abuses of horses, but was also concerned with vivisection, transport of animals, and slaughterhouse conditions. Many branch Societies were established in surrounding towns and cities, and the successful expansion of the mission and goals of the ASPCA to other states was inevitable. Perhaps, Henry Bergh was one of the most influential leaders in addressing the welfare concerns of horses through model law enforcement and educational programs, in addition to founding the ASPCA.

The largest federal program in scope and impact on equine welfare in the last 50 years came with the legislation entitled "Horse Protection Act" of 1970. The Act prohibits the use of irritating or blistering agents, lacerations, or injected substances to the limbs of competitive horses for the purposes of altering its gait. Congress stated in the Act that "soring



of horses is cruel and inhumane." The legislation was mainly directed at the high-stepping gait of the Tennessee Walking Horse breed, but covers all competitive and sales events. The



United States Department of Agriculture's (USDA) veterinary medical officers inspect competitive events. Violators can be prosecuted as a felony offense. Identification of violations and the inspection process of the horses has continually undergone revisions since the initiation of the Act; some of these changes were the result of applicable scientific research and technology advances.


Horses in the U.S. have been used to produce meat products for human consumption, with most of the consumption outside its borders. Consumption of horse meat was popular after World War II, especially in Europe where beef was scarce and old or lame horses were processed for affordable meat products. Today, horsemeat is a high-priced meat delicacy in some European countries. Prior to 1979, horses were shipped live to Europe on ocean barges, often with high mortality rates and other unsuitable conditions. This practice is now prohibited (Provision of Export Administration Act) and thus the foreign companies invested in slaughter facilities in countries such as Canada and U.S. where there are large horse populations to supply their customers. Since there were a limited number of these facilities, often horses would have to endure long distances and difficult conditions by road transport to reach a facility. In the early 1990's, there was public concern about the transport and handling conditions of horses to slaughter facilities which prompted the development of federal regulations. Research by several universities was conducted to establish scientific data on different aspects of transport. Using this published data, the USDA Animal Plant and Health Inspection Service established (February, 2002) specific regulations on the safe and humane commercial transportation of equines to slaughter (9 CFR Parts 70 and 88). The regulations cover maximum transit times and prohibit "unfit" horses from being loaded, the use of "pot-belly" trailers after 2006, and the use of electrical prods. Recently, Canada and Mexico have agreed (USDA, Veterinary Services Memorandum 555.18) to perform similar inspections at their slaughter facilities for horses originating in the U.S. to ensure the safe and humane transport of horses internationally.

*Editors Note: Recent court decisions upholding Texas law prohibiting the sale of horse meat and the state of Illinois ban on*

*horse slaughter for human consumption have effectively closed US horse slaughter houses.*

The predominate role of horses in the U.S. has progressed over the last century from their utilization as livestock, draft or agricultural animals to recreational, sport, or as companion animals. This progression has paralleled the change in cultural values associated with the welfare of horses. Society today expects a similar standard of care for horses that are offered to family pets, such as dogs and cats. Neglected or abused horses are reportable to animal control agencies at the local community level in most areas in the U.S. Animal control and protection service in the U.S. consists of both non-profit and governmental organizations. The limited resources of most animal control agencies are primarily utilized for control of dogs and cats in their community. Their facilities and expertise for horses varies from no services to extensive shelter facilities designed for horses with trained personnel.

Although, most horses are afforded a high standard of care during their lifetime, some horses may experience lack of feed, water or care due to economic restraints, limited knowledge necessary to adequately care for the horse, or the loss of the horse's ability to perform its intended role for the owner (e.g., lameness, old age). Most neglect and abuse cases can be resolved through owner education. However, the care and rehabilitation of the neglected, abused, or unwanted horses can be extensive in resources, funding, and time. Older horses may be limited in their physical abilities or health to be a promising candidate for relocating to another home following rehabilitation. Additionally, neglected horses may pose a disease risk to the general equine population and the public's health by hosting or transmitting diseases. Educational programs using existing resources on subjects such as appropriate housing for climatic conditions, feeding requirements, health, acceptable training methods, manure management, transportation conditions, and humane euthanasia should be developed and accessible to all facets of society. These programs should convey to the owner the responsibilities in caring for horses which are socially acceptable and ensure the welfare of the individual horse.

The future of equine welfare will certainly be reflective of the progression of cultural values in society, the advancements from scientific research, future global trade and health issues, and the continued development of local, state and federal regulations and legislations. The emerging issues may include transportation regulations extended to pleasure and sport horses, minimum exercise requirements for confined horses, permitting equine facilities for environmental, welfare, and safety standards, and the development of feasible long-term venues to care for unwanted or aged horses at the local community level. Informational resources, such as this publication by Animal Welfare Information Center, will be invaluable for protecting or enhancing the welfare of the horse through many venues including the development of extensive educational programs, implementation of progressive or innovative management techniques, or by the enforcement of regulations or legislation. 





# Horse Welfare

by Daniel Mills, PhD

Department of Biological Sciences  
University of Lincoln, Riseholme Park  
Lincoln, United Kingdom

The scientific assessment of equine welfare has grown markedly over the last decade, but welfare assessment is not an easy task as it is by its very nature multidisciplinary. It is therefore timely for a review of available resources to help all of us interested in improving horse welfare. It is particularly important as there is still no complete consensus on what “welfare” really is, even among welfare scientists. Some will emphasise the importance of health, others, feelings and yet others the ability for an animal to fulfil its natural potential. For some, the feelings of an individual at a

given time should be referred to as its well-being, with welfare considering not just the animal’s current feelings but also the threats to its well-being. Thus it might be argued that horses whose work puts them at risk of particular injury, such as limb injury in race horses, have worse welfare than those whose work does not pose such risks. This approach can be useful when considering welfare within the context of populations, but it is important not to forget the individual. Even if the risk is 1 in 10000 for a catastrophic injury, the consequences for that one individual that is injured are disastrous. Some also consider the effort required by an animal to maintain its state of well-being. Thus Broom (1986) defines welfare as the state of an animal with regards to its attempts to cope with its environment. This would imply that a horse kept in an optimal ambient temperature may be thought to have better welfare than one who must devote additional resources to the maintenance of such a temperature. It is therefore important to clarify what an individual means by the term “welfare” especially when one animal’s welfare is said to be better for another.

However, a publication like this makes no judgement and allows individuals and groups to access the latest information they need for their purposes. It is sad truth that well-meaning intentions do not always translate into well-being of our charges, and horses are particularly a victim of this. Being kept in quarters that look comfortable to carers may not be most appropriate for horses, who have strong social tendencies and a physiology and psychology adapted to a life feeding on open grasslands.

A common criticism of those seeking to assess animal welfare objectively is that we cannot know the mind of another; but this criticism reflects a failure to understand the fundamental principles of the scientific method. Science makes progress through hypotheses which can be tested but which can never be shown to be completely true. In this respect welfare is no different to any other scientific pursuit. All scientific evidence carries with it a degree of uncertainty and we decide what level we are prepared to accept (often a 5% chance level). However these principles are often forgotten by sceptics who, for whatever reason, appear not to want to contemplate what might be happening in the minds of other animals. There is a need for those interested in animal welfare to make clear and defend the scientific basis of their work in order to propose what is possible, realistic and reasonably justifiable.

There are many reasons to be interested in horse welfare. From an ethical perspective it might be argued that we have a responsibility to minimise the suffering we cause to other animals with whom we interact either directly or indirectly. From a practical point of view, animals with good welfare might be expected to perform their work more efficiently. From an academic perspective the assessment of animal welfare is also a challenging intellectual task. However, it is not the aim of this publication to argue why we should measure horse welfare or the ethics of what we do to horses, rather it is hoped that to bring together information to help increase awareness of the methods at our disposal for the assessment and management of the welfare of the horse in a broad range of contexts.

A practical problem for advances in equine welfare concerns the need for funding in this field. Horses are expensive animals to keep and study; and although they are of enormous economic importance, the industry is fragmented and often poorly represented to governments and other funding bodies as a significant concern, except perhaps for the case of the equine athlete. The welfare research field has largely been driven by concern over whether what we do to animals is acceptable and not purely by the intellectual issues involved. As a result research funding has focussed on political priorities. Thus a large proportion of equine welfare research focuses on the problems faced at the extremes of athletic performance, which is largely irrelevant to the vast majority of equids.

More broadly the scientific study of animal welfare has invested enormously in how to assess suffering so that it can be minimised, rather than the evaluation of well-being and positive mental states, which is perhaps the goal of the average carer. Trying to measure “happiness” is not only an enormous intellectual challenge, but also a completely alien concept to many



funding bodies and so generally given very little attention despite its central importance to those interested in animal welfare. Scientists also vary in the subjective feelings they are willing to ascribe to a horse (see Price et al., 2002, for an illustration of attitude amongst U.K. veterinary surgeons), and so this field is likely to remain a contentious area of research. Politically speaking laboratory and farm animal welfare have been major areas of concern and so they have been the focus for funding with little money being available to those interested in the well-being of companion animals including the horse. This does not mean that there are any fewer problems in these species, just that they are largely overlooked by both the public and funding bodies. For these reasons there are significant gaps in our scientific knowledge of horse welfare, but we are able to recognise rational approaches to its scientific study.

Horses have evolved to be adapted to their natural environment and so if the behaviour of a horse resembles this natural state then it might be thought that it is normal and suffering minimal. However, the occurrence of normal behaviour patterns does not necessarily imply good welfare. Some normal behaviours are clearly associated with aversion, such as flight from a predator and so their occurrence is undesirable. In other instances the significance of the behaviour depends on the context. For example, horses may move into water away from dry land in order to avoid the effects of blood-sucking insects which can cause anaemia. Whilst this is obviously beneficial to the horse, this behaviour is not without its costs. They may reduce grazing or reduce other important behaviours as a trade off for escaping the insects. So, whilst standing idle or engaging in social exchanges with others does not appear to be a behaviour of concern, in this case the horses would undoubtedly be better off doing something else if the insects were absent.

Some of the adaptations horses have evolved to help them to cope with the challenges they encounter in their natural environment are sufficient to protect them when faced with challenges unique to the domestic environment, but in other cases the horse may not be able to adapt adequately, in which case there must be concern for the animal's welfare. The problem is identifying when these natural systems are being over-taxed. Behaviour is a form of adaptation to the environment and so its evaluation is dependent upon context. It is important not to make unjustified generalisations. Two horses in different environments might be expected to show different behaviours as well as different patterns of behaviour as part of their healthy adaptation to the different environments. So there may be no norm against which the behaviour of a captive animal can be meaningfully compared. Individuals should avoid the temptation to make arbitrary comparisons when it suits their case, for example the amount of time a horse should spend grazing or alert in a day to be normal or psychological healthy. There is no logic in the assumption that quantitative or qualitative differences in behaviour necessarily imply a difference in welfare. Instead it is important to appreciate the function and regulation of each behaviour in the context in which it occurs, and look for other evidence of the welfare status of the individual. Understanding the natural behaviour of horses is important to the scientific study of equine welfare as it is through this we can appreciate the functional significance of a given behaviour

and the mechanisms which may underlie the adaptability of the horse and when these may be strained in an unnatural setting, for example concentrate feeding or the use of raised hay nets.

When trying to evaluate the risks of a given horse management system, we might use one of two approaches and the information in this publication is useful to both processes. We might consider what is within the system which might potentially compromise the welfare of the animal or what signs come out of the system. The former are indirect indicators of areas of potential focus while the latter are more direct measures of what is happening in practice. In both cases the horse, its management and its environment make up the system of interest. Indirect measures can be useful as they can flag up areas of potential concern or interest, for example consider a horse being kept in a livery yard versus one being kept for racing or PMU production. They have different demands put upon them, might be kept in quite different environments by people of differing level of skill in welfare monitoring. One system might be considered lower risk than another, but that does not mean that the welfare is necessarily safe nor the opposite true in a higher risk system, but it does allow prioritisation of concern. The information on the effects of different types of procedures (management, training, veterinary or otherwise), within this particular publication is therefore particularly useful in this regard. The welfare can only be reasonably determined by looking at the direct measures (outputs) of the system, which relate to the behaviour and physiology of the horses and again this publication will help in the evaluation of these measures.


Pain is often the primary concern of most carers and is defined as: "An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" (IASP, 1979). The recognition of pain has received most scientific study, perhaps because of the historical importance of the veterinary profession in the study of animal welfare and its obvious association with physical lesions. A variety of techniques have been proposed in the scientific literature for the assessment of pain in the horse based on behavioural and physiological measures e.g. the assessment of activity budgets pre and post surgery (Price et al., 2003), response to analgesia (Dyson 2002), and median frequency within electro-encephalogram recordings (Murrell et al., 2003), but these are generally restricted to use within a specific context. More general measures, such as indicators of sympathetic nervous system activity tend to be non-specific to suffering, unvalidated and/or contradictory. Nonetheless, the ethology of pain is probably worthy of further attention.

It is also important to appreciate that pain is probably not the only aversive feeling experienced by horses. Dawkins (1990) argues that suffering consists of a "a wide range of emotional states that occur when an animal is blocked from carrying out actions that are biologically mandated, normally reduce harm or risk to life or concern reproduction." This stance has spawned a wealth of work designed to assess the needs of animals in order to determine which are biologically mandated. Simple preference tests may tell us what an animal prefers but they do not tell us if an animal is suffering if it is deprived of the preferred choice. I may prefer Bordeaux wines to Champagnes but I can be happy with either! So scientists have developed techniques where they have started to look at



the price an animal is willing to pay for a given commodity. In this way we can have a clearer idea of what is really important to an animal. However, whilst there is nothing to theoretically stop such work being done in the horse, the cost of building the experimental apparatus and housing the number of animals necessary for the time required to obtain sound data has to date largely prevented such work in the horse; although Houpt's group at Cornell (Lee et al 2001) has conducted preliminary studies to assess the strength of a horse's motivation for exercise and companionship when confined for 23 hours in the day. A higher price was paid for companionship over exercise and this reinforces much work by our own group which suggests that social isolation is one of the primary problems with many modern housing systems (see Mills and Clarke, 2002 for a review). There is undoubtedly a need for more work in this field and we can only hope that those who have the potential to fund it recognise its importance so we can objectively assess the welfare of the horse in a variety of contexts.

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### **House Resolution 1046 Expressing support for the designation of September 2008 as "National Link Awareness Month" and recognizing the link between animal cruelty and other forms of societal violence.**

Introduced on March 13, 2008, by Susan A. Davis (D-California) and referred to the Committee on the Judiciary and the Committee on Agriculture.

#### **RESOLUTION**

Expressing support for the designation of September 2008 as "National Link Awareness Month" and recognizing the link between animal cruelty and other forms of societal violence.

Whereas the link between animal cruelty, child abuse, domestic violence, and elder abuse is a nationally recognized fact;

Whereas each year, defenseless companion animals face the grim reality that they will be victims of domestic abuse;

Whereas in a nationwide study, more than 71 percent of battered women reported that their abusers harmed, killed, or threatened their pets, and more than 75 percent of those incidents occurred in the presence of the women or their children;

Whereas the American Veterinary Medical Association estimates that 98 percent of Americans consider pets to be companions or members of the family, and that pets live most frequently in homes with children;

Whereas abusers kill, harm, or threaten children's pets to force the children to remain silent about sexual abuse;

Whereas women and children remain in violent households out of fear that their abusers will harm their pets if they leave;

Whereas children who grow up in an environment of animal abuse live in constant fear that a beloved family member will be harmed, and may even allow themselves to be abused to save their pets from harm;

Whereas young children growing up in an environment of abuse may become desensitized to the inhumane treatment of animals, and research indicates that children exposed to domestic violence are nearly 3 times more likely to treat animals with cruelty than children who are not exposed to such violence;

Whereas animal abuse is a serious crime and often an indicator of other forms of societal violence, and the American Psychiatric Association considers animal cruelty one of the diagnostic criteria of conduct disorder;

Whereas when animals are abused, people are at risk;


Whereas in response to the growing awareness of domestic violence-related animal abuse, State legislatures are increasingly enacting laws to encourage courts to include pets in domestic-violence protective orders and to broaden the scope of professionals required to intervene at the beginning stages of family violence by reporting suspected cases of child or animal abuse; and

Whereas the link between animal abuse and human violence was identified in the United States as early as 1894 by the American Humane Association, an organization with the mission of protecting both children and animals from mistreatment: Now, therefore be it

Resolved, That the House of Representatives--

(1) supports the goals and ideals of National Link Awareness Month;

(2) recognizes that the link between animal cruelty and domestic violence is a national concern; and

(3) recognizes that laws which recognize the link between animal abuse and domestic violence are critical in protecting countless domestic violence survivors and their pets. 



The interdisciplinary nature of the database allows scientists to find information on models and techniques that may fall outside their core journals. For example, a quick search on pain models retrieved information from *Alternatives to Laboratory Animals*, *Sciences et Techniques de l'Animal de Laboratoire*, *Fundamentals and Applied Toxicology*, *Journal of Urology*, and *The Journal of Neuroscience*. Its useful descriptors include animal experimentation alternative, animal alternatives, animal care, models and simulations, medical simulation--mathematical and computer techniques; simulation training--applied and field techniques, and others. More information can be found at <http://www.biosis.org>.

EmBase is a powerful biomedical and pharmacological database produced by the Dutch company Elsevier. With more than 11 million records, it is generally regarded as the database of choice for finding drug-related research information. It has recently begun indexing citations with descriptors including human versus animal comparison, animal testing alternative, animal welfare, experimental animal, experimental model and animal tissue.

Medline is the flagship product of the US National Library of Medicine (<http://www.pubmed.gov>). It is an exceptional resource containing more than 12 million records including biomedical and clinical research, veterinary medicine and science, and laboratory animal science. It indexes using terms such as animal welfare, laboratory animal science, animal testing alternatives, animal use alternatives, animal experimentation, research design, and animal models.

Both of the last two mentioned databases alone are remarkable storehouses of biomedical information, but Elsevier has combined their EmBase with the unique records from Medline to produce an enormous searchable resource of 16 million validated biomedical and pharmacological records. This fee-based site is at <http://www.embase.com>

The Pain Management Database is a collaboration between the Animal Welfare Information Centre (<http://awic.nal.usda.gov/>) and AltWeb (see below). This database includes over 10,000 peer-reviewed citations from more general literature databases such as Medline, Agricola and AGRIS. It covers all relevant laboratory animal species, farm animals and wildlife, and includes abstracts with information on doses of analgesics and anaesthetics and their possible side-effects.

TextBase (<http://oslovet.veths.no/textbase>) provides an overview of approximately 1,000 textbooks within the field of laboratory animal science. Few of these books focus purely on replacement alternatives, but many of them contain science-based information that can be used to implement the Reduction and Refinement in animal research. In addition to descriptions of the books, there are links to book reviews, publishers and Internet bookstores. Many of the products are also linked to entries in the NORINA database (see below).

## 2. Clearinghouses for information on the Three Rs

AltWeb (*Alternatives to Animal Testing on the Web*, <http://altweb.jhsph.edu>) is an international project

launched in 1997. AltWeb has contributed greatly to the dissemination of information on existing databases via the Internet. In addition to acting as a clearinghouse of information and news on the three Rs, it has initiated the development of new resources, such as the Pain Management Database (see above). AltWeb has also created a Humane Endpoints Database in collaboration with FRAME in Nottingham, England (<http://apps1.jhsph.edu/altweb/humane/>). This database is designed to aid investigators in implementing the earliest possible endpoint that is compatible with their research goals, to reduce pain and distress in animals.

A search of the AltWeb site should be considered mandatory when seeking information on the three Rs.

FELASA (Federation of European Laboratory Animal Science Associations, <http://www.felasa.org>) is one of several organisations that maintain comprehensive websites serving as valuable clearinghouses. FELASA has issued recommendations on a variety of topics relevant to the three Rs, including:

- The education and training of persons caring for or using research animals
- Health monitoring of breeding colonies and experimental units
- Nutrition and feeding
- The accreditation of diagnostic laboratories and training courses



## *Animal Welfare Journal*

ISSN 0962-7286

Animal Welfare is the established scientific and technical journal that brings together the results of scientific research and technical studies related to the welfare of animals kept on farms, in zoos, in laboratories, as companions or living in the wild.

The editor-in-chief is Dr James K. Kirkwood, UFAW Chief Executive and Scientific Director.

Animal Welfare is abstracted in Biological Abstracts; CAB Abstracts; Current Contents/Agriculture, Biology and Environmental Sciences; Current Primate References; EMBASE; Focus on: Veterinary Science & Medicine; Humans & Other Species; Research Alert; SciSearch; Toxicology Abstracts; Veterinary Update; is indexed in Zoological Record; and is covered by the Science Citation Index.

Animal Welfare is a focus for the advancement of animal welfare science and technology and helps ensure that relevant knowledge is readily available. The journal is useful for all concerned with the management, care and welfare of animals, such as zoologists and veterinarians, animal house curators, zoo keepers, laboratory animal technicians, agriculturalists and stockmen, as well as animal welfare scientists and students. Animal Welfare is also of value to legislative and regulatory authorities and other organizations responsible for the welfare of animals.

For further information contact:

Universities Federation for Animal Welfare (UFAW)

The Old School, Brewhouse Hill, Hertfordshire AL4 8AN, UK, phone: +44 (0)1582 831818, fax: +44 (0)1582 831414, e-mail: [ufaw@ufaw.org.uk](mailto:ufaw@ufaw.org.uk)





In addition FELASA has working groups currently looking at environmental enrichment, veterinary care, quality assurance systems, the ethical evaluation of animal experiments and recommendations for continuing education.

### 3. Databases of alternatives within teaching & training

AVAR (Association of Veterinarians for Animal Rights, <http://www.avar.org>) maintains the Alternatives in Education Database. This database contains more than 7,500 entries covering anatomy, physiology, pharmacology, anaesthesia, and surgery. It is easy to search and also allows browsing of all titles in a discipline. A typical record details the vendor contact information, educational level, type of medium (e.g. software, model), cost, and a web link. The site also links to the NORINA database (see below).

EURCA (European Resource Centre for Alternatives, <http://www.eurca.org>) maintains a small database that covers specialist alternatives for use in higher education, in particular computer programs within physiology and pharmacology. Rather than covering all alternatives available, EURCA has chosen to offer peer-reviewed information of selected products. The EURCA database complements larger collections such as AVAR's resource, and the compilers cooperate closely with those of the NORINA database (see below).

NORINA, A Norwegian Inventory of Alternatives, (<http://oslovet.veths.no/NORINA>) is produced by the Norwegian Reference Centre for Laboratory Animal Science & Alternatives in Oslo. NORINA provides information on approximately 4,000 audiovisual aids and other products that may be used as alternatives or supplements to animal use in teaching and training at all levels from junior school to University. All products are classified by type (e.g. CD-ROM, video film) and area of use (e.g. anatomy, physiology). Items that can be loaned from animal welfare organisations are flagged with direct links to the organisation's website. Such loan schemes are offered by, among others, InterNICHE (<http://www.interniche.org>) and the HSUS (<http://www.hsus.org>). Products that have been reviewed, or are available free of charge, are also marked. The host website (<http://oslovet.veths.no>) has recently been redesigned, facilitating combined searches in NORINA, TextBase and the rest of the webpages at the Centre.

The advantage of cooperation between database providers is obvious within the field of education. Many of the earliest animal alternatives were very simple, qualitative simulations of complex biological processes, and some of these gave the impression that "alternatives" were too simple to be of use in higher education. Nowadays, many computer simulations are extremely complex and are based on real data from experiments performed on animals. However, many companies still cover a very small segment of the market and produce few alternatives. Without some form of database, teachers and students seeking alternatives will have great problems in finding adequate information.

### 4. Databases of alternatives to research procedures

Alternatives to Skin Irritation/Corrosion Testing in Animals is a database produced by Dr. Jane Huggins containing 360 abstracts from peer-reviewed journals (<http://www.invitroderm.com>). The site is sponsored by the MatTek Corporation, which produces bio-engineered human tissue

constructs for research and testing.

Toxnet, produced by the National Library of Medicine in Bethesda, Maryland, gives extensive coverage of alternative testing techniques (<http://toxnet.nlm.nih.gov>). This site provides access to nine different toxicology-related databases covering hazardous substances, risk assessment, genetics, the comprehensive toxline database, developmental and reproductive toxicology. The databases can be searched individually or together. The site also serves as a gateway to other NLM toxicology resources.

AnimAlt-ZEBET, a database on alternatives to animal experiments on the Internet is produced by the Centre for Documentation and Evaluation of Alternatives to Animal Experiments, a unit of the German Federal Institute for Risk Assessment. It offers validated information on alternative methods in a searchable database. It is available in both German and English at <http://www.bfr.bund.de/cd/1508>

### Journals as knowledge databases

Much of the challenge associated with retrieval of information on the three Rs is caused by the fact that many scientists rarely assign to their papers keywords that reflect the three Rs. In this way much valuable information remains undetected. This problem is made worse by the fact that there is no "Journal of the Three Rs".

Although not strictly databases, many of the journals within the field of animal welfare in general, and laboratory animal science in particular, have extensive Internet-based resources with valuable material within the three Rs. Some of the best known journals include:

- *Animal Welfare* (<http://www.ufaw.org.uk>)
- *Alternatives to Laboratory Animals, ATLA* (<http://www.frame.org.uk>)
- *Laboratory Animals* (<http://www.lal.org.uk>)
- *Comparative Medicine* (<http://www.aalas.org>)
- *ILAR Journal* (<http://dels.nas.edu/ilar>)
- *Contemporary Topics* (<http://www.aalas.org>)
- *Lab Animal* (<http://www.labanimal.com/labanimal/index.html>)

For example the website of Laboratory Animals provides online versions of working party conclusions, conference reports and key review papers. These include:

- The Euthanasia Working Party Report for use with the EC Directive 86/609
- Review papers on refinement of the husbandry of birds, mice and rabbits
- Guidelines on the administration of substances and blood sampling
- Guidelines for the reporting of animals and husbandry methods (mammals and fish)
- Humane endpoints in animal experiments
- Recognising and assessing pain, suffering and distress in laboratory animals

Several of these journals regularly produce issues devoted to specific themes. These issues are in themselves small knowledge databases describing the state of the art, and should be used actively when planning animal research.



Examples of these include Refining Dog Husbandry and Care (Laboratory Animals, 38, Supplement 1, 2004) and Fish Models in Biomedical Research (ILAR Journal, 42 (4), 2001).

The demands on space in printed journals can be a serious hindrance to the dissemination of information on the three Rs. Editors may demand the removal of information perceived as being less relevant to the paper's conclusions (such as animal source, health status, housing conditions, anaesthetic regimes and method of killing). This information may be crucial to researchers planning similar experiments or wishing to evaluate fully the ethical and scientific acceptability of the research. In the past, researchers and journals alike have "solved" this problem by adding references to papers that describe the methods used in more detail. Many of these references prove, however, on closer inspection to be less than adequate, due to differences in the protocol or other factors that make it impossible to compare the experiments. In recent years, journals have started to use the Internet to publish detailed protocols that are too large to be printed as part of the paper itself. These protocols, together with online reprints and searchable tables of content, have turned many journals into science-based databases that are invaluable in the search for information on the three Rs.

### Email discussion lists and archives

A large number of email discussion groups within laboratory animal science act as efficient disseminators of information on the three Rs, even if it is not as well quality-controlled as other sources. These groups include:

CompMed (Comparative Medicine), originally developed by Dr. Ken Boschert and now hosted by AALAS (American Association of Laboratory Animal Science, [http://www.aalas.org/online\\_resources/listserve.asp](http://www.aalas.org/online_resources/listserve.asp));

The Animal Welfare Institute in Washington D.C., USA runs LAREF (Laboratory Animal Refinement and Enrichment) which provides a useful discussion forum for all aspects of animal housing ([http://www.awionline.org/lab\\_animals/LAREF.htm](http://www.awionline.org/lab_animals/LAREF.htm)); and

The Laboratory Animal Welfare Training Exchange which allows trainers to exchange ideas on animal welfare and humane education of animal users. (<http://www.lawte.org/>)

Those discussion groups that have archives are the most valuable. For example, CompMed subscribers can access an electronic archive of all postings to the list since it was opened in 1992.

### Information centres

In recent years a number of information centres have emerged, whose mandate is to help scientists and lay people alike locate information on the three Rs. These centres include AWIC (<http://awic.nal.usda.gov/>) and UCCAA (University of California Center for Animal Alternatives, [http://www.vetmed.ucdavis.edu/Animal\\_Alternatives/main.htm](http://www.vetmed.ucdavis.edu/Animal_Alternatives/main.htm)). The European Centre for the Validation of Alternative Methods (ECVAM, <http://ecvam.jrc.it>) has produced its own collection of databases on alternatives, known as SIS (Scientific Information Service). In Europe, the organisation ECOPA (European Concensus-Platform for Alternatives, <http://www.ecopa.eu>) has stimulated the establishment of a dozen national platforms so far. These platforms, with representatives from government, industry, academia and the

animal welfare movement, are centres of competence within the three Rs which identify areas of concern in the particular country and seek to finance research into, and the implementation of, alternatives. An example of these is the 3R Research Foundation in Switzerland (<http://www.forschung3r.ch>). Many countries have centres for the three Rs which actively cooperate with these platforms (e.g. Netherlands Centre Alternatives, NCA, <http://www.nca-nl.org>). A full list of these centres is available at <http://www.ecopa.eu>. A range of other organisations such as UFAW (Universities Federation for Animal Welfare, <http://www.ufaw.org.uk>) and FRAME (Fund for the Replacement of Animals in Medical Experiments, <http://www.frame.org.uk>) act both as reference centres and animal welfare organisations with membership from society at large. Their publications are valuable sources of information on the three Rs.

### Animal Welfare Information Center (AWIC)

AWIC (<http://awic.nal.usda.gov/>) was established by the US Federal government to assist scientists in finding alternatives to painful procedures performed on animals regulated by the US Department of Agriculture.

AWIC has produced an extensive array of bibliographies covering all laboratory, farm, and exhibit animals and provides an extensive selection of links to databases, guidelines, and regulatory information throughout the world. The bibliographies cover topics on husbandry, handling, alternatives and database searching, and issues of concern to animal care committees such as food and water deprivation, caging, animal numbers and humane endpoints. Detailed information on alternatives and database searching can be found at <http://www.nal.usda.gov/awic/pubs/IACUC/altldb.htm> and <http://www.nal.usda.gov/awic/alternatives/alternat.htm>

### Animal Welfare Institute (AWI)

The Animal Welfare Institute (<http://www.awionline.org>) in Washington, D.C., has been producing quality materials on housing, husbandry, and handling of laboratory animals for many years. Their most recent databases and bibliographies include :

- Annotated Database on Environmental Enrichment and Refinement of Husbandry for Nonhuman Primates
- Database on Refinement of Housing and Handling Conditions and Environmental Enrichment for Laboratory Animals
- Practical Enrichment Options for Animals kept in Research Institutions
- *Environmental Enrichment for Rodents and Rabbits*
- *Environmental Enrichment for Caged Macaques: Photographic documentation and literature review*
- *Comfortable Quarters for Laboratory Animals*

Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART)

ANZCCART (<http://www.adelaide.edu.au/ANZCCART/>) produces an array of useful fact sheets and newsletter articles on humane techniques in restraint and handling, pain and distress, and animal species. It also has an extensive listing of links to alternatives databases throughout the world.



## Center for Alternatives to Animal Testing (CAAT)

CAAT (<http://caat.jhsph.edu>) is an academic centre at the Johns Hopkins University School of Public Health. Its primary mission is the implementation of the three Rs, especially in the areas of consumer products testing and toxicology. CAAT sponsors numerous workshops on these topics and provides extensive funding for research into alternative testing techniques. The newest feature is an online course titled Enhancing Humane Science / Improving Animal Research (<http://caat.jhsph.edu/humanescience/login.cfm>). This free online course addresses such issues as experimental design (including statistics and sample size determination), humane endpoints, environmental enrichment, post-surgical care, pain management, and the impact of stress on the quality of data. Other features on the CAAT site include technical reports and proceedings from workshops.

## National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs)

This new centre, formed in 2005, is an initiative of the British government that will fund three Rs research, produce information resources and guidelines on humane techniques, and organize conferences and symposia on three Rs initiatives. It replaces the Medical Research Council's Centre for Best Practice for Animals in Research. Its website can be found at <http://www.nc3rs.org.uk/index.htm>

## The Norwegian Reference Centre for Laboratory Animal Science & Alternatives

The Laboratory Animal Unit at the Norwegian School of Veterinary Science maintains a comprehensive website (<http://oslovet.veths.no>) with collections of links relevant to the three Rs. The site [was] extensively redesigned in 2005 integrating all the information on the site into one large database for easier and faster access. Features include lists of guidelines, the NORINA & TextBase databases (see above), teaching resources and information on fish as research animals, including a comprehensive list of guidelines (see below).

## Guidelines

Specific science-based guidelines are invaluable when planning experiments that may involve the use of animals. The development of such guidelines, particularly if they are to apply internationally is, however, often a laborious process. Stumbling blocks include differences of opinion between member states, scientific organisations and the animal welfare movement, lack of clearcut scientific evidence for proposed refinements, economic constraints and the feasibility of implementing or enforcing the guidelines.

A number of regulatory authorities have issued useful guidelines that should be considered whether they are mandatory or not in the country concerned:

### Appendix A of the European Convention ETS 123

This Appendix provides detailed recommendations for the care and use of research animals in European countries that have ratified the European Convention ETS 123 ([http://www.coe.int/T/E/Legal\\_affairs/Legal\\_co-operation/Biological\\_safety\\_use\\_of\\_animals/Laboratory\\_animals/revision%20of%20Appendix%20A.asp#TopOfPage](http://www.coe.int/T/E/Legal_affairs/Legal_co-operation/Biological_safety_use_of_animals/Laboratory_animals/revision%20of%20Appendix%20A.asp#TopOfPage)). The Appendix has recently been rewritten to take into account

the needs of individual species and recent advances in our understanding of animal behaviour and related housing needs.

### Policy 12 in the USA

In the United States, oversight of animal use is spread over several Federal agencies. However, only the Federal Animal Welfare Act (AWA) and its regulations (9 CFR 2005) administered by the US Department of Agriculture have the force of law. While the AWA regulates many aspects of animal research (rats, mice, and birds bred for research are exempt), several of its provisions directly relate to the three Rs. The law provides special requirements for two species. Facilities keeping dogs must provide them with the opportunity for exercise on a routine basis; facilities with nonhuman primates must have a program in place to promote their psychological well-being. The law also requires scientists to consider alternatives in their experiments. In general, scientists submitting protocols to an animal care committee must justify the use of the animal model, the number of animals that are being requested, must provide pain relief or justify why it is being withheld, cannot use paralytics without anesthesia, nor perform more than one major operative procedure unless justified. Any protocol that involves a painful or distressful procedure, must include a written narrative that details the methods and sources used to determine that alternative methods were not available. This last requirement has been clarified by USDA's Policy 12--Written Narrative for Alternatives to Painful Procedures (USDA 2000).

Policy 12 provides guidance on the definition of the three Rs, stipulates that a database search is the most effective method of finding information on alternatives, and indicates how that information is to be provided to the animal care committee so they can determine if a reasonable and good faith effort was made to determine the availability of alternatives. The scientist must provide the names of the databases searched, the date the search was performed, the period covered by the search, and the keywords or strategy used. The narrative must discuss what type of information was found in the literature and must indicate if alternative techniques were or were not found. If an alternative method was found and is not being incorporated, that decision must be defended. The policy encourages investigators to consider alternatives in the planning stage of the proposed research.

### Canadian Guidelines

The Canadian Council on Animal Care (CCAC) (<http://www.ccac.ca>) has issued many guidelines on the care and use of animals in research, including the care and use of experimental animals, transgenic animals, choosing appropriate endpoints, the care and use of wildlife, laboratory animal facilities, the ethics of animal investigation, animal use protocol review and terms of reference for animal care committees. Detailed guidelines on the care and use of fish in research, teaching and testing were issued in 2005. These guidelines include appendices covering zoonoses and criteria for water quality, as well as over 120 literature references.

### Other guidelines

The Organisation for Economic Co-operation and Development has available a Guidance Document on the Recognition, Assessment, and Use of Clinical Signs as Humane Endpoints for Experimental Animals Used in Safety Evaluation.



It can be found at [http://www.olis.oecd.org/olis/2000doc.nsf/LinkTo/env-jm-mono\(2000\)7](http://www.olis.oecd.org/olis/2000doc.nsf/LinkTo/env-jm-mono(2000)7).

Several organisations offer collections of guidelines on their websites. These include the Norwegian Reference Centre (<http://oslovet.veths.no>). This Centre has also produced guidelines for reporting the results of fish experiments (Brattelid & Smith, 2000), based on similar guidelines for mammals written by a working party of the German laboratory animal science association GV-SOLAS (Working Committee 1985), and guidelines for alternatives to the use of animals in teaching and training (Smith & Smith, 2004). In 2005 the Centre held an international conference on Harmonisation of the Care and Use of Fish in Research. A collection of guidelines and other resources was established in this connection, and will be expanded in the future (<http://oslovet.veths.no/fish>).

A collection of guidelines produced by scientific societies is available from AWIC at <http://www.nal.usda.gov/awic/pubs/IACUC/profguid.htm>. Within the publication "Information Resources for Institutional Animal Care and Use Committees" (<http://www.nal.usda.gov/awic/pubs/IACUC/iacuc.htm>), many other topics of interest to a scientist developing a research protocol can be found. Among these are:

- Food Deprivation or Water Deprivation
- Pain Management and Humane Endpoints
- Statistics and Animal Numbers

The National Institutes of Health (NIH) in the US provides guidance to both NIH scientists and grantholders through the Animal Research Advisory Committee (ARAC). ARAC guidance documents can be found at <http://oacu.od.nih.gov/ARAC/index.htm>. Topics include:

- Housing Multiple Species of Large Laboratory Animals
- Diet Control in Behavioral Studies (Food and Water Deprivation)
- Research Use of Adjuvants
- Survival Rodent Surgery
- Oocyte Harvesting in *Xenopus Laevis*
- Toe Clipping of Rodents
- Ascites Production in Mice
- Pain and Distress in Rodents and Rabbits: Responsibilities, Recognition and Alleviation
- Endpoints in Animal Study Proposals
- 2000 Report of the AVMA Panel on Euthanasia
- Euthanasia of Rodent Foetuses and Neonates
- Survival Bleeding of Mice and Rats
- Euthanasia of Rodents Using Carbon Dioxide
- Genotyping of Mice and Rats

The NIH Office of Laboratory Animal Welfare, which oversees grantholders, makes available a report from the US National Academies of Science (NAS) on "Guidelines For The Care And Use Of Mammals In Neuroscience And Behavioral Research." This report may be found at [http://grants1.nih.gov/grants/olaw/National\\_Academies\\_Guidelines\\_for\\_Use\\_and\\_Care.pdf](http://grants1.nih.gov/grants/olaw/National_Academies_Guidelines_for_Use_and_Care.pdf).

In the workshop that AWIC teaches on searching for alternatives, one of the more enlightening sections is the group discussion of the three Rs. People assume that an alternative must be a non-animal method. The discussion of reduction in animal numbers and refinement of painful procedures allows them to view their research programs in a different light. A well-designed protocol form can assist researchers in better understanding this distinction. The US Department of Defense has a protocol form with instructions that encourage military researchers to examine their scientific proposals to ensure that military research adopts the three Rs whenever possible. A copy of that protocol can be found at <http://www.dtic.mil/biosys/downloads/Appendicies.PDF>.

As the guidelines above indicate, the interest in alternatives is driven by the fact that animals feel pain. The Animal Welfare Research Group at the Royal (Dick) School of Veterinary Studies, University of Edinburgh has launched a new multimedia website to help people working with animals recognise and assess pain in order to treat them appropriately. The site contains written guidelines, photographic and video evidence, and a bibliography. Topics covered include the types and causes of pain, methods used to assess pain and how the methods may be validated, different types of treatments, and a test. Guidelines for the Recognition and Assessment of Animal Pain can be found at <http://www.vet.ed.ac.uk/animalpain>.

In due course, regulatory authorities are likely to publish research protocols and general decisions of principle on the Internet. The Home Office in the UK has recently started this process (<http://scienceandresearch.homeoffice.gov.uk/animal-research/publications-and-reference/001-abstracts/>). There are a number of practical problems related to the desire for anonymity, which make it difficult to provide the detailed information that is often necessary to evaluate a protocol fully. Scientific organisations and websites designed to support decision-makers, such as the IACUC website (<http://www.iacuc.org>) in the USA should also be consulted.

## Challenges when using the Internet to search for alternatives

One of the problems faced when searching for information on the Internet is that much of the material is not accessed by standard search engines. This hidden section of the Internet, also called The Deep Web, includes documents where the text is concealed within a format not always accessible to the search engines, such as PDF (Portable Document Format) files, information on company intranets, and text inside databases. It has been estimated that over 50% of the information in the Deep Web is contained within such databases (<http://www.brightplanet.com/technology/deepweb.asp>). This makes it all the more important to spread information about databases containing information on the three Rs. Those managing databases that are available on the Internet should ensure that sufficient information about the database's content is, in some way or another, available in a form that any Internet search engine can access and catalogue.

Another problem facing Internet users is the sheer volume of information that a search returns. This may appear overwhelming, and important details may be missed. Some Internet search engines make allowance for this by filtering out irrelevant, non-scientific information. Scirus is an



example of one of these (<http://www.scirus.com>). An excellent evaluation of Internet search engines constructed by Dr. Krys Bottrill is available on the website of FRAME (<http://www.frame.org.uk>). The FRAME site also includes valuable information on designing a literature search, covering:

- Search basics
- A guide to searching the Internet
- Internet search engines
- Search terms of relevance to the three Rs

## Tips for using bibliographic databases

When looking for alternatives information in any of the large bibliographic databases, it is useful to have a certain minimum of information first. This should include a clear understanding of the research including the objective of the research, the proposed animal model, names of drugs/chemicals/organisms to be used either as pain-relieving agents or experimental compounds, a description of the animal procedures, and endpoints. A meaningful search for alternatives demands knowledge of why the procedure is being performed and the expected outcome. The staff at AWIC have developed the Literature Search for Alternatives Worksheet (<http://www.nal.usda.gov/awic/alternatives/searches/altwksht.pdf>) to assist researchers in this task. The centre also organises workshops on searching the literature for information on alternatives.

Once this information has been gathered, it should be analyzed to determine where alternatives might be substituted and to formulate questions that can be answered by the search. For example, if the proposed research involves killing successive numbers of animals over several weeks to track the progression of a disease process, an alternative search might focus on finding answers to the question, "Are there biomarkers, non-invasive imaging techniques or non-lethal biopsy techniques that will provide the same information?"

It is convenient to conduct a search using the three Rs as a guide. The keywords used for the first part of the search will primarily come from the area of research (e.g. osteomyelitis, trauma) but may also include other terms. The first part of the search will examine the literature closely related to the proposed study for refinements to the proposed methods, information from similar studies that will assist with determining the proper number of animals needed, and to see if the proposed work duplicates previously published experiments (this is a requirement of the U.S. Animal Welfare Act). Depending on the type of research, it might also be important to look for appropriate anaesthetics, analgesics, methods of restraint and other procedures.

In the second part of the strategy, the remaining R (Replacement) is considered. There may be some overlap with the first part of the search, in that alternative animal models may already be in hand. If not, then alternative animal and non-animal models should be considered.

There are many useful guides available that discuss this type of searching and evaluation of the results (Allen 1999; Allen et al 2004; Bottrill; Grune et al 2004; IMPI 2002; Kreger 1997; Kreger 1999; Langley et al 1999; Shevell and James 1995; Smith 1994; Snow 1990; Stokes and Jensen 1995; Wood and Hart 2001).

## Conclusions

Many countries have now introduced policies and regulations for animal research that encourage scientists to implement reduction, refinement and replacement in their research protocols. In response to this changing regulatory environ-

ment, many agencies, professional organizations, and commercial organisations have developed guidance documents, organized three Rs workshops and enhanced existing electronic databases in an effort to assist the research community.

Consequently, there is now a large range of databases and other sources of information on alternatives to the use of animals in teaching, training and research. Sufficient time must be set aside to investigate the potential for implementing the three Rs. Information specialists play an important role in this process. Scientists and teachers alike should be encouraged to seek professional assistance when evaluating alternatives in their particular field.

These resources function together as a set of tools with which all those planning courses or research where animals might be used should be broadly familiar. Resources such as MEDLINE and EmBase can give scientists a general idea of where to begin their literature review as they begin gathering information. Specialised databases, such as NORINA and Toxnet, allow teachers and scientists to rethink the use of animals entirely or consider a significant reduction in the numbers used. International consortiums such as AltWeb, regulatory authorities such as the UK Home Office, and national research agencies such as the US National Institutes of Health have developed websites to provide extensive science-based guidance related to the three Rs. For example, the humane endpoints guidelines developed by the Canadian Council on Animal Care may assist a researcher in alleviating animal suffering.

The UK-based forum Focus on Alternatives (<http://www.focusonalternatives.org.uk>) has produced an excellent poster illustrating the strategy that should be employed when planning experiments that may involve the use of animals. This flow diagram emphasises the role that authoritative databases, information centres, and guidelines should play in implementation of the three Rs. The poster may be downloaded at <http://www.focusonalternatives.org.uk/PDFs/EarlyPlanningPoster.pdf>. An example using this flow diagram is available at <http://www.focusonalternatives.org.uk/PDFs/EarlyPlannigPosterB.pdf>. The sheer amount of information available to researchers can seem overwhelming. By knowing where to look, how to look, and by using science-based guidelines from competent authorities, the incorporation of the three Rs into a research program can become simply a part of the overall scientific process and not perceived merely as a regulatory burden.

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Table 1 . The resources mentioned in this paper are listed here by the category to which they are referred in the main text. The Table also includes some links not included in the text.

Category	Description	Internet address
<b>DATABASES</b>		
Agricola	Agricultural and veterinary medicine, animal welfare	<a href="http://agricola.nal.usda.gov">http://agricola.nal.usda.gov</a>
AltBib	Alternatives in toxicology	<a href="http://toxnet.nlm.nih.gov/altbib.html">http://toxnet.nlm.nih.gov/altbib.html</a>
Alternatives Database	Alternatives for higher education especially within physiology and pharmacology	<a href="http://www.eurca.org/resources.asp">http://www.eurca.org/resources.asp</a>
Alternatives in Education	Alternatives in teaching and training, includes software and other media	<a href="http://www.aavar.org">http://www.aavar.org</a>
Alternatives to Skin Irritation/ Corrosion Testing	360 abstracts from peer-reviewed journals	<a href="http://www.invitroderm.com">http://www.invitroderm.com</a>
AnimAlt-ZEBET	Validated information on alternatives in animal research	<a href="http://www.bfr.bund.de/cd/1508">http://www.bfr.bund.de/cd/1508</a>
Biosis	Biomedical research, veterinary medicine, life sciences, animal welfare	<a href="http://www.biosis.org">http://www.biosis.org</a>
CAB Abstracts	Agricultural and veterinary medicine, animal welfare	<a href="http://www.cabi.org">http://www.cabi.org</a>
EmBase	Biomedical research, pharmacology, animal welfare	<a href="http://www.embase.com">http://www.embase.com</a>
Medline	Biomedical research, veterinary medicine, pharmacology, animal welfare	<a href="http://www.pubmed.gov">http://www.pubmed.gov</a>
NORINA	Audiovisual materials and other products that may serve as alternatives or supplements to animal use in teaching and training, at all levels from junior school to University	<a href="http://oslovet.veths.no/NORINA">http://oslovet.veths.no/NORINA</a>



Pain Management	Anesthesia and analgesia for animals	<a href="http://altweb.jhsph.edu">http://altweb.jhsph.edu</a> (click on research resources)
Refinement and Environmental Enrichment	Refinement of housing/ handling conditions and environmental enrichment for all laboratory animals	<a href="http://www.awionline.org/lab_animals/index.htm">http://www.awionline.org/lab_animals/index.htm</a>
TextBase	Overview of more than 1,000 textbooks within laboratory animals science and related disciplines	<a href="http://oslovet.veths.no/textbase">http://oslovet.veths.no/textbase</a>
Toxnet	Provides access to nine different toxicology databases	<a href="http://toxnet.nlm.nih.gov">http://toxnet.nlm.nih.gov</a>
<b>INFORMATION CENTRES/CLEARINGHOUSES</b>		
AALAS	Information resource for animal care committees	<a href="http://www.iacuc.org">http://www.iacuc.org</a>
AltWeb	International consortium that disseminates 3Rs information, produces pain management and humane endpoint databases, and provides access to full text resources	<a href="http://altweb.jhsph.edu">http://altweb.jhsph.edu</a>
Animal Welfare Information Centre	US Federal agency that produces specialized reference works on animal research and alternatives, information on the literature search for alternatives	<a href="http://awic.nal.usda.gov">http://awic.nal.usda.gov</a>
Animal Welfare Institute	Produces specialized databases, bibliographies, enrichment options, publishes <i>Comfortable Quarters for Laboratory Animals</i>	<a href="http://www.awionline.org">http://www.awionline.org</a>
Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART)	Produces fact sheets and articles on humane techniques in restraint/handling, pain/distress, and animal species	<a href="http://www.adelaide.edu.au/ANZCCART">http://www.adelaide.edu.au/ANZCCART</a>
Center for Alternatives to Animal Testing (CAAT)	Sponsors numerous workshops, publishes proceedings, offers online tutorial on <i>Enhancing Humane Science</i> for scientists	<a href="http://caat.jhsph.edu">http://caat.jhsph.edu</a>
European Centre for the Validation of Alternative Methods (ECVAM)	Supports the European Commission and EU member states by promoting the scientific and regulatory acceptance of non-animal tests through research, test development and validation and the establishment of a specialised database service	<a href="http://ecvam.jrc.it">http://ecvam.jrc.it</a>
European Consensus Platform for Alternatives (ECOPA)	Forum for the exchange between national consensus platforms, industry, science, animal welfare and EU and government institutions to enhance the development and implementation of alternatives	<a href="http://www.ecopa.eu">http://www.ecopa.eu</a> <i>(Access to all the European National Platforms)</i>
Fund for the Replacement of Animals in Medical Experiments (FRAME)	Publishes <i>ATLA</i> (Alternatives to Laboratory Animals), funds alternatives research, produces bibliographies, tutorial on searching literature for alternatives	<a href="http://www.frame.org.uk">http://www.frame.org.uk</a>
National Centre for the 3Rs	Promotion, development and implementation of the 3Rs in animal research	<a href="http://www.nc3rs.org.uk">http://www.nc3rs.org.uk</a>
Norwegian Reference Centre for Laboratory Animal Science and Alternatives	Information on laboratory animal science, the three Rs, specialized databases, and collections of guidelines	<a href="http://oslovet.veths.no">http://oslovet.veths.no</a>



Universities Federation for Animal Welfare (UFAW)	Publishes the journal <i>Animal Welfare</i> , <i>UFAW Handbook on the Care and Management of Laboratory Animals</i> , and the <i>UFAW Animal Welfare Series</i>	<a href="http://www.ufaw.org.uk">http://www.ufaw.org.uk</a>
University of California Center for Animal Alternatives	Literature searches for alternatives, bibliographies, etc.	<a href="http://www.vetmed.ucdavis.edu/Animal_Alternatives/main.htm">http://www.vetmed.ucdavis.edu/Animal_Alternatives/main.htm</a>
<b>GUIDELINES, REGULATIONS, POLICIES</b>		
<b>Antibody Production</b>		
Canadian Council on Animal Care	Guidelines on antibody production	<a href="http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/Antibody/antibody.pdf">http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/Antibody/antibody.pdf</a>
US National Institutes of Health	Ascites production in mice	<a href="http://oacu.od.nih.gov/ARAC/ascitesProd.pdf">http://oacu.od.nih.gov/ARAC/ascitesProd.pdf</a>
US National Institutes of Health	Research use of adjuvants	<a href="http://oacu.od.nih.gov/ARAC/Adjuvants_111407F.pdf">http://oacu.od.nih.gov/ARAC/Adjuvants_111407F.pdf</a>
<b>Euthanasia</b>		
European Commission DGXI	Euthanasia of experimental animals: Parts 1 and 2	<a href="http://www.lal.org.uk/pdf/LA1.pdf">http://www.lal.org.uk/pdf/LA1.pdf</a> <a href="http://www.lal.org.uk/pdf/LA2.pdf">http://www.lal.org.uk/pdf/LA2.pdf</a>
American Veterinary Medical Association	Report of the panel on euthanasia	<a href="http://www.avma.org/issues/animalwelfare/euthanasia.pdf">http://www.avma.org/issues/animalwelfare/euthanasia.pdf</a>
UK Home Office	Humane killing of animals	<a href="http://scienceandresearch.homeoffice.gov.uk/animal-research">http://scienceandresearch.homeoffice.gov.uk/animal-research</a> (search for humane killing)
US National Institutes of Health	Euthanasia of rodent foetuses and neonates	<a href="http://oacu.od.nih.gov/ARAC/euth_feti-Neonates_101007Fnl.pdf">http://oacu.od.nih.gov/ARAC/euth_feti-Neonates_101007Fnl.pdf</a>
US National Institutes of Health	Euthanasia of rodents using carbon dioxide	<a href="http://oacu.od.nih.gov/ARAC/EuthCO2.pdf">http://oacu.od.nih.gov/ARAC/EuthCO2.pdf</a>
<b>Experimental Design and Animal Numbers</b>		
ATLA	Design and statistical analysis, <i>in vitro</i>	<a href="http://www.frame.org.uk/dynamic_files/festing.pdf">http://www.frame.org.uk/dynamic_files/festing.pdf</a>
Laboratory Animals (UK)	Reduction of animal use	<a href="http://www.lal.org.uk/pdffiles/festing.pdf">http://www.lal.org.uk/pdffiles/festing.pdf</a>
<b>Food or Water Deprivation</b>		
UK Home Office	Water or food restriction	<a href="http://scienceandresearch.homeoffice.gov.uk/animal-research">http://scienceandresearch.homeoffice.gov.uk/animal-research</a> (search for foodwater)
US National Institutes of Health	Diet control	<a href="http://oacu.od.nih.gov/ARAC/document/DietControl_121807_final.pdf">http://oacu.od.nih.gov/ARAC/document/DietControl_121807_final.pdf</a>
<b>Humane Endpoints</b>		
Canadian Council on Animal Care	Choosing an appropriate endpoint	<a href="http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/ENDPTS/g_endpoints.pdf">http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/ENDPTS/g_endpoints.pdf</a>
Laboratory Animals (UK)	Humane endpoints in experiments	<a href="http://www.lal.org.uk/endpoints2.html">http://www.lal.org.uk/endpoints2.html</a>
Organisation for Economic Co-operation and Development	Recognition, assessment, and use of clinical signs	<a href="http://sourceoecd.org">http://sourceoecd.org</a> (search for clinical endpoints)
US National Institutes of Health	Endpoints in animal study proposals	<a href="http://oacu.od.nih.gov/ARAC/Endpoints.pdf">http://oacu.od.nih.gov/ARAC/Endpoints.pdf</a>





<i>Injections/Blood Samples</i>		
European Federation of Pharmaceutical Industries Associations and ECVAM	Administration of substances and removal of blood, includes routes and volumes	<a href="http://www.ncbi.nlm.nih.gov/pubmed/11180276">http://www.ncbi.nlm.nih.gov/pubmed/11180276</a>
University of Bergen	Blood collection using the saphenous vein: An alternative to retro-orbital collection	<a href="http://www.uib.no/vivariet/mou_blood/Blood_coll_mice_.html">http://www.uib.no/vivariet/mou_blood/Blood_coll_mice_.html</a>
Laboratory Animals (UK)	Refinement of blood sampling techniques	<a href="http://www.lal.org.uk/refine.html">http://www.lal.org.uk/refine.html</a>
BVA/FRAME/RSPCA/UFAW Joint Working Group on Refinement	Refining procedures for administration of substances	<a href="http://www.lal.org.uk/pdf/files/refinement.pdf">http://www.lal.org.uk/pdf/files/refinement.pdf</a>
BVA/FRAME/RSPCA/UFAW Joint Working Group on Refinement	Removal of blood from laboratory mammals and birds	<a href="http://www.lal.org.uk/pdf/files/blood.pdf">http://www.lal.org.uk/pdf/files/blood.pdf</a>
US National Institutes of Health	Survival bleeding of mice and rats	<a href="http://oacu.od.nih.gov/ARAC/Bleeding.pdf">http://oacu.od.nih.gov/ARAC/Bleeding.pdf</a>
<i>Literature Search for Alternatives</i>		
ALTEX - Alternativen zu Tierexperimenten	Retrieval approaches for information on alternative methods	<a href="http://www.altex.ch/pdf/artikel/altex_3_2004_Grune.pdf">http://www.altex.ch/pdf/artikel/altex_3_2004_Grune.pdf</a> (in English)
Focus on Alternatives	Strategies to use when planning animal research	<a href="http://www.focusonalternatives.org.uk/PDFs/EarlyPlanningPoster.pdf">http://www.focusonalternatives.org.uk/PDFs/EarlyPlanningPoster.pdf</a> <a href="http://www.focusonalternatives.org.uk/PDFs/Early%20Plannig%20PosterB.pdf">http://www.focusonalternatives.org.uk/PDFs/Early%20Plannig%20PosterB.pdf</a>
Focus on Alternatives	Accessing information on the 3Rs	<a href="http://www.focusonalternatives.org.uk/PDFs/Accessing%20Info.pdf">http://www.focusonalternatives.org.uk/PDFs/Accessing%20Info.pdf</a>
FRAME	A guide to searching for alternatives	<a href="http://www.frame.org.uk/page.php?pg_id=139">http://www.frame.org.uk/page.php?pg_id=139</a>
US Department of Agriculture	Policy 12 consideration of alternatives to painful or distressful procedures	<a href="http://www.aphis.usda.gov/animal_welfare/downloads/policy/">http://www.aphis.usda.gov/animal_welfare/downloads/policy/</a>
US Department of Agriculture, AWIC	Alternatives & searches	<a href="http://www.nal.usda.gov/awic/alternatives/alternat.htm">http://www.nal.usda.gov/awic/alternatives/alternat.htm</a>
<i>Pain and Distress</i>		
Federation of European Laboratory Animal Science Associations	Pain and distress in laboratory rodents and lagomorphs	<a href="http://www.lal.org.uk/pdf/files/FelasaPain.pdf">http://www.lal.org.uk/pdf/files/FelasaPain.pdf</a>
Laboratory Animals (UK)	Recognizing and assessing pain, suffering, and distress	<a href="http://www.lal.org.uk/pain/index.html">http://www.lal.org.uk/pain/index.html</a>
Laboratory Animals (UK)	Refinement of animal use-assessment and alleviation of animal pain and distress	<a href="http://www.lal.org.uk/pdf/files/fleck.pdf">http://www.lal.org.uk/pdf/files/fleck.pdf</a>
Royal (Dick) School of Veterinary Studies, University of Edinburgh	Recognition and assessment of pain and distress, including photos and videos	<a href="http://www.vet.ed.ac.uk/animalpain">http://www.vet.ed.ac.uk/animalpain</a>
US National Institutes of Health	Mice, rats and rabbits: responsibilities, recognition and alleviation	<a href="http://oacu.od.nih.gov/ARAC/FinalPainDistress0704.pdf">http://oacu.od.nih.gov/ARAC/FinalPainDistress0704.pdf</a>
<i>Regulatory/Professional</i>		
American College of Veterinary Anesthesiologists	Treatment of pain in animals	<a href="http://www.acva.org/professional/Position/pain.htm">http://www.acva.org/professional/Position/pain.htm</a>
American Fisheries Society	Use of fish in research	<a href="http://www.fisheries.org/afs/docs/policy_guidelines2004.pdf">http://www.fisheries.org/afs/docs/policy_guidelines2004.pdf</a>



American Psychological Association	Ethical conduct in the care and use of animals	<a href="http://www.apa.org/science/anguide.html">http://www.apa.org/science/anguide.html</a>
Australian National Health and Medical Research Council	Care and use of animals for scientific purposes	<a href="http://www.nhmrc.gov.au/publications/synopses/ea16syn.htm">http://www.nhmrc.gov.au/publications/synopses/ea16syn.htm</a>
Canadian Council on Animal Care	Guide to the care and use of experimental animals	<a href="http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GUIDES/ENGLISH/toc_v1.htm">http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GUIDES/ENGLISH/toc_v1.htm</a> <a href="http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GUIDES/ENGLISH/TOC_V2.HTM">http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GUIDES/ENGLISH/TOC_V2.HTM</a>
Council of Europe	Protection of vertebrate animals used for experiments	<a href="http://conventions.coe.int/Treaty/en/Treaties/Html/123.htm">http://conventions.coe.int/Treaty/en/Treaties/Html/123.htm</a>
European Union	Protection of animals	<a href="http://eur-lex.europa.eu/en/legis/20080701/chap1540.htm">http://eur-lex.europa.eu/en/legis/20080701/chap1540.htm</a>
International Association for the Study of Pain	Ethical guidelines for study of pain in conscious animals	<a href="http://www.iasp-pain.org/ethics-a.html">http://www.iasp-pain.org/ethics-a.html</a> (search conscious animals)
Society for Neuroscience	Use of animals in neuroscience research	<a href="http://www.sfn.org/">http://www.sfn.org/</a> (search animals)
UK Home Office	UK and European legislation and guidance	<a href="http://scienceandresearch.homeoffice.gov.uk/animal-research/legislation">http://scienceandresearch.homeoffice.gov.uk/animal-research/legislation</a>
US Department of Agriculture	Animal welfare regulations	<a href="http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200809">http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200809</a> (see Parts 1-4)
US National Academies of Science	Care and use of mammals in neuroscience and behavioural research	<a href="http://grants1.nih.gov/grants/olaw/National_Academies_Guidelines_for_Use_and_Care.pdf">http://grants1.nih.gov/grants/olaw/National_Academies_Guidelines_for_Use_and_Care.pdf</a>
US Public Health Service	Guide to the care and use of laboratory animals	<a href="http://www.nap.edu/openbook.php?record_id=5140">http://www.nap.edu/openbook.php?record_id=5140</a>
<b><i>Transgenic Animals</i></b>		
Canadian Council on Animal Care	Transgenic animals	<a href="http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/TRANSGEN/TRANSGE1.HTM">http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/TRANSGEN/TRANSGE1.HTM</a>
ECVAM-EU	Transgenic animals and welfare issues	<a href="http://altweb.jhsph.edu/publications/ECVAM/ecvam28.htm">http://altweb.jhsph.edu/publications/ECVAM/ecvam28.htm</a>
US National Institutes of Health	Genotyping of mice and rats	<a href="http://oacu.od.nih.gov/ARAC/GenotypRodnt.pdf">http://oacu.od.nih.gov/ARAC/GenotypRodnt.pdf</a>
<b><i>Miscellaneous Topics</i></b>		
BVA/FRAME/RSPCA/UFAW Joint Working Group on Refinement	Telemetry	<a href="http://www.lal.org.uk/pdf/files/reftel.pdf">http://www.lal.org.uk/pdf/files/reftel.pdf</a> (Includes four guidance documents)
Canadian Council on Animal Care	Amphibians and reptiles	<a href="http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/AmphibiansReptiles.htm">http://www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/AmphibiansReptiles.htm</a>
UK Coordinating Committee on Cancer Research	Welfare of animals in experimental neoplasia	<a href="http://www.ncrn.org.uk/csg/animal_guides_text.pdf">http://www.ncrn.org.uk/csg/animal_guides_text.pdf</a>
US Department of Defense	Animal use protocol template	<a href="http://www.sammc.amedd.army.mil/staff/research/dci/irb_forms.asp">http://www.sammc.amedd.army.mil/staff/research/dci/irb_forms.asp</a>
US National Institutes of Health	<i>Xenopus</i> oocyte collection	<a href="http://oacu.od.nih.gov/ARAC/oocyte.pdf">http://oacu.od.nih.gov/ARAC/oocyte.pdf</a>
US National Institutes of Health	Survival surgery in rodents	<a href="http://oacu.od.nih.gov/ARAC/surguide.pdf">http://oacu.od.nih.gov/ARAC/surguide.pdf</a>
US National Institutes of Health	Toe clipping of rodents	<a href="http://oacu.od.nih.gov/ARAC/FinalToeClip0504.pdf">http://oacu.od.nih.gov/ARAC/FinalToeClip0504.pdf</a>



# Farm Bill Update

The following excerpts are from the Conference Report accompanying HR 2419—The Food, Conservation, and Energy Act of 2008.

The bill was passed on May 22, 2008 by the House and Senate over the President's veto and became Public Law 110-234.

## *(1) Prohibition on use of live animals for marketing of medical devices; fines under the Animal Welfare Act*

The House bill amends the Animal Welfare Act to prohibit using a live animal to demonstrate a medical device or product for marketing purposes or to train a sales representative to use such product. The prohibition does not apply to the training of medical personnel for a purpose other than marketing. The House language amends the Animal Welfare Act to set a cap for violations at not more than \$10,000 for each violation. It specifies that each violation, each day that a violation continues, and each animal that is subject to each violation, shall be a separate offense. The House language also amends the Animal Welfare Act to require that the report to Congress also identify all research facilities, intermediate handlers, carriers, and exhibitors registered under section 6 of the Act. It strikes the provision requiring information and recommendations related to the Horse Protection Act. (Section 11316)

The Senate amendment contains no comparable provision.

The Conference substitute provides that fines under the Animal Welfare Act are increased from \$2500 to \$10,000. (Section 14214) [The prohibition on using animals to demonstrate a device for marketing or to train sales people is struck in the conference substitute provision.]

## *(2) Protection of pets*

The House bill amends the Animal Welfare Act by replacing section 7. The new section provides a definition for person to be used only in this section. Person includes any individual, partnership, firm, joint stock company, corporation, association, trust, estate, pound, shelter, or other legal entity. This section prohibits research facilities or Federal research facilities from using a cat or dog for educational or research purposes if it was obtained from a permissible source. Also, no person may donate, sell, or offer a dog or cat to any research facility or Federal research facility unless it came from a permissible source. A permissible source is defined to mean a dealer licensed under AWA; a publicly owned pound registered with the Secretary and in compliance with the protection of pet standards outlines in the Act and has obtained the cat or dog from a legal owner, other than a pound or shelter; or a person that is donating the dog or cat that bred and raised it and owned it for not less than one year preceding donation; a research facility or Federal research facility licensed by the Secretary. In addition to existing penalties for violating the Animal Welfare Act this provision establishes an additional fine of \$1,000 for each violation of this section. Nothing in this section requires a pound or shelter to donate, sell, or offer a dog or cat to a research facility. (Section 11317)

The Senate amendment is the same as the House bill. It adds a provision that would phase out the use of random source dogs and cats from class B dealers within five years after enactment of this act. (Section 11079)

The Conference substitute adopts the House provision with an amendment that defines Class B dogs and cats and requires the Secretary to review any independent reviews and recommendations by a nationally recognized panel on the use of Class B dogs and cats in federal research.

The Managers are aware of the concerns relating to the use of random source animals from Class-B dealers for medical research. As part of the Consolidated Appropriations Act, 2008 (P.L. 110-161), Congress requested an independent review by a nationally recognized panel of experts of the use of Class B dogs and cats in federally supported research. The National Academy of Science is in

the process of conducting this review. Results from the review are expected to be finalized in the spring of 2009. The results of this study will help provide Congress information regarding the value of Class B dogs and cats in medical research. It is the Managers view upon completion of the review the House Committee on Agriculture and United States Senate Committee on Agriculture, Nutrition and Forestry should address whether to continue Class B dealers as a legitimate vendor of random source animals for medical research.

The Managers are also aware of concerns relating to how Class B dealers acquire random source animals. Under 9 CFR 2.132(d) dealers are prohibited from obtaining a dog or cat from any person who is not licensed (other than a pound or shelter), unless they obtain a certification (source record) that the animals were born and raised on that person's premises and, if the animals are for research purposes, that the person has sold fewer than 25 dogs and/or cats that year. The Animal and Plant Health Inspection Service (APHIS) conducts four unannounced inspections of each Class B dealer on an annual basis. During these inspections, APHIS conducts random trace back of source records. In addition, every 2 to 3 years APHIS does 100 percent trace back of every source record of all Class B dealers. APHIS data indicates a 95 percent trace back of these records. Understanding concerns raised about the validity of these source records, the Managers intend to ask the Government Accountability Office to review APHIS regulations to ensure they are sufficiently assuring the source of random source animals.

The Managers are also concerned with the humane handling and treatment of all animals. In section 14114, fines for violating the Animal Welfare Act are increased for the first time since 1985. (Section 14216)

## *(4) Prohibitions on dog fighting ventures*

The Senate amendment amends section 26 of the Animal Welfare Act to strengthen penalties for dog fighting. Section 26(a)(1) of the AWA is amended to make it unlawful to knowingly sponsor or exhibit an animal in a dog fighting venture as defined later in this section. Section 26(b) of the AWA is amended to add it is illegal to knowingly sell, buy, possess, train, transport, deliver or receive any dog, other animal or offspring of the dog or other animal for the purpose of having them participate in a dog fighting venture. Section 26(f) of the AWA is amended to allow costs incurred for the care of animals seized or forfeited under this section to be recoverable from the owner. Subsection (g) is amended to include a definition for a dog fighting venture to mean any event that involves a fight between at least two animals, one being a dog, which is conducted for purposes of sport, wagering, or entertainment. An exclusion for hunting is also added. Section 49 of title 18, United States Code, is also amended to increase the penalty for violations of section 26 of the Animal Welfare Act to not more than five years imprisonment. (Section 11076)

The House bill contains no comparable provision.

The Conference substitute adopts the Senate provision with a minor amendment. (Section 14207)

## *(5) Domestic pet turtle market access; review, report and action on the sale of baby turtles*

The Senate amendment requires the Secretary of Health and Human Services, acting through the Commissioner of Food and Drugs, to determine the prevalence of salmonella in each species of reptile and amphibian sold legally in the United States to determine whether or not the prevalence of salmonella in these animals is not more than 10 percent less than the percentage of salmonella in pet turtles. If the prevalence is not more than 10 percent less than the percentage of salmonella in pet turtles the Secretary of Agriculture shall conduct a study of how pet turtles can be sold safely as pets in the United States. In conducting the study the Secretary shall consult with all relevant stakeholders. (Sections 11101, 11102, and 11103)

The House bill contains no comparable provision.

The Conference substitute strikes this provision.

*Continued on page 20...*



Continued from page 19

(6) *Importation of live dogs*

The Senate amendment adds a new section to the Animal Welfare Act (7 U.S.C. 2147) to restrict the importation of certain dogs for resale. This provision defines 'importer' as any person who, for purposes of resale, transports into the United States puppies from a foreign country. Resale is defined to mean any transfer of ownership or control of an imported dog of less than 6 months of age to another person, for more than de minimis consideration. No dog shall be imported into the United States for purposes of resale unless the Secretary of Agriculture determines the dog is in good health; has received all necessary vaccinations; and is at least 6 months of age, if imported for resale. Exemptions are provided for dogs imported for research purposes or veterinary treatment. The Secretaries of Agriculture, Health and Human Services, Commerce, and Homeland Security will promulgate regulations necessary to implement this section. Failure to comply by an importer will result in the importer being subject to fines under section 19 of the Animal Welfare Act and providing for the care, forfeiture, and adoption of each applicable dog at the expense of the importer. (Section 3205)

The House bill contains no comparable provision. The Conference substitute adopts the Senate provision with amendment. The Managers recognizes that Hawaii may have a unique situation arising out of Hawaii's current quarantine regulations. In the case of Hawaii, so long as the state continues to quarantine dogs imported from the mainland United States, the Secretary may permit an exception to allow the import of dogs under the age of 6 months from jurisdictions currently exempt from the Hawaii quarantine (i.e. Guam, Australia, New Zealand, and the British Isles) for resale in Hawaii, provided all other regulations of the Secretary, and of the State of Hawaii, are complied with. Any dogs imported into Hawaii pursuant to this exception shall not be shipped to any other jurisdiction within the United States for resale at less than 6 months of age.

The Managers do not intend for the exception for veterinary treatment to be used for routine veterinary care. This exemption is in place for emergency situations where the dogs in question are in need of immediate veterinary treatment and may not have the required vaccinations. Congress expects that such dogs would also be properly quarantined until the dogs are determined to be in good health as defined by regulations promulgated by the Secretary. Further, it is not the intent of Managers to prevent organizations from importing dogs under the age of 6 months in the event of an emergency, and transferring ownership or control of such dogs under the age of 6 months, provided such organization does not receive more than de minimus consideration for such adopted or transferred dogs. (Section 14210)



# Man's Best Friend: Combat Stress Dog Helps Put Soldiers "At Ease"

Saturday, 12 January 2008

This article was originally published on the Official Website of Multi-National Force-Iraq <http://www.mnf-iraq.com/>



*Sgt. 1st Class Boe, a therapeutic dog being used in Iraq to help Soldiers relieve stress, sits in the 1st Brigade Combat Team, 101st Airborne Division Operations Center, Jan. 10. Photo by Spc. Richard Rzepka, 1st Brigade Combat Team, 101st Airborne Division (AA) Public Affairs.*

Contingency Operating Base (COB) SPEICHER -

Ever had a Sergeant 1st Class lick your face? For many Soldiers here, these are not freakish events, but regular occurrences. Sgt. 1st Class Boe is the newest member of the 85th Medical Detachment Combat Stress Control unit at COB Speicher, and is one of two K-9 therapists being used by the Army to help prevent and control the stresses of living in a combat zone.

Along with Staff Sgt. Mike Calaway, an occupational therapy assistant with the Combat Stress Control unit, Boe is part of a new Army program, which encourages Soldiers to interact with dogs in order to help relieve the psychological stresses of war.

The dogs, two Black Labrador Retrievers, were donated and trained by America's VetDogs and are the first dogs to be used in a combat zone for therapeutic purposes. The organization is part of the larger non-profit group, Guide Dog Foundation for the Blind, which

has been helping provide guide dogs for the blind since the 1940s. Recognizing a growing need for specialized service dogs for America's fighting forces, VetDogs recently initiated the therapy dog concept.

The dogs are intended to provide comfort and relaxation through physical interaction, whether it's a game of fetch or just a peaceful few minutes of petting.

"I felt more relaxed after being able to spend some time with her," said Sgt. 1st Class Brenda Rich, 1st Brigade Combat Team, 101st Airborne Division (Air Assault) Medical Operations. "For a few minutes it was just me and the dog and nothing in this environment seemed to matter."

Calaway spent two weeks training with Boe in New York City to develop a bond, before the pair was sent to Iraq to take on the challenge of helping Soldiers cope with a deployment.

"She's a very well trained and very intelligent animal," said Calaway, who recently introduced Boe to Soldiers from the 1st Brigade Combat Team, 101st Airborne Division at COB Speicher, "So far we've had an outstanding response from Soldiers," he said, "whether they need help or not."

Deployments can create several different kinds of stressors, said Calaway, and Boe helps to break the ice, allowing Soldiers to open up about ongoing issues in their lives.

The major types of stress deployed Soldiers must deal with include operational stress, homefront stress and sleeping issues, said Calaway.

"The Soldiers absolutely love her," said Maj. Charles Kuhlman, 1st BCT Chaplain.

Often Soldiers on outlying bases will befriend stray dogs for companionship and to get a feel for home, said Kuhlman. "Dogs make a huge difference in morale."

(Story by Spc. Rick L. Rzepka, 101st Airborne Division Public Affairs)



# Military Working Dogs: Soldiers' Best Friend on the Battlefield

Monday, 31 December 2007

This article was originally published on the Official Website of Multi-National Force-Iraq  
<http://www.mnf-iraq.com/>

Forward Operating Base (FOB) KALSU -

With their strong sense of smell and their immeasurable loyalty, the highly trained military working dogs (MWD) in the 4th Brigade Combat Team, 3rd Infantry Division, are proving to be essential in the fight against terrorism.

Military working dogs first entered the United States armed services in March 1942. Today, the dogs are still providing support to the troops on the battlefield.

A single dog can search more area in less time than an entire company could do, said Staff Sgt. Charles Graves, a dog handler with 241st Military Police Detachment, Fort Meade, Md.

"By using the dogs, you are leaving your shooters to other aspects of the mission, rather than having them go out to start a search capacity" Graves said.

Knowing the commands taught by the dog handler, the MWDs search for improvised explosive devices, weapon caches and other devices meant to harm Coalition forces and local citizens.

"They're a good deterrent for any terrorist activity," Graves said. "They see the dogs out and know that (the dogs) will spot items humans won't necessarily find on the first search or even with an in-depth search."

While deployed in support of the war against terrorism, the dogs serve a one-year tour.

"Right now, we are the only service doing 12 months with the dogs," said Sgt. Steven Ramil, a dog handler attached to 4th BCT, 3rd Inf. Div.

When not on missions, the dogs train daily to sustain the skills they already have.

"The dogs go through obedience, detection and protection training,"



*Udi, a United States military working dog stationed at Forward Operating Base Kalsu, poses for the camera after he completes his daily training, Dec. 25. Photo by Pfc. Amanda McBride.*



*Sgt. Angela Mathern and her bomb-sniffing dog Vinny, both of the 51st Military Police Detachment, based out of Ft. Lewis, Wash., inspect a cart carrying propane tanks in downtown Mosul during a search of random vehicles for weapons and bomb-making materials, Feb. 14. Soldiers from the 552nd Military Police Company, based out of Schofield Barracks, Hawaii, pull security. Photo by Sgt. Patrick Lair, 115th Mobile Public Affairs Detachment.*

Graves said. "Patrol dogs also go through aggression training."

Graves said that even though the dogs are trained to search and find items that could hurt fellow Soldiers, they are also a big morale booster.

"When we go out on some missions where the guys have been out in the field for three weeks with no hot water or hot chow, they will just brighten up when they see the dogs," Graves said.

While deployed, the MWDs depend solely on their handler to take care of them.

"The handler is responsible for everything dealing with the dog," Graves said. "The dog is like your child; you feed him, clean up after him and take care of him."

The handler and dog team go out on missions knowing that they have each other's back, said Graves.

"There is a never-ending loyalty with these dogs," Graves said. "They would save my life and I would save theirs."

(Story Courtesy of Task Force Marne Public Affairs) 



rodeo exhibitions, state or county fair exhibitions, or other similar exhibitions; (3) in lawful scientific or agricultural research; (4) undergoing veterinary care; or (5) in the case of a sow, during the seven day period prior to the date the sow is expected to give birth. Defines "Covered animal" as any non-aquatic farm animal, including a pig, head of bison or cattle, chicken, turkey, duck, goose, goat, sheep, rabbit, ostrich, emu, or rhea intended for food production use.

• **H.R. 1771 To assist in the conservation of cranes by supporting and providing, through projects of persons and organizations with expertise in crane conservation, financial resources for the conservation programs of countries the activities of which directly or indirectly affect cranes and the ecosystems of cranes.**

Introduced on March 29, 2007, by Tammy Baldwin (D-Wisconsin) and referred to the Natural Resources Subcommittee on Fisheries, Wildlife, and Oceans. Hearings were held on September 6 and on October 4 the bill was forwarded by the subcommittee to full committee (amended) by voice vote. This act may be cited as the "Crane Conservation Act of 2007." Related Bills: S.1048

Requires the Secretary of the Interior to provide financial assistance for approved projects relating to the conservation of cranes, using amounts in the Crane Conservation Fund established by this Act.

Allows a project proposal to be submitted by: (1) any wildlife management authority of a country located in the African, Asian, European, or North American range of a species of crane that carries out at least one activity that affects crane populations; (2) the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and (3) any person or organization with demonstrated expertise in the conservation of cranes.

Establishes the Crane Conservation Fund in the Multinational Species Conservation Fund.

Authorizes the Secretary to convene an advisory group representing public and private organizations actively involved in the conservation of cranes to assist in carrying out this Act.

• **H.R. 1947 To promote public safety and improve the welfare of captive big cats, and for other purposes.**

Introduced on April 19, 2007, by Nancy E. Boyda (D-Kansas) and referred to the House Committee on Agriculture's Subcommittee on Livestock, Dairy, and Poultry. On May 4, Executive Comment was requested from USDA and on December 18, Favorable Executive Comment was received. This act may be cited as "Haley's Act." [Editor's note: Haley's Act is named in memory of Haley Hilderbrand of Kansas who was killed by a Siberian tiger while having her senior high school picture taken in a licensed animal sanctuary.]

Amends the Animal Welfare Act to: (1) define the term "big cat" to mean any live species of lion, tiger, leopard, cheetah, jaguar, or cougar or any hybrid of such species; (2) allow the Secretary of Agriculture to deny or revoke licenses to animal dealers and exhibitors based on recommendations from state or local officials with jurisdiction over captive wildlife; (3) require the Sec-

retary to include in standards that govern the humane handling, care, treatment, and transportation of animals by dealers, research facilities, and exhibitors a minimum requirement to provide for public safety; (4) increase civil and criminal penalties for violations of such Act; (5) prohibit a licensed exhibitor or dealer from allowing direct contact between a big cat and a member of the public, with an exception for zoos; and (6) prohibit the Secretary from granting a license to a dealer or exhibitor of a big cat until the Secretary has issued regulations to implement this Act.

• **H.R. 2419 To provide for the continuation of agricultural programs through fiscal year 2012, and for other purposes.**

Introduced on May 22, 2007, by Collin C. Peterson (D-Minnesota). It was passed by the House on July 27, 2007 and was passed with amendments by the Senate on December 14, 2007. On April 9, 2008, the Speaker of the House appointed conferees for consideration of the House bill and the Senate amendment. This act may be cited as the "Farm Bill Extension Act of 2007."

Related Bills: H.RES.574 [Editor's note: See Farm Bill Update on page 19 on this issue of the AWIC Bulletin]

**SEC. 3205. IMPORTATION OF LIVE DOGS.**

(a) In General- The Animal Welfare Act is amended by adding after section 17 (7 U.S.C. 2147) the following:

**SEC. 18. IMPORTATION OF LIVE DOGS.**

(a) Definitions- In this section:

(1) **IMPORTER-** The term "importer" means any person who, for purposes of resale, transports into the United States puppies from a foreign country.

(2) **RESALE-** The term "resale" includes any transfer of ownership or control of an imported dog of less than 6 months of age to another person, for more than de minimis consideration.

(b) Requirements-

(1) **IN GENERAL-** Except as provided in paragraph (2), no person shall import a dog into the United States for purposes of resale unless, as determined by the Secretary, the dog--

(A) is in good health;

(B) has received all necessary vaccinations; and

(C) is at least 6 months of age, if imported for resale.

(2) **EXCEPTION-** The Secretary, by regulation, shall provide an exception to any requirement under paragraph (1) in any case in which a dog is imported for--

(A) research purposes; or

(B) veterinary treatment.

(C) **Implementation and Regulations-** The Secretary, the Secretary of Health and Human Services, the Secretary of Commerce, and the Secretary of Homeland Security shall promulgate such regulations as the Secretaries determine to be necessary to implement and enforce this section.

(d) **Enforcement-** An importer that fails to comply with this section shall--

(1) be subject to penalties under section 19; and

(2) provide for the care (including appropriate veterinary care), forfeiture, and adoption of each applicable dog, at the expense of the importer.

(b) **Effective Date-** The amendment made by subsection (a) takes effect on the date of enactment of this Act.

**SEC. 11014. VETERINARY WORKFORCE GRANT PROGRAM.**

(a) In General- The Secretary shall establish a grant program



to increase the number of veterinarians trained in agricultural biosecurity.

(b) Considerations for Funding Awarded- The Secretary shall establish procedures to ensure that grants are competitively awarded under the program based on--

(1) the ability of an applicant to increase the number of veterinarians who are trained in agricultural biosecurity practice areas determined by the Secretary;

(2) the ability of an applicant to increase research capacity in areas of agricultural biosecurity determined by the Secretary to be a priority; or

(3) any other consideration the Secretary determines to be appropriate.

(c) Use of Funds- Amounts received under this section may be used by a grantee to pay--

(1) costs associated with construction and the acquisition of equipment, and other capital costs relating to the expansion of schools of veterinary medicine, departments of comparative medicine, departments of veterinary science, or entities offering residency training programs; or

(2) capital costs associated with the expansion of academic programs that offer postgraduate training for veterinarians or concurrent training for veterinary students in specific areas of specialization.

(d) Authorization of Appropriations- There are authorized to be appropriated to the Secretary such sums as are necessary to carry out this section for each of fiscal years 2008 through 2012.

#### SEC. 11076. PROHIBITIONS ON DOG FIGHTING VENTURES.

(a) In General- Section 26 of the Animal Welfare Act (7 U.S.C. 2156) is amended--

(1) in subsection (a)(1)--

(A) by striking “any person to knowingly sponsor” and inserting “any person--(A) to knowingly sponsor”; (B) by striking the period at the end and inserting “or”; and (C) by adding at the end the following:

(B) to knowingly sponsor or exhibit an animal in a dog fighting venture.--;

(2) in subsection (b)--

(A) by striking “any person to knowingly sell” and inserting “any person--(1) to knowingly sell”;

(B) by striking the period at the end and inserting “or”; and

(C) by adding at the end the following: (2) to knowingly sell, buy, possess, train, transport, deliver, or receive for purposes of transportation, any dog or other animal, for the purposes of having the dog or other animal, or offspring of the dog or other animal, participate in a dog fighting venture.

(3) in the last sentence of subsection (f), by striking “by the United States”; and

(4) in subsection (g) --

(A) in paragraph (5), by striking “and” at the end;

(B) by redesignating paragraph (6) as paragraph (7); and

(C) by inserting after paragraph (5) the following: (6) the term “dog fighting venture”--(A) means any event that--(i) involves a fight between at least 2 animals; (ii) includes at least 1 dog; and (iii) is conducted for purposes of sport, wagering, or entertainment; and (B) does not include any activity the primary purpose of which involves the use of 1 or more animals to hunt another animal ; and-

(b) Enforcement of Animal Fighting Prohibitions- Section 49 of title 18, United States Code, is amended to read as follows:

#### Sec. 49. Enforcement of animal fighting prohibitions

(a) Animal Fighting Ventures- Whoever violates subsection (a) (1)(A), (b)(1), (c), or (e) of section 26 of the Animal Welfare Act (7 U.S.C. 2156) shall be fined under this title, imprisoned for not more than 3 years, or both, for each violation.

(b) Dog Fighting Ventures- Whoever violates subsection (a)(1)(B) or (b)(2) of section 26 of the Animal Welfare Act shall be fined under this title, imprisoned for not more than 5 years, or both, for each violation.-=

#### SEC. 11079. PROTECTION OF PETS.

(a) Short Title- This section may be cited as the “Pet Safety and Protection Act of 2007.”

(b) Research Facilities- Section 7 of the Animal Welfare Act (7 U.S.C. 2137) is amended to read as follows:

#### SEC. 7. SOURCES OF DOGS AND CATS FOR RESEARCH FACILITIES.

(a) Definition of Person- In this section, the term ‘person’ means any individual, partnership, firm, joint stock company, corporation, association, trust, estate, pound, shelter, or other legal entity.

(b) Use of Dogs and Cats- No research facility or Federal research facility may use a dog or cat for research or educational purposes if the dog or cat was obtained from a person other than a person described in subsection (d).

(c) Selling, Donating, or Offering Dogs and Cats- No person, other than a person described in subsection (d), may sell, donate, or offer a dog or cat to any research facility or Federal research facility.

(d) Permissible Sources- A person from whom a research facility or a Federal research facility may obtain a dog or cat for research or educational purposes under subsection (b), and a person who may sell, donate, or offer a dog or cat to a research facility or a Federal research facility under subsection (c), shall be-

(1) a dealer licensed under section 3 that has bred and raised the dog or cat;

(2) a publicly owned and operated pound or shelter that--

(A) is registered with the Secretary;

(B) is in compliance with section 28(a)(1) and with the requirements for dealers in subsections (b) and (c) of section 28; and

(c) obtained the dog or cat from its legal owner, other than a pound or shelter;

(3) a person that is donating the dog or cat and that--

(A) bred and raised the dog or cat; or

(B) owned the dog or cat for not less than 1 year immediately preceding the donation;

(4) a research facility licensed by the Secretary; and

(5) a Federal research facility licensed by the Secretary.

(e) Penalties-

(1) IN GENERAL- A person that violates this section shall be fined \$1,000 for each violation.

(2) ADDITIONAL PENALTY- A penalty under this subsection shall be in addition to any other applicable penalty.

(f) No Required Sale or Donation- Nothing in this section requires a pound or shelter to sell, donate, or offer a dog or cat to a research facility or Federal research facility.

(g) Limitation- The Secretary shall phase out, by the date that is 5 years after the date of enactment of this subsection, the use of random source dogs and cats from class B dealers in accordance with a schedule established by the Secretary.--

(c) Federal Research Facilities- Section 8 of the Animal Welfare Act (7 U.S.C. 2138) is amended--



(1) by striking “SEC. 8. No department” and inserting the following:

**SEC. 8. FEDERAL RESEARCH FACILITIES.**

“Except as provided in section 7, no department”;

(2) by striking “research or experimentation or”; and

(3) by striking “such purposes” and inserting “that purpose”.

(d) Certification- Section 28(b)(1) of the Animal Welfare Act (7 U.S.C. 2158(b)(1)) is amended by striking “individual or entity” and inserting “research facility or Federal research facility.”

**SEC. 11101. SHORT TITLE.**

This title may be cited as the “Domestic Pet Turtle Equality Act.”

**SEC. 11102. FINDINGS.**

Congress makes the following findings: (1) Pet turtles less than 10.2 centimeters in diameter have been banned for sale in the United States by the Food and Drug Administration since 1975 due to health concerns. (2) The Food and Drug Administration does not ban the sale of iguanas or other lizards, snakes, frogs, or other amphibians or reptiles that are sold as pets in the United States that carry salmonella bacteria. The Food and Drug Administration also does not require that these animals be treated for salmonella bacteria before being sold as pets. (3) The technology to treat turtles for salmonella, and make them safe for sale, has greatly advanced since 1975. Treatments exist that can eradicate salmonella from turtles up until the point of sale, and individuals are more aware of the causes of salmonella, how to treat salmonella poisoning, and the seriousness associated with salmonella poisoning. (4) University research has shown that these turtles can be treated in such a way that they can be raised, shipped, and distributed without having a recolonization of salmonella. (5) University research has also shown that pet owners can be equipped with a treatment regimen that allows the turtle to be maintained safe from salmonella. (6) The Food and Drug Administration and the Department of Agriculture should allow the sale of turtles less than 10.2 centimeters in diameter as pets as long as the sellers are required to use proven methods to treat these turtles for salmonella.

**SEC. 11103. REVIEW, REPORT, AND ACTION ON THE SALE OF BABY TURTLES.**

(a) Pet Turtle- In this section, the term ‘pet turtle’ means a turtle that is less than 10.2 centimeters in diameter.

(b) Prevalence of Salmonella- Not later than 60 days after the date of enactment of this title, the Secretary of Health and Human Services, acting through the Commissioner of Food and Drugs, shall determine the prevalence of salmonella in each species of reptile and amphibian sold legally as a pet in the United States in order to determine whether the prevalence of salmonella in reptiles and amphibians sold legally as pets in the United States on average is not more than 10 percent less than the percentage of salmonella in pet turtles.

(c) Action if Prevalence Is Similar- If the prevalence of salmonella in reptiles and amphibians sold legally as pets in the United States on average is not more than 10 percent less than the percentage of salmonella in pet turtles--

(1) the Secretary of Agriculture shall--

(A) conduct a study to determine how pet turtles can be sold safely as pets in the United States and provide recommendations to Congress not later than 150 days after the date of such determination;

(B) in conducting such study, consult with all relevant stakeholders, such as the Centers for Disease Control and Prevention, the turtle farming industry, academia, and the American Academy of Pediatrics; and

(C) examine the safety measures taken to protect individuals

from salmonella-related dangers involved with reptiles and amphibians sold legally in the United States that contain a similar or greater presence of salmonella than that of pet turtles; and

(2) the Secretary of Agriculture--

(A) may not prohibit the sale of pet turtles in the United States; or (B) shall prohibit the sale in the United States of any reptile or amphibian that contains a similar or greater prevalence of salmonella than that of pet turtles.

• **H.R. 2678 To prohibit the use of funds appropriated to the Department of Agriculture to approve for human consumption animals that do not stand and walk unassisted.**

Introduced on June 12, 2007, by Gary L. Ackerman (D-New York) and referred to House Agriculture Subcommittee on Livestock, Dairy, and Poultry.

Prohibits the use of funds appropriated to the Department of Agriculture to approve or contract with any person or entity to approve for human consumption any cow, sheep, pig, goat, or horse, mule, or other equine that does not stand and walk unassisted at any time while the animal is alive at a slaughtering, packing, meat-canning, rendering, or similar establishment.

• **H.R. 2964 To amend the Lacey Act Amendments of 1981 to treat nonhuman primates as prohibited wildlife species under that Act, to make corrections in the provisions relating to captive wildlife offenses under that Act, and for other purposes.**

Introduced on July 10, 2007, by Eddie Bernice Johnson (D-Texas) and referred to the Natural Resources Subcommittee on Fisheries, Wildlife, and Oceans. Subcommittee hearings were held on March 11, 2008. This act may be cited as the “Captive Primate Safety Act.” Related Bills: S.1498

Amends the Lacey Act Amendments of 1981 to add nonhuman primates (i.e., monkeys, great apes, lemurs, etc.) to the definition of “prohibited wildlife species” for purposes of the prohibition against the sale or purchase of such species in interstate or foreign commerce.

Makes it unlawful for a person to sell or purchase a live animal of any prohibited wildlife species in interstate or foreign commerce (i.e., for pet trade purposes). Sets forth: (1) exceptions to such prohibition; and (2) civil and criminal penalties for violations of the requirements of this Act.

• **H.R. 3219 To amend the Animal Welfare Act to prohibit dog fighting ventures.**

Introduced on July 27, 2007, by Betty Sutton (D-Ohio) and referred to the Committee on Agriculture, and in addition to the Committee on the Judiciary. On September 10, It was referred to the Judiciary Subcommittee on Crime, Terrorism, and Homeland Security. This act may be cited as the “Dog Fighting Prohibition Act.” Related Bills: S.1880

Amends the Animal Welfare Act to make it unlawful to: (1) knowingly sponsor or exhibit an animal in, or knowingly attend, a dog fighting venture; and (2) knowingly sell, buy, possess, train, transport, deliver, or receive for purposes of transportation any dog or other animal for the purposes of having the dog, animal, or offspring of the dog or other animal participate in a dog fighting





venture. Provides for imprisonment for up to five years for violations.

- **H.R. 3327 To amend the Animal Welfare Act to prohibit dog fighting ventures.**

Introduced on August 2, 2007, by Elton Gallegly (7-California) and referred to the House Committee on Agriculture and the Committee on the Judiciary. This act may be cited as the "Federal Dog Protection Act."

Amends the Animal Welfare Act to make it unlawful to knowingly: (1) sponsor or exhibit an animal in, or knowingly attend, a dog fighting venture; (2) sell, buy, possess, train, transport, deliver, or receive for purposes of transportation any dog or other animal for the purpose of having the dog or other animal, or offspring of the dog or other animal, participate in a dog fighting venture; or (3) use the U.S. mail service or any instrumentality of interstate commerce for commercial speech that promotes or furthers such prohibited actions.

Makes costs incurred for the care of animals seized and forfeited recoverable from the owner (currently recoverable costs are limited to those incurred by the United States). Allows animal control agencies, humane societies, or societies for the prevention of cruelty to animals to commence a civil suit to enjoin any private party who is alleged to be in violation of provisions concerning animal fighting. Provides for enforcement.

- **H.R. 3639 To establish a program of research and other activities to provide for the recovery of the southern sea otter.**

Introduced on September 24, 2007, by Sam Farr (D-California) and referred to the House Committee on Natural Resources. This act may be cited as the "Southern Sea Otter Recovery and Research Act."

Requires the Secretary of the Interior, acting through the United States Fish and Wildlife Service, to carry out a recovery program for southern sea otter populations along the coast of California.

Requires the Secretary to: (1) develop a Southern Sea Otter Health Assessment Plan; (2) collect and analyze tissue samples from southern sea otters; and (3) submit the tissue to the Secretary of Commerce for inclusion in the National Marine Mammal Tissue Bank to allow for managed access to such tissues by other researchers.

Requires the Secretary to: (1) award competitive grants to support research regarding southern sea otters; and (2) establish and appoint the Southern Sea Otter Recovery Implementation Team to make recommendations on overall implementation of the southern sea otter recovery program and research goals and review the recommendations of a Scientific Advisory Subcommittee. Requires the Subcommittee to evaluate the scientific merit and quality of southern sea otter research proposals submitted for funding and make funding recommendations.

- **H.R. 3663 To amend the Fish and Wildlife Act of 1956 to establish additional prohibitions on shooting wildlife from aircraft, and for other purposes.**

Introduced on September 25, 2007, by George Miller (D-California) and referred to the House Committee on Natural Resources Subcommittee on Fisheries, Wildlife, and Oceans. This act may be cited as the "Protect America's Wildlife Act of 2007."

Amends the Fish and Wildlife Act of 1956 to add to airborne

hunting offenses a prohibition against any person shooting or attempting to shoot any bird, fish, or other animal before 3:00 a.m. following a day on which the person has traveled by aircraft other than on a regularly scheduled commercial aircraft. Increases the fine for such offenses to not more than \$50,000 (currently, \$5,000).

Prohibits a state from authorizing or undertaking any action otherwise prohibited under such Act for the purpose of increasing any game population or sport hunting. Authorizes a state to shoot predators from an aircraft to prevent a biological emergency, if: (1) the head of the state's fish and wildlife agency determines that such an emergency is imminent and there is no other means available to eliminate the emergency; (2) the shooting is conducted by an officer or employee of such agency or of the U.S. Department of Agriculture (USDA); (3) the shooting occurs only in the area where the emergency exists; and (4) the shooting removes only the minimum number of predators necessary to eliminate the emergency.

Allows the Secretary of the Interior to authorize an otherwise prohibited action to prevent the extinction of any endangered or threatened species under the Endangered Species Act of 1973 if there is no other means available to address the threat of extinction.

Authorizes citizen suits under the Fish and Wildlife Act of 1956.

- **H.R. 3755 To amend section 1308 of title 40, United States Code, to provide immunity for Federal Government agencies from claims resulting from the donation of unfit horses and mules and to allow certain agents of United States Customs and Border Protection to adopt such horses and mules.**

Introduced on October 4, 2007, by Nathan Deal (R-Georgia) and referred to the House Committee on Oversight and Government Reform. This act may be cited as the "Immunity from Claims Related to Donated Horses Act of 2007."

Requires each humane organization that receives any horse or mule to hold the Department of Homeland Security (DHS), including U.S. Customs and Border Protection, harmless from any demand, suit, action, or claim arising from or related to the government's donation of the horse or mule, including damages to the organization's property and any personal injury, disability, or death of any officer, employee, or agent.

Authorizes horses and mules belonging to the federal government that have become unfit for service to be adopted by the DHS agents who have worked with such horse or mule.

- **H.R. 3829 To amend title 18, United States Code, to prohibit certain interstate conduct relating to exotic animals.**

Introduced on October 15, 2007, by Steve Cohen (D-Tennessee) and referred to the House Committee on the Judiciary. This act may be cited as the "Sportsmanship in Hunting Act of 2007."

Amends the federal criminal code to prohibit knowingly transferring, transporting, or possessing a confined exotic animal for purposes of allowing the killing or injuring of that animal for entertainment or for the collection of a trophy. Defines "confined exotic animal" as a mammal of a species not indigenous to the United States that has been held in captivity for the majority of its life or a period of one year.

- **H.R. 4128 To modernize, shorten, and simplify the Federal criminal code.**

Introduced on November 8, 2007, by James F. Sensenbrenner,



Jr. (R-Wisconsin) and referred to the House Judiciary Subcommittee on Crime, Terrorism, and Homeland Security. This act may be cited as the "Criminal Code Modernization and Simplification Act of 2007."

#### Chapter 29-Crimes Related to Protection of Government Functions and Integrity

##### Subchapter N-Malicious Mischief

##### Sec. 1206. Harming animals used in law enforcement

(a) OFFENSE- Whoever maliciously harms any police animal, or attempts or conspires to do so, shall be imprisoned not more than 1 year. If the offense permanently disables or disfigures the animal, or causes serious bodily injury to or the death of the animal, the maximum term of imprisonment shall be 10 years.--

(b) DEFINITION- In this section, the term "police animal" means a dog or horse employed by a Federal agency (whether in the executive, legislative, or judicial branch) for the principal purpose of aiding in the detection of criminal activity, enforcement of laws, or apprehension of criminal offenders.

##### Chapter 35-Regulatory Crimes

##### Subchapter A - Animals, Birds, Fish, and Plants

##### Sec. 1371. Hunting, fishing, trapping; disturbance or injury on wildlife refuges

Whoever, except in compliance with rules and regulations promulgated by authority of law, hunts, traps, captures, willfully disturbs or kills any bird, fish, or wild animal of any kind whatever, or takes or destroys the eggs or nest of any such bird or fish, on any lands or waters which are set apart or reserved as sanctuaries, refuges or breeding grounds for such birds, fish, or animals under any law of the United States or willfully injures, molests, or destroys any property of the United States on any such lands or waters, shall be imprisoned not more than six months.

Sec. 1372. Importation or shipment of injurious mammals, birds, fish (including mollusks and crustacea), amphibia, and reptiles; permits, specimens for museums; regulations

(a) PROHIBITION- The importation into the United States, any territory of the United States, the District of Columbia, the Commonwealth of Puerto Rico, or any possession of the United States, or any shipment between the continental United States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any possession of the United States, of the mongoose of the species *Herpestes auro-punctatus*; of the species of so-called "flying foxes" or fruit bats of the genus *Pteropus*; of the zebra mussel of the species *Dreissena polymorpha*; and such other species of wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, reptiles, brown tree snakes, or the offspring or eggs of any of the foregoing which the Secretary of the Interior may prescribe by regulation to be injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States, is hereby prohibited. All such prohibited mammals, birds, fish (including mollusks and crustacea), amphibians, and reptiles, and the eggs or offspring therefrom, shall be promptly exported or destroyed at the expense of the importer or consignee. Nothing in this section shall be construed to repeal or modify any provision of the Public Health Service Act or Federal Food, Drug, and Cosmetic Act. Also, this section shall not authorize any action with respect to the importation of any plant pest as defined in the Federal Plant Pest Act, insofar as such importation is subject to regulation under that Act.

(b) DEFINITION- As used in subsection (a), the term "wild" relates to any creatures that, whether or not raised in captivity, normally are found in a wild state; and the terms "wildlife" and "wildlife resources" include those resources that comprise wild mammals, wild birds, fish (including mollusks and crustacea), and all other classes of wild creatures whatsoever, and all types of aquatic and

land vegetation upon which such wildlife resources are dependent.

(c) PERMISSION FOR IMPORTATION- Notwithstanding the foregoing, the Secretary of the Interior, when he finds that there has been a proper showing of responsibility and continued protection of the public interest and health, shall permit the importation for zoological, educational, medical, and scientific purposes of any mammals, birds, fish, (including mollusks and crustacea), amphibia, and reptiles, or the offspring or eggs thereof, where such importation would be prohibited otherwise by or pursuant to this Act, and this Act shall not restrict importations by Federal agencies for their own use.

(d) EXCLUSION- Nothing in this section restricts the importation of dead natural-history specimens for museums or for scientific collections, or the importation of domesticated canaries, parrots (including all other species of psittacine birds), or such other cage birds as the Secretary of the Interior may designate.

(e) ENFORCEMENT- The Secretary of the Treasury and the Secretary of the Interior shall enforce the provisions of this subsection, including any regulations issued hereunder, and, if requested by the Secretary of the Interior, the Secretary of the Treasury may require the furnishing of an appropriate bond when desirable to insure compliance with such provisions.

(f) OFFENSE- Whoever violates this section, or any regulation issued pursuant thereto, shall be imprisoned not more than six months.

##### Sec. 1373. Force, violence, and threats involving animal enterprises

(a) Offense- Whoever travels in interstate or foreign commerce, or uses or causes to be used the mail or any facility of interstate or foreign commerce--

(1) for the purpose of damaging or interfering with the operations of an animal enterprise; and

(2) in connection with such purpose--

(A) intentionally damages or causes the loss of any real or personal property (including animals or records) used by an animal enterprise, or any real or personal property of a person or entity having a connection to, relationship with, or transactions with an animal enterprise;

(B) intentionally places a person in reasonable fear of the death of, or serious bodily injury to that person, a member of the immediate family (as defined in section 115) of that person, or a spouse or intimate partner of that person by a course of conduct involving threats, acts of vandalism, property damage, criminal trespass, harassment, or intimidation; or

(C) conspires or attempts to do so;

shall be punished as provided for in subsection (b).

(b) Penalties- The punishment for a violation of section (a) or an attempt or conspiracy to violate subsection (a) shall be--

(1) a fine under this title or imprisonment not more than 1 year, or both, if the offense does not instill in another the reasonable fear of serious bodily injury or death and--

(A) the offense results in no economic damage or bodily injury; or (B) the offense results in economic damage that does not exceed \$10,000;

(2) a fine under this title or imprisonment for not more than 5 years, or both, if no bodily injury occurs and--

(A) the offense results in economic damage exceeding \$10,000 but not exceeding \$100,000; or (B) the offense instills in another the reasonable fear of serious bodily injury or death;

(3) a fine under this title or imprisonment for not more than 10 years, or both, if--

(A) the offense results in economic damage exceeding \$100,000;



or (B) the offense results in substantial bodily injury to another individual;

(4) a fine under this title or imprisonment for not more than 20 years, or both, if--

(A) the offense results in serious bodily injury to another individual; or

(B) the offense results in economic damage exceeding \$1,000,000; and

(5) imprisonment for life or for any terms of years, a fine under this title, or both, if the offense results in death of another individual.

(C) Restitution- An order of restitution under this title with respect to a violation of this section may also include restitution--

(1) for the reasonable cost of repeating any experimentation that was interrupted or invalidated as a result of the offense;

(2) for the loss of food production or farm income reasonably attributable to the offense; and

(3) for any other economic damage, including any losses or costs caused by economic disruption, resulting from the offense.

(d) Definitions- As used in this section--

(1) the term "animal enterprise" means--

(A) a commercial or academic enterprise that uses or sells animals or animal products for profit, food or fiber production, agriculture, education, research, or testing;

(B) a zoo, aquarium, animal shelter, pet store, breeder, furrier, circus, or rodeo, or other lawful competitive animal event; or

(C) any fair or similar event intended to advance agricultural arts and sciences;

(2) the term "course of conduct" means a pattern of conduct composed of 2 or more acts, evidencing a continuity of purpose;

(3) the term "economic damage"--

(A) means the replacement costs of lost or damaged property or records, the costs of repeating an interrupted or invalidated experiment, the loss of profits, or increased costs, including losses and increased costs resulting from threats, acts or vandalism, property damage, trespass, harassment, or intimidation taken against a person or entity on account of that person's or entity's connection to, relationship with, or transactions with the animal enterprise; but

(B) does not include any lawful economic disruption (including a lawful boycott) that results from lawful public, governmental, or business reaction to the disclosure of information about an animal enterprise;

(4) the term "serious bodily injury" means--

(A) injury posing a substantial risk of death;

(B) extreme physical pain;

(C) protracted and obvious disfigurement; or

(D) protracted loss or impairment of the function of a bodily member, organ, or mental faculty; and

(5) the term "substantial bodily injury" means--

(A) deep cuts and serious burns or abrasions;

(B) short-term or nonobvious disfigurement;

(C) fractured or dislocated bones, or torn members of the body;

(D) significant physical pain;

(E) illness;

(F) short-term loss or impairment of the function of a bodily member, organ, or mental faculty; or

(G) any other significant injury to the body.

(e) Rules of Construction- Nothing in this section shall be construed--

(1) to prohibit any expressive conduct (including peaceful picketing or other peaceful demonstration) protected from legal prohibition by the First Amendment to the Constitution;

(2) to create new remedies for interference with activities protected by the free speech or free exercise clauses of the First Amendment to the Constitution, regardless of the point of view expressed, or to limit any existing legal remedies for such interference; or

(3) to provide exclusive criminal penalties or civil remedies with respect to the conduct prohibited by this action, or to preempt State or local laws that may provide such penalties or remedies.

Sec. 1374. Use of aircraft or motor vehicles to hunt certain wild horses or burros; pollution of watering holes

(a) AIRCRAFT FOR HUNTING- Whoever uses an aircraft or a motor vehicle to hunt, for the purpose of capturing or killing, any wild unbranded horse, mare, colt, or burro running at large on any of the public land or ranges shall be imprisoned not more than six months.

(b) POLLUTION OF WATERING HOLES- Whoever pollutes or causes the pollution of any watering hole on any of the public land or ranges for the purpose of trapping, killing, wounding, or maiming any of the animals referred to in subsection (a) of this section shall be imprisoned not more than six months.

(c) DEFINITIONS- As used in subsection (a) of this section--(1) the term "aircraft" means any contrivance used for flight in the air; and

(2) the term "motor vehicle" includes an automobile, automobile truck, automobile wagon, motorcycle, or any other self-propelled vehicle designed for running on land.

Sec. 1375. Depiction of animal cruelty

(a) Creation, Sale, or Possession- Whoever knowingly creates, sells, or possesses a depiction of animal cruelty with the intention of placing that depiction in interstate or foreign commerce for commercial gain, shall be imprisoned not more than 5 years.

(b) Exception- Subsection (a) does not apply to any depiction that has serious religious, political, scientific, educational, journalistic, historical, or artistic value.

(c) Definitions- In this section, the term "depiction of animal cruelty" means any visual or auditory depiction, including any photograph, motion-picture film, video recording, electronic image, or sound recording of conduct in which a living animal is intentionally maimed, mutilated, tortured, wounded, or killed, if such conduct is illegal under Federal law or the law of the State in which the creation, sale, or possession takes place, regardless of whether the maiming, mutilation, torture, wounding, or killing took place in the State.

Sec. 1376. Enforcement of animal fighting prohibitions

Whoever violates subsection (a), (b), (c), or (e) of section 26 of the Animal Welfare Act shall be fined under this title, imprisoned for not more than 3 years, or both.

## • H.R. 4933 To amend the Lacey Act Amendments of 1981 to protect captive wildlife and to make technical corrections, and for other purposes.

Introduced on January 3, 2008, by Madeleine Z. Bordallo (D-Guam) and passed by the House on March 31. On April 1, it was received in the Senate and referred to Senate Committee on Environment and Public Works. This act may be cited as the "Captive Wildlife Safety Technical Amendments Act of 2008." Related Bills: S.1498 See also House Report: 110-551.

Makes technical and conforming amendments to the Lacey Act Amendments of 1981 and the Captive Wildlife Safety Act relat-



ing to the enforcement of civil and criminal penalties for captive wildlife offenses.

- **H.R. 4986 To provide for the enactment of the National Defense Authorization Act for Fiscal Year 2008, as previously enrolled, with certain modifications to address the foreign sovereign immunities provisions of title 28, United States Code, with respect to the attachment of property in certain judgements against Iraq, the lapse of statutory authorities for the payment of bonuses, special pays, and similar benefits for members of the uniformed services, and for other purposes.**

Introduced on January 16, 2008, by Ike Skelton (D-Missouri) and passed by the House on January 16, passed by the Senate on January 22, and signed by the President on January 28 as Public Law No: 110-181. This act may be cited as the "National Defense Authorization Act for Fiscal Year 2008." Related Bills: H.R.1585, S.986

**SEC. 2877. ESTABLISHMENT OF NATIONAL MILITARY WORKING DOG TEAMS MONUMENT ON SUITABLE MILITARY INSTALLATION**

(a) Authority to Establish Monument- The Secretary of Defense may permit the National War Dogs Monument, Inc., to establish and maintain, at a suitable location at Fort Belvoir, Virginia, or another military installation in the United States, a national monument to honor the sacrifice and service of United States Armed Forces working dog teams that have participated in the military operations of the United States.

(b) Location and Design of Monument- The actual location and final design of the monument authorized by subsection (a) shall be subject to the approval of the Secretary. In selecting the military installation and site on such installation to serve as the location for the monument, the Secretary shall seek to maximize access to the resulting monument for both visitors and their dogs.

(c) Maintenance- The maintenance of the monument authorized by subsection (a) by the National War Dogs Monument, Inc., shall be subject to such conditions regarding access to the monument, and such other conditions, as the Secretary considers appropriate to protect the interests of the United States.

(d) Limitation on Payment of Expenses- The United States Government shall not pay any expense for the establishment or maintenance of the monument authorized by subsection (a).

- **H.R. 5106 To authorize the Marine Mammal Commission to establish a national research program to fund basic and applied research on marine mammals, and for other purposes.**

Introduced on January 23, 2008, by Neil Abercrombie (D-Hawaii) and referred to the House Committee on Natural Resources. On January 28, it was referred to the Subcommittee on Fisheries, Wildlife, and Oceans. This act may be cited as the "National Marine Mammal Research Program Act of 2007."

**SEC. 2. FINDINGS.**

Congress finds that--(1) populations of marine mammals that occur in waters of the United States are resources of substantial ecological, scientific, socioeconomic, and esthetic value; (2) although progress has been made toward understanding the impacts of human activities and natural environmental changes

on marine mammal populations, much work remains to be done; (3) some marine mammal populations are in various stages of recovery, while many others remain critically endangered and their status has not improved or has declined; (4) there is a clear need to better understand, evaluate, and mitigate the impacts on marine mammals and other marine species of an array of anthropogenic activities; (5) data gaps and scientific uncertainty present resource managers with significant challenges in implementing the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361 et seq.) the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.); (6) funding has been insufficient to support all of the research required to fully understand and properly conserve and manage marine mammal populations; (7) in particular, in a recent report to Congress the Marine Mammal Commission recommended the establishment of a research program, the initial goal of which is to improve understanding of anthropogenic sound, its biologically significant effects on marine mammals and marine ecosystems, and effective means for mitigating and monitoring those effects; (8) understanding marine mammals through research is essential for using the oceans wisely and protecting marine living resources, and the United States should maintain its world leadership in marine mammal science and oceanography as one key to its competitive future; and (9) the Marine Mammal Commission established under section 201 of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1401) has research and management responsibilities under that Act that make it the appropriate entity to administer a marine mammal research program.

**SEC. 3. NATIONAL MARINE MAMMAL RESEARCH PROGRAM.**

Subtitle B--Marine Mammal Research

**SEC. 221. NATIONAL MARINE MAMMAL RESEARCH PROGRAM.**

(a) Establishment- The Commission shall establish a program to be known as the "National Marine Mammal Research Program."

(b) Purposes- The purposes of the program are as follows:

(1) To undertake research to improve the Nation's understanding of marine mammals, the factors, natural and human related, that affect and threaten the health of their populations and habitats, and the means of mitigating those effects to ensure marine mammal conservation.

(2) To coordinate and strengthen scientific research efforts in support of those goals by--

(A) identifying and developing partnerships among Federal agencies, academia, industry, and other members of the oceanographic and marine mammal scientific communities in the areas of data collection, research, resource management public education, and communication; and

(B) reporting annually to Congress on the program.

(c) Duties- The Commission shall--

(1) prescribe such policies and procedures necessary to implement the Research Program;

(2) implement and support the Research Coordinating Committee, established under section 222;

(3) supervise the performance of duties by the Program Office established under subsection (d);

(4) prepare an annual report to Congress on research undertaken and benefits thereof; and

(5) conduct periodic program reviews.

**SEC. 222. NATIONAL MARINE MAMMAL RESEARCH COORDINATING COMMITTEE.**



(a) Committee- The President, after consultation with the Commission, shall create a National Marine Mammal Research Coordinating Committee.

(b) Membership-

(1) IN GENERAL- The Research Coordinating Committee shall be composed of representatives of the following with experience relevant to the purposes of this subtitle:

(A) The Secretary of the Navy.

(B) The Administrator of the National Oceanic and Atmospheric Administration.

(C) The Director of the National Science Foundation.

(D) The Administrator of the National Aeronautics and Space Administration.

(E) The Administrator of the Environmental Protection Agency.

(F) The Commandant of the Coast Guard.

(G) The Director of the United States Fish and Wildlife Service.

(H) The Director of the United States Geological Survey.

(I) The Director of the Minerals Management Service.

(J) The President of the National Academy of Sciences.

(K) The Director of the Office of Science and Technology Policy.

(L) The Director of the Office of Management and Budget.

(M) The Executive Director of the Commission.

(N) One member appointed by the Research Coordinating Committee from among individuals who will represent the views of ocean industries with expertise in marine mammal biology, marine ecology, oceanography, or marine policy.

(O) One member appointed by the Research Coordinating Committee from among individuals who will represent the views of State governments with expertise in marine mammal biology, marine ecology, oceanography, or marine policy.

(P) One member appointed by the Research Coordinating Committee from among individuals who will represent the views of academia with expertise in marine mammal biology, marine ecology, oceanography, or marine policy.

(Q) One member appointed by the Research Coordinating Committee from among individuals who will represent the views of the marine conservation community with expertise in marine mammal biology, marine ecology, oceanography, or marine policy.

(R) One member appointed by the Research Coordinating Committee from among individuals who will represent such other views as the chairman of such committee considers appropriate.

(e) Responsibilities- The Research Coordinating Committee shall have the following responsibilities:

(1) Develop a national marine mammal research plan under section 223.

(2) Facilitate cooperation among Federal agencies and departments with respect to marine mammal research.

(3) Revise as necessary and approve the program announcement developed by the Program Office.

(4) Estimate, to the extent practicable, Federal funding needed for marine mammal research activities to be conducted under the Plan.

(5) Review and revise, at a minimum every 3 years or as necessary the marine mammal research plan.

SEC. 223. NATIONAL MARINE MAMMAL RESEARCH PLAN.

The Research Coordinating Committee shall develop within one year after the date of enactment of this subtitle a comprehensive 5-year national marine mammal research plan to--

(1) improve understanding of marine mammals, their health,

and their role in the marine environment;

(2) characterize the impact of human-related activities on marine mammals, at the individual, population, and ecosystem levels;

(3) evaluate existing conservation, mitigation, and monitoring measures;

(4) develop more effective management measures for marine mammals; and

(5) identify critical research gaps and uncertainties, establish research priorities, and estimate the budgets needs for each of the priorities.

SEC. 225. AUTHORIZATION OF APPROPRIATIONS.

In addition to amounts otherwise authorized to be appropriated, there is to be authorized to be appropriated to the Commission to implement this subtitle \$25,000,000 for each of fiscal years 2008, 2009, 2010, 2011, and 2012.

- **H.R. 5762 To prohibit the use of nonambulatory livestock for human food and to require the Secretary of Agriculture to publish the names of retailers and school districts that have purchased meat, poultry, or egg products subject to voluntary recall.**

Introduced on April 10, 2008, by Rosa L. DeLauro (D-Connecticut) and referred to the House Committee on Agriculture. This Act may be cited as the "Food Safety Recall Information Act."

Amends the Federal Meat Inspection Act to require that a person that voluntarily recalls a meat product shall, not later than five days after the voluntary recall begins, submit to the Secretary of Agriculture a list of all retail stores or public school districts that are known to have purchased a meat product subject to the voluntary recall.

Makes similar amendments to the the Poultry Products Inspection Act and the Egg Products Inspection Act.

Amends the Federal Meat Inspection Act to prohibit the use of nonambulatory livestock for human food.

- **H.R.5852 To prohibit the conducting of invasive research on great apes, and for other purposes.**

Introduced on April 17, 2008, by Edolphus Towns (D-New York) and referred to House Committee on Energy and Commerce Subcommittee on Health, and in addition to the Committees on Ways and Means, and Foreign Affairs. This act may be cited as the "Great Ape Protection Act."

Prohibits: (1) persons from conducting invasive research on great apes; (2) federal funds from being used to conduct such research; (3) persons from knowingly importing, exporting, transporting, moving, delivering, receiving, possessing, renting, loaning, purchasing, or selling great apes for such research; and (4) persons from breeding great apes for use in such research.

Declares that this Act does not limit or prevent individualized medical care performed on great apes by licensed veterinarians for the benefit of the great apes.

Requires the Secretary of Health and Human Services (HHS) to provide for the permanent retirement of all great apes that are owned or under the control of the federal government and that have been used for invasive research. Authorizes the Secretary to provide for the euthanizing of such apes if it is in their best interest as determined by an attending veterinarian and endorsed by a second, unaffiliated veterinarian.



Defines “invasive research” to mean experimental research that may cause death, bodily injury, pain, distress, fear, injury, or trauma to great apes. Excludes: (1) close observation of natural or voluntary behavior, provided that it does not require the removal of apes from their social group or environment or require an anesthetic or sedation event to collect data or record observations; or (2) post-mortem examinations of great apes following their natural death.

- **House Resolution 925 Condemning the People’s Republic of China for its socially unacceptable business practices, including the manufacturing and exportation of unsafe products, casual disregard for the environment, and exploitative employment practices.**

Introduced on January 16, 2008, by Ted Poe (R-Texas) and referred to the House Committee on Foreign Affairs.

**RESOLUTION**

Condemning the People’s Republic of China for its socially unacceptable business practices, including the manufacturing and exportation of unsafe products, casual disregard for the environment, and exploitative employment practices.

Whereas millions of toys were imported into the United States from the People’s Republic of China and recalled in 2007 after the discovery that the paint on the toys contained high levels of lead;

Whereas the House of Representatives passed H.R. 4040, the Consumer Product Safety Modernization Act, by a 407-0 vote;

Whereas the Consumer Product Safety Modernization Act bans any product containing more than the specified safe level of lead that poses a threat to the consumer’s health and well-being;

Whereas Americans expect that their trading partners are responsible, ethical, and diligent in providing high quality and safe products, especially those used by children;

Whereas the Food and Drug Administration issued an import alert in March 2007 authorizing the detention of any wheat gluten imports from the Chinese firm Xuzhou Anying Biologic Technology Development Company of Peixian, China, whose wheat gluten, an ingredient used in commercial pet foods, was contaminated with the chemical melamine, which is used in the manufacture of plastics and as a slow-release fertilizer, and led to the deaths of pets in the United States;

Whereas the People’s Republic of China continually pollutes the air and water to extreme levels in the production of its goods, often to irreversible levels;

Whereas the People’s Republic of China is a member of the world community with a social responsibility to provide basic human rights to its citizens;

Whereas, in June 2007, it was discovered that hundreds of people, including women and children, were forced to work in brick kilns, suffering from beatings and confinement; and

Whereas workers in the People’s Republic of China often have wages withheld and are exposed to dangerous machinery and chemicals, such as lead, and unsafe working conditions: Now, therefore, be it

Resolved, That the House of Representatives--

- (1) condemns the People’s Republic of China for producing unsafe products for sale;
- (2) condemns the People’s Republic of China for its disregard for the environment;
- (3) condemns the People’s Republic of China for exploiting workers;

(4) encourages United States merchants to suspend the importation of goods from China and sales of those goods until reforms of these abuses are made; and

(5) encourages United States parents to carefully consider the “Made in China” label when purchasing toys for their children due to potential high levels of toxic materials that may cause serious injury or death.

- **S.540 A bill to require the Food and Drug Administration to permit the sale of baby turtles as pets so long as the seller uses proven methods to effectively treat salmonella.**

Introduced on February 8, 2007, by David Vitter (R-Louisiana) and referred to the Senate Committee on Agriculture, Nutrition, and Forestry. This act may be cited as the “Domestic Pet Turtle Market Access Act of 2007.”

Prohibits the Food and Drug Administration (FDA) from restricting the sale by a turtle farmer or other commercial retail seller of a turtle that is less than 10.2 centimeters in diameter as a pet if: (1) the turtle is raised, shipped, and sold using methods proven to keep the turtle free of salmonella, using salmonella safety standards comparable to standards for other animals allowed for sale as pets or animal products allowed for sale as food products; (2) the FDA has approved a plan submitted by the turtle farmer or seller relating to compliance with this Act; and (3) the farmer or seller makes certain disclosures to the buyer. Sets forth required disclosures, which include: (1) information regarding the dangers that could result if the turtle is not properly handled and safely maintained, the proper handling of the turtle, and the proven methods of treatment that keep the turtle safe from salmonella; (2) a detailed explanation of how to properly treat the turtle to keep it safe from salmonella; and (3) a statement that buyers of pet turtles should not abandon the turtle or abandon it outside, but should instead return them to a commercial retail pet seller or other organization that would accept turtles no longer wanted as pets.

Requires the turtle farmer or seller to submit a plan to the FDA that includes use of non-antibiotic compounds that suppress or eliminate the presence of salmonella in turtle hatchlings. Directs the FDA to accept or reject such a plan within 30 days.

- **S.1804 A bill to enhance the ability of the United States to prevent, prepare for, detect, and respond to agriculture and food emergencies.**

Introduced on July 17, 2007, by Richard Burr (R-North Carolina) and referred to the Senate Committee on Homeland Security and Governmental Affairs. This act may be cited as the “National Agriculture and Food Defense Act of 2007.”

States that: (1) the Secretary of Homeland Security (Secretary) shall lead federal, state, local, tribal, and private efforts to enhance the protection of critical U.S. infrastructure and key resources, including the agriculture and food system; (2) the Secretary of Agriculture shall lead federal efforts relating to agriculture, meat, poultry, and egg food products; (3) the Secretary of Health and Human Services (HHS) shall lead federal efforts relating to other food products; and (4) the Administrator of the Environmental Protection Agency (EPA) shall lead federal efforts relating to drinking water and waste water.

Establishes in the Department of Homeland Security (DHS):



(1) a Chief Medical Officer who shall serve as the Assistant Secretary for Health Affairs; and (2) the agriculture and food defense rotational expertise program. Establishes in the Department of Agriculture the position of Under Secretary for Protection, Preparedness, and Response. Directs the Secretary of HHS to coordinate the public health surveillance of zoonotic diseases.

Directs the Secretary to: (1) prepare and submit to the appropriate congressional committees the national agriculture and food defense strategy; (2) carry out vulnerability assessments of the agriculture and food system; (3) implement mitigation strategies to protect critical production and processing nodes from diseases, pests, and poisonous agents; (3) ensure that combined federal, state, and local capabilities are adequate to respond to a terrorist attack, disease outbreak, or other disaster affecting the U.S. agriculture and food system; (4) assist the states with food and agriculture protection activities; and (5) establish the Food and Agriculture Government Coordinating Council.

Directs the Secretary of Agriculture to: (1) develop a national veterinary stockpile; (2) develop a national plant disease recovery system; (3) establish a National Veterinary Stockpile Advisory Committee; (4) carry out a program (Agricultural Biosecurity Corps) to develop veterinary leaders with epidemiological expertise to respond to animal agriculture threats; (5) develop a national plant diagnostic network; (6) develop a national food emergency response network; (7) develop a national animal health laboratory network; (8) identify an increased production capacity goal for the rendering industry to meet animal disposal needs following a catastrophic animal disease outbreak; and (9) conduct a study of irradiation technology use to enhance food defense capabilities.

Directs the Secretaries concerned to submit an integrated food system defense budget.

Directs the Administrator to provide assistance to, state, local, and tribal governments in assessing, decontaminating, and recovering from an agriculture or food emergency.

- **S. 1916 A bill to amend the Public Health Service Act to modify the program for the sanctuary system for surplus chimpanzees by terminating the authority for the removal of chimpanzees from the system for research purposes.**

Introduced on August 1, 2007, by Richard Burr, Richard (R-North Carolina) and signed by the President as Public Law No: 110-170 on December 26, 2007. This act may be cited as the “Chimp Haven is Home Act.”

Amends the Public Health Service Act to repeal provisions providing for the removal of surplus chimpanzees from a sanctuary facility. Prohibits use of such chimpanzees for research except for noninvasive behavioral studies.

- **S. 1976 A bill to amend the Food Security Act of 1985 to include a provision on organic conversion in the environmental quality incentives program.**

Introduced on August 2, 2007, by Jon Tester (D-Montana) and referred to the Committee on Agriculture, Nutrition, and Forestry.

SECTION 1. ORGANIC CONVERSION.

Chapter 4 of subtitle D of title XII of the Food Security Act of 1985 (16 U.S.C. 3839aa et seq.) is amended by adding at the end the following:

SEC. 1240J. ORGANIC CONVERSION...

(d) Eligible Practices and Activities- Producers may use funds made available under subsection (c) for--

(1) conservation management, vegetative, and structural practices and activities during conversion to certified organic production that--

(A) are required by, or consistent with, an approved organic system plan; and

(B) protect soil, water, wildlife, air, and other natural resource concerns as identified by the Secretary;

(2) animal welfare measures required by, or consistent with, an approved organic system plan;

(3) technical assistance, including the costs of developing an approved organic system plan; and

(4) such other measures as the Secretary determines to be appropriate and consistent with an approved organic system plan.

- **S. 2657 A bill to require the Secretary of Commerce to prescribe regulations to reduce the incidence of vessels colliding with North Atlantic right whales by limiting the speed of vessels, and for other purposes.**

Introduced on February 15, 2008, by John F. Kerry (D-Massachusetts) and referred to the Committee on Commerce, Science, and Transportation. On April 24, it was ordered to be reported with an amendment in the nature of a substitute favorably. Related Bills: H.R.5536

Directs the Secretary of Commerce, acting through the Under Secretary for Oceans and Atmosphere, to prescribe regulations to reduce the incidence of vessels colliding with North Atlantic right whales by limiting the speed of vessels. Requires those regulations to incorporate the whale protection measures contained in a specified proposed rule and to provide the same or greater level of protection.

- **S. 2770 A bill to amend the Federal Meat Inspection Act to strengthen the food safety inspection system by imposing stricter penalties for the slaughter of nonambulatory livestock.**

Introduced on March 13, 2008, by Dianne Feinstein (D-California) and referred to the Committee on Agriculture, Nutrition, and Forestry. This act may be cited as the “Downed Animal Enforcement Act of 2008.”

Amends the Federal Meat Inspection Act to make it a violation of such Act to: (1) slaughter any nonambulatory livestock, or prepare any carcass or carcass part or meat or meat food product from such animal, for human food use; or (2) fail to comply with the Humane Methods of Slaughter Act of 1958.

Establishes the following penalties for violations of such prohibitions: (1) gross income-based civil penalty for a first violation; (2) one-year inspection service suspension for a second violation; and (3) permanent withdrawal of inspection service a third violation.

Directs the Secretary of Agriculture to promulgate final regulations that provide for public disclosure of a comprehensive list of establishments at which recalled meat or poultry is known to be available for public consumption or sale. 🐾



## Meetings, Conferences, Workshops

### *Institute for Laboratory Animal Research Global Animal Research Conference*

ILAR will hold an international conference September 23-26, 2008, at the National Academy of Sciences building in Washington, D.C. on *Animal Research in a Global Environment: Meeting the Challenges*. The conference will cover topics such as:

- how to conduct research in countries with different guidelines for animal care and use;
- outsourcing studies; cultural differences in veterinary care and training; and
- issues specific to research with mice and nonhuman primates.

There will also be a session in which participants may interact with the committee to update the *Guide for the Care and Use of Laboratory Animals*.

For more information, contact them at [http://dels.nas.edu/ilar\\_n/ilarhome/index.shtml](http://dels.nas.edu/ilar_n/ilarhome/index.shtml) or e-mail: [ILAR@nas.edu](mailto:ILAR@nas.edu)

### *National Institutes of Health Office of Laboratory Animal Welfare*

**IACUC 101: "The Basics"** is a full day didactic and interactive training course for both new and seasoned IACUC members, IACUC affiliates, and individuals responsible for their institution's animal care program. The program is delivered by a top-notch faculty renowned for their expertise in institutional animal care and use issues and program development including representatives from both private and academic biomedical research institutions as well as the AAALAC, USDA and OLAW. The morning and early afternoon sessions provide a basic yet comprehensive overview of the laws, regulations, and policies that govern the humane care and use of laboratory animals supplemented with examples and possible approaches for successful and effective administration. Current available resources to help IACUCs keep abreast of the latest information as well as take advantage of networking opportunities will also be covered. The materials and information provided during the course are applied during the afternoon session when students will be challenged to consider, deliberate, and develop action plans for a variety of potential IACUC scenarios. Students receive an extensive resources manual as well as copies of relevant laws, regulations, policy and guides.

**IACUC 201 PLUS: "The Process Plus Select Topics"** is a highly interactive program that takes the fundamentals of IACUC 101 and applies them to the process and mechanisms of ensuring compliance. The morning session is divided into 3 tracts based on an individual's IACUC role, responsibility, and interests. Each tract focuses on the various possible approaches for conducting protocol review, program review, and facility inspection within the requirements of the law, regulations, and policy. The entire group re-convenes to listen to a complex IACUC scenario delivered by program faculty with

multiple opportunities for audience questions and responses from USDA, OLAW, and AAALAC representatives. Like the morning session, the afternoon session is divided into 3 tracts based on an individual's IACUC role, responsibility, and interests. Program faculty will facilitate discussions on 3 selected areas, the nature of which will be based on current trends, regulatory climate and/or timely "hot-topics" of interest to the biomedical research community. Topics may vary course to course.

The program concludes with open questions and answers to representatives of OLAW, USDA, and AAALAC, completion of program evaluations, and distribution of attendance certificates.

#### **Hosting Information**

The IACUC 101 Series are regional programs that often rely on a host institution to commit time and personnel resources to help in the logistical planning and arrangements for the program. With direction and guidance from the IACUC 101 Series administrator, the host institution assists in multiple aspects of program set-up and delivery, including, but not limited to, identifying a course location, managing registrations, arranging for appropriate audio-visual equipment, etc.

Each program can typically accommodate up to 150-180 individuals who must each register individually. OLAW provides limited financial support through an agreement with the host institution. OLAW welcomes requests from institutions and associations interested in hosting a program.

Candidates are selected based on multiple criteria, including but not limited to, institution's mission, level of institutional commitment, program location, history of previous IACUC educational opportunities in that location, and size of the local research cluster.

#### **Contact Information**

The IACUC 101 Series are planned, coordinated, and administered by the IACUC 101 Series administrator, Mary Lou James, Regulatory Compliance Consultant, phone: 314-997-6896, e-mail: [mljames@socket.net](mailto:mljames@socket.net).

9/23/08 -9/24/08	San Francisco, CA	University of California at San Francisco	IACUC 101/201 PLUS
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### *Scientists Center for Animal Welfare IACUC-Advanced*

IACUC-Advanced was developed by the Scientists Center for Animal Welfare to train members of Institutional Animal Care and Use Committees (IACUCs). Topics presented at these educational workshop will help to fulfill the training requirements in USDA/APHIS/AC Policy 15 that states "IACUC members should be trained in understanding the Animal Welfare Act, protocol review and facility inspections." Please click on the above tabs to see upcoming educational





programs and SCAW publications. The program format will let small groups discuss specific, complex topics that are relevant to IACUC functions. Each workshop is structured in similar design, with slight changes made to meet the needs of the hosting institution and or to reflect any updates. IACUC-Advanced workshops are for experienced IACUC members and others who work with laboratory animals. The focus will be on advanced protocol review and other issues, like what to look for in a protocol that includes relieved and/or unrelieved pain and distress; how to recognize and evaluate the level of pain and distress; appropriate end points stated in the protocol; special environmental conditions required because of potential pain and/or distress.

The 2008 schedule includes:

- October 8 Las Vegas, NV

Check the SCAW website for additional dates and locations.

#### SCAW Winter Conference

#### Contemporary IACUC Challenges

December 3-4, 2007, San Antonio, Texas

The Winter Conference will focus on research animal pain and distress.

For more information contact SCAW at 7833 Walker Drive, Suite 410, Greenbelt, MD 20770, phone: 301-345-3500, fax: 301-345-3503, e-mail: [info@scaw.com](mailto:info@scaw.com), web: <http://www.scaw.com>



#### American Association for Laboratory Animal Science National Meeting

The 59<sup>th</sup> Annual meeting will be held in Indianapolis, Indiana, from November 9-13, 2008. For more information, visit the AA-

LAS website at <http://www.aalas.org>.



#### Drug discovery and development in the 21st century

*This symposium, organized by the Royal Society of Medicine, FRAME,*

*and The British Pharmacology Society, will be held in London on December 4, 2008.*

Over the past few decades, there have been dramatic advances in the application of the molecular sciences to biology and medicine. One consequence of this is that post-genomic methodologies, cell culture systems, tissue engineering, biophysical techniques and computer-based procedures are increasingly applied within the sphere of drug discovery and development.

Animal models have traditionally been used to select the most suitable drug candidates for human studies. However, the relevance of paradigms based on animal pharmacotoxicology and animal disease models is now constantly being ques-

tioned, not least because of the emergence of gene-, cell- and human-specific protein therapeutics and medical nanotechnologies. These developments have highlighted the sometimes subtle, but often crucial, differences between human and animal responses to pharmacological intervention, and make the requirement for drug testing based on human systems an increasing necessity.

The aims of this symposium are to encourage dialogue between stakeholders and decision makers, with a view to identifying the future roles of scientifically-advanced and more-appropriate alternatives to animal research and testing in drug discovery and development.

For more information, visit them on the web at <http://www.rsm.ac.uk/academ/discovery08.php>, or contact RSM Event Co-ordinator Sinem Göçmen at phone: 44 (0) 20 7290 3856, fax: 44 (0) 20 7290 2989, or e-mail: [sinem.gocmen@rsm.ac.uk](mailto:sinem.gocmen@rsm.ac.uk)



Universiteit Utrecht

#### International course on laboratory animal science

The objective of the course is to present basic facts and principles that are essential for the humane use and care of animals and for the quality of research. From the beginning of the course, emphasis is placed on the fact that the scientist is the central person in the design and performance of animal experiments, and that he/she has specific responsibilities with respect to the welfare of the animals used. It is made clear that the use of animals can be accepted only under a set of strict conditions. Among these are that the experiment must be approved by an ethics committee, and must be conducted by persons who are fully competent.

The course may also be of interest for those who intend to set up a similar course at their location. For this purpose, during the course the acquisition of teaching materials can be discussed with the course committee.

The contents of the course are in line with the category C recommendations of the Federation of European Laboratory Animal Science Associations (FELASA) regarding the training of the young scientist whose research involves the use of vertebrate animals.

#### Course Dates

- July 7 - 18, 2008 - NO MORE VACANCIES BUT WAITING LIST IS POSSIBLE
- September 8 - 19, 2008
- January 12 - 23, 2009

For more information, visit the Utrecht Veterinary Faculty website at <http://www.vet.uu.nl/las> and look under Education and Training, or contact the course secretariat at e-mail: [las@uu.nl](mailto:las@uu.nl)



# Announcements

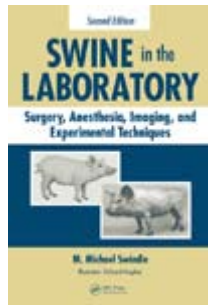
## Courses on General Primate Biology at the German Primate Center

*Environmental Enrichment, Handling; Non-Invasive Methods; Ethical and Legal Aspects of Primate Research*

These courses are held at the German Primate Center in Göttingen. Advanced and specialised training courses for scientist, students, animal caretakers and other staff involved in primate research are developed and conducted in Network Activity 4 of EUPRIM-Net, the European Primate Network. For more information on this and other primate-related courses go to <http://euprim-net.eu/network/courses/home.htm>

## New Publications

Available from CRC Press  
<http://www.crcpress.com>



### **Swine in the Laboratory: Surgery, Anesthesia, Imaging, and Experimental Techniques, Second Edition**

M. Michael Swindle, Medical  
University of South Carolina, Charleston, USA  
ISBN: 9780849392788; ISBN 10: 084939278

- ✓ Continues to be a comprehensive source of information on using swine in biomedical research, especially in the area of experimental surgery
- ✓ Lists generic drug names with dosages for anesthetic agents, cardiovascular drugs, and analgesics
- ✓ Includes never-before-published images as well as data on normative anatomy, saving the need for extra research
- ✓ Provides extended reference lists at the end of each chapter
- ✓ Contains a DVD with three-dimensional, full-color images

To diminish the learning curve associated with using swine as models, *Swine in the Laboratory: Surgery, Anesthesia, Imaging, and Experimental Techniques, Second Edition* provides practical technical information for the use of swine in biomedical research. The book focuses on models produced by surgical and other invasive procedures, supplying the basic principles for performing experiments with an organ or system of interest.

New to the Second Edition

- ✓ Updated sections on anesthesia and perioperative care, including practical information for more complex models
- ✓ Expansion of anatomic and physiologic details

- ✓ Additional detail in the endoscopy section
- ✓ Chapters on toxicology and radiobiology
- ✓ Chapters that include angiographic, echocardiographic, CT, MRI, and PET imaging techniques with a corresponding DVD of the images
- ✓ More tables of normal values on the most commonly used minipigs and domestic breeds

Beneficial for investigators, veterinarians, and technicians using swine for experimental and agricultural procedures, *Swine in the Laboratory* is certain to foster the appropriate, humane use of swine in biomedical research.



### **Biology of Turtles**

Jeanette Wyneken, Florida Atlantic University, Boca Raton, USA  
Matthew H. Godfrey, North Carolina Wildlife Resources Commission, Beaufort, USA  
Vincent Bels, Muséum National d'Histoire Naturelle, Paris, France  
ISBN: 9780849333392; ISBN 10: 0849333393

- ✓ Explores the development of the most distinct turtle feature, the shell
- ✓ Synthesizes important work on bone growth and aging, and furthers our understanding of bone strength
- ✓ Presents comparative, experimental and functional perspectives on locomotion
- ✓ Describes the retractable neck in its functional context, taking the reader beyond the simple view of "protecting the head"
- ✓ Provides a functional, anatomical, and behavioral overview of feeding in herbivorous and carnivorous, and aquatic vs. terrestrial, turtles that has never previously been synthesized
- ✓ Discusses cardiopulmonary structure from several behavioral and functional perspectives
- ✓ Challenges researchers to think rigorously when analyzing the consequences of environmental sex determination and turtle sex ratios
- ✓ Examines the unique structural and functional adaptations for tolerating low oxygen levels found in turtles that hibernate under water
- ✓ Explores why the origin of turtles and their relationship to other amniotes is such a great challenge

Featuring in-depth contributions from an international team of experts, the *Biology of Turtles* provides the first comprehensive review of the Testudinata. The book starts with the premise that the structure of turtles is particularly interesting and best understood within the context of their development, novelty, functional diversity, and evolution. It provides a robust discussion of the development and diversity of the shell. The book also explores the turtle body plan, its physi-



ological and ecological consequences, evolutionary novelties, and their importance. The 200 illustrations found throughout the text enhance the chapters and combine with color illustrations of the development of the shell, aspects of bone structural diversity, growth, and skeletochronology, to make this book an unparalleled resource. The volume concludes with a thoughtful discussion of the more than century long debate on the origins of turtles and the reasons why our understanding of the phylogenetic origins and evolution of turtles remains tentative.

Currently available books on this subject are woefully out of date and no overall review of Testudinata has been undertaken...until now. Each chapter represents a milestone in synthesizing a wide range of available information on specific subjects. The book's challenge: look both inside and outside the shell to build a clearer understanding of the diversity and evolution of turtles.

## **Managing the Laboratory Animal Facility, Second Edition**

by Jerald Silverman, University of Massachusetts Medical School, Worcester, USA

ISBN: 9781420055566; ISBN 10: 1420055569

Expected Publication Date: 7/15/2008

- ✓ Expands coverage of competitive bidding, inventory control, purchasing contracts, depreciation, and financial accountability
- ✓ Explains the resources of time, money, personnel, and equipment that a lab manager has at his/her disposal
- ✓ Discusses the role of leadership in good management practice
- ✓ Updates the methodology used to calculate per diem rates

Written by a noted laboratory animal scientist, *Managing the Laboratory Animal Facility* takes proven managerial concepts and adapts them to the laboratory animal facility setting. This new edition reflects new management thinking with examples of how it relates to the animal facility.

With nearly 60 percent more material than the original, it offers a new chapter on leadership and expanded discussions on human resources, performance metrics, and financial management, including competitive bidding, inventory control, purchasing contracts, and financial accountability. Combining theory with practical experience, this essential reference also includes additional case studies and updated methodologies.



## **Principles of Toxicology Testing**

Frank A. Barile, St. John's University, Queens, New York, USA

ISBN: 9780849390258; ISBN 10: 0849390257

- ✓ Analyzes the advantages, disadvantages, and complimentary use of in vivo and in vitro toxicology testing

- ✓ Includes 61 tables and 44 figures as well as drawings and flowcharts to clarify, enhance, and provide explanations of the corresponding text
- ✓ Allows ready access to key points and subject headings
- ✓ Covers contemporary issues such as high throughput screening, risk analysis, and standardization and validation
- ✓ Interprets the significance of toxicology testing results

The evolution of toxicology testing finds its impetus in the continuing growth of the chemical and pharmaceutical industries, as well as the awareness of public health initiatives, needs, and responses that demand faster, more accurate, more economical methods for screening potential toxicity. Concurrent advances in biotechnology enable viable in vitro systems to compliment traditional animal toxicology testing methods. Today, both methods are often employed together in toxicological analysis, derivation of toxicity mechanisms, and pre-clinical drug development.

*Principles of Toxicology Testing* juxtaposes the principles of animal toxicology testing with in vitro alternative methods to highlight the importance of each for interpretation of the significance and relevance of the other. Divided into three parts, the book emphasizes the universal applications of the field as a science rather than the particular steps of laboratory technique. The first part introduces the fundamentals of the toxicology, toxicokinetics, and human risk assessment. The second part details toxicology testing in animals and describes acute, subchronic, and chronic studies as well as testing for mutagenicity and carcinogenicity. Focusing on study design and determination of classical indicators, it covers short- and long-term methodologies including dermal, ocular, and reproductive. Presenting the advantages and disadvantages of each method, part 3 introduces in vitro alternative testing such as cell cultures, cellular methods for acute systemic toxicity, as well as target organ and local toxicity. The author also considers contemporary issues such as chemical exposure, high throughput screening, and the efforts of U.S. and E.U. regulatory agencies to standardize and validate in vitro techniques.

By bringing traditional and alternative testing methods into a single volume, *Principles of Toxicology Testing* challenges you to interpret the significance of toxicology testing results and construct a logical approach toward the ultimate purpose of testing.

## **Welfare of pigs From birth to slaughter**

2008 – 316 pages – hardback –

ISBN-13: 978-90-8686-066-1 – € 85 – US\$ 127

edited by: Luigi Faucitano, Allan L. Schaefer

The current scientific literature contains reviews and articles on specific aspects of pig production and farm animal welfare. This book is intended to be a reference text that covers all aspects of pig production, on the basis of scientific results. This work contains current, easy-to-understand



scientific reviews on animal welfare with over 700 specific references to animal welfare. All aspects of animal welfare with respect to pigs are discussed, from genetic selection and breeding to transportation and slaughter. This work was written by scientific experts renowned for their knowledge and work in the area of pig welfare. Their common goal was to provide an in-depth review and empirical assessment of pig production concepts, knowledge and techniques in use today. Through scientific examples, the authors explain how improving animal welfare increases profitability. This work is intended for academics, researchers, students, animal welfare associations, industry and anyone who is involved in the production chain or concerned about the welfare of pigs being raised on farms.

For table of contents see: [www.wageningenacademic.com/welfareofpigs](http://www.wageningenacademic.com/welfareofpigs)

Wageningen Academic Publishers

P.O. Box 220

6700 AE Wageningen

The Netherlands

phone: +31 317 476516

fax: +31 317 453417

## **Recognition and Alleviation of Distress in Laboratory Animals (2008)**

Scientific advances in our understanding of animal physiology and behavior often require theories to be revised and standards of practice to be updated to improve laboratory animal welfare. This book, *Recognition and Alleviation of Distress in Laboratory Animals*, focuses on the stress and distress which is experienced by animals when used in laboratory research. This book aims to educate laboratory animal veterinarians; students, researchers, and investigators; animal care staff, as well as animal welfare officers on the current scientific and ethical issues associated with stress and distress in laboratory animals. It evaluates pertinent scientific literature to generate practical and pragmatic guidelines. *Recognition and Alleviation of Distress in Laboratory Animals* focuses specifically on the scientific understanding of the causes and the functions of stress and distress, the transformation of stress to distress, and the identification of principles for the recognition and alleviation of distress. This book discusses the role of humane endpoints in situations of distress and principles for the minimization of distress in laboratory animals. It also identifies areas in which further scientific investigation is needed to improve laboratory animal welfare in order to adhere to scientific and ethical principles that promote humane care and practice.

Copies may be preordered from National Academies Press at [http://books.nap.edu/catalog.php?record\\_id=11931](http://books.nap.edu/catalog.php?record_id=11931) or The National Academies Press, 500 Fifth Street NW, Lockbox 285, Washington, DC 20055, phone: toll-free within the United States and Canada (888) 624-8373, All other calls: (202) 334-3313,

## **Guidelines for the generation, breeding, care and use of genetically modified and cloned animals for scientific purposes**

[http://www.nhmrc.gov.au/publications/synopses/\\_files/ea17.pdf](http://www.nhmrc.gov.au/publications/synopses/_files/ea17.pdf)

[These guidelines] have been produced by the [Australian] National Health and Medical Research Council's (NHMRC's) Animal Welfare Committee (AWC) as introductory material to assist investigators, Animal Ethics Committees (AECs), animal technicians and the broader community when they consider research projects involving the generation and use of genetically modified and cloned animals of all species. These include laboratory, agricultural, companion animals and wildlife developed and used in research.

The guidelines:

- ✓ assist in the consideration of the use of and impact on animals produced by genetic modification including random (chemical) mutagenesis and cloning
- ✓ do not focus on the specifics of reproductive technology
- ✓ should assist investigators, AECs and animal care[givers] in maximizing the care and welfare of animals in specific research projects
- ✓ may assist AECs with operations of standard operating procedures (SOPs) used for genetically modified animals
- ✓ should be considered by AECs when reviewing SOPs associated with the production of genetically modified animals
- ✓ are designed in part to be a tool for reflection and to focus and stimulate discussion on relevant issues

## **In Vitro Tests for Detecting Chemicals Affecting the Embryo Implantation Process. The Report and Recommendations of ECVAM Workshop 62 - A Strategic Workshop of the EU ReProTect Project.**

Bremer et al. (2007). *ATLA* 35, 421-439.

<http://ecvam.jrc.cec.eu.int/publication/WorkshopReport62.pdf>

Managing a Colony of Spiny Mice (*Acomys cahirinus*) for Perinatal Research

Hayley Dickinson<sup>1</sup> and David W Walker<sup>2</sup>, <sup>1</sup>Monash Immunology & Stem Cell Laboratories, and <sup>2</sup>Department of Physiology, Monash University

<http://www.adelaide.edu.au/ANZCCART/news/AN20v1.pdf>

In this article we document conditions and requirements for successfully maintaining a colony and briefly describe some area of work where their use may be seen as a refinement when compared with more conventional mouse models.



## On the Web



### **Altweb, the Alternatives to Animal Testing Website**

<http://altweb.jhsph.edu>

Altweb has five practical goals:

1. To assist scientists and others seeking to conduct a search for alternatives methods.
2. to serve as a CRP--"central reference point"--for alternatives information, publications, databases, calendars, and other resources.
3. to support the creation and maintenance of new alternative resources as needed, when no other organization can/will do so
4. to promote the use of alternatives resources by publicizing them on the site and through e-mail or other outreach
5. to facilitate communication and collaboration among members of the alternatives community, in particular those who work in database or information management.

### **Database on Refinement of Housing and Handling Conditions and Environmental Enrichment for Animals Kept in Laboratories**

<http://www.awionline.org/SearchResultsSite/refine.aspx>

An easy-to-use database, compiled by Dr. Viktor Reinhardt and Annie Reinhardt, that contains more than 1,000 citations. This database covers all aspects of refinement and environmental enrichment of housing and handling conditions for amphibians, cats, degus, dogs, ferrets, fishes, gerbils, guinea pigs, hamsters, mice, pigeons, rabbits, rats, reptiles, cattle, calves, chickens, goats, horses, quails, pigs, sheep. It comprises published articles, abstracts, book chapters, and books.



### **European Centre for the Validation of Alternative Methods (ECVAM) Database on Alternative Methods (DB-ALM)**

<http://ecvam-dbalm.jrc.ec.europa.eu/>

The European Centre for the Validation of Alternative Methods (ECVAM) is the leading international center for coordinating the validation of alternative methods, providing advice on theoretical and practical aspects of the validation of new tests, and the current state of validation of alternative methods for use in toxicology and the biosciences in general. ECVAM's Scientific Information Service (SIS) is a database on advanced alternative methods in biomedical sciences, providing factual and evaluated information on advanced non-animal test development and validation for toxicology assessments.



The European Partnership  
for Alternative Approaches to Animal Testing

### **European Partnership for Alternative Approaches to Animal Testing (EPAA)**

[http://ec.europa.eu/enterprise/epaa/index\\_en.htm](http://ec.europa.eu/enterprise/epaa/index_en.htm)

The EPAA is an unprecedented collaboration between the European Commission services and major companies from seven industry sectors. The partners have committed to pooling knowledge, research and resources to accelerate the development, validation and acceptance of alternative approaches over an initial five-year period. An action programme to promote change has been agreed and progress against this will be published regularly on this website.

Our commitment is that we will increase and co-ordinate efforts to significantly accelerate the rate at which alternatives are agreed, validated and put into practice. Our goal is to ensure that every opportunity is taken to refine, reduce and replace the use of animals in safety assessment tests.

All those committed to the '3Rs Declaration' agreed at the launch of the EPAA are warmly invited to join the Partnership.

### **Isogenic.info**

<http://isogenic.info/index.html>

The aim of this website, developed by Dr. Michael F.W. Festing, is to help you to reduce the numbers of animals used in research by better choice of animals and better experimental design. The site has several categories:

#### *Design*

This section describes 15 steps in the design and statistical analysis of experiments involving laboratory animals. Such experiments could frequently be designed better, leading to a saving in animals, cost, time and effort, and improving the scientific quality of the results.

#### *Isogenic*

Isogenic strains (inbred strains and F1 hybrids) have made a substantial contribution to biomedical research. This sub-web describes their properties and characteristics and contrasts them with the genetically heterogeneous "outbred" stocks of mice and rats which are still widely used in biomedical research. It makes the case that the use of outbred stocks should be discontinued unless specifically justified for a particular research application.

#### *Animal models*

This is a single page on the philosophy of animal model

#### *Genetics and toxicity testing.*

[According to Dr. Festing,] "Toxicologists usually use a single stock of outbred mice or rats for screening potential new drugs or environmental chemicals. They ignore genetic variation in their test animals. This is poor science and may well account for the poor record of animal toxicity testing."

### **The LAMECOW project**

[http://template.bio.warwick.ac.uk/E+E/lamecow/public\\_html/index.html](http://template.bio.warwick.ac.uk/E+E/lamecow/public_html/index.html)

This project is a multidisciplinary approach to the reduction of lameness and improvement in dairy cow welfare in the European Community. On this website you will find information about the project and the project partners involved. There is also an image gallery and some useful links.



# Announcements

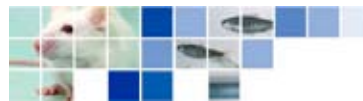


## Virtual Medical Environments Laboratory

<http://simcen.org/>  
<http://simcen.usuhs.mil/>

The Virtual Medical Environments Laboratory investigates and adapts leading edge computer technology for medical training through simulation. Formerly part of the Surgical Simulation Laboratory, the VME Lab is active in developing new technology to meet the training objectives of the National Capital Area Medical Simulation Center. Since its inception in April 1999, the VME Lab has developed three surgical procedure trainers that are world firsts: pericardiocentesis, diagnostic peritoneal lavage, and cricothyroidotomy. VME Lab has also conducted the first Advanced Trauma Life Support course using only simulators. The VME Lab maintains a 3-wall CAVE [Cave Automatic Virtual Environment] that permit medical teams to rehearse in simulated combat and civilian disaster settings. Research into immersive virtual environments is also being conducted in the same space. Plans are in place for expanding this space into a 1,000 sq. ft. Wide Area Virtual En-


vironment (WAVE). Members of the VME Lab have published several articles and presented tutorials on computer-based surgical trainers.



## The National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs)

<http://www.nc3rs.org.uk/>

The center's mission is to advance and promote the 3Rs in research and testing using animals. This is being achieved by:

- ✓ Developing a UK strategy for the implementation of the 3Rs
- ✓ Supporting high-quality research that advances the 3Rs
- ✓ Promoting a co-ordinated approach to 3Rs research
- ✓ Providing advice and guidance on the 3Rs and animal welfare to the scientific community
- ✓ Supporting the UK scientific community's commitment to best practice in all aspects of laboratory animal science and welfare
- ✓ Working with regulators on the acceptance of alternative methods 



## Transinsight's GoPubMed with Social Networking Features for Biomedical Experts

GoPubMed now allows users to identify experts in the biomedical field and gain important information on recent research topics by viewing their networks.

Dresden, Germany, December 2007 - Biomedical research happens in networks of researchers.

Social networking web sites like FaceBook, LinkedIn and Xing use personal networks to establish contacts. On these sites, however, connections must be defined by the users themselves. For the first time, GoPubMed (<http://www.GoPubMed.org>) now completely and automatically extracts collaboration networks from millions of biomedical science publications. For each concept in the selected semantic background knowledge, GoPubMed's "Hot-Topic-View" shows the collaboration network between top authors in this field of research. Collaboration networks can now be experienced and visualized. GoPubMed also now allows these networks to be searched for possible experts and collaboration partners, a feature which leads to tremendous time saving when searching for appropriate experts. This feature is especially important in a specialized scientific world where it is becoming more and more vital to set up temporary teams of highly specialized experts.

"Some author names like Lee S., Smith J. and Müller C. appear over 20,000 times! We have solved the technical challenge of disambiguating the authors into single individuals with our semantic search technology, which in a way functions like the network of the brain", says Prof. Dr. Michael Schroeder, CSO and co-founder of Transinsight. If two articles share the same author, GoPubMed evaluates their similar properties. The system hereby takes into account that the author of each paper often publishes about similar research topics, with the same co-authors and in the same journals. The research topics are thereby connected to the concepts of the semantic network in the background. The more concepts two articles have in common and the shorter the semantic distance in the network is, the more likely it is that the articles were written by the same person. This approach leads to impressive accuracy. If at any point the system is not correct, it can be corrected by the users.

"GoPubMed is an essential step in significantly easing the finding of complexly networked information", according to Prof. Dr. Michael Brand, Director of the BioInnovation Center in Dresden. "The semantic approach is unparalleled worldwide, and I'm excited that such a development, which would be expected to come from Palo Alto's Stanford University in the Silicon Valley in California, today comes instead from Dresden," says Brand.

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Transinsight GmbH  
Tatzberg 47-51  
D-01307 Dresden, Germany

Tel: +49 351 796 57 80  
Web: <http://www.transinsight.com>  
CEO/Geschäftsführer Dr. Michael R. Alvers  
HRB 24231, Amtsgericht Dresden



# Sourcebook of Models for Biomedical Research

<http://www.springer.com/humana+press/book/978-1-58829-933-8>

ISBN: 978-1-58829-933-8

2008, 920 pp., 168 illus.


P. Michael Conn, PhD, Oregon National Primate Research Center,  
Oregon Health and Science University, Beaverton, Oregon

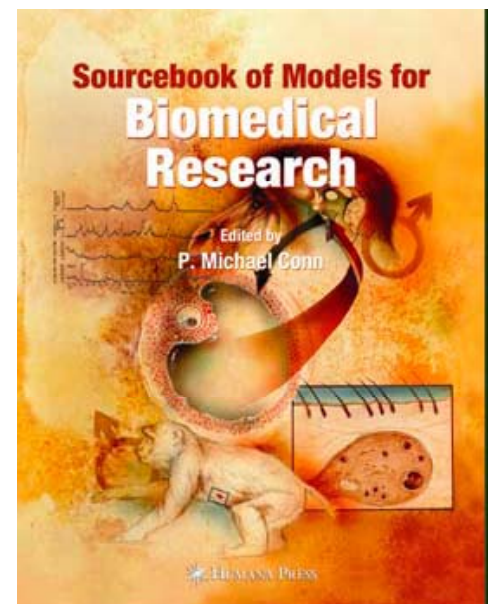
## From the publisher:

The collection of systems represented in the *Sourcebook of Models for Biomedical Research* reflect the diversity and utility of models that are used in biomedicine. That utility is based on the consideration that observations made in particular organisms will provide insight into the workings of other, more complex systems. Some models have the advantage that the reproductive, mitotic, development or aging cycles are rapid compared with those in humans; others are utilized because individual proteins may be studied in an advantageous way and have human homologs. Other organisms are facile to grow in laboratory settings, lend themselves to convenient analyses, have defined genomes or present especially good human models of human or animal disease. The *Sourcebook of Models for Biomedical Research* is a comprehensive and extensive collection of these important medical parallels. While the entire book is not devoted to the remarkable success of the genomic programs, this work is well represented and indexed within these pages. This volume will be an invaluable resource for pharmaceutical and academic researchers across a wide range of biological fields.

A partial listing of the contents includes:

- Animal models for human diseases: an overview.
- Selection of biomedical animal models.
- Improved models for animal research.
- The ethical basis for animal use in research.
- Bibliographic searching tools on disease models to locate alternatives for animals in research: A website companion.
- NIH policies on sharing of model organisms and related research resources.
- Databases for biomedical animal resources.
- Psychological enrichment for animals in captivity.
- Integrated network modeling of molecular and genetic interactions.
- The sponge as a model of cellular recognition.
- Sea urchin embryo — a model system for analyzing a variety of cellular activities during early development.
- C. elegans models of human neurodegenerative diseases: a powerful tool to identify molecular mechanisms and novel therapeutic targets.
- Zebrafish as a model for development.
- Zebrafish as a model for studying adult effects of challenges to the embryonic nervous system.
- Modeling cognitive and neurodegenerative disorders in *Drosophila melanogaster*.
- Biomedical research with honey bees.
- Establishing and maintaining a *Xenopus laevis* colony for research laboratories.
- The chicken as a model organism.
- Rat knockout and mutant models.
- Rodent genetics, models, and genotyping methods.
- The house mouse in biomedical research.
- Mouse model for Alzheimer's disease.
- Guinea pigs as models for human cholesterol and lipoprotein metabolism.
- Reliability of rodent models.
- The domestic cat, *Felis catus*, as a model of hereditary and infectious disease.
- Swine in biomedical research.
- The minipig as animal model in biomedical stem cell research.
- The non-human primate as a model for biomedical research.
- Primates as models of behavior in biomedical research.
- Primate models for understanding brain mechanisms of cognitive behavior.
- Animal models for eye diseases and therapeutics.
- Animal models of noise induced hearing loss.
- Human and animal models for the study of muscle pain.

For more information, contact Springer-Humana Press at phone: 1-800-SPRINGER, e-mail: [orders-ny@springer.com](mailto:orders-ny@springer.com), or visit the website listed above. 



## CAVEman useful in studying genetic diseases, surgical training

<http://www.ucalgary.ca/news/may2007/CAVEman>

Scientists at the University of Calgary have created the world's first complete object-oriented computer model of a human body. Unveiled today, the 4D human atlas, dubbed the CAVEman by the team who created it, allows scientists to literally get inside their experiments by translating medical and genomic data into 4D images.

"This project is a major breakthrough in medical informatics and systems biology," says Dr. Grant Gall, dean of the Faculty of Medicine at the University of Calgary. "My congratulations to Christoph Sensen and his team for building a tool that will be useful not only to researchers studying disease, but also to physicians exploring new pathways in surgical planning."

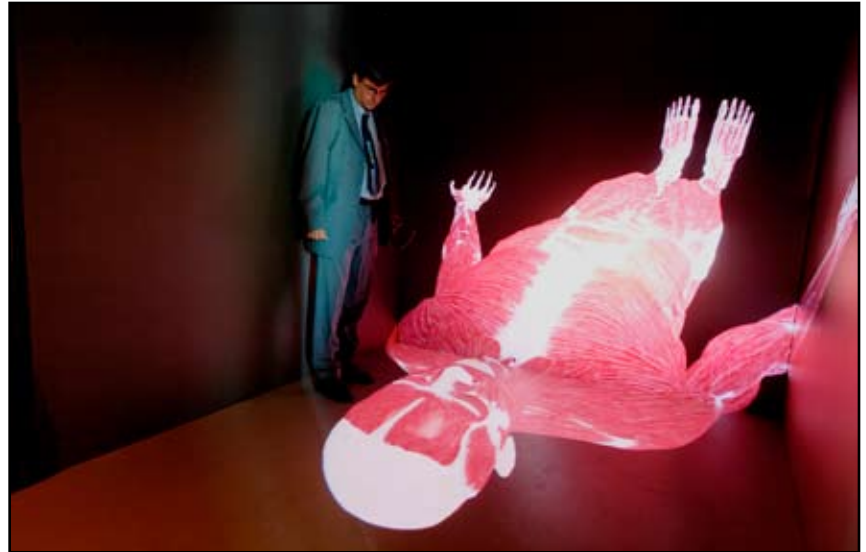
CAVEman resides in the CAVE, a cube-shaped virtual reality room, also known as the "research Holodeck", in which the 4D human model floats in space, projected from three walls and the floor below.

"Six years ago, we gathered a team of computer scientists, biologists, mathematicians, and artists," says Christoph Sensen, PhD, director of the Sun Center of Excellence for Visual Genomics at the University of Calgary Faculty of Medicine. "Our goal was to build a model of a complete human, at 10 times the resolution of anything else on the market. I am proud to say today, we have reached that goal."



Dr. Christoph Sensen, director of the Sun Center of Excellence for Visual Genomics at the University of Calgary Faculty of Medicine, examines the 4D model of a human body in the CAVE.

/ Photo by Masumi Yajima



This project first began as the brainchild of a small company in Red Deer, Alberta. "Our initial goal was to make computer models that could be utilized for our massage therapy training program," says Brenda Grosenick, co-owner of Kasterstener Inc. "We approached U of C with the concept, and suddenly, we were working on something much more elaborate than we could have ever imagined!"

The 4D human atlas is built upon data from basic anatomy textbooks. Fundamental body systems and organs were rendered into animated drawings by a graphic artist, and converted into Java 3DTM to bring them to life in the CAVE environment. "CAVEman is designed to look like a real human, but can also be sized to any scale we want," says Sensen. "We can display all or only a few select components of the model at any given time."

CAVEman is designed to help medical researchers investigate the genetics of various diseases, and new approaches to targeted treatments. "This technology is a powerful tool for my research into how genetic mutations lead to developmental problems such as cleft lip and palate," says Benedikt Hallgrímsson, PhD, associate professor of cell biology and anatomy,

U of C's Faculty of Medicine. "As the technology grows, it will be useful for diverse studies of growth and development, both for creating predictive models and also for complex visualization."

Sensen's team was awarded funding support to create the 4D human atlas from Western Economic Diversification Canada, Alberta Advanced Education and Technology, and the National Research Council of Canada's Industrial Research Assistance Program. 🐾





## New CD-ROM on Humane Endpoint in Laboratory Animal Experimentation

A humane endpoint can be defined as the point at which an experimental animal's pain and/or distress is terminated, minimised or reduced, by taking action such as killing the animal humanely, terminating a painful procedure, or giving treatment to relieve pain and/or distress.

The CD-ROM 'Humane endpoints in laboratory animal experimentation' aims to reduce and prevent pain and distress caused to rodents in research and testing through the education and training of researchers, veterinarians, animal care staff and members of ethics committees about implementation of humane endpoints.

Included on the user-friendly CD-ROM are:


- Characteristics of healthy mice and rats, including normative values for physiological parameters and normal, aberrant and pain-associated behaviour patterns
- General clinical signs
- Specific clinical signs and example score sheets for: cancer research, toxicity studies, vaccine quality control and infectious- and autoimmune disease research

- Types of humane endpoints and criteria for their development and validation
- Links to regulations and guidelines pertaining to humane endpoints
- Interactive self-tests
- A comprehensive glossary of technical terms
- Video clips
- Over 100 images

No animals were hurt or killed for the purpose of producing this CD-ROM.

Only footage from ongoing research was used!

The CD-ROM Humane endpoints in laboratory animal experimentation has been produced through an initiative of the Netherlands Association for Laboratory Animal Science (NVP). The English version of this interactive CD-ROM is now available on request from the Netherlands Centre Alternatives to animal use. For more information or to order, send an e-mail to Iris Boumans at [i.boumans@vet.uu.nl](mailto:i.boumans@vet.uu.nl) or visit the website at [http://www.vet.uu.nl/nca/documents/humane\\_endpoints](http://www.vet.uu.nl/nca/documents/humane_endpoints)

Payment of a voluntary fee is appreciated to cover postage and packing costs. 

### LayWel - Welfare implications of changes in production systems for laying hens

<http://www.laywel.eu/>

LayWel is a research project funded by the FP6 European Research Programme and national funding from different EU countries. The general objective of the LayWel project is to produce a series of reports on the welfare of laying hens in various systems, with special focus on enriched cages, and to make the information well known, particularly over all member states of the EU and associated countries. The site includes a photographic scoring system to measure the effect of housing, management and/or treatment on health and welfare of hens. There is also an English version of a manual that provides a tool for farmers to monitor the welfare status of their birds in an objective way. The project has also produced a database that comprises results of many studies on housing of laying hens in various European countries. The data were collected both on commercial farms and in experimental units.

The LayWel project is divided into 7 WorkPackages :

1. Welfare definitions
2. Housing systems
3. Health
4. Behavior
5. Physiology and stress indicators
6. Productivity and egg quality
7. Integrated welfare assessment

### Report of the U.S. Senate Committee On Appropriations

*S. 3230 Departments of Labor, Health and Human Services, and Education, and Related Agencies  
Appropriation Bill, 2009  
JULY 8, 2008*

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

*Alternative Methods of Testing-* The Committee acknowledges the publication of the National Interagency Center for the Evaluation of Alternative Methods/Interagency Coordinating Committee on the Validation of Alternative Methods [NICEATM/ICCVAM] Five-Year Plan but remains concerned by the slow pace at which Federal agencies have moved to adopt regulations that would replace or reduce the use of animals in testing. The Committee therefore requests the ICCVAM to evaluate the skin irritation/corrosion, pyrogenicity, phototoxicity, vaccine potency, acute fish toxicity and developmental toxicity methods and tiered-testing strategies that have been deemed valid by the European Centre for the Validation of Alternative Methods but have not been accepted in the United States. The Committee also asks the ICCVAM to identify situations where these methods can be applied with scientific confidence in the existing testing practices and regulations of ICCVAM agencies. In addition, the ICCVAM is urged to identify what additional studies would be needed to produce sufficient scientific confidence to expand the application of such methods by the agencies that comprise ICCVAM. The Committee requests a report on these findings by May 1, 2009.



## New alternative to molting hens addresses hunger

USDA, ARS, Livestock Behavior Research Unit,  
West Lafayette, Indiana

[http://www.ars.usda.gov/Main/site\\_main.htm?modecode=36-02-20-00](http://www.ars.usda.gov/Main/site_main.htm?modecode=36-02-20-00)

The first study ever to attempt to measure the hunger experienced by hens subjected to molting diets was recently completed (Koch et al., 2007) by our lab in collaboration with Dr. M.E. Wilson of West Virginia University. This study is pivotal to address the welfare of hens who are subjected to molting diets because it provides a method to determine if alternative diets are successful in reducing hen hunger and it shows that some alternative diets already in use do not reduce hunger in hens.

Inducing hens to molt increases egg quality and egg production and extends the productive life of hens. Until recently, an acceptable method of molting included a 10- to 14-day period of feed deprivation. Due to consumer concerns, in 2000 McDonald's (purchaser of over 1 billion eggs each year) stated that it will no longer purchase eggs that are produced by hens that have undergone feed deprivation-induced molt. Therefore, recent research has examined alternatives that do not include feed deprivation. The current alternatives with potential for application include feeding diets with altered nutrient content. These include low-nutrient-density diets such as 94 percent wheat middling diet, or diets with alterations in mineral content (i.e., low calcium, low sodium, or high zinc). These alternatives appear to address hen well-being by providing hens with some type of feedstuff during the molting process. However, these alternative practices have also been shown to increase hen paralysis and result in kidney and adrenal damage, dehydration and extreme loss of body weight. Recently Koch et al. (2005, 2006) developed a method of inducing rest using melengestrol acetate (MGA) which allows the hen ad libitum access to a nutritionally balanced ration. This new method results in regression and rejuvenation of the reproductive tract, and increases post-molt performance. The need exists, as with any alternative to traditionally induced molt, to evaluate whether the alternative diet allows the hen to feel fully satiated. Using operant conditioning, an animal can be trained to perform a specific task in order to receive a reward, in a manner designed to measure an animal's motivation.


Thus we used operant conditioning to train hens to work for food. The harder she worked to obtain food translates into the hen experiencing a higher level of hunger. We found that hens fed a molting diet of wheat middlings and rewarded with a layer diet worked for feed as much as hens deprived of feed for 8 days. These data show that hens on this molting diet are experiencing a significant level of hunger. The two most important factors in evaluating a potential alternative to molting are that the alternative induces a molt sufficient to allow for an increase in egg quality following the molt, and that the alternative does not increase hunger in the hen. Previously, we demonstrated that incorporating an orally active progestin into a balanced layer diet will cause reversible regression of the reproductive tract (Koch et al., 2005). Furthermore, both the internal and external quality of the eggs produced by hens molted utilizing MGA is dramatically increased compared to nonmolted controls (Koch et al., 2006). In this study we add the final piece, demonstrating that utilizing MGA to induce a molt does not increase hunger in the molted hen, unlike alternatives that involve feeding bulk low nutrient density diets which increase hunger in the molted hen at least as much as in hens completely deprived of feed.



### Resulting Publications

Koch, J.M.; Moritz, J.S.; Smith, D.L.; Lay Jr., D.C.; Wilson, M.E. (2005) Melengestrol acetate as an effective alternative to induce a decline in egg production and reversible regression of the reproductive tract in laying hens II. Effects on postmolt egg quality. *Poultry Science* 84: 1757- 1762.

Koch, J.M.; Mortiz, J.S.; Lay Jr., D.C.; Wilson, M.E. (2007) Effects of melengestrol acetate as an alternative to induce molting in hens and on the expression of yolk proteins and turnover of oviductal epithelium. *Animal Reproduction Science In Press*

Koch, J.M.; Lay Jr., D.C.; McMunn, K.A.; Moritz, J.S.; Wilson, M.E. (2007) Motivation of hens to obtain feed during a molt induced by either feed withdrawal, wheat middlings or melegestrol acetate. *Poultry Science* 86: 619-620. 

## Recent publications from AWIC

- **Information Resources on the Care and Welfare of Dogs**  
AWIC Resource Series No. 40, March 2008  
<http://www.nal.usda.gov/awic/pubs/Dogs/dogs.shtml>
- **Animal Euthanasia**  
Special Reference Brief Series, SRB 2007-01, October 2007  
[http://www.nal.usda.gov/awic/pubs/Euthanasia07/animal\\_euthanasia.shtml](http://www.nal.usda.gov/awic/pubs/Euthanasia07/animal_euthanasia.shtml)
- **Legislative History of the Animal Welfare Act**  
AWIC Resource Series No. 41, September 2007  
<http://www.nal.usda.gov/awic/pubs/AWA2007/awa.shtml>
- **West Nile Virus Bibliography, 2004 -2007**  
<http://www.nal.usda.gov/awic/pubs/WestNile07/west-nile.shtml>
- **Information Resources on the Care and Welfare of Cats**  
AWIC Resource Series No. 39, April 2007  
<http://www.nal.usda.gov/awic/pubs/Cats/cat.shtml>



## Animal Care Stakeholder Update

May 2, 2008

This is a stakeholder update from Animal Care (AC), a program within the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS). Similar to previous updates, we want to notify you about new information that is posted to our Web site at [http://www.aphis.usda.gov/animal\\_welfare/hp/index.shtml](http://www.aphis.usda.gov/animal_welfare/hp/index.shtml).

After receiving and responding to comments on the draft foreign substance penalty protocols AC provided to the Horse Industry Organizations, we finalized the protocols on May 1st, and posted them to our Web site. The Horse Industry Organizations and other relevant stakeholders will receive a copy of this update along with a copy of the finalized protocols.

The Horse Protection Act (HPA) aims to eliminate soring, a cruel and inhumane practice used to accentuate a horse's gait. Among other things, the Act prohibits the use of foreign substances, except for certain lubricants, on the extremities above the hoof while horses are being shown, exhibited, or referred for sale at any horse show, horse exhibition, sale, or auction. Over the past 3 years, USDA has screened for the use of prohibited irritants, masking, and numbing agents by taking samples from inspected horses and testing them using gas chromatography/mass spectrometry (GC/MS). GC/MS is a technique that can separate and identify chemicals individually, and is widely regarded as the gold standard for forensic substance identification. USDA found evidence of the use of prohibited chemicals and the penalty protocols are aimed at addressing these findings.

It is important for us to point out that the protocols do not conflict with the operating plans—the voluntary agreements entered into by USDA and the Horse Industry Organizations. The protocols will involve only Federal penalties, and not those deemed the responsibility of the Horse Industry Organizations. We understand that there may be some concern in the stakeholder community regarding this action; however, we believe that we have designed these penalty protocols in a way that maintains the cooperative spirit envisioned by the establishment of the Designated Qualified Persons program and the use of the operating plans, while still allowing USDA to exercise its ability to vigorously enforce the law. The protocol will give industry participants a fair opportunity to adjust their practices before they incur significant penalties.

We also want to take this opportunity to affirm that we take very seriously our responsibility to enforce the HPA, its regulations and standards. It is our intention to work with all interested parties, both in the industry and others, to reach the goal we all share: ending soring and ensuring that only sound and healthy horses are sold and participate in shows. And we appreciate your interest in, and support of, the AC program and our HPA enforcement efforts. 🐾



### ***Investigation of Multi-State Dogfighting Enterprise Yields Currency, Illegal Drugs, and Firearms in "Operation Bite Back"***

An Office of the Inspector General investigation of an underground dogfighting and gambling organization operating in Ohio, Kentucky, and Michigan resulted in the filing of charges against 56 individuals, 44 of whom have pled guilty to charges involving violations of State and Federal laws prohibiting dogfighting, possession of firearms, gambling, food stamp trafficking, and interstate transportation of stolen vehicles. Electronic Benefits Transfer (EBT) fraud, wagering, sale and use of narcotics, illegal firearms, and the sale of stolen property were observed during the dogfights. Search warrants resulted in the seizure of pit bulls, U.S. currency, marijuana, cocaine, firearms, a bulletproof vest with a ski mask, and a warehouse full of dogfighting equipment and blood-stained fighting pits. The investigation was conducted jointly with the Ohio Organized Crime Investigations Commission (OOCIC). There are currently two fugitives outstanding in this case. The investigation is ongoing.

Source: [USDA] Office of Inspector General Semiannual Report to Congress FY 2007 – 2nd Half No. 58



# Meeting the Information Requirements of the Animal Welfare Act

The Animal Welfare Information Center (AWIC) of the U.S. Department of Agriculture, National Agricultural Library (NAL) has developed a 1- ½ day workshop for individuals who are responsible for providing information to meet the requirements of the Animal Welfare Act.

The regulations of the act require that investigators provide Institutional Animal Care and Use Committees (IACUC) with documentation demonstrating that alternatives to procedures that may cause more than momentary pain or distress to the animals have been considered and that activities do not unnecessarily duplicate previous experiments. A thorough literature search regarding alternatives meets this Federal mandate. An alternative is any procedure which results in the reduction in the numbers of animals used, refinement of techniques, or replacement of animals.

The objectives of the workshop are to provide:

- an overview of the Animal Welfare Act and the information requirements of the act
- a review of the alternatives concept
- a comprehensive introduction to NAL, AWIC, and other organizations
- instruction on the use of existing information databases/networks
- online database searching experience.

This workshop is targeted for principal investigators, members of IACUCs, information providers, administrators of animal use programs, and veterinarians. All participants will receive a resource manual.

The workshops for 2008-2009 will be held at the National Agricultural Library on:

- *October 22-23, 2008*      - *March 11-12, 2009*      - *May 13-14, 2009*      - *October 28-29, 2009*

Each workshop is limited to 20 people.

To register, use the registration form found at <http://www.nal.usda.gov/awic/awicworkshops/regform.htm> or contact AWIC at phone: (301) 504-6212, fax: (301) 504-7125, e-mail: [awic@nal.usda.gov](mailto:awic@nal.usda.gov) or write to the address listed below.

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