

RESEARCH CONTRACT CR0209:

THE KEEPING OF WOLF-HYBRIDS IN GREAT BRITAIN

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1. Introduction

This report has been jointly commissioned by the Department of the Environment, Transport and the Regions (DETR) and the Royal Society for the Prevention of Cruelty to Animals (RSPCA) following concerns from members of the public, Members of Parliament, animal welfare organisations and local authorities about the effectiveness of controls on the keeping of wolf dog hybrids in the U.K.

The information presented is intended to be used to assist the Department in assessing whether the keeping, breeding and sale of wolf hybrids is causing public safety or other problems and, if so, what action is required to deal with them.

At present, wolf hybrids are scheduled, and therefore requiring licensing, under the Dangerous Wild Animals Act (DWAA) 1976 (Modification) Order 1984. This project has investigated the keeping of wolf hybrids both under Dangerous Wild Animal Act licence and illegally and has considered the licensing process in detail. In addition, animal welfare and public safety issues have been assessed.

2. Aims

The objectives of this project, as detailed in the Specification of Requirements, are as follows:

- 1) Determine factual information on the numbers and location of both wolf-dog hybrids and pure wolves held under DWA licence and illegally in Great Britain. Investigate the market for, and the source of, these animals. Determine the proportions of “fakes” - wolf like animals with no recent wolf ancestry.
- 2) Review the licensing procedure and any conditions applied to such licences.
- 3) Summarise the legislation in other countries regulating the keeping of wolf-dog hybrids.
- 4) Review legal cases and accidents involving wolf-dog hybrids.
- 5) Explore the difficulties associated with defining wolf-dog hybrids.
- 6) Outline recommendations for any changes needed to existing controls or other actions which would improve animal welfare and public safety, and control the illegal keeping of wolf-dog hybrids.

3. Methods

- A simple questionnaire (see Appendix 1) was distributed to all Local Authorities (LAs) in England, Scotland and Wales requesting information on the number of licences granted and refused for wolves and wolf-dog hybrids during the last five years.
- A letter was published in the *Veterinary Record*, the *Veterinary Times* and *Our Dogs* magazine requesting information from veterinarians, owners or other interested parties.
- Visits were made to as many licensed and unlicensed owners as possible, and to interested organisations. The animals and the premises were assessed and the owners were questioned about the origins of the animals.
- Extensive literature and Internet searches were carried out for details of overseas legislation, popularity and how these animals are kept elsewhere in the world.
- Personal communications were exchanged with owners, behaviourists, geneticists, animal trainers, enforcing officers and other interested parties

A list of respondents and organisations visited is provided in Appendix 2.

4. What is a wolf hybrid?

A wolf dog hybrid is a cross between a wolf (*Canis lupus*) and a dog (*Canis familiaris*) or between animals where one or both parents contain recent wolf genes. Wolves may possibly hybridise with other species of Canidae, but these are not of practical concern.

Commonly, the dog breeds used are the Nordic breeds such as the Siberian Husky, Eskimo dog, Alaskan Malamute and the Samoyed, or the Japanese Akita or German Shepherd Dog. However, most dog breeds have been crossed with wolves at some time.

Hybridisation infers a mating between two different species resulting in sterile hybrid offspring. The offspring from a wolf x dog cross are fertile and able to reproduce. This fact led to the taxonomic reclassification of the domestic dog by the Smithsonian Institute in 1993 as *Canis lupus familiaris*, a subspecies of the wolf. This reclassification is not widely supported. A proposal has recently been put to the International Commission on Zoological Nomenclature to reserve different names for domesticated animals arising from wild ancestors (Gentry *et al*, 1996), which is strongly supported by taxonomists, zoologists and biologists (Kitchener, 1999, personal communication). It is this organisation which judges whether a scientific name is correct; however it cannot rule that one particular name is uniformly accepted. Taxonomists feel that there are so many structural and behavioural differences between domestic dogs and wild wolves that they should remain separate. It is

therefore likely that *Canis familiaris* will remain a distinct species for the foreseeable future. This is crucial to the way in which wolf hybrids are currently scheduled under the DWAA (see below).

Obviously, wolf and dog are very closely related species. Scientists have expressed the opinion that dogs are domesticated wolves (Zimen, 1980), and that the wolf and the dog share a close common ancestry (Fox, 1991).

Since the dog and the wolf are able to interbreed successfully, the misleading term wolf hybrid has been replaced with wolfdog for the purpose of this report.

5. The Dangerous Wild Animals Act 1976 as it applies to wolfdogs

The Dangerous Wild Animals Act 1976 is an Act to regulate the keeping of Dangerous Wild Animals. The purpose of the Act is to promote public safety and animal welfare by listing those species considered dangerous and requiring a licence. The Dangerous Wild Animals Act 1976 (Modification) Order 1984 alters the original 1976 schedule of the species covered by the Act to include hybrids.

Under the Schedule, all species of the family Canidae are covered under the Act unless they are specifically excepted. Animals such as the jackal, the wolf and the coyote are scheduled under the Act. Exceptions include the red fox *Vulpes vulpes* and the species *Canis familiaris* - the domestic dog.

The Modification Order led to the inclusion under the provisions of the Act of “any hybrid of a kind of animal specified ... where one parent is, or both parents are, of a kind so specified”. To clarify, a wolf (*Canis lupus*) or a hybrid where one or both parents are wolves, requires a licence under the Act. A domestic dog (*Canis familiaris*) is exempted from the Act.

It is important to interpret the Act primarily on the basis of what species are included or exempted. In this case, all species of Canidae are included except foxes, racoon-dogs and domestic dogs. So, any animal that *is* a canine but is *not* an exempted species must require a licence under the Dangerous Wild Animals Act. Any generation of “hybrid” with wolf in its ancestry continues to be covered by the Act, since these animals cannot be classified as *Canis familiaris*, theoretically *ad infinitum*.

As Environmental Health Officers from Broxtowe Borough Council explained in 1995, the species *Canis familiaris* is a result of specialised breeding over centuries. It is inconceivable that an animal with any significant wolf content can be classified as *Canis familiaris*. (Hayes *et al*, 1995) This interpretation clearly begs the question as to what constitutes a *significant* wolf-content. It is also likely that there have been much more recent injections of wolf into the lineage of some dog breeds, particularly the Nordic types (see section 7).

It is often the case that the aim of identifying these animals is to determine that an animal *is* a wolfdog. It may be that it is more appropriate to decide that an animal is *not* a pure dog.

5.1 Implementation of the Act

The Act is administered by Local Authorities, who are required to process licence applications, apply appropriate conditions and inspect the premises on an annual basis. An annual fee is payable by the licensee of an amount which the authority believes is sufficient to meet the direct and indirect costs which it may incur as a result of the application (Section 1, subsection 2 (e)).

A licence may not be granted unless the authority has satisfied itself of the following (Section 1, subsection 3 (a)-(f)):

- that it is not contrary to public interests on the grounds of safety, nuisance or otherwise to grant the licence;
- that the applicant for the licence is a suitable person to hold a licence under this Act;
- that the proposed animal(s) will be held in secure, escape-proof accommodation which is suitable as regards to construction, size, temperature, lighting, ventilation, drainage and cleanliness, and is suitable for the number of animals proposed to be kept, and allows adequate exercise;
- that adequate and suitable food, drink and bedding material is supplied and that the animal(s) are visited at suitable intervals;
- that all reasonable precautions will be taken to prevent and control the spread of infectious diseases;
- that appropriate steps will be taken to protect any animal concerned in case of fire or emergency;
- that a veterinary surgeon has inspected the proposed premises and has provided a report containing such details to enable the authority to decide whether a licence is to be granted.

5.2 Standard conditions applied to licences:

(Section 1, subsection 6 (a)-(d))

- the animal(s) shall be kept by no other person than the licensee.
- the animal(s) shall be kept at the licensed premises and shall only be moved in such circumstances as are specified in the licence.
- no other animals than those detailed on the licence shall be kept under the authority of this licence.
- the licensee shall hold an authority approved insurance policy that insures the licensee and any other person entitled to keep the animals under the authority of the licence against liability for any damage that may be caused by the animal.
- the licensee shall, at all reasonable times, make a copy of the licence available to any person entitled to keep any animal under the authority of the licence.

A Local authority may apply further conditions as it thinks fit (Section 1, subsection 7).

6. The history of wolfdogs in the United Kingdom

Wolfdogs have been kept as domesticated animals in the U.K. for centuries. The first documented instance of wolf and dog breeding in this country seems to be in the year 1766 when a Pomeranian bitch crossed with what was thought to be a male wolf produced a litter of nine pups. Dog-wolf pups were purchased by noblemen and gentlemen who seemed to have a scientific interest in the cross-breeding of dogs and wolves (Hunter, 1787).

Wolfdogs were popular as exhibits and trained animals in menageries and zoos. Wombwell's Menagerie exhibited three hybrids bred in the U.K. in 1828 (Anonymous, 1829) and as late as 1923, Bostock and Wombwell's Menagerie exhibited a hybrid timber wolf and an Alsatian dog in an act with polar bears and hyaenas (Middlemiss, 1987). In 1877 the list of vertebrates exhibited by the Zoological Society of London included a wolf hybrid presented by the Prince of Wales.

The wolf became a fashionable pet in the US after the success of the 1990 film "Dances with Wolves". Wolf-dog breeding gained exposure again in 1994, following articles in the media about the rise in popularity of wolfdogs as "designer pets" both in the U.S.A. and the U.K.

7. Identification of a wolf dog

The main difficulty in applying any species or breed specific legislation is proving whether an animal is of the type specified. Huge identification problems were seen both in the U.K. and abroad over enforcing legislation to control Pit bull type dogs (Cooper, T. 1999, personal communication). Similarly, identifying what is a wolfdog is the major problem in enforcing DWAA with respect to such animals in this country. The ideal solution would be an accurate, diagnostic test that would allow successful implementation of the Act. In order to understand the difficulties involved in distinguishing wolfdogs from domestic dogs, one must consider the historical process of the domestication of dogs from wolves.

It has long been considered that the first domestication of dogs from wolves dates from between 12000 and 14000 years ago (Mech, 1940; Genty *et al*, 1996; Olsen, 1985). There is now evidence that it may have occurred as long as 135000 years ago, based on analysis of mitochondrial DNA sequences of dogs and wolves. (Vila *et al*, 1997).

It is accepted that wolves were the ancestors of domestic dogs, (although all species of the genus *Canis* can interbreed), and that multiple domestication events have given rise to a wide genetic diversity. (Vila *et al*, 1997).

It is likely, in other words, that wolves were domesticated on a number of independent occasions over a large geographic area. It is also possible that domesticated “wolves” occasionally interbred with wild wolf populations, recombining and exchanging genes and further adding to a varied genetic heritage (Vila *et al*, 1997) and an extraordinary degree of phenotypic diversity.

Over the thousands of years following these founding events, domesticated dogs have been bred continuously, and the recognisable breeds have been developed. Even today, however, it is likely that cross breeding still occurs between dogs and wolves, particularly in places such as Alaska, where wild wolves still survive. “Alaskan Huskies” are often used as superior sledge dogs. The “Alaskan Husky” is not a recognised domestic breed of dog, but is a cross breed, usually between a Siberian Husky and a wolf, setter or hound. The cross breeding is intended to produce animals with greater levels of speed and endurance (Anonymous, The Alaskan Husky Breed). These dogs are often left to roam when not required and matings may occur with local wild canines, which may include wolves or wolfdogs. The injection of wolf genes is thought to produce stronger fitter animals than using pedigree dogs.

The original distribution of wild wolves was vast, covering most of the Northern Hemisphere. It would therefore be reasonable to assume that wolves from Alaska, for example, can be clearly differentiated genetically from those living in Southern California. Obviously these habitats are very different, as are likely prey items and weather conditions. Wolves in such different regions have adapted to exploit their particular habitat, and one would expect these adaptations to show up genetically. In fact, in studies done on Alaskan and South Californian wolf populations, only a hint of genetic divergence was identified (Vila *et al*, 1997), despite considerable size and colour variation.

Modern dog breeds have been developed by actively selecting animals for certain traits. This has resulted in over 190 recognised dog breeds in the U.K. alone (Kennel Club, 1999 personal communication); however *all* dog breeds originate from a very similar gene pool. Analysis of 7 dog breeds and 26 wolf populations has shown that the genotypes of wolves and dogs are either identical, or differ by less than 0.8%. The domestic dog differs from the grey wolf by at most 0.2%. (Wayne *et al*, 1991; Templeton, 1989). This leads to inevitable difficulties in the development of a genetic test.

It is possible that, eventually, geneticists will be able to identify specific gene sequences that can distinguish wolfdog from dog, however it is not known what certainty the results will have. This subject is discussed further on in this report.

Attempts are made by breeders and owners of wolfdogs to classify the wolf content of their animals. Often an animal is defined as being a certain percentage wolf to give an indication of the amount of wolf genes that animal has inherited. This percentage figure is usually determined by adding the wolf content of both parents, then dividing by two. Thus, a pup bred from a pure wolf (100%) crossed with a pure dog (0%) is deemed to be a 50% wolfdog. This system becomes more complicated when two hybrid parents are mated. Breeding a 75% wolfdog with a 50% wolfdog yields 62.5% offspring (rounded up to 63%), and so on. The accuracy of the system relies on a sound knowledge of the founding animals' ancestry, and the maintenance of an accurate pedigree.

The percentage content system gives some estimation of the extent that an animal will inherit wolf characteristics; however it does not take into account the number of generations removed from a pure wolf that the animals may be. An animal that has a pure wolf as a parent is far more likely to inherit wolf characteristics than an animal born to two hybrid parents, even if the percentage wolf content expressed is the same. For example, if a pup is born to a 25%

wolfdog mother and a 100% pure wolf father, that pup will be a 63% wolfdog, although this animal is almost certain to be much more wolf-like than the 63% wolfdog born to the two wolfdog parents as described above.

The generation of an animal is expressed as a progeny number, whereby an F1 hybrid has a parent who is a pure wolf. The F1 animal's offspring are termed F2 animals, and so on. F1 animals are much more likely to be wolf-like than, for example, F4 animals.

A combination of an animal's progeny number and percentage content gives the best representation of an animal's wolf inheritance, and is really the only way to identify what an animal is in the absence of genetic tests. It is often the case that genuine pedigrees are not available for animals and, in this situation, it is more appropriate to identify them as high, medium or low content animals, based on their appearance and behaviour.

It seems that high content animals demand higher prices than those of a lower content. Unfortunately this has resulted in many animals' content being falsified by breeders in order that they may charge maximum prices. In the U.S. it is very common that people purchase what they believe to be a high content animal, only to realise as the animal matures that this was not the case (Dunn, 1999 personal communication). In the U.K. it seems that many people are advertising animals as high content animals "75% or 78% wolf", when in it is unlikely that they have much or any recent wolf ancestry.

7.1 Physical characteristics

In order to try to identify a wolfdog, one must have knowledge of the physical characteristics of not only the wolf, but also of the common dog breeds used by wolfdog breeders for hybridisation. In wolfdogs a mixture of dog and wolf traits are present. When dealing with wolfdogs, there is the added complication that a 50:50 dog x wolf cross will not exhibit a half wolf and half dog appearance. It is entirely possible for an animal to look very wolf-like, but act like a dog, and vice versa. It is therefore impossible to assess an animal's parentage from appearance or behaviour alone.

When assessing an animal, there are no definite characteristics that will indicate an animal's parentage. It becomes more difficult if one is trying to determine not only that the animal is a wolf dog, but also its wolf content.

Traits often assessed are:

- The width of the chest: Wolves have very narrow chests. Nordic dog breeds are often powerfully built, with broad muscular chests.
- The length of the legs: Wolves have long, lean legs and large, splayed feet. Breeds such as the Malamute and Samoyed have short, thick-set legs.
- Size and furring of the ears: Wolves have small, rounded, erect ears, with heavy internal fur. A dog's ears are not usually heavily furred on the inside, and are often bigger and more pointed than those of a wolf.
- In wolves the nose, feet pads and whiskers are always black. Variations to this are often seen in domestic dog breeds.
- Shape of the eyes: The eyes of wolves are set obliquely and are almond shaped. Eye colour is usually pale amber, but wide variations from this have been observed. In contrast, dog's eyes are more rounded, and level set. Eye colours in domestic dogs range from pale blue to very dark brown.
- Tail: The tail of a wolf hangs straight down when the animal is in a relaxed state. The tail is rarely carried above the level of the back (it may be raised during social interactions), and never curls over the back. The tail tip is usually black (except in solid-coloured wolves). In domestic dogs, the tail is usually carried high, and many breeds, such as the Japanese Akita and Alaskan Malamute, have "sickle-shaped" tails which curve over the animal's back. A white tail tip is a common characteristic in dogs.
- Colouring: Many coat colourings are seen in wolves, varying from all black, to a mixture of greys, to all white. The fur often shows agouti banding, where each individual hair is made up of bands of pale and dark colour. Any markings, such as a darker mask on the face, are well blended. Wolf coats do not normally contain stark colour contrasts. Wolf cubs are always born dark in colour. In comparison, domestic dog breeds often show well defined markings. Certain breeds however, such as the Siberian Husky, have fur colours which closely resemble those seen in wolves.

There are many more features that are thought to distinguish between wolves and domestic dogs. Some characteristics, such as the sickle-shaped tail, are obvious dog features; this tail shape is *never* seen in wolves. This makes it easier to tell that an animal is not a pure wolf. Unfortunately, there are no characteristics that will obviously indicate that a dog is not pure *Canis familiaris*. Every feature seen in a wolf may also be seen in many domestic breeds of dog. The physical characteristics and colourings of some breeds of domestic dog, such as the Belgian and German Shepherd or the Siberian Husky, can be very similar to those of a wolf. Care must be taken to avoid being fooled by these breeds.

Photograph 1: Low content wolfdogs



(photographs provided by P. Thompson)

Photograph 2: Medium content wolfdogs



(photographs provided by P. Thompson)

Photograph 3: High content wolfdogs



(photographs provided by P. Thompson)

Photograph 4: Pure wolves



(Photograph provided by Heythrop Zoological Gardens)

Information on the normal colouring, physical characteristics and behaviour of most domestic dog breeds is widely available and is therefore not included in this report.. The “Discover Dogs” website <http://www.discover-dogs.org.uk> , produced by the Kennel Club, provides an illustration and breed standard for every recognised dog breed in the country.

7.2 Post mortem characteristics

A study by N.A. Iljin (1941) concluded that the best method to distinguish a wolf from a dog is to measure skull characteristics. The measurements were based on the width of the orbital angle (see Figure 1), which is the angle between a line drawn through the upper and lower edges of the eye socket and a line drawn across the top of the skull. In wolves, the angle measures between 40 – 45°. In most dog breeds, this angle is increased to 53-60°, however in “primitive” breeds such as the German Shepherd Dog, the angle is 50°.

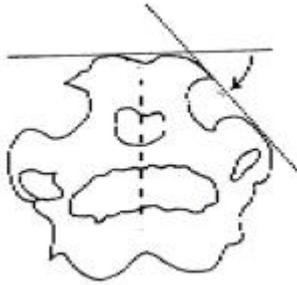


Figure 1. The orbital angle (Modified from Iljin, 1941)

Measurements from such animals taken *post mortem* are currently being studied, particularly by the USFWS Forensics Laboratory in Ashland, Oregon; however no conclusive results have yet been published.

Although these methods have merit, they are obviously not helpful in determining what ancestry a live animal has, and are therefore unlikely to help enforce breed specific legislation.

7.3 Behaviour

As with the physical characteristics, one must understand normal dog and wolf behaviour before an assessment can be made of a wolfdog.

There are discernible differences between dog and wolf behaviour, and also between the different dog breeds. The Nordic dog breeds, such as the Alaskan Malamute, Eskimo dog and Siberian Husky, “mouth” more (use their mouth to get attention by grasping the owners body or clothing) and are more vocal than most other dog breeds. They are also certainly capable of chasing and killing small creatures as a part of their normal behaviour. To the inexperienced, these may be misconstrued as wolf traits, when in fact they are normal reactions from dogs bred as racing stock.

It is important that an assessor of an alleged wolfdog is aware of these normal dog behaviours, which are specific to certain dog breeds, especially when dealing with the breeds that appear more wolf-like, which are more likely to be under investigation.

7.4 Domestic Wolfdog Breeds

Two domestic, recognised wolfdog breeds have been developed in Europe. Both contain relatively recent wolf genes, the motivation being the improvement of existing working dogs. The oldest of the wolfdog breeds is the Saarloos Wolfdog, which was developed in an attempt to ameliorate the German Shepherd Dog, thought to be losing some of its working qualities and inheriting inbred defects. The Saarloos wolfdog was developed by Lendeert Saarloos in 1921 by crossing a European wolf with a German Shepherd Dog. The breeding was rigorously controlled over generations, and the resulting dog now contains around 25% wolf. Saarloos failed in his attempt to create an exceptional working dog, but the breed was widely used as guide dogs for the blind until the 1960s, when a further injection of wolf genes raised the content of the animals to around 33% (Hull, undated). The breed is wolf-like in appearance, and retains many wolf characteristics such as a narrow chest, a wolf-like gait and an extremely shy temperament.

The second recognised breed is the Czechoslovakian wolfdog, developed by I.K. Hartl in the late 1950s. Again, the breed was founded by a mating between a wolf and a German Shepherd Dog; the animals are similar in appearance to the Saarloos. The breed was recognised by the Cynologic Organization of Czechoslovakia in 1982 (Dunn, undated).

In the United States, two further breeds are being developed. They have been named the “Timber Shepherd” and the “Tundra Shepherd” and, although they seem to be gaining popularity in the U.S., they have not been officially recognised as domestic dog breeds. Both breeds are reported to contain approximately 25% wolf (Hull, undated).

In the U.K., the “Northern Inuit” breed is being developed and, although no recent wolf ancestry is claimed, they have been advertised as “wolf look-alikes”(Kelham, 1999 personal communication).

None of the above breeds are recognised by the British Kennel Club (Kennel Club, 1999, personal communication). Those breeds claiming a wolf content, however diluted, must still be licensed under the DWAA if imported to this country.

8. Overseas legislation

Similar problems in regulating the keeping of wolves and wolfdogs have been encountered in other countries. The United States of America has probably the largest population of wolfdogs in the world, estimated to be between 300 000 (Sahagun, 1997) and 500 000 (Foster, 1993).

Varying regulations pertaining to wolves and wolfdogs are promulgated at the State level in the United States. In some States wolves are not regulated, in others a permit is required to keep them, and in others they are prohibited. Regulations may relate to the perceived risk from the animals (as in the U.K.) or to their status as protected native U.S. wildlife. Wolfdogs may be considered domestic or wild in some States; others consider animals over a certain percentage wolf to be a wild. In Florida, for example, pure wolves and hybrids that are 25% or less domestic dog require a permit to be kept as a wild animal.

Sixteen out of fifty States do not regulate the keeping of wolfdogs at State level (although there may be local, municipal or county regulations in those States) and twelve States regard wolf hybrids to be domestic animals. Nine out of fifty States classify wolfdogs as wild or dangerous species that are prohibited and nine States require a permit regardless of the animal's wolf content.

The States of Kentucky, Montana and Florida classify wolfdogs by percentage of wolf content, requiring animals with a certain wolf content (over 25%, over 50% and over 75% respectively) to have a permit, or banning the importation of animals over a particular percentage. California State requires a permit only for pure wolves and F1 hybrids. The progeny of F1 animals are unregulated.

Five States also include in their definition of a wolfdog that any animal that is represented as a wolfdog by its owner is subject to legislation. The State of Idaho regulates any canine 'exhibiting primary wolf characteristics' and New York further describes prohibited animals as 'any animal, the overall appearance of which makes it difficult or impossible to distinguish from a wolf'. Nebraska states that wolf hybrids are not regulated, but a wolf hybrid which looks like a wolf will be prohibited! (WERF, 1999).

It must be recognised that in the U.S., most if not all States have some form of Dangerous Dog Law pertaining to all domestic dogs. This means that even if wolfdogs are not recognised as dangerous wild animals, they can still be regulated under domestic dog

legislation. A compounding problem in the U.S. is the question of rabies vaccination, which causes complications when 'hybrids' are included under domestic dog law. There is no rabies vaccine licensed for wolves or wolfdogs, therefore exemptions must be granted to the owners of such animals from the obligatory rabies vaccination requirement for domestic dogs, until such time as a vaccine is licensed for use in these species. [Although rabies is not a problem in the UK at present, this does have implications with the change in quarantine laws for the UK which requires a rabies vaccination before overseas travel. Wolfdogs will not escape quarantine if imported or re-imported, and will not be permitted to travel as domestic dogs (MAFF, 2000, Personal communication)].

Recent changes have been made to some U.S. State laws regarding the ownership and importation of wolfdogs. The deliberations in two States are considered in more detail.

8.1 Colorado State

The State of Colorado has a Dangerous Dog Law C.R.S. 18-9-204.5 prohibiting the unlawful ownership of a dangerous dog. A dog is described as 'any domestic animal related to the fox, wolf, coyote or jackal'. Wolfdogs are also covered by this legislation.

The State appointed a Canine and Feline Hybrid Advisory Group to consider the main problem of legislating for wolfdogs, which was determined to be the identification of such animals. The directives the group followed were those of Senate Bill 97-167 that had similar aims to the work carried out during the course of this report.

The findings from their meeting held 02/01/98 were as follows:

Identification of wolfdogs

Dr. Nick Federoff, a wildlife biologist, stated that the only way to identify a wolfdog cross is from an accurately documented pedigree. All other forms of wolfdog identification are problematic. "There are no known DNA markers uniquely distinguishable in the wolf that are not present in the dog". Blood tests, skull measurements and skeletal measurements all have some merit, but have not withstood legal challenge.

Dr. Pierotti, an evolutionary biologist studying hybridisation in vertebrates at the University of Kansas, indicated that even a combination of physical characteristics, blood proteins, microsatellites, nuclear and mitochondrial DNA tests have not sustained legal scrutiny in

courts of law. This is still the case a year after the meeting (Pierotti, 1999 personal communication).

Behaviour

The general opinion of the group was that the risk to public safety is affected by the socialisation of each individual animal. No generalisations can be made.

There was no conclusive evidence to show that wolfdogs are more aggressive towards humans than other big dogs such as Rottweilers, German Shepherd dogs, Chows or Pit bulls. The behaviour of a wolfdog does not depend on the amount of wolf it contains.

The behaviour of wolfdogs is different to that of domestic dogs, and wolfdogs require different training methods. A wolfdog is typically more independent and less responsive to human direction than a domestic dog. Aggressive behaviour may stem from hunting instinct as well as social aggression, although this behaviour is not unique to wolfdogs.

Both domestic dogs and wolfdogs have shown aggression towards people. The wolfdog ranks sixth in a survey of fatal canine attacks compiled by the Center for Disease Control and the Humane Society of the United States. The group was unable to find any scientific peer-reviewed statistical evidence that suggests that wolfdogs pose any greater risks than do domestic dog breeds.

Extent of the problem in Colorado

A state-wide survey was distributed to Sheriffs' offices requesting information on the status of, and incidents involving, canine and feline hybrids. Most respondents felt that the Dangerous Dog Law adequately dealt with hybrid situations. The number of wolfdogs reported was much lower than previous estimations. The number of incidents of injury or damage involving wolfdogs was reported as an average of 4 incidences per office reflecting all incidents recorded in the history of the offices. This is very low compared to the total number of canine incidents reported.

Regulation of wolfdogs in other States

It was found that States attempting to identify wolfdogs have had difficulty in proving that identification in court. Such States have found their programs unenforceable and ineffective due to the identification problem. The American Veterinary Medical Association has adopted

a position statement opposing breed specific regulations for canines. Programs for voluntary licensing have realised varying degrees of success.

Colorado's Dangerous Dog Law

A dangerous dog is defined as ' any dog which has demonstrated tendencies that would cause a reasonable person to believe that the dog may inflict injury upon or cause the death of any person or domestic animal; or has inflicted bodily or serious bodily injury upon or has caused the death of a person or domestic animal'.

Recommendations of the Colorado Canine and Feline Hybrid Advisory Group

The group concluded that a modification to the Dangerous Dog Law was required to improve public health, welfare and safety of residents, livestock and other animal life of the State

The first two recommendations involve the modification of or determinations concerning the present Dangerous Dog Law. The third recommendation is the creation of a Colorado Wolfdog Association intended to create a vehicle by which education and consumer protection could be available. The final recommendation covers feline hybrids, advising no further regulation due to the lack of reported incidents of human or animal attacks (Anonymous, 1998. Colorado wolfdog issues).

8.2 Oregon State

The law in Oregon State has considered wolfdogs as exotic species since 1992 (Oregon Department of Agriculture, 1998). During 1998 the decision was made to deregulate wolf hybrids from exotic animal law. Control was passed to local animal control officials no later than December 1998, allowing them to treat these animals as dogs and removing the requirements for caging that the exotic species laws demand. Local dangerous dog ordinances will be applied to cover wolfdogs where necessary.

Several factors were considered, again hinging on the problems associated with discrimination of wolfdogs from dogs. Oregon State authorities accept that there is no genetic test that can distinguish if an animal is a wolfdog, and believe that the final analysis of the animal must be based on owner declaration. This is often based on percentages of wolf content, as advised by the breeder of the animals, which at best does not give any indication of how many generations removed from a wolf an animal is, and at worst may be completely fraudulent.

The conclusions that the State came to were that behaviour based rather than breed specific legislation is more fair and enforceable.

As in Colorado's revision of its regulations, the statistics compiled by the HSUS and the CDC were quoted in determining how dangerous wolfdogs are compared to other domestic dog breeds. Like Colorado, Oregon concluded that wolfdogs do not pose any greater risk than other large dog breeds.

Since the end of 1998 wolfdogs in Oregon have been classified as dogs, and have been regulated under existing dangerous dog legislation. Now that wolfdogs are under local regulation, local communities can decide if they want to classify them as dogs or create other ordinances, (equivalent to bylaws), as they see fit. If they want tighter control, including special caging requirements, they can do this under existing statute.

The State veterinarian for Oregon State declared himself very satisfied with the outcome of the deregulation. (Clark, 1999 personal communication).

8.3 Europe

It has been extremely difficult to find information on laws regarding wolfdogs in European countries. Most of the information we have obtained is based on personal, anecdotal communication.

There are no laws governing the keeping of wolf dogs in Italy, although the keeping of pure wolves is forbidden (Ciceri, 1999, personal communication).

There have been reports that specific laws regarding wolfdogs exist in Sweden, where ownership of wolfdogs, including the domestic Sarloos and Czechoslovakian wolfdog breeds, is prohibited (Ciceri, 1999, personal communication).

The wolfdog situation in Finland at present is similar to that in the U.K The word "susikoira" (wolfdogs) has traditionally been used for dogs that look like wolves, although they are most likely to be domestic dog mixed breeds with no recent wolf inheritance. Out of an estimated 500 000 dogs in Finland it is thought that there are only a handful of wolfdogs in the country, although interest in such animals is said to be increasing. There are no laws restricting the keeping of wolfdogs in Finland, although it is forbidden to capture any wild animal. Since

there are still wild wolves living in Finland, it may become important to be able prove that a pet animal is a wolfdog and not a wolf (Lehessaari, 1999 Personal communication).

8.4 Northern Ireland

Northern Ireland has not adopted the DWAA 1976. At the present time there is no restriction on the keeping, breeding and sale of wolves or wolfdogs in the province, although CITES legislation can prevent the sale of pure-bred wolves. Since animals may be moved freely between Northern Ireland and the mainland this provides a possible avenue for the importation of wolfdogs into the UK.

Andrew Greenwood met with representatives from the Ulster Society for the Prevention of Cruelty to Animals (USPCA) and with the RUC Wildlife Liaison officer to discuss the current situation in Northern Ireland. It is the opinion of both parties that there are 3-6 breeders of wolfdogs in Northern Ireland, although no records are kept of such practices. They understand that the breeding and sale of wolfdogs is a new phenomenon, and believe that wolves and wolfdogs were imported from the Republic of Ireland in recent years (Philpott *et al*, 1999 personal communication). In early 1999 the USPCA estimated that there were at least 48 exotic animals owned by private individuals in Northern Ireland (O'Neill, 1999). It is certainly possible that Northern Ireland could be a source of genuine wolfdogs due to the absence of restrictive legislation.

We were provided with the names of 3 individuals believed to be involved in the breeding of wolfdogs in Northern Ireland. Unfortunately, these people have moved premises on more than one occasion; we have been unable to establish dialogue with these individuals using the most up-to-date contact details supplied by the USPCA.

Concerns over the trade in wolfdogs from Northern Ireland were expressed in 1996 following the appearance of an advertisement in an Essex newspaper, offering wolf hybrid puppies for sale for £800 each. The advert was traced back to breeders in Bangor, County Down, who claimed that the pups were bred from a pure Canadian Timber wolf father and a 95% wolfdog mother (Poulter, 1996).

A consultation paper on proposals to regulate the keeping of Dangerous wild Animals was published 5 February 1999 by the Department of the Environment for Northern Ireland. The proposed legislation is broadly similar to the DWAA 1976, with minor amendments to take into account the experience gained in the operation of the DWAA. The administration of the

new legislation is proposed to be entrusted to District Councils [however it is our opinion, in the light of our findings, that it seems preferable to establish centralised licensing by the Department of the Environment]. The Government has concluded that appropriate legislation must be put in place as a matter of urgency (Department of the Environment for Northern Ireland, 1999).

In April 1999, a wolf attack on a young girl in Bangor, County Down, prompted further demands for legislation to control dangerous pets in Northern Ireland. There has been no further progress with the Irish legislation since the consultation paper in February (Simmons, Department of the Environment for Northern Ireland, 1999, personal communication), and it would seem that any regulation of such animals is still some way off.

The Republic of Ireland does not have laws to restrict the keeping of wolves or wolfdogs; the Control of Dogs (Amendment) Act 1992 controls the keeping of specified Dangerous Dog Breeds; however this does not apply to wolfdogs. Although a Wildlife Act protects native wildlife and requires an import licence for all wild animals, the Republic is not a signatory to CITES. No indication of the wolfdog situation in the Republic of Ireland was provided.

9. The wolfdog as a pet

There are many reasons for wanting to own a wolfdog, the most common being the interest of owning and living with a part-wild animal. There are those that feel that re-introducing wolf blood into domestic dog breeds is a good way of producing superior animals with greater stamina, health and looks. Since wolves are now classed as endangered, and are therefore difficult to own, people think that the next best thing is to preserve wolf characteristics in the wolfdog (Prendergast, 1989). Of course, owning a highly successful predator such as the wolf may be seen as a status symbol. There are those that choose a wolfdog to be an aggressive guard dog, or as an expression of power and control (Prendergast, 1989).

9.1 Do they make good pets?

It is a strongly contested issue whether wolfdogs make suitable pets. Proponents claim that they make wonderful companions, and many people state that having owned a wolfdog, they will never go back to domestic dogs. Those against the keeping of wolfdogs are often vehement in their hatred of such animals, and many scathing articles have been written on the subject.

In the introduction to her book “Living with Wolfdogs”, the author, who now runs a wolfdog rescue centre in the U.S.A., states “ wolfdogs are not the perfect pet for the average person”. She goes on to point out that some problematic behaviours seen in dogs, such as digging, chewing and dominance challenging are often more exaggerated in the wolfdog. The overwhelming majority of wolfdogs placed in rescue centres are surrendered by their owners as they achieve maturity and begin to exhibit their wolf-like behaviour (Wilde, 1998).

It would be fair to say that wolfdogs require much more time and dedication from their owners than domestic dogs. The ease with which a wolfdog may be kept is related to its wolf content (low contents are usually easier to keep than highs), the amount of socialisation and training it receives, and a host of other factors.

When considering a wolfdog as a pet, there are a number of things to contemplate in addition to the usual commitments created when taking on any animal.

9.2 Legal restrictions and recommendations for containment

It is very important to consider the legal implications first and foremost. At present in the UK a Dangerous Wild Animal Licence is required. In order to obtain a licence, there must be adequate containment for the animal(s) concerned. American Zoological Association (AZA) guidelines recommend enclosure dimensions for a single large canid are a minimum of 150 square feet. For each additional animal, the enclosure size should be increased by 50% (Grisham *et al*, undated).

Fences over 6ft high with lean-ins are recommended, with a buried skirt of fencing 4ft wide to prevent digging out. The use of “hot-wire”, which delivers a mild electric shock if touched, is common in the US to further protect the top and bottom of the enclosure (Wilde, 1998). There should be a perimeter fence tall enough to prevent contact by people, especially children, who might get bitten through the fence.

Wolfdogs are likely to howl, and are capable of digging tunnels and dens. Their containment must be resistant to this, and not be in a highly populated area where noise from the animals could be a problem.

An annual fee is payable for a licence, and there is therefore a considerable financial outlay required when taking on a wolfdog.

The human caretakers should make a commitment for the entire life-span of their animal. If an owners circumstances change, it is extremely unlikely that a suitable new home will be found for a wolfdog.

10. Wolfdog behaviour

The behaviour of a wolfdog is very different to that of a domestic dog, especially once maturity is achieved at approximately 2 years of age. There are many aspects of wolfdog behaviour that may make them undesirable as pets.

10.1 Behaviour in the home environment

Many wolfdogs retain some natural wolf behaviour. Wolves are very curious animals, and if left unattended in the home may become very destructive. They have been known to destroy large items such as sofas, tables and dry walls (Wilde, 1998; Willems, 1994). If left alone outside they may become destructive or may dig or howl.

Wolfdogs are notoriously difficult to houstrain (Willems, 1994) although some authors claim it is possible (Wilde, 1998). They may pose an additional challenge as, although they may be houstrained, they may still “scent-mark” their territory (Prendergast, 1989). Both male and female wolfdogs have been known to urinate and defecate in the house to mark their territory. This behaviour is exaggerated when another animal’s scent is present.

A further consideration is the huge amount of fur most wolfdogs shed. Like the wolf, they often have a very heavy, thick undercoat, which is shed twice yearly (Prendergast, 1989).

The most important factor for a family to consider when contemplating a wolfdog for a pet is safety. As with any large canine, wolfdogs are certainly capable of attacking and killing animals, children and adults. Much has been written about the risks to public safety posed by wolfdogs. An affidavit made by Dr Michael W. Fox, a veterinarian working for the Humane Society of the United States, states that in his experience “wolf-dog hybrids can be emotionally unstable, unpredictable and therefore pose a significant danger to the public”(Fox,1991).

For most wolves in the wild, the scent of man causes fear and rapid avoidance (Mech, 1970). This is not the case in domestic dogs. One of the main reasons wolfdogs are perceived to be more dangerous is that they have the potential to be as powerful as a wolf, but with the confidence towards humans of a domestic dog.

In order to understand the risks involved, and to judge whether a wolfdog makes a suitable pet or not, one must consider the reasons *why* a canine may attack. The likely reasons can be categorised as follows:

Aggression

Wolf behaviour hinges on the fact that wolves live and hunt as a hierarchical pack. Wolves have a basic aversion to fighting (Mech, 1970). Their non-violent nature is necessary for the pack to function efficiently; it is detrimental for wolves within the same pack to fight one another. Dogs are more aggressive than wolves, as they are not subject to the same selective pressures as wolves (Willems, 1994). A number of dog breeds have been specifically selected for their fighting ability and aggressive tendencies.

Wolfdogs are not intrinsically aggressive (Lockwood, undated). Aggressive behaviour in a wolfdog appears to be related to the wolf content and the breed of dog in the animal. High content wolfdogs tend to show the decreased aggressiveness of the wolf. Some wolfdogs can be more aggressive than the domestic dog. Often aggressive wolfdogs are a result of breeding from aggressive dog breeds such as the pit bull or rottweiler (Willems, 1994).

Dominance

Although wolves within a pack do not usually seriously injure each other, there is a constant challenge from subordinate animals attempting to elevate their status within the pack. Wolf packs are controlled by the “alpha” male and female, which must constantly assert their dominance over the other pack members. Wolves have a very well developed, complex social relationship. A simplified explanation would be that dominant animals assert their control by ritualised attacks, often preceded by warning growls and snarls. If an attack does take place, initially “inhibited bites” do not cause serious damage (Fox, 1971). The victims of these attacks must play by the rules, and exhibit clear submissive behaviour. It is only when they do not show submission that an all-out fight occurs.

Wolfdogs kept in captivity often retain the urge to constantly challenge the alpha-animal (often the human owner) for dominance. Shows of dominance in wolfdogs are seen as the animal reaches maturity, often surprising the owner when their animal “suddenly turns on them” (Wilde, 1998). If these challenges are not dealt with assertively, it is possible that the wolfdog will perceive that it has achieved alpha status. If this occurs, most reasonable direction by the owner will be seen as a direct threat and is likely to invoke aggression. Unfortunately, humans are often not aware of the best way to react, and the attack can quickly

escalate if the appropriate submissive cues are not given. The challenges for dominance often do not happen only once. They are a constant threat, and the owner must always be prepared to respond assertively whenever challenged, without exception. It is not only the owner who is at risk. Children are often an easier target as the animals attempt to climb the social ladder. Wolfdogs with strong dominance tendencies may be particularly dangerous. Serious injury or even death to a human can occur during a dominance challenge (Willems, 1994).

Dominance challenges are likely to be more pronounced during the breeding season. Neutered animals are less likely to become seriously aggressive; however there is no guarantee (Wilde, 1998).

Predatory behaviour

Wild wolves are carnivores, hunting in packs for prey. It is generally thought that prey animals are primarily young, old or infirm animals; however this is difficult to prove from the remains of a kill (Mech, 1970). In his book "The Wolf", David Mech states that, when hunting, wolves require the stimulus of a running animal before they will attack. Most dog owners can attest to the same. Dogs that are ordinarily well-behaved around cats, for example, can hardly resist the excited chase should a cat decide to run.

The predatory instinct has been blamed for attacks many times. Almost all anti-wolfdog literature cites the predatory instinct as the reason why wolfdogs should not be kept as pets. Certainly, it does seem that there are particular stimuli that can trigger an attack. Statistics from the HSUS show 13 deaths between 1986 and 1996. Only one of these victims was over the age of thirteen. It would seem that children give off certain signals more frequently than do adults, which trigger the animals' predatory instinct to attack. Signals may be obvious, such as screaming, running or exhibiting an injury, however there may be many more subtle actions that go unnoticed by human observers (Willems, 1994). In the Los Angeles area, the majority of reported cases of wolfdog attacks on children involved a child on a skateboard, bicycle or running (Wilde, 1998).

Wolves and wolfdogs have been known to be reliable around children, but contact should always be in very controlled circumstances. Monty Sloan of Wolf Park, Indiana gives an interesting illustration: Wolves and wolfdogs are often used in the U.S. as ambassadors for the species, visiting schools and country fairs. Sloan shows a picture of "Imbo" – a six-year-old adult wolf. The animal is stood between two young children, exhibiting very submissive body language, and is gently licking one of the children's faces. Two months after the

photograph was taken, it was obvious that he would never be safe around children again. The cause of this was that, on two separate occasions, he had the opportunity to view children as prey. One child was having a tantrum; the other was a child with Tourette's syndrome. "Imbo" was not very close to either of these children, but their actions were enough of a stimulus for him to see all children as possible prey (Sloan,1998). Since these events, "Imbo" has begun to stalk small children. He becomes very excited when children approach his pen, and exhibits the same behaviour that he does when the pet cats approach his enclosure. He will never be allowed access to children in the future (Goodman, P. 1999 personal communication).

There are many more reported instances of wolves or wolfdogs attacking humans after years of uneventful ownership following some event where the human showed the animal some kind of weakness (Hope, 1994; Baird, 1997).

This aspect of wolfdog behaviour has led most responsible owners to declare that wolfdogs are not suitable pets for families with small children (Wilde, 1998).

11. The position of animal welfare bodies

The following organisations have issued statements or adopted policies concerning the keeping of wolfdogs as pets:

11.1 Royal Society for the Prevention of Cruelty to Animals

"The RSPCA does not believe that hybrid wolves make suitable family pets and will continue to advise the public against the cross breeding of wolves with domestic dogs and the keeping of hybrid wolves as pets" (RSPCA, 1997).

11.2 National Canine Defence League (NCDL)

"The NCDL is opposed to the sale, breeding and importation of any dog represented as a wolf hybrid believing that they would be purchased for the wrong reasons by persons unaware of their breeding and possible characteristics" (DeVile, 1999, personal communication).

11.3 The Humane Society of the United States

The position of the HSUS is that the private ownership of wild canids and hybrids must be strongly discouraged. It is also their position that any wolf hybrids surrendered to animal shelters should not be made available for adoption. If no suitable refuge is available to them, the euthanasia of the animals is recommended (Lockwood, undated).

11.4 IUCN/SSC Wolf Specialist Group

The Wolf Specialist Group of the International Union for the Conservation of Nature Species Survival Commission in 1990 condemned the private, captive ownership and breeding of wolves and wolf dogs, and urged immediate prohibition (Hope, 1994).

12. Review of attacks involving canines

The inclusion of wolfdogs under the Dangerous Wild Animals Act infers that these animals are more dangerous than their domestic counterparts. Proponents of wolfdogs maintain that the stereotypical portrayal of “the big, bad wolf” has led people to believe that wolfdogs are more dangerous than they actually are. There has never been a documented deliberate attack on a human by a healthy wild wolf in North America (Mech, 1970)

There has been no peer-reviewed research into the risk involved in owning a wolfdog compared to a domestic dog. There have been attempts to rationalise available data, however this is no substitute for properly controlled research. The majority of compiled information is from the United States. There is no central database in the UK that collates data from all hospital casualty departments.

The number of deaths caused by wolfdogs in the U.S. has been recorded by the Humane Society of the United States and the Center for Disease Control and these figures have been widely quoted (Anonymous, 1998 Colorado Wolfdog issues; Oregon Department of Agriculture, 1998; Hall, 1997). In order to interpret these figures a number of factors must be considered.

As previously illustrated in this report, identifying wolfdogs is extremely difficult. There is no mention in the statistics of how an animal involved in an attack was determined to be a wolfdog, or by whom. This problem has recently come to light over a recent canine related death in Michigan, U.S. on 22 August 1999. The animal involved was identified as a wolfdog by a well-known anti-wolfdog lobbyist. The media consequently labelled the animal as a “wolf with 5% German Shepherd Dog”. In all reality, the animal is likely to be 95% dog (Anonymous, personal communication, 1999), however the point is made that the assessor of an animal should be chosen with caution.

In the U.S. it is often the case that wolfdogs are misrepresented as dogs by their owners, especially if the animal bites – there is no licensed rabies vaccine for wolfdogs, and wolfdogs may be immediately destroyed for rabies testing. In other instances, owners have bought

animals that they believe to be wolfdogs, which are in fact mixed domestic breeds. In both cases, false information will be reflected in data published on attacks by each breed.

Another important fact to consider when viewing the figures is that all breeds of dog are not represented in the community in equal proportions. Although German Shepherd Dogs are placed near the top of the list for the total number of attacks, they are a popular breed; there are many more German Shepherd Dogs than wolfdogs in the country. The likelihood of an attack by a particular breed is related to how popular that breed is in the area. It does not necessarily mean that the German Shepherd Dog is the most aggressive breed in the country. The figures must therefore be weighted to take this into account.

In addition, it is likely that wolfdogs are generally kept in more secure enclosures than other domestic dog breeds. Most owners in the US are aware of the risks to their animal should it attack, and maintain a tight control on access to their animals. This may reduce the number of attacks, and consequently wolfdogs may appear less dangerous than they actually have the potential to be if allowed access to humans.

12.1 U.S. statistics

- There are an estimated 52-55 million dogs in the US (Wise *et al*, 1994; Anon, 1997).
- In the US (population 273 000 000) an estimated 4.7 million persons sustained a dog bite between 1992 and 1994 (Weiss *et al* 1998), an annual incidence of 573 bites per 100 000 people. Approximately seven hundred and fifty thousand dog bites required hospital attention in 1994 (Sacks *et al*, 1996), an incidence rate of 310 bites requiring hospital attention per 100 000 people.
- Of 109 dog-bite related fatalities in the U.S. recorded between 1992 and 1994, 57% of victims were under 10 years of age (Sacks *et al*, 1996). Children were found to be 43% more likely than adults to be bitten on the face, head or neck if attacked (Sacks, *et al* 1996).
- Out of 177 recorded deaths between 1989-1994 compiled by the HSUS twelve deaths were attributed to wolf hybrids. (See table 1).

Table 1: Breeds and crossbreeds involved in attacks between 1989-1994

Breed	No. of fatalities
Pit bull	57
Rottweiler	19
German Shepherd Dog	17
Husky	12
Malamute	12
Doberman	8
Chow Chow	6
Great Dane	5
St. Bernard	4
Japanese Akita	4

Cross breeds	
Wolf	12
Pit bull	10
German Shepherd Dog	9
Husky	6
Malamute	3
Rottweiler	2
Chow Chow	2

Attempts have been made to weight these results, taking into account the numbers of each breed in the general population. Cliff Mortimer from Guardians of Wildlife has compiled statistics using fatality data in combination with estimates of the numbers of individual animals for each breed to give a “per capita” estimate of attack likelihood. The lowest HSUS current estimate for wolfdog numbers was used (300 000), so that the highest “per capita” attack rate is achieved. American Kennel Club figures were used for all other breeds. He found that 0.0005% of German Shepherd Dogs were involved in fatalities each year, equivalent to 0.5 fatalities per 100 000 animals per year. This compares to 0.00025% of wolfdogs involved in fatalities per year, causing 0.25 fatalities per 100 000 animals per year (Mortimor, 1996).

In the absence of a properly conducted scientific investigation, few definite conclusions can be drawn from the figures available, however there is no data which strongly suggests that wolfdogs are more or less dangerous than similarly sized domestic dog breeds.

12.2 Attacks in the U.K.

There are an estimated 6.9 million dogs in the U.K. (Horsley, 1999, personal communication). There is no published data on the incidence of dog bites nation-wide, although individual hospitals may retain information. We requested data from the local Airedale District General

Hospital in Steeton, West Yorkshire, and were told that in 1998 there were 244 attendances to the Accident and Emergency Department for the treatment of dog bites (Rossall, 1999, personal communication). This hospital has a catchment population of approximately 205 800 people (Airedale General Hospital, 1999, personal communication). The figures equate to an annual incidence of 118 persons per 100 000 with dog bites requiring hospital attention.

To date, there has only been one reported attack involving an alleged wolfdog in the U.K. The attack involved an animal called “Ishtar”, sold as a timberwolf / Siberian Husky. The owner’s 22-month old son was attacked by “Ishtar” in November 1994, whilst playing with his older brother and sister. The children were throwing chocolates and “Ishtar” and the child tried to catch the same chocolate. He suffered bite wounds to the head and neck.

In the resulting newspaper reports, neighbours and friends of the family defended “Ishtar”, describing him as “the most popular dog in the village”(Frost, 1994).

[Having seen a photograph of “Ishtar”, and since learning of his breeder, we consider that it is extremely unlikely that he had any significant wolf content. Most likely, he is a German Shepherd cross. It is believed that “Ishtar” was humanely destroyed shortly after the “attack”.]

13. Legal cases involving wolfdogs

There have been a number of court cases involving alleged wolfdogs in the U.K. The main reason legal proceedings have been initiated is as a result of wolves or wolf-hybrids being advertised in the local press. There have been three court cases concerning the keeping of wolfdogs in the U.K. Towards the end of this project, we also received information that there has been at least one case where a breeder has been accused of fraudulently representing an animal that she sold.

Only one prosecution has ever been brought over an alleged wolfdog under the Dangerous Wild Animals Act 1976. The prosecutors lost the case, and the opinion of the local authority involved was that the wording of the Dangerous Wild Animals Act was unsatisfactory in relation to the issue of hybrids in general, and wolf hybrids in particular, and did not make adequate provision for authorised entry to unlicensed premises (Kerr, 1998). In three separate cases, where private individuals were found to be keeping wolfdogs without a licence, local authorities seized the animals under section 4 of the DWAA.

13.1 Broxtowe Borough Council, October 1994

In October 1994, Environmental Health Officers saw an advertisement offering a wolf for sale. When approached by the Environmental Health Officers, the vendor claimed that the animal was, in fact, a hybrid, with a 100% Arctic wolf father and a 65% timberwolf/German Shepherd Dog mother. The owner did not hold a Dangerous Wild Animal licence for the animal. Consequently, the local authority seized the animal under section 4 of the Dangerous Wild Animals Act 1976, and it was subsequently sold to West Midlands Safari Park. No further action was taken by either the local authority or the owner, although the solicitors acting on behalf of the owner later claimed that the animal was more generations removed from a pure wolf than had previously been declared. It is understood that the animal concerned (called “Molly”) was bred by a well-known breeder in the north of England (Hayes, 1999, personal communication).

During the course of this project, Andrew Greenwood has observed Molly at the West Midlands Safari Park and it is his opinion, and that of the animal staff at the park, that Molly’s behaviour and appearance are very dog-like. Broxtowe’s decision to seize the animal was made following consultation with the Department of the Environment, the RSPCA and other local authorities based on the owner representing the animal as a hybrid. It was their conclusion that wolf hybrids, of the kind *Canidae*, could not be described as *Canis familiaris*, and were therefore proscribed as a Dangerous Wild Animal under the Act (Hayes *et al*, 1995).

13.2 Susan Wildin –v- Rotherham Metropolitan Borough Council 18/06/97

In February 1997, the plaintiff advertised a 75% wolf for stud. Rotherham Metropolitan Borough Council noticed the advert and officers from the council visited the plaintiff and saw the animal advertised, named “Wolf”. The council officers stated that a licence would be required under the Dangerous Wild Animals Act should the plaintiff wish to keep “Wolf”. The plaintiff claimed that “Wolf” was not the 75% wolf as advertised, but was 18% wolf. On hearing this, the council officers left to reconsider the situation.

Having concluded that the animal was classed as a Dangerous Wild Animal, and that the plaintiff did not have a licence, the council removed “Wolf”, without warning, to local authority care under the Dangerous Wild Animals Act. The local authority did not take the matter further.

The plaintiff therefore initiated a civil action under the Torts Interference with Goods Act 1977, for the return of the animal. The judgement of the case relied on determining whether “Wolf” was a proscribed Dangerous Wild Animal, and was therefore properly seized under section 4 of the Dangerous Wild Animals Act. If “Wolf” were judged to require a licence, this would preclude any right to return or damages by the plaintiff.

The reasoning of the judge was based on a report written on the case by Dr. Michael W. Bruford, head of the Conservation Genetics Group at the Institute of Zoology, London. The conclusion of his report was that even an animal with a wolf genetic representation of less than 1% would not be *Canis familiaris*, since it would still have a large number (over 100) of wolf genes present. (Bruford, 1997).

It was the ruling of the judge that “Wolf” is a canid, but does not come within the exemption of being a domestic dog. The action by the plaintiff therefore failed, although the judge commented that were she to apply for a Dangerous Wild Animal licence for “Wolf”, she “seemed an eminently well suited person” (Harpham, J.L. Ltd., 1997).

There was no licence application forthcoming, and “Wolf” was finally placed with a new owner, licensed to keep Dangerous Wild Animals. Penny Cusdin has observed this animal, both alone in an enclosure and interacting with other dogs and one other alleged wolfdog. No obvious wolf behaviour was noticed during the visit. The animal barked whenever approached by strangers. In appearance, the animal had short legs and small feet with clearly defined white-coloured “socks”, chest and throat. The tail was often held high and slightly arched over the back and had a white tip. It is our opinion that all these features are normal dog characteristics rather than those of a wolf.

13.3 Newark and Sherwood Council –v- Julie Kelham 20/05/98

In July 1997 an attempt was made by Newark and Sherwood District Council to seize suspected animals from the defendant in Newark, Nottingham. This was unsuccessful due to the inadequate powers of entry provided by the Act, as perceived by the council (see later).

The only remaining course of action open to Newark and Sherwood District Council was to prosecute for an offence under Section 1 of the Dangerous Wild Animals Act 1976 (The keeping of unlicensed animals). This was the first prosecution in British law involving an alleged wolfdog in contravention of the Dangerous Wild Animals Act.

The case was based on the following evidence:

- Verbal admission by the owner that the animals contained a low percentage of wolf
- An advertisement in the local newspaper offering “wolf hybrid puppies” for sale
- The owners appearance on television and in the press on wolf hybrid issues

The case was heard at Newark Magistrates Court on 20 May 1998.

Three council officers gave evidence for the prosecution. The prosecution expert witness was Dr. Michael Bruford, an expert geneticist, who argued (as at Rotherham) that any dog with even 1% wolf genes could not be classified as *Canis familiaris* and would therefore fall within the scope of the Act.

The council were unable to have experts examine the animals as it was their understanding that the Act did not make provision for custody, since no application had ever been made for a licence.

The defence called two experts, Dr. Roger Mugford, a “leading animal psychologist”, and Trevor Turner MRCVS, an “eminent veterinary surgeon”. Both had examined the animals and had found no trace of wolf-like behaviour. The defendant claimed in court that none of her dogs contained recent wolf genes, but that they had been bred from “Nordic breeds” supposedly closer to wolves genetically than most dogs. She also denied that the dogs advertised were hers, saying that they belonged to a friend who was using her telephone number.

As this was a criminal case, the prosecution had to prove beyond reasonable doubt that the animals were wolf hybrids within the meaning of the Act. Since the local authority had no opportunity to inspect the animals concerned, they were unable to present any evidence of the animals alleged wolf content to the court. Consequently the court found the defendant not guilty (Kerr, D. 1998.).

13.4 Thomas Walker-Coates –v- Sedgefield Borough Council 17/07/98

The plaintiff came to the attention of the local authority when he placed an advertisement on 17 April 1997 in a local free paper offering “Canadian Timber Wolf puppies, cross German Shepherd 78 per cent Timber Wolf”. The advert was also noticed by Tyne-Tees Television, and the plaintiff appeared on “North East Tonight” stating that his animal, “Topin”, was 78% timberwolf.

On 1 May, the Environmental Health Manager of Sedgefield Borough Council had a telephone conversation with the plaintiff about “Topin” and the provisions of the Dangerous Wild Animals Act, and the plaintiff agreed to apply for a licence. On 2 May, having concerns of public protection and also for the welfare of “Topin”, Sedgefield Council seized “Topin” under section 4 of the Act, and placed the animal in local authority care.

The plaintiff allegedly bought “Topin” as a 78% wolf hybrid, for £400 from a man that he met at a service station on the A74 in Scotland. Since “Topin” was taken into custody by the authorities, the plaintiff came to the conclusion that he had been duped by the man that sold “Topin”, and that he now believes that “Topin” is in fact a crossbreed dog. He therefore initiated a court action, by suing the local authority under the Torts Interference with Goods Act 1977 for the return of his animal. As in the Rotherham Metropolitan Borough Council case, the defendants must prove that in all probability “Topin” is indeed a wolf hybrid.

Expert witnesses for the defence included Dr. Michael Bruford, who stated that there was no genetic test that could give a 100% answer to the question of whether “Topin” was wolfdog or dog. He did not examine “Topin”; however he did go on to state that wolves and dogs are identical in over 99.8% of the genetic sequence.

The next witness called was a zoo manager with ten years experience in a collection that included grey wolves, plus private experience in dog breeding, although with no experience of the northern breeds. He was currently working at the Blackpool Zoo where “Topin” was held for about a year before the court case was heard. He stated that “Topin” exhibited hunting behaviour, and could not always be trusted when a human is in the pen with him.

Mr Michael Fielding MRCVS, a veterinarian with experience in the treatment of exotic and non-domestic species, visited “Topin” regularly at the zoo. He believed that “Topin” exhibited many characteristics of a male adult wolf, including coat colour and type, facial markings, vocalisation and dominant behaviour. He concluded that “Topin” was not pure *Canis familiaris*.

Mr. Duncan Davidson MRCVS was the final expert witness for the defence. He is a veterinarian with an interest in wolf hybrids, having handled or examined over 100 such animals. He spoke to the court about phenotypical features such as the animal’s legs, feet, tail carriage and dentition that in his opinion were similar to those of a wolf. Although he

declined to estimate the actual percentage of wolf, he stated that the percentage of wolf represented in “Topin” was “more than negligible”.

The expert witness for the plaintiff was Sue Hull B.Sc. She practises as an animal behaviour consultant, and is a member of the Association of Pet Behaviour Counsellors. She has over 15 years of experience with wolves, wolfdogs and Nordic breeds, particularly Siberian Huskies and Eskimo dogs. The defence objected to the description of Sue Hull as an expert witness, as she is a Bachelor of Science in geology, which was taken to be an unrelated discipline; however the court admitted her evidence. She concluded that “Topin” exhibited many physical and behavioural features of the Nordic dog breeds with which she is familiar. She also found that “Topin” exhibited many characteristics that are unique to domestic dogs, such as his “face markings, dog-like skull, teeth, soft silky coat and the animal’s broad chested, heavy build. She further concluded that “Topin” did not possess any characteristics unique to the species *Canis lupus*, and therefore believed that “Topin” did not fall within the scope of the Act.

From the evidence given by the defendant’s expert witnesses, the court judged that “Topin” is more probably than not a wolfdog. On losing the case, the plaintiff lost all rights to recover the animal and the council decided that “Topin” should be re-homed under licence. (Harpham, J.L. Ltd, 1998.)

Penny Cusdin saw “Topin” at the wildlife sanctuary where he was held with another alleged wolfdog “Wolf”, the animal seized by Rotherham Borough Council in 1997. Having discussed “Topin” with various people, including consultation with WolfWatch UK, she is of the opinion that “Topin” is a mixed breed domestic dog, having displayed no wolf-like behaviour and exhibiting very dog-like appearance and movement. We would agree with the evidence given by the plaintiff that “Topin’s” broad chested, heavy build and soft silky coat, along with the absence of any features which are uniquely wolf-like makes it more probable that “Topin” is a dog than a wolf-dog, however this does not agree with the findings of the court.



“Topin” 14/07/99

13.5 Crown –v- Gary Sebo 1996

Towards the end of this project, we obtained information that there has been at least one legal case involving a breeder misrepresenting animals as wolfdogs.

This case involved a known "wolfdog" breeder living in the Nottingham area. The defendant agreed to speak to us by telephone, but did not wish to meet in person and was not willing to provide us with photographs or details of the court case.

The defendant and his brother each bought an animal described as young wolf-hybrids from the breeder, paying £400 per animal. The breeder allegedly told the defendant that the animal he wished to purchase was a 70% Canadian timberwolf.

As the animal matured, the defendant told us that he began to realise that the animal, named “Lingo”, was not the type of animal that he thought he had paid for. He therefore went back to the breeder, and told her that instead of a wolf-hybrid, he believed that she had sold him a German Shepherd Dog x Siberian Husky. Following an argument with the breeder, the defendant was allegedly refunded £420 for the animal.

As a result of this meeting, the defendant was arrested and charged with theft, following an accusation by the breeder that the defendant had snatched the money during their negotiations. The case was finally resolved at Nottingham Crown Court, after a year long

period of repeated court appearances, and the defendant was cleared of all charges (Walsh, 1996).

We understand that, following the case, the breeder also refunded the defendant's brother for his animal.

14. Discussion of legal cases

The foregoing legal actions have highlighted a number of problems with the current legislation governing the keeping of wolfdogs in the U.K.

In three of the four legal cases regarding the keeping of wolfdogs, the animals have been seized under the Dangerous Wild Animals Act, but prosecutions have not been pursued. It may be that local authorities recognise the difficulties in identifying wolfdogs and are unwilling to instigate proceedings where there is little chance of success. Under the DWAA (section 4, subsection 1) they have no need to do so, and it is in their interests not to prosecute, but to "tempt" the owner into suing for their animals' return. The advantage to the Authority is that where an owner sues for the return of their animal following its seizure the action is tried as civil case. The verdict of such cases is based on balance of probability, rather than requiring facts to be proven beyond all reasonable doubt. A prosecution under the Dangerous Wild Animals Act is a criminal action, and there must be clear evidence that an animal is of the kind stated.

This certainly seems to influence the way in which Local Authorities implement the Dangerous Wild Animals Act in hybrid cases. During the course of our Local Authority survey we were informed of a suspected breeder in the Salford area. Salford Borough Council had replied to our questionnaire, and had not indicated any knowledge of wolfdogs in their area. Wigan Borough Council indicated on their questionnaire that they were aware of a potential breeder in the Salford area. Wigan Council was unsure as to which authority regulated the suspected breeder's property, and therefore investigated the situation. It is believed that the individual involved is certainly breeding dogs, if not wolfdogs, without a Dog Breeder's licence. Salford Borough Council are aware of Wigan Council's suspicions, however they openly admit that they are not prepared to prosecute under the Dangerous Wild Animals Act as they understand that they will not be able to prove an animal's ancestry in a court of law. The breeder is now under investigation by the RSPCA and the police, and no further information was forthcoming.

The prosecution under the Dangerous Wild Animals Act made by Newark and Sherwood District council in 1997 illustrated a problem in the interpretation of the Act. It was the council's understanding that, because the defendant had never applied for a licence, they had no legal right of access to and inspection of her premises and animals (Section 3 – Inspection by local authority.) It is our interpretation that under Section 4 of the Act the local authority had every right to seize the animal(s), as in their opinion those animal(s) were being kept contrary to Section 1 of the Act, i.e. without a licence. As a result of this, the prosecution's evidence was significantly disadvantaged since there was no opportunity for the examination of the animals by the prosecution's expert witnesses. In the absence of any genetic tests, it was therefore impossible for the prosecution to prove beyond reasonable doubt that the defendant's animals contained recent wolf ancestry.

Civil cases for the recovery of seized animals depend on the identification of wolfdogs by expert witnesses and tend to be based on rather unscientific and unquantifiable criteria. There is an obvious risk of courts being swayed by the weight rather than the quality of the expertise.

Unless these inherent problems with the Dangerous Wild Animals Act in respect of wolfdogs can be overcome, there are likely to be few prosecutions by local authorities under the Act, effectively rendering the legislation useless for these animals. At the date of publication, one breeder in the north of England continues to advertise and sell animals represented as 75% wolf hybrids without a licence, and with the knowledge of the Local Authority, and still no legal action has been taken.

Under the DWAA 1976 (Modification) Order 1984, a licence is required to keep a wolf or wolfdog "where one parent is, or both parents are of a kind so specified" in the Schedule to the Act. Local Authorities, Members of Parliament and other interested individuals have expressed different interpretations of the meaning of "parent" and this is causing concern as it is unclear as to which generations require a licence. The DETR, whilst maintaining that ultimately the interpretation is a matter for the courts, has explored the possible definitions. The Concise Oxford English Dictionary includes in its definitions for parent "a forefather"; and "an animal or plant from which others are derived". Parent has also been taken to mean linear ancestor (such as parent, grandparent etc.). It is our opinion that in the context of the Schedule parent means either the "mother or father" of the said animal (because the words "one or both" parents are used, rather than "any" parent, in the Schedule). Even where parent is taken to mean "mother or father", if one or both parents are wolfdogs (which are not *Canis*

familiaris and therefore *are* of a kind so specified under the Schedule of the Act), then the offspring of such parents also require a licence. Thus, breeders cannot claim that only first generation wolfdogs require a licence.

It seems that the interpretation of parent has not yet been tested in the courts, although the report by Dr M. Bruford states that any animal which contains even 1% wolf genes cannot be classified as *Canis familiaris* (Bruford, 1997). This certainly supports the opinion that not only first generation animals require licensing under the DWAA.

15. The wolfdog situation in Great Britain

A major component of this project was to obtain information about the numbers and locations of wolfdogs in Great Britain. We aimed to obtain information on all licensed wolves and wolfdogs and, from this information, hoped to gain knowledge about those animals kept without a licence.

This project was commissioned amidst concerns about the increasing popularity of wolfdogs both in the U.S. and the U.K. In an article published by the RSPCA an unsubstantiated figure of 123 wolfdogs in the country was quoted (Mcillroy, 1996), whilst the Born Free Foundation estimated their numbers to be between 500 – 2000 (Hall, 1997). Members of the public expressed concern about a perceived increase in numbers of wolfdogs following media coverage by the press where they are portrayed as dangerous, unpredictable killers, by writing to newspapers and Members of Parliament.

16. The market for wolfdogs in the U.K.

From our research, it would seem that wolfdogs are advertised freely in the press. We have had several reports of “wolf-hybrids” being advertised in the local free papers and Free-Ads, and in animal magazines such as “*Cage and Aviary Birds*” (where they are advertised as Dangerous Wild Animals).

Advertisements do seem to bring unlicensed owners to the attention of the local authorities; however as can be seen from the court case Coates-Walker –v- Sedgefield Borough Council, often the vendor’s identity is concealed as much as possible. On more than one occasion animals have been sold and the purchaser was given only a first name and a telephone number for the breeder.

Pups sell for between £150 and £800 each. The price charged is seemingly dependent on how closely the animals resemble pure wolves.

We are aware of two prominent breeders who have, in the past, extolled the benefits of wolfdogs and have openly appeared on television and in the press declaring their interest in wolfdogs. These breeders, living in the north of England, have been well-known since the early 1990s. We believe that a large proportion of animals represented as wolfdogs originate from these breeders.

One of these breeders, although maintaining that she has now retired from wolfdog breeding, is known to have sold a large number of animals represented as wolfdogs over the past few years, and is still freely advertising "wolf-hybrids for sale". She has declined to co-operate with this project. She does not hold a licence for Dangerous Wild Animals. She has been banned for life from owning animals following prosecution by the RSPCA, however she is known to continue to keep animals on her premises.

The other breeder has also sold animals represented as wolfdogs. At the time of our visit she owned five dogs, and had a litter of puppies. She was prosecuted by the Local Authority under the Dangerous Wild Animals Act in 1997, however she successfully claimed in court that her animals did not contain recent wolf ancestry. She is now establishing a new breed of domestic dog, named "Northern Inuit" which she is currently trying to have recognised by the Kennel Club. The result of this is that the animals that she was previously selling as wolfdogs are now being sold as "wolf look-alikes - Northern Inuits". This breeder agreed to speak to us about her Inuit dogs, but refused to give us information on the wolfdogs she sold before the court proceedings were taken against her.

We have been informed that the "Northern Inuit" dog has been developed from a mixture of Alaskan Malamute, German Shepherd, Siberian Husky and Inuit dog breeds. No mention is made of any wolf content in the breed. She informed us that the Kennel Club have agreed to accept an application from "The Northern Inuit Society", however we have spoken to the Kennel Club directly and they informed us that it is extremely unlikely that these animals will be recognised as a new breed in the foreseeable future.

Although we have been told that there is no connection between the Northern Inuit and wolfdogs, advertisements in *Cage and Aviary Birds* magazine describe animals for sale as being "Northern Inuit puppies – Wolf X" (*Cage and Aviary Birds*, 24/10/98 & 31/10/98).

Having met one of these breeders, and having seen pictures of a number of the other breeder's animals, it is our opinion that it is highly unlikely that either person has ever bred genuine wolfdogs. We understand that the original animals from which breeders began breeding were imported in around 1987 from San Francisco (see photographs 5-8). Although imported as 25% wolfdogs, we have been informed that these animals were, in fact, rescued animals of unknown ancestry, and therefore their wolf content could never be stated with accuracy. In addition, one reportedly "low content hybrid" female was imported from Alaska (Photograph 9). Even if these animals were accurately described, the offspring of the breeder's animals today do not show any sign of recent wolf ancestry. To the best of our knowledge, neither breeder has ever had access to any animal with a significant wolf content.

Photograph 5–8: The animals imported from San Francisco which were allegedly the founder animals for both well-known breeders in the north of England.



(5)



(6)



(7)



(8)

Photograph 9. The animal imported from Alaska



During the course of this investigation we have not discovered a single breeder selling what we believe to be genuine wolfdogs. It is our opinion that the breeders of “wolfdogs” in this country realise that there is money to be made in advertising their litter of domestic mixed breed pups as wolfdogs. It would seem that unscrupulous breeders misrepresent an animal’s ancestry to potential buyers. This has resulted in a group of owners that believe that they own wolfdogs, when in fact there is very little evidence to support this. This causes problems, as the more animals represented as wolfdogs there are, the more coverage they get in the press and the more concerned the public become. Another problem with animals being misrepresented as wolfdogs is that owners falsely believe that owning a “wolfdog” is no different to owning a domestic dog. This can lead to major problems if, next time, they *do* get a *real* wolfdog.

17. Local authority survey

In order to assess the numbers of licensed animals in the U.K. a questionnaire was used to survey the local authorities. Before compiling a questionnaire, we conducted an initial investigation, and were advised that usually Environmental Health Departments administer the Dangerous Wild Animals Act; however Trading Standards or Licensing Departments deal with the Act in some councils. We were told that local authorities receive a vast number of surveys, and we therefore took steps to encourage replies. The questionnaire was advertised on the Environmental Health Officers Association e-mail list prior to being sent, in the hope that the raised awareness would increase the response rate. A covering letter was sent with each questionnaire, explaining the aims of the survey, and emphasising the involvement of the DETR.

A simple questionnaire was sent to the Chief Environmental Health Officer of each Local Authority in England, Scotland and Wales. The DWAA does not apply in Northern Ireland. A copy of the questionnaire and covering letter is provided in Appendix 1. Five questions

were chosen, and it was our intention to keep the survey short and simple to complete. We requested the return of the form from each authority regardless of the answers, to try to ensure that all local authorities were accounted for. A postage paid return envelope was included with each form.

A total of 410 questionnaires were sent out to local authorities in England, Scotland and Wales. Replies were received from 398, giving a response rate of 97%.

17.1 Results

384 (96.5%) respondents to the questionnaire replied that they had not licensed either wolves or wolf-dog hybrids in the last five years. Only 14 respondents (3.5%) said that they had licensed such animals, and of these, only 7 licences (1.8%) were still in force.

Table 2: DWA licences granted in the last 5 years for wolves or wolfdogs

Local Authority	No. of licences granted in the last 5 years	No. of wolves licensed	No. of wolfdogs licensed	No. of licence applications refused
Cotswold District Council	1	0	1	0
East Lindsey District Council	1	0	1	0
East Riding of Yorkshire District Council	1	0	4	0
Hammersmith and Fulham District Council	1	1	5	0
North East Derbyshire District Council	1	0	1	0
North Warwickshire District Council	1	6	0	0
North Wiltshire Council	1	2	0	0
Sheffield City Council	1	1	0	0
South Gloucestershire Council	1	0	3	0
*South Shropshire District Council	5	5	0	0
Stoke-on-Trent County Council	1	0	3	0
Tandridge District Council	1	0	2	0
West Berkshire District Council	1	8	0	0
West Oxfordshire District Council	1	3	0	0
TOTAL	18	26	20	0

*Note: The five licences granted by South Shropshire are for the same five animals owned by one person over the past five years.

From the table, it may be seen that 14 local authorities have licensed wolves or wolfdogs during the last five years. It must, however, be noted that it is often the case that different authorities licence the same animals as they are moved around the country. The animals licensed by Hammersmith and Fulham, for example, were animals normally kept in South Shropshire which were being used for filming in London. It is interesting to note that although the licensee does in fact own 4 wolves and one high content wolfdog, they are licensed as 5 wolves by Shropshire council and as 5 wolfdogs (and 1 wolf) in Hammersmith. This may suggest that, for the purpose of licensing these animals, when a licence application is made the distinction between wolf and wolfdog becomes irrelevant.

18. Licensed wolf and wolfdog owners

A brief summary of each licensed owner is given below. Where licences for wolves and wolfdogs are still in force, we requested information from the Local Authority about the owners identity, in order that we may make contact. If Local Authorities were not prepared to divulge such information, we requested that the Local Authority passed on such a request on our behalf. Those licences still in force are underlined.

North East Derbyshire District Council

1 wolfdog licensed – owners would not co-operate with the study. Bought from the Free-Ads newspaper.

West Oxfordshire District Council

3 wolves licensed to private collection. Copy of licence provided.

Tandridge District Council

2 wolfdogs licensed. Wildlife sanctuary, housing “Wolf” (animal seized by Rotherham Metropolitan Borough Council) and “Topin” (animal seized by Sedgfield Borough Council

West Berkshire District Council

8 wolves licensed to the UK Wolf Conservation Trust. (Now has two more wolves following successful breeding).

South Shropshire District Council

5 wolves licensed to WolfWatch UK. (Has since taken on two more wolf cubs from Howletts Zoo which he is hand rearing).

East Riding of Yorkshire Council

4 wolfdogs licensed to private owners living in Drifffield, East Yorkshire.

Cotswold Borough Council

1 wolfdog licensed to a private owner in Cirencester. During the course of this investigation, we have discovered at least one animal bred by this person, and sold as a wolfdog. We do not have the name or address of this breeder, however during a telephone conversation made by us posing as a buyer, he claimed that his animal is a pure female timberwolf. When asked about the availability of pups, he said that, because of the “new laws”, he wasn’t going to breed again, although I wasn’t the only person to ask. If enough people rang him, he would consider breeding from his animal again, charging £600 per pup. He informed me that the laws have recently changed – he says he did not need a licence two years ago - and that depending on my area, I might need a licence. He claims that he will be breeding pure wolves in the near future, as he has a contract to supply some to Sweden for £20000. His parting advice was that if I wanted a wolfdog, “just keep quiet and tell people it’s a Husky cross and nobody can prove any different”.

The animal warden (a veterinary nurse) from Cotswold District Council has inspected the licensed animal and, in her opinion, it resembled a husky breed that barked and had short, stocky legs. It is a condition of the licence granted by Cotswold council that only one “hybrid” may be kept by the licensee. We have inspected one puppy bred from this animal living in Basingstoke, and in our opinion, it is extremely unlikely that either parent contained a significant wolf content. South Oxfordshire Council has discovered another pup born to this wolfdog. This authority does not require the animal to be licensed.

Stoke-on-Trent City Council

3 wolfdogs licensed. Animals allegedly now sold. (RSPCA and police investigating premises – no further information available).

East Lindsey District Council

1 wolfdog licensed. Licence now lapsed as owner informed the council that the animal has died.

Hammersmith and Fulham Borough Council

1 wolf and 5 wolfdogs temporarily licensed to a film company. Licence covered the WolfWatch UK animals whilst they were being used for a filming contract. The animals (actually 5 wolves and 1 hybrid) are now permanently housed in South Shropshire.

North Warwickshire District Council

6 wolves (actually 5 wolves and 1 hybrid) licensed to WolfWatch UK, before the animals were moved to South Shropshire.

Sheffield City Council

1 wolfdog was licensed three years ago. The local authority was informed that the animal is now dead.

South Gloucestershire Council

3 wolfdogs licensed to a private breeder. Licence now lapsed as owner moved away from the area. There is hearsay that the animals were bred from, and the dog warden is of the opinion that there are other unlicensed wolfdogs in the area. This has not been confirmed.

North Wiltshire District Council

2 wolves were licensed by this council to a private breeder, and are believed to be two of those animals licensed as wolfdogs by South Gloucestershire Council. The animals have been seized by the local authority, following repossession of the land. The animals were moved first to Huntingdon, and are now believed to be held under licence in South Cambridgeshire. We have not been able to establish their exact location. Both Huntingdon and Cambridgeshire Council responded to the questionnaire, however they had not licensed any wolves or wolfdogs at the time of the survey.

18.1 Total number of licensed animals

In total, there are 16 wolves (plus 4 pups not included on licences at time of survey), and 8 wolfdogs in the U.K licensed to a total of 7 people. There are also the 2 animals previously held by the private keeper in South Gloucestershire, which are now believed to be wolves. These animals are now held in South Cambridgeshire, although they were not licensed with this authority when the questionnaire was returned. It is impossible to prove that the animals licensed as wolves are definitely wolves, and likewise for wolfdogs, but these figures represent the licensed population as declared by the owners.

19. Additional comments from questionnaire

In addition to comments on the wolfdog issue, local authorities also indicated problems with defining other species that may be covered under the Dangerous Wild Animals Act, such as Bengal cats and hybrid pigs. All unrelated comments have been forwarded separately to the DETR.

20. Visits to licensed owners

Attempts were made to visit each licensed premises holding wolves or wolfdogs. Unfortunately there were some owners that did not wish to co-operate with the study and we were unable to discover their exact location. Visits were made to five out of seven licensed owners of wolves or wolfdog hybrids. During the visits, questions were asked about the animals held, their containment, their licence application and their origin. It was sometimes the case that licensed owners were able to provide information on unlicensed animals.

In our opinion, six animals described as “wolfdogs” that we observed are fakes, including those confiscated by local authorities. Having examined them, assessed their behaviour and inspected where and how they are kept, we believe that they are mixed-breed domestic dogs. Two other wolfdogs are licensed and, although the owners do not wish to co-operate with the study, at least one of the animals is also likely to be a fake in the opinion of the animal warden (a qualified veterinary nurse) who inspected the animal on behalf of the local authority.

During the course of this project, we have only seen one animal that we consider to be a genuine wolfdog. This animal belongs to WolfWatch UK; she is licensed as a wolf, and is the dominant animal in the enclosure she shares with three pure wolves.

During the course of the survey we discovered that local authorities administer the Act in a number of different ways. As mentioned previously, the department involved with the Dangerous Wild Animals Act is usually Environmental Health; however we have also been directed to Licensing and Trading Standards departments. Following the deadline for the return of the questionnaire, we attempted to recover all outstanding questionnaire replies by telephone. This often required us to make a call to the council’s switchboard, requesting the department involved with licensing Dangerous Wild Animals. Contacting the local authority about a DWA proved very difficult in many cases, as the switchboard operators do not have the knowledge to deal with the call. On more than one occasion the switchboard connected the call to a voicemail or telephone line which was not answered. It is often the case that the call is re-routed more than once before being connected to the correct department. On reaching the correct department, frequently there is only one individual that can deal with an enquiry.

From our visits to licensed owners, it was revealed that there is a large discrepancy in the fees charged for licensing between local authorities. It was therefore decided to conduct a smaller, secondary survey of fees.

21. Survey of fees charged for DWA licences

The aim was to obtain a random representation of the fees charged by local authorities for the licensing procedure. It was intended to obtain data from at least 50 different local authorities. The councils were contacted once by telephone, selected randomly from the questionnaire answers.

A total of 67 local authorities were surveyed. Of these:

- 52 provided fees over the phone, or telephoned back with the information.
- 5 local authorities did not return the call as promised.
- 3 local authorities put the call through to a voicemail or a telephone line, which was not answered.
- 2 local authorities did not know which department to put the call through to.
- 4 local authorities state that they have no set charges or that the charges are currently under review.
- 1 local authority (Watford Borough Council) insisted that they do not issue Dangerous Wild Animal licences!

During the course of our visits to licensed keepers of wolves and wolfdogs we have requested information on the fee charged by local authorities. WolfWatch UK moved from Warwickshire to Shropshire, and noticed a substantial difference in the fees charged for a DWA licence. Since moving to Shropshire, there was an approximate increase in the fee of about 10% per year. Wolfwatch UK researched the Dangerous Wild Animals Act, and, in particular, noted that in Section 1 (e) of the Act it states that the fee charged should, “in the authority’s opinion, be sufficient to meet the direct and indirect costs which it may incur as a result of the [licence] application”. When challenged, the local authority halved the fees charged for DWA licences, and the centre now pays less than £100 per year.

We are aware of certain local authorities charging exorbitant fees (The City of Nottingham council charge £1000), which they openly admit is intended to be prohibitive to the keeping of Dangerous Wild Animals in the area. Variations in the licensing conditions and the extent of liability insurance required also differ.

Table 3: Fees charged by local authorities

Local authority	£0-£50	£51-£100	£101-£200	Over £200	Over £500
Lichfield District Council			£120		
Sandwell Borough Council			£130+		
Epping Forest District Council				£420-	
Powys City Council			£112.50+		
Luton Borough Council					£756
Stafford Borough Council		£78+			
Rossendale Borough Council				£356+	
South Tyneside		£92+			
Ashfield District Council				£500	
Lincoln City Council		£76.20			
South Holland District Council	£50+				
Lewes District Council	£45+				
Leeds City Council	£50+				
Bridgend County Borough Council		£75+			
Forest of Dean District Council	£30+				
London Borough of Hackney				£225	
Sevenoaks District Council			£125+		
Canterbury City Council			£179-		
Brentwood Borough Council			£140+		
South Bedfordshire District Council		£52.50+			
Dacorum Borough Council			£173		
North Dorset District Council		£52.50+			
Chelmsford Borough Council			£173		
Brighton and Hove Council			£153.50+		
London Borough of Newham			£175		
Wakefield City Council		£52.50+			
Suffolk Coastal District Council			£165		
Cambridge City Council			£150+		
Bolton Metropolitan Borough Council			£189-		
Trafford Borough Council			£145+		
Harrogate Borough Council				£280-	
North Herefordshire District Council				£215+	
Torbay Borough Council			£180+		
Carlisle City Council	£33+				
Solihull Borough Council		£66+			
Wirral Borough Council		£56+			
Cherwell District Council		£100+			
The Royal Borough of Kensington and Chelsea			£111		
Salford City Council		£100+			
Stevenage Council			£120+		
Stockton-on-Tees Council		£75+			
Gateshead Borough Council			£132		
Blyth Valley Council	£42+				
Rochford District Council			£115+		
Braintree District Council				£267-	
Mid Suffolk District Council			£200		
South Hams District Council		£54.60+			
Dartford Borough Council		£61+			
Pendle Borough Council			£138		
Bexley Council				£433-	
Southampton Borough Council			£109-		
East Northamptonshire Borough Council				£206	
Total Number of Local Authorities	6	14	22	9	1

Fees marked with + indicate that the fee does not include the veterinary expenses incurred. Fees marked with – indicate that the annual fee is reduced after the first year.

22. Investigation into unlicensed ownership

From the information provided by the local authorities, plus information from press cuttings and personal communication, we were able to identify a number of unlicensed owners of “wolfdogs”. It was often the case that owners did not want to be identified, and much of the data is therefore anecdotal. We do not believe that there are any true wolfdogs that are not licensed in England or Wales, although it is possible. We have been unable to find any firm evidence of illegal animals in Scotland, however we have received rumours about two breeders in the Dundee area. Local authorities and dog wardens did not declare any knowledge of this.

We are aware of at least 21 alleged "wolfdogs" in the country that are not licensed, and it is likely that there are more, as we have been unable to account for each animal in each litter of puppies. It is often advertisement of the animals or their offspring that brings these “wolfdogs” to the attention of the authorities. If an owner does not declare their animal to be a wolfdog in public, it is very unlikely that the authorities will learn about it.

A number of local authorities indicated that they had had reports of wolfdogs within their area, however these reports were unsubstantiated. At least four local authorities have indicated that there may be wolfdogs in the area that, as yet, they have been unable to identify. In a number of cases, an expert has assessed the suspected animals on behalf of the authority. On finding that they are unlikely to be true wolfdogs, the local authorities have either made the decision not to license, or have monitored the animals on a regular basis. Preston Borough Council contacted us at the end of August, requesting information on the Dangerous Wild Animals Act as it applies to wolfdogs. The council suspects that there may be unlicensed wolfdogs in their area, however no further information was forthcoming before this report was completed.

North Devon District Council noticed a person advertising wolfdog puppies for sale in the area. The local authorities contacted the vendor, and were told that the father of the pups was a wolfdog. The local authority requested that the animal was licensed, and the owner agreed. The litter of pups was sold, and those pups remaining in the authority’s area were not licensed, but were regularly monitored by the council’s dog warden. There was extensive media coverage of this breeder, and as a result, the breeder took the somewhat harsh decision to have his male wolfdog and his two other (domestic) dogs euthanased. The veterinary surgeon involved confirms this.

At the beginning of the project, we placed a letter requesting information in two well-read veterinary magazines and in *Our Dogs Magazine*, read by animal enthusiasts. From these sources, only four private individuals made contact with us. Only two of these individuals were prepared to supply details and allow us to visit their animals.

One owner told us that she had obtained her animals through an advertisement placed in the Birmingham Sunday Mercury paper. The breeder brought the two pups to her house, and she has no contact details for him. Another owner telephoned us from Scotland, claiming that she had owned two wolfdogs, neither of which were licensed although the local authority had inspected them. One of these animals subsequently died, and the other was allegedly stolen.

As previously mentioned, we received information from Wigan Borough Council about a person living in the Salford area that allegedly owns and possibly breeds wolfdogs. The premises are on the border between Wigan and Salford councils, however it seems that Salford council is responsible for this address. We have spoken to a representative from Salford council. In their opinion, since they cannot prove that the animals are wolfdogs, they have no plans to prosecute this person under the Dangerous Wild Animals Act. Since starting this project, we have discovered that this person is now under investigation by the police and the RSPCA and we have been unable to discover any further information.

Another advertisement was brought to our attention during August. A reporter from National Geographic had noticed an advertisement in a local newspaper for a 75% wolf-hybrid for sale in the Worcester area. The reporter contacted us, and stated that they had filmed the animal for a programme they are hoping to make, and wanted our comments. A copy of the film was viewed by us and although the animal has the look of a wolf, its behaviour is very dog-like. Certainly, the animal is not the reported 75% wolf that its owner claims. Unfortunately we have not been able to make contact with the owner.

23. The future of genetic identification

As has been mentioned previously in this report, domestic dogs are direct descendants of wolves. In 1997, an international team of geneticists and evolutionary biologists published a paper in *Science*, where they presented evidence to prove that the dog is a domesticated wolf (Vila *et al*, 1997).

At the present time, there is no way to genetically prove that an animal is a wolfdog (Pierotti, Funk & Vila, 1999 personal communication). The wolf and the dog are such closely related

species that geneticists have been unable to find any significant differences to distinguish between them. The only genetic test currently available is a parentage test based on microsatellite analysis. The test can be performed in cases where there is doubt about the mother or father of pups. This is useful to prove that animals represented as parents to a particular pup are genuine, but it still gives no indication of dog or wolf content. The test is commercially available, but its use in this country is rare. We were able to locate only one laboratory offering this service in the UK (Roslin Institute, Edinburgh).

Research in the field of wolf/dog genetics seems to be confined to a small group of scientists. During the course of this report, we did not discover any research that sets out to specifically identify wolfdogs from dogs. The majority of work currently being carried out into wolf/dog genetics is research into the natural hybridisation of wolves and dogs in the wild. There are concerns that the futures of endangered wolf populations are being jeopardised by the dilution of wolf genes with those of domestic dogs. Whilst geneticists recognise that there is an interest in the development of a test to determine that a canine contains wolf genes, the required funding had not been made available for work in this field.

In order to isolate a particular marker to differentiate between wolf and dog, scientists must look closely at both wolf and dog DNA. The technique used by Vila *et al* to discover the ancestry of dogs involved the study of mitochondrial DNA (mtDNA). Wolves and dogs have two types of DNA. Nuclear DNA (nDNA) is found in the nucleus of a cell, where it is stored as tightly coiled chromosomes. Mitochondrial DNA is found in the mitochondria of a cell. The mitochondria are cell organelles that are found in cell cytoplasm, i.e. outside the nucleus. Mitochondrial DNA is inherited maternally. At fertilisation, a sperm from the father fuses with an egg from the mother. The part of the sperm which fuses with the egg is packed full of nDNA – there is no space for cytoplasm, therefore no mtDNA is passed on from the father. Since mtDNA never recombines with that of the father, identical copies of mtDNA are passed from mother to offspring.

If a pure wolf female mates with a pure dog male, all the pups will inherit unchanged pure wolf mtDNA from the mother. The nDNA of the pups will be a 50:50 mixture of wolf genes (from the mother) and dog genes (from the father).

Although there is no input of mtDNA from the father, identical copies of mtDNA may not always be passed on from generation to generation. Various factors may affect the replication of the mtDNA and mutations occur over hundreds, thousands or tens of thousands of years

(Coppinger, 1991). Compared to nDNA, mtDNA has a high mutation rate. If a difference in the genome of wolves and dogs were to occur, it is likely that it will be evident in the mtDNA first (Morrell, 1997).

The analysis of mtDNA allowed Vila and his team to determine that wolves were the ancestors of dogs. Repeated genetic exchange was discovered between wolves and dogs, and this has provided an extraordinary degree of phenotypic variation in the domestic dog (Vila, *et al*, 1997). In a personal communication with Stephan Funk, Research Fellow at the Institute of Zoology, London, he stated that it is possible to identify dog and wolf specific mtDNA. There is some distinction between the species, but these differences will not give any indication of the amount of wolf genes any individual has. Because mtDNA is maternally inherited, it will never produce an accurate diagnostic test to distinguish wolfdogs for the purpose of the DWAA. If a breeder were always to use a pure dog mother, pups could be bred with a 100% wolf father and only the dog mtDNA would be passed to the offspring. It would be impossible to tell from mtDNA that the pup contained 50% wolf genes.

Current research is now turning towards the analysis of microsatellite genetic markers. Microsatellites (also known as simple sequence loci) consist of tandem repeats of sequence units on a DNA strand (Bruford and Wayne, 1993). They are inherited from both parents (Vila, 1999 personal communication) and are often highly polymorphic due to variation in the number of repeated units (Bruford and Wayne, 1993). The number of repeat units is hypervariable, owing to high mutation rates, and it is possible to gain extremely fine-grained information from the study of such genetic markers (McDonald & Potts, 1997).

Microsatellites have been used to determine gender and to investigate relatedness and parentage (McDonald & Potts, 1997), and also to compare between closely related species (Roy *et al*, 1994).

Current work is being carried out by Carles Vila, Uppsala University, Sweden, into microsatellites of wolves and dogs throughout the world. He hopes to eventually develop a test that will distinguish between wolfdogs, wolves and dogs (Vila, 1999, personal communication).

The microsatellite sequences occur at different loci (positions) on genes. Analysing as many microsatellite loci as possible increases the chances of discovering a difference between species. Funk told us of work done in Italy and Bulgaria on 30 microsatellite loci in wolves

and dogs; there were no distinguishable differences between the species at the microsatellite loci analysed. It was discovered, however, that *alleles* at specific loci on a chromosome did differ. Each chromosome is made up of 2 strands of DNA, called chromatids. One chromatid is inherited from the mother, and one from the father. An allele is a version of the same gene coded for at a specific locus on a chromosome. There could be hundreds of different alleles for each gene within a population. Each chromosome contains 2 alleles for each gene, one inherited from each parent. From these alleles, which appear at different frequencies in wolves and dogs, it may be possible to say with a certain probability that an animal is more likely to be a wolf or dog. It would require complex statistical analysis to estimate how far back in an animal's ancestry the wolf genes are.

In order to detect F2 and F3 generations of wolfdog, the number of loci examined would have to be increased dramatically, compared to detecting a first generation wolfdog.

Funk believes that it may be possible to detect *diagnostic* loci, i.e. loci where differences between species are easily identified; however, these will be extremely difficult to find to distinguish wolfdogs from domestic dogs. The only way to discover such diagnostic loci would be an extensive screening process of wolves (from a range of populations), dogs and *known* wolfdogs. If such diagnostic markers were identified, screening could be straightforward and available commercially; however the accuracy of such tests may not ever be 100%.

At the present time, geneticists seem to think that it is theoretically possible that a diagnostic test could be developed. It remains to be seen how far away such a test is, and this is likely to depend on the available funding for such research.

24. Conclusions

A Local Authority survey of the licensing of wolves and wolfdogs in England, Wales and Scotland indicated a very low number of animals being kept. Further investigations suggest that this is also the case outside the licensing system. In fact, it appears that there is probably only one true wolfdog kept in mainland Britain. Clearly it is possible that there may be a small core of illegal animals which have gone undetected but we would estimate the likely number as no greater than ten. This is certainly far from the RSPCA figure of 123 or a Born Free Foundation estimate of 500-2000.

A small population of animals in Northern Ireland provide a potential source for the unlicensed sector on the mainland but the forthcoming legislation to control the keeping of Dangerous Wild Animals should solve this problem in the near future.

The presence of unlicensed wolfdogs has been suspected from the appearance of advertisements for sale, a natural extension of their breeding. Our investigations have convinced us that all of these animals are fakes, and result from the deliberate cross breeding of dog breeds to produce “wolf-like” dogs that can be passed off as hybrids to attract public interest and high prices. It is this trade which has resulted in public concern and a limited number of court actions. While the animals may be dismissed as fakes they still cause difficulties for licensing authorities who have to respond to their being represented as animals which fall under the DWAA. Any residual core of genuine wolfdog breeding which may remain undetected is undetected precisely because it is not part of this trade. In that case, if it exists, this group of animals would probably be kept by genuine enthusiasts and represent a very limited public risk.

The identification of real and fake wolfdogs represents a genuine difficulty. Phenotypic and behavioural characteristics are unreliable for this purpose, particularly when the wolf component is at a very high dilution, although the animal strictly falls under the remit of the DWAA. This has led a number of State licensing authorities in the USA (where wolfdogs are common) to opt out of species-specific legislation and to control the keeping of such animals as potentially dangerous dogs. Other States have opted for a fixed “percentage” of wolf in the hybrid, usually a minimum of 25% as indicated by known pedigree, as the licensing standard.

Most scientific authorities recognise that the genetic identification of the presence of wolf in a wolfdog is not yet possible. However, it seems that a search for the appropriate genetic markers may be worthwhile as, if they were found, a test would be easy to apply. However, it would be impossible to indicate the level of dilution in any one individual and the evidence would be statistical in nature, which might reduce its legal standing in court.

We have detected a number of problems in the implementation of the DWAA as it applies to wolfdogs. The first is that the definition of hybrid in the Schedule is unclear, at least to the general public. The definition of parent is clear, although DETR has given misleading advice about this. The definition appears to allow the Act to cover any dilution of hybrid. Given that all domestic dog breeds are descended ultimately from wolves, this is clearly absurd.

Clarification of this point is important as other types of hybrid (feline, porcine) are also kept and the same problems are likely to arise.

Second, clarification of the Local Authorities' rights of seizure and disposal is needed as at least one authority's advisors have interpreted Section 3 as disallowing seizure unless an application has been lodged. The fact that this interpretation is contradicted in another section simply reflects bad drafting of the legislation.

Third, the imposition of conditions and fees charged for DWA licences vary greatly between authorities, but this is a general failure of DWAA implementation and not solely related to the wolf dog issue.

There do not appear to be animal welfare concerns associated with the keeping of wolf dogs. Provided appropriate licence conditions are applied, i.e. wolf dogs to be kept like wolves in outdoor enclosures and not as domestic pets, licensed animals should cause no difficulties as long as their social requirements are met. All the other animals are dogs, and their welfare problems fall within those of the general dog population.

The single most important problem uncovered by this study is the reluctance of local authorities to deal with unlicensed suspect wolf dogs under the DWAA. This reluctance clearly stems, as many respondents indicated, from their inability to prove the identity of an animal in court. This has led, on two occasions, to Local Authorities using their powers of seizure under Section 4(1), and then "inviting" the owner to sue in the civil courts for return of the animal, where the weight of evidence required is less. This is clearly an unsatisfactory situation for all concerned and presumably not envisaged by the Act.

We briefly considered the option of including wolf dogs under Section 1 of the Dangerous Dogs Act 1991 (DDA) but, as the clear intention of this Act was to eliminate the specified breeds rather than licence their keeping, this seemed inappropriate. A wolf dog which presented a danger in a public place (Section 3) would not be covered as it would not be a "dog" (although there is no definition of "dog" in the DDA). We have therefore not pursued this option further, particularly as it could not have been extended to feline and porcine hybrids.

25. Recommendations

Various options are open to the Secretary of State to improve the control of wolfdogs under the DWAA and, perhaps more important, to remove the problem of fake wolfdogs, which invoke legislative action unnecessarily by virtue of their being represented as hybrids.

A. Alteration of the Schedule

Option A.1. – alter the definition of hybrid under the Modification Order to incorporate behavioural rather than phenotypic or genetic characteristics, as in the States of Idaho and New York. Thus “any canine exhibiting primary characteristics of a scheduled animal (i.e. wolf, coyote etc.) or “whose overall appearance makes it difficult to distinguish from a scheduled animal” could be added to the definition.

Option A.2. – include specific hybrids (wolfdog, Bengal cat, Iron Age pig) under a further Modification Order and define them specifically (as to parentage and percentage).

Option A.3. – as option 2, but cover any animal represented by the owner as a hybrid of a scheduled species whether it is or not, as in several states of the U.S.A.

B. Increasing scientific support

Option B.1. – commission research into wolfdog genetics, with the aim of detecting diagnostic genetic markers to indicate the presence of wolf genes in wolfdogs. The costs are unknown and depend on the length of time and amount of work needed to find appropriate markers. Reliability would have to be carefully considered before commissioning. The ultimate aim would be to produce a reliable, repeatable and affordable test that could be applied by Local Authorities. This would discourage the fake representation of wolfdogs and encourage Local Authorities to prosecute.

C. Alteration of the Act

Option C.1. – modify the Act to incorporate sections prohibiting or defining as an offence the advertising for sale of unlicensed scheduled animals, including hybrids, and the sale of licensed scheduled animals to unlicensed owners.

Option C.2. – as for C.1. but with the addition of options from A, particularly A.2. so that the definition of hybrid is improved.

D. Addition of conditions to licences

Option D.1. – make it a standard condition of licences that breeding from scheduled animals and movement of scheduled animals to another Local Authority have to be reported. Deaths of licensed animals should have to be reported, with appropriate evidence such as a veterinary certificate. All Scheduled animals should be permanently identified, preferably with a microchip.

26. Final recommendations

Any or all of the above options can be pursued, and their effectiveness has to be weighed against the costs and difficulties involved in their introduction. Our clear preference, however, is for options C.1. or C.2. as they provide not only a clear and simple way of eliminating the spread of unlicensed specimens from the licensed population, but also immediately close down the trade in fake crossbreeds being represented for sale as wolfdogs. Option D.1. would give additional support and improve control of licensed animals, and could even be incorporated into the Act under C., if it was felt that the use of conditions was too unreliable.

Some of the recommendations we have made clearly have value for the improvement of control of other specimens under the DWAA. This study has revealed a number of general issues (the lack of a central database, wide variation in licensing conditions and costs etc.) which extend beyond the area of hybrid animals, and there are many others. We feel that, if the major step of alteration to the Act itself is to be adopted, that this should not be done without taking the opportunity to review the whole Act and its implementation.

References

Anon, undated. The Alaskan Husky Breed, available from:

http://home2.inet.tele.dk/jens_eva/races.htm

Anon. 1829 The Menageries, Vol I. London, Charles Knight

Anonymous 1997. CDC MMWR Weekly, 30 May 1997, 46(21): 463-466. Available from:

<http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/00047723.htm>

Anon, 1998. Colorado wolfdog issues.

Available from www.kc.net/~wolf2dog/state/Colorado.htm

Anon. 1999. Personal communication. Wolfdog list.

Airedale General Hospital, 1999, personal communication

Baird, R. 1997 A tragic blend of wild and domestic, Western Roundup, *High Country News* 17 February 1997.

Bruford, M.W. & Wayne, R.K. 1993. Microsatellites and their application to population and genetic studies. *Current Opinion in Genetics and Development* 3: 939-943.

Bruford, M.W. 1997. Report on Susan Wildin and Rotherham Borough Council. Wolf/Dog cross breeding with reference to the Dangerous Wild Animals Act 1976. Unpublished.

Ciceri, .P 1999, personal communication via wolfdoglist.

Clark, Andrew A. D.V.M., State Veterinarian, Animal Health and Identification Division, Oregon. Personal communication, 1999.

Cooper, T. 1999. Solicitor involved with Dangerous Dogs Act and DWAA. Personal communication.

Coppinger, R. 1991. Can you I.D. your dog with DNA? *LGDA Doglog*, Summer 1991.

Available from: <http://www.kc.net/~wolf2dog/dnaid.htm>

Department of the Environment for Northern Ireland, 1999. Proposals for legislation dealing with the keeping of Dangerous Wild Animals. A Consultation Paper.

DeVile, P. ,Chief Veterinary Officer of NCDL 1999 Personal communication

Dunn, G. undated. The Czech Wolfdog Breed History and Standard. Available at <http://www.inetdesign.com/wolfdunn/breeds/czechwd.html>

Dunn, G. 1999 Personal communication. Wolfdoglist – E-mail list.

Foster, R.D. 1993. A Wolf in Dog's clothing? *Los Angeles Times*, 29 January 1993.

Fox, M.W.(1971) Behaviour of Wolves, Dogs and Related Canids. Jonathan Cape Ltd, London.

Fox, M.W. 1991 affidavit Vice President/Bioethics, available from The Humane Society of the United States. Unpublished.

Frost, B. (1994), Villagers defend wolf-dog that savaged baby boy, *The Times* Wed Nov 16 1994

Funk, S. Research Fellow, Institute of Zoology, London. 1999. Personal communication.

Gentry, A.; Clutton-Brock, J. & Groves, C.P. 1996. Case 3010 *Bulletin of Zoological Nomenclature* 53(1): 28-37.

Goodman, P. 1999. Wolf Park, Indiana. Personal communication.

Grisham, J.; Smith, R. & Brady, C.(Eds). Minimum AZA guidelines for keeping medium and large canids in captivity, American Zoo and Aquarium Association.

Hall, J. 1997 An Investigation into the Nature and Control of Wolf Hybrids under the Dangerous Wild Animals Act 1976 by Local Authorities. Submitted as part of B.Sc. degree, University of Wales Institute, Cardiff).

Harpham, J.L. Ltd., Sheffield.(1997) Tape Transcription, Sheffield County Court, before His Honour Judge Bartfield. Susan Wildin –v- Rotherham Metropolitan Borough Council 18/06/97

Harpham, J.L. Ltd., Sheffield (1998) Tape transcription. Newcastle Upon Tyne County Court before His Honour Judge MacDonald. Thomas Walker-Coates –v- Sedgefield Borough Council 17/07/98

Hayes, D. & Beardsley, N. 1995 “Wolf Hybrids are Dangerous Animals” *Environmental Health News*, 104 (2) Feb 1995.

Hayes, David. EHO Broxtowe B.C. 1999, personal communication

Hope, J. 1994. Wolves and hybrids as pets are big business – but a bad idea, *Smithsonian Magazine*

Horsley, V. 1999 NCDL information officer. Personal communication.

HSUS, 1991 Sheltersense magazine, Feb. 1991, HSUS

Hull, S. undated, Wolf Watch, the magazine of Wolf Watch U.K., pg 7-8

Hunter, J. 1787 Observations tending to show that the Wolf, Jackal, and Dog, are all of the same species, *Philosophical Transactions of the Royal Society*:LXIV.

Ijjin, N.A. 1941. Wolf-Dog Genetics. *J. Genetics* 42: 359-414

Kelham, J. 1999 personal communication.

Kennel Club, The 1999. Personal communication

Kerr, 1998 “Wolf Hybrids” Environmental Services Sub-committee Agenda item no. B6 25/06/98 Dangerous Wild Animals Act 1976, Newark and Sherwood District Council

Kitchener, A., National Museums of Scotland. 1999, personal communication

Lehessaari, Anna-Liisa, 1999 Personal communication via wolfdoglist

Lockwood, Randall. Undated statement, provided by the HSUS

MAFF, Pet Travel Scheme helpline, 2000. Personal communication.

McDonald, D.B. & Potts, W.K. (1997). DNA Microsatellites as Genetic Markers at Several Scales. In: Avian Molecular Evolution and Systematics. Mindell, D.P. (Ed) Academic Press, London.

McIlroy, A.J. Beware the wolf in sheepdog's clothing – RSPCA, *The Daily Telegraph*, Tues 16 January 1996)

Mech, L.D. 1940. *The Wolf: The Ecology and Behaviour of an Endangered Species*. The Natural History Press, New York.

Middlemiss, J.L. 1987. *A Zoo on Wheels, Settle*. Dalebrook Publications

Morrell, V. 1997. The origin of Dogs: Running with the Wolves. Available from: <http://web.raex.com/~kitten/origin.htm>

Mortimer, C. *Wildlife Guardian*, a publication of the Guardians of Wildlife, summer 1996 :11

Olsen, S.J. 1985. *Origins of the Domestic Dog, The Fossil Record*. University of Arizona Press.

O'Neill, S. 1999 'Pet' Wolf savages three-year-old girl. *The Irish News* April 29, 1999.

Oregon Department of Agriculture, 1998 ODA takes steps to deregulate wolf-dog hybrids. Story of the Week, March 4 1998

Philpott, S. (Chief Executive USPCA), Fox, F. (General Manager USPCA) and Inspector Mark Mason (RUC Wildlife Liaison Officer) 1999. Meeting 24/04/99

Pierotti, R. 1999. Personal communication

- Poulter, S. 1996 “ Danger of the wolves in pups’ clothing”, *The Daily Mail* 09/10/96.
- Prendergast, D. 1989. *The Wolf Hybrid*. Rudelhaus Enterprises, Gallup. Second Edition.
- Rossall, H. (Airedale General Hospital library)1999 Personal communication
- RSPCA, 1997. *Hybrid Wolves*. RSPCA Position Statement. Press release.
- Sacks, J.J.; Lockwood, R.; Hornreich, J. & Sattin, R.W. (1996) Fatal Dog Attacks, 1989-1994. *Pediatrics* 97(6): 891-895
- Sagahun, L. 1997 Born prisoners. *Los Angeles Times*, 17 August 1997.
- Simmons, N. Department of the Environment for Northern Ireland
1999. Personal communication.
- Sloan, M. 1998. America’s other controversial canine, the Wolf Hybrid. Adapted from a poster session
available from: http://www.wolfpark.org/wolfdogs/Poster_intro.html
- Templeton, A.R. (1989) in: *Speciation and its Consequences* (Otte, D. and Endler, J.A., Eds) Sinauer Associates: 3-27.
- Vilà, C; Savolainen, P.; Maldonado, J.E.; Amorim, I.R.; Rice, J.E.; Honeycutt, R.L.; Crandall, K.A.; Lundeberg, J. & Wayne, R.K. 1997. Multiple and Ancient Origins of the Domestic Dog. *Science* 276: 10 screens available from URL: <http://www.kc.net/~wolf2dog/wayne1.htm>
- Vilà, C. 1999 Personal communication.
- Walsh, S. 1996. ‘Wolf’ man Gary’s joy as he clears his name in court, *Telegraph and Argus*, 15 February 1996.
- Wayne,R.K.& Jenks, S.M. (1991) *Nature* 351: 565-568.

Weiss, H.B., Friedman, D.I. & Coben, J.H. (1998) Incidence of Dog Bite Injuries Treated in Emergency Departments. *JAMA*, 279: 51-53

WERF, (1999) Current State Regulations Pertaining to Wolves and Wolf Hybrids - updated 1 June 1999, The Wildlife Education and Research Foundation. Available from: http://www.cia-g.com/~werfwolf/st_regs.htm

Wilde, N. 1998, Living with Wolfdogs: An Everyday Guide to a Lifetime Companionship. Phantom Publishing.

Willems, R.A. 1994 The Wolf Dog Hybrid. An Overview of a Controversial Animal. *AWIC Newsletter*, Winter 1994/1995 5 (4): 9-14.

Wise, J.K. & Yang, J-J. (1994) Dog and Cat ownership 1991-1993. *J. Am. Vet. Med. Assoc.* 204: 1166-1167.

Zimen, E. 1980. The Wolf, a Species in Danger. Delacorte Press, New York.

APPENDIX 1

COVER LETTER AND QUESTIONNAIRE

Chief Environmental Health Officer
<LOCAL_AUTHORITY>
<ADDRESS_1>
<ADDRESS_2>
<ADDRESS_3>
<ADDRESS_4>

31 March 1999

Dear Chief Environmental Health Officer

DANGEROUS WILD ANIMALS ACT 1976: WOLF-HYBRIDS

The International Zoo Veterinary Group has been awarded a contract by the Department of the Environment, Transport and the Regions to investigate the keeping of wolf-dog hybrids in Great Britain. We are a practice of experienced zoo and wildlife veterinarians and will be acting as consultants to the DETR during this project.

A number of concerns have been expressed by local authorities with regard to the interpretation of the Act in relation to hybrid animals. This project aims to led to a conclusion recommending any changes needed to existing controls for these animals, or other actions which would improve public safety and animal welfare. In addition, we will present recommendations to control the illegal keeping of wolf-dog hybrids in this country.

Initially, we require details on the number and location of wolf-dogs in Great Britain. To this end, we would be grateful if you could complete the simple questionnaire attached, returning it by the deadline of 16 April 1999.

If you have any further comments, or require additional details, please contact the undersigned.

Thank you for your attention to this matter.

Yours sincerely,

Penny Crowther BSc(Hons), VN
Research assistant

DETR Research contract - The Keeping of Wolf-Dog Hybrids in Great Britain

QUESTIONNAIRE

Local Authority

Contact Name

Contact Tel. No

1) Has your authority licensed any persons to keep wolves or wolf-dog hybrids under the Dangerous Wild Animals Act 1976, during the last 5 years?

Yes No How Many?

2) Has your authority ever refused a licence to keep wolves or wolf-dog hybrids?

Yes No How Many?

3) Has your authority instigated a prosecution under the Dangerous Wild Animals Act 1976 over wolves or wolf-dog hybrids?

Yes No

If **no** to question 1, please return the questionnaire at this point. Thank you.

If **yes**, please continue.

4) How many individual animals have your authority licensed in the last 5 years?

Wolves Wolf-Dog hybrids

5) Can you provide further details, or copies, of licensed issued, including name and contact details of licence holder, type and number of animals licensed, conditions applied to licence?

Yes No

If **yes**, please give details.

NOTE: Any of this information is valuable and licensees confidentiality will be respected. If you cannot provide details, would you be prepared to forward a written request from us to the licence holder so that they may respond directly if they wish?

Yes No

**Please record any further comments you may have.
Thank you for completing this questionnaire.**

6) Further comments:

APPENDIX 2

LIST OF RESPONDENTS

British Veterinary Association

British Veterinary Zoological Society

Burstow Wildlife Sanctuary, Surrey

Colorado Department of Agriculture

Department of the Environment for Northern Ireland

Tony Haighway, WolfWatch UK, Shropshire

Heythrop Zoological Gardens, Chipping Norton

Sue Hull, Surrey

Humane Society of the United States

Julie Kelham, Newark, Nottingham

National Canine Defence League

Oregon Department of Agriculture

Roger Palmer, UK Wolf Conservation Trust, Reading

Private owner, Basingstoke

Private owner, Drifffield, East Yorkshire.

RSPCA

West Midlands Safari Park

Local Authorities

Aberdeen City Council
Aberdeenshire Council
Adur DC
Allerdale BC
Alnwick DC
Amber Valley BC
Angus council
Argyll and Bute Council
Arun DC
Ashfield DC
Ashford BC
Aylesbury DC
Babergh DC
Barking and Dagenham
Barrow in Furness BC
Basildon DC
Basingstoke and Deane BC
Bassetlaw DC
Bath & NE Somerset Council
Bedford BC
Berwick-upon-Tweed BC
Birmingham City Council
Blaby DC
Blackburn with Darwen BC
Blackpool BC
Blaenau Gwent County Borough council
Blyth Valley BC
Bolsover Dc
Bolton Metropolitan BC
Borough of poole
Boston BC
Bournemouth BC
Brackland district Council
Bracknell forest BC
Bradford metropolitan Council
Braintree DC
Breckalnd DC
Brent BC
Brentwood BC
Bridgend County BC
Bridgnorth District Council
Brighton and Hove Council
Bristol City council
Broadland DC
Bromley BC
Bromsgrove DC
Broxbourne BC
Broxtowe DC
Burnley BC
Bury BC
Caerphilly County BC
Calderdale BC
Cambridge City Council
Cannock Chase Dsistrict Council
Canterbury City Council
Caradon DC
Cardiff City and county
Carlisle City Council
Carmarthenshire County council
Carrick City Council
Castle morpeth BC
Castle point BC
Ceredigion County council
Charnwood BC
Cheltenham BC
Cherwell Dc
Chester City
Chesterfiled Borough Council
Chester-le-Street DistrictCouncil
Chichester DC
Chiltern DC
Chlemsford BC
Chorley BC
Christchurch BC
City and County of Swansea
City of Edinburgh Council
City of London Corporation
Clackmannanshire Council
Colchester BC
Comhairle nan Eilean Silar
Congleton BC
Conwy County BC
Copeland BC
Corby DC
Cotswold District council
Coventry City Council
Craven District Council
Crawley BC
Crewe and Nantwich Borough Council
Dacorum BC
Darlington DC
Dartford BC
Daventry DC
Denbighshire CC
Derby City council
Derbyshire Dales DC
Derwentside DC
Dover DC
Dudley DC
Dumfries and Galloway council
Dundee City Council
Durham City Council
Easington DC
East Ayrshire Council
East Cambridgeshire
east Devon DC
East Dorset DC
East Dunbartonshire Council
East Hampshire DC
East Hertfordshire DC
East Lindsey DC
East lothian Council
East Northamptonshire DC
East Renfrewshire Council

East Riding of Yorkshire Council
East Staffordshire DC
Eastbourne BC
Eastleigh BC
Eden District Council
Ellesmere Port
Elmbridge BC
Enfield BC
Epping forest DC
Epsom and erwell Borough Council
Erewash Borough Council
Exeter City Council
Falkirk Council
Fareham Borough Council
Fenland DC
Fife Council
Flintshire County Council
Forest Heath DC
Forest of Dean DC
Gateshead BC
Gedling District Council
Glasgow City council
Gloucester City Council
Gosport BC
Gravesham Borough Council
great Yarmouth BC
Greenwich Bc
Guildford BC
gwynedd Council
Halton BC
Hambleton DC
Hammersmith and Fulham BC
Harborough District Council
Haringey BC
harlow DC
Harrogate BC
Hart DC
Hartlepool
Hastings BC
Havant Borough Council
Havering BC
Hertsmere Borough Council
High Peak BC
Highland Council
Hinkley and Bosworth Council
Horsham DC
Hounslow BC
Huntingdon DC
Hyndburn BC
Inverclyde Council
Ipswich BC
Isle of Wight Council
Isles of Scilly Council
Islington BC
Kennet District Council
Kerrier DC
Kettering Borough Council
Kings lynn & West Norfolk DC
Kingston upon Hull Council
Kirklees Metropolitan Council

Knowsley BC
Lambeth BC
Lancaster City Council
Leeds City Council
Leicester City Council
Lewes DC
Lichfield DC
Lincoln City Council
Liverpool City council
London Borough of Barnet
London Borough of Bexley
London Borough of Croyden
London Borough of Ealing
London Borough of Hackney
London Borough of Harrow
London Borough of Hillingdon
London Borough of Lewisham
London Borough of Newham
Luton BC
Macclesfield BC
Maidstone BC
Maldon DC
Malvern Hills DC
Manchester City Council
Mansfield DC
Medway Towns Council
Melton BC
Mendip District Council
Merthyr Tydfil County BC
Merton BC
Metropolitan Borough of Barnsley
Mid Bedfordshire DC
Mid Devon DC
Mid Suffolk DC
Mid Sussex DC
Middlesborough Council
Midlothian Council
Milton keynes BC
Mole Valley District Council
Monmouthshire CC
Moray Council
NE Derbyshire District Council
NE Lincolnshire Council
Neath Port Talbot County BC
New Forest DC
Newark and Sherwood DC
Newcastle Under Lyme BC
Newcastle upon Tyne DC
Newport County BC
North Ayrshire Council
North Cornwall DC
North Devon DC
North Dorset DC
North East Lincolnshire DC
North Hertfordshire DC
North Kesteven DC
North Lincolnshire Council
North Norfolk DC
North Shropshire DC
North Somerset council

North Tyneside BC
 North Warwickshire DC
 North Wiltshire Council
 Northampton BC
 Norwich City Council
 Nottingham City Council
 Nuneaton and Bedworth BC
 NW Leicestershire DC
 Oadby and Wigston BC
 Oldham BC
 Orkney Islands Council
 Oswestry Borough Council
 Oxford city council
 Pembrokeshire County Council
 Pendle BC
 Penwith DC
 Perth and Kinross council
 Peterborough City council
 Plymouth City Council
 portsmouth City council
 Powys County Council
 Preston BC
 Purbeck Dc
 Reading BC
 Redbridge BC
 Redcar and Cleveland Council
 Redditch BC
 Reigate and Banstead Borough Council
 Renfrewshire council
 Restormel BC
 Rhondda Cynon Taff County BC
 Ribble Valley BC
 Richmond upon Thames BC
 Richmondshire DC
 Rochdale BC
 Rochford DC
 Rossendale BC
 Rother DC
 Rotherham Dc
 Royal Borough of kingston-upon-Thames
 Rugby BC
 Runnymede Borough Council
 Rushcliffe Borough Council
 Rushmoor BC
 Rutland County District Council
 Ryesdale DC
 Salford City Council
 Salisbury DC
 Sandwell BC
 Scarborough Borough Council
 Scottish Borders Council
 Sedgefield DC
 Sedgemoor DC
 Sefton BC
 Selby District Council
 Sevenoaks DC
 Sheffield City Council
 Shepway DC
 Shetland Islands Council
 Shrewsbury and Atcham BC
 Solihull BC
 Souht Somerset DC
 South Ayrshire council
 South Bedfordshire DC
 South Bucks DC
 South Cambridgeshire DC
 South Derbyshire District Council
 South Gloucestershire Council
 South Hams DC
 South Holland DC
 South Kesteven DC
 South Lakeland DC
 South Lanarkshire
 South Norfolk DC
 South Northamptonshire DC
 South Oxfordshire DC
 South Ribble BC
 South Shropshire DC
 South Staffordshire DC
 South Tyneside BC
 Southampton City council
 Southend-on-Sea BC
 Southwark BC
 Spelthorne borough Council
 St Albans City Council
 St Edmundsbury BC
 St Helens Metropolitan BC
 Stafford BC
 Staffordshire moorlands District Council
 Stevanage BC
 Stirling Council
 Stockport BC
 Stockton-on-Tees Council
 Stoke-on-Trent City Council
 Stratford-on-Avon Dc
 Stroud DC
 Suffolk Coastal DC
 Sunderland City Council
 Surrey Heath BC
 Sutton BC
 Swale BC
 Swindon Council
 Tameside BC
 Tamworth BC
 Tandridge DC
 Taunton Deane BC
 Teesdale District Council
 Teinbridge DC
 Telford and Wrekin DC
 tendring DC
 Test Valley DC
 Tewkesbury BC
 Thanet DC
 The County of Herefordshire DC
 The Royal Borough of Kensington and Chelsea
 Three Rivers DC
 Thurrock BC
 Tonbridge & Malling Borough Council
 Torbay BC
 Torfaen County BC

Torridge DC
Tower Hamlets BC
Trafford BC
Tunbridge Wells BC
Tynedale DC
Uttlesford District Council
Vale of White Horse DC
Vale Royal BC
Wakefield City Council
Walsall BC
Waltham Forest BC
Wandsworth BC
Wansbeck DC
Warrington BC
Warwick DC
Watford BC
Wealden DC
Wear Valley District Council
Wellingborough BC
Welwyn Hatfield DC
West Berkshire DC
West Devon DC
West Dorset District Council
West Dunbartonshire Council
West Lindsey District Council
West Lothian Council
West Oxfordshire DC
West Somerset DC
West Wiltshire District Council
Westminster City Council
Weymouth and Portland BC
Wigan BC
Winchester City Council
Wirral Borough Council
Woking DC
Wokingham DC
Worcester City Council
Worthing BC
Wrexham County BC
Wychavon DC
Wycombe DC
Wyre Borough Council
Wyre Forest DC
York City Council