



# Opinion on the welfare implications of specialised canine reproductive practices.

March 2024

Animal Welfare Committee  
Nobel House  
17 Smith Square  
London SW1P 3JR

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## **Introduction and scope**

1. The Animal Welfare Committee (AWC) is an independent expert committee of the Department for Environment, Food and Rural Affairs, the Scottish Government and the Welsh Government. AWC Opinions are short reports to Governments on a wide range of contemporary topics relating to animal welfare. They offer authoritative advice, which is based on scientific research, stakeholder consultation and experience. They may highlight particular concerns and indicate issues for further consideration.
2. This Opinion principally addresses the welfare implications of specialised canine reproductive practices.
3. The AWC has also been asked to consider the welfare of popular 'designer' or 'status' dogs that are often the focus of businesses offering specialised canine reproductive services.
4. The AWC has also been asked to identify emergent management practices used by dog breeders which impact canine welfare.
5. The AWC has also been invited to offer any other ideas or views on this topic.

## **One Health, One Welfare**

6. Extreme weather conditions can push animals outside of their thermoneutral zone and cause physiological stress and distress. Furthermore, some dog types will be less able to cope with different weather conditions than others. For example, brachycephalic dogs and those with highly wrinkled skin or heavy coats may be less able to cope with extreme heat. For kennelled animals, the effects of climate change may be mitigated by improved building design, temperature-controlled buildings with appropriate ventilation using fans and sprinklers, on-site water capture and storage, and reduced use of transparent roof panelling. Any outdoor exercise yards are likely to require improved provision of shelter from direct sun, wind and rain. In hot weather an animal's increased water intake requirements need to be reliably met. Climate change is also of relevance to the transportation of all animals, including dogs being used for breeding and their offspring.
7. All dogs, whether kept as companions or for other purposes, impact on the environment. As numbers of dogs rise, so will the associated challenges around sustainability. Certain dog-focused practices and characteristics of the animals themselves have particular implications for environmental parameters and

sustainability<sup>1</sup>. Any additional veterinary or similar procedures (such as those associated with breeding services) are likely to be associated with production of non-biodegradable waste and, potentially, veterinary medicines. Increases in the number of dogs requiring regular grooming services (e.g. poodle cross ‘designer’ dogs) has implications for increased use of power, water and transport. Large/giant breeds and types will consume more resources and necessitate greater transportation of food and other goods.

8. Regarding human wellbeing, it has been shown that the rise in urbanisation reduces our connection with the natural environment and this has been associated with an increase in health problems including autoimmune, inflammatory and neuropsychiatric disorders<sup>2</sup>. Dog ownership and taking the dog for walks encourages people to have more contact with nature which in turn has been shown to promote social interaction and reduce human stress and depression. As is outlined in detail in relevant sections of this report, decisions about the selection of the male and female dogs for use in breeding has an enormous influence on the health, welfare and behaviour of the resulting puppies. In turn, it also affects the health and welfare of the future owners/carers of those puppies. The relationship and the many variables influencing the outcomes for human wellbeing of owning dogs are complex. Dog ownership and the associated interaction with the dog can lead to positive benefits for

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<sup>1</sup> Protopopova, A. *et al* (2021) Climate change and companion animals: identifying links and opportunities for mitigation and adaptation strategies. *Integrative and Comparative Biology* 61(1), 166-181.

<sup>2</sup> Abbasi, K. *et al* (2023) Time to treat the climate and nature crisis as one indivisible global health emergency. *Veterinary Record* 193(9), 369-371.

the humans, improving their physical<sup>3,4,5</sup> and mental<sup>6,7</sup> health and cognitive function<sup>8</sup>. Research in this area has, however, yielded mixed results. Some analyses indicate no difference in mental health between people with or without dogs<sup>5,9</sup>. In addition, the responsibility of caring for and managing dogs with health, temperament or behavioural problems can be associated with mental stress/distress<sup>10, 11</sup>. The

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<sup>3</sup> Vormbrock, J.K. and Grossberg, J.M. (1988) Cardiovascular effects of human-pet dog interactions. *Journal of Behavioural Medicine* 11(5), 509-17.

<sup>4</sup> Charnetski, C.J. *et al* (2004) Effect of petting a dog on immune system function. *Psychological Reports* 95(3 Pt 2):1087-1091. Available at: <https://journals.sagepub.com/doi/10.2466/pr0.95.3f.1087-1091> Accessed 2.2.24

<sup>5</sup> Martins, C.F. *et al* (2023) Pet's influence on humans' daily physical activity and mental health: a meta-analysis. *Frontiers in Public Health* 11, 1196199. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10262044/> Accessed 2.2.24

<sup>6</sup> Bennett, P.C. *et al* (2015) An experience sampling approach to investigating associations between pet presence and indicators of psychological wellbeing and mood in older Australians, *Anthrozoös*, 28(3), 403-420. Available at: [AZ 28\(3\)-text Layout 1 \(researchgate.net\)](#) Accessed 2.2.24

<sup>7</sup> Nieforth, L.O. *et al* (2024) The cortisol awakening response in a 3 month clinical trial of service dogs for veterans with posttraumatic stress disorder. *Nature Scientific Reports* 14, Article no. 1664. Available at: <https://pubmed.ncbi.nlm.nih.gov/38238350/> Accessed 2.2.24

<sup>8</sup> Friedmann, E., *et al*. (2023) Pet ownership and maintenance of cognitive function in community-residing older adults: evidence from the Baltimore Longitudinal Study of Aging (BLSA). *Nature – Scientific Reports* 13, 14738. Available at: <https://www.nature.com/articles/s41598-023-41813-y> Accessed 2.2.24

<sup>9</sup> Denis-Robichaud, J. *et al* (2022) Association between Pet Ownership and Mental Health and Well-Being of Canadians Assessed in a Cross-Sectional Study during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health* 19(4), 2215. [Available at:](#) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8924879/> Accessed 2.2.24

<sup>10</sup> Merkouri, A. *et al* (2022) Dogs and the Good Life: A cross-sectional study of the association between the dog-owner relationship and owner mental wellbeing. *Frontiers in Psychology*. 13. 10.3389/fpsyg.2022.903647.

<sup>11</sup> Kuntz, K *et al* (2023) Assessment of caregiver burden in owners of dogs with behavioral problems and factors related to its presence. *Journal of Veterinary Behavior*, 64–65: 41-46 <https://doi.org/10.1016/j.jveb.2023.05.006>. Available at:

monetary cost of veterinary or behaviourists' fees for dogs suffering from health and behavioural problems resulting, for example, from their genotype, phenotype and/or experiences during rearing, can also be significant and add to the problems faced and stress experienced. In addition, those who are unable to deal with the challenges and who relinquish their animals for rehoming (or euthanasia) may experience guilt and regret<sup>12</sup>. Given this, the impact on human wellbeing is an important consideration during decision-making around selection of dogs for breeding.

## Definitions

9. In this Opinion, key terms are used as follows:

phenotypic plasticity	The ability of a single genotype to produce multiple phenotypes when exposed to different environmental conditions.
biosecurity	Measures taken to prevent the introduction of infectious agents into an environment and/or stop the spread of harmful organisms between individuals.
brachycephalic airway obstruction syndrome (BOAS)	Condition associated with flat-faced dogs that includes narrow nostrils, an elongated soft palate, and an excess of soft tissue that can block the movement of air through a dog's nose and throat. This can prevent affected dogs from breathing normally and cause lifelong problems with everyday behaviours including exercise, play, eating and sleeping.
brachycephaly	A relatively broad, short skull (typically with the breadth at least 80 per cent of the length). This gives the appearance of a flattened face.
breed	A group of dogs with defined characteristics and that are bred from within a closed gene pool.
breed standard	A description of both the physical attributes and temperament of a pedigree breed.
breeding (gene) pool	The different genetic variants within a breed. A small gene pool has fewer variants
carrier	A dog that has one normal and one altered recessive gene variant. These dogs do not show features of the recessive trait, but a proportion of the offspring from the mating of two carriers (those that inherit the altered gene variant from both parents) are predisposed to express the recessive trait.
characteristic	An inherited physical appearance or behaviour that is associated with a breed. Synonymous with a trait.

(<https://www.sciencedirect.com/science/article/pii/S1558787823000576>). Accessed 2.2.24

<sup>12</sup> Jacobetty, R. *et al* (2019) Psychological correlates of attitudes toward pet relinquishment and of actual pet relinquishment: the role of pragmatism and obligation. *Animals* (Basel). Dec 29;10(1):63. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7022558/> Accessed 2.2.24



Chiari malformation (CM)	A developmental abnormality where the brain is too large to fit into the skull which is too short. It alters the flow of cerebrospinal fluid resulting in syringomyelia. Breeds associated with this condition include King Charles Spaniel, Maltese, Yorkshire Terrier, Chihuahua
coefficient of inbreeding (Col)	The degree of inbreeding. The Col indicates the probability that two copies of a gene variant have been inherited from ancestor that is common to both the sire and the dam. The lower the degree of inbreeding, the lower the inbreeding coefficient. The higher the percentage value, the more common ancestors there are in a dog's pedigree.
crossbreed	A dog whose parents are of two different breeds, or a mixture of several breeds. Crossbreeds may inherit the gene variants of each parent, including any harmful mutations. They often display a mixture of their parents' traits.
dermatitis	Inflammatory skin condition that can cause excessive itchiness. It can be a lifelong condition. Some forms can be inherited.
DNA testing	A laboratory test that can identify different genetic variants.
dystocia	Abnormal or difficult birth. Dystocia can occur for a range of reasons including a problem with the mother, a problem with the foetus, malpositioning of the foetus or a mismatch between the size of the birth canal and the foetus.
epigenetics	Changes in gene expression that do not involve alterations (mutations) to the DNA sequence. It provides a mechanism by which early experiences and environmental influences, both before and after birth, can have lifelong consequences.
genomic DNA	Chromosomal DNA.
genotype	The genetic constitution of an individual.
hip/elbow dysplasia	A deformity of the hip or elbow that occurs during growth. The joint becomes unstable. This may cause pain, swelling, stiffness and eventually arthritis.
inbreeding	Occurs when puppies are produced from two related dogs. Inbreeding increases the likelihood of harmful recessive genetic mutations being expressed. It is also associated with lower fertility and reduced litter sizes.
iris atrophy	Thinning of the iris of the eye that can cause a misshapen pupil.
microphthalmia	Small, underdeveloped eye that may be associated with defects in the retina, iris or optic nerve
mitochondrial DNA	DNA found in mitochondria - the organelles in a cell that generate the energy necessary to power its functions. Mitochondria are inherited almost exclusively from the mother.

modes of inheritance	The manner in which a genetic trait or disorder is inherited from one generation to the next.
monogenic	A single gene controls a genetic trait or disorder.
normocephalic	Dogs whose head and all major organs of the head are in normal proportion and condition without significant abnormalities.
pedigree dog	Offspring of two dogs from the same breed that is eligible to be registered with a recognised club or society that maintain a breeding register for dogs of that description.
phenotype	The observable characteristics of an individual resulting from the interactions of its genotype with the environment.
polygenic	Two or more genes control a genetic trait of disorder. Because multiple genes are involved, polygenic traits do not follow the "textbook" (Mendelian) patterns of inheritance.
recessive	A form of inheritance of genes where two altered variants of a gene must be inherited – one from each parent – for the offspring to express the trait.
syringomyelia (SM)	Condition that results in the development of fluid-containing cavities within the spinal cord. Most common sign is altered sensation which may progress to pain.
trait	An inherited physical appearance or behaviour that is associated with a breed. Synonymous with a characteristic.
type	A general description of a dog based on its purpose, function, appearance and/or temperament. A 'type' is different from a 'breed' as the latter is bred from within a closed gene pool, while the former does not require this restriction.

## Legal context

10. Vertebrate animals under the control of man, except those in the foetal or embryonic stages, are protected from unnecessary suffering and damaging practices, such as non-exempt mutilations, by the Animal Welfare Act 2006 (which applies in England and Wales) and by the Animal Health and Welfare (Scotland) Act 2006 (which applies in Scotland).

11. Both Acts also oblige those responsible for animals to take reasonable steps to ensure their welfare needs are met to the extent required by good practice. In line with the relevant legislation, each of the national administrations publishes codes of practice for the welfare of dogs which provide owners and keepers with general welfare information, including how to provide the correct environment for their dog and protect them from pain, suffering, injury and disease.

12. In England, the Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations 2018 introduced a new licensing regime for eight licensable

animal activities, including the breeding of dogs and selling animals as pets. Subject to limited exemptions, anyone breeding and advertising a business of selling dogs or who breeds three or more litters in any twelve-month period requires a dog breeding licence issued by their local authority.

13. Anyone in the business of selling animals as pets in England, including commercial sellers of puppies, requires a pet selling licence issued by their local authority. Licensed pet sellers are prohibited in England from selling puppies unless they have bred them themselves. Similar prohibitions on the third-party sale of puppies exist in Wales and Scotland.

14. The commercial breeding of dogs is regulated by the Animal Welfare (Breeding of Dogs) (Wales) Regulations 2014 in Wales and the Animal Welfare (Licensing of Activities Involving Animals) (Scotland) Regulations 2021 in Scotland. In Wales, subject to limited exemptions, anyone keeping three breeding females and who breeds three or more litters in any twelve-month period requires a licence. In Scotland, subject to limited exemptions, anyone who breeds three or more litters in any twelve-month period requires a licence. All breeders, including those who do not meet the threshold for commercial licensing remain subject to the Animal Welfare Act 2006 in England and Wales and the Animal Health and Welfare (Scotland) Act 2006 in Scotland.

15. Each of the regulations include welfare focussed detailed conditions which licence holders must comply with. Additionally, assimilated Council Regulation EC No 1/2005 applies throughout GB to transport in connection with an economic activity and requires that no person should transport any animal in a way likely to cause injury or undue suffering to them , and prohibits the movement of animals in the last 10% of their expected gestation period (unless for veterinary treatment) or dogs that are less than 8 weeks of age unless accompanied by their mother.

16. Across the UK, the Veterinary Surgeons Act 1966 (VSA) limits the legal undertaking of acts of veterinary surgery to qualified and registered veterinary surgeons who are members or fellows of the Royal College of Veterinary Surgeons (RCVS). Some acts may be delegated to qualified and registered veterinary nurses or student nurses under Schedule 3 of the VSA. In June 2023, the Royal Veterinary College's Standards Committee confirmed that all forms of canine artificial insemination are acts of veterinary surgery and should not be carried out by lay persons.

17. As well as complying with the VSA, canine fertility business operators may also need to comply with any relevant retained and UK legislation regulating the use of veterinary medicines and any other relevant legislation.

18. Across Great Britain, anyone convicted of causing unnecessary suffering faces a maximum custodial penalty of five years' imprisonment and/or a fine, and anyone convicted of failing to ensure an animal's needs are met faces up to six months' imprisonment or a fine. Similarly, anyone convicted of carrying out a licensable activity without a licence faces a maximum custodial penalty of six months' imprisonment or an unlimited fine in England and Wales, or up to 12 months imprisonment and/or a fine not exceeding £40000 in Scotland.

19. A breach of a provision in the codes of practice is not an offence itself, but if proceedings are brought against someone for an offence under national animal welfare legislation, the Court will be able to look at whether or not they have complied with the relevant code in deciding whether they have committed an offence. Following a conviction, courts may also ban an offender from keeping animals or certain types of animals and/or order that their animals are removed from them.

20. Local authorities are responsible for enforcing each of the licensing schemes and have several options available to them. These include the ability to guide licence holders back into compliance as well as powers to refuse, vary or revoke a licence. Each of the schemes also restricts the ability to apply for a licence to people of good standing who have not had a licence revoked, or been disqualified from keeping animals or holding a licence for an animal-based activity under different legislation.

21. Under the Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations 2018, Schedule 6 [6](5), 'No dog may be kept for breeding if it can reasonably be expected, on the basis of its genotype, phenotype or state of health that breeding from it could have a detrimental effect on its health or welfare or the health or welfare of its offspring'. Similarly, Schedule 6 [8](5) of the Animal Welfare (Licensing of Activities Involving Animals) (Scotland) Regulations 2021 states that 'No dog may be kept for breeding if it can reasonably be expected, on the basis of its genotype, conformation, behaviour or state of health, that breeding from it could have a detrimental effect on its health or welfare or the health or welfare of its offspring.' These provisions offer some protection against breeding practices which might have an adverse impact upon the welfare of the dogs being used for breeding or upon their resultant offspring.

22. However, breeders are subject to such regulation only if, in England, they breed three or more litters in any twelve-month period and / or they breed dogs and advertise a business of selling dogs or, in Scotland, they breed three or more litters in any twelve-month period. If breeders do not fall within those categories then protections to the welfare of dogs being used for breeding purposes are afforded only by the general protections under the Animal Welfare Act 2006 in England and Wales and the Animal Health and Welfare (Scotland) Act 2006 in Scotland. These general protections do not apply to animals in their foetal or embryonic form.

23. There is local variation in enforcement of regulation, which is often related to variation in resourcing<sup>13</sup>.

## **Background**

24. Since the introduction of the Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations (2018), the established dog breeding business models – small scale home-based breeders, and large-scale kennel-based breeders – have continued. Alongside these models, the sector has seen the development of

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<sup>13</sup> APGAW (2022) Improving the effectiveness of animal welfare enforcement. Available at : <https://apgaw.org/wp-content/uploads/2022/08/Improving-Animal-Welfare-Enforcement-Report-1.pdf> Accessed 2.2.24

niche breeding-related business activities at the boundary of the regulatory regimes. These niche, but commercial, breeding activities, such as ‘canine fertility clinics’ (CFCs) and whelping services, are now widespread.

25. Given the focus of the Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations (2018) on commercial dog breeding, and the focus of the Animal Welfare (Breeding of Dogs) (Wales) Regulations (2014) and the Animal Welfare (Licensing of Activities Involving Animals) (Scotland) Regulations (2021) on the number of litters produced in any twelve-month period, it is likely that a significant amount of unlicensed breeding activity is taking place across Great Britain. Whilst up-to-date evidence is limited, one previous attempt to quantify the amount of unlicensed breeding claimed that less than 12% of puppies born in GB each year came from licensed breeders<sup>14</sup>.

26. Low frequency, and potentially unlicensed, breeding of dogs appears to be continuing, with data in a Pets4Homes UK Pet Industry Report<sup>15</sup> indicating that private sellers/hobby breeders increased their market share from 55% in 2019 to 75% in November 2022.

27. Little evidence exists regarding the health and welfare protections put in place by responsible and legitimately unlicensed breeders, and how these protections compare to the conditions licensed breeders must meet. Further, little is known about the extent of unscrupulous unlicensed breeding, and whether large-scale commercial breeders are avoiding the licensing regimes.

28. Information relating to unlicensed breeding activities is generally hard to acquire, and / or anecdotal. The AWC notes that an absence of evidence about unlicensed breeding activities is problematic in the context of this Opinion, and has stated throughout where we believe this (and other) evidence to be lacking.

29. The AWC is aware of a number of recent reports and opinions including those from the BVA and BSAVA<sup>16</sup>, Naturewatch Foundation<sup>17</sup> and European Food Safety Authority (EFSA)<sup>18</sup> that highlight the general concern regarding this topic.

## International context

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<sup>14</sup> Battersea Dogs and Cats Home (2015) Licensed dog breeding in Great Britain report. Available at <https://bdch.org.uk/files/Licensed-Dog-Breeding-in-Great-Britain-report.pdf> Accessed 8.2.24

<sup>15</sup> Pets4Homes (2022) The UK Pet Industry Report. Available at: [The UK Pet Industry Report Vol.4 - Google Slides](#) Accessed 2.2.24

<sup>16</sup> BVA (2023) BVA and BSAVA Position on canine breeding services. Available at: <https://www.bva.co.uk/media/5546/bva-and-bsava-policy-position-canine-breeding-services-2023-final-version.pdf> Accessed 2.2.24

<sup>17</sup> Naturewatch (2024) Canine Fertility Clinics Available at: <https://naturewatch.org/campaigns/companion-animals/canine-fertility-clinics/> Accessed 2.2.24

<sup>18</sup> Candiani, D *et al* (2023) Scientific and technical assistance on welfare aspects related to housing and health of cats and dogs in commercial breeding establishments. EFSA Journal 21(9) 8213 doi.10.2903/j.efsa.2023.8213

30. There is significant variation between countries internationally. Whilst most EU member states have national laws on canine welfare, laws and licensing on breeding vary in their content and compliance<sup>19</sup>. For example, there is international variation on registration/licence thresholds, which in some countries starts at a single litter<sup>20</sup>. Even within countries, compliance requirements sometimes vary. For example, most USA states require inspections for commercial dog breeders, but some USA states do not appear to have any laws about commercial pet breeders<sup>21</sup>.

31. Interest in animal welfare issues relating to canine breeding has been reflected in recent legislation across a number of countries. The EU has proposed regulations to protect the welfare of dogs and cats that will apply to all member states and limit the ability to import low welfare or mutilated puppies and kittens from third countries<sup>22,23</sup>.

32. Many laws about canine breeding relate primarily to specific breeds rather than to breeding practices. Norway (following a 2022 court ruling) has recently banned the breeding of Cavalier King Charles Spaniels, which often suffer from syringomyelia, an inherited condition, on the grounds that such activity violated Section 25 of the Norwegian Animal Welfare Act which states that breeding which negatively affects the animal's functioning or reduces the possibility of natural behaviour is prohibited. The Dutch government banned the breeding of dogs whose features put their health and welfare at risk (2014) and announced in 2023 a decision to enforce that ban (by the Food and Consumer Product Safety Authority), with considerations to remove a loophole exemption even for outcrossing to lengthen muzzles and extending into owning such breeds<sup>24,25,26</sup>.

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<sup>19</sup> DG Sanco (2015) Study on the welfare of dogs and cats involved in commercial practices. Available at: [https://food.ec.europa.eu/system/files/2016-10/aw\\_eu-strategy\\_study\\_dogs-cats-commercial-practices\\_en.pdf](https://food.ec.europa.eu/system/files/2016-10/aw_eu-strategy_study_dogs-cats-commercial-practices_en.pdf) Accessed 2.2.24

<sup>20</sup> Business Queensland (2024) Selling, supplying or giving away puppies. Available at: <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/animal/industries/dogs#:~:text=Selling%2C%20supplying%20or%20giving%20a%20way,want%20to%20breed%20litter>. Accessed 2.2.24

<sup>21</sup> Michigan State University (2024) Table of State commercial pet breeders laws. Available at: <https://www.animallaw.info/topic/table-state-commercial-pet-breeders-laws>. Accessed 2.2.24

<sup>22</sup> European Commission (2023) Commission proposed new rules to improve animal welfare. Available at: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_6251](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_6251). Accessed 2.2.24

<sup>23</sup> European Commission (2023) Proposal on the welfare of cats and dogs and their traceability. Available at: [https://food.ec.europa.eu/system/files/2023-12/aw\\_reg-proposal\\_2023-769\\_dog-cat-trace.pdf](https://food.ec.europa.eu/system/files/2023-12/aw_reg-proposal_2023-769_dog-cat-trace.pdf). Accessed 2.2.24

<sup>24</sup> Anon (2023) Netherlands puts further limits on breeding flat faced dogs. Available at: <https://nltimes.nl/2023/08/24/netherlands-puts-limits-breeding-flat-faced-dogs-report#:~:text=The%20Netherlands%20is%20further%20tightening,dogs%20with%20a%20longer%20snout>. Accessed 5.2.24

<sup>25</sup> Eurogroup for Animals (2023) Landmark ruling against unethical dog breeding in Norway. Available at: <https://www.eurogroupforanimals.org/news/landmark-ruling-against-unethical-dog-breeding-norway#:~:text=Norway's%20Supreme%20Court%20handed%20down,such%20frameworks%20to%20be%20illegal>. Accessed 5.2.24

<sup>26</sup> Stranden, A.L. (2023) Why Norway has banned the breeding of Cavalier King Charles Spaniels. Available at: <https://www.sciencenorway.no/animal-kingdom-animal-welfare-dogs/why-norway->

33. In Switzerland 'adequate care' is required when breeding any animal to ensure that they are free from 'traits that cause strain'<sup>27</sup>. The Netherlands' regulations also require that breeders ensure "parents do not pass on serious hereditary defects and diseases, harmful external characteristics or serious behavioural abnormalities to the progeny, and that reproduction happens in a natural way".

34. Some other countries' legislation, such as the German and Austrian Animal Welfare Acts, reference the concept of 'Qualzucht' (roughly translated as "torture breeding") in relation to animals who have been bred in ways that will cause future pain, suffering, injury or anxiety - such as conformational and heritable conditions that can be passed onto the next generation.

## Prominent health & welfare issues

35. The short and long term health and welfare of puppies is greatly influenced by the health status, genotype and phenotype of both their parents. Hence, selection of both the male and female breeding animals has a highly significant impact on lifelong wellbeing of the resulting offspring. The welfare of the parent animals themselves, especially the bitches, during the breeding process is also influenced by these and other factors. Whilst modes and levels of inheritance of certain traits and conditions vary greatly (and in many cases, are still unknown), information is available regarding the effects - on parents and/or offspring - of various physical and temperamental characteristics. Furthermore, environmental and other external factors can also influence gene expression (and therefore expression of a particular trait) via epigenetic modifications. This is one mechanism by which the care and management practices experienced throughout the breeding process can result in both short-and long-term consequences for the bitch and her offspring (see paragraphs 86-98: 'Management of breeding animals').

## Impact of genetic issues

36. Inherited traits, both desirable and undesirable, are controlled by the genetic makeup (genotype) of an individual animal. The genotype (mitochondrial DNA aside) is determined by the genes received from the parents, one-half from the sire and one-half from the dam. Most inherited traits in animals are polygenic (controlled by two or more genes). Some examples are: type, conformation, coat characteristics, longevity, disease resistance, temperament, speed, milk, egg and sperm production, growth rate and numerous inherited diseases and conditions.

The online Mendelian Inheritance in Animals (OMIA) database has over 900 entries listing traits (both disease and non-disease) associated with dogs<sup>28</sup>. Many of these are

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[has-banned-the-breeding-of-cavalier-king-charles-spaniels/2269620#:~:text=The%20Supreme%20Court%20of%20Norway,according%20to%20specific%20breeding%20guidelines](#) Accessed 5.2.24

<sup>27</sup> Federal Food Safety and Veterinary Office (2024) Available at:

<https://www.blv.admin.ch/blv/en/home/tiere/tierschutz/zuechten.html> Accessed 5.2.24

<sup>28</sup> Nicholas, F.W. *et al* Informatics Hub. (1995). Online Mendelian Inheritance in Animals (OMIA) [dataset] Available at: <https://omia.org/home/> Accessed 5.2.24



associated with specific breeds or types of dog<sup>29</sup>. Some will result in anatomical anomalies, while others may cause physiological or behavioural abnormalities. Not all are apparent at birth, but may progress during a dog's lifetime.

37. Advances in veterinary medicine mean that not only can more disorders be detected, diagnosed and treated, but also that dogs that otherwise would have been unable to reproduce and give birth naturally are now able to produce viable offspring.

38. By selecting for appearance rather than function or health, many breeds have become predisposed to health and welfare problems. Breeding to meet 'breed standards' for particular aesthetic traits such as short muzzles, domed heads, tightly curled tails, hair ridges, and excessive skin wrinkles predisposes dogs to specific inherited anatomical conditions that have significant welfare implications, for example brachycephalic airway obstruction syndrome (BOAS), syringomyelia, spina bifida or significant chronic and recurrent dermatitis<sup>30</sup>. Even some coat colours such as piebald and merle are associated with a number of co-occurring nervous-sensory conditions including deafness, iris atrophy and microphthalmia.

39. In addition to inherited disorders associated with specific breed standards, a considerable number of defects are also inherited as a consequence of inbreeding and restricted breeding pools<sup>31</sup>. In such cases, those problems may become widespread and sometimes 'normalised' within a breed.

40. Puppies produced by cross-breeding two different established breeds are also at risk of inheriting any genetic mutation present in either of the parents.

### **Screening and genetic testing**

41. Broadly speaking, there are two types of test available: (i) physical tests that determine whether a dog actually manifests a phenotypic defect that has perhaps not yet progressed to cause a physical problem and (ii) tests which use DNA testing.

42. The British Veterinary Association (BVA) along with the Kennel Club (KC) offer four different health schemes that screen for hip dysplasia, elbow dysplasia, hereditary eye disease and Chiari malformation/ syringomyelia<sup>32</sup>. Research has shown the effectiveness of the hip and elbow schemes as uptake for these screens has improved over time while the incidence of dogs with severe score values has decreased<sup>33</sup>.

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<sup>29</sup> Universities Federation for Animal Welfare (2024) Genetic welfare problems of companion animals. Available at: <https://www.ufaw.org.uk/dogs/dogs> Accessed 5.2.24

<sup>30</sup> Collins, L.M. *et al* (2010) Welfare epidemiology as a tool to assess the welfare impact of inherited defects on the pedigree dog population. *Animal Welfare*. 19(S1):67-75.  
doi:10.1017/S0962728600002256

<sup>31</sup> Summers, J.F. *et al* (2010) Inherited defects in pedigree dogs II: Disorders that are not related to breed standards. *The Veterinary Journal* 183: 39-45

<sup>32</sup> Available at: <https://www.bva.co.uk/canine-health-schemes/> Accessed 5.2.24

<sup>33</sup> James H. K. *et al* (2020) Effectiveness of Canine Hip Dysplasia and Elbow Dysplasia Improvement Programs in Six UK Pedigree Breeds *Frontiers in Veterinary Science* 6 DOI=10.3389/fvets.2019.00490



43. Genetic (DNA) tests can be of use to evaluate potential parents for specific variants known to affect health. They can also enable early diagnosis, prompt treatment and help inform future management of environmental factors that could trigger or exacerbate the condition. However, DNA tests are available for only a relatively small number of the known inherited canine conditions. Furthermore, the laboratories offering these services are not regulated, though they may choose to obtain ISO accreditation demonstrating that they have met general requirements for a good international standard of competence to carry out tests including sampling<sup>34</sup>.

## **Impact of the selection of breeding animals**

### **Breeding bitches**

44. Many factors relating to the conformation and the physical and mental health status of females at the time of breeding can have significant impact on the animals' own wellbeing during and potentially after the process. The health and welfare of the resulting puppies will also be influenced (see paragraphs 61-67: 'Puppies').

45. The state of nutrition and body condition of breeding females are important factors affecting the outcome of reproduction for mothers and puppies alike<sup>35</sup>. Pregnancy places huge energy demands on the female and dramatically changes the metabolic status of bitches<sup>35, 36</sup>. Malnutrition negatively affects reproductive parameters and a female's ability to carry a litter without detriment to herself or her puppies, lactate sufficiently well to provide satisfactory nutrition to the resulting litter during the suckling period, and maintain satisfactory health throughout<sup>37</sup>. The survival rates of puppies are also affected<sup>37</sup>. Selecting only animals of good nutritional status and condition and maintaining these throughout the breeding process are therefore important considerations.

46. The presence of diseases, infections, endo- and ectoparasite infestations and many other health conditions will affect a breeding bitch's ability to cope with the rigours of pregnancy, parturition and lactation. Her puppies may also be affected by the same conditions before or after birth with potentially very serious consequences for their health and survival. Any negative impact on the bitch's ability to lactate will have impact on the puppies too. A bitch infected with certain diseases, such as

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<sup>34</sup> The Kennel Club (2024) Managing the arrival of a new DNA Test. Available at: <https://www.thekennelclub.org.uk/health-and-dog-care/health/breed-health-co-ordinators/managing-the-arrival-of-a-new-dna-test/> Accessed 5.2.24

<sup>35</sup> Fontaine, E (2012) Food intake and nutrition during pregnancy, lactation and weaning in the dam and offspring. *Reproduction in Domestic Animals* **47**(6) 326-330.

<sup>36</sup> Calabrò, S *et al* (2021) Effects of two commercial diets on several reproductive parameters in bitches: Note Two - Lactation and puppies' performance. *Animals (Basel)* 11(1), 173. Available at: [Effects of Two Commercial Diets on Several Reproductive Parameters in Bitches: Note Two—Lactation and Puppies' Performance - PMC \(nih.gov\)](https://pubmed.ncbi.nlm.nih.gov/37888888/) Accessed 5.2.24

<sup>37</sup> Parker, E. (2016) Prevent your dog's resource guarding behaviour. Australian Dog Lover - Dogs NSW. Available at: [resource-guarding.pdf \(dogsnsw.org.au\)](https://www.dogsnsw.org.au/resource-guarding.pdf) Accessed 8.2.24

*Brucella canis* (a growing problem in the UK<sup>38</sup>) or canine herpes, can also pass these on to the stud dog during mating<sup>39,40</sup>.

47. The age at which bitches give birth to their first litter can have important implications for their health and welfare. Whilst definitive research relating to the minimum breeding ages is scarce, recent advice from the European Food Safety Authority (EFSA) recommends that dogs should not be bred from below 18 months of age in the case of small animals, and two years of age for large dogs<sup>41</sup>. This is at odds with the minimum age at mating (12 months - and hence 14 months at whelping) for all types/breeds of dog set out in The Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations 2018. The EFSA report bases its guidance on the premise that the appropriate minimum age for breeding should take account of the animals' size and skeletal maturity. The latter consideration has been reflected in the new European Union Regulatory Proposal for a Regulation on the welfare of dogs and cats and their traceability (EU Regulatory Proposal 7.12.2023). Both the EFSA report and subsequent EU Regulation proposals also refer to the particular considerations relating to older bitches, with the Regulation proposals stating that: "any bitch aged 8 years or more shall, before being used for breeding, undergo a physical examination by a veterinarian, to confirm in writing that her pregnancy will not pose any risk to her welfare, including her health."

48. The frequency with which bitches are bred from will influence the health and welfare of both the mother and potentially her puppies. The huge energy requirements associated with pregnancy and lactation can lead to poor body condition and health if bitches have insufficient time to recover between litters. Further research is needed to support recommendations about the minimum acceptable period between litters, but the EFSA report recommends that the physical state of the bitch should be checked before breeding through assessment of body condition score and general health status<sup>42</sup>.

49. The physical conformation (and hence, breed or type) of female dogs - and their puppies - can impact on their ability to give birth without the need for significant intervention and risk to their and/or their puppies' welfare. A reported prevalence of

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<sup>38</sup> UK Government (2023) *Brucella canis*: Information for the public and dog owners. Available at: [Brucella canis: information for the public and dog owners - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/brucella-canis-information-for-the-public-and-dog-owners) Accessed 5.2.24

<sup>39</sup> Smith, F.O. (2010) Prenatal care of the Bitch and Queen. *Small Animal Paediatrics* 1-10. Available at: [Prenatal Care of the Bitch and Queen - PMC \(nih.gov\)](https://pubmed.ncbi.nlm.nih.gov/2010/01/prenatal-care-of-the-bitch-and-queen/) Accessed 5.2.24

<sup>40</sup> Santos, R.L. *et al* (2021) Research Topic: pathogens and pregnancy failure in domestic animals - Review Article: Canine Brucellosis: an update. *Frontiers in Veterinary Science: Animal Reproduction - Theriogenology* 8

<sup>41</sup> Candiani, D. *et al* (2023) Scientific and technical assistance on welfare aspects related to housing and health of cats and dogs in commercial breeding establishments. Scientific Report, European Food Safety Authority (EFSA) Journal 2023. doi: 10.2903/j.efsa.2023.8213

canine dystocia of 3.7 per cent among an emergency caseload in the UK has been reported<sup>42</sup> with other analyses suggesting an overall rate ranging between 5 - 26 per cent<sup>43,44</sup>. Some data indicate an overall bitch mortality rate of 1% as a result<sup>45</sup>.

50. Brachycephalic breeds including English and French Bulldogs, Pugs, Chihuahuas, Boxers and Boston Terriers and other such as West Highland White and Scottish Terriers have an increased likelihood of dystocia<sup>43,44,46,47</sup>, due in large part to the mother's and puppies' conformation (such as large heads and/or wide shoulders and/or the mother's narrow pelvic passage). The risk is also higher in smaller litters, and increases in all dogs with age and smaller litter size<sup>44</sup>.

51. A Caesarean section is required to resolve (or avoid) the problem in a high percentage of dystocia cases, depending on the breed. Reports indicate that Caesareans are required in around 45% of dystocic crossbreeds and over 80% of English and French Bulldogs and Boston Terriers experiencing dystocia<sup>43,48</sup> with brachycephalic dystocic bitches being over 1.54 times more likely to undergo the procedure compared with non-brachycephalics<sup>43</sup>. Caesarean sections are either undertaken as an emergency, or as an elective procedure ahead of natural labour due to known higher risks for the bitch and the higher survival rate in puppies following

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<sup>42</sup> O'Neill D.G. *et al.* (2017) Canine dystocia in 50 UK first-opinion emergency care veterinary practices: prevalence and risk factors. *Veterinary Record* 181, 88. Available at: [Canine dystocia in 50 UK first-opinion emergency care veterinary practices: clinical management and outcomes - O'Neill - 2019 - Veterinary Record - Wiley Online Library](#) Accessed 5.2.24

<sup>43</sup> Arlt, S.P. (2022) The bitch around parturition. *Theriogenology* 150, 452-457. Available at: [The bitch around parturition - ScienceDirect](#) Accessed 5.2.24

<sup>44</sup> Dejneka, G.J. *et al* (2020) Dystocia after unwanted mating as one of the risk factors in non-spayed bitches—a retrospective study. *Animals* 10(9),1697.

<sup>45</sup> Gendler, A. *et al* (2007) Canine dystocia: medical and surgical management. *Compendium on Continuing Education for the Practising Veterinarian-North American Edition*. 29, 551.

<sup>46</sup> Asher, L. *et al* (2009) Inherited defects in pedigree dogs. Part 1: Disorders related to breed standards. *Veterinary Journal* 182, 402 - 411. Available at: [Inherited defects in pedigree dogs. Part 1: Disorders related to breed standards \(slu.se\)](#) Accessed 5.2.24

<sup>47</sup> Evans, K.M. and Adams, V.J. (2010) Proportion of litters of purebred dogs born by caesarean section. *Journal of Small Animal Practice* 51(2), 113-8. Available at: [Proportion of litters of purebred dogs born by caesarean section - PubMed \(nih.gov\)](#) Accessed 5.2.24

elective compared with emergency sections<sup>48,49,50</sup>. As outlined above, known risk factors include a predicted likelihood of dystocia due to conformation. Whelping of English Bulldogs and other brachycephalic breeds is often managed by elective Caesarean for this reason<sup>51</sup>. A Caesarean section rate (elective plus emergency) of over 80 per cent has been reported in the UK for Boston Terriers, English Bulldogs and French Bulldogs<sup>48</sup> whilst high rates are also seen in some other breeds due to conformational issues, including Mastiff, Pekingese, Scottish Terrier and Dandie Dinmont<sup>48</sup>. Elective Caesareans may also be performed due to other maternal health risk factors being exacerbated during labour, such as breathing problems in brachycephalic breeds<sup>48</sup>. A large scale survey of UK veterinary practices indicated that almost 40% of multiparous bitches presenting with dystocia (for whom information of breeding history was available) had suffered previous dystocia or Caesarean section<sup>43</sup>. This provides evidence that some bitches are inherently at higher risk of dystocia and the need for intervention whenever they are used for breeding.

52. The genotype of bitches with regard to inherited disease conditions is a major consideration when selecting animals for breeding due to the impact on the resulting puppies' welfare (see paragraphs 36-40 'Impact of genetic issues'). Decision-making in this area needs to take account of the genotype of both parents. For example, a mating between two animals who may not themselves be affected by an inherited condition but who are both carriers will risk a proportion of the offspring being affected. This can be avoided where validated tests are available to enable testing of all prospective breeding animals for known genetic conditions prior to making decisions about which animals to select for breeding. However, there may also be a risk of

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<sup>48</sup> Smith, F.O. (2007) Challenges Challenges in small animal parturition—Timing elective and emergency cesarian sections. *Theriogenology* 68(3) 348-353. Available at: [Challenges in small animal parturition—Timing elective and emergency cesarian sections - ScienceDirect](#) Accessed 5.2.24

<sup>49</sup> Adams, D.A. *et al* (2022) Risk factors for neonatal mortality prior to hospital discharge in brachycephalic and non-brachycephalic dogs undergoing cesarean section. *Veterinary Surgery* 51(7), 1052 - 1060. Available at: [Risk factors for neonatal mortality prior to hospital discharge in brachycephalic and nonbrachycephalic dogs undergoing cesarean section - Adams - 2022 - Veterinary Surgery - Wiley Online Library](#) Accessed 5.2.24

<sup>50</sup> Shrank, M, *et al* (2022) Incidence and concomitant factors of cesarean sections in the bitch: A questionnaire study. *Frontiers in Veterinary Science: Animal Reproduction - Theriogenology* 9. Available at: [Frontiers | Incidence and concomitant factors of cesarean sections in the bitch: A questionnaire study \(frontiersin.org\)](#) Accessed 5.2.24

<sup>51</sup> Cornelius, A.J *et al* (2019) Identifying risk factors for canine dystocia and stillbirths. *Theriogenology* 128, 201-206. Available at: [Identifying risk factors for canine dystocia and stillbirths - ScienceDirect](#) Accessed 5.2.24

inbreeding if selection based on a single health issue leads to a problematic reduction in the gene pool for the breed in question<sup>52,53</sup>.

53. The temperament and mental state of breeding animals can impact upon – and be affected by – various aspects of the breeding process. This will influence how well the dogs are able to cope with the procedures experienced before, during and after conception and parturition without suffering significant short and/or long term mental distress (see paragraphs 70-84 ‘Welfare impacts of procedures’). The puppies can in turn be affected by the bitch’s stress levels whilst *in utero* as well as after birth (see paragraphs 86-98 ‘Management of breeding animals’).

54. Both temperament and behaviour are shaped by many genes as well as an animal’s life experiences/environment, and the interaction between the two<sup>54,55,56</sup>. Heritability of temperament traits in dogs is variable, showing low values<sup>57</sup> for many traits including agonistic threshold (how easily a dog is provoked by frightening or uncomfortable stimuli). However, research suggests that some temperament traits that may lead to poorer welfare - such as fearfulness - are significantly influenced by

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<sup>52</sup> Indrebo, A. (2008) Animal welfare in modern dog breeding. *Acta Veterinaria Scandinavica* 50(1), S6. Available at: [Animal welfare in modern dog breeding - PMC \(nih.gov\)](#) Accessed 5.2.24

<sup>53</sup> Yordy, J. *et al* (2020) Body size, inbreeding, and lifespan in domestic dogs. *Conservation Genetics* 21, 137-148.

<sup>54</sup> Ilska, J. *et al* (2017) Genetic Characterization of Dog Personality Traits. *Genetics* 206(2):1101-1111. Available at: [Genetic Characterization of Dog Personality Traits - PubMed \(nih.gov\)](#) Accessed 5.2.24

<sup>55</sup> Morrill K. *et al*. (2022) Ancestry-inclusive dog genomics challenges popular breed stereotypes. *Science* 376(6592) Available at: <https://www.science.org/doi/10.1126/science.abk0639> Accessed 5.2.24

<sup>56</sup> Hradecká, L. *et al* (2015) Heritability of behavioural traits in domestic dogs. *Applied Animal Behaviour Science* 170, 1 - 13. Available at: [Heritability of behavioural traits in domestic dogs: A meta-analysis \(researchgate.net\)](#) Accessed 5.2.24

genetics<sup>57,58,59</sup>. Such traits can, therefore, be inherited by the offspring of fearful parents where such animals are selected for breeding.

55. In addition to any potential for inheritance by the puppies of temperament traits from either/both parents, the behaviour of the bitch has considerable impact on her offspring during the rearing period, influencing the puppies' own physical wellbeing, mental state and future behaviour<sup>60,61</sup>. Appropriate maternal interaction with puppies is essential to their survival, nourishment and protection. It is also an important element of the bonding process between puppies and the bitch and is thought to play a role in the social development of the puppies too<sup>57</sup>. Research<sup>62</sup> suggests an association between bitches' temperament and their ability to cope with whelping and nursing. Since behaviour is influenced by both temperament and environment/life experiences, both a bitch's genetics and the way in which she is housed, fed, handled and managed before and during pregnancy and throughout the puppy rearing period (see paragraphs 85-98 'Management of breeding animals') have very significant influence on her puppies' mental and physical welfare and their future behaviour.

## Stud dogs

56. Many of the considerations outlined above for selection of breeding bitches also apply to stud dogs. Some stud dogs are very widely used within a breed, making it

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<sup>57</sup> Goddard, M.E. and Beilharz, R.G. (1985) A multivariate analysis of the genetics of fearfulness in potential guide dogs. *Behavioural Genetics* 15, 69–89. Available at: [A multivariate analysis of the genetics of fearfulness in potential guide dogs - PubMed \(nih.gov\)](#) Accessed 5.2.24

<sup>58</sup> Arvelius, P. *et al* (2014) Genetic analysis of a temperament test as a tool to select against everyday life fearfulness in Rough Collie. *Journal of Animal Science* 92, 4843–4855. Available at: [Genetic analysis of a temperament test as a tool to select against everyday life fearfulness in Rough Collie - PubMed \(nih.gov\)](#) Accessed 5.2.24

<sup>59</sup> Sarviaho, R. *et al* (2019) Two novel genomic regions associated with fearfulness in dogs overlap human neuropsychiatric loci. *Translational Psychology* 9, 18. Available at: [Two novel genomic regions associated with fearfulness in dogs overlap human neuropsychiatric loci - PMC \(nih.gov\)](#) Accessed 5.2.24

<sup>60</sup> Tiira, K. and Lohi, H. (2015). Early Life Experiences and Exercise Associate with Canine Anxieties. *PLoS ONE* 10(11): e0141907. Available at: [Early Life Experiences and Exercise Associate with Canine Anxieties | PLOS ONE](#) Accessed 5.2.24

<sup>61</sup> Foyer, P. *et al* (2016) Levels of maternal care in dogs affect adult offspring temperament. *Nature: Scientific Reports*, 6 (January), Article number 19253, 1–8. Available at: [Levels of maternal care in dogs affect adult offspring temperament | Scientific Reports \(nature.com\)](#) Accessed 5.2.24

<sup>62</sup> Baqueiro-Espinosa, U. *et al* (2024) The links between positive human interaction and maternal behaviour and welfare of commercial breeding dams (*Canis familiaris*). *Applied Animal Behaviour Science*, 270, 106147.



even more important that well-considered decisions are made regarding their selection due to the scale of the impact on many hundreds or even thousands of resulting offspring. The so-called ‘popular sire’ effect’, where a particular stud dog is used very frequently for breeding, can lead to swift dissemination of his genetics – including any problems therein – across an entire breed, especially those that are numerically small. Where a high coefficient of inbreeding occurs, this reduces genetic diversity and increases the risk of significant health and welfare problems becoming established within a breed.

57. Stud dogs’ state of health and nutrition, and their conformation, may impact their ability to breed successfully without welfare problems for themselves and/or their puppies. For example, studies in other species (e.g. sheep) of the effects of nutritional status in male breeding animals indicate that undernutrition affects sperm, increasing DNA damage which could either lead to unviable or genetically abnormal offspring<sup>63</sup>. Certain aspects of the phenotype of some dogs may cause difficulties in mating naturally, for example due to unusual body shape or breathing difficulties in brachycephalic breeds. This could potentially result in an increase in the use of fertility procedures such as sperm collection/artificial insemination.

58. The genotype of stud dogs, along with that of the bitches (see paragraphs 44-55 ‘Breeding bitches’), with regard to inherited disease conditions has implications for the resulting puppies’ welfare (see paragraphs 36-40 ‘Impact of genetic issues’). In addition, a male dog’s phenotype can impact on his offspring if the resulting puppies inherit physical characteristics associated with health and welfare problems, such as breathing difficulties in brachycephalic animals<sup>64</sup>. Certain male phenotypes and mismatches in size/shape between stud dogs and bitches may also lead to increased risk of dystocia in the females due to puppies having large heads, wide shoulders and/or being of large size overall <sup>43,44,45,47,48</sup>.

59. The state of health of stud dogs at the time of mating/sperm collection may affect both the bitch and puppies if the males are suffering from or carrying contagious diseases. Infections (bacterial, fungal or viral) or parasites can be transmitted to bitches during mating. For example, in the case of *Brucella canis* (see also paragraph 46), transmission mainly occurs through natural mating or artificial insemination (i.e. venereal) because the bacteria reside in the prostate gland and the epididymitis. Often, infected males (who may be asymptomatic themselves) pass the infection

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<sup>63</sup> Guan, Y. *et al* (2014) Under-nutrition reduces spermatogenic efficiency and sperm velocity, and increases sperm DNA damage in sexually mature male sheep. *Animal Reproductive Science* 149(3-4), 163-72. Available at: [Under-nutrition reduces spermatogenic efficiency and sperm velocity, and increases sperm DNA damage in sexually mature male sheep - PubMed \(nih.gov\)](#) Accessed 5.2.24

<sup>64</sup> Packer, R.M.A. *et al* (2015) Impact of facial conformation on canine health: Brachycephalic Obstructive Airway Syndrome. *PLoS ONE* 10(10): e0137496. Available at: [Impact of Facial Conformation on Canine Health: Brachycephalic Obstructive Airway Syndrome | PLOS ONE](#) Accessed 5.2.24

through their semen to susceptible females<sup>41,65</sup>. This underlines the value of health checks by qualified veterinary surgeons prior to using stud dogs for either natural breeding or sperm collection.

60. Temperament and behaviour of stud dogs impact upon their own welfare during the breeding process. It may also affect the bitch and puppies. Males with fearful temperaments will be more negatively affected by and less able to cope with any procedures they may experience during fertility procedures (e.g. sperm collection) or natural mating. If a male shows aggressive behaviour during times of stress, this may have negative consequences for the bitch during natural mating. In addition, in the case of more heritable temperament traits, the temperament of the stud dog may impact upon that of the resulting offspring - positively or negatively depending on the trait (see above: 'Breeding bitches' for more detail on temperament heritability).

## Puppies

61. As outlined in the 'Breeding bitches' and 'Stud dogs' sections above, the welfare of puppies during pregnancy, parturition, rearing and throughout their lives will be directly and profoundly affected by the health, nutritional status, temperament, genotype and phenotype of both their parents and by their mother's behaviour.

62. The offspring of parents with exaggerated physical characteristics can inherit such characteristics themselves, especially if both parents are affected, and hence are at risk of suffering the health and welfare issues associated with the characteristic(s) in question. A few of the many examples of this include breathing difficulties in brachycephalic animals (e.g. French and English Bulldogs; Pugs), dermatitis and pyoderma (causing irritation and infection) in dogs with excessive skin folds (e.g. Shar Pei, Basset Hound, Bulldog), neurological conditions associated with cranial cavity size and shape (e.g. Chiari Malformation and Syringomyelia (CMSM) (e.g. Cavalier King Charles Spaniels) and ulcerative keratitis and similar problems in dogs with protruding or sunken eyes (e.g. chihuahua; Shar Pei, Pug)<sup>47</sup>. Selection for long backed, short-legged ('long and low') morphologies, such as seen in the Dachshund, Basset Hound and similar breeds, is linked with intervertebral disc abnormalities that predispose dogs to painful back conditions such as thoracolumbar vertebral disc extrusion<sup>66</sup>. Exaggerated physical characteristics are enhanced by miniaturisation, so selection for breeding of small sized individuals or varieties of a breed further increase the likelihood of the resulting puppies suffering from this condition<sup>67</sup>.

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<sup>65</sup> AKC Canine Health Foundation (2014) Brucellosis. Interview with Dr Matthew Krecic, Diagnostics specialist for Zoetis. Available at: [AKC Canine Health Foundation | Brucellosis \(akcchf.org\)](https://www.akcchf.org/brucellosis) Accessed 5.2.24

<sup>66</sup> Packer, R.M A. *et al* (2013) How Long and Low Can You Go? Effect of Conformation on the Risk of Thoracolumbar Intervertebral Disc Extrusion in Domestic Dogs. PLoS ONE 8(7): e69650. Available at [How Long and Low Can You Go? Effect of Conformation on the Risk of Thoracolumbar Intervertebral Disc Extrusion in Domestic Dogs | PLOS ONE](https://doi.org/10.1371/journal.pone.0069650) Accessed 5.2.24



63. As well as causing physical health and welfare problems, exaggerated physical characteristics may also lead to restriction of normal behaviour expression, with important negative welfare consequences. Examples include restricted ability to exercise and explore (e.g. due to brachycephaly-related breathing difficulties or severely reduced limb lengths in ‘dwarf’ breeds) or display play initiating or social signally behaviours (e.g. play bowing – in long backed short legged breeds)<sup>67</sup>. Dogs selectively bred to be very small are likely to suffer frequent fear and to display high levels of fearful and defensive behaviours<sup>68</sup>.

64. In addition, puppies are at higher risk of harm or death at the time of parturition as a result of the increased occurrence of dystocia experienced when the bitches and/or puppies have certain exaggerated physical characteristics ( see paragraphs 44-55 ‘Breeding bitches’ for details). A dystocia-related puppy mortality rate of over 20 per cent has been reported<sup>46</sup>.

65. Large breeds may be predisposed to a number of disorders as a consequence either of their body size, or their fast rate of growth<sup>47</sup>. Selection for breeding of large sized parents (one or in particular, both) who displayed fast growth rate as puppies may, therefore, result in their offspring inheriting similar size and growth characteristics, putting them at risk of experiencing a higher prevalence of various disorders such as hip or elbow dysplasias<sup>69,70</sup>. This risk will, in turn, be exacerbated where influential environmental factors such as appropriate diet and exercise are not in place<sup>71</sup>. Conversely, selection of breeds or individuals for breeding with small body

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<sup>67</sup> Rooney, N.J. and Sargan, D. (2009) Pedigree Dog Breeding in the UK: a Major Welfare Concern? An Independent Scientific Report Commissioned by the RSPCA. Available at: <http://www.rspca.org.uk/webContent/staticImages/Downloads/PedigreeDogsReport.pdf> Accessed 17.3.24

<sup>68</sup> Duffy, D.L. *et al* (2008). Breed differences in canine aggression. *Applied Animal Behaviour Science* 114(3-4), 441-460. Available at: [Breed differences in canine aggression - ScienceDirect](#) Accessed 5.2.24

<sup>69</sup> Sturaro, E. *et al* (2005) Results from an explorative screening program for elbow dysplasia in some breeds of dogs in Italy. *Italian Journal of Animal Science* 4, 233–240. Available at: [\(PDF\) Results from an explorative screening program for elbow dysplasia in some breeds of dogs in Italy \(researchgate.net\)](#) Accessed 5.2.24

<sup>70</sup> Genevois, J.P. *et al* (2008) Prevalence of hip dysplasia according to official radiographic screening, among 31 breeds of dogs in France. *Veterinary and Comparative Orthopaedics and Traumatology* 21, 21–24. Available at: [Prevalence of hip dysplasia according to official radiographic screening, among 31 breeds of dogs in France - PubMed \(nih.gov\)](#) Accessed 5.2.24

<sup>71</sup> Sallander, M.H. *et al* (2006). Diet, exercise, and weight as risk factors in hip dysplasia and elbow arthrosis in Labrador Retrievers. *Journal of Nutrition* 136, 2050S–2052S. Available at: [\(PDF\) Diet, Exercise, and Weight as Risk Factors in Hip Dysplasia and Elbow Arthrosis in Labrador Retrievers \(researchgate.net\)](#) Accessed 5.2.24

dimension - especially small/short legs - may also result in problems for the offspring (such as shoulder dysplasia and patellar luxation) if these characteristics are inherited<sup>47</sup>.

66. Extreme conformation or other physical characteristics inherited by puppies from one or both parents frequently result in significant health and welfare problems throughout the animals' lives (see paragraphs 36-40 'Impact of genetic issues' for more details). For example, the multiple health problems and short life expectancies<sup>72</sup> of brachycephalic dogs has led to the suggestion that selection of dogs with progressively shorter and wider skulls has reached - or may already have exceeded - physiological limits<sup>73</sup>. In addition to the many physical health and welfare problems associated with brachycephaly, recent research shows that it is harder to assess the emotional state of some dogs with extreme brachycephalic features compared with normocephalic dogs<sup>74</sup>. This could lead to inaccurate judgements about an animal's mental state, in turn resulting in failure to identify - and address - poor mental health and its causes, including pain, anxiety etc.

67. Although heritability of many temperament traits is low<sup>57</sup>, others are likely to be inherited by puppies from their parents. This highlights the importance of considering temperament traits in breeding animal selection. In addition, development of behavioural traits in puppies can be influenced by, for example, the bitch's stress levels during pregnancy as a result of epigenetics. Beyond genetic influences, puppies' health and welfare will be affected by the behaviour of the bitch during rearing, which in turn will be influenced by her temperament, her physical and mental health and the experiences to which she is exposed before and during pregnancy and lactation/rearing. Given that both genotype and environment affect the development of behavioural traits in dogs<sup>57</sup>, it is now recognised that the maternal perinatal environment is a critical venue for the exercise of phenotypic plasticity<sup>75</sup> in puppies. The management of the mother and litter at this time is, therefore, hugely influential in terms of the puppies' future behaviour (see also paragraphs 85-98 "Management of breeding animals").

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<sup>72</sup> Teng, K.Ty. *et al* (2022) Life tables of annual life expectancy and mortality for companion dogs in the United Kingdom. Scientific Report 12, 6415 Available at: [Life tables of annual life expectancy and mortality for companion dogs in the United Kingdom | Scientific Reports \(nature.com\)](https://www.nature.com/articles/s41598-022-16415-4) Accessed 5.2.24

<sup>73</sup> Fawcett, A. *et al* (2018) Consequences and management of canine brachycephaly in veterinary practice: perspectives from Australian veterinarians and veterinary specialists. *Animals* (Basel). 2018 Dec 21;9(1):3. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6356869/> Accessed 5.2.24

<sup>74</sup> Eretová, E. *et al* (2024) Can my human read my flat face? The curious case of understanding the contextual cues of extremely brachycephalic dogs. *Applied Animal Behaviour Science* 270 106134

<sup>75</sup> Charney, E. (2012) Behavior genetics and postgenomics. *Behavioural and Brain Sciences* 35(5), 331-58. Available at: [Behavior genetics and postgenomics - PubMed \(nih.gov\)](https://pubmed.ncbi.nlm.nih.gov/22111111/) Accessed 5.2.24

## **‘Designer’ cross breeds**

68. Recent years have seen a huge upsurge in the deliberate breeding of crossbreed dogs whose parents are selected from two different established breeds<sup>76,77</sup>. Decisions about which so-called ‘designer’ crosses to produce are driven by demand based on the appearance of the offspring and/or other influences such as perceptions about their health and behaviour<sup>78</sup>. The welfare impact of ‘designer’ cross breeding is mixed. As with any combination of parents, the offspring of a first cross of two breeds will inherit their parents genetic and phenotypic characteristics to a lesser or greater degree. Depending on the breeds used, this can either improve or compound any health and welfare problems experienced by the dog and/or bitch, with some puppies potentially suffering from the genetic and/or phenotypic problems of both breeds and/or new problems as a result of combining the characteristics of the parents. For example, some of the multitude of poodle crosses have coat types that are very prone to matting and need a significant amount of on-going care to ensure the dog remains free from discomfort and sometimes serious health problems associated with matted coats<sup>78</sup>. There is, however, a mistaken belief amongst some that the offspring of first crosses of two breeds will not suffer from the genetic problems experienced by the breeds from which they were produced, and some breeders of these crossbreeds openly make these claims as a ‘selling point’ to unsuspecting prospective puppy buyers. Information is lacking about the respective prevalence of use of canine fertility services by breeders of pure (single breed) compared with crossbreed puppies. Research on designer puppy purchasing during 2019-2020 indicated that buyers of ‘designer’ crossbreed puppies were less likely to be provided with information about health testing of the respective purebred parents than buyers of single breed puppies. Designer crossbreed owners were also less likely to see their puppy in person prior to purchase than purebred puppy owners and at purchase, designer crossbreed puppies were less likely to be seen with their mother and littermates. Despite this, designer crossbreeds had a significantly higher purchase price<sup>77</sup>.

69. Whilst robust evidence of scale and intent is lacking, anecdotal information indicates that certain large, powerful breeds may be deliberately combined with the

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<sup>76</sup> Shouldice, V.L. *et al* (2019) Expression of behavioural traits in Goldendoodles and Labradoodles. *Animals* 9(12), 1162. Available at: [Expression of Behavioural Traits in Goldendoodles and Labradoodles - PubMed \(nih.gov\)](#) Accessed 5.2.24

<sup>77</sup> Burnett, E. *et al* (2022) How much is that doodle in the window? Exploring motivations and behaviours of UK owners acquiring designer crossbreed dogs (2019-2020). *Canine Medicine & Genetics* 9, 8. Available at: [How much is that doodle in the window? Exploring motivations and behaviours of UK owners acquiring designer crossbreed dogs \(2019-2020\) | Canine Medicine and Genetics | Full Text \(biomedcentral.com\)](#) Accessed 5.2.24

<sup>78</sup> McDonald, S.E. *et al* (2022) Grooming-related concerns among companion animals: preliminary data on an overlooked topic and considerations for animals' access to health-related services. *Frontiers in Veterinary Science* 9, 827348. Available at: [Grooming-Related Concerns Among Companion Animals: Preliminary Data on an Overlooked Topic and Considerations for Animals' Access to Health-Related Services - PMC \(nih.gov\)](#) Accessed 6.2.24

intention of producing puppies for those seeking to purchase so-called 'status' dogs. Other key motivators of 'designer' puppy purchases include the perception that certain crossbreeds are easy to train and/or 'good with children'<sup>77</sup>. But research suggests that at least some crossbreed offspring display more problematic behaviour when compared to their constituent breeds<sup>77</sup>, a not unexpected finding given the complex interaction between genetics, environment and lifetime experiences involved in the shaping of dog behaviour (see also paragraphs 45-46 'Breeding bitches' for further details).

## **Welfare impacts of procedures**

Techniques currently used in canine breeding include: pre-mating testing ('ovulation testing') using either blood tests or vaginal swabbing for cytology; artificial insemination (AI); ultrasound scanning; Caesarean section; and semen collection. Surgical AI of dogs is not allowed in Great Britain<sup>79</sup> and so discussion of AI within this Opinion relates exclusively to non-surgical AI. This may be performed using either intra-vaginal or trans-cervical techniques. All of the techniques mentioned above can cause both direct and indirect welfare impacts.

### **Direct welfare impacts of breeding techniques**

70. Peer-reviewed literature-based evidence on the welfare impacts of canine reproductive techniques is sparse. Based on what is available, the AWC assesses the direct welfare impacts of canine reproductive practices as follows:

- **Semen collection**

Semen is collected from male dogs to facilitate AI with either fresh, chilled, or frozen semen. Legitimate, welfare-promoting reasons for collecting semen include using AI to abolish the need to transport live animals (see 'indirect welfare impacts below'). Using AI to facilitate breeding from males or in bitches which are incapable of natural mating due to extreme conformation is a welfare-negative use of the technique (see 'indirect welfare impacts' below). Semen collection from male dogs involves digital stimulation of the dog by a human, in the presence of a bitch who is in oestrus<sup>80</sup>. In a search of the literature, the AWC found no publications assessing the welfare impacts of this technique. Anecdotally, the technique is well tolerated by male dogs and is likely to have minimal, transient negative welfare effects if performed correctly. If performed incorrectly, semen collection risks damage to the male dog's external reproductive organs; psychological insult if the dog is inappropriately handled; risk of disease transmission (see 'indirect welfare impacts' below); and risk of misdiagnosis of fertility or subfertility based on examination of semen samples. The severity of these adverse effects should they occur depends upon individual circumstance and sequelae.

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<sup>79</sup> RCVS (2019) Standards and advice update. Available at: <https://www.rcvs.org.uk/news-and-views/features/standards-and-advice-update-january-2019/>. Accessed 6.2.24

<sup>80</sup> Kutzler, M.A.(2005) Semen collection in the dog. *Theriogenology*. 2005 Aug;64(3):747-54. doi: 10.1016/j.theriogenology.2005.05.023. PMID: 15993482

- Blood sampling

Blood sampling to measure circulating levels of the reproductive hormone progesterone is a method of determine the stage of a bitch's reproductive cycle. The potential for adverse welfare effects associated with blood sampling relates to the pain associated with the procedure itself and the stress associated with being restrained for sampling. Blood sampling when correctly undertaken is a minimally invasive technique which should have only transient negative welfare impacts upon the animal being sampled. If performed incorrectly, blood sampling risks damage to blood vessels, introduction of infection and stress / distress due to handling and/or pain. The severity of these adverse effects should they occur depends upon individual circumstance and sequelae.

- Vaginal cytology

Vaginal cytology is an established method of determining the stage of a bitch's reproductive cycle<sup>81</sup>. Briefly, it involves inserting a swab into the vagina of the bitch to capture exfoliating and infiltrating cells, which are then assessed microscopically. Since the types of cells captured vary with the stage of the oestrus cycle this facilitates a determination of appropriate timing for breeding. In a search of the literature, the AWC found no publications assessing the welfare impacts of the technique. The potential for adverse welfare effects associated with vaginal cytology relates to the discomfort associated with the procedure itself, the stress associated with being restrained for sampling and the potential for the swab to be inserted incorrectly so that it damages the bitch. Vaginal cytology when correctly undertaken is a minimally invasive technique which should have only transient negative welfare impacts upon the animal being sampled. If performed incorrectly, vaginal cytology risks damage to the bitch's anatomy, pain, introduction of infection, stress / distress due to handling, misdiagnosis of the bitch's stage of the oestrus cycle which may result in attempts to breed her at an inappropriate time, and adverse psychological effects. The severity of these adverse effects should they occur depends upon individual circumstance and sequelae.

- Artificial insemination

Although there are some papers in the peer-reviewed literature relating to the welfare impacts of surgical canine AI, there is very little on the welfare impacts of non-surgical AI. Non-surgical canine AI can be undertaken by both intra-vaginal and transcervical routes: success rates are greater if the transcervical route is used<sup>82</sup>. The anatomy of

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<sup>81</sup> Reckers, F *et al* (2022) Canine Vaginal Cytology: A Revised Definition of Exfoliated Vaginal Cells. *Front Vet Sci.* 2022 Mar 24;9:834031. doi: 10.3389/fvets.2022.834031. PMID: 35400101; PMCID: PMC8987767

<sup>82</sup> Linde-Forsberg, C *et al* (1999) Comparison of fertility data from vaginal vs intrauterine insemination of frozen-thawed dog semen: A retrospective study, *Theriogenology*, Volume 52, Issue 1, Pages 11-23,

the bitch makes transcervical canine AI technically challenging compared to other species (for example cattle, for whom there is an exemption order to the VSA (1966) permitting the use of the technique by non-veterinary surgeons ('AI technicians')). Canine non-surgical AI has the potential to cause psychological or physical trauma and pain, which is mitigated by it being undertaken by trained, qualified personnel<sup>83</sup> (see also paragraphs 76-84 'The relevance to canine welfare of the training and qualification of those undertaking canine reproductive procedures'). There is also a risk of disease transmission via the use of infected semen. The severity of these adverse effects should they occur depends upon individual circumstance and sequelae, but they may be significant.

- Ultrasound scanning for pregnancy

Ultrasound scanning of bitches for pregnancy diagnosis is performed transabdominally. Developments in scanning technique have facilitated staging of pregnancy and foetal sexing<sup>84</sup>. The technique of transabdominal ultrasound scanning of bitches is painless, but may cause indirect stress due to the unfamiliarity of the sensation of the ultrasound probe upon the body and the fact that bitches have to be restrained. When performed correctly the direct welfare impacts of ultrasound scanning of bitches may be considered minimal. However, there are very significant risks to the health and welfare of bitches and puppies associated with misdiagnosis<sup>85</sup> (see also paragraphs 71-75 'Indirect welfare impacts' ).

- 'Whelping services'

'Whelping services' including vaginal delivery of puppies and after care for puppies. Some aspects of these services e.g. assisting with birth and feeding milk through a stomach tube run risks of anatomical and physiological damage. These risks are very significant, but occur rarely if the procedures are performed correctly.

- Caesarean section

Caesarean section is a surgical method of resolving dystocia in the bitch. Like all surgeries it carries risks, including those associated with general anaesthesia and of peri- and post-operative haemorrhage and infection and post-operative pain and adhesion formation. Caesarean sections carry additional, specific risks relating to poor or delayed post-operative mothering behaviour by the bitch, which may compromise the health and welfare of puppies and possible decrease in milk production / let down. All of these risks are significant, even when the procedure is being performed correctly,

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<sup>83</sup> England, G.C.W and Millar, K.M. (2008) The ethics and role of AI with fresh and frozen semen in dogs. *Reprod Domest Anim.* 2008 Jul;43 Suppl 2:165-71. doi: 10.1111/j.1439-0531.2008.01157.x. PMID: 18638119

<sup>84</sup> Lopate, C. (2023) Ultrasonography for the evaluation of pregnancy in the female canine. *Reproduction in Domestic Animals*, 58(Suppl. 2), 144–162. Available at: <https://doi.org/10.1111/rda.14446>.) Accessed 6.2.24



with veterinary nursing and aftercare available. See also paragraphs 44-60 'Impact of the selection of breeding animals').

### **Indirect welfare impacts of breeding techniques**

71. The use of assisted reproductive technologies can have positive indirect effects on canine welfare, for example by reducing the need to transport breeding animals long distances through the shipment of semen for artificial insemination. International use of shipped semen can also help to maintain genetic diversity. However, the breeding techniques being offered at CFCs can also have negative indirect impacts on the welfare of the adult dogs being used for breeding, their puppies, other animals and even people (see also paragraphs 8, 'Human wellbeing' and 56-60 'Selection of stud dogs').

72. Long-term indirect negative welfare impacts which affect behaviour may occur in dogs or bitches who experienced psychological stress during reproductive procedures and handling.

73. Short to long-term indirect negative physical welfare impacts on stud dogs include harms caused by overuse (semen being collected too frequently). Of particular current relevance to the collection and use of canine semen is the transmission within semen of disease, including *Brucella canis* ( see also paragraphs 46 and 59) which is a zoonosis. Incorrect collection, handling and use of canine semen may expose not only the dogs immediately involved but also the wider canine population and humans to transmissible disease and consequent poor welfare.

74. In bitches, indirect negative welfare impacts which may arise through incorrect provision of canine breeding services including over-use, a lack of identification of a need for and provision of on-going medical care, inappropriate use of veterinary drugs, and medical conditions such as chronic low-level pain or incontinence as the result of damage to the reproductive tract. The training of those undertaking canine reproductive procedures is of paramount relevance to the risk of such adverse welfare impacts occurring (see also paragraphs 76-84).

75. A significant welfare problem arises from the indiscriminate and inappropriate use of assisted breeding techniques such as semen collection and AI in animals (for example those with extreme conformation) who are unable to breed and / or give birth naturally<sup>85,86</sup>. This has direct negative welfare consequences on the adult animals (for example those associated with a Caesarean section even when properly performed)<sup>48</sup>. But it also, significantly, has indirect adverse welfare effects on future generations

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<sup>85</sup> Naturewatch foundation (2022) Canine Fertility Clinics: a new frontier in the fight against puppy farms. Available at: <https://naturewatch.org/wp-content/uploads/2022/07/Canine-Fertility-Clinics-A-new-frontier-in-the-fight-against-puppy-farms-2022.pdf> Accessed 6.2.24

<sup>86</sup> BVA (2022) Huge spike in unregulated dog fertility clinics fuelling an 'animal welfare disaster', vets warn' Available at: <https://www.bva.co.uk/news-and-blog/news-article/huge-spike-in-unregulated-dog-fertility-clinics-fuelling-an-animal-welfare-disaster-vets-warn/> Accessed 6.2.24

through producing puppies who are inherently unhealthy and as a consequence suffer life-long poor welfare<sup>87,88,89</sup>.

### **The relevance to canine welfare of the training and qualification of those undertaking canine reproductive procedures**

76. Both the direct and indirect welfare impacts of the techniques identified in the preceding section are to a significant extent dependent upon the level and quality of training and the expertise of the person undertaking those techniques. This relates not only to technical ability at performing a particular, limited procedure but also, importantly, to the ability to accurately recognise and appropriately treat adverse side-effects or sequelae of the use of such procedures. Veterinary Surgeons registered with the Royal College of Veterinary Surgeons in the UK must hold a formal veterinary qualification, as recognised by the RCVS together with a RCVS continuing professional development record.

77. There are a small number of ‘canine fertility clinics’ in the UK advertising the fact that they operate with veterinary input. In our interaction with stakeholders, the AWC heard anecdotal evidence that such veterinary input is in some cases from veterinarians who are not registered with the Royal College of Veterinary Surgeons and may not therefore be trained and qualified to the standard required of those who are. Those canine fertility clinics who genuinely have input from members or fellows of the Royal College of Veterinary Surgeons (MsRCVS / FsRCVS) seem to be only a small minority<sup>90</sup>.

78. The AWC could find no peer-reviewed evidence in the literature about the welfare impacts of canine veterinary reproductive techniques when being undertaken by those other than MsRCVS/ FsRCVS. This is unsurprising. Many such activities are being performed on an uncertain legal basis and adverse events are therefore unlikely to be reported to the authorities or admitted to researchers by either the people who have performed them or (given the absolute responsibility upon owners not to subject an animal to unnecessary harm under the Animal Welfare Act (2006)) the dog owners who have committed their animal to the care of a lay person. Even those dog owners who have employed a lay person in good faith as a result of the confusion around the legal status of many of the canine reproductive procedures (see below) may be anxious about reporting adverse events should they occur. The fact that there is no regulator overseeing lay people who offer ‘canine reproductive services’ means that

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<sup>87</sup> BVA (2018) BVA Policy on extreme conformation. Available at: <https://www.bva.co.uk/media/3122/bva-policy-position-on-extreme-conformation-september-2018.pdf> Accessed 8.2.24

<sup>88</sup> O'Neill, D.G. *et al* (2015) Epidemiological associations between brachycephaly and upper respiratory tract disorders in dogs attending veterinary practices in England. *Canine Genetics and Epidemiology* 2015, 2(1):10.

<sup>89</sup> BVA (2023) Vets call on government to license unregulated canine breeding services. Available at: <https://www.bva.co.uk/news-and-blog/news-article/vets-call-on-government-to-license-unregulated-canine-breeding-services-to-help-clamp-down-on-irresponsible-dog-breeding> Accessed 6.2.24



there is no obvious mechanism for flagging a concern other than to the police, relevant local authority, RSPCA or Scottish SPCA. This is in obvious contrast to situation when concerns about the professional standards of a veterinary surgeon can be raised with the RCVS.

Despite this absence of peer-reviewed literature, there is an anecdotal evidence base suggesting that the performance of canine reproductive techniques by non-MSRCVS / FSRCVS increases the risk of both direct and indirect adverse welfare impacts on dogs, bitches, puppies, other animals and people. The British Veterinary Association's 'Voice of the profession' survey in 2022 found that 93% of respondents expressed concern about canine breeding services taking place without the involvement of RCVS-registered veterinary professionals. Also in 2022, Naturewatch surveyed veterinary professionals about issues surrounding 'canine fertility clinics'<sup>90</sup>. Some veterinary surgeons reported being presented with ill bitches suffering from anatomical damage or uterine / systemic infection as the result of lay people having attempted canine AI. Other survey responses included reports of veterinary surgeons in Great Britain being presented with ill bitches whom their owners had been told were pregnant by lay people purporting to have performed diagnostic ultrasound scanning. Reported misdiagnoses by such lay people included incorrect information about the viability and the number of foetuses, the bitch not being pregnant but instead having a life-threatening uterine infection (pyometra), and in one case a tumour.

79. In our interactions with stakeholders, the AWC also heard concerns that veterinary prescription only medicines may be being illegally used by lay people operating CFCs. This poses a risk to the welfare of specific animals (for example if a wrong dose or inappropriate medicine is used) but also a broader risk to animals and to human society if it results in lack of appropriate anti-microbial stewardship, or incorrect disposal of drugs.

80. The risks to canine welfare associated with lack of appropriate training and qualification by those undertaking reproductive procedures is compounded by a lack of clarity in the public domain around who may legally perform many of the techniques of canine reproductive practice. This was referred to by multiple stakeholders (including canine welfare charities and the Kennel Club) in meetings with the AWC.

81. A table indicating which services being offered by canine fertility clinics may and may not be undertaken by lay people has recently been published by the BSAVA / BVA<sup>16</sup>. In the course of gathering evidence from a variety of sources for this Opinion, it became clear to the AWC that many of the canine reproductive techniques listed in that publication as 'Vet only' are being undertaken by lay people without veterinary involvement. The AWC is aware that at least some of the lay people offering such 'canine reproductive services' are under the genuine impression that they are legally entitled and competent to do so having attended 'training courses' for lay people being

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<sup>90</sup> Naturewatch (2022) Breeding beyond dogs' limits canine fertility clinics in the UK. Available at <https://naturewatch.org/wp-content/uploads/2022/10/Breeding-beyond-dogs-limits-Canine-Fertility-Clinics-in-the-UK-October-2022.pdf> Accessed 6.2.24

offered by commercial companies, and received a certificate at the end of such courses.

82. Such certification is likely to confuse not only those who have attended the courses but also the dog-owning public. The confusion may be compounded by the fact that at least two companies who offer canine fertility courses also offer microchipping training courses which are approved by Defra. They advertise these two courses in close proximity on their websites, which may confuse those genuinely seeking qualifications in canine reproduction. Furthermore, if a certificate for completing the microchipping course is displayed at a canine fertility clinic alongside a certificate from the same company referring to a 'fertility course' members of the public may mistakenly think that the 'fertility course' was Defra-approved.

83. One-off attendance by lay people at a commercially-provided 'fertility course' is in no way equivalent to the RCVS' requirements of veterinary surgeons registered with them, including the need to undertake continuous professional development.

84. There is also deliberate obfuscation by some CFCs who advertise on their websites services which ought to fall within the Veterinary Surgeons Act (1966) (for example progesterone testing, which requires blood sampling) but make no corresponding mention of the need for the involvement of a veterinary surgeon registered with the RCVS.

## **Management of breeding animals**

The AWC recognises that with the growth of CFCs there are concerns regarding the management of breeding animals using these services. Given these services are largely a recent development, there is a lack of direct scientific literature related to the management of breeding animals using CFCs. However, there is a broad evidence base of existing relevant academic literature regarding the welfare effects of managing dogs in a range of environments which the AWC has used to inform our assessment of how animal management within the context of CFCs is likely to impact canine welfare. Similarly, much information exists indicating the critical importance of ensuring appropriate nutrition for the age/stage of breeding and is therefore an important element in management of breeding animals (see also paragraphs 44-60 'Impact of the selection of breeding animals').

### **The housing environment**

85. The AWC recognises that dogs being used for breeding will be maintained in a range of environments from small scale breeders maintaining animals in a home environment, through to large scale licensed Commercial Breeding Establishments (CBEs) housing animals in confined kennel environments. Even when the latter meet legal requirements, there remain welfare concerns as discussed below.

86. When housing breeding animals in kennels there are concerns regarding restricted space, limited or no exercise, and a lack of enrichment and positive human

interaction. Previous studies have examined how the physical, social, sensory, occupational, nutritional and psychological aspects of the kennel environment influence welfare (reviewed by<sup>91,92</sup>). Although mainly conducted in the context of shelter and laboratory housed dogs, they demonstrate that the kennelled environment has a number of stressors that can negatively impact welfare. For example, frequent exposure to aversive sensory stimuli such as high levels of noise, restricted space and limited opportunities to experience positive human interactions or other forms of enrichment have been associated with the development of acute and chronic stress in dogs living in confined environments<sup>93</sup>. Furthermore, as dogs are a social species, seeking both interactions with other dogs as well as humans, research has examined the implications of individual kennel housing compared with group or paired housing. Studies consistently demonstrate the welfare benefits of group housing<sup>92,93</sup>. Whilst the AWC recognises that breeding animals may often be socially housed with conspecifics, we have concerns that they may also be housed individually. This could be particularly likely for some breeding males when not in use.

87. Biosecurity is an important element in safeguarding health and welfare of breeding animals and puppies, regardless of the environment in which they are kept. Larger scale breeding establishments will face the additional risk of disease introduced into the premises spreading amongst and affecting many animals. Bespoke biosecurity plans facilitate effective control of disease entry and spread. Such plans benefit from input from the veterinary profession and need to take account of any increases in risk of certain diseases in the local area. Regular assessment of the health status of any animals held on the premises, and all those with whom they have contact, is also an important aspect.

88. Regarding housing, a related issue is that even breeding dams that are usually socially housed, will typically be transferred to an individual whelping area or kennel before parturition. This change in environment is likely to be stressful for the dam if not managed properly. In support of these concerns, a retrospective US survey of former breeding animals from CBEs that had been rehomed found that they exhibited a higher rate of health and behavioural problems such as fear, anxiety and compulsive behaviours compared with dogs from a different background<sup>93</sup>. Furthermore, in a related survey study, puppies originating from CBEs were reported to display more

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<sup>91</sup> Protopopova, A. (2016) Effects of sheltering on physiology, immune function, behaviour, and the welfare of dogs. *Physiology and Behaviour*, 159, 95-103.

<sup>92</sup> Taylor, K. D. and Mills, D. S. (2007) The effect of the kennel environment on canine welfare: A critical review of experimental studies. *Animal Welfare*, 16, 435-447.

<sup>93</sup> McMillan, F. D. *et al* (2011) Mental health of dogs formerly used as “breeding stock” in commercial breeding establishments. *Applied Animal Behaviour Science*, 135, 86-94.

behavioural problems as adults compared to puppies coming from other settings<sup>94</sup> and likely reflecting a lack of appropriate socialisation (reviewed by<sup>95</sup>). The behavioural issues included aggression directed towards other dogs, unfamiliar people and family members. In addition, higher levels of fear of social and non-social stimuli were reported. Similarly, a survey conducted in the UK reported that puppies originating from intensive breeding practices were more likely to show undesirable behaviours, including fear, than dogs from other breeding sources<sup>96</sup>. In support of these findings, a US study involving direct behavioural assessments of CBE dogs found that more than 50% displayed fearful responses to an unfamiliar person<sup>97</sup>.

89. The fact that breeding animals are being housed in a domestic environment does not necessarily guarantee positive welfare. Unsuitable environments (e.g. lack of space) and inability to escape from stressors such as noise, human disturbance or other animals during and after whelping may all impact negatively on welfare. Moreover, where expertise and suitable training on managing breeding dogs, bitches and puppies is lacking, poor welfare is likely to result.

90. Adequate training to a reasonable level of competency for all those providing care for breeding dogs, bitches and puppies is a necessary prerequisite to safeguarding canine welfare, whatever the housing environment of breeding animals may be.

## **Enrichment**

91. A recent study conducted on a UK based CBE<sup>98</sup> introduced a simple enrichment protocol comprising dams receiving 15 minute enrichment sessions of positive human interaction, occurring three days a week over a four week period. Compared with a

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<sup>94</sup> McMillan, F. D. (2017) Behavioural and psychological outcomes for dogs sold as puppies through pet stores and / or born in commercial breeding establishments: Current knowledge and putative causes. *Journal of Veterinary Behaviour*, 19, 14-26.

<sup>95</sup> McEvoy, V. *et al* (2022) Canine socialisation: A narrative systematic review. *Animals*, 12, 2895.

<sup>96</sup> Wauthier, L. M. and Williams, J. M. (2018) Using the mini C-BARQ to investigate the effects of puppy farming on dog behaviour. *Applied Animal Behaviour Science*, 206, 75-86.

<sup>97</sup> Stella, J. *et al* (2019) Improving canine welfare in commercial breeding operations: Evaluating rehoming candidates. *Applied Animal Behaviour Science*, 220, 104861.

<sup>98</sup> Baqueiro-Espinosa, U. *et al* (2023) Positive human interaction improves welfare in commercial breeding dogs: Evidence from attention bias and human sociability tests. *Applied Animal Behaviour Science*, 262, 105904.

control group of dams that didn't receive the enrichment, the enriched group demonstrated evidence of improved welfare in subsequent behavioural tests. For example, enriched dams were more sociable in a stranger approach test. Importantly, there was evidence of improved psychological welfare in terms of emotional state. When presented with a brief potentially threatening stimulus control dams looked more frequently towards the threat, while enriched dams were less influenced by the threat and spent more time sniffing and eating from a food bowl placed in the middle of the arena. This study suggests that, depending on the current management, breeding animals are likely to benefit from additional positive human interactions.

92. In a follow on study<sup>63</sup> the researchers investigated the effect of prepartum enrichment on maternal behaviour and welfare of breeding dams. During the last four weeks of gestation, dams were exposed to either baseline management conditions or an additional enrichment protocol consisting of positive human interactions as described above. As an indicator of stress, the researchers measured hair cortisol levels at a number of time points. The results revealed an interaction between treatment group and litter size such that as litter size increased control dams had higher hair cortisol levels than enriched dams. This suggests that the additional positive human interaction for the enriched dams helped mitigate the stress of caring for a large litter. There were also some indications of differences in maternal behaviour, with a trend for an interaction effect between treatment and litter size on levels of nursing behaviour. As litter size increased enriched dams spent more time nursing their puppies in a sitting or standing posture than dams from the control group.

### **Effects on ease of whelping and maternal behaviour**

93. For breeders, parturition ('whelping') is a critical stage in the reproductive cycle of the dam. The importance of this aspect is also evidenced in the growth of canine whelping services being offered to breeders by CFCs and other non-veterinarians. The whelping period is particularly critical for dog welfare. Recently, a UK based study<sup>99</sup> conducted on a CBE developed an Ease of Whelping (EoW) index to characterise the whelping process and examine factors influencing this and how it relates to subsequent maternal behaviour. This study highlighted the importance of the previous environment that dams were housed in for EoW. Dams that had been born and raised within the CBE had better ease of whelping scores than those that had originated elsewhere and been brought in to the CBE. Furthermore, maternal care, in terms of nursing duration was also significantly affected by dam origin, with those that had been brought into the CBE environment showing lower durations of nursing.

94. These findings raise concerns regarding practices related to CFCs in which dams may be moved to whelp in unfamiliar environments. The stress of a novel environment is likely to have negative implications for whelping and subsequent maternal care. While this is a welfare issue for the breeding animals, it is also a welfare issue for the puppies, given the importance of adequate maternal care for their

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<sup>99</sup> Baqueiro-Espinosa, U. *et al* (2022) Factors influencing ease of whelping and its relationship with maternal behaviour and puppy perinatal mortality in commercially bred dogs. *Scientific Reports*, 12, 6680.

development (see also paragraphs 44-60: 'Impact of the selection of breeding animals').

### **Rotation of premises and transport**

95. During interactions with stakeholders, the AWC heard concerns regarding recent and emerging practices of moving breeding animals between different locations and housing environments at different stages of the reproductive cycle. While there is no direct research on this topic related to breeding, the AWC shares those concerns given the potential negative effects on welfare. Moving dogs between different kennel environments, or indeed between a kennel and home environment will be a significant source of stress for the animal<sup>93</sup>. In addition, the transport associated with such moves, as well as visits to the CFC for those using such services, will be an additional stressor.

### **Quality of human-dog interactions**

96. Dogs benefit from and enjoy positive human interactions and as discussed above this can be an important form of enrichment. However, it is also the case that poor quality negative human interactions and handling will be detrimental to welfare<sup>100</sup>. In recognition of the importance of human-animal interactions for welfare, this aspect has been added to an updated version of the Five Domains model of animal welfare assessment<sup>101</sup>. There is a large body of evidence in farm animals demonstrating the importance and effect of human caretaker attitudes and behaviours for the welfare of animals under their management (e.g.<sup>102</sup>). The importance of this area is increasingly being recognised in the management of dogs<sup>101</sup>.

97. The AWC is concerned that in some scenarios the level and quality of human:animal interaction may be inadequate to safeguard canine welfare in the breeding context. For example, in the context of large canine breeding establishments, questions have been raised regarding the ratio of dogs per staff member<sup>98,103</sup>, as this will influence the quality and opportunity for positive human interactions. The standard of handling and quality of interaction between humans and dogs is important for the protection of canine welfare in the context of dog breeding and canine fertility clinics,

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<sup>100</sup> Cobb, M. L. *et al* (2022) Perceived importance of specific kennel management practices for the provision of canine welfare. *Applied Animal Behaviour Science*, 249, 105591.

<sup>101</sup> Mellor, D.J. *et al* (2020) The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare. *Animals* 2020, 10, 1870

<sup>102</sup> Hemsworth, P. H. *et al* (1994) Improving the attitude and behaviour of stockpersons towards pigs and the consequences on the behaviour and reproductive performance of commercial pigs. *Applied Animal Behaviour Science*, 39, 349-362.

<sup>103</sup> Barnard, S. *et al* (2023) Management and behavioural factors associated with rehoming outcomes of dogs retired from commercial breeding kennels. *PLoS One*, 18, e0282459.

and the provision and uptake of validated, regulated training and education for those working with breeding dogs, bitches and puppies is therefore crucial.

### **Impact of aftercare following procedures**

98. All canine reproductive procedures have the potential to cause stress and discomfort (see paragraph 70 'Direct welfare impacts of breeding techniques'). Some, for example Caesarean sections, will also cause pain if there is inadequate administration of anaesthesia and analgesia. The provision of suitable post-whelping care is critical to ensuring the wellbeing of bitch and puppies, and this is particularly true if the bitch has suffered a dystocia. Stress responses may have lasting detrimental behavioural effects on the breeding animals. For example, dogs and bitches may develop fear based responses including aggression and become sensitised to the stimuli associated with the procedures. In addition, if muzzles have been used when being restrained for procedures this could be aversive for the animal. The mitigation of these potential adverse welfare effects depends upon the appropriate training and qualification of those undertaking the procedures (see also paragraphs 76-84 'The relevance to canine welfare of the training and qualification of those undertaking canine reproductive procedures').

### **Combined impact of health and welfare on quality of life of breeding animals**

99. Welfare involves more than health and disease, and good productivity does not necessarily equate to good welfare. Animal welfare monitoring is a vital part of veterinary medicine and general day-to-day care, and can be difficult due to the range of factors which contribute to the perception of welfare. Relying on reports by owners alone may be unsatisfactory as an owner's interpretation of how a dog is coping will be largely subjective, and will depend on the individual, and potentially biased perceptions and beliefs of whoever is making the judgment<sup>104</sup>.

100. Animal welfare was historically thought of as simply providing for animals' basic needs for food, water, shelter and veterinary care. However, the five freedoms adopted by the Farm Animal Welfare Committee in 1979 specifically promoted freedom from hunger and thirst, freedom from discomfort, freedom from pain, injury and disease, freedom to express normal behaviour and freedom from fear and distress. Recognising that this was largely an absence of negatives the Five Domains of nutrition, environment, health, behaviour and mental state were developed<sup>101</sup> to enable the consideration of positive feelings (what an animal likes) and the resources it is motivated to obtain (what an animal wants) and this is now the basis for modern animal welfare assessment.

101. There are few validated tools for veterinary and animal welfare professionals to use that objectively assess dog welfare. Tools that have been developed to assess quality of life often relate only to clinical health and illness. Health related quality of life

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<sup>104</sup> Serpell, J. (2019) How happy is your pet? The problem of subjectivity in the assessment of companion animal welfare. *Animal Welfare*. (2019) 57–66. doi: 10.7120/09627286.28.1.057

assessments typically take the form of structured questionnaires, which can be either generic or disease specific. Currently there is no universally accepted method to assess animal welfare. Some systems are only designed to produce reports on animal usage, training and staff competency, but multiple indicators that are evidenced to impact wellbeing both positively and negatively should be used to evaluate an animal's welfare state. The Field Instantaneous Dog Observation [FIDO] tool<sup>105</sup> was developed to provide a method of assessing welfare in commercial breeding dogs using overt behavioural and physical measures. It records the level of fear of strangers leading to distress during medical treatments or procedures, which may limit the ability to provide effective medical care and thus impact on the physical health of dogs. Another tool is a four-part quality of life questionnaire that assesses components that can impact a dog's welfare including pain, comfort, exercise, diet, mental stimulation, companionship with people and other dogs<sup>106</sup>. The questionnaire was designed as a screening tool to raise awareness of welfare considerations of dogs in veterinary practice, rather than to generate a quantifiable measure of welfare. Another available validated tool is the Animal Welfare Assessment Grid<sup>107</sup> which is available for dogs on an accessible online platform. The AWAG assesses the four parameters of physical health, psychological wellbeing, environmental comfort, and veterinary and management procedural events over time. The AWAG tool encompasses the five domains of animal welfare and because it monitors cumulative lifetime experience it draws attention to the temporal component of any suffering that is often overlooked<sup>108</sup>.

102. The harms to dog welfare in commercial breeding operations are considered to be facilitated by thinking of and treating the dogs as mere commodities<sup>109</sup>. General welfare issues include the extent to which the physical, behavioural and psychological needs of the animals can be met in the conditions in which they are raised, and the specific effects of genetics, phenotype, housing, handling and behavioural management on the quality of life which the dogs experience<sup>109</sup>.

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<sup>105</sup> Mugenda, L *et al* (2019) Refining canine welfare assessment in kennels: Evaluating the reliability of Field Instantaneous Dog Observation (FIDO) scoring. *Applied Animal Behaviour Science* 221 (2019) 104874 <https://doi.org/10.1016/j.applanim.2019.104874>

<sup>106</sup> Mullan, S. and Main, D. (2007) Preliminary evaluation of a quality-of life screening programme for pet dogs. *J Small Anim Pract.* (2007) 48:314–22. doi: 10.1111/j.1748-5827.2007.00322.x

<sup>107</sup> Malkani, R *et al* (2022) Preliminary validation of a novel tool to assess dog welfare: The Animal Welfare Assessment Grid. *Front. Vet. Sci.* 9:940017. doi: 10.3389/fvets.2022.940017 ([www.awag.org.uk](http://www.awag.org.uk))

<sup>108</sup> Wolfensohn, S *et al* (2018) Assessment of Welfare in Zoo Animals: Towards Optimum Quality of Life. *Animals* 8, 110; <http://www.mdpi.com/2076-2615/8/7/110>

<sup>109</sup> Croney, C (2019) *Journal of Applied Animal Ethics Research*, 1, 230-235. Turning up the Volume on Man's Best Friend: Ethical Issues Associated with Commercial Dog Breeding. [https://brill.com/view/journals/jaae/1/2/article-p230\\_5.xml](https://brill.com/view/journals/jaae/1/2/article-p230_5.xml)



The nature of and the extent to which dogs may suffer in connection with reproductive procedures directly relates to their management including their need for socialisation, exercise and enrichment, the quality of housing and nutrition, and the frequency of preventative and therapeutic veterinary care. Transportation, breeding frequency, age, selection criteria, and litter numbers will also impact on welfare. Selection for extreme breed characteristics that result in debilitating or disabling anatomical or physiological conditions will add to the welfare issues.

103. Harms to unborn offspring are also of relevance to the consideration of welfare around dog breeding. Studies of the life-long physical and behavioural impairments of animals experiencing distress in utero or undue neonatal stress<sup>110</sup> provide a strong impetus to avoid management practices that result in maternal stress in the bitch and subsequent negative impacts on the puppies. Impaired learning, chronic arousal and increased sensitivity to stress-inducing stimuli may subsequently lead to fearfulness and aggression to people and other animals. Poor genetic selection and environmental management may lead to other problematic behaviours such as excessive vocalisation, house soiling, and destructive behaviours. Dogs that are not carefully genetically selected and managed are therefore at increased risk for mistreatment, relinquishment, abandonment, or euthanasia.

## Ethical analysis

104. In line with its previous work and Opinions, the ethical approach which the AWC has adopted in considering this issue is a primarily utilitarian one in which the human use of animals is considered permissible to achieve important benefits, providing that animal welfare is safeguarded as far as possible and, as a minimum, in accordance with national and, where relevant, international legislation. The utilitarian approach adopted by AWC is qualified in that the justification of harms is considered in relation to both the magnitude and importance of the benefits that accrue, within the context and situation under consideration. AWC recognises that there are some harms which, due to their severity, should not be inflicted upon animals under normal circumstances. Animal welfare should be maximised as far as possible in each and every situation to ensure that animals have 'lives worth living' and ideally 'good lives'<sup>111,112</sup>.

105. Canine breeding services have the potential to affect not only current but also future generations of dogs and veterinary assisted reproductive techniques may, unlike archetypal veterinary treatments, be desired for reasons other than the direct benefit to the animal on whom they are being performed. Ethical decision making about whether or not a practice is permissible should be evidence-based and informed by welfare science. An understanding of the welfare impacts on current and future

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<sup>110</sup> Meaney, M. (2010). Epigenetics and the biological definition of gene X environment interactions. *Child Development*, 81:1, 41–79.

<sup>111</sup> Wathes, C. (2010), Lives worth living?. *Veterinary Record*, 166: 468-469. <https://doi.org/10.1136/vr.c849>

<sup>112</sup> Mellor, D.J. Updating Animal Welfare Thinking: Moving beyond the “Five Freedoms” towards “A Life Worth Living”. *Animals* 2016, 6, 21. <https://doi.org/10.3390/ani6030021>

generations of non-human animals and on humans of veterinary reproductive techniques, the selection and management of breeding dogs and bitches, and the level of training and knowledge of those offering 'canine reproductive services' and responsible for the care of dogs, bitches and puppies are all important.

The recommendations made within this report aim to minimise such welfare harms, to optimise welfare benefits, and to effectively prevent harms which are causing unnecessary suffering being inflicted upon dogs, bitches and puppies.

## **Conclusions**

The AWC was asked to consider the welfare implications of 'specialised canine reproductive practices'; the welfare of the types of dogs which are often the focus of businesses offering 'specialised canine reproductive services', to identify emergent management practices used by dog breeders which impact canine welfare, and to offer any other ideas or views on this topic.

### **General conclusions**

106. The breeding of dogs covers a wide range of topics including selection of breeding animals, management and reproductive techniques.

107. There is a general lack of high quality available/transparent evidence regarding the nature and scale of canine breeding in Great Britain. Nonetheless, it is clear based on the range of available evidence which the AWC has considered that canine breeding is currently inadequately and ineffectively regulated. Where regulation is in place, enforcement of some provisions is also insufficient.

108. Across Great Britain, large number of puppies are bred by breeders who do not fall within scope of the current licensing requirements for commercial breeders, or do fall within scope but are operating illegally without being licensed.

109. There is variation in legislation across devolved administrations.

110. There is local variation in interpretation and enforcement which is often related to variation in resourcing.

111. Due to the lack of oversight of dog breeding and particularly of the many unlicensed dog breeders, there is a lack of evidence and data about the scale and severity of health and welfare issues for breeding bitches, stud dogs and puppies.

112. Variation in local enforcement contributes to confusion amongst dog breeders and the public (see also paragraphs 122-128).

113. There is currently insufficient awareness and knowledge amongst the public about all aspects of the breeding and management of breeding dogs, which is compounded by confusion arising from the existence of misleading information in the public domain.

114. Whilst some guidance for dog breeders exists, for example in the Canine and Feline Sector Group Code of Practice for Dog Breeding, there is a general lack of

awareness of such guidance. Moreover, this guidance is mainly voluntary, leading to variable uptake.

115. There is also confusion in the public domain about who can legally undertake the various techniques of canine reproduction and what relevant qualifications are required to legally offer such services (see also paragraphs 122-128).

116. The current market is not sufficiently transparent and information about services is not sufficiently clearly explained to empower consumers to make well-informed welfare-orientated choices regarding both use of canine fertility services and sourcing a puppy.

### **Conclusions about the welfare of the types of dogs which are often the focus of businesses offering ‘specialised canine reproductive services’**

117. The genotype, phenotype and state of physical and mental health and age of breeding dogs and bitches not only affect their own wellbeing before, during and after the breeding process, but also all impact the health, welfare and behaviour of resulting puppies, potentially throughout their lives and for any subsequent generations. The wellbeing of owners of those dogs may also be affected as a result.

118. Inbreeding within many breeds is commonplace, resulting in risks to health and welfare. There can be extensive use of an individual stud dog within a breed which contributes to reduction in genetic diversity and increases risk of associated negative health and welfare consequences.

119. Dogs with certain extreme phenotypes and certain genotypes continue to be bred from despite significant evidence about adverse welfare effects. In many cases, this is in contravention of the national animal activity licensing regulations and national animal welfare legislation.

120. The adverse effects of certain phenotypes and genotypes mean that some dogs cannot breed without veterinary intervention. For example, certain types of extreme conformation predispose breeding bitches to higher risk of dystocia requiring Caesarean section, and also may make it difficult for some dogs and bitches to breed other than by artificial insemination. Thus, there is a link between the adverse welfare effects of certain phenotypes and genotypes (and continuing to propagate these to future generations) and the use of clinical reproductive procedures (see also paragraphs 122-128).

121. The breeding of so-called ‘designer’ crossbreeds has risen significantly. There is a widespread lack of awareness that these animals can inherit genetic conditions and phenotypic characteristics from both parents and can therefore suffer the same and/or additional health and welfare problems associated with the parent breeds as a result.

### **Conclusions about the welfare implications of ‘specialised canine reproductive practices’**

122. The demand for 'canine reproductive services' seems to be driven by a range of reasons. These include a desire on the part of some breeders to access a more 'holistic' support service than they feel most veterinary practices are currently providing, access to particular stud dogs, and cost and efficiency.

123. The welfare implications of 'specialised canine reproductive practices' are potentially both positive and negative. All 'specialised canine reproductive practices' have the potential to cause welfare harms, some of which are very significant. However, if used appropriately, then some may reduce negative welfare impacts. For example, shipping semen and undertaking artificial insemination reduces the need for live breeding animals to be transported long distances.

124. The welfare impacts of reproductive techniques and management practices are highly dependent upon the competency and knowledge of those undertaking the techniques and managing breeding bitches, dogs and puppies. Appropriate competency and knowledge sufficient to safeguard animal welfare is in turn reliant upon the provision and consistent uptake of high-quality training, and regular updating of knowledge and skills.

125. The Veterinary Surgeons Act (1966) and the requirements of the RCVS for on-going continuous professional development make provisions for such training for MsRCVS / FsRCVS.

126. Such provision combined with the requirement of the RCVS that MsRCVS and FsRCVS work within their own areas of competence protects animal welfare.

127. In contrast, provision of training in canine reproductive techniques and management practices for those other than MsRCVS / FsRCVS is currently unregulated and variable in availability and quality, and there is no requirement either for continuous professional development or to work within established competencies.

128. There is evidence that the Veterinary Surgeons Act (1966) is not being effectively enforced and that acts of veterinary surgery as they relate to canine reproduction are sometimes being undertaken by persons who are not MsRCVS nor FsRCVS. The maximum penalty of £100 for unlicensed persons carrying out veterinary practice, unless tried by indictment, is too low to act as a deterrent.

### **Conclusions about the impacts on canine welfare of breeding management practices**

129. Breeding dogs, bitches and puppies are kept in a range of settings and under diverse management regimes. All have the potential to compromise welfare depending on the exact nature of the environment and management practices applied. Equally, the risk of negative welfare impacts during breeding can be reduced in various settings where key environmental conditions and management practices, including those outlined in the recommendations of this Opinion, are being consistently applied.

130. There is a significant evidence gap about the extent to which breeding animals are 'rotated' between premises.

131. There is a significant evidence gap concerning stud dog management.

132. The quantity and quality of interaction between breeding dogs, bitches and puppies and the humans responsible for their care has a significant impact on canine welfare. However, the optimum dog: human caretaker ratio and quality of interaction for safeguarding canine welfare has yet to be established.

133. Progeny are insufficiently protected from avoidable hereditary health and welfare conditions by current legislation. This is due both to the limited scope of national animal activity licensing regulations and to the inadequate enforcement of those regulations and of national animal welfare legislation as they relate to dog breeding.

134. The use of available validated health testing and the application of results in decision-making ahead of selection of breeding animals is variable between different inherited conditions. Furthermore, the laboratories offering DNA testing are not regulated.

## **Recommendations**

### **General recommendations**

135. Further research is needed to gather good quality data about the scope, nature and impact of current canine breeding practices. Current key knowledge gaps include; lack of data gathered from breeders currently outside regulations (unlicensed); limited data gathered from licensed dog breeders; and a lack of evidence about the welfare impacts of management practices on stud dogs, the nature and extent of rotation of breeding animals, and the welfare effects of the quality and quantity of human-dog interactions.

136. Notwithstanding the gaps in knowledge referred to within this Opinion, the AWC find a sufficient evidence base to make firm recommendations as detailed in this and the following sub-sections.

137. To facilitate data collection, provision of information to breeders, and maintenance/improvement of welfare, governments should introduce a registration or licensing scheme for dog breeders who do not fall within current licensing regulations. Such a scheme should include specified mandatory requirements relating to protecting the health and welfare of breeding bitches, stud dogs and puppies.

138. An online centralised information hub with governmental oversight and endorsement should be developed. This should consolidate existing evidence-based (or 'robust') information sources provided by governments and individual organisations, to provide key information, best practice guidelines and learning resources / training to dog breeders and puppy purchasers on all the aspects of dog breeding covered in this Opinion. Concurrent development of an effective communications strategy to highlight the existence and usefulness of this resource to target audiences should also be undertaken.

139. Best practice for inspection regimes should be shared and adopted across local authorities and Great Britain and funding should be made available to train inspectors in validated methods of objectively assessing canine welfare.

**Recommendations relating to the welfare of the types of dogs which are often the focus of businesses offering 'specialised canine reproductive services'**

140. There should be effective enforcement of Schedule [6] (5) Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations (2018) and Schedule 6 [8](5) of the Animal Welfare (Licensing of Activities Involving Animals) (Scotland) Regulations (2021). These both state that dogs should not be bred from if to do so would be the detriment of their own health and welfare or the health and welfare of their progeny (see also paragraph 141).

141. Similar regulation should be introduced and enforced for breeders who are currently legitimately 'unlicensed' and outwith the scope of those pieces of legislation.

142. In line with those pieces of legislation, whether being undertaken by licensed breeders or by breeders who are currently legitimately not within the scope of licensing regulations,

- (a) Dogs with severe heritable health/welfare issues should not be used for breeding. Such issues include, for example, a reduction/alteration of function/normal canine behaviour, and painful conditions or conditions that necessitate subsequent veterinary treatment to avoid welfare compromises (e.g. Brachycephalic Obstructive Airway Syndrome surgery)
- (b) Breeding of dogs throughout Great Britain should not be undertaken where the selection or husbandry of parents creates a significant risk to their own welfare and/or to that of their progeny.

143. Selection of parents should not worsen but rather be aimed at improving the overall health and welfare of the next generation. Selection of breeding animals should always include: a focus on achieving a low coefficient of inbreeding (COI) and widening of the gene pool; the use of validated health testing (taking account of COI considerations, especially in breeds with small gene pools) to facilitate informed decisions about selection of individuals and combinations of parents; and the avoidance of any harmful heritable conditions including extreme morphologies (including head type, size, skin folds, coat type, leg and back length).

144. Extensive use of individual stud dogs within a breed should be avoided due to the risks this poses to genetic diversity and the potential for widespread dissemination of harmful inherited conditions.

145. Assisted reproductive procedures and planned Caesarean section should not be used to facilitate breeding of dogs who are unable to mate or give birth naturally.

146. The health and welfare of both male and female parent dogs should be adequately safeguarded throughout the breeding process, including any preparation and aftercare (see also paragraphs 156 -158).

Consideration should be given to increasing the minimum age, set out in the current Licensing Regulations, at which bitches can be bred from, and setting different

requirements in this respect for small and large animals, in line with advice on ensuring skeletal maturity ahead of breeding.

147. A requirement should be introduced throughout Great Britain for stud dogs to be licensed.

148. Breeders of pure bred (single breed) puppies in breeds that currently suffer from extreme conformation or other health and welfare-damaging traits and/or small gene pools with a high average coefficient of inbreeding, should be strongly encouraged to outcross with breeds in which such characteristics are absent. Such effort to reduce inherited welfare problems and widen gene pools within breeds could be facilitated by the Kennel Club and Breed Clubs allowing registration of such dogs.

### **Recommendations relating to the welfare implications of ‘specialised canine reproductive practices’**

149. ‘Specialised canine reproductive practices’ have the potential to cause significant welfare harms and should only be offered commercially by individuals who have undertaken up-to-date validated formal training and qualification (see also paragraphs 156-158).

150. Governments and the RCVS should make a clear statement in the public domain and proactively to breeders about all canine reproductive practices and techniques which fall within the Veterinary Surgeons Act.

151. Canine artificial insemination, Caesarean section, ultrasound diagnosis of pregnancy and blood sampling should remain acts of veterinary surgery, which only FsRCVS or MsRCVS or (for some of those procedures) a Registered Veterinary Nurse under Schedule 3 of the Veterinary Surgeons Act (1966) can perform. The potential harms associated with each of those techniques mean that they should not be considered for exemption from the Veterinary Surgeons Act (1966).

152. Governments should ensure that suitable and sufficient regulatory provisions are in place and properly enforced to prevent unqualified and unregistered individuals from carrying out acts of veterinary surgery. This should include improving enforcement of the Veterinary Surgeons Act 1966 and bringing specialised canine reproductive breeding practices into the scope of each nation’s animal activity licensing regimes (see also paragraph 159). The penalty for a summary conviction for unlicensed persons carrying out veterinary practice should be reviewed and increased.

153. Funding should be made available for the enforcement specified in (paragraph 152), across regions.

154. The AWC considers that from a welfare perspective collecting and interpreting vaginal cytology samples from a bitch and interpreting (but not collecting) blood samples for progesterone measurement might be suitable for lay persons (i.e. non-MsRCVS / FsRCVS) to undertake through the mechanism of an exemption order from the Veterinary Surgeons Act (1966) but only if the conditions in (paragraph 155) are met.



155. If any practices such as collecting and interpreting vaginal cytology samples from a bitch and interpreting (but not collecting) blood samples for progesterone measurement are, in future, considered by the RCVS to be suitable for lay persons (i.e. non- MsRCVS / FsRCVS) to undertake through the mechanism of an exemption order from the Veterinary Surgeons Act (1966) (paragraph 154), this should be permitted only where such lay people (a) have undertaken formal training, qualification and regular updating (see also paragraphs 156-158) and (b) are under the supervision of a named MRCVS / FRCVS who has the dogs on whom these procedures are being performed under their care.

156. Canine reproductive procedures which fall outside of the VSA (1966) should only be offered on a commercial basis by individuals who have undertaken validated formal training and qualifications. This should be enforced by legislation, for example through each nation's animal activity licensing regimes.

157. Formal training and qualification in the context of the preceding recommendation (paragraph 156) should mean an Office of Qualifications and Examinations Regulation (Ofqual) regulated qualification at an appropriate level, or an equivalent, with a requirement for regular CPD at a suitable interval.

158. To reduce confusion amongst dog breeders, providers of 'specialist canine reproductive services' and the public, once such a system of training and certification has been established it should be clearly explained and promoted in the public domain so that legitimate providers of canine reproductive services can be easily identified and distinguished from unqualified individuals.

159. Given the many potential risks to dog health and welfare associated with the range of services offered by CFCs , where such establishments/ premises are not part of a Veterinary Practice, they should be subject to licensing conditions under the Animal Welfare (Licensing Activities Involving Animals) Regulations.

160. Where lay people are offering commercial 'whelping services' they should work in conjunction with a named FRCVS / MRCVS so that prompt referral for veterinary care can be made if necessary, to protect canine welfare. Lay people should also have undertaken formal training (see paragraphs 156-158) to ensure they are competent to assist with routine parturition and to recognise when veterinary assistance is needed.

### **Recommendations relating to the impacts on canine welfare of breeding management practices**

161. Facilities that are used to house or transport breeding bitches, stud dogs and puppies plus premises which provide canine fertility services need to be designed with dog wellbeing in mind. They should have sufficient ventilation, quantity and quality of space, be protected from excess noise and disturbance and also provide shelter from direct wind, sun and rain. They should not be sited in areas where there is a risk of flooding. Biosecurity procedures should be implemented to minimise the risks of disease introduction and spread.

162. Until such time as research into the welfare impacts of movement/rotation of breeding animals has provided the evidence base necessary to make more specific recommendations, such movement / rotation between premises, prior to whelping and for canine fertility services should be minimised.

163. Licensed breeders should have to provide information about canine health testing to prospective owners of puppies, (as is currently the case for low risk / high star rated dog breeders licensed under the Animal Welfare (licensing of Activities Involving Animals) (England) Regulations 2018) and similar requirements should be made of currently non-licensed breeders (whom the AWC is suggesting should be regulated).

164. Information for breeders about which genetic health tests have been validated for specific breeds and which laboratories undertaking such testing have demonstrated high quality control should be included in the online information hub (see paragraph 138).

165. All those involved in caring for stud dogs, breeding bitches and puppies should ensure they are sufficiently well informed (including through use of the information hub learning resources (paragraph 138)) in dog health and welfare to enable them to deliver adequate environmental conditions and care, and to recognise physical and behavioural signs that may indicate a welfare problem that requires action.

## **Appendix 1: AWC membership**

\*Prof Madeleine Campbell—Chair

\*Dr Gareth Arnott

Dr Emily Craven

Dr Jane Downes

Dr Troy Gibson

Prof Simon Girling

Dr Julian Kupfer

Dr Stephen Lister

Dr Dorothy McKeegan

Dr Romain Pizzi

\*Dr Pen Rashbass

\*Prof Sarah Wolfensohn

\*Dr Julia Wrathall

\*Dr James Yeates

\* = member of the Working Group for this Opinion

### **Co-opted Working Group members**

The AWC is grateful to the AWC Secretariat and APHA and Defra staff who gave assistance.

## **Appendix 2: Those who gave evidence and assistance**

**The Canine and Feline Sector Group**

**The Royal Kennel Club**

**Battersea Dogs and Cats Home**

**Dogs Trust**

**Royal Society for the Prevention of Cruelty to Animals**

**The Royal Veterinary College**

**Vet Compass**

**The British Small Animal Veterinary Association**

**British Veterinary Association**

**United Kingdom Brachycephalic Working Group**

**Legal Advisory Group on Extreme Conformation in Dogs**

**City of London Animal Welfare Team**

**Staffordshire County Council Animal Activity Licensing Team**

**Worcestershire County Council Animal Activity Licensing Team**

**The Institute of Licensing**

**Dog Breeding Reform Group**

**Paws Against**

**The Naturewatch Foundation**

**The Home Breeders Association**

**A privately owned Canine Fertility Clinic**