



Breed Health and Conservation Plan

HAVANESE 2020

Evidence Base

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INTRODUCTION

The Kennel Club launched a new resource for breed clubs and individual breeders – the Breed Health and Conservation Plans (BHCP) project – in September 2016. The purpose of the project is to ensure that all health concerns for a breed are identified through evidence-based criteria, and that breeders are provided with useful information and resources to raise awareness of current health and welfare concerns in their breed, and support them in making balanced breeding decisions.

The Breed Health and Conservation Plans take a complete view of breed health with consideration to the following issues: known inherited conditions, complex conditions (i.e. those involving many genes and environmental effects such as nutrition or exercise levels, for example hip dysplasia), conformational concerns and population genetics.

Sources of evidence and data have been collated into an evidence base which gives clear indications of the most significant health conditions in each breed, in terms of prevalence and impact. Once the evidence base document has been produced it is discussed with the relevant Breed Health Co-ordinator and breed health representatives where applicable. Priorities are agreed based on this data and incorporated into a list of actions between the Kennel Club and the breed to tackle these health concerns. These actions are then monitored and reviewed on a regular basis.

DEMOGRAPHICS

[Under this section the Kennel Club will input registration data for your breed from 1980 to date, however if you have this information and are able to formulate registration trends/ graphs to show the registrations over time please input this here.]

BREED HEALTH CO-ORDINATOR ANNUAL HEALTH REPORT

Breed Health Co-ordinators (BHCs) are volunteers nominated by their breed to act as a vital conduit between the Kennel Club and the breed clubs with all matters relating to health.

The BHC's Annual Health Report 2019, yielded the following response to 'please list and rank the three health and welfare conditions that the breed considers to be currently the most important to deal with in your breed':

1. Patella luxation
 2. Cherry Eye
 3. Cataracts
-
- The Havanese Club of Great Britain has introduced annual eye testing sessions, which are subsidised for those Club members who submit a copy their report to the BHC
 - A HCGB patella luxation screening form has been devised- unfortunately, due to COVID19, the AGM had to be postponed, and therefore a discussion on a new recommendation of pre- breeding patella screening could not be introduced to wider membership at this point in time

The BHC's Annual Health Report 2018, yielded the following response to 'please list and rank the three health and welfare conditions that the breed considers to be currently the most important to deal with in your breed':

1. Cataracts

Introduction of annual eye testing sessions held on AGM date, to facilitate uptake.

BREED CLUB HEALTH ACTIVITIES

The Havanese Club of GB has an active Breed Health Coordinator (BHC) and health updates are published in the bi-annual Newsletter.

A 'Report-A-Health-Issue' link on the Club website was introduced and went live in 2018. <https://www.havanese-club-gb.co.uk/report-a-health-issue>

BREED SPECIFIC HEALTH SURVEYS

Kennel Club Purebred and Pedigree Dog Health Surveys Results

The Kennel Club Purebred and Pedigree Dog Health Surveys were launched in 2004 and 2014 respectively for all of the recognised breeds at the time, to establish common breed-specific and breed-wide conditions.

2004 Morbidity results: Health information was collected for 43 live Havanese, of which 29 (67%) were healthy and 14 (33%) had at least one reported health condition. The top categories of diagnosis were Ocular (33%, 5 of 15 reported conditions), Reproductive (20%, 3 of 15 reported conditions) and Gastrointestinal (13%, 2 of 15 reported conditions). One case each was reported for Cardiac, Dental, Immune, respiratory and Urological categories.

Condition	Prevalence % (in 43 dogs)
Ocular (Cataract, cherry eye, epiphora, red eye)	12
Reproductive (cryptorchid, fading puppy, infertility)	7
Gastrointestinal (diarrhoea)	5

2004 Mortality results: A total of 3 deaths were reported for the [Breed]. The median age at death was 10 years and 3 months (min 4 years, max = 18 years 2 months). The reported causes of death by organ system or category were Neurological (Encephalitis) (33%, 1 of 3), Old age (33%, 1 of 3) and Trauma (33%, 1 of 3).

2014 Morbidity results: Health information was collected for 41 live Havanese, of which 29 (70%) were healthy and 12 (30%) had at least one reported health condition. A total of 20 conditions were reported in those 12 dogs.

The top categories of diagnosis were:

Category	Conditions reported
Ocular	Cherry eye, Distichiasis, Persistent pupillary membrane, Blocked tear ducts
Musculo-skeletal	Cruciate disease, Elbow dysplasia, Intervertebral disc disease
Gastrointestinal	Inflammatory bowel disease, colitis, anal glands
Skin/immunological	Harvest mite dermatitis, chronic itching, flea allergic dermatitis

2014 Mortality results: There were no reported deaths.

Breed-Specific Health Survey Report(s)

2016 Havanese Health Survey

In 2016 the HCGB conducted an online health survey. We received 327 completed questionnaires, providing information on 620 individual dogs. Of the 620 dogs, **263** were UK bred.

The following data relates to these 263 UK bred dogs.

Category	n	Conditions	Prevalence
Skin/Immunological	49	Unexplained itching/paw licking (21) Allergies (12) Dermatitis (6) AIHA (2) Other (3)	19%
Musculo-skeletal	20	Patella luxation (9) Arthritis (3) ACL rupture (1) Hip dysplasia (1) LCP (1) Other (5)	8%
Ocular	15	Cherry eye (7) Cataract (3) Distichiasis (3) Other (2)	6%
Neurological	7	Seizures/epilepsy (2) Other (5)	3%
Endocrine	6	Pancreatitis (3) Liver disease (2) Diabetes (1)	2%
Miscellaneous	25	Anal glands (8) Umbilical hernia (4) Bladder stones (2) Cancer (2) Other (9)	10%

Breed-Specific Health Survey Report(s)

2019 Health conditions reported via Report-A-Health-Issue website link, direct contact with BHC or HCGB Facebook group

The most commonly reported disorder group in Havanese was musculoskeletal, with half of all reports relating to **patella luxation**. A further 9 reports related to ACL rupture.

Also a number of **Legg-Calve-Perthes** (4) were reported.

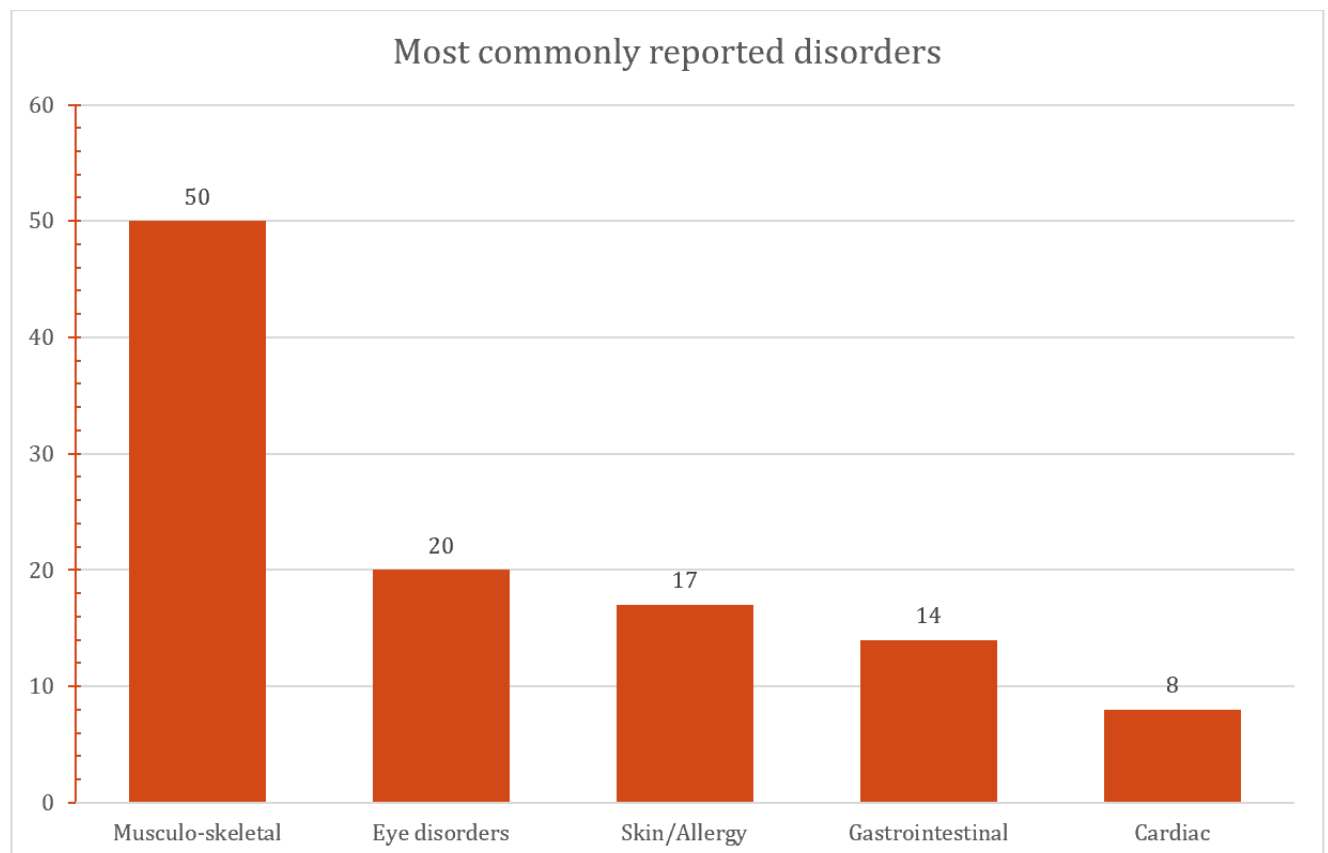
Eye disorders included predominantly **Cherry Eye** and **Cataracts**. The number of Cherry Eye cases was higher than the number of cataracts. Also worth noting that not all cataracts reported were of the type considered hereditary.

Itching, **skin** and **food allergies** were also frequently reported, which is in keeping with the results of our large breed survey.

Gastrointestinal disorders were the fourth most commonly reported group, but it's a 'mixed bag' of **anal gland** issues, pancreatitis, **constipation** and gastroenteritis.

Cardiac problems are an emerging concern- there has been an increase in cases over the past few years, particularly unclassified **heart murmurs** and **Mitral Valve disease**.

FIGURE 1



LITERATURE REVIEW

The literature review lays out the current scientific knowledge relating to the health of the breed. We have attempted to refer primarily to research which has been published in peer-reviewed scientific journals. We have also incorporated literature that includes dogs residing within the UK primarily, and literature that was released relatively recently to try to reflect current publications and research relating to the breed.

There are no specific papers on the Health of the Havanese Breed.

The Kennel Club work closely with VetCompass at the Royal Veterinary College. VetCompass is a broad welfare research programme that collects anonymised clinical information from more than 1800 UK veterinary practices and includes over 7.5 million dogs. VetCompass research can be used to identify common breed-specific conditions, or condition-specific concerns which affect a range of breeds. No breed specific VetCompass paper has yet been published for the Havanese.

INSURANCE DATA

There are some important limitations to consider for insurance data:

- Accuracy of diagnosis varies between disorders depending on the ease of clinical diagnosis, clinical acumen of the veterinarian and facilities available at the veterinary practice
- Younger animals tend to be overrepresented in the UK insured population
- Only clinical events that are not excluded and where the cost exceeds the deductible excess are included

However, insurance databases are too useful a resource to ignore as they fill certain gaps left by other types of research; in particular they can highlight common, expensive and severe conditions, especially in breeds of small population sizes, that may not be evident from teaching hospital caseloads.

UK Agria data

[The KC Health Team will input the UK Agria Data here as due to our affiliation with them they allow us to use their data.]

Swedish Agria Data

Swedish morbidity and mortality insurance data were also available from Agria for the Havanese. Reported rates are based on dog-years-at-risk (DYAR) which take into account the actual time each dog was insured during the period (2006-2011). The number of DYAR for Havanese in Sweden during this period was <25,000.

Swedish Agria insurance morbidity data

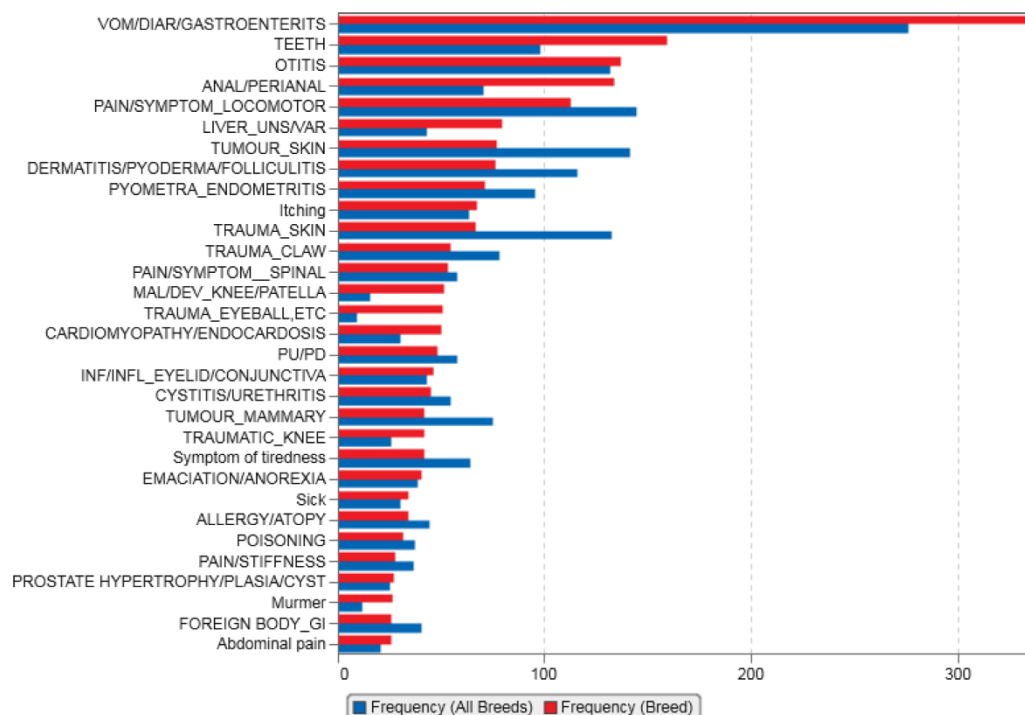
Overall, the Havanese had 1,326 Veterinary Care Episodes (VCE) per 10,000 insured years, compared to 1,448 VCE per 10,000 insured years for All Breeds.

Specific causes for veterinary care episodes

The most common specific causes of veterinary care episodes (VCEs) for Agria-insured Havanese in Sweden between 2006 and 2011 are shown in Figure x. The top five specific causes of VCEs were: Gastroenteritis, Dental disease, Otitis, Anal or perianal problems and Musculoskeletal (locomotor) conditions.

FIGURE 2

Chart 5: Morbidity (per 10,000 YAR) for Specific Causes (Level 1)
– Bichon Havanais and All Breeds 2011-2016



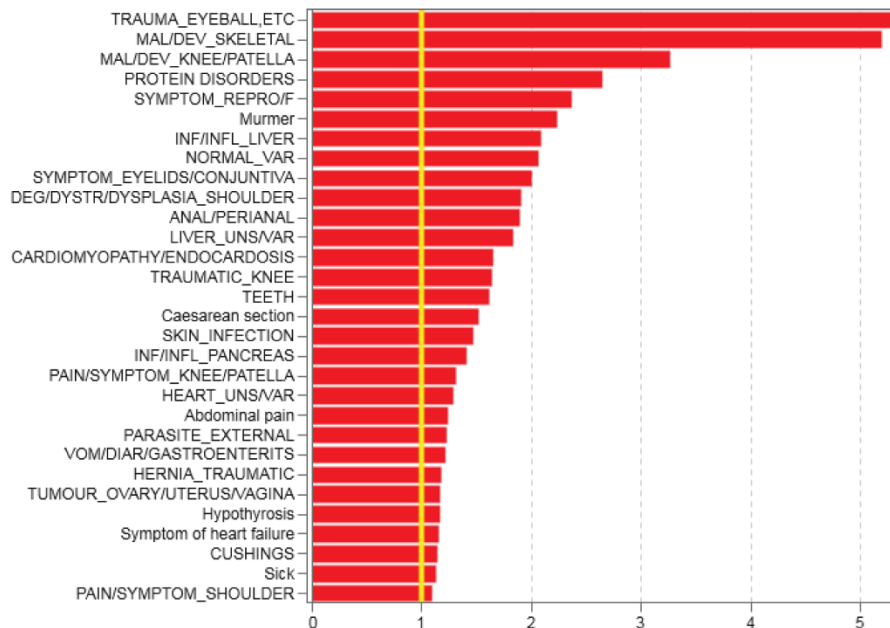
Reminder: Categories are shown only if at least 8 animals had the diagnosis.

Relative risk for veterinary care episodes

The specific causes of VCEs ordered by relative risk for Havanese are shown in Figure 3 below. In this analysis, the top five specific causes of VCEs ordered by relative risk were: 1.Trauma, 2.Skeletal, 3.Patella, 4.Reproductive, 5.Heart murmur. Relative risk for specific Musculoskeletal disorders (locomotor) is seen in Figure 4.

FIGURE 3

Chart 6: Relative Risk Morbidity for Specific Causes (Level 1)
– Bichon Havanais compared to All Breeds 2011-2016

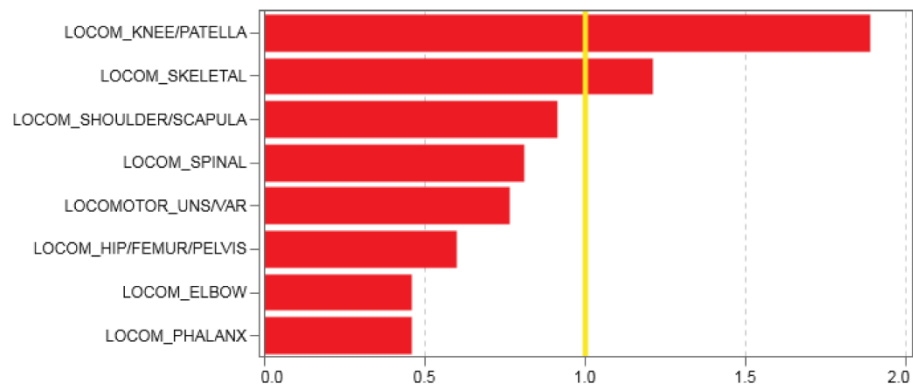


Interpretation: As for chart 4.

Note: Rare conditions that occur sporadically may appear as high Relative Risk. Compare to previous chart(s) to consider both how common a condition is as well as its Relative Risk. Categories are shown only if at least 8 animals had the diagnosis.

FIGURE 4

Chart 8: Relative Risk Morbidity for Locomotor Problems
– Bichon Havanais compared to All Breeds 2011-2016



Interpretation: As for chart 4.

Reminder: Categories are shown only if at least 8 animals had the diagnosis.



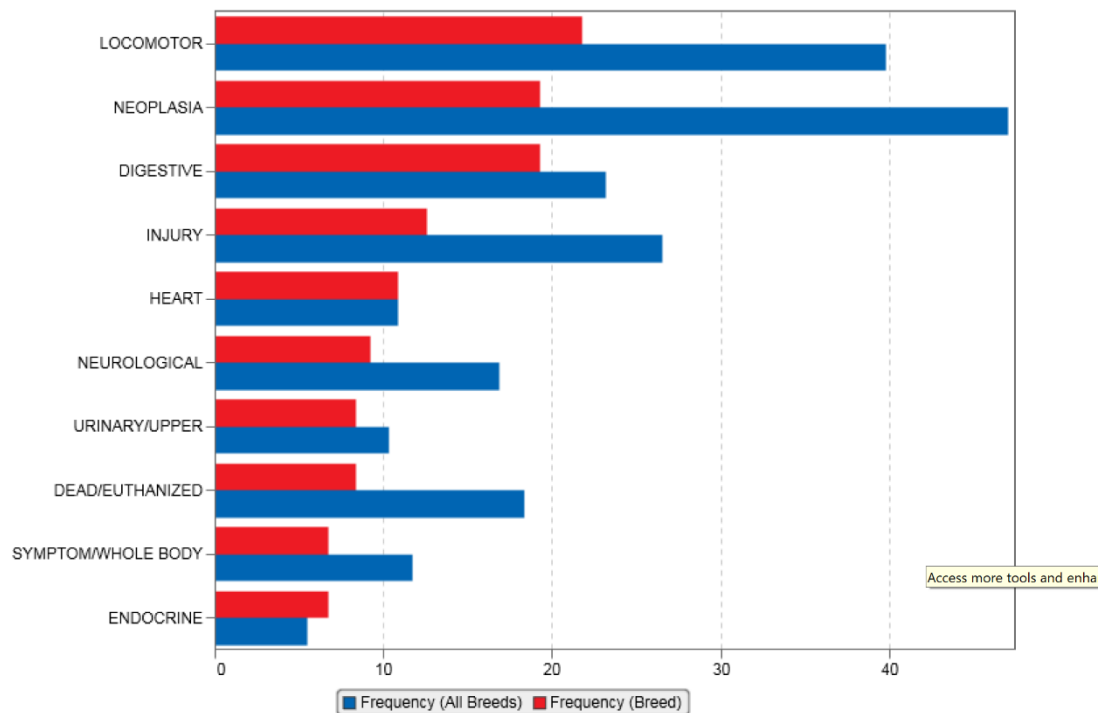
Swedish Agria insurance mortality data

Overall, mortality in the Havanese breed (2011-2016) was 146 per 10,000 insured years, compared to 252 per 10,000 insured years for All Breeds. Median age at death in Havanese was 9.2 years (50% were younger and 50% were older than 9.2 years at the time of death) compared to 7.4 years in All Breeds.

The most common specific causes of death or euthanasia for Agria-insured Havanese in Sweden between 2011 and 2016 are shown in Figure x. The five most commonly reported reasons for death were: 1. Musculoskeletal (locomotor), 2. Neoplasia (tumours), 3. Digestive, 4. Trauma and 5. Cardiac. (Figure 5).

FIGURE 5

Chart 3: Mortality (per 10,000 YAR) for General Causes (Level 3)
– Bichon Havanais and All Breeds 2011-2016



Reminder: Categories are shown only if at least 8 animals had the diagnosis.



BREED WATCH

[The KC will input the most recent year's reports for judges' health monitoring forms.

Here is where the breed should consider if there are any other visible (e.g. a result of exaggerated conformation, and not conditions such as heart concerns) points of concern that you would like added to Breed Watch e.g. excessively short muzzles, over-wrinkling, over angulation. Breed Watch acts as a 'roll on, roll off' system, and therefore if the new points of concern are not reported over the course of a year the concern will be removed, following the breed's consultation.]

ASSURED BREEDER SCHEME

Currently within the Kennel Club (KC)'s Assured Breeders Scheme there are no requirements for testing.

It is also recommended that all breeding stock are tested for the following prior to breeding:

- Cataract

Going forward, we are planning to add the following requirements for testing of breeding animals to ABS:

- 1) *Cataract (annually)*
- 2) *Patella Luxation (one off examination)*

We would also like to add the following breeding recommendations to ABS:

- 1) *Minimum breeding age for bitches: 2 years*
- 2) *Maximum breeding age for bitches: 7 years*
- 3) *No more than one litter per year per bitch*
- 4) *Minimum breeding age for dogs: 1 year*
- 5) *Undertake BVA litter screening for all litters*
- 6) *Report Health conditions to Breed Health-Coordinator*

BREED CLUB BREEDING RECOMMENDATIONS

There are not currently any Breed Club breeding recommendations listed on the Kennel Club's website for the breed.

An amended Ethics Code developed in 2019 is awaiting approval at AGM (cancelled this year due to COVID19 pandemic). It will be as follows:

Breeding as a Member of the Havanese Club of GB

1. *HCGB members should only breed if they have the time and facilities available to devote proper care and attention to the well being of dam and litter, and can be reasonably sure of finding suitable homes for the puppies.*
2. *All breeding stock must be UK Kennel Club registered*
3. *Any dog considered for breeding should be in good general health and condition, and reasonably believed to be free from any inherited disorders or temperament issues. All breeding stock should hold clear KC/BVA eye certificates, no older than 12 months before breeding.*
 - 10a. *HCGB members agree to submit copies of annual eye test results of their breeding stock to the Breed Health Co-ordinator, for the purpose of data collection, to facilitate the preparation of health reports and assist in the management of the health of the breed. The data will only be used in an anonymised form.*
4. *All dogs considered for breeding should undergo one off formal patella screening after the age of 12 months.*
 - a. *11a. HCGB members agree to submit copies of patella screening results of their breeding stock to the Breed Health Co-ordinator, for the purpose of data collection, to facilitate the preparation of health reports and assist in the management of the health of the breed. The data will only be used in an anonymised form*
5. *Dogs should only be bred from with the objective of improving the overall standard of the breed. No HCGB member will engage in intentional cross breeding, unless it takes place within an official, Kennel Club approved outcross program.*
6. *Welfare of the bitch:*
 - a. *No bitch should be mated so as to whelp before her second or after her 8th birthday.*
 - b. *No bitch should be mated to have two consecutive litters within any one 12 months period, or to have more than four litters in her lifetime.*
 - c. *No bitch should be mated again if two of her litters were delivered by Caesarean section.*

7. *HCGB members will never sell puppies or adult dogs to commercial wholesalers, pet shops, puppy dealers or other third parties.*

All Havanese Club of GB breeder members will also agree to

8. *Comply with legislation with regards to The Animal Welfare Regulations and Trading Standards. Be aware legislation and regulations are subject to change, and it is therefore necessary to keep up to date.*
9. *Maintain accurate breeding records, registration documents and pedigrees.*
10. *Register all litters with the Kennel Club, and place endorsements on puppy registrations- this serves to prevent the breeding of puppies that may turn out unsuitable for breeding, and to protect their welfare. The new owners should be informed of the endorsements, in writing, and under what circumstances, if at all, removing the endorsements will be considered.*
11. *Keep litters in their care preferably till 10 weeks of age, but at least till 8 completed weeks of age, before placing them with new owners*
12. *At the point of sale, supply the owner with*
 - 19a. *Kennel Club registration documents, signed transfer form and a contract of sale*
 - 19b. *Record of vaccinations/worming, diet sheet, and written advice about breed specific needs*
13. *Undertake litter screening (eye test) and provide results to new owner.*
14. *As far as reasonably possible, vet prospective owners and homes for suitability as a long-term home and make every effort to assist with re-homing should the new owner's circumstances change.*

DNA TEST RESULTS

There are currently no recognised DNA tests for this breed.

Whilst other DNA tests may be available for the breed, results from these will not be accepted by the Kennel Club until the test has been formally recognised, the process of which involves collaboration between the breed clubs and the Kennel Club in order to validate the test's accuracy.

Laboratories that test for these DNA tests and the methods through which the Kennel Club accept results can be found through:

<https://www.thekennelclub.org.uk/worldwide-dna-tests/>

CANINE HEALTH SCHEMES AND ESTIMATED BREEDING VALUES

All of the British Veterinary Association (BVA)/Kennel Club (KC) Canine Health Schemes are open to dogs of any breed with a summary given of dogs tested to date below.

HIPS

[The KC team will input this data]

ELBOWS

[If your breed has EBVs for hips and/ or elbows, the KC will input an overview on the mean EBV trend overtime here.]

EYES

The breed is **not** currently on Schedule A and/or B BVA/KC Eye Scheme.

Schedule A lists the known inherited eye conditions in the breeds where there is enough scientific information to show that the condition is inherited in the breed, often including the actual mode of inheritance and in some cases even a DNA test.

Schedule B lists those breeds in which the conditions are, at this stage, only suspected of being inherited. As well as the Schedule A and B, the BVA records any other conditions affecting a dog at the time of examination, which is incorporated into an annual sightings report.

[The KC will input the reports for BVA/KC/ISDS Eye Scheme results and sightings reports received to date – however if you have the sightings reports for several years please input these.]

AMERICAN COLLEGE OF VETERINARY OPHTHALMOLOGISTS (ACVO)

Results of examinations through ACVO are shown in the Table below. Between 2015 and 2019, 6,588 Havanese were examined, of which 4,900 dogs (74%) were found to be unaffected by any eye condition.

Whilst it is important to note that these data represent dogs in America, the organisation tend to examine a higher number of dogs than that in the UK, and therefore are a valuable source of information.

(Include conditions that affect over 1% of the examined population.)

ACVO examination results for Havanese 1991 - 2019

Disease Category/Name	Percentage of Dogs Affected	
	1991-2014 N=26,186	2015-2019 N=6,588
Lens		
Cataract suspect. Not inherited/significance unknown	1,486 (5.7%)	446 (6.8%)
Significant cataract	1,183 (4.5%)	356 (5.4%)
Uvea		
Persistent pupillary membrane, iris to iris	1,620 (6.2%)	353 (5.4%)
Eyelids		
Distichiasis	1,301 (5.0%)	322 (4.9%)
Vitreous		
Vitreous degeneration	487 (1.8%)	77 (1.2%)
Nictitans		
Prolapsed gland of third eye lid (cherry eye)	122 (0.5%)	31 (0.5%)
Other		
Other suspect not inherited/significance unknown	162 (0.6%)	216 (3.3%)

Adapted from: <https://www.ofa.org/diseases/eye-certification/blue-book>

REPORTED CAESAREAN SECTIONS

When breeders register a litter of puppies, they are asked to indicate whether the litter was delivered (in whole or in part) by caesarean section. In addition, veterinary surgeons are asked to report caesarean sections they perform on Kennel Club registered bitches. The consent of the Kennel Club registered dog owner releases the veterinary surgeon from the professional obligation to maintain confidentiality (vide the Kennel Club General Code of Ethics (2)).

There are some caveats to the associated data;

- It is doubtful that all caesarean sections are reported, so the number reported each year may not represent the true proportion of caesarean sections undertaken in each breed.
- These data do not indicate whether the caesarean sections were emergency or elective.

The number of litters registered per year for the breed and the number and percentage of reported caesarean sections in the breed for the past 10 years are shown in Table x.

[The KC will input this for you.]

Table x: Number and percentage of litters of Havanese registered per year and number of caesarean sections reported per year, 2008 to 2018.

Year	Number of Litters Registered	Number of C-sections	Percentage of C-sections	Percentage of C-sections out of all KC registered litters (all breeds)
2008				0.05%
2009				0.15%
2010				0.35%
2011				1.64%
2012				8.69%
2013				9.96%
2014				10.63%
2015				11.68%
2016				13.89%
2017				15.00%
2018				17.21%

GENETIC DIVERSITY MEASURES

This area covers several aspects of genetic diversity for your breed, including:

- Effective population size
- Average inbreeding coefficient (and figure of mean observed v. expected)
- Progeny per sire and dam over seven year blocks (histogram)

The report developed by Dr Tom Lewis was provided to the Breed Health Co-ordinator in 2015 and is available on the KC website here:

<https://www.thekennelclub.org.uk/for-vets-and-researchers/kc-research-publications-and-health-data/breed-population-analyses/>)

The effective population size is the number of breeding animals in an idealised, hypothetical population that would be expected to show the same rate of loss of genetic diversity (rate of inbreeding) as the population in question; it can be thought of as the size of the 'gene pool' of the breed. In the population analysis undertaken by the Kennel Club in 2015, an estimated effective population size of (n/a) was reported (estimated using the rate of inbreeding over the period 1980-2014).

The rate of inbreeding has increased gradually and is below an effective population size of 100 (inbreeding rate of 0.50% per generation) which results in the rate of loss of genetic diversity in a breed/population increasing dramatically (Food & Agriculture Organisation of the United Nations, "Monitoring animal genetic resources and criteria for prioritization of breeds", 1992).

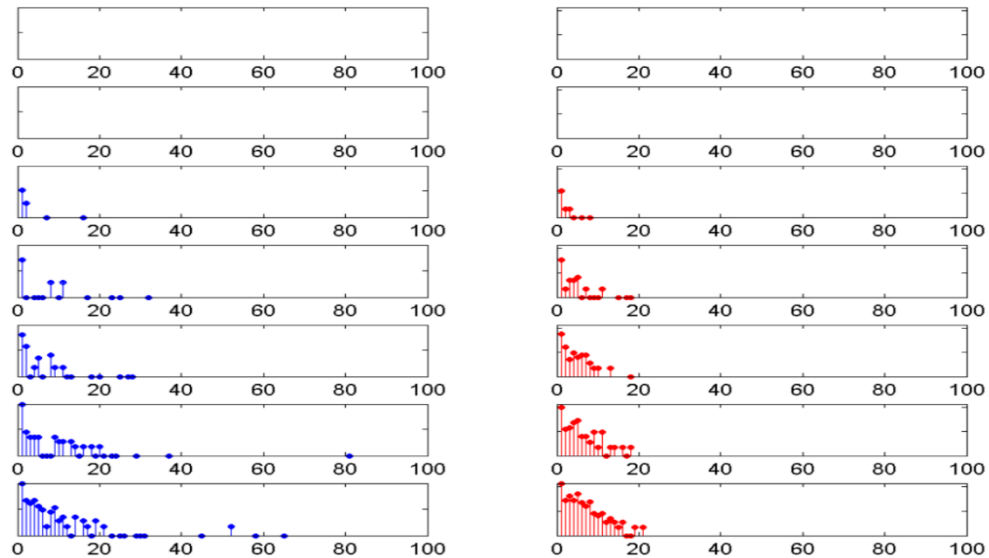
Annual mean observed inbreeding coefficient (showing loss of genetic diversity) and mean expected inbreeding coefficient (from simulated 'random mating') over the period 1980-2014 are shown in Figure x. (Hannah will input interpretation of trend here, unless you wish to do so). For full interpretation see Lewis et al, 2015 <https://cgejournal.biomedcentral.com/articles/10.1186/s40575-015-0027-4>.

The current annual breed average inbreeding coefficient is 3.7%.

[Insert Figure of annual mean observed and expected inbreeding coefficients for your breed]

Below is a histogram ('tally' distribution) of number of progeny per sire and dam over each of seven 5-year blocks (Figure x). A longer 'tail' on the distribution of progeny per sire is indicative of 'popular sires' (few sires with a very large number of offspring, known to be a major contributor to a high rate of inbreeding). (Hannah will input interpretation of any trend here, unless you wish to do so).

Figure 3: Distribution of progeny per sire (blue) and per dam (red) over 5-year blocks (1980-4 top, 2010-14 bottom). Vertical axis is a logarithmic scale.



6

CURRENT RESEARCH

There are no research initiatives for Havanese.

PRIORITIES

Priorities:

- Breeder engagement with recommended health testing
- Implementation of patella testing
- Modifications to ABS scheme requirements and recommendations
- UK Longevity Survey
- Repeat UK Breed Health Survey

At watch:

- Cardiac disease/MVD
- Low welfare breeding- increasing responsible breeder pool

ACTION PLAN

(Once the plan has been agreed upon within the breed clubs and KC an action plan will be developed for both parties, with the aim to improve upon the health priorities. Actions will include points such as engagement in breed health schemes/ testing, addition of a new ABS requirement/recommendation, recognition of a new DNA test, participation in research, running a breed health survey, Breed Watch proposals, and any areas where the breed need support from the KC. These actions will be provided here, as well as in a separate annex which will be supplied to you.)

REFERENCES

[Any papers referred to should be referenced under this section in the proposed format:

Author names. (Year). Paper Title. *Journal*. Volume (Issue): page numbers

Example:

Holder, A.L., Kennedy, L.J., Ollier, W.E.R. and Catchpole, B. (2015). Breed differences in development of anti-insulin antibodies in diabetic dogs and investigation of the role of dog leukocyte antigen (DLA) genes. *Veterinary Immunology and Immunopathology*.167: 130-138]