Breed Health and Conservation Plan

Basset Fauve de Bretagne

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

The Basset Fauve de Bretagne are a numerically small breed, with registration numbers having stayed below 140 dogs per year (1980-2019), as shown in Figure 1. The first dog was imported into Britain in 1982, with the breed receiving formal recognition from the UK Kennel Club in 1991.

The trend of registrations over year of birth (1980-2019) was 3.16 per year (with a 95% confidence interval of 2.58 to 3.75), reflecting the overall slight increase in the breed's registrations during this time.

[A '95% confidence interval' (C.I.) is a tool used in statistics which shows that we are 95% certain that an estimated number is between the lowest number and the highest number provided.]
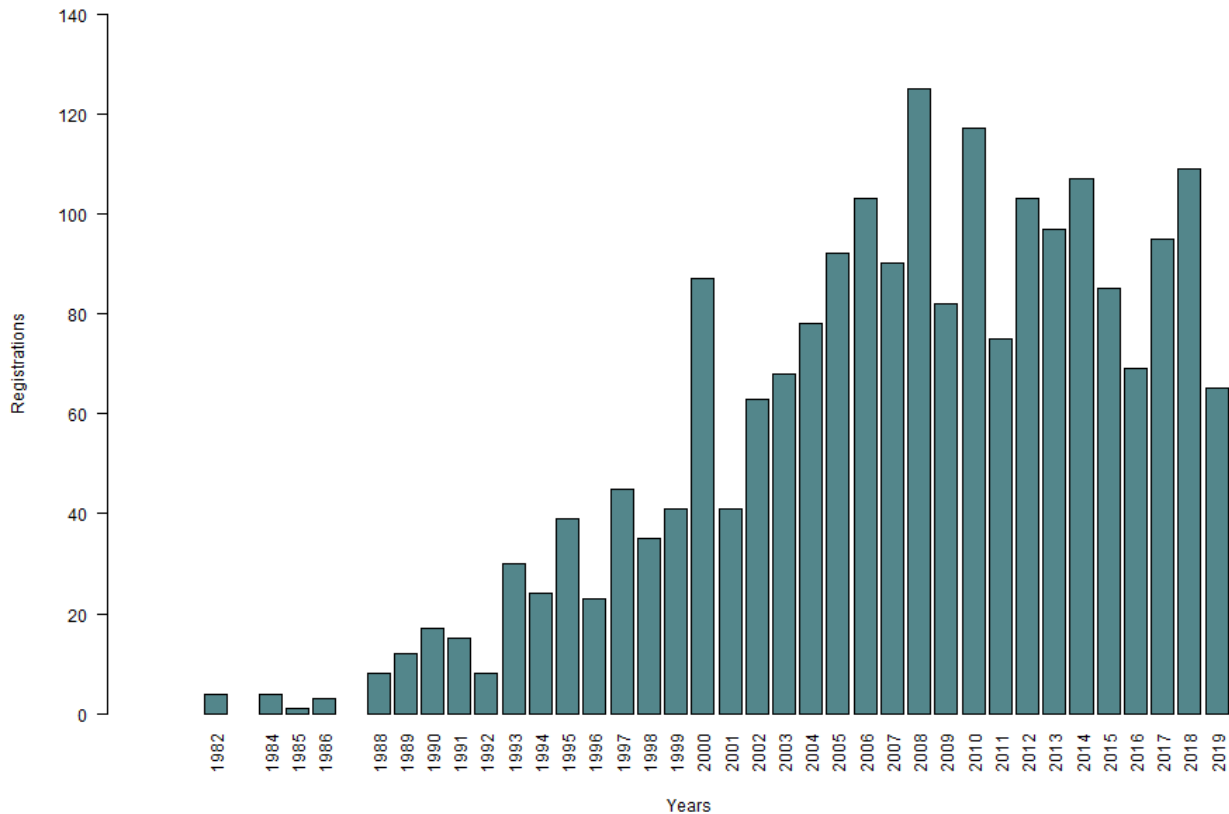
Figure 1: Number of registrations of Basset Fauve de Bretagnes per year of birth, 1980 – 2019

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 noted that there continues to be no known breed specific health or welfare concerns in the breed.

In terms of what the breed has done in the last year to help monitor health and welfare concerns, the breed club remains reliant upon owners/ breeders coming forward with information in order to monitor health and welfare matters. The club have introduced a new health reporting system which was distributed to the club membership and is available on the website to maximise exposure. A general health survey has also been conducted in 2020 to ensure the breed remains healthy.

In terms of what the breed has done in 2018 to help monitor health and welfare concerns, the breed club has a dedicated health section on the website and provides general health information for the membership and wider Fauve owning public.

BREED CLUB HEALTH ACTIVITES

The Basset Fauve de Bretagne has an active Breed Health Coordinator (BHC) and a dedicated health section on the Basset Fauve de Bretagne Club (UK) website which can be found at: http://www.bassetfauvedebretagneclub.com

BREED SPECIFIC HEALTH SURVEYS

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 84 live Basset Fauve de Bretagne of which 58 (69%) were healthy and 26 (31%) had at least one reported health condition. The most frequently reported specific conditions were the following: otitis externa/ ear infections (4 cases of 38 conditions), skin irritation/ itchy skin (3 cases), seizures/ idiopathic epilepsy (3 cases), pyometra (3 cases) and kennel cough/ infectious tracheobronchitis.

2004 Mortality results: A total of 15 deaths were reported for Basset Fauve de Bretagne. The median age at death was 10 years and 5 months the minimum age being 11 months to maximum age of max = 13 years 11 months. The most frequently reported causes of death by organ system or category were: trauma – road traffic accidents (20%, 3 cases); cancer – lung and oral unspecified (13.3%, 2 cases); cardiac/ heart failure (13.3%, 2 cases); and urologic – chronic kidney failure (13.3%, 2 cases).

2014 Morbidity results: Health information was collected for 49 live Basset Fauve de Bretagne of which 27 (55%) had no reported conditions and 22 (45%) were reported to be affected by at least one condition.

The top specific reported conditions were: lipoma (14.29% prevalence, 7 cases), cutaneous cyst (8.16% prevalence, 4 cases), foreign body ingestion (6.12% prevalence, 3 cases), and otitis media (6.12% prevalence, 3 cases).

2014 Mortality Results: A total of 4 deaths were reported for the breed. The range of age at death for Basset Fauve de Bretagne was 2 years to 15 years. One case was reported for each of the following organ systems or category: aggression, bone one tumour, diabetes and stroke.

Breed-Specific Health Survey Report 2020

The survey was issued by post and email to the full membership of the UK breed club representing 125 households. In addition, the survey was published and publicised on the club's website and Facebook account and advertised via the Kennel Club Journal to try to reach the widest possible audience, including non-members of the breed club.

A total of 33 responses were received, amounting to 80 dogs, with 61 live dogs. Overall, there were 37 (60.6%) dogs with health conditions, within an age range of birth to 13 years 6 months.

Twenty-nine (78.3%) dogs were reported as having one condition; four (10.8%) dogs having two conditions; three (8.1%) dogs having three conditions and one (2.7%) dog having four conditions. The remaining 24 (39.3%) Fauves within an age range of 1 year to 12 years and 3 months were reported to being affected by no health concerns.

Table 1: Reported conditions of living dogs in the 2020 breed health survey.

Category	Conditions	No. of Dogs Affected	Percentage
Gastrointestinal	IBS, Pancreatitis, Colitis, Lymphangiectasis, food sensitivities	10	27.00%
Dermatological	Fungal infections, Impetigo, Lick granuloma, seasonal alopecia, excessive itching (unspecified), allergies	8	21.9%.
Heart Murmur		5	13.50%
Immune Mediated	Anaemia, Hyperthyroidism, Hypothyroidism	3	8.10%
Neurological	Cushing's, Epilepsy	3	8.10%
Aural	Deafness - unspecified	2	5.40%
Ocular	Sudden Acquired Retinal Degeneration (SARDS), Cataracts.	2	5.40%
Reproduction	Monorchidism, Pyometra	2	5.40%
Trauma/Accident	Dental – 1-2 teeth extracted	2	5.40%
Tumours/growths (non cancerous)	Growth of excess tissue to mouth, tumour to leg	2	5.40%
Undiagnosed	Poor reaction to wormers, elbow dysplasia	2	5.40%
Behavioural	Nervous/highly strung	1	2.70%
Cancer	Mass Cell Tumour	1	2.70%
Cardiac	Enlarged heart	1	2.70%
Endocrinology	Diabetes	1	2.70%
Musculoskeletal	Stiff joints	1	2.70%
Respiratory	Breathing problems	1	2.70%
Urologic	Struvite stones	1	2.70%

In total, 19 (23.75%) deaths of Fauves were reported, with an age range of 10 months to 16 years 11 months.

Table 2: Reports of deaths and conditions in the 2020 breed health survey.

Category	Conditions	No. of dogs	Percentage
Neurological	Suffered seizures, idiopathic epilepsy, brain tumour	6	31.50%
Cardiac	Heart Tumour, heart failure	4	21.00%
Old Age		2	10.50%
Behavioural	Aggression	1	5.22%
Cancer	Tumour to leg	1	5.22%
Gastrointestinal	Pancreatitis (due to trauma)	1	5.22%
Heat Murmurs		1	5.22%
Immune Mediated	Blood Disorder	1	5.22%
Other	Megaesophagus	1	5.22%
Urological	Kidney disease	1	5.22%

Report compiled by: Melanie Dunn, Breed Health Co-Ordinator with oversight by the committee of the Basset Fauve de Bretagne Club (UK). Issued: 30th April 2020

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.

Primary Open Angle Glaucoma (POAG): POAG is a form of glaucoma caused by abnormalities in drainage components in the eye, which consequentially leads to a build-up of aqueous fluid and intraocular pressure, and results in pain and vision impairment. A study undertaken by the Animal Health Trust assessed 27 Basset Fauve de Bretagne dogs via ophthalmic examination, of which three were found to be clinically affected (Oliver et al, 2015). Following genomic analysis of the clinically unaffected dogs, a missense mutation was identified in the *ADAMTS17* gene as a causative mutation for disease in the breed. Of these unaffected dogs, five were heterozygous for the condition and the remaining 19 unaffected. A DNA test is available for the breed.

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 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.
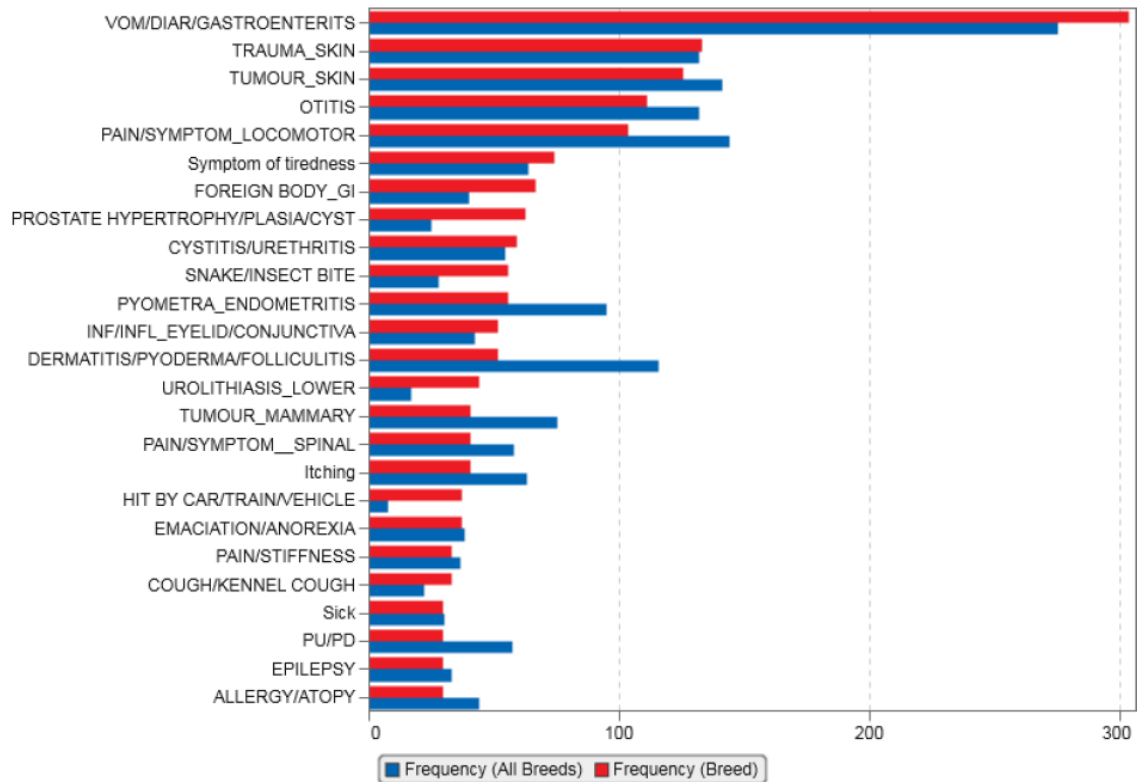
Swedish Agria Data

Swedish morbidity insurance data were also available from Agria for Basset Fauve de Bretagne. Reported rates are based on dog-years-at-risk (DYAR) which take into account the actual time each dog was insured during the period (2011-2016), where one year of insurance is equivalent to 1 DYAR; an animal insured for only 6 months contributes to 0.5 YAR. The number of DYAR reported for the breed in Sweden during this period was 2,500 < 5,000.

The full Swedish insurance results are available through https://dogwellnet.com/, but key findings are reported below.

Swedish Agria insurance morbidity data

The most common specific causes of veterinary care episodes (VCEs) for Agria-insured Basset Fauve de Bretagne in Sweden between 2011 and 2016 are shown in the graph below. The top five specific causes of VCEs were: vomiting/ diarrhoea/ gastroenteritis, skin trauma, skin tumour, otitis and pain/ symptom-locomotor.

Figure 2: The most common specific causes of VCEs for Basset Fauve de Bretagne compared to all breeds in Sweden between 2011 and 2016, from Swedish Agria insurance data.

Relative risk for veterinary care episodes

The specific causes of VCEs ordered by relative risk are shown in the graph below for Basset Fauve de Bretagne. In this analysis from 2011-2016 Swedish Agria insurance data the top five specific causes of VCEs ordered by relative risk were: hit by car/ train/ vehicle, urolithiasis-lower, prostate hypertrophy/ plasia/ cyst, snake/ insect bite and foreign body digestion.
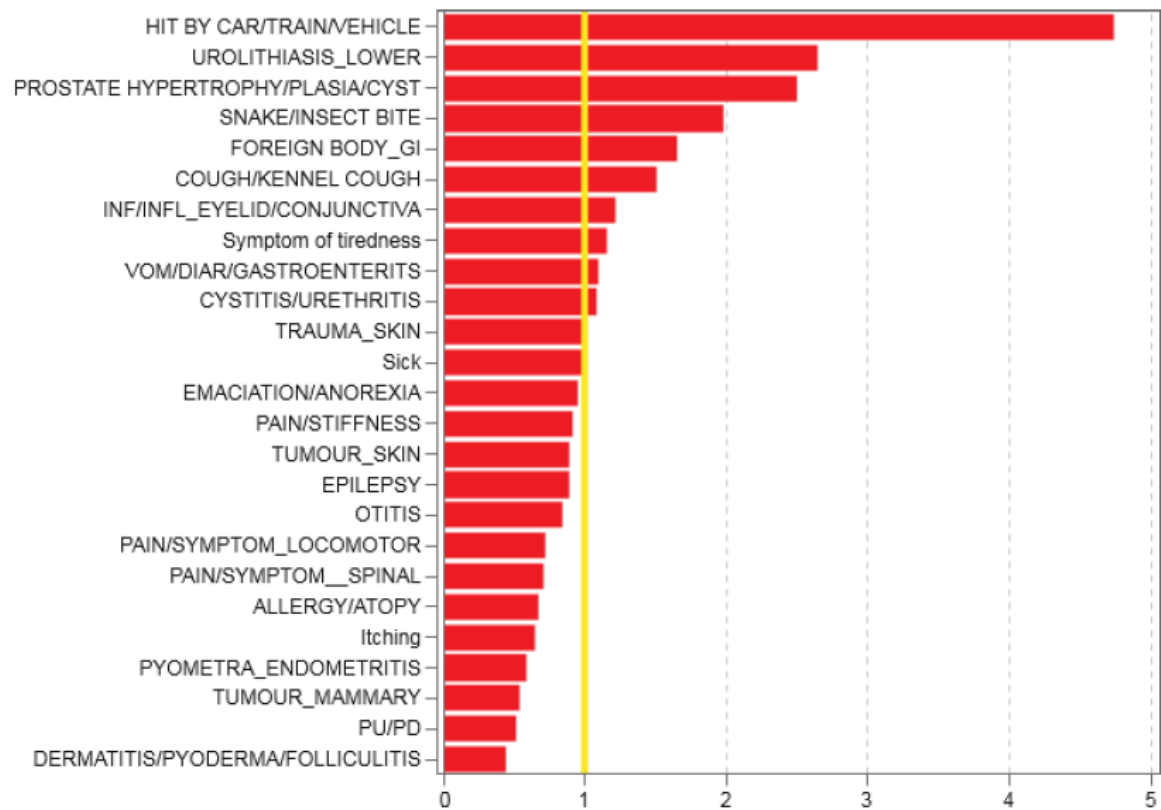
Figure 3: The specific causes of VCEs for Basset Fauve de Bretagnes ordered by relative risk compared to all breeds in Sweden between 2011 and 2016, from Swedish Agria insurance data. The yellow line indicates the baseline risk for all breeds.

Further to this, the breed's morbidity of locomotory problems/ concerns was compared to all breeds (graph below) with unspecified/ various, spinal and knee/ patella locomotor problems being less frequent than all breeds in Sweden between 2011-2016, from the Swedish Agria insurance data.
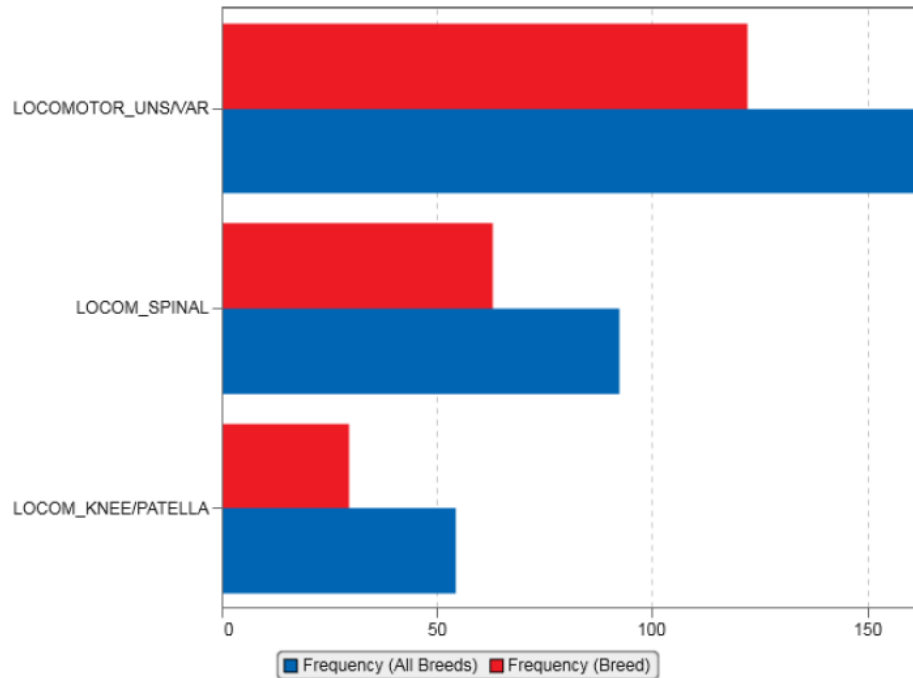

Figure 4: The morbidity of locomotor problems in the Basset Fauve de Bretagne in comparison to all breeds in the Swedish Agria database between 2011-2016.

Similarly the graph below gives the relative risk for locomotor problems in Fauves compared to all breeds is a significantly lower risk in the Swedish Agria database between 2011-2016.
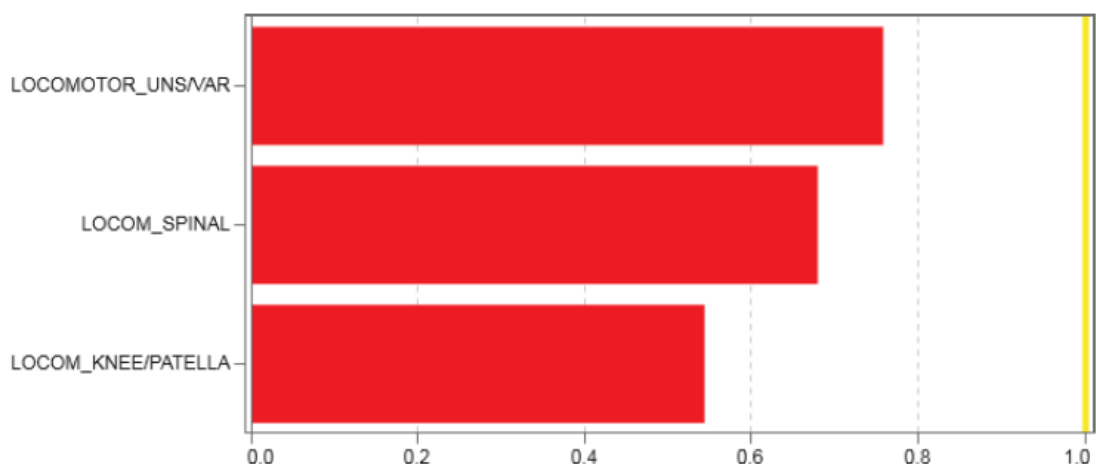

Figure 5: The relative risk morbidity of locomotor problems in the Basset Fauve de Bretagne in comparison to all breeds in the Swedish Agria database between 2011-2016.

BREED WATCH

The Basset Fauve de Bretagne is currently a category 1 breed under Breed Watch, meaning judges are not required to complete mandatory health monitoring forms when judging at Championship Certificate level. To date, no optional monitoring forms have been received for the breed.

ASSURED BREEDER SCHEME

The Kennel Club's Assured Breeders Scheme currently has no testing requirements or recommendations for Basset Fauve de Bretagne.

BREED CLUB BREEDING RECOMMENDATIONS

The Breed Club's Code of Ethics states bitches under two years not to produce a litter. There are currently no Breed Club breeding recommendations listed on the Kennel Club's website for the breed.

DNA TEST RESULTS

There are currently no recognised DNA tests for this breed.

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

CANINE HEALTH SCHEMES

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

One dog has been tested to date under the BVA/KC Hip Dysplasia Scheme, with a hip score of 13.

ELBOWS

One dog has been tested to date under the BVA/KC Elbow Dysplasia Scheme, with an elbow grade of 0.

EYES

The Basset Fauve de Bretagne is not currently on the "Known Inherited Eye Diseases" list (previously Schedule A) under the BVA/KC/International Sheep Dog Society (ISDS) Eye Scheme. However, the BVA still records the results of dog of other breeds which have participated in the scheme. Just three dogs have been eye examined since 2012, with no comments made by the ophthalmologists in relation to any conditions seen in these dogs.

AMERICAN COLLEGE OF VETERINARY OPHTHALMOLOGISTS (ACVO)

Results of examinations through ACVO are shown in table below. Between 2015 and 2019, 52 Basset Fauve de Bretagne were examined, of which 51% (27 of 52 dogs) were found to be unaffected by any eye condition. Conditions affecting more than 1% of the examined population are shown in Table 3 below.

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.

Table 3: ACVO examination results for Basset Fauve de Bretagne, 1991 – 2019

Disease/Category/Name	Percentage of dogs affected	
	1991 - 2014 (No=28)	2015 – 2019 (No=52)
GLOBE		
Glaucoma	3.6%	1.9%
EYELIDS		
Distichiasis	0.0%	1.9%
UVEA		
Persistent pupillary membranes, iris to iris	7.1%	0.0%
Persistent pupillary membranes, lens pigment foci/no strands	25.0%	23.1%
LENS		
Cataract, suspect not inherited/significance unknown	10.7%	9.6%
Posterior suture tip opacities	0.0%	1.9%
VITREOUS		
Persistent hyaloid artery/remnant	0.0%	1.9%
OTHER		
Other, not inherited	0.0%	7.7%

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.
- It is acknowledged that the reporting from veterinarians is increasing year on year, which is reflected across all breeds.
- Due to the breed's small numbers it is expected that there will be a large degree of fluctuation

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 4.

Table 4: Number and percentage of litters of Basset Fauve de Bretagne registered per year and number of caesarean sections reported per year, 2009 to 2019.

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)*
2009	18	0	0.00%	0.15%
2010	20	1	5.00%	0.35%
2011	15	0	0.00%	1.64%
2012	15	4	26.67%	8.69%
2013	19	2	10.53%	9.96%
2014	18	1	5.56%	10.63%
2015	13	3	23.08%	11.68%
2016	12	0	0.00%	13.89%
2017	19	3	15.79%	15.00%
2018	16	5	31.25%	17.21%
2019	14	2	14.29%	15.70%

GENETIC DIVERSITY MEASURES

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 **101.1** was reported (estimated using the rate of inbreeding over the period 1980-2014).

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 3.4%.

Below is a histogram ('tally' distribution) of number of progeny per sire and dam over each of seven 5-year blocks (Figure 6). 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). Popular sires appear to be prominent in the breed, and will consequentially lead to a rapid decrease in genetic diversity.
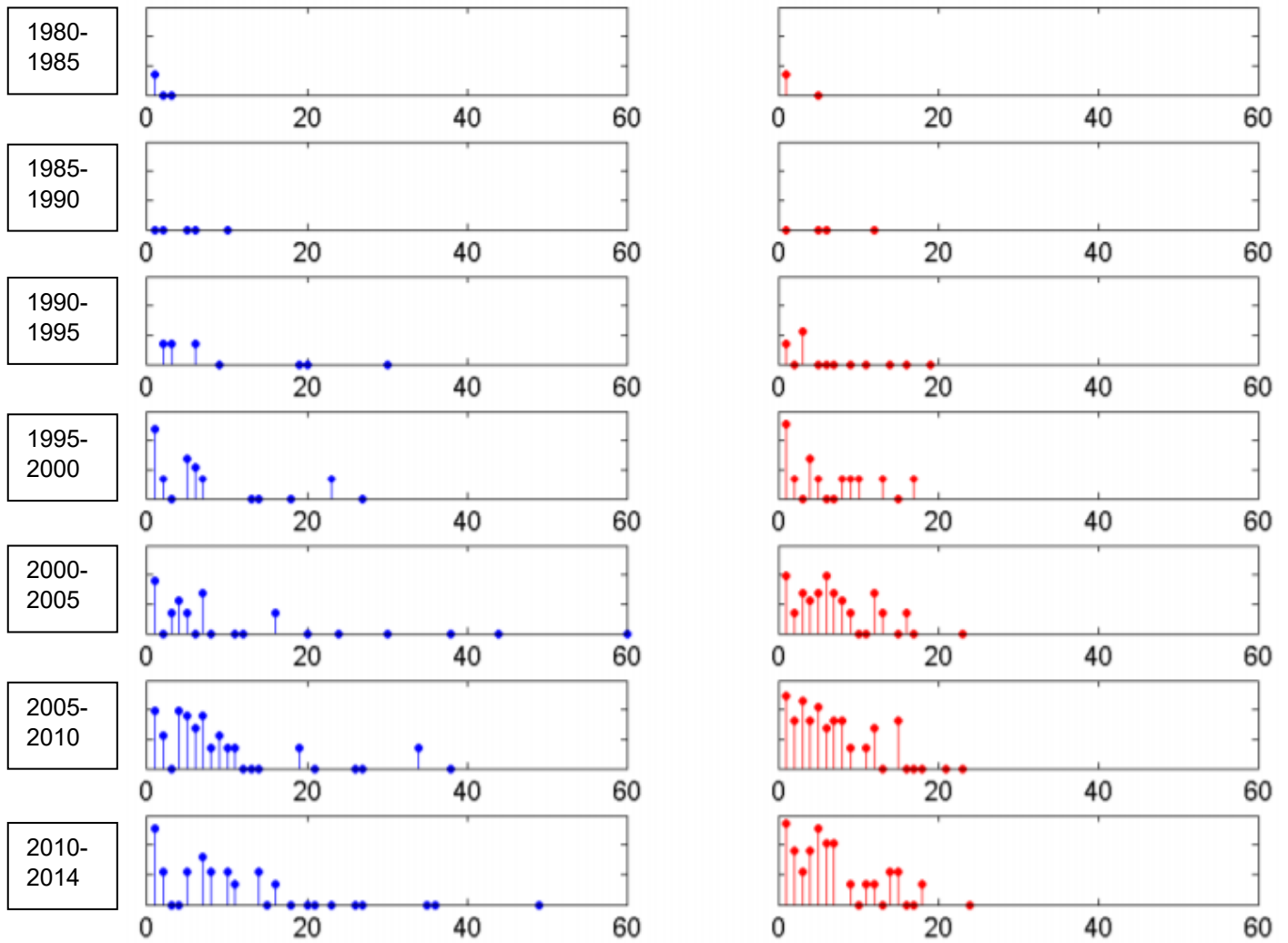
Figure 6: Distribution of progeny per sire (blue) and per dam (red) over 5-year blocks (1980-4 top, 2010-14 bottom). Vertical axis is a logarithmic scale.

CURRENT RESEARCH

The Basset Fauve de Bretagne Club applied to be part of the AHTs "Give a Dog a Genome". The application was accepted and the breed were advised that the Basset Fauve de Bretagne would be included in the 2nd Phase. However, it is understood the project is currently on hold.

PRIORITIES

Correspondence was undertaken between the Kennel Club and the Breed Club representative in May 2020 to review the evidence base of the BHCP and appropriate actions to tackle the priority issues for the health of the breed. Meetings of the Basset Fauve de Bretagne Club committee were held during June 2020 to discuss the health and welfare of the breed; and to agree priorities for the BHCP. It was agreed from the information provided that the priorities for the Basset Fauve de Bretagne were:

- Engagement of breeders and owners in sharing health related data
- Skin and digestive conditions

At watch:

- Genetic diversity
- Eye conditions, including POAG

ACTION PLAN

Following correspondence between the Kennel Club and the Breed Club regarding the evidence base of the Breed Health & Conservation Plan, the following actions were agreed to improve the health of the Basset Fauve de Bretagne. Both partners are expected to begin to action these points prior to the next review.

Breed Club actions include:

- Consider ways to try to improve the engagement of breeders and owners in sharing health related data.

- Further investigation and data gathering concerning skin and digestive conditions.

- Review the breeding requirements in the Breed Club's Code of Ethics including breeding recommendations and propose updates to the Assured Breeder Scheme.

Kennel Club actions include:

- The Kennel Club to repeat population analysis for the breed.

- The Kennel Club to promote the Breed Club's health reporting database on the Breed Information Centre.

REFERENCES

J.A.C. Oliver, O.P. Forman, L. Pettitt, C.S. Mellersh. (2015) Two Independent Mutations in ADAMTS17 Are Associated with Primary Angle Glaucoma in the Basset Hound and Basset Fauve de Bretagne. *PLOS one DOI:10.1371/journal.pone.0140436*