

## **Bearded Collie Health Survey 2019**



This is the second year in which we have carried out a yearly health survey. In recent years although showing fluctuations there has been an overall downward trend in registration figures - data from the Kennel Club (Kennel Club, 2019).

Year	Registration numbers
2009	528
2010	572
2011	547
2012	480
2013	552
2014	371
2015	346
2016	284
2017	420
2018	274

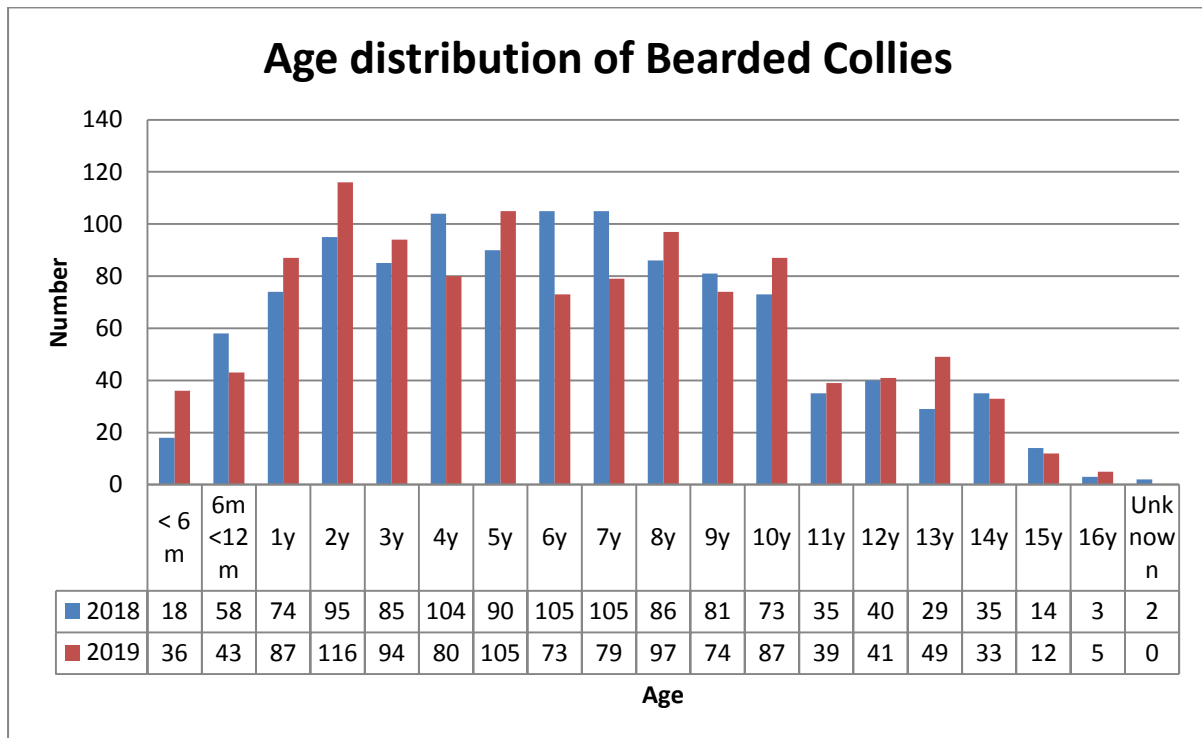
In 2016 the numbers fell below the 300 mark which meant we were classified as a vulnerable breed by the Kennel Club (KC) and although the numbers recovered slightly in 2017 in 2018 we again fell into the vulnerable breed category with registration figures reaching 274. This survey was a follow up to the survey taken in February 2018 and is designed to be repeated

on an annual basis so that we can observe trends in health within the breed rather than looking at a single snapshot. To this end a survey was designed that was not too detailed in order to encourage participation and obtain data on as many dogs as possible to get an accurate picture on the health of the breed. A few questions were added in response to drawing up the Breed Health and Conservation Plan (BHCP) in conjunction with the Kennel Club. The final survey consisted of sixteen questions with either Yes/No or short answers and was designed to be user-friendly.

Data was received on 1150 dogs of which eighteen dogs had died in the year leading up to February 2019.

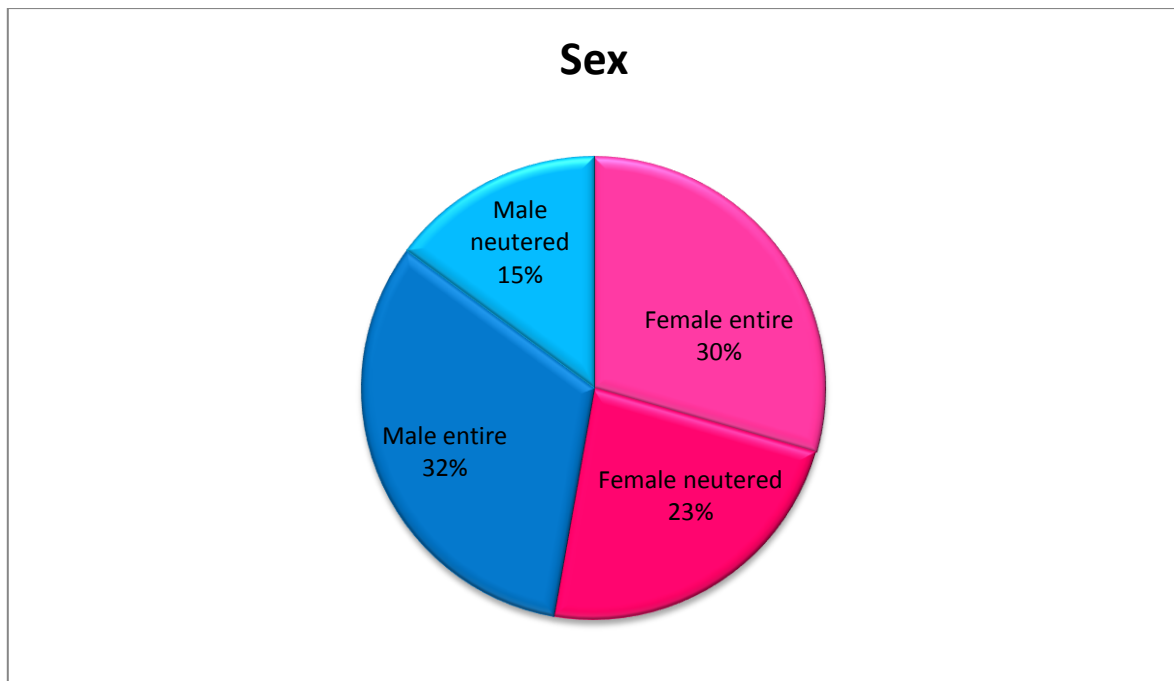
### Ages

The age range of Bearded Collies showed a distribution up to 16 years confirming previous studies which have showing that the Bearded Collie can be a very long lived breed. (O'Neill et al., 2013)

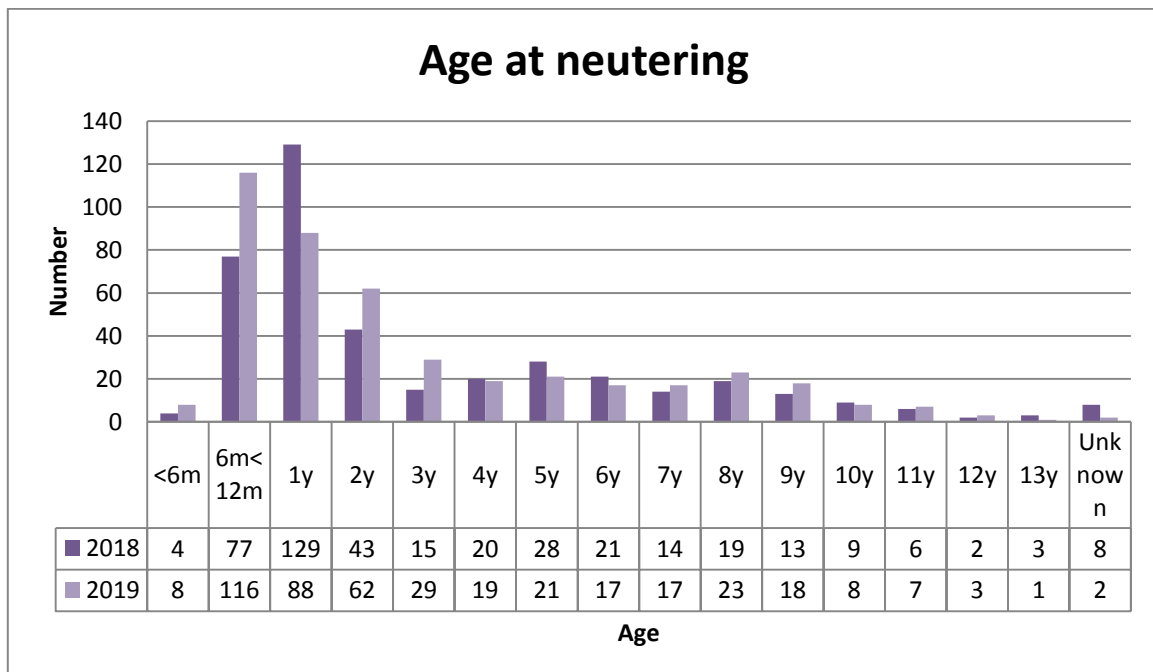


The dogs that had died were distributed in age from 7 years to 16 years and died from a variety of different causes. Four dogs that died were under 10 years of age - 3 were seven years and died of a nasal tumour, autoimmune haemolytic anaemia and a fibrocartilaginous embolism and one dog of 9 years died of a haemangiosarcoma - site not stated. Of the other dogs over 10 years causes of death known about were suspected brain tumour, tumour on heart, stroke, bladder tumour, cancer (site not stated), pancreatitis, old age and renal failure.

## Distribution of sexes and number of dogs neutered



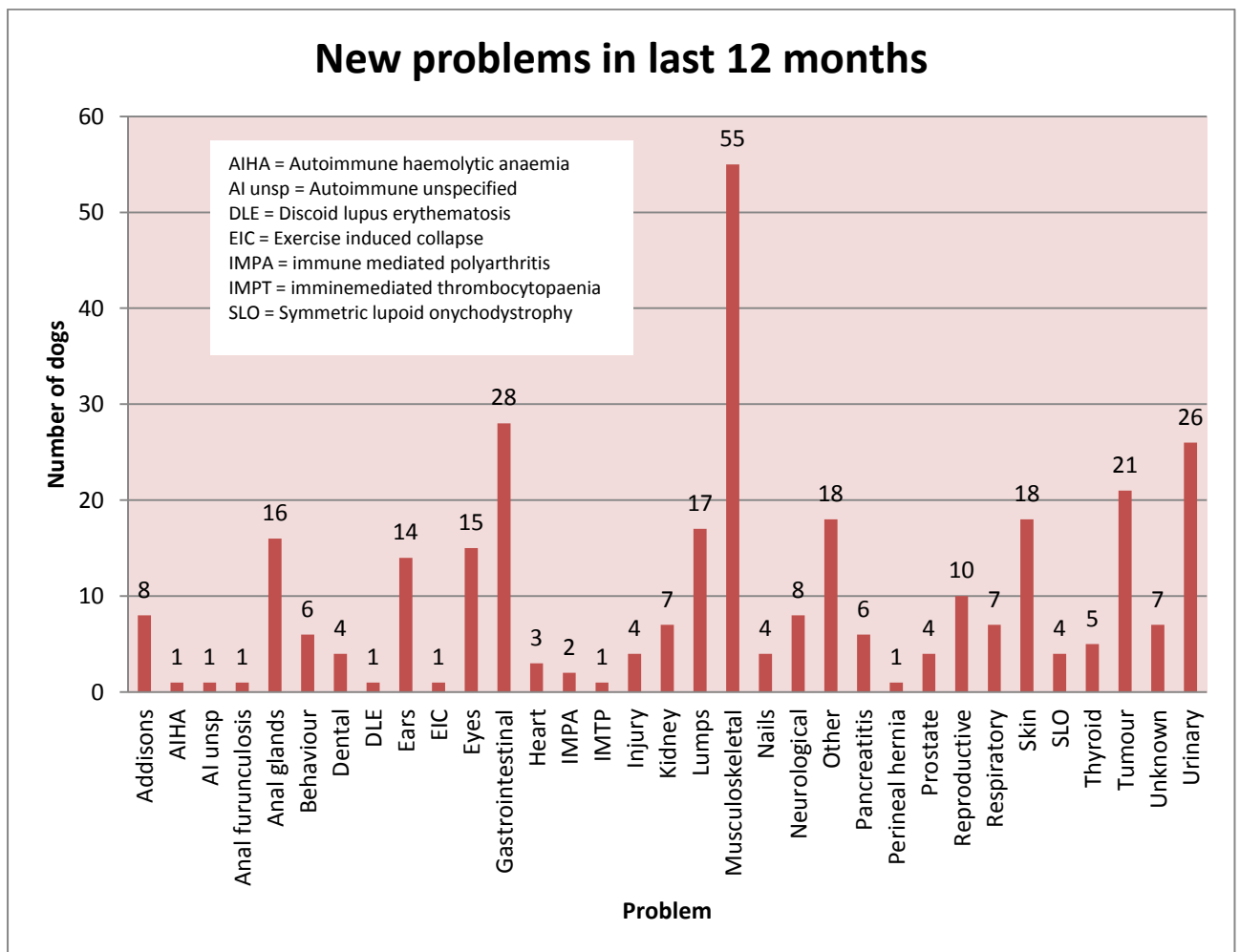
Female dogs represented 53% of the population and male dogs represented 47%. A total of 439 Bearded Collies were neutered representing 38% of the total population. This is much lower than the average neutering rate for pet dogs of 71% (PAW report, 2018) which probably reflects the fact that this survey was distributed widely among many people who breed as well as pet owners and therefore includes some of the breeding population. Other factors may also be involved such as the fact that neutering can cause coat changes, which is more evident in a long coated breed and there is now increased knowledge of the fact that not all effects of neutering are positive.



As would be expected in line with most pets neutered, the age of neutering was positively skewed with the vast majority of dogs neutered young, there were a small number (2 dogs) where age of neutering was not known. One hundred and twenty four dogs were neutered at under 12 months of age. Recent research published which appears to be very breed specific is showing in some breeds that there is an increase in orthopaedic problems such as hip dysplasia, elbow dysplasia and cruciate disease in dogs neutered earlier and also certain types of cancer and some behavioural problems. (Hart et al. 2014, Hart et al, 2016 and Zink et al. 2014) Of the dogs neutered under 12 months 3 dogs (2.4%) were diagnosed with elbow dysplasia although one of these had problems from three months of age and 2 dogs (1.6%) were diagnosed with hip dysplasia. This compares with a prevalence of 2.1% for both hip and elbow dysplasia in the total population in the survey. Only one dog (0.8%) neutered under 12 months of age was later diagnosed with cruciate disease.

**1. Episodes of new disease requiring veterinary attention in the last 12 months.**

283 dogs (24.6%) were reported to have received veterinary attention for one or more new problems in the last 12 months. A total of 324 problems were reported.



The group of new problems most commonly reported were musculoskeletal conditions as in the 2018 survey with 55 instances reported. These were broken down as follows:

<b>Condition</b>	<b>Number of dogs</b>
Arthritis	30
Cruciate disease	2
Elbow dysplasia	2
Hip dysplasia	3
Lameness	4
Other conditions	14

Other conditions included stiffness, unspecified mobility issues, septic arthritis, swollen leg, OCD, trapped nerve, muscle weakness, spondylitis and lumbosacral disease. Given that 266 dogs are aged 10 years and older (23.1% of the total sample) it is hardly surprising that arthritis is the most common condition reported in this section.

Numbers of dogs with Elbow dysplasia and Hip dysplasia will be monitored in the breed health survey on an ongoing basis as there is a hereditary component to both these diseases. At the moment there is a requirement to hip score before breeding but not to elbow score but we are monitoring this situation as part of the Breed Health and Conservation Plan (BHCP) drawn up with the KC. It is encouraging to see that even though the KC do not require it many breeders are starting to elbow score at the same time as they hip score.

Immune mediated polyarthritis was not included in this category as although it is a musculoskeletal disease the immune mediated diseases were analysed separately.

### **Immune mediated disease**

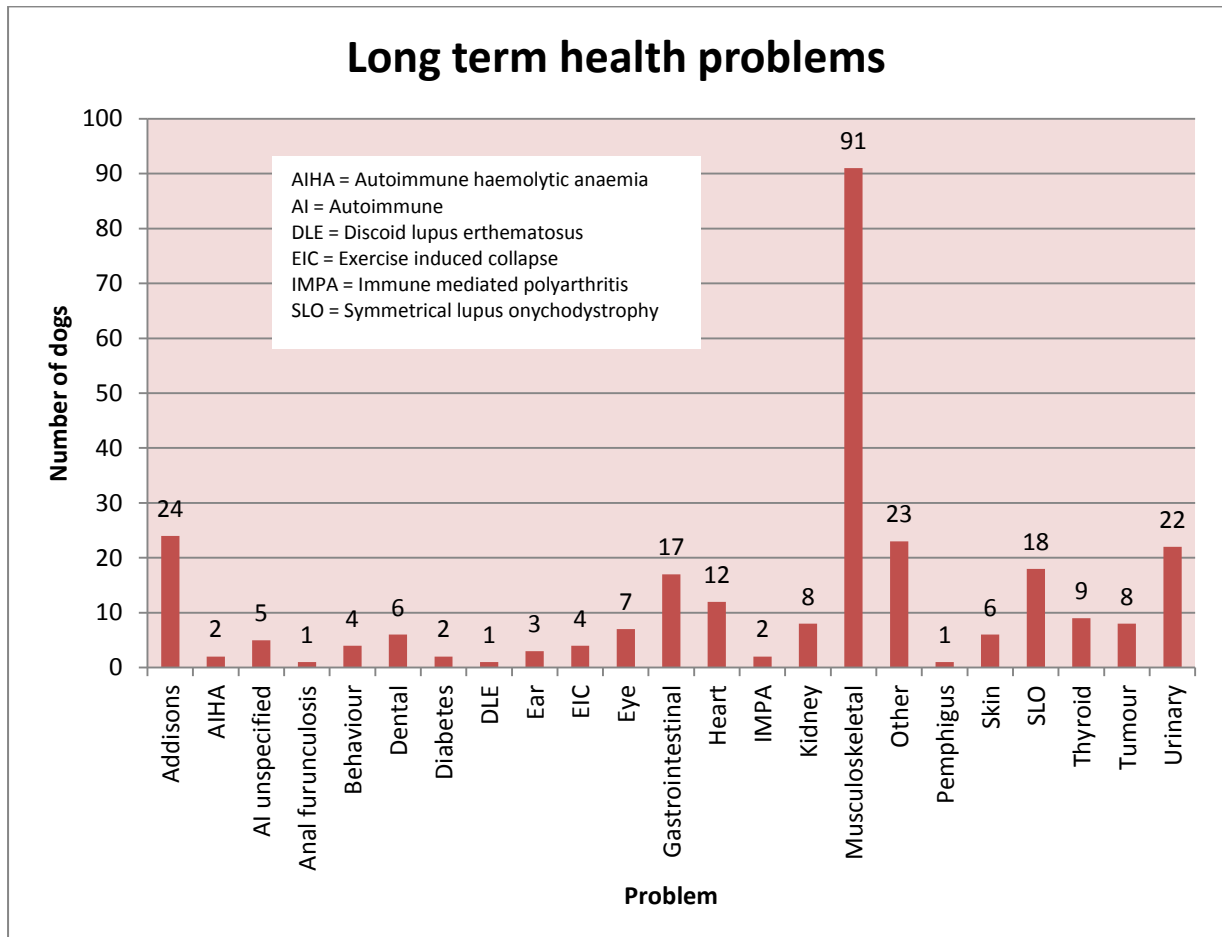
A breakdown of the incidence of immune mediated disease diagnosed in the preceding 12 months is given below.

<b>Autoimmune disease</b>	<b>Number of cases</b>
Addison's	8
AIHA	1
AI unspecified	1
Anal furunculosis	1
Discoid Lupus erythematosus	1
IM polyarthritis	2
IM thrombocytopaenia	1
SLO	4
Total	19

Autoimmune disease represents 5.9% of the new problems with which dogs were taken to visit their veterinary surgeons in the preceding 12 months compared with 6.8% in the 2018 survey.

## 2. Bearded Collies with long term health problems

234 dogs (20.3%) were reported to be suffering from one or more long term health problems representing 276 long term problems.



As with new problems the largest category was musculoskeletal disease with 91 reported problems which represents 33% or nearly a third of all the long term health problems. Of the musculoskeletal problems 63 of the 91 problems (69.2%) were suffering from arthritis, this represents 5.5% of the total number of dogs in the survey.

Condition	Number of dogs
Arthritis	63
Cruciate disease	4
Degenerative disc disease	2
Elbow dysplasia	11
Pain during growth	1
Polyarthritis	1
Hip dysplasia	7
Lameness unspecified	1
Spondylitis	1

It would be expected to have a reasonable incidence of arthritis in a sample where 23.1% of the dogs are over 10 years of age due to simple wear and tear. More worrying are the diseases that have a multifactorial aetiology including hereditary factors as these often affect young dogs and can lead to a lifetime of problems for both the dog and the owner. These include hip dysplasia and elbow dysplasia. In the present survey, hip dysplasia was given as a chronic disease in 7 dogs (0.6%) however it could be a factor in some of the cases of osteoarthritis. Assured Breeders in the UK have a mandatory requirement to hip score their dogs before breeding. It is recommended that hip scores should be looked at along with other criteria and ideally the dogs chosen to breed from should have a hip score around or ideally below the breed median score which for the Bearded Collie is currently 9 (BVA/Kennel Club, 2018). The Kennel Club also now publish estimated breeding values (EBV) for hips in the Bearded Collie and the more complete this data becomes the more useful it will be as an additional tool to aid breeders in choosing dogs from which to breed. There is less data on elbow disease as elbow scoring is not mandatory in the breed although there are breeders starting to elbow score for their own information and there are dogs that are showing evidence of the disease. The recommendation is that ideally dogs with a score of 0 should be bred from and certainly not dogs with a score of 2 or 3.(BVA/Kennel Club, 2018) In the current survey there were 11 dogs with a specific diagnosis of elbow dysplasia mentioned as a chronic disease which represents 0.96% of the population, this is stable compared with the 2018 survey but will be monitored on a ongoing basis.

### **Immune mediated disease**

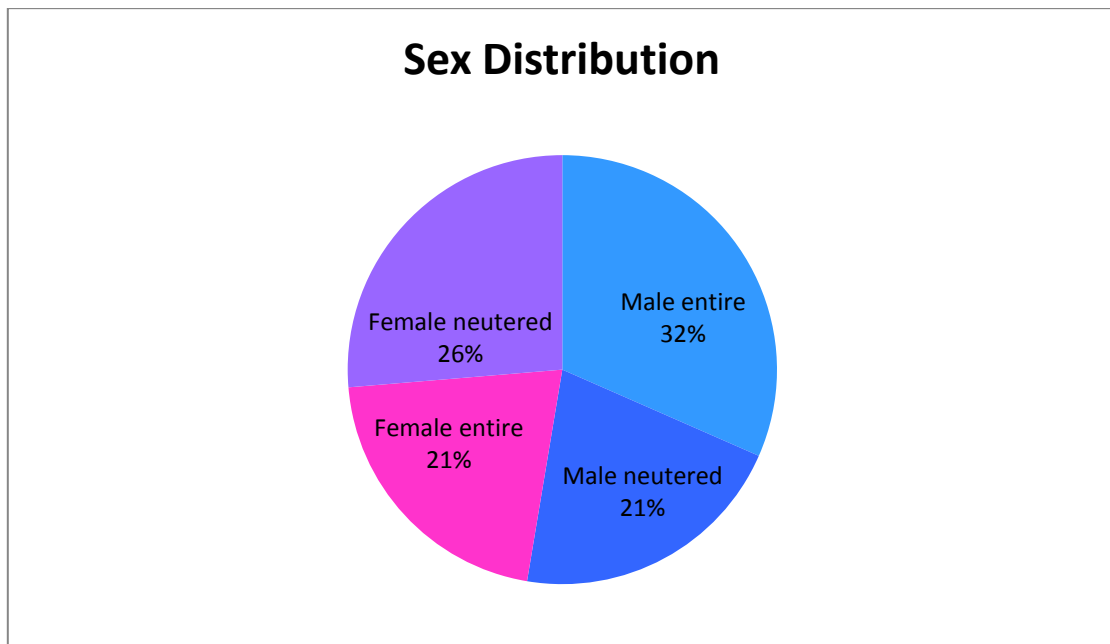
As mentioned previously immune mediated diseases have always been of concern in the breed. In the current survey the total number of instances of immune mediated disease in the long term health problems was 58 which represents 21% or just over one in five of all long term health problems mentioned. Breakdown of immune mediated disease is as follows:

<b>Disease</b>	<b>Number of cases</b>
Addison's	23
Addison's (Atypical)	1
AIHA	3
AI unspecified	5
Anal furunculosis	1
Diabetes	2
Discoid lupus erythematosus	1
IMPA	1
Myositis	2
Pemphigus	1
SLO	18
<b>Total</b>	<b>58</b>

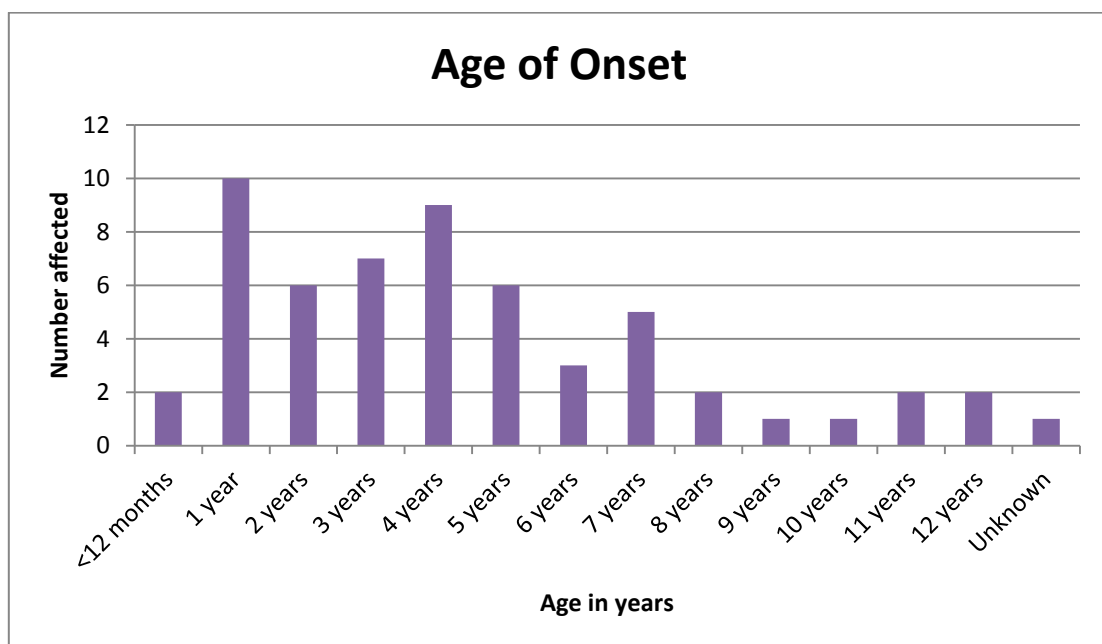
Within the survey the total number of dogs affected with one or more immune mediated diseases was 57 which represents 4.9% of the total dogs in the survey, this compares with a total of 61 (5.4%) in 2018. This number is generally less than has been reported in other

surveys ( Kershaw, Wilkins and Mc Bride, 2015. and Kennel Club, 2014) but may reflect that we had a large sample number and owners of healthy dogs were encouraged to enter data. The sex distribution of these dogs was 52.6% male and 47.4% female with a breakdown as follows:

Sex of dog	Number affected
Male entire	18
Male neutered	12
Female entire	12
Female neutered	15



Age of onset of immune mediated disease for these dogs was as follows:





Age of onset is positively skewed showing more young dogs diagnosed which is the reason for concern with these diseases, along with their life threatening nature, the need for ongoing treatment in most cases and the unclear mode of inheritance and their likely multifactorial aetiology.

### **Disease of the urinary system**

There were 22 cases of disease of the urinary system in the long term health problems representing 8% of the total problems. The breakdown of disease was as follows:

<b>Disease</b>	<b>Number</b>
Bladder problem unspecified	1
Crystal/Stone formation	4
Urinary tract infections	1
Incontinence	16

Urinary incontinence represented 72.7% of long term health problems affecting the urinary tract and all cases bar one neutered male were in neutered female dogs. The disease is seen in 1.4% of the dogs taking part in the survey which is less than that reported in a recent paper on urinary incontinence in bitches (O'Neill et al., 2017). This probably reflects the difference in methods of collecting data - this is a breed health survey whereas the O'Neill data was collected from dogs visiting veterinary surgeries so the proportion of healthy dogs is likely to be different.

### **Dogs on long term medication**

169 dogs (14.7%) were reported to be on long term medication with one or more drug. Data was not collected in this survey on the drugs used.

### **Jaw problems**

As part of the BHCP information was collected on dogs which had jaw problems 45 dogs (3.9%) were reported as having problems with their jaw. These breakdown of these problems was as follows:

<b>Problem</b>	<b>Number of dogs affected</b>
Accidental damage	1
Level bite	4
Narrow jaw	6
Not stated	2
Other (Bite didn't meet as an adult)	1
Overshot	13
Teeth impacting palate	8
Teeth missing	1
Teeth misplaced	3
Undershot	5
Wry jaw	1

There is often a genetic component to malocclusions but trauma can be another possible cause. The only ways of dealing with this at present are not to breed from parents with jaw problems and not to repeat matings which have produced jaw problems. Of the 45 affected dogs 13 (28.9%) required veterinary attention to resolve the situation, the rest either resolved without intervention or the dogs were able to live with the condition.

### **Inherited diseases**

There are potentially many diseases which have a genetic component but Bearded Collie breeders are strongly advised to test for Hip dysplasia (HD) indeed it is mandatory for the Assured breeder Scheme (ABS) and breeders are also strongly advised to test for Collie eye anomaly (CEA) and have an eye examination to check for other potential hereditary eye diseases. As part of the BHCP we also agreed to monitor the breed for elbow dysplasia (ED). The prevalence of these diseases was as follows when owners were asked the direct question of whether their dog suffered from them:

<b>Disease</b>	<b>Numbers of dogs affected</b>
Hip dysplasia	24 (2.1%)
Elbow dysplasia	24 (2.1%)
CEA	9 (0.8%)

HD and ED are multifactorial diseases which although they have a genetic component can be affected by other factors. The Bearded Collie was one of the early breeds to embrace the British Veterinary Association (BVA) / Kennel Club (KC) Scheme. In the last 15 years 1444 Bearded Collies have been screened (KC). The BVA/KC scheme for elbow dysplasia was introduced later and is not a requirement for the breed at present but some breeders have started screening dogs when their hips are done and this, and clinical disease found have indicated presence of the disease in the breed. This is being monitored and appears to have increased from 1.15% in the 2018 health survey but this is the first survey where we have asked if dogs were affected so it will now be monitored annually and discussed as part of the BHCP with the KC. The 9 dogs with CEA is puzzling as there was only ever one reported case of CEA in the breed in the UK but could indicate carriers of CEA or possibly non KC registered Bearded Collies or foreign dogs although we asked only UK KC registered dogs to complete the survey.

Screening of dams of dogs in the survey was as follows:

<b>Screening test carried out</b>	<b>Numbers tested</b>
Hip dysplasia	835 (72.6%)
Elbow dysplasia	181 (15.7%)
CEA	309 (26.9%)
BVA eye examination	259 (22.5%)
No tests	25 (2.1%)
Unknown	277 (24.1%)

Screening of sires of dogs was as follows:

Screening test carried out	Numbers tested
Hip dysplasia	760 (66%)
Elbow dysplasia	175 (15.2%)
CEA	298 (25.9%)
BVA eye examination	213 (18.5%)
No tests	18 (1.6%)
Unknown	365 (31.7%)

Unknown health tests may be because the dog is a rescue and they are unknown or could be because the dog is older and the owner is unaware of the tests done or could simply be because they cannot find this information. There is now no excuse for dogs being born without parents having hip scores given the Kennel Club's recommendation. CEA tests have only been required in recent years so the older dogs in the survey will not have parents CEA tested but this figure should gradually increase in ongoing surveys. Eye examination in veteran dogs is useful to monitor the breed for any emerging diseases such as recent reports of dogs abroad with progressive retinal atrophy (PRA). Many breeders have carried out eye tests from the early days of the BVA/KC scheme and I have had sight of documentation of dogs tested from the 1970s. Elbow testing although not required shows the dedication of some breeders to be proactive in ensuring they breed healthy puppies. The situation with elbow dysplasia will be monitored and if the prevalence increases there will have to be consideration of changing the recommendation to mandatory testing for ABS breeders and strongly recommending testing for other breeders.

### **Summary**

This is the second attempt to collect data on an ongoing basis by yearly health surveys in the breed. The general feedback was the survey was easy and quick to complete. The ease with which the survey could be completed did mean there was a compromise in the amount of data collected. However, there was a good response with data on 1150 dogs. This showed that although the breed has some health problems in line with many other pure bred dogs Bearded Collies were in general a long lived breed and many of the diseases seen were associated with age. This should not lead to complacency though as dwindling registration numbers leads to a reduction in the number of dogs available for breeding and the danger of loss of genetic diversity especially if many dogs are bred to popular sires. We also still have the problem that we do not know how to prevent the breeding of dogs with immune mediated disease and all we can do at present is not to breed from any dogs exhibiting these diseases, not repeat matings that have produced offspring with these diseases and continue to try and increase genetic diversity and reduce the coefficient of inbreeding of puppies produced. The Joint Breed Liaison Committee and the Breed Clubs are also committed to looking for opportunities to help further research in these areas and have recently funded further research into Addison's disease being carried out by Brian Catchpole at the Royal Veterinary College.

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