

Mrs B Scott, Secretary

National Border Collie Council

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ACTION REQUIRED

Please distribute this report in its entirety to the specialist clubs catering for the Border Collie in all Australian States]

Breed Submissions under the AVA-ANKC Australian Canine Eye Scheme (ACES):

July 2006 – June 2009.

Dear Mrs Scott

As the members of specialist clubs catering for the **Border Collie** breed across Australia will be aware, the AVA-ANKC Australian Canine Eye Scheme has been in operation for almost four years.

Qualified specialist ACES Panellists (appointed by the AVA Board) have conducted detailed eye examinations on adult dogs using standardised procedures as prescribed under ACES Rules, in addition to offering breeders a Litter Screening service for pups less than 12 weeks old.

Provided all submission details were in order and the dog's identity was confirmed by microchip or tattoo, the results of these examinations have been issued to the owner / agent on the day, with a copy retained by the ACES Panellist and a copy also lodged with the AVA office in Canberra, where statistical results have been maintained in a form able to be reported to ANKC and the respective breed clubs.

ACES submissions have continued to grow at a steady rate since the Scheme was launched in July 2006, with full results summaries for more than 70 breeds posted to the **AVA website (Community)** and the **ANKC website (Health & Welfare)**, covering each of the reporting periods 2006-07, 2007-08 and 2008-09. The official ACES Results table (produced at the end of June each year then ratified at the AGM of the ACVSc Ophthalmology Chapter in July) lists the breeds in order of numbers of adults submitted (expressed as a percentage of ANKC annual registrations) and provides a summary of the **Schedule 1** and **Schedule 2** conditions reported, other eye defects noted by the Panellists repeatedly and a summary of Litter findings.

Those eye conditions reported under **Schedule 1** or **Schedule 2** obviously differ from breed to breed and are maintained as a current listing in an Appendix to the **ACES Guide to Owners**, available as a download from the AVA website (Community). The ACES Guide to Owners provides comprehensive information about how to use the Scheme, including a full list of all serving ACES Panellists with contact addresses and phone numbers, State by State.

Results from the first three years for your breed appear to indicate no major problems with Schedule 1 or 2 defects, which in itself is very encouraging. In the Border Collie breed for the year ending June 2009, **69 adult exams** were carried out Australia-wide, but that was **only 3.49%** of ANKC annual registrations for the 2007 calendar year – obviously not a big sample! Across the board for all breeds, ACES adult submission rates averaging **less than 10% of annual registrations** do not give us a very reliable indication of the potentially vision-threatening conditions being reported in any particular breed, year by year.

A breakdown of significant eye defects reported in the Border Collie:

Of the total of 69 adults presented, only 50 achieved a 'no lesions' report where gonioscopy of the filtration angle had been requested, in addition to the standard ACES examination. Where this test had not been requested, a further 8 adults produced a 'no lesions' report. Collie Eye Anomaly (CEA) is a listed **Schedule 1** condition, although none have been reported in **ACES adult returns** to date. Likewise, there have been no cases of primary lens luxation or retinal pigment epithelial dystrophy (**Schedule 2**) but a few dogs have been shown to develop focal **lens cataracts**, probably congenital but not necessarily inherited.

ACES does not report in detail on adnexal variations (i.e. to do with the lids and surrounding features), but in this breed where head and skull shape contribute to the desired alertness of expression, it is important to keep **eye health** to the forefront of a breeder's priorities. As in all herding dogs moderation is the key – the eyes should be neither prominent nor too deeply set, with both upper and lower eyelids fitting neatly so that the corneas are well lubricated by an evenly distributed tear film, that is then collected efficiently by the lacrimal channels (drainage system) to pass down through the tear ducts to the nasal cavity.

Distichiasis (abnormal or misplaced lashes) has been reported as a **repeat defect** but only in a very small number of adults – not your biggest concern by any means, but something to be aware of nevertheless. While it is hard to predict a definite mode of inheritance and no-one is suggesting that dogs with one or two fine lashes should never be bred, it would still make sense to try to keep track of dogs sold as pets and perhaps ask puppy purchasers to report back if at any time in the future, the eyes become irritated and watery. Hopefully, the breeder of *any bitch with a history of producing distichiasis-affected puppies* would then take the precaution of putting her only to a sire with a solid record for producing normal eyes.

ACES Panellists are well aware of the concern that has arisen amongst breeders in all States in the last twelve months, over the possibility of some lines being more predisposed to malformation of the aqueous outflow pathway and the possibility that this may lead to greater risks of **vision loss due to obstructive glaucoma** – the concern being mainly in older animals but not necessarily restricted to that age range.

As in all situations where similar concerns have been raised overseas, examining panellists have offered **angle gonioscopy** as a specialised ophthalmic diagnostic test, in an attempt to provide the owner with an indication of the degree of **anatomic variation observed in the 360 deg. circumference of the filtration angle of both eyes**. That is the purpose of the gonioscopy test – it is simply *a measure* of the structural changes observed, in an attempt to try to equate this with the subsequent risk of a sudden spontaneous obstruction to the normal passage of aqueous fluid through the front part of the eye. Why? Because any obstruction to fluid outflow soon leads to an acute rise in intraocular pressure (IOP) and that causes irreversible damage to the millions of vulnerable cells in the retina that transmit vision signals to the brain.

As reported above, towards the end of the June 2009 year **fifty of the 69 adult Border Collies** undergoing an annual ACES exam also had the gonioscopy test carried out, at the owners' request. While not part of last year's official figures, for the purposes of this report I have reviewed **a further 36** adult submissions up to February 2010, of which **27** provided a 'no lesions' certificate where gonioscopy was also performed. Out of this total of 105 dogs which brings us right up to date, **eleven have reported significant degrees of goniodysgenesis** (i.e. marked narrowing of the outflow pathway or an obvious reduction in 'flow holes').

The reports of glaucoma-affected young Border Collies overseas has understandably led to a great deal of anxiety amongst owners, many of whom remain uncertain whether or not this is a significant problem that conscientious breeders should be trying to avoid. The Border Collie Clubs in Australia have a very good record for taking positive action against potentially threatening health issues, and it is for that reason that

I have been keen to deliver the above information as hard figures (available for the first time through an independently qualified survey), so that together we can now start to sort out what this actually means.

I am sure I reflect the views of all ACES Panellists in re-stating what we do and don't know about glaucoma in the dog. It is a serious problem when it arises as a clinical disease for whatever reason, and because of frequent delays in confirming a diagnosis and commencing treatment; ophthalmologists expect to reverse the IOP rise in *only half* of the cases presented, with *only half* of these likely to retain vision one year later.

Of course, not all cases of glaucoma arise spontaneously, especially in older dogs – there are a number of other diseases or changes within the eye (e.g. slow-growing intraocular tumours) that will result in a gradual pressure rise and vision loss, even when the outflow pathway morphology is relatively normal.

Clearly, we need more data over a longer period of time before we can draw precise conclusions on the true 'cause and effect' relationship between the sort of abnormal variations we are able to pick up on a gonioscopy exam and **the likelihood that this animal is therefore at a 50% or greater risk** of developing glaucoma in one or other eye. All we can say is that any malformation that leads to a reduced outflow of aqueous and thereby compromises normal IOP regulation in the canine eye **may predispose** this particular eye to increased risk – but again that may depend on other age-related factors or concurrent events.

Recommendations:

Based on these results and bearing in mind the small sample size for this breed in each of the three years that figures have been generated, I expect the ACES Panel would support a general recommendation that the Breed Clubs seek to encourage the participation of **many more Border Collie owners** especially if they have any plans to breed a litter, with the reminder that **at least one mature age exam** should be carried out, preferably between 18 - 24 months, whether or not gonioscopy is requested. Secondly, **all potential breeding stock (juveniles as well as mature adults)** should be monitored for evidence of developmental anomalies inside the growing eye – in addition to the CEA and goniodysgenesis that most breeders are already looking for. Thirdly, breeders at all levels should be encouraged to select against poorly fitting lids and **distichiasis** (abnormal lashes) in an effort to reduce these insidious problems over time.

I don't think this is the place to be making any firm recommendation on the standard policy that breed clubs should be adopting in terms of gonioscopy testing. ACES certification is offered to all owners and breeders and is taken up by an individual owner purely on a voluntary basis – so I would see no reason why anyone should feel under any compulsion to submit every Border Collie to gonioscopy testing, either.

Fortunately, once carried out in the fully grown animal at around 18-24 months of age, the gonioscopy test should not need to be repeated as the presence or absence of abnormal filtration angle structures is not expected to change significantly over time. Until we can ascertain the true risk relationships, it would seem prudent for the owners of any male Border Collie offered at public stud to be able to produce an eye specialist's report on his gonioscopy status, so that any breeder (novice or experienced) planning a mating can match this information against the gonioscopy findings for the bitch before making their own decision, if necessary under the guidance of the nearest qualified veterinary eye specialist or ACES Panellist.

Suggested frequency for repeat testing by an ACES Panellist:

It is probably not necessary to test every adult animal for emerging eye conditions *every year*, especially in this breed where most conditions are likely to have shown up by four or five years of age. The first adult exam should be carried out no later than **12-18 months of age** then repeated at least **every second year**

through to eight years. Any active breeding-age animal (dog or bitch) from which a litter is planned in the near future needs to be able to produce a **current ACES Certificate**, i.e. updated within the last 12 months.

Advice on Litter Screening:

There were seven litters presented for pre-sale screening to the end of June 2009 (down from nine in the June 2008 reporting period), and of this number, **five** were passed as 'all unaffected'. Of course, the result recorded at this early age cannot be used as any sort of permanent certificate – it is important to **re-test adult males and females retained for breeding**, then again if possible, through their active breeding lives.

Apart from distichiasis and a few focal cataracts, the only other congenital abnormality reported from litter tests in the 2009 year was the **CEA syndrome**, with two pups recording choroidal hypoplasia and one further pup showing hemorrhagic retinal detachments. Yes, it does happen! This is a potential area for concern that the recently announced ANKC Litter Registration Limitations for CEA in Border Collies should go a long way to eliminate, but I would strongly caution any committed Border Collie breeder against any reliance on the DNA test for choroidal hypoplasia (which is all it is - the existing DNA test does not cover all expressions of CEA) as **the only precaution they need to take in monitoring vision-threatening eye disease.**

In any event, the screening of puppies prior to sale for developmental defects involving **the lids, anterior segment, lens and vascular structures within the eye** (quite apart from evidence of CEA or scleral ectasia affecting the retina, choroid or optic nerve) should be seen as a worthwhile exercise in your breed and owners are encouraged to adopt routine Litter Screening at **8-10 weeks of age** as standard practice.

This would be far more cost-effective than any reliance on the DNA test for (CH) CEA as a litter screening exercise. Expensive DNA tests should be reserved for those dogs or bitches retained for breeding, that are *already known* to be phenotypically unaffected by **all congenital or potentially inherited eye conditions.**

Concluding remarks:

On behalf of all ACES Panellists, I congratulate those owners who have made a commitment to regular eye testing, as an essential part of the responsibility accepted in maintaining health standards amongst their valued breeding stock. Obviously, there are quite a few Border Collie litters bred in each State that are outside the influence of the Breed Clubs, and it would be good if we could encourage wider participation in the uptake of regular eye exams *with selective DNA testing* , and canine health monitoring in general.

Yours faithfully

Dr Bruce Robertson

Chief Panellist, AVA-ANKC Australian Canine Eye Scheme.

Please Note: This report should be distributed to Club members and any interested non-members. It may be posted to On-line Newsletters or Discussion groups, but only in its entirety, please.