

A Report on the Establishment of the AVA-ANKC Australian Canine Eye Scheme

Covering the administrative, ANKC liaison and public relations activity carried out by the ACES Chief Panellist and AVA staff in Canberra, including three years of results, breed by breed.

Introduction and Background

The membership of the Australian Veterinary Association supports a wide range of special interests in both the companion animal and production animal fields, but the existing AVA SIG's cannot cater for all specialist clinical disciplines. Veterinary Ophthalmology covers the visual sciences and neuro-ophthalmology as one system across all animal species (sharing clinical teaching, an overlapping research base and many therapeutic modalities with human ophthalmology), and is so specialised that its activities in this part of the World were seen to be more appropriately carried out as a Chapter of the Australian College of Veterinary Scientists.

About twelve years ago, the voluntary membership body Aust & NZ Veterinary Ophthalmology Society (ANZVOS, with practitioner members in both Australia & New Zealand but not affiliated with AVA or NZVA), wound itself up voluntary on a unanimous vote of members, with assets to be transferred to the newly formed ACVSc Ophthalmology Chapter. At that point in time the Ophthalmology Chapter was made up of essentially the same individuals – ACVSc Members (by examination) with an interest in ophthalmology and ACVSc Fellows who were already State registered veterinary eye specialists. The ACVSc Ophthalmology Chapter has played an increasing role within the Australian College of Veterinary Scientists, as new Members and Fellows have joined our ranks. The Chapter participates in the annual **ACVSc Science Week** and various members have contributed to the functions of the College, including one of our longest serving members Dr Robin Stanley who is the current ACVSc Chief Examiner.

Eye Certification has been offered to pedigree dog owners in Australia for many years on an 'ad hoc' basis, usually by practising eye specialists in the capital cities (some of whom qualified in the UK or USA prior to the introduction of veterinary specialist registers by the State Boards), but also by experienced veterinarians who had undergone formal training as a prerequisite to an intermediary qualification such as the RCVS Ophthalmology Certificate. A smaller number of graduates in some States had developed an interest in ophthalmology in spite of being essentially self-taught, and had been issuing 'eye certificates' without any recognised post-graduate qualification in the science of the mammalian eye. For many years this system served some purpose, but the key point to note is that there was no uniform assessment standard, no quality control and most importantly, no collection of results into a multi-breed database.

As eye certification standards in the Northern Hemisphere continued to develop, with CERF, BVA-KC and the ECVO Schemes passing through professional and legal challenges to become established as the recognised national schemes for North America, Britain and continental Europe respectively, in Australia and New Zealand we have found ourselves lagging behind. Why? Simply because until recently, we have lacked the 'critical mass' of fully qualified specialists across all States and Provinces to be able to provide a broadly-based surveillance system that could match the Northern Hemisphere Eye Schemes' firmly established quality control procedures. For Australian or New Zealand certification standards to be internationally

recognised, we knew we would need to demonstrate an equal commitment to rigorous candidate training, uniformity in exam procedure and assessment criteria as well as similar standards for entry to national eye certification panels, with provision for regular re-assessment.

Accurate diagnosis of most canine eye abnormalities depends not only on advanced technical competence derived from supervised training in **direct and indirect ophthalmoscopy, slit lamp biomicroscopy, applanation tonometry, gonioscopy, ultrasonography and fundus imaging** (all beyond the scope of even the most adventurous self-trained general practitioner), but also on continuing exposure to *a wide range of clinical examples* over a number of years, that is best delivered through structured post-graduate training. This in-depth experience is reinforced by breed-specific research and informed discussion at veterinary ophthalmology conferences as well as in dedicated on-line discussion forums, where our attention is constantly being focused onto *new* abnormal variations, some of which are ultimately found to be inherited.

The above may seem obvious to anyone who has pursued higher level training in their own vocational field, but the distinction is perhaps less well understood among the ranks of amateur dog breeders, many of whom have come to trust their own general practitioner in all aspects of animal health and are keen to extend that loyalty with an expectation that he/she should also be able to carry out eye testing a lot more conveniently and cheaply from their local clinic. That is, in spite of the inadequacy of general practice equipment on the whole and warnings invariably issued by their sympathetic but ever cautious veterinarian that “eyes are a specialist field”.

Members of the ACVSc Ophthalmology Chapter have been aware of the shortfall in specialist expertise with an inadequate distribution across all States, so as soon as a registered eye specialist commenced practice in Western Australia we began moves to set up a national eye scheme that would issue report certificates to a standardised format and under set procedures. The new scheme would not only provide accurate evidence of existing eye defects for any dog sold within Australia or overseas, it would also begin to generate a meaningful record of the *known inherited diseases*, breed by breed. This increasing resource is expected to provide valuable reference material for veterinarians and geneticists studying these diseases locally, while at the same time permitting useful comparisons with similar animal databases overseas.

A great deal of preliminary work was undertaken by Chapter members over the following year, looking at the features and known shortcomings of the three Northern Hemisphere schemes then trying to adapt these to a workable set of rules, applicable to the Australian continent with its vast distances and relatively scattered centres of population. There was also New Zealand with its own local issues to sort out, should their breed clubs and veterinary association elect to support the ideal of a single trans-Tasman scheme pooling all results in one database, which has always been the Chapter’s aim. Taking this one step further, the movement of valuable breeding stock between Australia, New Zealand, Japan & South East Asia would support the concept of uniform *Australasian* eye certification standards, which makes sense following the recent formation of an Asian College of Veterinary Ophthalmologists – especially if this body of increasing regional influence ever elects to align itself with the credentials recognition of the ACVSc, with a view to taking advantage of the College’s established examination procedures.

From the outset, the Ophthalmology Chapter acknowledged the importance of having the scheme operate under the supervision of the national veterinary body, in this case the AVA since the founding proposal was for an Australian Canine Eye Scheme – ACES. It was also seen to be important for any scheme serving dog breeders right across the nation, to carry the endorsement of the Australian National Kennel Council on behalf of the Canine Controls in each

State and Territory. Both organisations co-operated fully from the outset, issuing sets of conditions that the ACES reporting systems should be expected to comply with. The Ophthalmology Chapter proceeded to satisfy all of these expectations (in addition to its own stringent professional standards) by producing four founding documents: **ACES Rules and Procedures**; **ACES Information for Owners**; **ACES Diagnostic Criteria Supplement** (issued to all appointed Panellists), also an **information brochure** explaining the aims of the national eye scheme. An additional two-page colour print sheet has since been produced, summarising the key features of the ACES for all participating dog owners and breed clubs.

During the early months of 2006, executive staff at AVA National prepared a basic operating budget and confirmed the administration requirements. The design of the adult exam and litter screening forms was finalised and the first set of serially numbered triplicate books was ordered. All the eligible registered eye specialists who were prepared to serve on a national certification panel were approached before being formally appointed by the AVA Board. Payment systems were organised between AVA ACT and the ACES Panellists, then on final ratification of the documentation by the AVA Board (acknowledged in principle in a letter forwarded from the ANKC), the AVA-ANKC Australian Canine Eye Scheme was ready to be launched.

The Launch of the Australian Canine Eye Scheme – AVA Conference, Hobart 2006.

A short ceremony was staged during the companion animal sessions at the 2006 AVA Conference, hosted by the incoming AVA President Dr Kersti Seksel who welcomed this new initiative as a broad-based service to practice clients and dog breeders in particular. The ANKC President Mr Hugh Gent OAM responded on behalf of the Australian National Kennel Council and affiliated breed clubs in all States, following a brief outline of how the Scheme was expected to operate, presented by the newly appointed ACES Chief Panellist, Dr Bruce Robertson.

Administration Systems at AVA ACT – servicing Panellists' needs and filing their returns

Integral to AVA's supervisory role ensuring that the Scheme runs efficiently and that appropriate quality assurances continue to be met, administrative functions involved in servicing the needs of the ACES Panel have not been particularly onerous. Day-to-day administration has been provided through the ACT office under the overview of National Veterinary Director Kevin Doyle, who had provided valuable assistance in editing the original ACES documentation and has at all times done everything to facilitate well-informed responses to an owners' or breed club enquiry.

Three staffing changes at the Canberra office in fairly quick succession required greater involvement of the Chief Panellist in monitoring procedures and responding to public enquiries, delaying plans to move across to a website-based data entry system. Funds allocated in the original budget to the development of electronic data storage in a form compatible with the ANKC's national registration computer have been retained by AVA (in the levy charged out with the sale of books of ACES forms), but there has been no call on this expenditure to date. Time pressures on those closely involved with the day-to-day running of the Scheme and on-going public relations issues have made it difficult to instigate any projected expenditure, over and above the essential service functions and re-ordering of form books. Cash flows into the AVA's consolidated revenue account have increased steadily over the last three years while monthly

operating costs have been kept to a minimum – due caution being applied at every stage, given the ‘roller-coaster’ of senior executive changes occurring at AVA National over the same period.

The present AVA Administration Officer in Canberra (Belinda Radnidge) has established efficient routines for the supply of books of ACES Adult Exam and Litter Screening forms, then the return of serially numbered copies of the issued certificates. These are photocopied on arrival for statistical purposes on behalf of ANKC, before systematic filing that allows us to trace and respond to any irregularities in the issuing of results, or backtrack on apparent instances of factual misrepresentation – be they accidental or potentially fraudulent.

The current recording system is relatively foolproof, with duplicate results filed by AVA in addition to a further copy of each serially numbered certificate retained by the issuing specialist. Individual scrutiny of all form copies has been important during this three year introductory period, not only as a measure of general efficiency but also for information audit purposes. The tightly specified ‘checks and balances’ written into the ACES Rules and Procedures had drawn just a few offended cries of “Don’t you trust us?” at ACES information evenings, yet there were **two cases** of apparently intentional misrepresentation detected on ACES Litter Screening submissions, and **one case** investigated on behalf of the lessee of a registered stud animal, where instances of apparent alteration of an issued ACES Certificate (presented by the owner) were referred to the relevant Canine Control for investigation of possible fraudulent intent.

Based on previous overseas experience, the day-to-day ACES operations under the direction of AVA-appointed Panellists has been structured to incorporate a series of procedural controls, designed to ensure the reliability of animal identification and the integrity of the reporting process. As required by regulation governing the issuing of veterinary health and soundness certificates in all States, every adult submitted for an ACES exam as well as the individual pups presented for litter screening, must be *permanently identified by microchip or tattoo*. This has presented some problems with breeder compliance, especially in those States where microchip identification is not yet mandatory under local authority animal control by-laws. However, more and more owners now accept that permanent animal identification is essential if they are to participate responsibly in any fully regulated canine health surveillance scheme.

Insistence on the presentation of current registration records together with obligatory cross-checking of microchip numbers right from the time ACES was first introduced, has successfully eliminated any opportunity for the fraudulent substitution of an unaffected kennel mate in place of a valuable stud animal that may have failed a previous eye examination. Some breeders reacted indignantly to any suggestion that they could not be trusted, until they were assured that Northern Hemisphere schemes had all experienced cases of substitution or identity fraud, and that a requirement for positive identification was there to protect the interests of all participants.

It has always been the intention of the Ophthalmology Chapter to move as soon as we could, to an on-line recording system that would allow much greater efficiency in the management of breed data, as well as automatic delivery of the ACES ‘pass-fail’ result for any dog on the ANKC Breed Register. As yet, the ANKC and State Canine Controls have not responded to our offer to provide that data in a program-compatible format, permitting integration of ACES eye certification reports (along with CHEDS hip & elbow scores and verified DNA test results for a range of other inherited conditions) into the ANKC national registration database.

I am pleased to report that after a somewhat uncertain start, ACES submissions have climbed steadily in an increasing number of breeds and are now being processed at a very satisfactory

rate, largely through word-of-mouth acceptance and without any further promotional activity needing to be extended through AVA National. This report will be forwarded to the ANKC Administrator and each State Canine Control, and the national breed councils for the top twenty represented breeds will shortly receive a full breakdown of test results, over the first three years.

Cash flows and ongoing Expenditure

Every book of 25 ACES forms issued to an AVA-appointed ACES Panellist is paid for in advance to cover the administrative levy of \$9.90 per form, part of which had been allocated to cover development of report formats compatible with the ANKC's revamped computer system, but as mentioned previously this has not yet happened. All of the up-front printing and design costs were quickly recouped through income received and the Australian Canine Eye Scheme has operated well and truly 'in the black' since mid 2007, as a cost centre for the AVA.

I should point out however that due to unavoidable complications stemming from AVA staffing changes and the need for the Chief Panellist to provide on-the-job training to three ACES administrators, so far we have achieved only moderate efficiency with a manual reporting system, and that was never the intention of the eye specialists who act as ACES Panellists. Uniform quality control has required all forms to be individually reviewed by a qualified examiner during the establishment stages (effectively myself as Chief Panellist); not necessarily a bad thing because it enhanced accuracy in the delineation between 'affected' and 'non-affected' results, eliminated common errors in breed recognition and thereby has provided a solid basis for the establishment of a multi-breed database. Arising from this overview, there have been instances where reminders needed to be issued to Panellists about following set procedures.

This has taken a great deal more of my own professional time than was expected, often amounting to a near full-time job when the responsibilities of ANKC / National Breed Council liaison and responding to the many enquiries from individuals or breed clubs are taken into account – to say nothing of the information evenings conducted in a number of capital cities at the invitation of State Canine Controls. Most of this activity was concentrated in the first year, but my time has continued to be taken up with requests for clarification, assisting ACES Panellists with procedural matters and then **a series of submissions to the Victorian and NSW Parliaments** on proposed changes to Animal Welfare legislation that required new Codes of Practice to be drawn up, setting broad guidelines for the health monitoring of dog breeds.

In presenting this report, I express my willingness to answer any further questions from the AVA Board, by way of explanation of the time devoted to the promotion of ACES as a standardised national eye scheme. I have found it necessary to defend repeatedly the overview function of the AVA as the supervising professional body – helping to define standards on behalf of the community while it looks after the interests of its members, in the service of veterinary clients.

Maintaining Assessment Standards to ensure Nationwide Quality Control

The first Chapter Meeting and AGM following the launch of ACES, at Science Week in July 2006, was devoted almost entirely to the training of ACES Panellists and familiarising them with newly standardised procedures. Dr Stuart Ellis (Chief Panellist for the BVA-KC-ISDS Eye Scheme in the UK) was the invited guest speaker. In addition to giving us the benefit of the

British experience in standard setting over the last 15 years as part of an on-going interface with the Kennel Club and the International Sheep Dog Society, Dr Ellis provided training sessions in the recognition of equivocal or controversial eye signs and took us through the voluntary review and self-assessment tests that all BVA-KC-ISDS Eye Scheme Panellists undergo periodically.

The ACVSc Ophthalmology Chapter has seen very good attendances of members at Science Week in 2007 and 2008, where once again all of the ACES Panellists present were asked to review a series of unknown lesion slides and record diagnoses that were then scored under independent markers. Everyone participating in these self-assessment tests agreed that the real value of this exercise came from the vociferous discussion that followed the examiner's 'correct' answers, rather than whether or not a 100% pass mark was achieved!

In addition to this re-assessment process, any concerns from individual Panellists about the classification of 'borderline' congenital lesions have been referred to the Chief Panellist for guidance, or in turn to the three-member Eye Scheme Standing Committee. The great majority of enquiries have only required clarification of standard procedures or an outline of an owner's right of appeal – understandably so, since all of this is new to a somewhat wary client base of owners who have not had to work with a fully regulated system before. On only two occasions has the AVA-administered **appeals process** been activated, both at my encouragement if only as a demonstration of how it was designed to work. In both cases the first Panellist had already signalled a potential area of diagnostic uncertainty and invited a review, and in both instances the second Panellist was able to make a definitive diagnosis and a **new certificate** was issued.

One of the initial expectations that came through ANKC sources was the desire to see a uniform national fee scale. This was considered on its merits as a matter of convenience but was rejected by the Chapter at its 2006 AGM, because individual practices had established methods of fee calculation based on existing overheads, and in any case collusion between service providers over fee scales would have been in contravention of the federal Trades Practices Act.

Reporting Annual Results to the Ophthalmology Chapter, Breed by Breed

During the first three years, ACES results have been processed manually for reasons previously outlined. At the end of the **2006-07 reporting period** (covering only ten months), all significant eye conditions recorded in the top 20 breeds (congenital or inherited) were reported in tabular form to the ACVSc Ophthalmology Chapter and then subsequently released to the ANKC. It was found that the most meaningful way to express these results was as a percentage of annual litter registrations breed-by-breed (i.e. dividing adult submissions for the current reporting period by the ANKC litter registration figure from two years previously, when most of these dogs would have been born). This report format gives a better indication of the level of uptake and the extent to which breed clubs benefit from the detail contained in ACES Reports.

The **2007-2008 reporting period** once again covered a shorter period, as we brought the close-off date back to the middle of June to allow reporting for all breeds to the year ending 30 June. Submissions for the 2007-2008 year were up by almost 20% over the first reporting period, with a significant increase in the number of Litter Screening certificates issued, in particular. Figures for the **2008-2009 reporting period** (the first covering a full twelve months) will not be released until presented at the Ophthalmology Chapter's AGM in the first week of July, but on present indications the final submission numbers for adults and litters will exceed this +20% margin

once again. This is a very satisfactory result, given the vociferous opposition rallied against the whole concept of a surveillance scheme for eye disease that has persisted in some of the smaller States, and the lack of time available for any AVA-sponsored national promotional activity aimed at countering these inaccurate and unnecessarily divisive claims.

Liaison with the ANKC and its Affiliated National Breed Councils

I would have to say that in spite of the effort made at the outset by AVA and the ACVSc Ophthalmology Chapter to provide fair explanations on how an eye certification scheme needed to operate to ensure consistency in interpretation and meaningful summaries of eye conditions present in a range of popular breeds, there has been a lot more confusion and misinformation promulgated at breed club level, than really should have been necessary. Following the ACES launch in May 2006, AVA Media Co-ordinator Gavin Atkins issued a press release and AVA Members Services staff mailed bulk copies of the Chapter-sponsored ACES Information Brochure to the eight State Canine Controls and all ANKC-affiliated National Breed Councils, along with a detailed letter explaining the purpose of an AVA-administered Eye Scheme.

Supporters of key breeds (in which the need for eye exams prior to breeding had long been accepted but carried out only on a casually monitored basis) reacted strongly once the reality of newly regulated procedures was fully understood. Those represented by ANKC-affiliated National Breed Councils claimed not to have received the information, some later conceding that the failure to communicate lay with inactive or no-longer current office bearers. In some States, packaged information sent to the Canine Control office was never distributed to breed clubs, even though advice on a new national health surveillance scheme was obviously in their members' best interests. Those particular hitches are well behind us now and do not need to be revisited, other than to record the following pertinent observations, with the benefit of hindsight:

Although the Chapter's request for ANKC endorsement of the ACES concept had been considered at national level (via the ANKC Canine Health Committee) and responded to with an endorsement decision *in principle*, some Canine Controls later claimed they had not had the chance to give this matter due consideration or they were under pressure from member groups to withdraw the support previously given. As co-ordinator of the Ophthalmology Chapter's efforts to come up with a workable national scheme, serving scattered communities under eight separately autonomous State-based jurisdictions (*nine* if we project the plan to New Zealand and include the NZKC), I have done my utmost to explain to any audience that would listen, what was happening internationally and why the previous system of 'one-time' eye certificates issued by veterinarians of uncertain training backgrounds, was no longer a credible option.

The structure of the Australian National Kennel Council could perhaps best be described as an 'umbrella organisation' providing co-ordinated services (e.g. national registration of pedigree records and the issuing of championship & obedience titles) to the eight ANKC-affiliated (but financially & administratively separate) Canine Controls in each State and Territory, as well as communications functions carried out through the office of the ANKC Administrator in Brisbane. Despite numerous attempts over the years to establish a single national canine administration, the ANKC cannot operate with unfettered national executive authority in its present framework since policy decisions are at all times subject to political consensus between the States and the revolving cycle of remits and resolutions carried at the ANKC Annual Conference of Delegates.

Through the good offices of ANKC President Hugh Gent OAM and Administrator Tracey Barry, I have taken advantage of every available opportunity to raise the level of understanding about quality-controlled eye certification and the other health surveillance schemes administered by AVA nationally. Dissent has continued at the grass-roots level however, especially in Tasmania and South Australia where I have not yet been given the opportunity to speak to any meetings of local members or breed clubs. This is unfortunate and has undoubtedly led to a continuation of some widely held misconceptions about the motives and rationale behind the Scheme, that public meetings in other States have gone a long way to dispel or place into a fairer perspective.

I have put in a great deal of time replying to E-mailed queries from breeders, asking for key questions to be forwarded *through* the national breed council catering for the breed in question, or on a consensus of views supported by all State-based breed clubs. I was invited to speak to Delegates at the 2007 ANKC Conference and then provided lengthy written explanations to a further series of questions, not directed to me in person on the day. Some of these discussions led to amendments to ACES Rules and Procedures, but only to the extent that they clarified the divisions in responsibility for maintaining records and reporting breed data, between ACES and the ANKC-affiliated National Breed Councils as the presumed guardians of breed health.

At the time of writing this report, the AVA National Veterinary Director has recently replied to ANKC regarding a further series of requested changes, sent through by the States. On the Chapter's behalf I have provided constructive responses in each case – some in full agreement as they clarify existing procedures or reinforce the on-going monitoring role that breed clubs should be willing to undertake in the interest of canine health. Other issues raised by ANKC State delegates have already been rejected by the Ophthalmology Chapter, as they are seen to restrict the scientific independence of ACES Panellists trained to a registered specialist level.

Preamble to the Summarised Reports of Annual Breed Submissions

This national scheme has been launched at a time of increasing public interest in the assurances being offered for health and soundness in pedigree dogs for sale. It is also the first fully supervised certification scheme designed 'from the ground up' to satisfy the requirements of AVA's Quality Assurance Guidelines. The basic design of the Australian Canine Eye Scheme is working according to the principles intended, and the interests of stakeholders have at all times been dealt with transparently and attended to promptly – even to the extent of providing a fair and independent pathway for the Appeal of an ACES Panellist's decision.

A small minority continue to oppose the whole concept of a certifying panel of qualified specialists, to the possible short-term disadvantage of those breeds they represent. Thankfully, conscientious owners in most breeds have accepted the need to see visible quality assurances being applied. They have placed their faith in the national eye scheme by submitting dogs in impressively representative numbers in quite a few breeds; opening lines of communication through the ACES Chief Panellist towards setting realistic goals, then just 'got on with the job'!

As the summary reports show, these are the breeds that are deriving commensurate benefits!

[See **Appendix I, II, III** – ACES Breed Reports for the 2006-07, 2007-08 and 2008-09 years]

Comments from the Chief Panellist – based on the first three years of Breed Submissions

In addition to this Report provided for the AVA and the ANKC, I will be supplying independent reports to most of the top twenty participating breeds (either through their NBC's or State-based breed clubs) listing all the eye conditions reported by the ACES Panel, then proceeding to make a few pertinent observations on their overall significance and any potential control measures.

One has only to scrutinise the Adult and Litter results for the top ten or twelve breeds to be able to demonstrate the breed-wide benefits that will flow from regular surveillance of congenital and inherited eye conditions. There are some interesting comparisons to be made even after only three years of summary reports, which appear to reflect different levels of participation between groups of breeders and/or Clubs representing breeds that are otherwise genetically comparable.

Labrador Retrievers and **Golden Retrievers** are one case in point. Both breeds share almost exactly the same range of known inherited eye conditions (G.PRA, lens cataracts, RPED & retinal dysplasia) and one would have thought that this should lead to more-or-less equal levels of voluntary participation. Labrador Retrievers are the most popular breed in Australia by a significant margin (based on ANKC annual litter registrations), yet they come in at a distant second to Golden Retrievers in annual ACES adult submissions Australia wide – a discrepancy that seems even more marked when the >200 guide dog trainees and adult breeding animals are subtracted from the annual submission totals for both breeds.

As a strong common-interest group across all States, Golden Retriever breeders are to be congratulated not only on their widespread acceptance of the value of regular ACES testing of all active breeding stock, but also on their willingness to liaise directly with the ACES Panel in the establishment of workable guidelines for all owners across the country, e.g. the optimum frequency of testing and the age after which further eye screening is considered unnecessary.

One has to be sympathetic with breeders in the **Collie Eye Anomaly** breeds (e.g. Rough & Smooth Collies, Shetland Sheepdogs, Border Collies, Australian Shepherds), because of the nature of this insidious condition in which the main causative recessive gene is much more widespread than the *apparent incidence* of recognisable visual defects in the breed population.

For many years without the benefit of available DNA testing for the simple recessive gene responsible for **choroidal hypoplasia** (less threatening to vision, but by far the most common phenotypic expression of CEA), breeders had their adults screened at an eye exam but continued to breed from animals *known to be affected* by choroidal hypoplasia *and* optic nerve head coloboma, the variant much more likely to produce blindness due retinal detachment and intraocular haemorrhage. These breeders clearly thought they were doing the right thing, because by and large they were not producing very many visually defective animals and, one has to say, those that did show early blindness or obvious intravitreal haemorrhage were able to be culled by the breeder without the fact becoming widely known. Sadly, these policies have led to complacency about the ever-increasing dissemination of the recessive gene for CEA/CH.

A small number of Rough & Smooth Collie, Border Collie and Shetland Sheepdog breeding kennels have come to terms with what they need to do to preserve safer breeding options, over the short to medium term. They screen all imported stock, they establish the precise status of any dog or bitch they wish to breed, then they select mating combinations and future selection policies that will ensure that any pup produced is either *known to be genetically unaffected* and therefore reliably normal in phenotype, or *a known CH carrier* that will also be phenotypically

unaffected. They do not allow themselves to weaken future working gene pools by breeding from any clinically affected males *at all*, or any affected females or known carriers *unless* they combine with known unaffected sires and then *monitor and re-test* all of the resulting progeny.

These breeders have seen due reward for their effort even in the first three years, but sadly there are still many well-intentioned breeders who find it very hard to compromise on breed type and a preferred size range even in the short term, for the sake of setting up a much safer long-term breeding plan that would see them set limits on the currently accepted breeding practices of mating *known affecteds* and *known carriers* together – thus perpetuating the genes for the ‘CEA affected’ or ‘CEA carrier’ condition, equally strongly into the next generation.

Even though the number of apparent visually affected animals are few and far between (I say ‘apparent’ because there may be a few grown dogs demonstrating CH or ONH colobomas that are ‘hiding’ a reduced bilateral visual capacity in all lighting conditions), CEA will remain a continuing threat to these breeds until supporters across all States ‘come to the table’ and collectively start to consider a series of positive steps (with the aid of professional help), aimed at gradual *reduction of the gene frequency* for choroidal hypoplasia as part of the CEA complex.

There are **new developments** arising in different parts of the World as breed populations in one country or region reveal a concentration in the movement of key breed lines internationally, which from time to time result in the unexpected arrival of a new vision-threatening condition. Some less popular breeds may show unusual patterns of vision-threatening retinopathies that appear to be consistent with a simple recessive mode of inheritance, and these are always ‘being flagged’ through alerts on the University of Georgia’s **Veterinary Ophthalmology List Serve** with >200 subscribers world-wide, all qualified eye specialists, residents or researchers.

A recent example has been the unexpected diagnosis of a number of congenital glaucoma cases in Border Collies in the United Kingdom, amongst the progeny of a popular imported Australian sire. This revelation has led to widespread gonioscopy testing of related breed lines both in the United Kingdom and Australia, the results of which will be reviewed at the ACVSc Ophthalmology Chapter Meeting at Science Week in early July before becoming part of far-reaching policy discussions expected to take place later that month in Sao Paulo when the **International Society of Veterinary Ophthalmology (ISVO)** meets in conjunction with the WSAVA Annual Congress in Brazil. As background material for this discussion, the ACES Chief Panellist has commenced a survey of all experienced Siberian Husky breeders in Australia, seeking to establish any meaningful correlation between the incidence of diagnosed goniodysgenesis and the onset of clinical glaucoma in ageing blue or brown eyed Siberian Huskies – a breed in which goniodysgenesis is historically much more common.

Concurrent Events impacting on the acceptance of Animal Health Screening in Australia

(i) Integration with Diagnostic Services based on Canine DNA testing

The development and marketing of many new canine DNA-based genetic tests since 2006-07 has almost exactly coincided with the period over which ACES testing has been under scrutiny. Many breeders have received conflicting information on both forms of eye screening and have found it hard to decide which is the more important, or indeed if one completely replaces the other as the only reliable means to monitor the risk of an inherited vision-threatening condition.

Especially since the refinement of a DNA test able to determine ‘affected’ and ‘carrier’ status for *prcd* PRA (the most common cause of vision loss amongst dog breeds world-wide), breeders continue to be told that “this is all they need to test for” when in fact there are a number of other developmental defects that pose significant threats to eye health and vision – that cannot be detected by a DNA test, or eliminated other than through a reliance on regular ACES reports.

Every new genetic test for dogs is important, but some are more useful than others in terms of their ability to reduce disease risks in susceptible breeds. While research teams in different parts of the World have successfully patented individual DNA tests (e.g. ceroid lipofuscinosis (CL) in Border Collies, developed by Dr Allan Wilton at the University of NSW), the majority of tests for inherited eye conditions have been developed and marketed by **Optigen Inc.** in Ithaca, New York, under the direction of two very highly respected veterinary ophthalmologists, Dr Gus Aguirre and Dr Greg Acland. Dr Acland is an Australian graduate from the University of Sydney.

Genetic Technologies (GTG) in Victoria holds commercial rights to all of Optigen’s canine DNA tests in Australia and New Zealand and this company is actively promoting the availability of these tests, amongst others, to the dog-owning community at large. While GTG’s sample handling, technical standards and reporting systems appear to be of an acceptable standard, it is essentially a volume-based commercial organisation that does not offer the research backing made available to breeders in the Northern hemisphere through Optigen Inc., in the form of direct genetic counselling and free sample analysis for any test under development.

There is no doubt that the advent of reliable DNA testing is a genuine scientific breakthrough that promises to free many breeds of hitherto life-threatening or potentially blinding diseases, over the next decade or so. They deserve the full support of veterinarians and professional organisations such as the AVA, as a key component of systematic health care – but to a much greater advantage if they can be applied in an organised fashion and used *in conjunction with* information already provided by the existing AVA-supervised health surveillance schemes.

(ii) The continuing impact of State Government-initiated Animal Protection legislation

Changes to animal welfare legislation in Victoria in 2007-08 (and in New South Wales more recently) have begun to focus attention on community expectations for the regulation of health and welfare standards, not only in the feeding and rearing of puppies for sale but also on what is or *is not* an acceptable breeding practice. Victoria has ‘taken the bull by the horns’ with specific reference to five known canine inherited conditions (three of which affect the eye and vision), encompassed not only in amendments to the **Prevention of Cruelty to Animals Act 1986** but also in Tables of acceptable breeding practice, listed in the supporting *Codes of Practice for the Responsible Breeding of Animals with Heritable Defects that cause Disease*. The second reading of the amended Prevention of Cruelty to Animals Act 1986 took a lot of involved parties by surprise, and it was fortunate that the Minister for Primary Industries allowed the Director of the Victorian Bureau of Animal Welfare to consult a great deal more widely before finalising the draft Codes of Practice, ready for ministerial approval and enactment late last year.

The new Victorian Codes of Practice to the best of my knowledge have created an international precedent in the sub-classification of canine inherited disease into seven groups, based on the age of expected onset and the way in which all the common inherited conditions behave. These classifications were accepted *in toto* from the suggestions put forward by Dr Karen Hedberg (ANKC Canine Health Committee Chair) and myself as ACES Chief Panellist, thereby allowing individually specified control procedures to be assigned to each of the seven defined groups.

(iii) Pressure on International Breed Standards to incorporate health preservation values

Last year and extending into early 2009, the Kennel Club in the United Kingdom found itself the subject of intense media scrutiny as the BBC, the RSPCA and other animal protection agencies threatened to withdraw support from the famous Crufts Dog Show – a move that forced the Kennel Club to focus greater attention on the good things it does for pedigree dogs and their owners, both in Britain and worldwide. One outcome of this unprecedented attention was the re-writing of a number of the Kennel Club's officially endorsed breed standards, allowing greater judging emphasis to be placed on those features that are compatible with physical wellbeing. While the publicity surrounding this sudden flood of changes might have suggested it was long overdue, the truth is that at the top echelons of competition, conscientious breeders have *always* taken care to ensure maximum health and viability, and that is every bit as true in Australia and New Zealand as it is anywhere in the World – possibly even more so!

International moves aimed at improving health and reliability amongst pedigree breeds are to be welcomed, and it is important that we as veterinarians position ourselves to be able to offer genuinely useful services to all animal breeders – not only in the control of clinical disease through established surveillance schemes, but also through broadly-based genetic counselling.

Factors that continue to affect the reputation of ACES as the established National Eye Scheme

(i) Concerns about the confidentiality of an owner's reported results

Awareness of the risks posed by vision-threatening defects in a range of pedigree breeds varies from the generally well informed to the vaguely indifferent to the downright "don't want to know"!

There are many breeds in which inherited eye diseases are commonly acknowledged overseas, yet the members of clubs catering for those breeds in Australia or New Zealand appear to show little interest in organised eye testing. In each of the twenty most popular breeds with known inherited eye conditions, we expect to see a progressive increase in the uptake of routine ACES testing, especially after members have the chance to review figures from the first three years.

Now that the mechanics of routine eye assessment and reporting is well established, it is time to move on to the development of a more efficient system of data management. This would allow the eye exam result for a given animal in any ANKC-registered breed to be processed 'on line' to a web-based data recording spreadsheet, enabling the generation of up-to-date reports on the incidence of eye defects within that breed, as well as issuing the current ACES Certificate for that animal. It could also export a 'pass-fail' ACES result to an externally hosted database such as the ANKC Registration Computer or a National Breed Council's independent register. In those situations where the breed clubs or National Breed Council have agreed to support *Open Register* reporting, the ACES result for each animal would be released to the public domain and would form part of that dog's official registration records. Conversely for those breeds where the consensus view of all Breed Clubs does not support full publication of ACES results, they will still have the option of receiving reports in statistical form without individual dogs being identified (i.e. they have elected *Closed Register* status for the breed as a whole).

In the absence of any policy guidelines for ANKC-affiliated national breed councils on the active role they could be adopting to help protect long-term health and viability in their breed, when ACES was launched the question was asked "Do you want your eye scheme results reported as

an Open Register or Closed Register?”. A few of the established National Breed Councils understood the importance of this question and came back quickly with a decision in favour of Open Register reporting, since they saw no reason to be secretive about any potential health threat and were happy to see all results of an approved testing scheme released for publication.

For many other breeds however, this ostensibly innocent question resulted in a great deal of anxiety generated amongst breeders made to feel uncertain or fearful of the implications, which may have had some negative effect on ACES submission rates over the first three years – unfortunately so because it has also meant these breeds are now *that much further behind* in the collection of meaningful results data, Australia wide. While we must acknowledge that the request for an ‘Open Register’ or ‘Closed Register’ nomination from breed clubs was perhaps premature at the time ACES was launched, it is still an issue that dog breeders in general will eventually need to face, if they wish to be seen as being open with their puppy buying public.

At least four European and Scandinavian countries have already introduced fully electronic reporting systems for eye assessments carried out under ECVO Eye Scheme Rules, and the International Society of Veterinary Ophthalmology (ISVO) actively supports co-operation along these lines, in the interests of sharing comparable breed data and eye disease information.

(ii) Continuing evidence of relatively slow support for ACES certification in some States

A subjective appraisal of ACES returns across all States shows that most of the increase in support for the national eye scheme is occurring in the more populous States of New South Wales and Victoria, which of course also have proportionately greater numbers of available eye specialists. Queensland is well represented (given the distances involved and less frequent specialist visits to North Queensland), while South Australia shows better support in some breeds than others. Western Australia has a veterinary eye specialist available full-time as does Tasmania on a regular 4-6 weekly visit schedule, also in the Northern Territory somewhat less often, according to demand. Support for ACES testing across a range of breeds appears somewhat static in Western Australia and Tasmania, and there are clearly local issues to be resolved which we will continue to address, in consultation with the respective Canine Controls.

The lack of ready access to an ACES Panellist is repeatedly raised in those States without a full time registered eye specialist. As occurs also in the less populated regions of North America, Europe and Scandinavia (even in the UK there is no certified BVA Panellist north of Glasgow), the availability of a qualified eye specialist at the time one is needed is never going to be universally convenient. This is one of the disadvantages experienced by communities forced to live and work in remote locations, but surely ‘reasonable access’ is better than none at all.

The possibility of appointing comparatively inexperienced *Adjunct Panellists* in certain locations has been considered at length by the Ophthalmology Chapter, on two occasions. There are a few complicating issues with this (not the least being the need for adequate quality controls), even assuming the availability of veterinarians willing to provide the expensive ophthalmic equipment and then undergo the necessary mentorship and supervised training. The Chapter continues to defend its rejection of such a plan at least for the time being, on the basis that it is doing the best it can under a framework of managed professional standards; pointing out that the currently available eye specialists are not being fully utilised in any case. As was tendered in the recent reply to ANKC from National Veterinary Director Kevin Doyle, in the event that any State Control can show evidence of inadequate coverage, **ACES Rules and Procedures** already provides for a request to be made through AVA to try to remedy the situation.

In conclusion – Where will all this eventually lead?

The AVA-ANKC Australian Canine Eye Scheme has been acknowledged in both Victorian and NSW Animal Protection legislation as the authoritative surveillance system for canine inherited eye disease. It is important that the service should continue, and be encouraged to extend its support of breeders and breed clubs as they strive to monitor the risks their breeds may be exposed to, in the protection of healthy eyes and vision. AVA National needs to provide continuing support in administration and overview of procedures, and there is every reason for the international standing of ACES to continue to be recognised and endorsed by the ANKC.

Hopefully with the blessing of the ANKC and its affiliated State Canine Controls, we will see the support for improved health standards consolidate as State-based breed clubs persuade their National Breed Councils to adopt *Voluntary Codes of Breeding Practice* that go further than the ANKC-recognised Standards of Points for show competitions. It is time to promote improved health standards in pedigree breeds through agreed guidelines, as we accept the long-term gains to be made through breed-wide participation in clinically relevant surveillance schemes.

There are rapidly materialising opportunities in this whole area of clinical expertise, and it is important for the AVA to recognise these by setting an example that members at all levels within the organisation should be prepared to follow, on behalf of the clients of AVA member practices.

Dr Bruce Robertson

Chief Panellist, AVA-ANKC Australian Canine Eye Scheme.

4 June, 2009.

[Appendix I, II and III to follow] – see attachments to this Email.

Please DO NOT reconfigure these reports for the 2006-07, 2007-08, 2008-09 years. BFR.

Appendix I :

A detailed summary of all ACES submissions (adults and litters) – current to 10 August 2007

(Note: submission numbers are adults only, presented as a percentage of the 2005 ANKC registration figures)

Breed	Sch 1	Sch 2	Repeat defects	Litters
Petit Basset Griffon Vendeen (22.0%) (8 / 36)	nil	PPM (i/i)	nil	1
Nova Scotia DT Retriever (21.0%) (12 / 57)	nil	nil	early gPRA 1 corneal dystrophy 1 distichia 3	nil
Australian Shepherd (20.0%) (51 / 249)	nil	HC1	distichiasis 2 iris coloboma 1	27-no CEA iris coloboma 2 juv ret folds
Portugese Water Dog (18.6%) (8 / 43)	nil	nil	gPRA (1)	nil
American Cocker Spaniel (17.7%) (25 / 141)	MRD 1 HC 1	nil	distichiasis	nil
Miniature Schnauzer (15.1%) (131 / 868)	HC 2	nil	distichiasis 11	15- no CHC
Puli (13.8%) (5 / 36)	nil	nil	nonspec cataract	2
German Pinscher (13.6%) (6 / 44)	nil	nil	focal cat-1	2
Field Spaniel (13.0%) (4 / 30)	nil	nil	nil	nil
Finnish Lapphund (11.9%) (5 / 42)	nil	nil	distichia-1	nil
Golden Retriever (10.0%) (330 / 3310)	HC 9 MRD 4	nil	distichiasis 10 punctal atresia 5 incidental ret folds 3 PPM (i/i) 1	5 - no MRD
Tibetan Terrier (9.8%) (7 / 71)	nil	nil	nil	nil
Basenji (8.8%) (13/ 147)	PPM (2)	nil	PPM remnants	nil

Labrador Retriever (7.8%) (347 / 4439)	HC 7 MRD 3 GPRA 2	nil	distichiasis 5 incidental ret folds 2	4- 2 ret folds
Belgian Shepherd (7.5%) (13 / 174)	HC 3	nil	nil	nil
English Springer Spaniel (6.2%) (16 / 254)	nil	nil	focal cataract (1)	MRD juv ret folds
Alaskan Malamute (4.8%) (13 / 267)	nil	nil	nil	nil
Siberian Husky (4.5%) (34 / 751)	G 7	nil	lenticonus 1 bilat cataract 1	nil
Collie Smooth (4.4%) (2 / 45)	nil	nil	nil	3 -CH 1.
Old English Sheepdog (3.8%) (3 / 77)	nil	nil	nil	nil
Chinese Crested Dog (3.1%) (9 / 283)	nil	nil	nil	nil
Poodle Toy (3.5%) (44 / 1229)	nil	nil	distichiasis 14	nil
Pointer (3.1%) (5 / 161)	nil	nil	suture cataract?	nil
Boston Terrier (3.0%) (4 / 135)	nil	nil	nil	4- 2 punctal atresia?
Shetland Sheepdog (2.8%) (21 / 747)	CH 6 Ret Det 1	nil	distichiasis 6	49 - CH 26
Collie Rough (2.8%) (12 / 429)	CEA	nil	nil	23 – 20 CH, 5: coloboma 2: det retinas
Brittany Spaniel (2.7%) (3 / 111)	nil	nil	1 focal cataract	nil
Cavalier King Charles Sp (1.6%) (49 / 2973)	MRD 2	MOD1	nystagmus/cat PPM (i/i)	3-1 ret folds

Welsh Corgi Pembroke (1.5%) (9 / 576)	nil	nil	nil	nil
Staffordshire Bull Terrier (1.4%) (51 / 3585)	nil	nil	distichiasis	19- no PHPV - 4 distichia
Jack Russell Terrier (1.4%) (16 / 1172)	nil	nil	2 focal cataracts (?)	nil
Tibetan Spaniel (1.4%) (4 / 290)	nil	nil	distichia-1	nil
American Staffordshire (0.84%) (6 / 707)	nil	nil	distichia	1 (distichia)
Poodle Standard (0.62%) (3 / 477)	nil	nil	nil	nil
Great Dane (0.61%) (4 / 641)	nil	nil	nil	nil
Pug (0.52%) (8 / 1538)	nil	nil	macroblepharon med l/lid trichiasis	nil
Border Collie (0.5%) (12 / 2011)	CEA	nil	? focal cataracts	18- 1 CH, 3 indefinite?
English Cocker Spaniel (0.42%) (6 / 1404)	nil	nil	nil	nil
Akita (2)	nil	nil	nil	nil
Bearded Collie (2)	nil	nil	nil	nil
Bedlington Terrier (2)	nil	nil	nil	nil
Flat Coated Retriever (2)	nil (no gonio?)	nil	nil	nil
Giant Schnauzer (2)	nil	nil	nil	nil
Hungarian Vizsla (2)	nil	nil	nil	nil
Keeshond (2)	nil	nil	nil	nil
Miniature Bull Terrier (2)	nil	nil	nil	nil
Norfolk Terrier (2)	nil	nil	nil	nil

Pyrenean Mountain Dog (2)	nil	nil	entropion	nil
Welsh Springer Spaniel (2)	nil	nil	distichia -1	nil

Single submission breeds:

Bernese Mountain Dog	nil	nil	nil	nil
Curly Coat Retriever	HC	nil	nil	nil
Dachshund Wirehaired	nil	nil	nuclear cat-1	nil
Dalmatian	nil	nil	nil	nil
Dandie Dinmont Terrier	nil	nil	nil	nil
Dogue de Bordeaux	nil	nil	nil	1
German Shepherd (white swiss)	nil	nil	nil	nil
German Spitz Mittel	nil	nil	nil	nil
German Shorthaired Pointer	nil	nil	nil	nil
German Wirehaired Pointer	nil	nil	nil	nil
Lagotto Romagnolo	nil	nil	nil	nil
Leonberger	nil	nil	nil	nil
Norwegian Elkhound	nil	nil	nil	nil
Samoyed	nil	nil	nil	nil

Totals reported to date : **1335 adult exams**
Forms distributed by AVA: **2100 adult forms**

177 litter assessments
725 litter forms

Dr Bruce Robertson
ACES Chief Panellist.

12 August 2007

Key to standard ACES Abbreviations:

APD	Abnormal Pigment Deposition
C	Coloboma, Posterior Segment
C (iris)	Coloboma, Iris
CEA	Collie Eye Anomaly
CHC	Congenital Hereditary Cataract
G	Goniodysgenesis / Primary Glaucoma
GPRA	Generalised Progressive Retinal Atrophy
HC	Hereditary cataract
MOD	Multiple Ocular Defects
MRD	Multifocal Retinal Dysplasia
ONH	Optic Nerve Hypoplasia
PHPV	Persistent Hyperplastic Primary Vitreous
PLL	Primary Lens Luxation
PPM	Persistent Pupillary Membrane
RPED	Retinal Pigment Epithelial Dystrophy
CPRA	Central PRA
TRD	Total Retinal Dysplasia
PPC	Posterior Polar Cataract

Appendix II :

ACES submissions as a percentage of registrations (2006) & Litters : 10 August 2007 – 30 June 2008

Breed	Sch 1	Sch 2	Repeat defects	Litters
Golden Retriever (491, 16.8%) (432 showed no lesions)	HC 12 MRD 6	nil	distichiasis 9 lid appospn/puncta 6 retinal folds (2-3) 4 corneal lipidosis 4	3 L - no defects
Labrador Retriever (333, 8.2%) (290 showed no lesions)	HC 8 MRD 6	nil	distichiasis 7 corneal lipidosis 5 lid appospn/puncta 5	2 L – 2P ret folds
Miniature Schnauzer (145, 15.0%) (122 showed no lesions)	HC 2	nil	distichiasis 18	9 L - no defects
Australian Shepherd (107, 30.5%) (98 showed no lesions)	nil	HC 1	distichiasis 5 retinal folds 1	29 L – 2P CH 2P iris coloboma 2P retinal folds
Staffordshire Bull Terrier (65,1.8%)	nil	nil	distichiasis 8 retinal folds 1 corneal lipidosis 1	30 L- no PHPV 13P distichia 4P retinal folds
Siberian Husky (54, 7.5%)	G 8	nil	lenticonus 1 p/ polar cataract 3	nil
Belgian Shepherd (52, 16.7%)				
Groenendael 32	PPC 2			nil
Laekenois 2	nil			nil
Malenois 1	nil			nil
Tervueren 17	PPC 1			nil
Cavalier KingCharles Sp (45, 1.5%)	MRD 1	nil	distichiasis 14 focal lens opacities	12 L no MRD? 5P retinal folds
Shetland Sheepdog (29, 3.9%) (11 showed no lesions)	CH 13 coloboma 3	nil	distichiasis 9	93L-21L unaffected 310P-181CH,16colo distichia, ret folds, microphthalmia
American Cocker Spaniel (26, 27%)	MRD 1 HC 2	nil	distichiasis 11 corneal lipidosis 2	nil
Jack Russell Terrier (24, 2.36%)	nil	nil	distichiasis 1	nil
Alaskan Malamute (21, 7.3%)	nil	nil	nil	1L – 8P 8 cataract (acq.)

Weimaraner (21, 5.0%)	nil	nil	PPM, MRD?	nil
Poodle Toy (20, 1.7%)	nil	nil	distichiasis 2	nil
Poodle Miniature (16, 3.7%)	nil	nil	distichiasis 4	1L no defects
Tibetan Terrier (16, 23.2%)	nil	CHC 1	PPM 1	nil
English Springer Spaniel (15, 6.2%)	nil	nil	distichiasis	1L - nil entropion?
Leonberger (13, 56.5%)	HC 1	nil	entropion 1	1L no defects
Miniature Bull Terrier (13, 6.0%) No PLL but	nil	nil	PPM 2	nil
			2 axial anterior s/caps opacities; 2 with pigment rests opposite pupil	
Puli (12, 29.3%)	MRD 1	nil	retinal folds	3L no defects
Portugese Water Dog (11, 21.6%)	nil	nil	nil	nil
Curly Coat Retriever (10, 9.6%)	nil	nil	nil	nil
Bedlington Terrier (9, 12.5%)	nil	nil	nil	nil
Chinese Crested Dog (9, 4.0%)	nil	nil	PPC 1	nil
Field Spaniel (9, 30.0%)	nil	HC ?	distichiasis	nil
Nova Scotia DT Retriever (9,15.3%)	nil	nil	nil	nil
Poodle Standard (9, 2.1%)	nil	nil	nil	nil
American Staffordshire (8, 1.0%)	nil	nil	distichia	nil
Border Collie (7, 0.3%)	nil	HC 1	focal cataract 2	9L- 1P CH
English Cocker Spaniel (6, 0.4%)	nil	nil	distichia	nil
Flat Coated Retriever (6, 5.9%)	nil	nil	nil	nil
Tibetan Spaniel (6, 2.4%)	nil	nil	distichia 1	nil
Collie Smooth (6, 16.2%)	CH 2		focal cataract 2	7L -35P 2CH, 1 dermoid
Boston Terrier (5, 3.7%)	nil	nil	nil	2L no defects
Brittany Spaniel (5, 6.25%)	nil	nil	nil	nil

Collie Rough (5, 1.0%)	CH 4, colo 2	nil	nil	35L-166P 2RD, 22coloboma 118 CH,11 ONH 4 ret folds, 4 PH
Finnish Lapphund (5)	nil	nil	nil	nil
Lowchen (5)	nil	nil	focal cataract	nil
Welsh Springer Spaniel (5)	nil	nil	nil	nil
Afghan Hound (4)	nil	nil	nil	nil
Akita (4)	nil	nil	nil	nil
Bernese Mountain Dog (4)	nil	nil	nil	nil
French Bulldog (4)	nil	nil	nil	nil
German Pinscher (4)	nil	nil	MRD 2	nil
Welsh Corgi Pembroke (4)	nil	nil	nil	nil
Giant Schnauzer (3)	nil	nil	nil	nil
Petit Basset Griffon Vendeen (3)	nil	nil	nil	nil
Rottweiler (3)	nil	nil	nil	nil
Bichon Frise (2)	nil	nil	corneal lipidosis	nil
German Spitz (Mittel) (2)	nil	nil	nil	nil
Harrier (2)	nil	nil	nil	nil
Italian Corso (2)	nil	nil	retinal folds 1	nil
Miniature Pinscher (2)	nil	nil	nil	nil
Airedale Terrier (1)	nil	nil	MRD/retinal degen? (advanced age,unilat)	nil
Australian Dingo (1)	nil	nil	nil	nil
Australian Kelpie (1)	nil	nil	nil	nil
Bullmastiff (1)	nil	nil	nil	nil
Clumber Spaniel (1)	nil	nil	nil	nil
German SH Pointer (1)	nil	nil	nil	nil
Havanese (1)	nil	nil	nil	nil

Norfolk Terrier (1)	nil	nil	nil	nil
Old English Sheepdog (1)	nil	nil	nil	1L no defects
Pointer (1)	nil	nil	nil	nil
Pug (1)	nil	nil	nil	nil
Swedish Vallhund (1)	nil	nil	nil	nil
Basenji (0)				3L PPM remnants ONH coloboma
Bearded Collie (0)	nil	nil	nil	nil
Hungarian Vizsla (0)	nil	nil	nil	nil
Keeshond (0)	nil	nil	nil	nil
Pyrenean Mountain Dog (0)	nil	nil	nil	nil
<i>Labradoodle (16)</i>	<i>?</i>	<i>?</i>	<i>distichiasis 4 lacrimal puncta 2 PPM 2, cataract 1</i>	<i>nil</i>

Totals for the period 10 August 2007 to 30 June 2008 **1718 Adult exams** **242 Litters**
(1100 pups approx)

Totals reported to date : **3053 adult exams** **419 litter assessments**
Forms distributed by AVA: **3800 adult forms** **850 litter forms**

Dr Bruce Robertson
ACES Chief Panellist

30 June 2008

Appendix III :

ACES submissions as a percentage of registrations (2007) & Litters) 1 July 2008 – 4 June 2009

Breed	Sch 1	Sch 2	Repeat defects	Litters
Golden Retriever (578, 20.11%) (510 showed no lesions incl. 20 gonioscopy N.)	HC 15 MRD 15	nil	distichiasis 6, lid apposn./puncta 5 corneal lipidosis 4 iris cysts 2, PPM 3 nuclear/cortical cataract 11 goniodysgenesis (>33%) 4 retinal scars (non-congen) 8	7L, 6 unaff 2P MRD geo.
Labrador Retriever (332, 7.39%) (301 showed no lesions)	HC 7 MRD 6 (1.geo) PRA 2	nil	distichiasis 2, corneal lipidosis 2 eyelid agenesis 1 nuclear/cortical cataract 4 PPM 2, RPED 1 retinal scars (non-congen) 3 post.seg. staphyloma 1	4L, 4 unaff
Cavalier K Charles Sp (164, 5.49%) 141 showed no lesions	MRD 2	nil	distichiasis 4, KCS 1 lipid dystrophy 5 nuclear cataract 2 perinuclear cataract 3 retinal scars 2	11L, 10 unaff 2P MRD?
Miniature Schnauzer (142, 11.88%) 125 showed no lesions	HC 4	nil	distichiasis 8 focal cataracts 5	17L, 15 unaff 1P p/hyaloid 1P PTVL
Australian Shepherd (73, 21.53%) 69 showed no lesions	nil	HC 1	distichiasis 3 retinal scar 1	36L, 25 unaff 3L distichiasis 6L retinal folds 1P iris coloboma 1P ON coloboma & retinal sepn.
Border Collie (69, 3.49%) 50 showed no lesions (incl gonio) 8 showed no lesions (excl. gonio)	nil	nil	distichiasis 3 goniodysgenesis 9 focal cataract 2	7L, 5 unaff. 2P CH 1P Ret det/H
Staffordshire Bull Terrier(66, 1.65%) 54 showed no lesions	nil	nil	distichiasis 9 focal cataract 2 retinal scars 1	19L, 9 unaff 9P distichia 2P MRD focal 1P MRD geo.

Siberian Husky (61, 9.08%) 48 showed no lesions, incl. 43 gonioscopy N.	G 7 HC 1	nil	distichiasis 2, PPM 2 corneal lipidosis 1	
Am. Cocker Spaniel (37, 26.43%) 13 showed no lesions	MRD 5 HC 1	nil	distichiasis 19 punctal atresia 13 goniodysgenesis 2 PPM 1 (iris-cornea)	nil
Belgian Shepherd (36, 15.32%)				
Groenendael 21	PPC 1			nil
Malenois 1	nil			nil
Tervueren 14	nil			nil
Miniature Bull Terrier (36, 17.22%) 29 showed no lesions	PLL 3	nil	distichiasis 2 corneal degen 1 Lens s/lux in situ 1	nil
Shetland Sheepdog (31, 3.51%) 14 showed no lesions	CH 14 Retinal Hge 1	nil	distichiasis 3 PPM 1	79L, 40 unaff 86P CH only 10P ON coloboma 4P microphthalmia
Welsh Springer Spaniel (31, 41.9%) 17 showed no lesions	goniodys- 8 genesis	nil	distichiasis 6 PPM 2	nil
Samoyed (27, 6.77%) 13 showed no lesions (excl gonio) 7 showed no lesions (incl gonio)	nil	nil	distichiasis 3 focal cataract 1 ON coloboma 2	
Alaskan Malamute (25, 8.47%) 18 showed no lesions	HC 3	nil	PPM 2, MRD 1 focal cataract 1 ON coloboma 1	1L, 1 unaff
Aust Stumpy Cattle Dog(25, 15.72%) 23 showed no lesions	PRA 2	nil	nil	nil
Eng. Springer Spaniel (19, 7.78%) 16 showed no lesions	nil	nil	entropion 1 subcaps cataract 2 MRD 2	2L, 2 unaff
Finnish Lapphund (17, 36.17%) 13 showed no lesions	nil	nil	PPC (?HC) 1 MRD 2 lipid dystrophy 1	nil
Tibetan Terrier (16, 35.55%) 9 showed no lesions	nil	HC 1	PPM 4 (iris-iris) MRD 2	nil

Bichon Frise (14, 2.94%) 12 showed no lesions	nil	nil	PPM 1 focal caps cataract 1	nil
Flat Coated Retriever (14, 14.14%) 11 showed no lesions	goniodys- 1 genesis	nil	distichiasis 3	nil
Italian Greyhound (14, 4.35%) 12 showed no lesions	nil	nil	PRA/abiotrophy 1 cortical cataract 1 vitreous degen 1	
Poodle Standard (14, 3.01%) 13 showed no lesions	nil	nil	PPM 1 (iris-iris)	nil
Poodle Miniature (5, 1.11%) 2 showed no lesions	nil	nil	distichiasis 3	nil
Poodle Toy (1, 0.07%)	nil	nil	iris coloboma 1	1L 1 unaff
German Pinscher (13, 29.54%)	nil	nil	nil	nil
Curly Coat Retriever (12, 14.11%) 11 showed no lesions	nil	nil	MRD 1	nil
Nova Scotia DT Retriever(12, 25.0%) 12 showed no lesions	nil	nil	nil	2L, 2 unaff
Puli (12, 31.58%) 9 showed no lesions	MRD 1	nil	focal cataract 2	5L 4 unaff 5P MRD
Weimaraner (11, 2.29%) 10 showed no lesions	nil	nil	distichiasis 1	nil
Jack Russell Terrier (10, 0.91%)	nil	nil	nil	nil
Parson Russell Terrier (3, 10.0%)	nil	nil	nil	nil
Leonberger (10, 43.47%) 9 showed no lesions	nil	nil	PPM 2	nil
American Staffordshire (8, 0.82%) 8 showed no lesions	nil	nil	nil	nil
French Bulldog (8, 1.81%)	nil	nil	nil	nil
Lowchen (8, 12.5%) 6 showed no lesions	nil	nil	distichiasis 2	nil
Akita (7, 4.83%)	nil	nil	nil	nil

Australian Cattle Dog (7, 0.66%) 6 showed no lesions	nil	nil	PPC 1	nil
Griffon Bruxellois (7, 7.22%)	nil	HC	nil	nil
Shiba Inu (7, 6.14%)	nil	nil	nil	nil
Dandie Dinmont (6, 46.15%)	nil	nil	normal on gonio 6	
Swedish Vallhund (6, 18.75%) 5 showed no lesions	nil	nil	MRD (?) 1	1L 1 unaff
Tibetan Spaniel (6, 2.28%) 5 showed no lesions	nil	nil	distichia 1 lipid dystrophy 1	nil
Welsh Corgi Pembroke (6, 1.47%)	nil	nil	nil	nil
Basenji (5, 5.26%)	PPM (iris-iris) nil PPM (iris-cornea)	nil	nil	2L 2 unaff
Chinese Crested Dog (5, 1.73%) 3 showed no lesions	nil	nil	vitreal degen 1 capsular cataract 1	nil
Field Spaniel (5, 16.66%) 3 showed no lesions	nil	MRD	nil	nil
Giant Schnauzer (5, 13.15%)	nil	nil	nil	nil
Old English Sheepdog (5, 4.95%) 4 showed no defects	nil	nil	distichiasis 1	1L, 1 unaff
Brittany (4, 3.66%)	nil	nil	nil	nil
Norfolk Terrier (4, 14.81%) 1 showed no lesions	nil	nil	PPC 2 ON hypoplasia (blind)	nil
Sussex Spaniel (4, 50.0%)	nil	nil	nil	1L, 0 unaff 2P MRD 2P aniridia
Bernese Mountain Dog (3, 1.07%)	nil	nil	nil	nil
Boston Terrier (3, 2.05%) 2 showed no lesions	nil	nil	distichiasis 1	2L 1 unaff 2P punctal atr.
Pointer (3, 1.58%)	nil	nil	nil	nil
English Cocker Spaniel (2, 0.13%) 1 showed no lesions	nil	nil	MRD 1	nil

German Spitz (Mittel) (2, 3.03%)	nil	nil	nil	nil
Pug (2, 0.12%)	nil	nil	macroblepharon 2 med. canthal 2 entropion	nil
Soft Coated Wheaten T (2, 5.55%)	nil	nil	nil	nil
Bullmastiff (1)	nil	nil	nil	nil
Collie Rough (1, 0.03%)	CH 1	nil	78 Litters tested, of which 5 unaff. 68 Litters (224 pups) CEA evidence 47 litters* Choroidal hypoplasia only 15 litters* CH + coloboma(s) 6 litters* Retinal detachment +/-Hge. 2L (3P) clinical microphthalmia 1L (2P) ONH hypoplasia Also - 3P distichiasis, 2P PPMs	
		*Approx 185 P in total		
Collie Smooth (1, 1.63%)	CH 1	nil	nil	6L, 2 unaff. 7P CH (of 25) 1P Ret detach
Clumber Spaniel (0)	nil	nil	nil	1L 1 unaff
Dachshund Min Smooth (1)	nil	nil	nil	nil
Dachshund Std Wire H (1)	nil	nil	nil	nil
Doberman Pinscher (1)	nil	nil	nil	nil
German SH Pointer (1)	nil	nil	nil	nil
Glen of Imaal Terrier (1)	nil	nil	nil	nil
Gordon Setter (1)	nil	nil	nil	nil
Great Dane (1)	nil	nil	nil	nil
Hungarian Vizsla (1)	nil	nil	nil	nil
Irish Water Spaniel (1)	nil	nil	nil	nil
Keeshond (1)	nil	nil	nil	nil
Miniature Pinscher (1)	nil	nil	nil	nil
Petit Basset Griffon Vendeen (0)	nil	nil	nil	1L 1 unaff
Rhodesian Ridgeback (1)	nil	nil	nil	nil
Welsh Corgi Cardigan (0)	nil	nil	nil	1L 1 unaff

Totals for the period 1 July 2008 to 04 June 2009

2075 Adult exams 285 Litters

Totals reported to date : 5128 adult exams
Forms distributed by AVA: 6275 adult forms

704 litter assessments
1500 litter forms

Dr Bruce Robertson
ACES Chief Panellist

5 June 2009