

# The AVA-ANKC Australian Canine Eye Scheme

## ANNUAL BREED SUMMARY REPORT

July 2015 to June 2016

This Report covers the annual ACES returns on almost 100 breeds on the ANKC Register, summarising those findings in detail. Attention is also drawn to a further 90 breeds where NO dogs have been presented for ACES Certification in the last year, although many of these may be subject to hereditary eye diseases.

Single or double asterisk marks against the names of **fifteen breeds** in this report recognise those instances where highly committed owners around Australia are working together actively in the interests of improved health – in ways that *either* have achieved impressive sampling levels amongst current breeding stock *or* have already demonstrated significant gains in expected long-term selection outcomes.

### Other breeds may show a superscript notation, explained as follows:

- (1) For any **well-established breed** with potentially significant eye comfort or vision-threatening defects, breeders need to be vigilant over the longer term while Breed Clubs can help to promote policies that will ensure normal eye health and function.
  - (2) For a promising but **as yet un-proven breed** to be able to cope with any future rise in public popularity, thorough eye screening should be undertaken across the active breeding population - *early* in the breed's development rather than too late!
  - (3) In those breeds where **skull shape, exaggerated eyelid dimensions** and **globe prominence** may predispose to discomfort, 'dry eye' and/or the risk of ulceration, routine ACES screening would provide a basis on which to encourage moderation in the desired phenotype, as well as changing the emphasis applied in breed judging.
- (\*) This breed is being well monitored on the whole. The Breed Clubs are encouraged to continue with effective screening policies, and to monitor future progress State by State.
- (\*\*) This breed is being very closely monitored in general terms, but not necessarily to the same degree in every State. To be more meaningful, breeders in States where the bulk of ACES reports are generated should encourage their interstate counterparts to ensure ALL reports are processed through the **AVA-ANKC Australian Canine Eye Scheme**.

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Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Affenpinscher	1 (3)	1 (3)					Gonioscopy - 1 (ICA structures normal)	
Australian Silky Terrier								
Bichon Frise	9 (5)	9 (5)					9 adults is only 1.9% annual registrations. As for any breed with long hair coat across the face, oversized lid openings (OPF) may predispose to hair irritation and ulceration	
Cavalier King Charles Spaniel *	145 (199)	113 (164)	Multifocal Retinal Dysplasia - 10 (3 - Geographic, 7 - Multifocal or showing 1-3 distinct folds Hereditary Catatact - none reported to 6 / 2016 and no new lenticonus / cortical cataract / microphthalmia cases.				Distichiasis - 9 Corneal lipidosis (unilateral) - 9 Corneal dystrophy - 3 <b>Globe prominence / Palpebral fissure abnormalities - 5</b> PFA = poor lid fit - usually assoc. with surface exposure, trichiasis and secondary pigment deposition. Where KCS (dry eye) is also a factor these generally advance to a dense <b>pigmentary keratitis</b> extending across one or both corneas. These often go undetected by the owner until vision becomes very limited. <b>Three</b> such cases were reported, all showing evidence of marginal KCS.	<b>13 Litters, 24 pups.</b> Again, numerous forms are returned for <b>only 1-2 pups</b> , with the space for 'No. Surviving' left blank, even for Litters around <b>8 weeks of age</b> . While there may well be practical reasons for this (eg. difficulty in reaching a Panellist before pups are due to leave home), it is important to present <b>full litters</b> wherever possible for the eye screening results to be meaningful. From the 24 pups presented, a few were reported with multiple retinal folds, one with corneal <b>erosive ulcers</b> due to juvenile dry eye, and a NEW case showing lenticonus / cataract with microphthalmia - quite subtle in that eye and hard to detect.. <b>Please Note: No dog unregistered with ANKC (i.e. an unregistered adult or a litter from unregistered parents) can be issued with a valid AVA-ANKC ACES Certificate.</b>
Chihuahua (Long Coat)	1 (0)	1 (0)						
Chihuahua (Smooth Coat)	1 (1)	1 (1)						
Chinese Crested Dog	0 (3)	0 (2)						
English Toy Terrier								
Griffon Bruxellois <sup>2</sup>	18 (6)	16 (0)					18 adults is 9.2% of annual registrations. Adult No's have shown a significant jump this year with sample size climbing towards 10%. <b>Gonioscopy</b> was requested on 15 adults: 13 were Normal, 2 showed PLD (pectinate ligament dysplasia) with sheets.	
Havanese <sup>2</sup>	26 (26)	24 (25)					Distichiasis (a few extra lashes) - 2 26 adults is 7.6% of annual registrations. This breed has no scheduled conditions yet owners are deliberately screening for a range of threatening eye conditions - as a very commendable <b>early warning strategy</b> .	
Italian Greyhound	0	0						
Japanese Chin	0	0						
King Charles Spaniel	3	2					PFA + globe prominence / OPF - 1	
Lowchen <sup>2</sup>	18 (19)	18 (17)					18 adults is 23.6% of annual registrations. GPRA is the only scheduled condition, yet owners are deliberately screening for a range of other eye conditions - as a very commendable <b>early warning strategy</b> .	
Maltese <sup>1</sup>	0	0						

Group 1: Toys

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Miniature Pinscher	0	0						
Papillon	0 (10)	0 (10)						
Pekingese <sup>3</sup>	0	0						
Pomeranian	0	0						
Pug <sup>1</sup>	0 (5)	0 (5)				Posterior cortical lens cataract - 1 (probably acquired)	NIL adults out of 1311 registered in the 2014 year is a very poor sample. While serious eye disease is rarely reported in Pugs, the typical conformation with thin lids trying to protect unusually prominent globes, makes them prone to in-rolling of lower eyelid margins especially medially, with the result that nasal skin fold hairs constantly rub on the cornea. This causes fine vessels and melanin pigment to spread WITHIN the cornea, leading to vision compromise that often goes unnoticed. <b>Adult Pugs</b> should be checked for Lid Fit anomalies / chronic pigment deposition, anually up to <b>5-6 years</b>	It is not common practice for Pug babies to present for Litter screening prior to sale, but in such a popular breed it would be a worthwhile exercise if it helped to identify features of <b>skull shape or globe prominence</b> at that age, that can be shown to predispose to exaggeration in later life. As for any brachycephalic breed, moderation is the key and the breed would be no less appealing if the emphasis was shifted to a 'neat fitting' relationship between the lid margins and the corneal surface.
Tibetan Spaniel	0	0						
Yorkshire Terrier	0	0						
<b>Toy Group Totals</b>	<b>219 (279)</b>	<b>183 (239)</b>						

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Airedale Terrier	0	0						
American Staffordshire Terrier <sup>2</sup>	1 (6)	1 (6)					ANKC breed registrations (2014) : 2112 Given levels of breeding activity both within and outside the ANKC Register, the rise in numbers of this breed cannot be ignored. Owners should monitor the eyes of all registered breeding stock, and also make sure that any <b>new imports</b> are pre-certified in the country of origin.	
Australian Terrier	0	0						
Bedlington Terrier	0	0						
Border Terrier	3 (0)	2 (0)			tear ducts, punctal atresia - 1			
Bull Terrier <sup>1</sup>	0	0					Breeders have been DNA testing for PLL but this should not be relied upon to the exclusion of routine ACES testing - adults should be screened to 7-8 years	
Bull Terrier Minature <sup>1</sup>	0	0					Breeders have been DNA testing for PLL but this should not be relied upon to the exclusion of routine ACES testing - adults should be screened to 7-8 years	
Cairn Terrier	0	0						
Cesky Terrier	0	0						
Dandie Dinmont Terrier	0 (2)	0 (2)						
Fox Terrier (Smooth)	0	0						
Fox Terrier (Wire)	3 (0)	3 (0)						
Irish Terrier	0 (1)	0 (1)						
Jack Russell Terrier <sup>2</sup>	3 (4)	3 (4)					<b>Breeders</b> have been DNA testing for PLL but this should not be relied upon to the exclusion of routine ACES testing - adults should be tested up to 7-8 years	
Kerry Blue Terrier	0	0						
Lakeland Terrier	0	0						
Manchester Terrier	0	0						
Norfolk Terrier	0	0						
Norwich Terrier	0	0						
Parson Russell Terrier	1 (0)	1 (0)						
Scottish Terrier	0	0						
Sealyham Terrier	0	0						
Skye Terrier	0	0						

## Group 2: Terriers

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Soft Coated Wheaten Terrier <sup>2</sup>	4 (4)	4 (4)						5 Litters, 34 pups - all normal
Staffordshire Bull Terrier <sup>1</sup>	38 (29)	28 (23)			<b>Palpebral fissure abnormality - 1</b> Not uncommonly In juvenile dogs, the tendency for deep-set orbits with a small globe size results in unsupported lid margins, seen as lower lid entropion	Distichiasis - 10 (7 of these, 1-2 only)	38 adults is a very small 0.78% of annual registrations (4835 in 2014). Breeders using the scheme as a source of useful incidence data are to be commended. Routine Litter Screening is worthwhile.	<b>23 Litters, 104 pups - of these, 18 litters showed no defects at all.</b> Distichiasis (multi) 2P Early onset dry eye signs 1P Retinal folds (transient?) 2P
Tenterfield Terrier	0	0						
Welsh Terrier	0	0						
West Highland White Terrier	0	0						
<b>Terrier Group Totals</b>	<b>53 (46)</b>	<b>43 (40)</b>						

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Bracco Italiano	0	0						
Brittany <sup>2</sup>	7 (8)	6 (5)				Distichiasis -1	Brittany Spaniels are not listed with any Scheduled conditions. The breed club(s) need to advise ACES C-P of any concerns.	
Chesapeake Bay Retriever	0	0						
Clumber Spaniel <sup>3</sup>	1 (0)	1 (0)						
Cocker Spaniel (Eng.) <sup>1</sup>	1 (4)	1 (3)						
Cocker Spaniel (American) <sup>3</sup>	37 (38) gonioscopy done on 10	28 (21)	Multifocal retinal dysplasia - 2 Gonioscopy done on 10 - of which 9 were reported as <b>ICA Normal</b> but this is still only a quarter of the 37 total, and includes 'normals' from a previous gonioscopy test. ALL breeding stock should have this test, at least once after 18-20 months of age.	Hereditary cataract - 1		Distichiasis - 6 (multiple lashes) Corneal lipidosis - 1	37 adults is 52% of annual registrations (a low 70 in 2014) so this does show that breeders are aware of this breed's vision-threatening scheduled conditions. While gonioscopy is considered a once-only test, we could be more confident about these encouraging results if we knew that ALL breeding animals had undergone at least one gonioscopy test. <b>Distichiasis</b> is still present & needs watching!	
Curly Coated Retriever	2 (0)	2 (0)						
English Setter	0	0						
English Springer Spaniel <sup>1</sup>	40 (37) gonioscopy done on 8	35 (33)	Multifocal Retinal Dysplasia - 1	No PRA cases reported	Gonioscopy testing done on 8 Normal ICA dimensions - 6 Mild PLD signs / no sheet formation - 2	Distichiasis - 1 Corneal lipidosis - 1	40 adults is 7.7% of annual registrations (516 in 2014). This sample size is similar to last year but registrations have dropped back. Breeders should be proud of the very low <b>MRD incidence</b> amongst <b>locally bred stock</b> - clearly a subject that is crying out for a research study, aiming to find out why the severity of MRD in our southern latitudes is apparently much less than in many Northern Hemisphere countries. In this breed <b>goniodysgenesis</b> is not listed as scheduled but evidence is incomplete - so breed clubs do need to <b>develop a policy</b> as to whether gonioscopy testing is advisable, or not.	<b>1 Litter , 8 Pups - all Normal</b> (No early MRD signs or retinal folds)
Field Spaniel	10 (5)	10 (5)			Goniodysgenesis is not scheduled but a gonioscopy test on one dog was Normal	Distichiasis - 1		
Flat Coat Retriever <sup>**</sup>	12 (3) gonioscopy done on 10	9 (2)	Gonioscopy done on 10 dogs and nine reported as Normal . One showed angle narrowing with typical dysgenesis / PLD signs affecting all quadrants.			Distichiasis (moderate, bilateral) -2	Twelve adults is 17% of registrations (70 in the 2014 year but this was unusually low). Most breeders are aware of the breed's issues and appear to be ACES testing most current breeding stock <b>and</b> are requesting <b>gonioscopy tests</b> as well. A recent study in this breed suggested gonioscopy findings may change over time, but one test is better than none, and positive selection has been shown to reduce the overall incidence of gradual vision loss due to canine glaucoma.	
German Shorthaired Pointer	1 (11)	1 (11)						
German WH Pointer	0	0						

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Golden Retriever **	403 (560) gonioscopy done on 29	346 (474) without a gonioscopy test; 371 when gonioscopy was included	Multifocal retinal dysplasia - 6	Hereditary cataract (PPSC type) - 6 Confirmed as bilaterally similar posterior polar subcapsular cataracts (mainly small). NB: Two young litter mates reported as 'PPSC affected' were Appealed and reviewed together will all siblings. All showed degrees of posterior cortical mid-axial opacities, <b>associated with mild anterior uveitis</b> . All improved rapidly on appropriate drug therapy suggesting this was <b>acquired</b> -following an in-utero event or some rare, undetected peri-natal inflammatory episode. (No PRA cases were reported)	<b>Summary of gonioscopy findings:</b> Gonioscopy on 29 dogs; <b>25 Normal</b> . Goniodysgenesis or sheets over <30% of the ICA circumference (70% Open) - 2 Goniodysgenesis over >50% of the ICA circumference (30-50% Open) - 1 Significant angle narrowing - 1 Axial lens cataract with <b>Lenticonus - 3</b> <b>OPF + Lower lid Entropion - 3</b> This occurs due to differing growth rates of the eyeball, orbit and lid lengths - see the note under PFA's in Labrador Retrievers	Distichiasis (2-3 lashes only) - 6 Corneal dystrophy (OU) - 4 Corneal lipidosis - 1 Iris cysts - 1 A small number of adults showed incidental small retinal scars - not typical MRD lesions; more likely vessel ruptures causing damage to overlying photoreceptors. Most of these recover in time and are not reported.	403 adults is 13.7% of annual registrations (2925 in 2014) which is a <b>lower</b> proportion tested this 12 months than for many years.  Goniodysgenesis (resulting in reduced aqueous outflow) is not a Scheduled Item yet more owners are requesting this and the advice from these results seems clear: Avoid breeding two dogs with similarly compromised (<50% open) filtration angles!  The 3 Lenticonus cases are a new finding, but the tendency to elongated lid margins plus secondary spastic entropion is NOT new.	<b>5 Litters (low?) - only 14P (low?)</b> Multiple retinal folds (MRD sig?) - 1P Four of these litters presented only one pup even though <b>litter size</b> was shown as 7 or 8. Maybe this was circumstance but the whole purpose of Litter Screening is to report on <b>early onset</b> abnormalities, whether inherited or not. To make that meaningful <b>all pups</b> in a litter need to be presented, wherever possible.
Gordon Setter	1 (5)	1 (3)						
Hungarian Vizsla	2 (0)	2 (0)						
Hungarian WH Vizsla	0	0						
Irish Red&White Setter	0	0						
Irish Setter	0	0						
Irish Water Spaniel								
Italian Spinone	0	0						
Labrador Retriever <sup>1</sup> , **	140 (178) Gonioscopy req. on 1	126 (165)	Multifocal retinal dysplasia - 1	Hereditary cataract (PPSC) - 3 Confirmed as bilaterally symmetrical posterior polar subcapsular cataracts (No PRA cases were reported)	Palpebral fissure abnormalities (OPF) - 2 Demonstrated as involution of the outer third of the lower eyelid, with secondary spasm causing a constant surface irritation + spastic entropion. This is an uncommon occurrence but does arise in a few pups or adolescents, where a slow-growing globe sits deeper within the orbit and does not support unduly elongated eyelid margins. Persistent pupillary membranes - 1 Cortical cataract - 1 Nuclear cataract - 1	Distichiasis - 3 Corneal lipidosis (unilateral) - 1	140 adults (down 38 on last year) is only 2.67% of ANKC registrations (5244 in 2014) but we do have to allow for the many 'pet litters' that are raised. On the whole there are no real surprises in these figures; the Scheduled conditions are manageable. Guide Dogs South Australia presents all its breeding adults (some are X Golden / Lab) all with very encouraging results, that <b>should serve as positive example to other State's Guide Dog Schemes</b> .	
Lagotto Romagnolo	3 (1)	3 (1)						<b>1 Litter, 8 pups:</b> all Normal
Large Munsterlander	0	0						
Nova Scotia Duck Tolling Retriever <sup>2</sup>	13 (4)	13 (4)						<b>5 Litters, 28 pups:</b> all Normal
Pointer	0	0						
Sussex Spaniel	0	0						
Weimaraner	0	0						
Weimaraner (Longhair)	0 (1)	0 (1)						

**Group 3: Gundogs**

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Welsh Springer Spaniel <sup>2</sup>	14 (14) gonioscopy done on13	8 (10)	Gonioscopy done on 13 Normal on gonioscopy - 9 Moderate goniodysgenesis - 2 Narrow ICA + PLD sheets - 2				14 adults is 12.7% of annual registrations. Gonioscopy was requested on all but one adult presented to ACES Panellists (not counting any tests done previously) and these results appear fairly consistent. It remains unclear as to what is the main predisposing factor in this breed (a narrow filtration angle or gonodysgenesis with sheets of tissue forming), however we have enough information for Breed Clubs to be discussing ANKC registration restrictions based on gonioscopy findings, at age 2 years	
<b>Gundog Group Totals</b>	<b>687 (865)</b>	<b>592 (768)</b>						



Group 4: Hounds

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Afghan Hound <sup>1</sup>	0 (6)	0 (6)					No-one this year elected to follow the one leading kennel in 2015, screening its entire current breeding stock - serving as an example of the value of baseline information even when the risks are perceived to be low.	
Australian Dingo	0	0						
Basenji *	6 (19)	5 (18)	PPM (iris to cornea) - 1		PPM (iris to iris ) - 2 reported but not cons. clinically significant. No iris coloboma cases reported		6 adults is barely meaningful at 5.8% of annual registrations (104 in 2014). PPMs are scheduled (I-C, I-L), yet the number of dogs presenting with vision-limiting opacities is now quite small.	<b>2 Litters, 11 pups</b> - no pups reported with I-C or I-L strands, A few reported as 'mildly affected' for PPM confirmed later as having <b>Iris - Iris</b> strands only.
Basset Fauve de Bretagne <sup>2</sup>	0 (2)	0 (2)					The fauve (fawn) Basset is a balanced mid-sized breed that has potential as a popular house pet. As for any novel breed, new imports plus all breeding stock should be systematically ACES tested until a wider gene pool of healthy-eyed animals is established.	
Basset Hound <sup>3</sup>	12 (5)	7 (5)	Gonioscopy testing carried out on all 12 (11 Normal). 1 adult: goniodysgenesis / PLD changes evident over >50% of the (combined) corneal circumference			Palpebral fissure abnormalities (PFA) reported in <b>4 adults</b> to varying degrees (i.e. drooping of one or both upper lids; lateral canthal entropion +/- excessive lid length, also evidence of lower lid ectropion (Haws).	12 adults is a much better <b>6.5% of annual registrations</b> (183 in 2014). It is good to see gonioscopy testing carried out more widely, in a breed with a known tendency to acute glaucoma / sudden vision loss. <b>NB Neat fitting, functional eyelids</b> should always be viewed as being part of <b>normal eye health</b> .	
Beagle	0 (1)	0 (1)					ANKC registrations average around 650-700 yearly. Beagle breeders seem little concerned about routine eye screening, hence they have no base-line incidence figures on which to develop future selection policy.	
Bloodhound	0	0						
Bluetick Coonhound	0	0						
Borzoi	0	0						
Dachshund Standard Long Haired	0	0						
Dachshund Standard Smooth Haired	0	0						
Dachshund Standard Wire Haired	0	0						
Dachshund Miniature Long Haired	0	0					Breeders have access to a DNA test for PRA, but are not gathering data on other eye conditions.	
Dachshund Miniature Smooth Haired	0	0					Breeders have access to a DNA test for PRA, but are not gathering data on other eye conditions.	

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Dachshund Miniature Wire Haired	0	0					Breeders have access to a DNA test for PRA, but are not gathering data on other eye conditions.	
Deerhound	0	0						
Finnish Spitz	0	0						
Foxhound	0	0						
Grand Basset Griffon Vendeen	0	0						
Greyhound	0	0				Posterior cortical lens		
Hamiltonstovare	0	0						
Harrier	0	0						
Ibizan Hound	0	0						
Irish Wolfhound	0	0						
Norwegian Elkhound	0 (2)	0 (2)						
Otterhound	0	0						
Petit Basset Griffon Vendeen <sup>2</sup>	0 (2)	0 (2)					This versatile and highly active breed has a lot going for it, but the local gene pool remains restricted. As breed popularity grows, can we afford to ignore overseas evidence that suggests PBGV's should be <b>Gonioscopy screened?</b>	
Pharaoh Hound	1 (0)	1 (0)						
Portuguese Podengo	0	0						
Rhodesian Ridgeback <sup>1</sup>	0 (6)	0 (6)					ANKC registrations average around 750-800 yearly. Breeders seem little concerned about routine screening, thus they have no incidence figures on which to develop any future Policy.	
Saluki	0	0						
Sloughi	0	0						
Whippet <sup>1</sup>	0 (2)	0 (2)					With annual registrations over 700, this breed has a reputation for clear eyes and long-lasting vision. It would be good to gather data on lens and fundus abnormalities, at least as a base line.	<b>1 Litter - 5P (all Normal)</b>
<b>Hound Group Totals</b>	<b>19 (45)</b>	<b>13 (44)</b>						

Group 5: Working Dogs

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Australian Cattle Dog <sup>1</sup>	0 (5)	0 (4)						
Australian Kelpie	3 (0)	3 (0)						
Australian Shepherd <sup>**</sup>	66 (84)	62 (76)				Distichiasis - 3 Corneal lipidosis (unilateral) - 1	66 adults is 9.25% of annual registrations (713 in 2014 and rising). This breed is enjoying increased acceptance in rural communities and CEA appears no longer a big threat. Lid margin <b>distichiasis</b> must be watched, along with <b>corneal lipid deposits</b> .	<b>47 Litters, 291 pups in total</b> (very good!). <b>NO CEA-CH signs reported at all.</b> At least 40 Litters reported <b>defect-free</b> . Retinal folds in 2 Litters (2P) - considered by the Panellist as most likely to resolve. Distichiasis in 2 Litters (4P) <b>Micropapilla</b> of the <b>optic nerve head</b> (ONH) (2P) but not involving any ONH Colobomas. <b>No Iris Colobomas</b> reported this year.
Australian Stumpy Tail Cattle Dog	2 (2)	2 (2)				Vitreous hyalosis (bilat.) - 1 Acquired?		
Bearded Collie	0 (1)	0 (1)						
Belgian Shepherd Dog (Groenendael) *	9 (21)	8 (18)		Atypical suture line cataracts - 1 There were NO lens cataracts of the PPSC type reported in the current year, but the number of breeding age adults submitted is far too low to be meaningful.			Allowing for the small numbers seen in the Malinois and Lakenois varieties, the results for Belgian Shepherds generally look quite encouraging. In making that as a general observation however, one has to exercise caution. The <b>low numbers</b> being presented across all four varieties each year could be distorting those findings - especially if there is any possibility that dogs <b>already known</b> to have <b>PPSC type cataracts</b> are simply not being submitted for routine adult ACES Screening.	
Belgian Shepherd Dog (Laekenois)	0	0					The Breed Clubs should be encouraging a <b>voluntary commitment</b> to regular ACES screening of all breeding age adults (across all four varieties) <b>until around 5-6 years of age</b> .	
Belgian Shepherd Dog (Malinois)	2 (2)	2 (2)						
Belgian Shepherd Dog (Tervueren) *	16 (26)	15 (22)				Distichiasis - 1 One older dog showed classic signs of CISKs 'Pannus' lesions across both eyes (frequently seen in German Shepherds).		
Border Collie <sup>1, *</sup>	61 (46) gonioscopy done on 61	53 (35) incl. gonio 53 excl. gonio 0	(NO CEA - CH signs reported)	(No PLL cases reported)	Summary of gonioscopy findings: Gonioscopy done on <b>61 dogs</b> - 75-100% ICA Open (Normal) - 53 ICA narrowing / mod. dysgenesis - 5 significant dysgenesis or sheets - 3	Nuclear cataract (unilateral) - 1 Post.cortical cataract (senile) - 1 Corneal lipid dystrophy (bilateral) - 2	<b>61 adults is good</b> - but still not a meaningful percentage of total registrations, as many are bred in rural areas where screening is not readily available. With NO CEA-CH cases reported this year, this looks good for the breed as a whole. The 100% gonioscopy sample is also encouraging, with a clear separation showing between 'normal' and 'at risk' ICA features. The National Border Collie Council might therefore consider setting a <b>minimum threshold gonioscopy result</b> to be met by both parents of any registered litter.	<b>2 Litters, 14 pups</b> One pup in each litter: mild CEA-CH signs (choroidal hypoplasia only)
Bouvier Des Flandres	0 (1)	0 (1)						
Briard	0	0						
Collie - Rough <sup>1</sup>	7 (10)	1 (7)	<b>Collie Eye Anomaly CH</b> - 6 Chorodal hypoplasia only - 4 CH plus ONH coloboma - 2 Both coloboma cases were reported as 'large' and one was <b>bilateral</b> which must have had a significant effect on normal stereoscopic vision				<b>Only seven adults?</b> That's not nearly enough coming forward to give us information on average vision in the adult population (386 registered in 2014). The detailed summary of <b>Litter Screening results</b> should be carefully studied by every breeder because sadly, blind puppies (due to CEA-induced haemorrhage or retinal detachment) are still a major concern. Is this at all surprising, given the reluctance among breeders in most States to apply any <b>nationally-coordinated selection pressure</b> against the now well-entrenched CEA-CH gene?	<b>53 Litters, 258 pups</b> Only 8 Litters (28P): whole litter unaffected 32 Litters: one or more pups CH signs only 10 Litters: multiple pups CH + coloboma <b>Three litters</b> had one or more pups showing <b>retinal detachment or haemorrhages</b> and <b>three pups were reported as BLIND</b> . It should be clearly understood that any pup with bilateral detachments or signs of continuing haemorrhage in one or both eyes, sadly has to be regarded as being <b>permanently blind</b> and this situation must be declared to any intending purchaser.

Group 5: Working Dogs

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Collie - Smooth <sup>1</sup>	0 (0)	0 (0)						<b>4 Litters, 22 pups</b> 9 pups (3L) - 'mild' choroidal hypoplasia 2 pups - other transient visual defects
Finnish Lapphund <sup>2, **</sup>	41 (31)	39 (27)			MRD - 1 case: multifocal small lesions (MRD is not scheduled in this breed)	Perivascular arc-like retinal scar - 1 (Acq?) Corneal endothelial scars - 1 (PPM likely)	41 adults is 26.8% of annual registrations. For a newly introduced breed, owners are doing all the right things starting early, and are already well on top of the Atypical PRA investigation.	<b>10 Litters, 55 pups</b> All reported as Normal apart from one pup showing extensive PPM strands (I-L,I-C). Two pups (same Litter) - large geographic MRD lesions (unilateral -1, bilateral -1).
German Shepherd Dog (SC: normal coat)	1 (3)	1 (3)					ANKC registrations average 4,000 yearly. For what is arguably our most self-regulated breed, German Shepherd owners seem little concerned about routine eye screening, hence they have NO base-line incidence figures from which to develop future Policy.	<b>1L, 1P.</b> prominent TELs reported
German Shepherd Dog (LSC: long coat)	0 (1)	0 (1)						
Komondor	0	0						
Kuvasz	0	0						
Maremma Sheepdog	2 (0)	2 (0)						
Norwegian Buhund	0	0						
Old English Sheepdog	5 (3)	5 (3)					No lid margin or palpebral defects noted	2 Litters, 11 pups - all Normal
Polish Lowland Sheepdog	0	0						
Puli <sup>2</sup>	0 (8)	0 (8)						2 Litters, 8 pups - all Normal
Shetland Sheepdog <sup>1, *</sup>	14 (9)	10 (5)	Collie Eye Anomaly - CH - 2 CEA - CH plus coloboma - 2			Distichiasis - 1	14 adults is <b>only 2% of annual registrations</b> (679 in 2014). Too many owners are neglecting to follow up on an <b>adult dog's eye status</b> after it was reported 'CEA-CH unaffected' as a puppy. It is important to examine ALL breeding-age adults at least once after 18 months of age in order to confirm the early Litter Screening result and to pick up <b>non-CEA</b> eye defects. Good progress is being made in reducing the numbers of CEA-CH affected animals, but more could be achieved if the DNA test was used NOT as an alternative, but more as a <b>worthwhile adjunct to regular ACES testing.</b>	<b>83 Litters, 193 pups</b> 58 Litters (92 P) - all unaffected 22 Litters (91 P) - 1 or > with mild CH signs 3 Litters (10 P) - moderate CH + coloboma 3 pups - showing a retinal detachment or haemorrhages; all reported as <b>BLIND.</b> While the overall numbers of Litters being submitted in climbing steadily and the proportion of good results is also improving (well over half the pups being unaffected), the rare appearance of severe signs shows that pressure needs to be applied to <b>keep reducing the CEA-CH gene frequency</b> with every breeding decision!
Swedish Lapphund	0	0						
Swedish Vallhund	0	0						
Welsh Corgi (Cardigan) <sup>1</sup>	0	0						
Welsh Corgi (Pembroke) <sup>1</sup>	0 (4)	0 (4)					While serious eye conditions are rare in this breed, all breeding age adults should have at least one ACES exam after 18 months to pick up lens cataracts or other hidden eye defects	
White Swiss Shepherd Dog <sup>1</sup>	11 (0)	9 (0)			MRD (geographic lesions) - 1 MRD (multiple parallel folds) - 1			
<b>Working Group Totals</b>	<b>240 (249)</b>	<b>212 (212)</b>						

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Akita	3 (3)	3 (3)					Three adults is only 1.9% of annual registrations. Breeders need to notify ACES Panel of any particular concerns	
Akita (Japanese)	1 (2)	1 (2)						
Alaskan Malamute	5 (15)	5 (14)					Five adults is 1.7% annual registrations Gonioscopy requested in two: Normal	
Anatolian Shepherd Dog	0	0						
Bernese Mtn. Dog	3 (2)	3 (2)						
Boxer	0 (1)	0 (1)						
Bullmastiff <sup>3</sup>	0	0						
Dobermann	0	0						
Dogue de Bordeaux <sup>3</sup>	0	0						
German Pinscher	3 (0)	2 (0)	PPSC-type cataracts (bilateral) - 1				This breed has nothing scheduled. Breeders need to notify ACES Panel of any particular concerns	
Leonberger **	17 (8)	11 (8)	Multifocal Retinal Dysplasia - 1			PPM - 1, Distichiasis - 1 (multiple lashes) Lower lid entropion - 2 (assoc. with an elongated palpebral opening)	One case arose where the same animal was presented to different Panellists as a duplicated request. ACES Rules include an <b>Appeals Process</b> for this very purpose	
Mastiff <sup>3</sup>	0	0						
Neapolitan Mastiff <sup>3</sup>	1 (0)	1 (0)						
Newfoundland	0	0						
Portuguese Water Dog	8 (3)	8 (3)						1 Litter, 10 pups: all Normal
Pyrenean Mtn. Dog	0 (1)	0 (1)						
Rottweiler <sup>1</sup>	0 (1)	0 (1)					<b>NB: No dog unregistered with ANKC (ie. an unregistered adult or a litter from unregistered parents) can be issued with a valid AVA-ANKC ACES Certificate.</b>	
Russian Black Terrier	0	0						
Samoyed **	27 (38) gonioscopy done on 27	24 (25) incl 26 N on gonioscopy			<b>Goniodysgenesis summary:</b> Iridocorneal angle 75 - 100% open - 26 By any measure, these dogs are Normal. Iridocorneal angle: 70% affected by dysgenesis with sheets, so <50% open - 1	Typical PPSC type bilateral cataracts - 1 This is the second such report in 2 years. Corneal dystrophy - 1 (showing large ovoid, symmetrical lesions bilaterally)	Adult numbers coming forward have tapered off even further from last year. Overall the lates gonioscopy findings are encouraging, suggesting that there are good numbers of adults out there with <b>functionally adequate</b> filtration angles.	<b>2 Litters, 12 pups (all Normal)</b>
Schnauzer - Giant	1 (0)	1 (0)					Posterior cortical lens	
Schnauzer - Standard	0 (3)	0 (3)						
Schnauzer -Miniature **	178 (155)	172 (145)	HC - 1 (late onset?)	(No PRA Cases reported)			Distichiasis - 3 Corneal lipidosis / degen. (unilat.) - 1 PFA (upper lid medial trichiasis) - 1	178 adults is 15% annual registrations (1186 in 2014). Clearly the majority of breeders see benefits in monitoring both adults and litters, evident in the reduction in <b>inherited cataract</b> cases. These are very commendable results!
Shiba inu	0 (3)	0 (3)						
Siberian Husky **	42 (43) gonioscopy done on 42	36 (33)	Gonioscopy testing was carried out on <b>all 42 dogs</b> presented	Hereditary cataract (PPSC) - 1 (Typically bilateral, affecting the posterior lens cortex).	<b>Goniodysgenesis summary:</b> Six dogs showed extensive P.L. Dysplasia i.e. >66% angle closure + dysgenesis - 3 40-50% angle closure plus sheets - 2 Significant narrowing (heterochrome) - 1	Corneal dystrophy (bilat. sym.) - 1	<b>Angle narrowing</b> in heterochromic (blue) eyes is a common finding in this breed. An <b>organised study</b> would show whether blue-eyed dogs are in fact 'outflow compromised' or whether the 'blue eye' iris plane across the left entrance just <i>presents differently</i> in a gonioscopy test.	<b>1 Litter, 1 pup (!)</b> - Normal
Saint Bernard	0	0						
Tibetan Mastiff	0	0						
<b>Utility Group Totals</b>	<b>289 (278)</b>	<b>267 (244)</b>						

Breed	Total to date	Unaffected	Schedule (Congenital)	Schedule (Later Onset)	Non Schedule (Congenital)	Non Schedule (Later Onset)	Breed Notes	Litter Screening summarised
Boston Terrier <sup>1</sup>	2 (7)	2 (7)						1 Litter, 2P - Normal
British Bulldog <sup>1</sup>	0	0						
Canaan Dog	0	0						
Chow Chow <sup>1</sup>	0	0						
Dalmatian	0	0						
Eurasier	0	0						
French Bulldog <sup>2, 3</sup>	0	0					This breed is seeing a continued surge in popularity. Few eye problems are reported but large, bulbous eyes <b>must predispose</b> to tear film break-up and a higher risk of corneal ulcers or injury. <b>Moderation is the key</b> and extremes should be avoided. Why not consider screening all breeding age adults for obvious lid margin or apposition defects?	
German Spitz: Klein	0	0						
German Spitz: Mittel	10 (0)	10 (0)					New owners - setting a great example!	
Great Dane	10 (0) gonioscopy done on 8	8 (0)			Goniodysgenesis is non-scheduled in this breed but is being monitored. Of 8 examined, 6 were normal and 2 showed extensive goniodysgenesis with sheets.	Distichiasis - 1	Numbers being bred remain static in this magnificent breed but this makes it really important to select for sound structural conformation - also for eyes!	2 Litters - one 2P, one 10P. One pup in the larger litter reported as XS lid length (OPF) with spastic entropion
Japanese Spitz	0 (9)	0						
Keeshond	0	0						
Lhasa Apso <sup>3</sup>	0	0						
Poodle - Standard <sup>1</sup>	3 (10) gonioscopy done on 0	3 (8)					Last year's sudden rise in gonioscopy requests has not continued. While three is a small sample, we do not expect to see major issues in Standard Poodles	
Poodle - Miniature <sup>1</sup>	0 (4)	0 (4)						
Poodle - Toy <sup>1</sup>	6 (10)	5 (9)				Distichiasis (multiple lashes) - 1		1 Litter, 2 pups One with multiple distichia
Schipperke	0	0						
Shar Pei <sup>3</sup>	0	0					223 new registrations were processed by ANKC in 2014. Given the number of pups and severely affected juveniles that require extensive facial skin or eyelid surgery later on (just to be able to see, free of constant pain), one would expect to see breeders & Breed Clubs insisting on only moderate degrees of wrinkling!	
Shih Tzu <sup>3</sup>	0	0						
Tibetan Terrier <sup>2</sup>	9 (2)	8 (2)				Posterior cortical lens cataract - 1 (probably acquired)		
<b>Non Sporting Group Totals</b>	<b>40 (33)</b>	<b>37 (30)</b>						
<b>All Breeds Totals</b>	<b>1547 (1795)</b>	<b>1347 (1577)</b>						