

What breeds of dogs are aggressive and who cares?

CAM DAY

Veterinary Consultant, Qld

Dog aggression is a community concern. If worries the victims of dog attacks, Local Authority representatives who implement needed community responses, dog owners, legislators, veterinarians and dog trainers.

It is also the commonest behaviour for which dog owners seek advice from the author.

However there are not much information available in Australia regarding the breeds that are over-represented for aggression and for what form of aggression are they over-represented.

The author, a full-time veterinary behaviourist, conducted a retrospective analysis of his practice database to determine what form of dog aggression worries dog owners and what dog breeds are involved. The data covered an eight and a half year period from October 2001 to May 2010.

This data is compared with ownership levels of the same breeds that live in the catchment area of the study.

The goal was to determine which breeds are over-represented, and for which aggressive cluster each breed is reported.

Method

Dog owners are able to report concerns they have regarding their pet's behaviour either directly to the author's practice by phone or via the practice website.

For those who telephone the practice, staff select a matching behaviour from a pre-populated drop down list in the practice offline database.

On the website, owners can choose the best-fit behaviour description from a similar drop down list on a behaviour assessment form. Each list is similar and contains approximately 26 defined behaviour clusters.

For aggression the behaviour clusters are summarised in Table 2

Table 1 Behaviour Clusters Relating to Aggression

| |
|--|
| Aggression to the family |
| Aggression to visitors |
| Aggression to people met while walking |
| Aggression to other dogs owned |
| Aggression to dogs met while walking |
| Aggression to cats, livestock etc |

Online data is also automatically entered into the practice offline database and thus both online and offline data are combined.

Regarding breed identification, the online assessment form also allows dog owners to nominate the breed of their dog in a free-form field.

For manual data entry into the practise offline database, the breed description is entered using a pre-populated drop down list which contains 68 breed descriptions and includes the ability to list if a breed is a cross-bred.

The author was able to export this collated data to a spreadsheet which was then analysed. Breed descriptions were examined, and these breed descriptions were standardised to allow analysis. Breeds that could not be standardised were eliminated from the data pool.

This data represents the behaviour concerns that owners have with their dogs. While most of these dog owners where contacted, not all of them participated in a consultation so the data is not diagnostic of the nature or cause of the aggression.

The date range of the data was and an 8 year period from October 2001 to May 2010.

Where a dog was listed as a cross bred, only the first breed description was used for data analysis. This created a morphological description of the breeds

called a breed-type to give a general indication as to the breed of the dog. As such, this breed-type gives an owner-defined description of the breed involved in aggression.

Separately, dog population data was sourced from the Gold Coast City Council (Gold Coast City Council, 2010). This local authority services part of the catchment area of the author's practice. This was to determine breed population statistics to compare with reports of breed-related behaviours.

Results

DATA OVERVIEW

Aggression is the commonest behaviour for which dog owners seek advice from the author (Table 2 – data on file) and represent 36% of submissions for assistance.

Excessive vocalisation (barking) represents 15.7% of cases, noise fears 10.5% and separation anxiety related issues 8.2%.

Table 2 Incidence of Dog Behaviour Problems in a Brisbane, Australia Veterinary Behaviour Clinic

| Presenting Concern | No. | % |
|--|-------------|-------------|
| Aggression (all) | 884 | 36 |
| Barking or howling (all) | 370 | 14.1 |
| Noise fears | 247 | 10.4 |
| Separation anxiety | 192 | 8.2 |
| House soiling | 113 | 4.8 |
| Fearful or Generally Anxious | 110 | 4.7 |
| Escaping | 90 | 3.8 |
| Destructive/digging | 82 | 3.5 |
| Anxious | 74 | 3.1 |
| Boisterous/hyperactive/disobedient | 69 | 2.9 |
| Tail/shadow chasing/Circling/Obsessive | 45 | 1.9 |
| Attention Seeking | 31 | 1.3 |
| Assimilation with other dogs/pets | 22 | 0.9 |
| Coprophagia/Pica | 13 | 0.6 |
| Grieving | 9 | 0.4 |
| TOTAL | 2351 | 100% |

A total of 5,618 records existed where the species could be clearly identified (Table 3) with behavioural reports being submitted for cats at 1104 (20%) and dogs at 4514 (80%) of reports.

Table 3 Species Analysis
October 2001 – May 2010

| Species | Number | % |
|--------------|-------------|-------------|
| Dog | 4514 | 80.4% |
| Cat | 1104 | 19.7% |
| TOTAL | 5618 | 100% |

BEHAVIOUR REQUEST ANALYSIS

The data for all behaviours for which owners sought assistance are ranked by their frequency in Table 4 and are listed again the breed-type the owners nominate. A graphical presentation appears in Figure 1.

Table 4 Behaviours Reported for Breed-types (Ranked by behaviour reports received) Top 10 Breed-types

| Top 10 Breed-types n=68 | Total Behaviour Reports n=4514 | % of Behaviour Reports |
|----------------------------|-----------------------------------|------------------------|
| Staffordshire Bull Terrier | 397 | 8.79% |
| Maltese | 270 | 5.98% |
| Border Collie | 253 | 5.60% |
| Labrador | 230 | 5.10% |
| Australian Cattle Dog | 204 | 4.52% |
| German Shepherd | 175 | 3.88% |
| Jack Russell | 146 | 3.23% |
| Poodle | 143 | 3.17% |
| Kelpie | 136 | 3.01% |
| Rottweiler | 129 | 2.86% |
| TOTALS | 2083 | 46.15% |

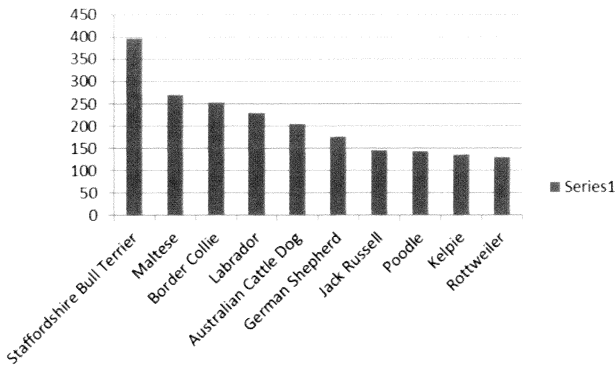


Figure 1 Behaviour Reports Frequency

The Staffordshire Bull Terrier breed-type is the commonest breed-type for which owners seek assistance (397 (8.79%)).

WHAT FORM OF AGGRESSION ARE OWNERS CONCERNED ABOUT?

The cases were analysed to determine which aggressive behaviour clusters were being reported by the dogs’ owners. The results are shown in Table 5 with a total of 1628 (36%) dogs reported as being aggressive.

The results show that 18.5% of behavioural concerns are for aggression to people and 15.2% are for aggression to other dogs. Where the aggression can be further identified, aggression to the family and aggression to dogs owned are the most commonly reported concern. These behaviours are approximately of equal concern for dog owners (Table 5).

Resource guarding aggression in this paper is defined as aggression dogs show when guarding food resources. This form of aggression is likely to be understated in this data as most dog owners do not report that form aggression accurately at the point of interview or on the web forms being used. Resource guarding aggression can be seen towards other dogs and towards people.

Predatory aggression in this paper refers to aggression a dog shows towards a non-dog animal such as cats, livestock and wildlife. It may also be under-represented because predatory aggression can occur in dog- to-dog aggression and with dog-to-human aggression.

Table 5 Dog Aggression Behaviour Cluster Analysis, October 2001 – May 2010 n= 4514

| Aggression Cluster | Number | % of aggressive dogs | % of all dogs |
|--|-------------|----------------------|---------------|
| Aggression to people - all | 834 | 51.3 | 18.5 |
| Aggression to people (not further defined) | 340 | 20.9 | 7.5 |
| Aggression to people - family | 355 | 21.9 | 7.7 |
| Aggression to people - visitors | 122 | 7.5 | 2.7 |
| Aggression to people met | 17 | 1 | 0.4 |
| Aggression to other dogs - all | 688 | 42.3 | 15.2 |
| Aggression to other dogs (not further defined) | 205 | 12.6 | 4.5 |
| Aggression to other dogs I own | 330 | 20.3 | 7.3 |
| Aggression to other dogs met | 153 | 9.4 | 3.4 |
| Other forms of aggression | 105 | 6.4 | 2.2 |
| Aggression - resource guarding | 11 | 0.7 | 0.2 |
| Aggression - predatory | 94 | 5.8 | 2.0 |
| TOTAL | 1628 | 36 | 100 |

Breed-type analysis

WHAT BEHAVIOURS SHOWN BY THE TEN MOST POPULAR BREED-TYPES WORRY OWNERS MOST?

Table 6 represents the top ten breed-types that were identified when this data is ranked for aggression reports.

So, from the pool of aggression reports, the Staffordshire Bull Terrier breed-type ranks in first position at 7.9% of owner reports for this breed with this behaviour.

However the Australian Cattle Dog, the German Shepherd, the Rottweiler and the Kelpie all move up in rank when analysed in this fashion. This indicates an increase in owner concerns relating to aggression for these breeds compared with those breeds which move down this list.

Table 6 Breed-type Analysis (Ranked by Aggression Reports Received)
Top 10 Aggressive Breed-types

| Top 10 Breed-types (includes X bred) n=68 | Total Behaviour Reports n=4514 | % of Behaviour Reports | Total Aggression Reports n=1628 | % Aggression Reports |
|---|--------------------------------------|---------------------------|--|----------------------------|
| Staffordshire Bull Terrier | 397 | 8.79% | 129 | 7.9% |
| Australian Cattle Dog (↑) | 204 | 4.52% | 97 | 6.0% |
| Border Collie | 253 | 5.60% | 87 | 5.4% |
| German Shepherd (↑) | 175 | 3.88% | 84 | 5.2% |
| Rottweiler (↑) | 129 | 2.86% | 70 | 4.3% |
| Kelpie (↑) | 136 | 3.01% | 68 | 4.2% |
| Labrador (↓) | 230 | 5.10% | 66 | 4.1% |
| Maltese (↓) | 270 | 5.98% | 65 | 4.0% |
| Jack Russell (↓) | 146 | 3.23% | 53 | 3.3% |
| Poodle (↓) | 143 | 3.17% | 37 | 2.3% |
| TOTALS | 2083 | 46.15% | 756 | 46.5% |

Table 7 Breed-type Analysis (Ranked by Aggression as a proportion of Total Behaviour Reports for breed-type) Top 10 Aggressive Breed-types

| Top 10 Breed-types (includes X bred) n=68 | Total Behaviour Reports n=4514 | % of Behaviour Reports | Total Aggression Reports n=1628 | % Aggression Reports | % Total Behaviour Reports |
|---|---|------------------------------|--|----------------------------|------------------------------------|
| Rottweiler (↑) | 129 | 2.86% | 70 | 4.3% | 54.3% |
| Kelpie (↑) | 136 | 3.01% | 68 | 4.2% | 50.0% |
| German Shepherd (↑) | 175 | 3.88% | 84 | 5.2% | 48.0% |
| Australian Cattle Dog (↓) | 204 | 4.52% | 97 | 6.0% | 47.5% |
| Jack Russell (↑) | 146 | 3.23% | 53 | 3.3% | 36.3% |
| Border Collie (↓) | 253 | 5.60% | 87 | 5.4% | 34.4% |
| Staffordshire Bull Terrier (↓) | 397 | 8.79% | 129 | 7.9% | 32.5% |
| Labrador (↑) | 230 | 5.10% | 66 | 4.1% | 28.7% |
| Poodle (↑) | 143 | 3.17% | 37 | 2.3% | 25.9% |
| Maltese (↓) | 270 | 5.98% | 65 | 4.0% | 24.1% |
| TOTALS | 2083 | 46.15% | 756 | 46.5% | 36.3% |

Because owners are able to report behaviours of concern other than aggression, when the breed-types are analysed for how aggression compares on a breed-type basis when compared to all other behaviours, a different result is noted.

This data is shown in Table 7 where aggression is ranked as a proportion of all behaviour reports.

From Table 7 it is clear that the concerns owners of Rottweilers, Kelpies and German Shepherds have about their breed-type moves their breed-types up the rank..

Said another way, Staffordshire Bull Terriers have moved down in rank because their owners must be concerned about behaviours other than aggression.

WHAT BREED-TYPES ARE OVER-REPRESENTED FOR AGGRESSION?

To this point, the data presented makes no reference to how commonly the breed-types are represented in the community.

Table 8 lists the top ten breed-types owned in the catchment area and shows the Staffordshire Bull Terrier (9.9%) and the Maltese (9.2%) as the most commonly owned breed-types (Gold Coast City Council, 2010).

Of note is that (in data not contained in this report) the Rottweiler at 2.2% and Kelpie at 3% are not in the top ten dogs owned but both are represented in the top ten of dogs in our aggression reports.

Also of note is that the Shih Tzu is the tenth most common dog owned but this breed-type does not show in the top ten aggressive dogs.

Table 8 Top 10 Breed-types Owned. Ranked by popularity. Gold Coast City Council 2010 n=60112

| Top 10 Breed-types Owned n=188 | Number | % |
|--------------------------------|--------------|--------------|
| Staffordshire Bull Terrier | 5982 | 9.90% |
| Maltese | 5579 | 9.23% |
| Labrador | 3910 | 6.47% |
| Poodle | 3363 | 5.56% |
| Border Collie | 3258 | 5.39% |
| Jack Russell | 3102 | 5.13% |
| Fox Terrier | 2900 | 4.80% |
| Australian Cattle Dog | 2867 | 4.74% |
| Shih Tzu | 2110 | 3.49% |
| German Shepherd | 2048 | 3.39% |
| TOTALS | 35119 | 58.1% |

Table 9 examines the issue of breed-type ownership further and compares the dog ownership data provided by the local authority with the dog aggression data from this study. The 'trend' column shows the positive or negative movement of each breed-type when its proportion for aggressive behaviour is compared with its proportion in the owned community.

Table 9 Top 10 Aggressive Breed-types compared with their frequency in the population. Ranked by aggressive reports

| Breed (includes X bred) n= 191 | % Owned Population | % Aggressive Reports | Trend |
|--------------------------------|--------------------|----------------------|--------|
| Staffordshire Bull Terrier | 10.0% | 7.9% | -2.10% |
| Australian Cattle Dog | 4.8% | 6.0% | +1.20% |
| Border Collie | 5.4% | 5.4% | 0.00% |
| German Shepherd | 3.4% | 5.2% | +1.80% |
| Rottweiler | 2.3% | 4.3% | +2.00% |
| Kelpie | 3% | 4.2% | +1.20% |
| Labrador | 6.3% | 4.1% | -2.20% |
| Maltese | 9.3% | 4.0% | -5.30% |
| Jack Russell | 5.2% | 3.3% | -1.90% |
| Poodle | 5.5% | 2.3% | -3.20% |

Table 9 shows that while the Staffordshire Bull Terrier is the highest ranking dog for reports of aggression, it still ranks lower than its population frequency. The same is true for the Labrador, the Maltese, the Jack Russell and the Poodle.

Table 10 presents the same data but ranked according to the trend.

Table 10 Top 10 Aggressive Breed-types compared with their frequency in the population. Ranked by trend

| Breed (includes X bred) n= 191 | % Owned Population | % Aggressive Reports | Trend |
|-----------------------------------|--------------------|----------------------|--------|
| Rottweiler | 2.30% | 4.30% | 2.00% |
| German Shepherd | 3.40% | 5.20% | 1.80% |
| Kelpie | 3% | 4.20% | 1.20% |
| Australian Cattle Dog | 4.80% | 6.00% | 1.20% |
| Border Collie | 5.40% | 5.40% | 0.00% |
| Jack Russell | 5.20% | 3.30% | -1.90% |
| Staffordshire Bull Terrier | 10.00% | 7.90% | -2.10% |
| Labrador | 6.30% | 4.10% | -2.20% |
| Poodle | 5.50% | 2.30% | -3.20% |
| Maltese | 9.30% | 4.00% | -5.30% |

Table 10 clearly shows that the Rottweiler, German Shepherd, Kelpie and Australian Cattle Dog as the breed-types which are over-presented for aggression when compared with their rank in the owned population.

Figure 2 presents this information graphically.

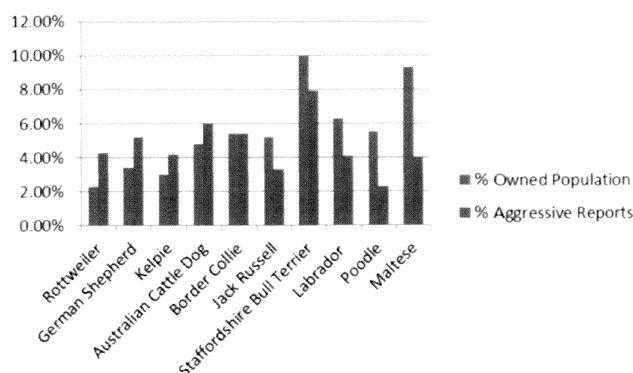


Figure 2 Ownership proportion compared with Aggressive Behaviour proportion

BREED-TYPE AND AGGRESSION CLUSTER ANALYSIS

The data permitted further analysis of the forms of aggressive behaviour shown by the top ten breed-types. Table 11 shows the proportions of human-directed aggression and dog-directed aggression.

For human-directed aggression, the Kelpie is most represented at 64.7% of those concerns which related to aggression. The Kelpie is followed fairly closely by the Maltese (63.1%) the Poodle (62.2%) and then the Labrador (60.6%).

For dog-directed aggression, the Staffordshire Bull Terrier is the most represented breed-type at 62.8% of the reports, followed no too closely by the Jack Russel Terrier (54.7%) and the German Shepherd (51.2%).

Table 11 Dog Breed-types that are aggressive to people and other dogs. Behaviour Cluster and Breed-type Analysis. October 2001 – May 2010. n= 4514

| Breed Aggression Cluster | Total Aggressive Reports | To People (all forms) | % For this breed | To Dogs (all forms) | % For this breed | Other forms | % for this breed |
|--------------------------|--------------------------|-----------------------|------------------|---------------------|------------------|-------------|------------------|
| SBT | 129 | 36 | 27.91% | 81 | 62.79% | 12 | 9.30% |
| ACD | 97 | 49 | 50.52% | 34 | 35.05% | 14 | 14.43% |
| BDC | 87 | 41 | 47.13% | 40 | 45.98% | 6 | 6.90% |
| GSD | 84 | 35 | 41.67% | 43 | 51.19% | 6 | 7.14% |
| ROT | 70 | 35 | 50.00% | 27 | 38.57% | 8 | 11.43% |
| KEL | 68 | 44 | 64.71% | 20 | 29.41% | 4 | 5.88% |
| LAB | 66 | 40 | 60.61% | 23 | 34.85% | 3 | 4.55% |
| MAL | 65 | 41 | 63.08% | 21 | 32.31% | 3 | 4.62% |
| JRT | 53 | 21 | 39.62% | 29 | 54.72% | 3 | 5.66% |
| PDL | 37 | 23 | 62.16% | 12 | 32.43% | 2 | 5.41% |

BREED-TYPES THAT ARE AGGRESSIVE TO PEOPLE

Figure 3 shows the analysis of the breed-type trends with respect to aggression to people.

The Maltese, Labrador and Poodle are the breed-types most presented for aggression to the family.

While aggression to visitors is less often reported than aggression to the family, this form of aggression is reported more by the owners of the Maltese, Labrador, Jack Russel Terrier and Kelpie (Graph 3).

Of note is that the Staffordshire Bull Terrier, the dog ranking highest in the overall aggression statistics, does feature highly for aggression to humans.

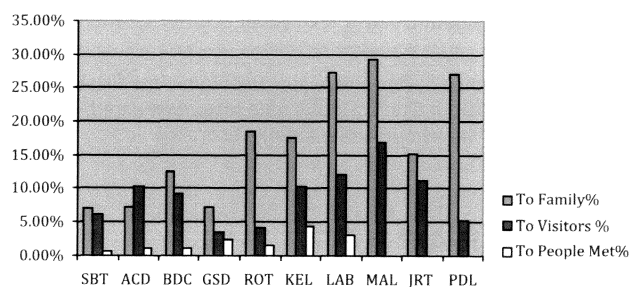


Figure 3 Aggression to People - Breed-type analysis

BREED-TYPES THAT ARE AGGRESSIVE TO OTHER DOGS

Figure 4 displays the data relating to aggression to other dogs.

Aggression to other dogs owned refers generally to dogs that are aggressive to other dogs in the same household.

Aggression to dogs met refers to aggression to unfamiliar dogs, usually met away from home, such as on walks or in dog off-leash parks.

Aggression to dogs within the family is much more commonly reported by the owners of Staffordshire Terriers, Jack Russel Terriers, Border Collies and Poodles.

Aggression to dogs met on the street is less of a concern overall but is seen most commonly by the German Shepherd, the Labrador and the Maltese.

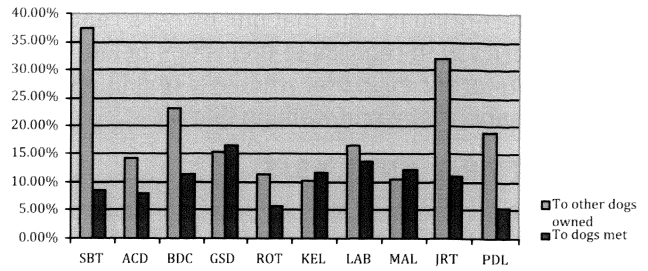


Figure 4 Aggression to Other Dogs - Breed-type analysis

Discussion

DATA BIAS AND PRESUMPTIONS

By its very nature the data presented in this report is biased. The majority of the statistics are created from reports submitted by dog owners who are concerned enough about their dog's behaviour to actively seek advice leading to a potential remedy for that problem.

The data presented is not a random sampling of dogs where the owners are asked if their dogs have a behavioural problem and if that problem is aggression.

In addition, the only behavioural reports being examined are those relating to aggression. Dog owners seek advice from the author for many other common behaviours which have not been examined in this report.

We have not defined what is meant by 'aggression' but have mostly left that classification to the dog owners. Where we have made a decision to use the word 'aggression' at the time of data entry that has been on a cursory analysis of the primary problem described by the pet owner.

The breed-type descriptions are also those nominated by the pet owners and no attempt was made to assess the accuracy of the descriptions. The breed-type descriptions include crossbreds and presumptions were made that the first breed-type nominated by the owner was the predominant breed-type.

BEHAVIOUR CLUSTER ANALYSIS

Media reports regularly focus on the problems caused by aggressive dog attacks on people from roaming dogs or dogs walked off leash.

In our data, this form of aggression (aggression to people met - Figure 3) was a very small proportion of the concerns of dog owners (0.4%). Most were concerned about aggression to their family (7.7%) and aggression to other dogs in the household (7.3%) and it is interesting to note that both of these 'within the home environment' concerns present as similar proportions.

It is also interesting to note that dog owners report more concerns with regards to their dogs being aggressive to other dogs met while walking (3.4%), than to humans met while walking (0.4%).

BREED-TYPE ANALYSIS

It is interesting to note that Gold City Council data confirms that the Staffordshire Bull Terrier and the Maltese are the two most commonly owned breed-types in the catchment area, both ranking between 9% and 10% of the owned dog population and the dog taking third rank in the popularity stakes is the Labrador quite a step below at 6.5% of the population.

WHICH BREED-TYPES ARE OVER-REPRESENTED FOR AGGRESSION?

The popularity of these breed-types means they would be expected to feature highly in reports for aggression. This is the case with the Staffordshire Bull Terrier which maintains the top rank in raw data for aggression but not so for the Maltese which falls to 8th rank (Table 6).

The Staffordshire Bull Terrier and in particular the Maltese are displaced from their rank by the over-representation of the Rottweiler, Kelpie, German Shepherd and the Cattle Dog. These four breed-types are more common in the aggressive dog reports than they are in the owned dog population.

Of particular importance is that both Kelpie and the Rottweiler are bumped into the top ten list by their aggression as they are not in the top ten of owned dogs (Tables 6 and 7).

WHICH BREED-TYPES ARE A PROBLEM FOR FAMILIES?

Aggression to family members is a particular concern because of the inherent danger of living with an aggressive dog. Of note is that the Labrador is the most commonly owned large dog to show aggression to the family. The Labrador is the third most commonly owned (Table 8) and the second most reported for aggression to the family (Figure 3) however its position is significantly displaced by the higher rank of the Rottweiler, Kelpie, German Shepherd and the Cattle Dog when ownership levels are considered (Table 7).

Also interesting to note is that the Staffordshire Bull Terrier being the most popular dog owned, is the lowest ranking dog of the top ten for aggression to the family.

WHICH BREED-TYPES ARE A PROBLEM WITH INTER-DOG AGGRESSION?

The Staffordshire Bull Terriers presence in this data seems to be mostly driven by its aggression to other dogs within the household and it is a clear first rank in this data (Figure 4) followed by the Jack Russel, the Border Collie and the Poodle.

The Staffordshire is capable of inflicting dangerous injuries on other dogs. The author sees Resource Guarding Aggression as a common cause of inter-dog aggression with this breed-type.

References

- 1 Gold Coast City Council 2010, Extract of dog registration data. Data on file.
- 2 Day, C.T. Incidence of Dog Behaviour Problems in a Brisbane, Australia Behaviour Clinic. Online data <http://www.pethealth.com.au/Form/behaviour-assessment-form> 2010

BIOGRAPHY

Dr Cam Day

Veterinary Consultant, Qld
BVSc BSc MACVS (Animal Behaviour)
Email: drcam@pethealth.com.au

Dr Cam Day is a full-time veterinary behaviour consultant. He consults with dog and cat owners on a daily basis, helping to solve complex behavioural problems including aggressive behaviours and excessive barking.



A series of horizontal dotted lines for writing, starting from the pencil icon and extending across the width of the page.