

Population study of free-roaming dogs in a remote community in Central Australia

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INTRODUCTION

Free-roaming dogs are domestic dogs that are not confined in any way. They may be owned, but allowed to roam freely, or they may be strays (recently owned and abandoned). Most studies of free-roaming dogs have been undertaken overseas in order to implement a rabies control program¹. Under optimal conditions, a given population of dogs will nearly triple every year².

AIM

The long-term aim of this study has been to obtain information on the population dynamics of free-roaming dogs in a remote Aboriginal community in the Tanami Desert of the Northern Territory. This is in order to obtain data so some form of fertility control may be implemented to reduce the dog numbers to more tolerable levels. It had become apparent that some factors were already regulating the size of this dog population (Figure 1) so initially an investigation was undertaken to determine what these factors, both intrinsic and extrinsic were.

METHOD

Approximately every 3 months from November 1998 till September 2001, all houses and humpies in the community were visited and the occupants asked to identify and catch their dogs. These dogs were caught and treated using a topical application of 0.5% moxidectin (Cydectin Pour-On) as an endectocide. At the same time, every dog was identified (including those unable to be caught by their owners), their age and sex determined and given a mange score.

Blood, faecal samples and rectal swabs were collected from around 30 dogs on each visit. These dogs were selected randomly throughout the community, but only those that could be firmly held by their owners were sampled. 4 mL blood was collected from the cephalic vein of each dog and placed in an EDTA tube. The faecal samples were placed in plastic bags and frozen and the faecal swabs were placed in Selenite Broth. All specimens were brought back to the laboratory for analysis.

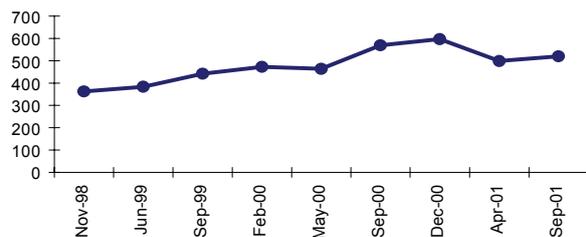


Figure 1. Total number of dogs caught and treated on each visit.

RESULTS

The total number of dogs caught and treated on each visit averaged 488, ranging from 392 in November 1998 to 591 in December 2000. An average of 17 dogs evaded capture on each visit.

The result of the routine topical application of moxidectin during the study was to reduce the prevalence of mange (both sarcoptic and demodectic) in the dogs from 75% down to 4%.

Examination of the faecal samples revealed that nearly all the dogs were free of internal parasites. Scat analysis indicated that most dogs were mainly scavengers.

Microbiological culture of the rectal swabs revealed a Salmonella carriage rate from 25-60%, depending on the season.

Serological examination of the blood samples revealed that all dogs had protective titres against the common fatal diseases of dogs – distemper, canine hepatitis and parvovirus.

By using a commercially available heartworm antigen test (Snap-Idexx Laboratories), the prevalence of dirofilariasis was shown to fall from November 1998 to September 2001.

In September 2000, when the EDTA blood samples collected were initially examined for bacterial 16S ribosomal DNA using PCR-based assays, 3 out of the 4 dogs tested were found to be infected with *Ehrlichia platys*. Subsequent testing in December 2000 found that 10 out of 24 dogs had ehrlichial DNA present in their blood³. PCR assays of samples collected in April 2001, revealed the presence of *Babesia canis* as well as *E platys* in many of the dogs sampled.

DISCUSSION

Both intrinsic and extrinsic factors were found to be regulating the dog population under study.

Overseas, food availability is considered the major extrinsic factor in limiting dog populations⁴. However, in our study, despite being scavengers, most dogs examined had acceptable fat scores.

With the increased mortality of pups seen during the wet when tick infestation was at its greatest, we feel that one of the major extrinsic factors controlling this population was infection with *E platys*, either on its own or as a co-infection with *B canis*. *E platys* is an obligate intracellular rickettsial organism that only infects the platelets of dogs and causes infectious canine thrombocytopenia. *B canis* is an intra-erythrocytic protozoan parasite and causes haemolytic anaemia. Both organisms are suspected of being transmitted by the Brown Dog Tick *Rhipicephalus sanguineus*, which was found to be a common external parasite of the dogs.

REFERENCES

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Graeme Brown BVSc graduated from University of Sydney and spent 5 years working for NSW Agriculture and various mixed practices in Australia and UK. In 1972, established Merewether Veterinary Hospital and has developed a strong interest in wildlife diseases and population biology. Currently enrolled as a post-graduate student at University of Newcastle studying the "Population Dynamics of Free-Roaming Dogs in Aboriginal Communities".