alkaloid 2-methyl tetrahydrobetacarboline. Phalaris is known to produce the latter two compounds.

PE-like sudden death has not been a significant problem in traditional, set-stocked, grazing management systems. However, the increasing use of restrictive grazing management strategies, such as rotational grazing, cell grazing and crash grazing, would appear to have enhanced the risk of this condition occurring. Consequently, livestock owners using these grazing systems should be particularly vigilant when grazing Phalaris aquatica pastures during periods of moisture stress.

Acknowledgments

We thank the owners, management and farm staff of the “jigsaw Farms” Group, at Hamilton Victoria, for their cooperation and assistance.

References


(Accepted for publication 30 July 2003)
ined) were all trapped within the Defence training area or close to its boundary. However, the risk of infection for Defence personnel or others is likely to be low or absent over most of the area. Factors combining to moderate the risk are the large size of the area relative to the small number of infected dogs, the low burden of worms (fewer than 1000) in infected dogs and the warm dry weather experienced for most of the year in Townsville, which could be expected to reduce the survival of the Echinococcus eggs in the environment.\(^4\) The potential risk of infection with E granulosus may be higher in focal areas where wild dogs defecate and personnel congregate (for example at the junction of tracks and where food is consumed). There may also be a higher risk in more elevated sites of Mount Stuart than lowland sites where these wild dogs were trapped. This is because dogs on the mountain may have a higher prevalence of infection due to their increased likelihood of preying on rock wallabies, which are known to harbour viable hydatid cysts.\(^6,5\) A concurrent dietary investigation of canine scats in the area where dogs were caught (R Palmer, personal communication, Environmental Resources Management Australia, 2002) revealed that agile wallabies were the staple prey of wild dogs, occurring in 57% of faecal scats (n = 118) and whitetail wallabies of secondary importance (15% occurrence). Other prey included a diverse range of mostly medium to large mammalian species, including rock wallabies (4% occurrence). This observation, absence of hydatid cysts in numerous agile wallabies examined from the area in past years\(^6\) and the low burden of E granulosus suggest that infected dogs hunted mainly in lowland areas and may have had only occasional access to an infected wallaby.

The hookworm, A caninum, was found in 18 of the 20 adult dogs examined. A similar occurrence (87%) was found in dogs from the pound in Townsville,\(^7\) and eosinophilic enteritis and eosinophilic enteritis and concurrent dietary investigation of canine scats in the area where dogs were caught (R Palmer, personal communication, Environmental Resources Management Australia, 2002) revealed that agile wallabies were the staple prey of wild dogs, occurring in 57% of faecal scats (n = 118) and whitetail wallabies of secondary importance (15% occurrence). Other prey included a diverse range of mostly medium to large mammalian species, including rock wallabies (4% occurrence). This observation, absence of hydatid cysts in numerous agile wallabies examined from the area in past years\(^6\) and the low burden of E granulosus suggest that infected dogs hunted mainly in lowland areas and may have had only occasional access to an infected wallaby.

The hookworm, A caninum, was found in 18 of the 20 adult dogs examined. A similar occurrence (87%) was found in dogs from the pound in Townsville,\(^7\) and eosinophilic enteritis and cutaneous larval migrans in humans, caused by infection with larvae of these parasites, are significant to human health concern in Townsville.\(^5,9\) The presence of larvae hatched from eggs in canine faeces is lower than might have been predicted because their plerocercoids (spargana) are commonly present in animals that eat frogs such as some species of snake, owls and wild pigs in the district (D B Copeman, unpublished observations). While plerocercoids may also infect humans who drink water containing copepods infected with procercoids (which become infected from larvae hatched from eggs in canine faeces deposited in water), or be acquired directly from raw infected meat,\(^13\) the infection is usually subclinical. Nevertheless, personnel in the Defence training area should be discouraged from drinking untreated ground water to avoid infection.

Identification of the ticks was made only to genus, because many of the specimens were larvae or nymphs that could not be speciated using the available key for adults.\(^14\) However, the few adult specimens collected were H bancrofti and A triguttatum, both of which are primarily parasites of macropodids.\(^14\) Which are numerous in the areas where the wild dogs were caught. H bancrofti and A triguttatum will also parasite humans and other animals\(^14\) and A triguttatum has been incriminated in transmission of Q fever from kangaroos to humans.\(^15\) Thus, infestation of wild dogs with these ticks may contribute to the persistence of these ticks in the region but their role is probably minor in comparison to that of their usual and more numerous macropodid hosts. Ocasional attachment, especially to personnel in the Defence training area, can be expected. The ticks are easily removed and have no toxic effects but their potential to transmit Q fever in this region is unknown.

We gratefully acknowledge the assistance provided by Mr Mark Goullet who caught the wild dogs, Mr Russell Palmer who shared information on dietary analysis of dog faeces he collected in the areas where wild dogs were caught, and Dr Peter Wulf and Dr Alan Wilton who provided information on the extent to which their analyses indicated the extent to which the wild dogs caught were pure dingoes or hybrids with domestic dogs.

**Table 1. Parasites present in 27 wild-dogs caught in areas fringing suburban Townsville during August-September, 2002**

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Age of dog (years)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.2 (n = 7)</td>
<td>1.4 – 3 (n = 6)</td>
</tr>
<tr>
<td><em>Dirofilaria immitis</em></td>
<td>NA(^a)</td>
<td>2(^b)</td>
</tr>
<tr>
<td><em>Echinococcus granulosus</em></td>
<td>0</td>
<td>2(^b)</td>
</tr>
<tr>
<td><em>Spirometra erinacei</em></td>
<td>0</td>
<td>4(^b)</td>
</tr>
<tr>
<td><em>Dipylidium caninum</em></td>
<td>4(^b)</td>
<td>3(^b)</td>
</tr>
<tr>
<td><em>Ancylostoma caninum</em></td>
<td>2(^b)</td>
<td>5(^b)</td>
</tr>
<tr>
<td><em>Ctenocephalides felis</em></td>
<td>5(^b)</td>
<td>2(^b)</td>
</tr>
<tr>
<td><em>Amblyomma sp</em></td>
<td>2(^b)</td>
<td>2(^b)</td>
</tr>
<tr>
<td><em>Haemaphysalis sp</em></td>
<td>3(^b)</td>
<td>2(^b)</td>
</tr>
</tbody>
</table>

\(^a\)Not applicable
\(^b\)Number positive
\(^c\)Not examined

infected flea from a domestic pet, but it appears unlikely that a flea from a wild dog would be ingested by a person.

*Spirometra erinacei* was found in 44% of the wild dogs, which is lower than might have been predicted because their plero- cercoids (spargana) are commonly present in animals that eat frogs such as some species of snake, owls and wild pigs in the district (D B Copeman, unpublished observations). While plerocercoids may also infect humans who drink water containing copepods infected with procercoids (which become infected from larvae hatched from eggs in canine faeces deposited in water), or be acquired directly from raw infected meat,\(^13\) the infection is usually subclinical. Nevertheless, personnel in the Defence training area should be discouraged from drinking untreated ground water to avoid infection.

Identification of the ticks was made only to genus, because many of the specimens were larvae or nymphs that could not be speciated using the available key for adults.\(^14\) However, the few adult specimens collected were *H bancrofti* and *A triguttatum*, both of which are primarily parasites of macropodids.\(^14\) Which are numerous in the areas where the wild dogs were caught. *H bancrofti* and *A triguttatum* will also parasite humans and other animals\(^14\) and *A triguttatum* has been incriminated in transmission of *Q* fever from kangaroos to humans.\(^15\) Thus, infestation of wild dogs with these ticks may contribute to the persistence of these ticks in the region but their role is probably minor in comparison to that of their usual and more numerous macropodid hosts. Ocasional attachment, especially to personnel in the Defence training area, can be expected. The ticks are easily removed and have no toxic effects but their potential to transmit *Q* fever in this region is unknown.

We gratefully acknowledge the assistance provided by Mr Mark Goullet who caught the wild dogs, Mr Russell Palmer who shared information on dietary analysis of dog faeces he collected in the areas where wild dogs were caught, and Dr Peter Wulf and Dr Alan Wilton who provided information on the extent to which their analyses indicated the extent to which the wild dogs caught were pure dingoes or hybrids with domestic dogs.
Scientific References


BOOK REVIEWS


This book is aimed at the person studying to be a veterinary technician, or veterinary nurse, and also the qualified nurse. Each chapter covers anatomy, physiology, husbandry, nutrition, diseases, restraint, radiology, anaesthesia and surgery, parasitology, haematology, clinical techniques, emergencies and euthanasia of a group of species. The animals included are birds, lizards, snakes, chelonians, amphibians, ferrets, rabbits, mice, rats, gerbils and hamsters, chinchillas, guinea pigs, hedgehogs, and skunks, prairie dogs and sugar gliders. Tighter editing would have removed the numerous inconsistencies found between chapters of this multi-authored book. The avian and ferret chapters are too superficial, whereas the reptile chapters contain much more detail. Some chapters use US units, while others use international units, and there are contradicting statements between chapters.

The book focuses inadequately on those tasks that are specifically assigned to the veterinary nurse in practice. While there is good coverage of restraint techniques, venepuncture, radiology and anaesthetic monitoring, other areas such as faecal examinations and in house diagnostic tests, such as Gram stains, are covered minimally or not at all.

Although there are some photographs of faecal parasites the range presented is inadequate for the book to be useful as a reference in this area. The rabbit chapter is the only one to contain normal haematology and biochemistry values and a drug formulary. However, the book does contain much useful background information on the anatomy, physiology, husbandry and nutrition of the various species.

Oddly, some of the same photographs are presented in both colour and black and white. The lizard chapter highlights important client information in italics. Given the important role that the veterinary nurse has in liaising with clients it is unfortunate that the other chapters do not do the same. More in depth information should have been provided on common zoonoses, such as chlamydophilosis and salmonellosis.

The final two chapters provide useful information on avian and reptile haematology (the colour photographs of blood cells are particularly valuable) and the technician’s role in wildlife rehabilitation, including hand rearing.

The main drawback from the Australian perspective is the book’s focus on North American species. The sugar glider is the only Australian mammal covered, albeit briefly. And even then there are factual errors; sugar gliders not in fact being native to New Zealand.

Although there is considerable room for improvement, particularly in some of the chapters, the book is worth purchasing if the practice sees a significant number of birds, reptiles and other exotic pets. It provides considerable basic information and there is nothing else comparable currently on the market.

PH Holz

Dr Holz is a veterinarian at Healesville Sanctuary, Victoria.