Parasites and Serological Survey of the Common Brushtail Possum (Trichosurus vulpecula) from Kangaroo Island, South Australia

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which would not be detected using standard techniques to census microtines.

We appreciate the assistance of Joe Serensits, Ken Fukumoto, and Ranil Kumara in helping to locate nests. B. E. Cooper from the Biosystematics Research Institute in Ottawa identified the specimens. This research was supported by grants from the National Science and Engineering Research Council of Canada to R. Boonstra and by a grant from the Ontario government to I. Craine.

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The common brushtail possum (Trichosurus vulpecula) is the most familiar and abundant of the Australian possums and may be a host for various metazoan parasites and microbiological agents of such diseases as leptospirosis and tuberculosis which also infect grazing livestock and man (Presidente, 1984, In Possums and Gliders, A. Smith and I. Hume (eds.), Surrey Beatty and Sons Pty. Ltd., Chipping Norton, N.S.W., pp. 171–190). Possums are extremely abundant on Kangaroo Island, South Australia. Although normally arboreal they come into close contact with domestic ruminants because they frequently feed on the ground, probably due to a lack of predators (Inns et al., 1979, Natural History of Kangaroo Island, Royal Society of South Australia, Adelaide, South Australia, pp. 91–102). An investigation was therefore carried out at the South Australian Department of Agriculture Research Centre at Parndana, Kangaroo Island, to assess the extent to which possums may be hosts for parasites and diseases known to occur in ruminants in the same area.

Thirty-one possums were captured in cage traps and a further nine road-killed animals were collected from areas around the research center during March and April 1985. Blood samples were collected from the jugular vein of 30 of the trapped animals. The age of each possum was estimated from its total body length (Presidente, 1982, In The Management of Australian Mammals in Captivity, Evans (ed.), The Zoological Parks Board of Victoria, Melbourne, Victoria, pp. 55–66). The possums ranged in age from 14 mo to >24 mo (mature). Nineteen males and 12 females were less than 24 mo and a further five male and four females were estimated to be older than 24 mo of age. Each animal was examined for the presence of external parasites. The gastro-intestinal tract was removed and the stomach, small and large intestine were washed separately, preserved in 10% formalin and the washings examined microscopically for helminths.

Specimens of the mite Ornithonyssus sp. (family Dermanyssidae) were recovered from the ears of five possums. Because the mites were exclusively males and nymphs they could not be identified further. The tick Ixodes tasmani is a common parasite of possums in eastern Aus-
Prevalence and intensity of endoparasites in 40 common brushtail possums from Kangaroo Island, South Australia.

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Prevalence (%)</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bertiella trichosuri</td>
<td>12.5</td>
<td>2</td>
</tr>
<tr>
<td>Adelonema trichosuri</td>
<td>15</td>
<td>133</td>
</tr>
<tr>
<td>Trichostrongylus axei</td>
<td>2.5</td>
<td>154</td>
</tr>
<tr>
<td>Trichostrongylus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>colubriformis</td>
<td>12.5</td>
<td>2</td>
</tr>
<tr>
<td>Eimeria sp.</td>
<td>27.5</td>
<td>—</td>
</tr>
</tbody>
</table>

Serological studies revealed the exposure to only two microbiological agents, Coxiella burnetti and Ross River virus. Complement-fixing antibody (titers >1:16) was detected against C. burnetti in serum samples from three possums. Coxiella burnetti has been reported previously in a possum from Queensland (Derrick et al., 1940, Aust. J. Exp. Biol. 18: 409–413). Antibody to Ross River virus has been demonstrated in many mammalian species including the brushtail possum (Gard et al., 1973, Am. J. Trop. Med. Hyg. 22: 551–560). One mature male possum was found to be seropositive for Ross River virus by the hemagglutination inhibition test (titer >1:80). Although hemagglutinating antibody against Toxoplasma has been detected in 19.9% of 196 sheep sampled from Kangaroo Island in 1984 (O’Donoghue et al., 1986, Aust. Vet. J., in press), no hemagglutinating antibody was detected in the 30 possum sera tested. Leptospires iden-

It is apparent that the brushtail possum may be a host for certain nematode parasites of ruminants. Although detection of specific antibody indicated exposure to two microbiological agents, both occurred at a low prevalence and T. vulpecula is therefore unlikely to be an important host or reservoir for these infectious diseases. Helminth specimens have been deposited in the Australian Helminth Collection housed in the South Australian Museum (S.A.M.) (Accession Nos. 14954–14957) and arthropod specimens have been lodged with the Australian National Insect Collection in Canberra and in the S.A.M. Animals were collected with the permission of the South Australian National Parks and Wildlife Service (permit number 501937).

We thank Dr. R. Domrow, Queensland Institute of Medical Research for examining the mites, Dr. D. Kemp, C.S.I.R.O., Brisbane for confirming the identity of the ticks, M. Bald and R. Rowsell for their assistance in the field, and G. Smith and L. Mikan for the serological studies.

**Feather Loss of Unknown Etiology in a Gull Colony in Newfoundland, Canada**

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Since 1966 13,082 herring gull (Larus argentatus) and 626 great black-backed gull (L. marinus) chicks have been handled and banded during a variety of studies in the Witless Bay Sea Bird Sanctuary, Newfoundland, Canada (e.g., Threlfall, 1968, Can. J. Zool. 46: 1119–1126; Haycock and Threlfall, 1975, Auk 92: 678–697; Threlfall, 1978, Bird-Banding 49: 116–124). During this period no epizootics were observed, and only one mass die-off of chicks occurred, apparently due to adverse environmental conditions (Threlfall et al., 1974, Auk 91: 846–849).

The northernmost island in the seabird sanctuary is Gull Island (47°16'N, 52°46'W) which is the breeding site for more than one million seabirds of eight species (Nettleship, 1980, A Guide to the Major Seabird Colonies of Eastern Canada, Canadian Wildlife Service, Ottawa, Ontario, 133 pp.). In 1984 during a study of the breeding biology of the great black-backed gull on this island 113 nests were found