LUNG ACARIASIS IN NORTHERN CALIFORNIA
GROUND SQUIRRELS

A mite was found in the lung tissue of a ground squirrel, Citellus beecheyi douglasii (Richardson), during an examination for internal parasites. Subsequently, a special attempt was made to gather information concerning the mite. This paper reports the incidence of infection in two ground squirrel populations and associated pathologic changes in the lung tissue.

The mites have been identified as *Pneumocoptes banksii*, a species first described in 1910 from *C. beecheyi* by Wellman and Wherry (Parasitology 3: 417-422). To our knowledge, this mite has not been observed in ground squirrels since the original description. Weidman (1917, J. Parasitol. 3: 82-89) described a similar species from a prairie dog, *Cynomys ludovicianus* (Ord), and Baker (1951, J. Parasit. 37: 583-586) revised the genus and described a species from *Peromyscus sp.*

**Methods**

Ground squirrels were either shot or live-trapped. The lungs were placed in physiologic saline and macerated with a Waring blender. The material was then centrifuged and the sediment examined under a dissecting microscope. Lung tissue for histologic examination was fixed in Bouin's, dehydrated in N-butyl alcohol and infiltrated with Paraplast®. Sections were cut at seven microns, and stained with Hematoxylin and Eosin.

**Results and Discussion**

Lungs were collected from 79 ground squirrels in two localities (Table 1): eight female squirrels were found infected. All positive animals were mature adults and were collected during the months of May, July, September (1968) and March 1969. In six animals, the total number of mites recovered ranged from two to 35. Over 100 mites were recovered from each of the other two squirrels. All of the lungs examined in this study appeared normal on gross inspection and no mites were observed macroscopically.

Histologic sections from heavily infected squirrel lungs reveal that the mites produce a reaction indicative of a foreign body type of bronchopneumonia. The reaction is characterized by a heavy infiltration of granulocytes. There is a diminished quantity of functional lung tissue with evidence of connective tissue proliferation and thickened alveolar walls. In some sections, large areas of tissue have coalesced with adjacent cyst-like formations which appear to be mite eggs. Mites are clearly visible in some sections (Fig. 1). They are found in alveolar spaces and are surrounded by a "halo" of clear space often bounded by a layer of granular cells and connective tissue.

According to Weidman (Op. cit.) the pathological picture of the prairie dog

<table>
<thead>
<tr>
<th>Subspecies</th>
<th>Locality</th>
<th>Number Examined</th>
<th>Number Positive</th>
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<tbody>
<tr>
<td><em>C. beecheyi douglasii</em></td>
<td>Mendocino Co., Calif.</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td><em>C. beecheyi beecheyi</em></td>
<td>Monterey Co., Calif.</td>
<td>30</td>
<td>0</td>
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