A PATHOGEN SURVEY IN THE KANSAS COTTONTAIL

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BRIEF NOTES, SURVEYS AND COMMENTS

A PATHOGEN SURVEY IN THE KANSAS COTTONTAIL

One-hundred and thirty-eight wild Kansas cottontail rabbits (*Sylvilagus floridanus*) were purchased for use in Shope papilloma virus studies. The rabbits were received in small groups from a commercial trapper in a small geographical area near Rago, Kansas, between October 14, 1964 and May 21, 1965. Capture, holding, and shipping procedures prior to receipt by us are unknown and probably inconsistent. The preshipping holding diet consisted of apples, hay, rabbit pellets, and wheat. The diet during our quarantine period duplicated this preshipment diet. They were only given apples and hay during transit.

During the 2 weeks quarantine period after arrival at this laboratory, the animals were examined for pathogens. Testing procedures included: 1) fecal examination for parasite cysts and ova, using the formalin-ether centrifugal sedimentation technique (American Public Health Association, *Diagnostic Procedures and Reagents*, 4th ed., Am. Pub. Health Assoc., Inc., New York, 1963); 2) serological agglutination titer for tularemia (using Difco's tube *Pasteurella tularensis* antigen, code 2251); and 3) fecal culture technic for enteric pathogens in rabbits with enteritis. Results of these studies are shown in table 1.

Eighty-four percent of the parasite-infested animals harbored two or more species. One rabbit harbored five different species. Ectoparasites included fleas (*Ctenocephalides felis* and *Hoplopsyllus glacialis*) and mites (*Cheyletiella parasitovorax*), but the incidence was not determined. The incidence of parasitism in this survey (63%) was lower than that found in other surveys of wild rabbits from the neighboring states of Iowa and Oklahoma (B. B. Morgan and E. F. Waller, J. Wildl. Mgt., 4: 21, 1940; C. C. Smith, J. Wildl. Mgt., 4: 429, 1940). This may be due in part to selection of healthy animals for shipment. The spectrum of parasties herein reported is similar to those found in the above surveys and in another Oklahoma survey (J. W. Ward, Proc. Okla. Acad. Sci., 14: 31, 1934).

Results of rabbit testing

	Incidence (%)
Parasites	
Eimeria sp.	44.9
Hasstilesia tricolor	2.1
Cittotaenia sp.	10.0
Trichuris leporis	4.3
Passalurus ambiguus	5.0
Dermatoxys veligera	1.5
Obeliscoides cuniculi	16.6
Nematodirus leporis	15.2
Trichostrongylus sp.	1.5
Bacteria	
Positive tularemia serology	3.0
Salmonella newport	0.7

The major problem with the rabbits was severe enteritis, accounting for 56% mortality before the end of the 2 weeks quarantine period. The relationship of the parasites to this disease was not determined, and only once was a bacterial enteric pathogen isolated (*Salmonella newport*).

The use of wild animals for specialized studies in research programs will probably be accompanied by other examples of difficulties during the transition period from the wild state to laboratory environment.

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BLOOD PROTOZOA OF PASSERINE BIRDS OF THE SACRAMENTO (CALIF.) REGION

Within the author's knowledge, studies on prevalence of parasites in various birds in the Sacramento region include only yellow-billed magpies (Clark, 1960, J. Protozool. 7 (Suppl.): 18), cliff swallows (Clark, 1966, J. Protozool., in press) and Anseriformes (Wood and Herman, 1943, J. Parasitol. 29: 187-196). The present paper is intended to supplement this data.

Blood smears used in this study were made from 383 banded adult and juvenal birds of 23 species (21 genera, 13 families) collected in 1964 and 1965. These birds were live-trapped and blood was obtained by piercing the brachial vein on the underside of the left wing with a needle. Barring natural destruction most of these birds are still in the field. Blood smears were air dried, fixed in absolute methyl alcohol and stained with Giemsa. All smears were examined for at least 10 minutes with low power (200X), medium power (430X) and with oil immersion lens (970X). These magnifications greatly increased the probability of finding hematozoa in the blood preparations.

Results and Discussion

Examination of these blood smears revealed 134 (34.9%) infected with *Haemoproteus, Leucocytozoon, Trypanosoma, Plasmodium, Hepatozoon* and microfilariae. The data in Table 1 summarizes our findings.

As far as the authors are aware, the following are new host records: *Haemoproteus* sp. and *Leucocytozoon* sp. in *Zonotrichia atricapilla* (golden-crowned sparrow) and *Hepatozoon* sp. in *Parus inornatus* (plain titmouse).

The blood parasite incidence of the house sparrow (*Passer domesticus*) appears to differ from that of other species of birds sharing a similar habitat. Manwell (1957, J. Parasitol. 43: 428-433) indicated that it seems to have a relatively higher resistance to some species of avian malaria and that *Leucocytozoon* and *Haemoproteus* are relatively rare. This coneurs with the present data.

There appears to be no correlation between the nesting habits and the parasite incidence in the present data. However, even though the sample is small for many of the species, it does appear suggestive.

The blood protozoan picture of the passerine birds as reported