

INTESTINAL HELMINTH PARASITES OF THE ROCK
PARTRIDGE, *ALECTORIS GRAECA*
IN G'ARA AREA, WEST OF IRAQ

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ABSTRACT

This work deals with the reporting of four helminths in the rock partridge *Alectoris graeca* collected in G'ara area west of Iraq. The infection rates of the cestodes, *Raillietina alectoris* and *R. tetragona* and the nematode *Hartertia gallinarum*, and the trematode *Postharmostomum gallinum* were 6.38%, 40.43%, 10.63%, and 10.63% respectively. The host relationships were discussed .

INTRODUCTION

The rock Partridge, *Alectoris graeca* (Meisner) is a common game bird in the eastern-northern and western parts of Iraq. It inhabits mountainous and rock hills areas of the country (Allouse, 1961) . The bird is one of the principal inhabitants of G'ara area which is a large open depression surrounded by rocky hills 60 km north of Rutba some 60 km EW by 20 km NS and situated at 33 30 and 40 15' in the western desert district of Iraq (Guest and Al-Rawi, 1966) .

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Only few works were carried out recently on the parasites of wild Phasianidae of Iraq such as Sawada and Mohammad (1989) , Mahmoud et al (1990) and Mohammad (1990) on Seese and Black partridges while little is known about the parasites of the domestic fowl in Iraq (Al-Hubaity and Al-Habib, 1979) . but none on rock partridge .

The present work is designated to provide some informations on the incidence and intensity of the helminths parasitized the rock partridge of G'ara area .

MATERIALS AND METHODS

A total of 47 birds were shot in G'ara rocky hills during the period from May 87 to Sept. 89. The birds were separated according to their sex, weighed, measured and then immediately dissected to get the alimentary tracts. The recovered helminths were first washed with 1 % normal saline and then kept in 70% alcohol. The trematodes and cestodes stained in the laboratory with acetocarmine and cleared with xylene, while the nematodes were cleared with lactophenol.

Photomicrographs were taken with Olympus research microscope (Vanox) .

RESULTS

Table 1 summerizes the findings in the bulk sample which show that the total infection rate is 53.2% . Table 2 shows the presence of the parasites according to the sex of the host. Table 3 represents a weight comparision

Table 1

Parasite	no. inf. hosts	%	no. parasites	mean. no. parasite/ host (range)
<i>Hartertia gallinarum</i>	5		10.63	52 10.4(1-14)
<i>Postharmostomum gallinum</i>	5		10.63	22 4.4(1-7)
<i>Raillietina alectori</i>	3		6.38	6 2(1-3)
<i>Raillietina tetragona</i>	19		40.43	97 5.1(1-9)

Table 2

Parasite	male hosts parasites		female hosts		mean no. parasites
	no.	% total	no.	% total	
<i>Hartertia gallinarum</i>	4	8.51	45(11.25)	1	2.12 7(7)
<i>Postharmostomum gallinum</i>	3	6.38	18(6)	2	4.25 4(2)
<i>Raillietina alectori</i>	1	2.12	3(3)	2	4.25 3(1.5)
<i>Raillietina tetragona</i>	12	25.53	67(5.58)	7	14.88 30(4.29)

Table 3

Host sex	infected no.		mean weight	no. uninfected.	mean weight
male	27	17	590.31 gm	10	595.25 gm
female	20	8	458.08 gm	12	455.33 gm

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between the infected and uninfected fully mature males and females (according to their measurements) respectively .

Among the recovered helminths **Raillietina tetragona** is the most common one. It appears singly in 4 hosts with **Hartertia gallinarum** in 11 hosts, with **R. alectori** in 3 hosts, and once with both of **R. alectori** and **Postharmostomum gallinum** .

A brief description of each helminth is given below . All measurements are in mm .

Raillietina tetragona (Molin. 1858) (Davaineidae) (Figs. 1-2). Strobila 105-175, breadth 1.1-3. scolex 0.2 X 0.3. genital pores unilateral situated in the middle of the lateral margin of proglottid, no. of testes 28-30 .

Raillietina alectori Schmidt, Greenberg and Wertheim, 1986 (Davaineidae) (Figs. 3-4) . Strobila 47-59, breadth 0.6-0.9, scolex 0.15-0.16 X 0.18-0.2, rostellum 0.03-0.05 X 0.055-0.065, suckers 0.06-0.09 X 0.04-0.06, genital pores unilateral located anterior to middle of segment margin, no. of testes 34-45, ovary fan-shaped, vitelline gland reniform .

Hartertia gallinarum (Thieler 1919) (Figs. 5-6) : male, total length 32, maximum width 0.39, left spicule 0.41. The posterior end is tuberculate.

Female total length 53, maximum width 0.7, eggs 36 X 21 um .

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Postharmostomum gallinum (Witenberg 1923) (Fig. 7)
Body elongated, total length 4.2-4.5 (4.32), maximum width 1.3-1.45 (1.4) at the median level of posterior third of the body. oral sucker terminal-subcircular. 0.78 X 0.73, acetabulum circular 0.54. testes two slightly branched, obliquely situated in the posterior quarter of the body, anterior testis 0.43 X 0.49, posterior one transversally elongated 0.65 X 0.27. ovary lies beside testes. circular. 0.22 in diameter, vitellaria follicular distributed extracellually along the lateral margins of the body behind acetabulum to the anterior end of the posterior testis. uterus convolute, occupies the distance between ovary and pharynx. Eggs elliptical, 0.033 X 0.015 .

The stomach contents examination reveals that the most common animal food utilized by the hosts was the termite, **Anacanthotermes ubachi** and the ant. **Messor** sp.

DISCUSSION

Reporting of **H. gallinarum**, **P. gallinum** and **R. alectoris** constitute new host records in Iraq. while the second one represent a new record for the Iraqi helminth fauna .

Infection rates among male and female hosts (table 2) show that female hosts acquired higher rates of parasitism than their mates except for **R. alectoris**. This is may be explained in behavioural view of females especially in the egg laying period in which it consume more animal food than males .

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Analysis of weight figures of this game bird (table 3) show no significant differences between infected and non-infected male and female hosts. It is not possible, however, to compare the effect of each parasite alone since most of the infected specimens have more than one species of parasites and this subject needs experimental studies .

The cestode *Raillietina tetragona* is the most common parasite (Table 1) . This finding was also reported by Mohammad (1990) in the black partridge *F. francolinus arabistanicus*. This result may be because that the intermediate host of this cestode which includes a variety of insects and other invertebrates is abundant in the animal food utilized by hosts. Sawada (1955) reported 5 ant species as intermediate hosts among 26 species of different invertebrates, and Yamaguti (1959) mentioned 5 genera of ants which can serve, experimentally, as intermediate hosts. Therefore the ant *Messor* SP. which is the major animal food is suspected here to be the suitable intermediate host of *R. tetragona* in *Alectoris graeca* .

The another cestode *R. alectoris* was first described by Schmidt et al. (1986) in Palestine from *Alectoris graeca* and *F. francolinus*. Then Sawada and Mohammad (1989) reported it in Iraq from the seesee partridge *Ammoperdix griseogularis*. The present specimens fits the morphological characteristics of the original description. Its presence in Iraq in two phasianids sharing the same habitat indicate that this cestode may be restricted

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to special ecosystems like that of G'ara region which support thriving of the appropriate intermediate hosts. since Mohammad (1990) could not find this cestode in **F. francolinus** collected in Baghdad area (middle of Iraq). However, as shown in table 2. the number of **R. alectoris** in the male and female hosts is not large enough to conclude any significant comparison regarding their presence in both sexes .

The trematode **Postharmostomum gallinum** is a common parasite of galliformes. It was reported in chicken, domestic pigeon,coot, Cooper pheasant, Green pheasant, and Turkey (Dawes, 1956; Skryabin, 1948; Yamaguti, 1958; Kugi, 1987) . Its intermediate hosts were mostly snails (Alicata, 1938, 1940) . It is obvious that this cecal trematode is especially common in birds raised on the ground like **A. graeca** where the intermediate land snail hosts occur in large numbers in the studied Ga'ara area. The present specimens are of great resemblance to that of Kugi (1987) .

The nematode **Hartretia gallinarum** is a parasite of chickens and bustrads in Africa and transmitted by workers of ants and termites (Kotlan, 1960 ; Chandler and Read Rdead, 1961 ; Yamaguti, 1961. Jones, 1967 This is in accordance with the present results which show that the ant **Messor** sp. and the termite **Anacanthotermes ubachi** constitute a large portion of animal

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food utilized by hosts. The present specimens fit well with that of Mahmoud et al (1990) from the seesee partridge collected in the same locality. However, a considerable difference in infection rates with this nematode was noticed in this study (10.63%) and that of Mahmoud et al. (1990) in seesee partridge (61.9%) . This is apparently related to different feeding habits of the two different species since the other factors influencing the infection rate was the same for both of them as they were collected from the same area and almost at the same time. However, these worms, if numerous, cause diarrhea, weakness, and death (Jones, 1967) .

All of the above mentioned helminths are found in the intestine, but up till now there is no evidence of helminths in other parts of the body. For this reason and for that the present study is restricted to one area it is necessary to study the parasites of this bird in other regions of Iraq, especially the northern parts of the country in which the bird is more widely distributed to have a complete idea about the parasitemia of this game bird .

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الديدان الطفيلية المعوية في طيور القبج في منطقة الكعرة - غرب العراق

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الخلاصة

اثناء مسح ٤٧ نموذجاً من طيور القبج جمعت من منطقة الكعرة، غرب العراق خلال حزيران ١٩٨٧ الى ايلول ١٩٨٩ تم العثور والتعرف على اربعة ديدان واحدة خيطية **Hartertia gallinarum** ودوتين شريطيتين **R. tetragona, Raillietina alectoris** والدودة المثقوبية **P. gallinum** ويعتبر تسجيل **Postharmostomum gallinum** الاول في العراق وكانت نسبة الاصابة هي ٦٣ و ١٠ - / ٠ ، ٣٨ و ٦٪ ، ٤٣ و ٤٠٪ ، ١٠ و ٦٣٪ على التوالي كما تم مناقشة العلاقة البيئية بين الطفيليات والمضيف .

