

Helminth Parasites of Aquatic Birds of Basrah Province Marshy Area, Iraq

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(Accepted for publication; May 11, 1994)

Abstract

Literature review on the parasitic worms of aquatic birds of the marshy area in Basrah Province of south Iraq indicated that fifteen trematodes, fourteen cestodes, seven nematodes and two acanthocephalans were recorded from 23 species of aquatic birds. These birds include *Anas clypeata*, *A. querquedula*, *A. strepera*, *Ardea purpurea*, *Aythya ferina*, *A. nyroca*, *Bubulcus ibis*, *Egretta elba*, *E. garzetta*, *Fulica atra*, *Gallinago minima*, *Gallinula chloropus*, *Himantopus himantopus*, *Larus ridibundus*, *Pelecanus onocrotalus*, *Phalacrocorax carbo*, *Platalea leucorodia*, *Podiceps nigricollis*, *P. ruficollis*, *Porphyrio porphyrio*, *Tadorna ferruginea*, *Tringa nebularia* and *Vanellus leucurus*.

Key words: Aquatic birds, digenetic trematodes, cestodes, nematodes, acanthocephala, Iraq

Introduction

The southern marshes of Iraq in general and the marshy area of Basrah Province (Fig. 1) in particular, are good habitat for many aquatic birds (both resident and migratory) where they share adequate food and slightly warm waters (Al-Hadithi, 1971). Aquatic plants there provide a suitable shelter for such birds.

Wild birds play an important role in spreading diseases and parasites to domesticated birds and even to man (Soulsby, 1968). On the other hand, wild aquatic birds may transmit diseases to fishes as these birds act as final hosts for many worms infecting fishes (Mhaisen, 1983; Mhaisen and Abul-Eis, 1992). In spite of such importance, the aquatic birds of marshy area of Iraq had received little attention in connection with their parasitic faunas (Al-Hadithi and Habish, 1977; Abdullah, 1988; Al-Mayah, 1990; Al-Hadithi and Abdullah, 1991; Al-Mayah *et al.*, 1991; Al-Hadithi, 1992; Al-Hadithi *et al.*, unpublished data). It is necessary to state here that some other works were done on birds from Shatt Al-Arab river and its tributaries (Mhaisen *et al.*, 1990; Al-Hadithi and Mustafa, 1991) which are on close connection with the marshy area of Basrah.

The present paper aims to revise literature on the

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parasitic worms of the aquatic birds of Basrah marshy area and provide parasite – host and host – parasite lists.

Major Groups of Parasitic Helminths

The following is a brief account on the major groups of helminths parasitic in the birds of marshy area of Basrah Province. Yamaguti's (1958, 1959, 1961, 1963) systematic accounts were used to revise the names of the parasites.

Trematoda:

This class of phylum Platyhelminthes is represented by the group of Digenea which includes endoparasites of the alimentary canal and other internal organs. Digenetic trematodes have indirect life cycles in which they require snails as first intermediate hosts and fishes as second intermediate hosts to complete their life cycles. The digenean fauna of the birds of Basrah marshes is represented with 15 species as shown in the parasite – host list.

Cestoda:

This class of phylum Platyhelminthes is represented with 14 species which are all endoparasitic in the alimentary canal. Such worms require crustaceans and sometimes annelids as first intermediate hosts and fishes as second intermediate hosts. The

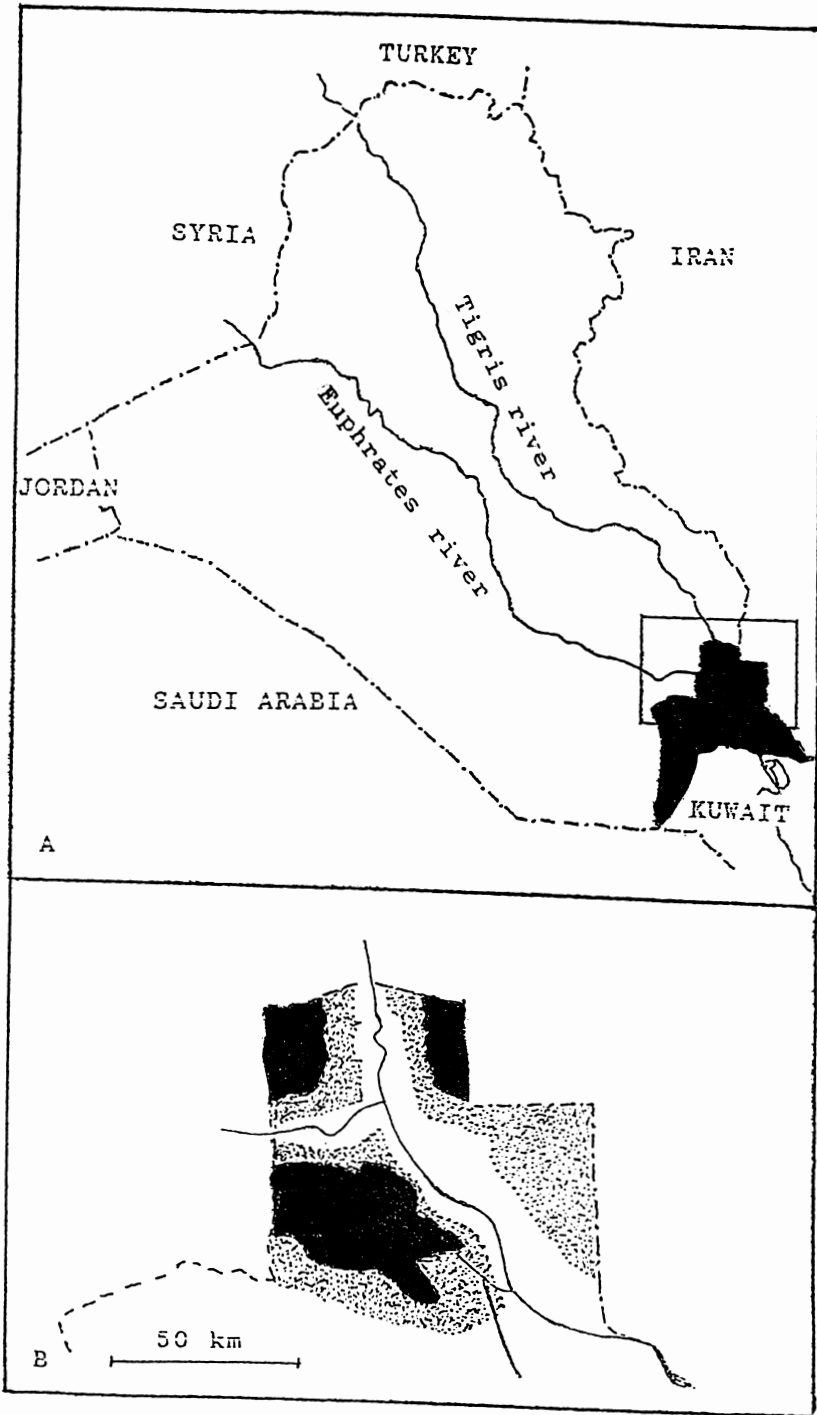


Fig. 1A Map of Iraq showing Basrah Province (dark area). B: Marshy area of Basrah Province. ■ Permanent marshes; ■ Seasonal marshes.

genus *Haploparaxis* was erroneously reported as *Aploparaksis* by Al-Hadithi (1992).

Nematoda:

The phylum Nematelminthes includes seven

species parasitic in the alimentary canal of the birds of Basrah marshes. Such worms require crustaceans as first intermediate hosts and fishes as second intermediate hosts. Yamaguti (1961) considered the genus *Tetrameres* as a synonym of *Tropisurus*.

Table 1 Parasites and their bird hosts in Basrah marshes

Parasite group and name	Host number
Trematoda	
1- <i>Apatemon minor</i> Yamaguti, 1933	5
2- <i>Apharyngostrigea</i> (A.) <i>cornu</i> (Goeze, 1800)	4
3- <i>Codonocephalus urniger</i> (Rud., 1819)	4
4- <i>Cyclocoelum mutabile</i> (Zeder, 1800)	12
5- <i>Echinochasmus</i> sp.	21
6- <i>Echinoparyphium recurvatum</i> (Linstow, 1873)	9
7- <i>Echinostoma chloropodis</i> (Zeder, 1800)	12, 14, 23
8- <i>Echinostoma revolutum</i> (Frolich, 1802)	3, 23
9- <i>Echinostoma sarcinum</i> Dietz, 1809	12, 23
10- <i>Echinostoma</i> sp.	24
11- <i>Notocotylus attenuatus</i> (Rud., 1809)	8
12- <i>Notocotylus gibbus</i> (Mehlis, 1846)	12, 14
13- <i>Notocotylus</i> sp.	24
14- <i>Patagifer parvispinosum</i> Yamaguti, 1933	22
15- <i>Psilochasmus oxyurus</i> (Creplin, 1825)	2, 5, 12
Cestoda	
16- <i>Anomotaenia microrhyncha</i> (Krabbe, 1869)	26
17- <i>Bisaccanthes bisaccatus</i> (Fuhrmann, 1906)	3
18- <i>Cotugnia</i> sp.	12
19- <i>Dicranotaenia tsengi</i> (Joyeux et Baer, 1940)	15
20- <i>Diorchis brevis</i> Rybicka, 1957	12, 14
21- <i>Diorchis ransomi</i> Schultz, 1940	3, 5, 6, 12
22- <i>Diorchis</i> sp.	3
23- <i>Diplophallus polymorphus</i> (Rud., 1819)	15
24- <i>Diploposthe laevis</i> (Bloch, 1782)	5
25- <i>Haploparaxis crassirostris</i> (Krabbe, 1869)	17
26- <i>Paricterotaenia porosa</i> (Rud., 1810)	16
27- <i>Tatria acanthorhyncha</i> (Wedl, 1855)	22
28- <i>Tatria decacantha</i> Fuhrmann, 1913	21, 22
29- <i>Trichocephalus megalcephala</i> (Krabbe, 1869)	17
Nematoda	
30- <i>Capillaria</i> sp.	12
31- <i>Contracaecum microcephalum</i> (Rud., 1809)	4
32- <i>Contracaecum</i> (C.) <i>ovale</i> (Linstow, 1907)	4
33- <i>Contracaecum</i> sp.	10, 11, 18, 19, 20, 26
34- <i>Eustrongylides tubifex</i> (Nitzsch in Rud., 1819)	22
35- <i>Microtetrameres egrates</i> Rasheed, 1960	7
36- <i>Tetrameres</i> sp.	2, 3, 12, 14, 23
Acanthocephala	
37- <i>Filicolis anatis</i> (Schränk, 1788)	12
38- <i>Polymorphus minutus</i> (Linstow, 1896)	3

Acanthocephala:

This major phylum includes two species parasitic in the alimentary canal of the birds of Basrah marshes. They require crustaceans, aquatic insects (and sometimes fishes) as intermediate hosts to complete their life cycles.

Parasite – Host List

The parasite species in Table (1) are arranged according to their phylogenetic order and alphabetically in their major groups. To economise space, bird hosts are shown by numbers. These numbers, which are illustrated in the host – parasite list (given later in this text), show the scientific names and synonyms (if any).

Host – Parasite List

Bird hosts in Table (2) are alphabetically ar-

ranged according to their generic and specific names. The parasites of each bird are also shown by their numbers (see the parasite – host list of Table 1) in order to economise space. The systematic list of Mahdi and Georg (1969) was followed to revise the scientific names of the birds. Names quoted by Bannerman and Bannerman (1971) are quite alike with those of Mahdi and Georg (1969) except for *Bubulcus* and *Tringa* which were reported as *Ardeola* and *Totanus*, respectively.

Negative Helminth Infections

While surveying different aquatic birds for parasite infections, some of such birds from Basrah marshes showed no infection (Al-Hadithi and Habish, 1977; Al-Hadithi and Al-Mayah, 1991). These include *Anas platyrhynchos*, *Anser anser*, *Ardea cinerea*, *Ardeola ralloides*, *Charadrius hiaticula*, *Ixobrychus minutus*, *Larus argentatus*,

Table 2 Bird – parasite list of Basrah marshes

Bird name and synonym	Parasite number
1– <i>Anas clypeata</i> : Reported as <i>Spatula clypeata</i>	see bird No. 24
2– <i>Anas querquedula</i>	15, 36
3– <i>Anas strepera</i>	8, 17, 21, 22, 36, 38
4– <i>Ardea purpurea</i>	2, 3, 31, 32
5– <i>Aythya ferina</i>	1, 15, 21, 24
6– <i>Aythya nyroca</i>	21
7– <i>Bubulcus ibis</i>	35
8– <i>Casarca ferruginea</i> = <i>Tadorna ferruginea</i>	11
9– <i>Chettusia leucura</i> = <i>Vanellus leucurus</i>	8
10– <i>Egretta alba</i>	33
11– <i>Egretta garzetta</i>	33
12– <i>Fulica atra</i>	4, 7, 9, 12, 15, 18, 20, 21, 30, 36, 37
13– <i>Gallinago minima</i> : Reported as <i>Lymnocyptes minimus</i>	see bird No. 17
14– <i>Gallinula chloropus</i>	7, 12, 20, 36
15– <i>Himantopus himantopus</i>	19, 23
16– <i>Larus ridibundus</i>	26
17– <i>Lymnocyptes minimus</i> = <i>Gallinula minima</i>	25, 29
18– <i>Pelecanus onocrotalus</i>	33
19– <i>Phalacrocorax</i> sp. = Possibly <i>Phalacrocorax carbo</i>	33
20– <i>Platylea leucorodia</i>	33
21– <i>Podiceps nigricollis</i>	5, 28
22– <i>Podiceps ruficollis</i>	14, 27, 28, 34
23– <i>Porphyrio poliocephalus</i> = <i>Porphyrio porphyrio</i>	7, 8, 9, 36
24– <i>Spatula clypeata</i> = <i>Anas clypeata</i>	10, 13
25– <i>Tadorna ferruginea</i> : Reported as <i>Casarca ferruginea</i>	see bird No. 8
26– <i>Tringa nebularis</i>	16, 33
27– <i>Vanellus leucurus</i> : Reported as <i>Chettusia leucura</i>	see bird No. 9

Discussion

Although the avifauna of Iraq includes 385 species (Mahdi and Georg, 1969), the exact number of the aquatic birds of Iraq is not determined. The present study indicates that 23 bird species (excluding of their synonyms) were harbouring worms. In addition, nine bird species showed negative infection. This shows that a quite good number of aquatic birds is present in Iraq.

Aquatic bird helminthiasis occurred as a result of food relations between these birds and the first and/or the second intermediate hosts of worms causing such diseases. For example, the metacercariae of *Apharynostrigea* (*A.*) *cornu* and the third larval stage of the heterocheilid nematode genus *Contracaecum* were recorded from some freshwater fishes of Iraq (Salih *et al.*, 1988; Mhaisen *et al.*, in press, respectively). The adult forms of these two parasites are found in some of the aquatic birds of Basrah marshes as a result of their feeding on fishes which act as intermediate hosts for such parasites. On the other hand, metacercariae of *Ascocotyle* and *Clinostomum* and other strigeid metacercariae were also detected from some of the freshwater fishes of Basrah Province (Mhaisen *et al.*, in press). The adult stages of such metacercariae are usually found in the aquatic birds but they were not recorded in birds of Basrah yet. Therefore, more parasite species are expected to occur in the aquatic birds of Basrah marshy area. Hence, the present number of such parasites (38 species) does not represent the actual number.

Finally, more surveys are needed to be done on different aquatic birds of Basrah marshes to gain more informations on such parasites. The importance of such studies comes from different aspects. For example, apart from causing death to wild birds, parasitic worms are also responsible for lower growth rates, decreased egg production and decreased fertility. Aquatic birds are also responsible for parasite transmission to domesticated birds (Soulsby, 1968) and fishes (Mhaisen and Abul-Eis, 1992). Some of these parasites which infect birds can infect humans (Soulsby, 1968) as in the case of *Echinostoma revolutum*.

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