NEW SUB-SPECIES OF CHUKAR PARTRIDGE ALECTORIS CHUKAR (GRAY 1830) (PHASIANIDAE, GALLIFORMES) FROM NORTH EAST OF IRAQ WITH BIOLOGICAL OBSERVATIONS

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ABSTRACT

Chukar partridge Alectoris chukar (Gray, 1830) is the only species of the 46 species of the genus Alectoris to be found in Iraq. At least there are fourteen subspecies of chukar were described from east Europe, the Middle East and west Asia, two of them were known to be found in Iraq, A.c. Kurdestanica (Meinertzhagen, 1923) from Alpine bio-geographical zone of altitude more than 2000m high, and A.c. werae Zarundny and Loudon, 1904, from the foothills of altitude not more than 400m. In between these two regions, there is another biogeographical region known as the Irano-toranian zone 400-2000m high. Using morphological, ecological, behavioural, reproduction and hybridization criteria this study discovered a new subspecies A. c. asoica ssp. n. in Irano-toranian zone. The new subspecies differs from A.c. Kurdestanica and A.c. werae in voice, migration, chick coloration, egg size and certain aspects of ecology. Also this study recorded for the first time the subspecies A.c. sinaica Bonaparte 1858, in the area between Jezira and western desert, the penetration of the Jordanian Irano-toranian zone. The taxonomic status of the new subspecies A. c. asoica ssp.n. has been discussed according to the most common and widely accepted species concept, biological species concept (BSC) and phylogenetic species concept (PSC).

INTRODUCTION

The genus Alectoris consists of 46 species and the Asian partridges and chukars are 7 species. The Chukar, Alectoris Chukar (Gray 1830) is a Eurasian upland game bird in the pheasant family Phasianidae of the order Galliformes, gallinaceous birds. This partridge has its native range in Asia from Pakistan and Kashmir, into the Republic of India and Afghanistan in the east to southeastern Europe in the west and is closely related and similar to its western equivalent, the Red-legged partridge, Alectoris rufa. It has been introduced to the United states, Canada, New Zealand, Hawaii and Great Britain. It is the only species of the genus Alectoris to be found in Iraq. At least there are 13 subspecies of Chukar described from different parts of the world (Vaurie, 1965) or 14 subspecies (Cramp and Simmons, 1980). In Iraq there are two subspecies, namely, A.c. kurdestanica (Meinertzhagen, 1923) from the Alpine bio-geographical zone of altitude more than 2000m high, and A.c. werae Zarundny and Loudon, 1904, from the foothills of altitude not more than 400m.

Meinertzhagen (1923) described A. graeca kurdestanica from the Alpine region of Kurdestan Mountains in the north of Iraq. Zarundy and Lodun (1904) discovered A.c. werae from foothills of Zagross mountain. Allous (1962) reported that A.c. graeca was to be found in Iraq. However, there is no study of the population of A. chukar in the bio-geographical region known as Irano-toranian zone 400-2000m. Watson (1962), Stokes (1961) and Cramp et al., (1980) reported in their studies of the distribution of Alectoris species that only A. chukar was found in Iraq. Mahdi and George (1969) results agreed with Vaurie finding. Goodwin
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(1953) study the call and behaviour of A. rufa. The aim of this study was (1) to investigate the taxonomic status of the Irano-toranian zone populations of A. chukar using morphological, ecological, behavioural and reproduction criteria (2) to compare the populations of A. chukar the Irano-toranian zone with those already described subspecies in Iraq, A. c. kurdestanica and A. c. werae and the newly recorded subspecies in this study A. c. sinaica Bonaparte, 1858, in the area between Jezira and the Western desert, the penetration of the Jordanian Irano-toranian zone.

MATERIALS AND METHODS

The BeSan valley from Hawraman mountain was selected as the study area. A shelter was build using stone and bushes and then we put a cage with a male chukar at a distance about 10 meters from the shelter. The rally call helped to attract the other chukar in the area to come and fight with the chukar under this experiment. In order to study the A. chukar morphology and behaviour, 4 male and 6 females were kept in the open. Our collection of A. chukar were compared with reliable specimens of A. chukar in the Natural History Museum, University of Baghdad, Iraq. To record our data we used, Canon Camera, T50-binocular, altimeter and vernier calliper.

RESULTS

Results from investigation of morphological, ecological, and reproduction (e.g., altitude, throat wash weight, dorsal colour, migration, egg size and voice: rally call) suggest that the population of A. chukar in the Irano-toranian zone represents a new subspecies. Detailed descriptions of the new subspecies Alectoris chukar asoica ssp.n and criteria to separate it from other subspecies which are known from Iraq and the newly recoded subspecies A. c. sinaica are given in table 1.

Table 1. Comparison between the four subspecies of A. chukar found in Iraq.

<table>
<thead>
<tr>
<th></th>
<th>A.c. kurdestanica</th>
<th>A.c. asoica ssp.n</th>
<th>A.c. werae</th>
<th>A.c. sinaica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>More than 2000 m.</td>
<td>400-2000 m.</td>
<td>Less than 400 m.</td>
<td>Desert, Less than 400 m.</td>
</tr>
<tr>
<td>Throat wash</td>
<td>White</td>
<td>Gray white</td>
<td>Buffish white</td>
<td>Buffish white</td>
</tr>
<tr>
<td>Weight(gm)</td>
<td>Can reach more than 700 gm.</td>
<td>Dose not reach this size</td>
<td>Not more than 400 gm.</td>
<td>More than 700 gm.</td>
</tr>
<tr>
<td>Dorsal color</td>
<td>Brownish gray</td>
<td>Dark or olive gray.</td>
<td>Buffish gray</td>
<td>Buffish gray</td>
</tr>
<tr>
<td>Migration</td>
<td>Not more than 4 km.</td>
<td>More than 50 km.</td>
<td>No migration record</td>
<td>No migration</td>
</tr>
<tr>
<td>Egg size(mm.)</td>
<td>45 × 39</td>
<td>37 × 26</td>
<td>39 × 27</td>
<td>40 × 30</td>
</tr>
<tr>
<td>Voice (rally call)</td>
<td>Chukak kra</td>
<td>Chukak Kwa or mixing voice</td>
<td>Chukaklik or whistling</td>
<td>Chukak kra</td>
</tr>
</tbody>
</table>

Alectoris chukar asoica ssp.n.:

Holotype: No.3418 male Fig (1)

Locality: Hawraman mountain, BeSan Valley, Northeast of Iraq. Fig (2)
Diagnosis: Medium size, weight 550gm., total length 345mm. dark olive grey dorsal. Grey white throat, black mask surrounding the eye and throat, gradually meeting with the throat colour. Ventral coloration light brown. Flanks with 11 brownish black bars 3mm. wide. Bill length depends on the ground on which it lives, the upper part of the bill of captive birds become distinctly longer than usual.

Biotype and habitat: A.c. asoica lives on rocky mountain slopes of the Irano-turanian biogeographical zone altitude 1800m., of BeSan valley of Hawraman mountain, which covered with grasses trees and bushes (Prunus, Quercus, Pistacia, Crategus) (Fig. 3). Source of water is shallow streams and small waterfalls.

Call: A.c. asoica utter two specific calls which are not found in any chukars. Watson (1962) considers the call as a basic matters for separation between the sibling species of Alectoris sp.

The rally call: A.c. asoica utter (chukukkwa) instead of (chukukkra).

The rally call: A. c. asoica utter (chukukkwa) instead of (chukukkra).

Mixing call: start with steam engine call, changing immediately to ground-alarm call. Then to rally call later to food call again to rally call (chak.chak chak, tscher chak tscher, chukukkwa, chukukkwa, tchik, tchik, tu, tu, chukukkwa, chukukkwa). Uttering such mixing call, have more effect on gathering and attracting other chukars because it indicates that there are more than one birds in that place.

Nest and eggs: Female lays 12-20 eggs in a nest between bushes and grasses (Fig. 5). Sometimes 30 eggs in one nest from two female one of them juvenile. The eggs are incubated by the female or male or both. Egg size 26X 36. The juvenile does not know how to build a nest they lays the egg randomly or in the nest of another adult female.

Chick coloration: Light grey, wing and tail feathers firstly appear which remain the same colour in adulthood (Fig. 4).

Migration: most of the juveniles and some of the adults, at the end of November, migrate more than 50 km. from Hawraman mountain to a warmer mountain of Zemnako. They return back to Hawraman mountain at the end of February and a competition occurs between resident chukar and migratory chukar for on shelter and food.

At the time of migration the covey of chukar move to the top of the mountain and fly to the other southern top until they reach Zemnako mountain.

DISCUSSION

The question arose in this study: does the population of A. chukar in the Irano-toranian zone represent a new subspecies or do the three subspecies A.c. Kurdestanica, A.c. werae and A.c. asoica which are recorded from Iraq represent three sibling species? Mayden (1997) listed 22 species concepts a common feature of all these concepts is that the species is an entity within which gene exchange can occur but is closed to gene exchange with other species (Also see Claridge et al., 1997). The barriers to gene exchange have been called isolation mechanisms (Dobzhansky, 1937) or specific mate-recognition systems (Paterson, 1985). The most common and widely accepted species concept are the biological species concept (BSC: species are groups of actually or potentially interbreeding natural populations
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which are reproductively isolated from other such groups (Mayr, 1963) and phylogenetic species concept (PSC: the smallest population or group of populations within which there is a parental pattern of ancestry and descent and which is diagnosable by unique combinations of character-states (Eldredge and Cracraft, 1980). Under the BSC, diagnosably distinct populations will sometimes be recognized as separate, monotypic species, but often those populations are united together under a single species name if the diagnosable differences are not judged to be significant. With the text of the PSC, on the other hand, diagnosably distinct populations would always be accorded specific status. Therefore, the subspecies concept is widely applied in BSC and not relevant in PSC (Cracraft, 1997). Also Biological species are defined in terms of reproductive isolation (genetic) while Phylogenetic species are defined in terms of diagnosability (Morphological or non-populational). The taxonomic status of the population of the new subspecies A. c. asoica in the Irano-toranian zone depends on which species concept applies in this case. This is means that the populations of A. chukar in the Irano-toranian zone would represent a new species according to PSC and a subspecies according to BSC. In recent years support for the BSC within ornithology has waned as systematists have adopted a Phylogenetic species concept (PSC) (Cracraft, 1997).

Subspecies is a geographically defined aggregate of local populations which differs from other populations of the species taxonomically that is, by diagnostic morphological characters or it is the rank of the species group below species (Mayr 1942; Nichols, 1989). How great this taxonomic difference ought to be can be determined only through agreement among taxonomists. The subspecies has had a long history in taxonomy. In the Linnaean period it was called variety and no distinction was made between individual and geographical varieties and later it was used to designate geographical varieties. Therefore, the term subspecies was a replacement for “variety”. It is often good practice to reduce species to subspecies, so that their names indicate their nearest relatives. Therefore, for the time being this study concludes that the population of A. c. asoica in the Irano-toranian zone is a new subspecies and not raise it or other subspecies in Iraq to species level despite the fact that some sort of isolation or barrier between the three subspecies found in Iraq in their, ecology, behaviour, vocalisation, and the hybrid between captive or cage birds, and wild one (can be differentiated from each other by having very thin and weak bills like a pigeon bill, and irregular colour variation. Fig:6. The conclusion that the population of A. c. asoica in the Irano-toranian zone can be regarded as subspecies is based on (1) it produce intermediate one in the captive birds if interbreed with A. c. kurdestanica,(2) it is not known if this subspecies use their acoustic signal for conspecific mating? Or use other means? (3) among birds sibling species are rarer than even mammals (Mayr, 1963), (4) subspecies have been widely used in birds and are a valuable when applied to allopatric taxa that differ only to a degree that is commonly found within interbreeding populations. Further studies on genetics using sensitive molecular markers such as microsatellites, breeding tests, habits, the number or the kind of parasites they carry, morphometric analysis to confirm their taxonomic status.

ACKNOWLEDGEMENTS

Profound thank to Prof. Hassan A. Duwah, Cardiff School of Biosciences, Cardiff University, U.K. for revising the manuscript, and for adding some valuable information to the discussion.
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LITERATURE CITED


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Fig. 1a: *Alectoris chukar asoica ssp.n*

Fig. 1b: *Alectoris chukar kurdestanica*
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Fig. 2: BeSan valley from Hawraman mountain

Fig. 3: Habitat of Alectoris chukar asoica sspn.
Fig. 4: Nest of *Alectoris chukar asoica* with eggs.

Fig. 5: One week age chick of *Alectoris chukar asoica* sspn.
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Fig.6: Alector's chukar with long and weak bills.
نوع جديد لطائر القبج شرق العراق مع ملاحظات حياتية

سامان رستم لهويني و محمد عمار الراوي

الخلاصة

قبج (Alectoris chukar) نوع جديد من بين 46 نوع تابع لجنس Chukar partridge (Gray, 1830) الموجود في العراق. تم تشخيص 14 نوع لطائر القبج في أوروبا والشرق الأوسط، وغرب إسبانيا، فقط اثنان منهم عرفت سابقاً باعما وجودة في العراق.

نوع الكردستاني (A. c. Kurdestanica) (Meinertzhagen, 1923) النوع الوحيد من بين 14 نوع لطائر القبج في أوروبا، وغرب إسبانيا. وتوجد A. c. sinaica نورماند (Bonaparte 1858) أخرى في دولة العراق.

A. c. asoica ssp. n (BSC) من حيث الصوت والمظهر ولون الفراء وحجم البيض وعادات أخرى يشبه. وهذه الدراسة أيضاً تشمل تسجيل نوع A. c. sinaica (Bonaparte 1858).