

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. Kurdistanica* (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 bio-geographical region known as the Irano-toranic 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-toranic zone. The new subspecies differs from *A.c. Kurdistanica* 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-toranic 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. kurdistanica* (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 kurdistanica* from the Alpine region of Kurdistan Mountains in the north of Iraq. Zarundny and Loudon (1904) discovered *A.c. werae* from foothills of Zagros 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-toranic 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-toranic zone populations of *A. chukar* using morphological, ecological, behavioural and reproduction criteria (2) to compare the populations of *A. chukar* the Irano-toranic 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-toranic 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-toranic 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.

	<i>A.c. kurdestanica</i>	<i>A.c. asoica ssp.n</i>	<i>A.c.werae</i>	<i>A.c.sinaica</i>
Altitude	More than 2000 m.	400-2000 m.	Less than 400m.	Desert,less than 400m.
Throat wash	White	Gray white	Buffish white	Buffish white
Weight(gm)	Can reach more than 700 gm.	Dose not reach this size	Not more than400gm.	More than 700 gm.
Dorsal color	Brownish gray	Dark or olive gray.	Buffish gray	Buffish gray
Migration	Not more than 4 km.	More than 50 km.	No migration record	No migration
Egg size(mm.)	45 × 39	37× 26	39× 27	40 × 30
Voice (rally call)	Chukak kra	Chukak Kwa or mixing voice	Chukaklik or whstling	Chukak kra

*Alectoris chukar asoica* ssp.n.:

Holotype: No.3418 male Fig (1)

Locality: Hawraman mountain, BeSan Valley, Northeast of Iraq. Fig (2)

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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).

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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-turanian zone represent a new subspecies or do the three subspecies *A.c. Kurdistanica*, *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-toranic zone depends on which species concept applies in this case. This is means that the populations of *A. chukar* in the Irano-toranic 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-toranic 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 Irano-toranic 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.

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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*  
*ssp.*

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*Fig.6: Alectoris chukar With long and weak bills.*

نوع جديد لطائر القبج *Alectoris chukar* رتية الدجاجيات فصية التدرج من شمال  
شرق العراق مع ملاحظات حياتية

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الخلاصة

قبج Chukar partridge (Gray, 1830) النوع الوحيد من بين ٤٦ نوع تابع لجنس *Alectoris* الموجود في العراق. تم تشخيص ١٤ نوع لطائر القبج في اوربا والشرق الاوسط وغرب اسيا، فقط اثنان منهم عرفت سابقاً بأنها موجودة في العراق. نوع الكردستاني *A.c. Kurdistanica* (Meinertzhagen, 1923) تنتشر في المناطق الجغرافية المعروفة بالاليان Alpine و التي تزيد ارتفاعها عن ٢٠٠٠م. ونوع *A.c. werae* (Zarundny and Loudon) من المنطقة الجغرافية المعروفة ب (اقدام التلال foothills) التي لا تزيد ارتفاعها عن ٤٠٠م. وبين هذين المنطقتين الجغرافيتين اي بين ٤٠٠-٢٠٠٠م هناك منطقة معروفة ب (ايراني توراني) وباستخدام دراسة لشكل الخارجي والبيئة والسلوك والتكاثر مع ملاحظة وجود فراد من هجين تم وصف نوع جديد التي هو نوع آسيوي *A. c. asoica ssp* والنوع الجديد يختلف عن نوع *A.c. Kurdistanica* ونوع *A.c. werae* من حيث الصوت والمجرة ولون الفراخ وحجم البيض وعوامل اخرى بيئية. وهذه الدراسة ايضاً تشمل تسجيل نوع *A.c. sinaica* (Bonaparte 1858) لأول مرة في العراق من مدخل المنطقة الجغرافية ايراني توراني الاردني الواقع بين الجزيرة والصحراء الغربية. ونوقش تصنيف النوع الجديد *A. c. asoica ssp.n* (BSC). حسب اكثر النظريات شيوعاً حسب جانب البايولوجي لمفهوم النوع والمفهوم التشخيص للنوع (psc).