

Threats to Red Junglefowl (*Gallus gallus murghi*) in Deva Vatala National Park, District Bhimber, Azad Jammu and Kashmir, Pakistan

Faraz Akrim^{1*}, Muhammad Siddique Awan², Tariq Mahmood¹,
Muhammad Zubair Anjum³, Siddiqa Qasim¹, Jehanzeb Khalid⁴,
Durr-e-Shahwar¹ and Shaista Andleeb¹

¹Department of Wildlife Management, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan.

²Department of Zoology, University of Azad Jammu and Kashmir, Pakistan.

³Department of Zoology, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan.

⁴Department of Food Technology, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan.

Authors' contributions

This work was carried out in collaboration between all authors. Author FA designed the study, wrote the protocol, interpreted the data, anchored the field study, gathered the initial data and performed preliminary data analysis. Authors MSA and TM helped in producing initial draft. Author SQ helped during questionnaire surveys. While Authors JK, DS, SA and MZA managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/ARRB/2015/9596

Editor(s):

(1) George Perry, University of Texas at San Antonio, USA.

Reviewers:

(1) Anonymous, Sweden.

(2) Jaime C. Cabarles Jr, College of Agriculture, Resources and Environmental Sciences, Central Philippine University, Philippines.

(3) Anonymous, India.

(4) Anonymous, India.

Complete Peer review History: <http://www.sciencedomain.org/review-history.php?iid=796&id=32&aid=7174>

Original Research Article

Received 18th February 2014
Accepted 29th September 2014
Published 9th December 2014

ABSTRACT

Aim: The aim of this study was to document threats to Red Junglefowl (*Gallus gallus murghi*).
Place and Duration of Study: This study was conducted in Deva Vatala National Park, Bhimber Azad Jammu and Kashmir, Pakistan from May 2010 to June 2011.
Methodology: The data on threats to Red Junglefowl were collected by using a combination of

*Corresponding author: E-mail: farazakrim@hotmail.com;

methods which included semi-structured interviews, participatory observations and group discussions with local community.

Results: Major threats faced by Red Junglefowl in the study area were egg picking (88%) followed by hunting (16.40%), disturbance (12%), chick capturing (9.60%) and habitat degradation (9.20%). Majority of local people (44.80%) believed that they see Red Junglefowl less frequently as compared to past whereas, (32.40%) believe that its sighting has been increased during past few years while (22.80%) had no idea about increase or decrease of sightings. Shepherds were major group responsible for causing threats to Red Junglefowl (70.40%) followed by hunters (20.40%) and farmers (9.20%). According to our findings (89.20%) people liked Red Junglefowl whereas, (19.60%) people neither like or dislike it while a little proportion of people (1.60%) dislike Red Junglefowl. Majority of people (54.40%) thought that Red Junglefowl should be conserved whereas, (36%) believed that it should not be conserved while (9.60%) did not supported either conservation or exploitation.

Conclusion: Red Junglefowl is facing many threats in the study area among them egg picking followed by hunting are major threats.

Keywords: Red Junglefowl; Deva Vatala National Park; egg picking; hunting; threats.

1. INTRODUCTION

Red Junglefowl is the ancestor of the domestic chicken. It was domesticated about 8000 years ago, which is evident from the remains of the domesticated chickens in 16 Neolithic sites along the Huang He (Yellow River), in Northeast China [1]. There are five subspecies of Red Junglefowl, with the classification is based on variation in home range, size of combs and facial wattles, size and color of the earlobes and length and color of male hackle feathers; [2] *Gallus g. murghi* occurs in the lower ranges of Northern and north eastern India, from the Southern Kashmir and northern Pakistan eastward through northern and east central India to Assam, rarely from the plains to 2135m elevation in the sal forest and adjacent scrub [2]. Elsewhere in its range it is recorded up to 2500m [3].

Red Junglefowl is recorded in a range of tropical and subtropical habitats throughout its range including mangroves, scrubland and plantations and particularly forest habitats that include secondary forests and forest edges [4] on flat or gently sloping terrain [3]. It is generally considered common and widespread despite habitat loss and poaching within its range [1]. It is affected relatively little by habitat loss because it can occupy a variety of degraded and converted habitats, including plantations and fields at forest edges [3,5]. Eclipse plumage, one of the indications of pure stock, is now only seen in populations in the western and central regions of the species geographical range. It is, therefore, feared that where there is a high density of humans, whose domestic chickens could

continue to interbreed with Red Junglefowl [5,6]. Habitat of Red Junglefowl in Deva Vatala National Park has been constricted due to disturbance by local hunters, shepherds and grass cutters [7].

Red Junglefowl is only reported in Deva Vatala National Park (DVNP) of Azad Jammu and Kashmir, Pakistan [7]. There is only one small population of Red Junglefowl in Pakistan which is only restricted to Deva Vatala National park. No formal research study had focused threats to Red Junglefowl in study area therefore; the current study was designed to generate data on threats to Red Junglefowl for its future survival and conservation.

2. MATERIALS AND METHODS

2.1 Study Area

Deva Vatala National Park, (32° 53' 33.30-54'15.17N and 74°18'11. 42-20' 15.97E) is located in the east of the Bhimber city in the southeast of Azad Jammu and Kashmir, Pakistan. The area is surrounded by River Tuvi and occupied Kashmir in the east, Bhimber city in the west, Bandala valley in the north and District Gujrat (Karyan wala, Barila Sharif) of Pakistan in the south. In 1982 it was declared a Game Reserve covering 500 ha. A larger area of 2,993 ha was declared as a National Park in 2007. Elevation ranges from 306 to 411m above sea level. The park comprises of flat and undulating terrain covered by mixed natural vegetation [8] (Fig. 1).



Fig. 1. Map of district Bhimber of Azad Jammu and Kashmir , Pakistan along with study area Deva Vatala National Park (source internet)

2.2 Methodology

The data on threats to Red Junglefowl were collected by using a combination of methods which included semi-structured interviews, participatory observations and group discussions with local community. Local community which included farmers, hunters, shepherds and school going children were interviewed to collect data. According to the objectives of the study questionnaire were constructed through rigorous process of consultation with supervisor and other field experts. Prior to data collection the questionnaire developed was tested and modified when necessary, through a pilot study of 30 respondents in the study area. A total of 250 questionnaires were filled during the whole study period. Information on demographic and socio-economic factors which included sex, age, level of formal education, occupation and livestock holding was obtained. Respondents were asked series of closed end questions about the threats faced by Red Junglefowl in the study area. The questions included information on (i) direct encounter (ii) calls (iii) indirect signs (iv) frequency of sighting in past and at present. The information related to the threats were collected by questioning respondents about (i) hunting (ii) egg picking (iii) chick capturing (iv) Habitat degradation (v) disturbance. The data were also collected to document the part of community involved in activities which are threatening Red

Junglefowl in study area these included (i) shepherds (ii) hunters (locals and from surrounding areas) and (iii) farmers. The data on local perception that whether local community likes or dislikes Red Junglefowl was also collected. Beside local community the wildlife staff of Deva Vatala National Park was contacted and information was collected. In addition field surveys were conducted to check the accuracy of data provided by the local community and to increase accuracy.

2.3 Statistical Analysis

To test the hypothesis that all the threats viz. egg picking, hunting disturbance by livestock, chick capturing and habitat degradation contributed equally or not, Chi square test was used. SPSS version 16 was used for Chi square test. All other calculations were represented in percentage.

3. RESULTS

3.1 Threats to Red Junglefowl

The analysis of data collected showed different factors effecting Red Junglefowl in study area. Among 250 respondents 49.20% had directly seen Red Junglefowl, 63.20% had listened calls and 20.40% had seen indirect signs like feathers or faecal pellets. The data collected on present and past sighting frequency of Red Junglefowl

showed that 32.40% people believed that they see Red Junglefowl more frequently as compared to past whereas, other group (44.80%) believe that its sighting has been decreased during past few years, while (22.80%) had no idea about increase or decrease in sightings (Fig. 2).

Analysis of threats showed that major threat faced by Red Junglefowl was egg picking (88%) followed by hunting (16.40%), disturbance by livestock (12%), chick capturing (9.60%) and habitat degradation (9.20%) (Fig. 3). Analysis of people involved in activities which are threatening Red Junglefowl showed that shepherds were major group responsible

(70.40%) followed by hunters (20.40%) (Fig. 6) and farmers (9.20%) (Fig. 4). All the threats did not contributed equally ($p < 0.05$, $df = 4$).

Data collected on aspect of local perception showed that (89.20%) people liked Red Junglefowl whereas, (19.60%) people neither like or dislike it while a little proportion of people (1.60%) dislike Red Junglefowl however, they did not mentioned any reason for disliking (Fig. 5). The data collected regarding conservation of Red Junglefowl showed that (54.40%) people thought that Red Junglefowl should be conserved whereas, (36%) believed that it should not be conserved while (9.60%) did not supported either conservation or exploitation.

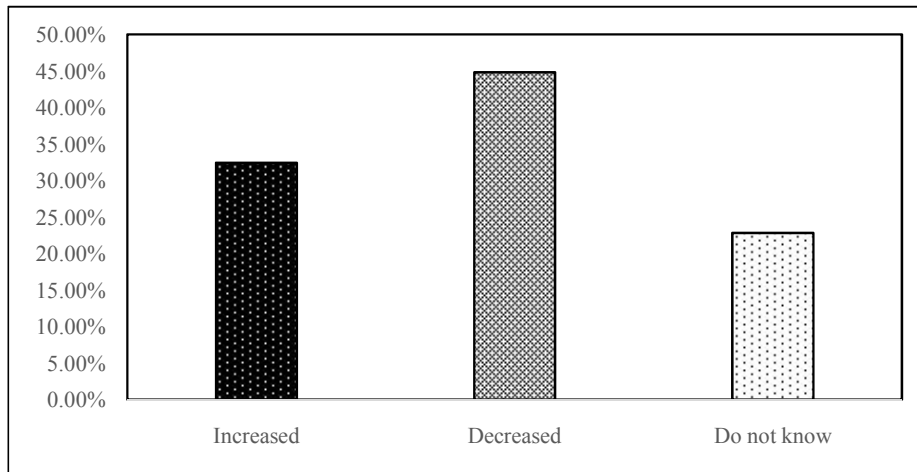


Fig. 2. Frequency of present and past sightings of red Junglefowl in Deva Vatala National Park by local community

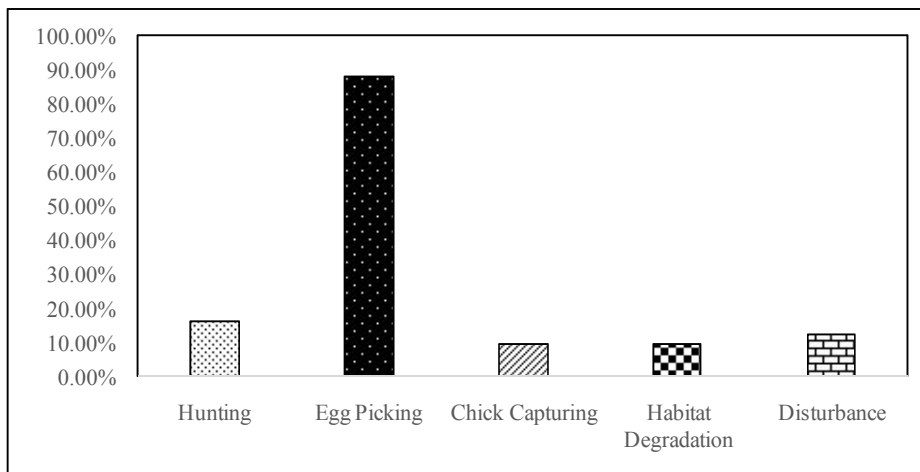


Fig. 3. Threats to red Junglefowl in Deva Vatala National Park

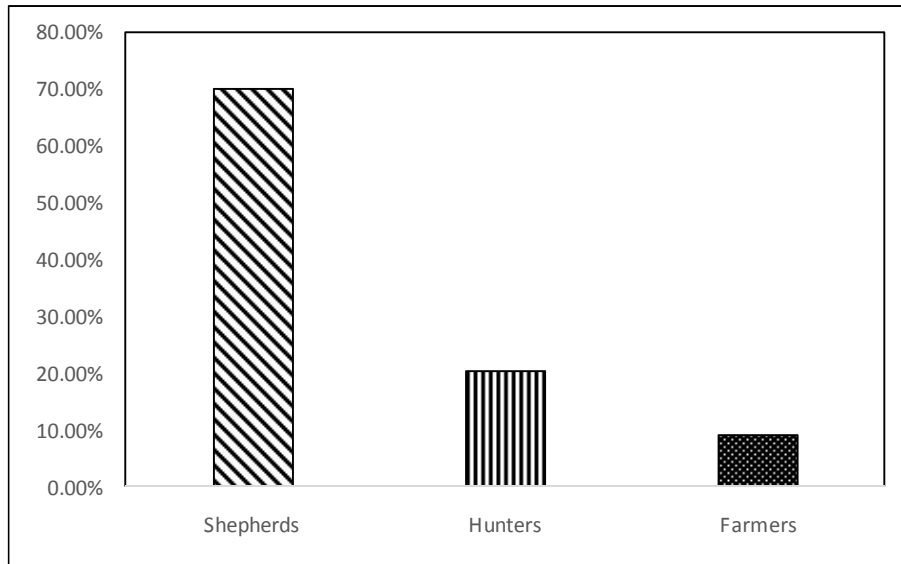


Fig. 4. Contribution of different people to the threats faced by red Junglefowl

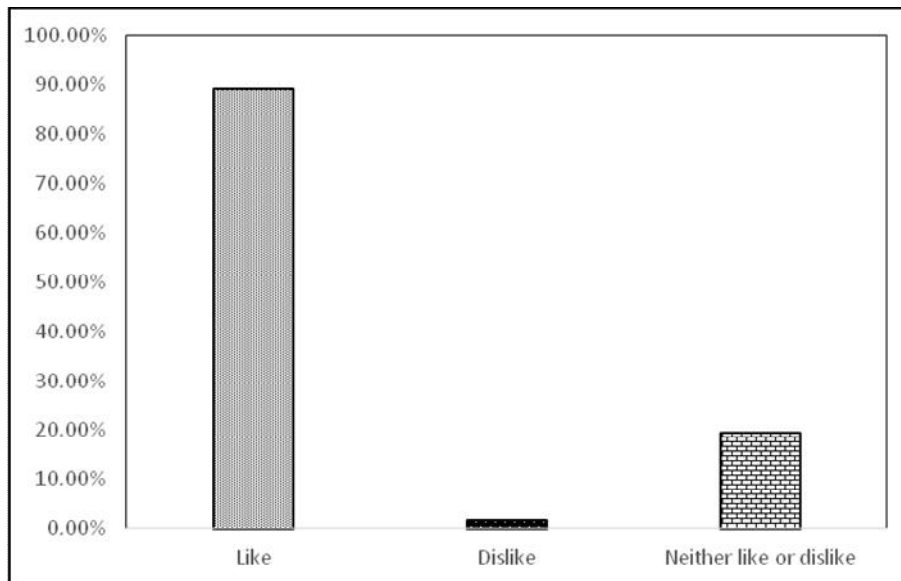


Fig. 5. Local perception of community regarding red Junglefowl

4. DISCUSSION

Analysis of threats faced by wildlife species is prerequisite for its conservation. During current study majority of the respondents claimed that they don't see Red Jungle Fowl more frequently as they were encountering it in near past. This could be due to the reason that there were less rains during past few years and more disturbance in community adjacent areas, the

population is shifted to the core zone and also towards river Tuvi where more food and water resources are available. The major threat faced by Red Junglefowl in the study areas was egg picking. Red Jungle Fowl breeds in summer in Deva Vatala National Park and shepherds along with their herds move in the study area and they pick eggs for using as food and also for hatching purposes.



Fig. 6. A) Hunted female red Junglefowl B) feathers of red Junglefowl in study area C) hunter in study area with gun D) bullet round found in the study area

The second major threat faced by Red Junglefowl was hunting. Local hunters as well as hunters from surrounding areas were reported to hunt Red Jungle Fowl (Fig. 6). Few incidences of hunting by influential people were also reported by local community. It was also documented during the present study that chick are also captured by hunters and shepherds. The local community rely upon the national park for their fuel wood and with increasing population the pressure is increasing resulting in habitat degradation and disturbance also which is resulting in shifting of the species towards less disturbed more dense areas.

Our findings are in line with another study which showed that Red Junglefowl is found with greatest frequency and abundance in the habitats to which it is best adapted. These preferences might change across geographical areas and over seasons. Alteration and destruction of habitats by humans can have a drastic effect on Red Junglefowl [9].

5. CONCLUSION

The major threats to Red Junglefowl included egg picking and hunting beside many other. The need of the hour is to educate local community especially shepherds and hunters in order to save its population in Pakistan.

6. RECOMMENDATION

The following suggestions and recommendations are given for the proper conservation of Red Junglefowl in DVNP. (1) Implement and monitor the strong rules and regulations to stop egg picking and hunting by the local community. (2) Seminars, trainings workshops should be organized at community level to create awareness in people. Educate village level communities about the role of Red Junglefowl in maintaining the natural ecosystem. (3) Detailed research studies and conservation projects should be launched both by the public and private sectors for the conservation, management and improvement of the species in DVNP.

ACKNOWLEDGEMENTS

We are thankful to Department of Wildlife and Fisheries Azad Jammu and Kashmir for their continuous support during the whole study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. West B, Zhou BX. Did chickens go North? New evidence for domestication. *J. Archaeol. Sci.* 1988;14:515-533.
2. Johnsgard PA. The pheasants of the world: Biology and natural history. 2nd ed. Smithsonian Press, Washington D.C; 1999.
3. Delhoyo J, Elliott A, Sargatal J. Hand Book of Bird of the World. 2: New World vultures to Guinea fowl. Lynx Editions, Barcelona; 2001.
4. Ali S, Ripley SD. The Compact Handbook of the Birds of India and Pakistan. Oxford University Press, Bombay, India. 1989;617.
5. Corder J. Red Junglefowl. What is pure and what is not? *Tragopan.* 2004;20(21): 19-25.
6. Brisbin I. Concern for the Genetic Integrity and Conservation Status of Red Jungle Fowl. *SPPA Bulletin.* 1997;2(3):1-2.
7. Subhani A, Awan MS, Anwar M, Ali U, Dar NI. Population Status and Distribution Pattern of Red Jungle Fowl (*Gallus gallus murghi*) in Deva Vatala National Park, Azad Jammu & Kashmir, Pakistan. *Pakistan. J. Zool.* 2010;42(6):701-706.
8. GoAJK; 2010. Available: http://forest.ajk.gov.pk/index.php?option=com_content&view=article&id=72&Itemid=103
9. Crowell LL. Reduced inter specific competition among birds of Bermuda. *Applied ecology and environmental research.* 1962;6(4):61-68.

© 2015 Akrim et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<http://www.sciencedomain.org/review-history.php?iid=796&id=32&aid=7174>