

Research Article	Pak-Euro Journal of Medical and Life Sciences	
DOI: 10.31580/pjmls.v6i3.2629	Copyright © All rights are reserved by Corresponding Author	
Vol. 6 No. 3, 2023: pp. 335-342		
www.readersinsight.net/pjmls	Revised: September 04, 2023	Accepted: September 08, 2023
Submission: May 16, 2023	Published Online: September 30, 2023	

ANTHROPOGENIC INTERVENTIONS AND CONSERVATION STATUS OF CHILTAN WILD GOAT IN CHILTAN NATIONAL PARK OF QUETTA DISTRICT, BALOCHISTAN



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Abstract

The term "Markhor" originates from a Persian term signifying "Snake-eater." There is also a belief that Markhor might be associated with snakes due to the distinctive spiral horns they possess. Hazarganji Chiltan National Park (HCNP) was established to protect the Chiltan wild goat (*Capra falconeri chiltanensis*), which faces a severe threat from hunting, killing, and poaching. Local residents often use its tender meat for sustenance and its large horns for ornamental purposes.

HCNP boasts a diverse array of wildlife, but it is under constant threat due to inadequate fencing, insufficient staff, human settlements, domestication or cage culture, pollution, the use of Markhor as a decorative item, Markhor hunting, construction within or in close proximity to the park, crusher plants, local hunters, environmental degradation, extensive roads, and parasitic diseases.

To address these challenges, the park and its surrounding areas require a set of recommended measures. These include habitat improvement, community-based conservation, the establishment of village conservation committees (VCC), an increase in wildlife monitoring initiatives, the creation of job opportunities for local communities, collaboration with other organizations, research and training for communities, the enhancement of standards and lifestyles within communities, a reconsideration of the China-Pakistan Economic Corridor (CPEC) policy, the control of urbanization, the development of plans to identify and address issues, well-planned housing schemes in associated areas, policies to combat climate change, effective management of protected areas, afforestation efforts, and the judicious utilization of wildlife funds. These measures are essential for the conservation and sustainable preservation of the Chiltan Markhor.

Keywords: Conservation, Endangered, HCNP, Markhor, Quetta, Threats

INTRODUCTION

Hazarganji Chiltan National Park (HCNP) at coordinates 29°0'–30°07' N, 66°24'–66°54' E (Fig. 1a, b, c) is among the 23 designated national parks in Pakistan, established in 1980. Its purpose is to safeguard the habitat of the Chiltan Markhor and provide educational and recreational facilities to the Baluchistan populace. Situated approximately 20 km southwest of Quetta, the provincial capital, HCNP is located in Quetta and Mastung (1).

The name "Markhor" is rooted in local claims of its ability to combat snakes. This remarkable wild species boasts widely flared horns that can reach heights of up to 160 cm (2, 3). The province is rich in wildlife diversity, housing three National Parks, 14 Wildlife Sanctuaries, and six Game Reserves for the conservation of wild species (4). Markhors inhabit regions from Turkmenistan, Tajikistan, and Russia to Pakistan, India, and Afghanistan, with the primary population in Khyber Pakhtunkhwa, the Northern regions, and the mountains of Baluchistan (5-9). Two Markhor types exist: Straight-horned and Flare-horned, with subspecies such as Astor Markhor, Kashmir Markhor, Kabul Markhor, and Suleiman Markhor.



Globally, Markhor is classified as "Near Threatened" (10) and is typically found at elevations of 600 to 3,600 meters in steppic mountain environments (11).

Capra aegagrus (wild goat) is distinct from Markhor but displays a hybrid appearance between Persian Pasang and straight-horned Markhor, accepted globally based on horn core, morphology, and adult male coloration (12). The Markhor, specifically *Capra falconeri falconeri*, is the official "National Animal of Pakistan," recognized for its majestic and sizeable presence in the Caprinae family, featuring impressive spiraling horns. Threats include intensive hunting, increased competition with domestic goats and sheep, and disease outbreaks due to heightened interaction with livestock (14).

However, Chiltan Markhor was historically found in various parts of Baluchistan, recent surveys indicate population depletion in areas like Koh-i-Murdar, Koh-i-Gish, and Koh-i-Maran due to habitat loss, severe poaching, and competition with domestic livestock (15). After the establishment of HCNP in 1980, initial Chiltan Markhor censuses were conducted by less experienced staff using observational vantage points, lacking strong scientific support. However, earlier surveys hint at an increase in the Chiltan wild goat population in its surviving sanctuary (16). Presently, it is believed that the Chiltan wild goat is exclusively present in Hazarganji Chiltan National Park (17).

Despite the illegality of domestic animal grazing within Chiltan National Park, frequent breaches are observed, with domestic sheep and goats foraging in the same pastures without a defined grazing strategy (18).

RESEARCH METHODOLOGY

Field surveys were conducted repeatedly in Hazarganji Chiltan National Park of Quetta district, Balochistan. The four sites of Hazarganji Chiltan National Park were observed i.e., i. Eastern Part of HCNP (includes Myangundi Recreational Park, HCNP and Linjho Water Park in the Eastern part were thoroughly surveyed during the complete study period, ii. Western Part of HCNP (Includes Karkhasa, Killi Jandad Khilji at kirani Road, Killi Khale, Mustafa Abad, Mengal Abad, Akhtar Abad, Haji Meer Mitha khan Lehri Killi Shamoza and Murri Camp), iii. Northern Part of HCNP (The research site include Kanak, Basham and Umar Abad) and iv. Southern Part of HCNP (Includes Killi Tuheed Abad, Murshad Abad, Sarwari Abad, Zehri Town and Sona Khan Chock).

SAMPLE/DATA COLLECTION

Depending upon the habitats (that are included in the study area) various methods for the observation/collection of data regarding Markhore were used. For the collection of data highly magnifying/zooming Nikon Coolpix p900 and Nikon Coolpix p1000 Camera and binoculars were used in the selected areas. GPS was used to record locations and Arc-GIS 10.21 was used for map development. Area volunteers were asked to help and find out sites enrich in species.

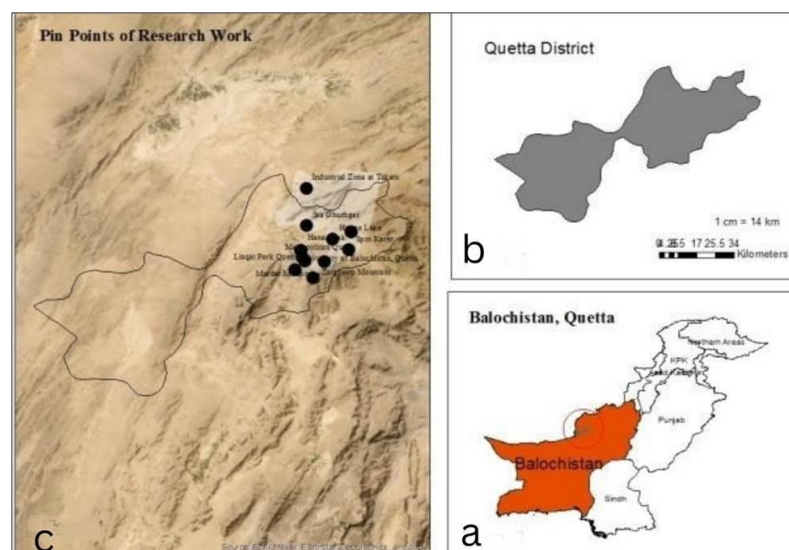


Fig. 1. a. Showing map of Pakistan b. Map of Quetta district c. Study Area

The presence of Markhor was also confirmed periodically through interviewing Wildlife Officials, Game Watchers, Farmers, Shepherds, local Hunters, Trophy hunters, Firewood Collectors, Tribal Chief and Local Community. Foot prints were also observed during data collection.

RESULTS

The present research was conducted in Hazarganji Chiltan National Park and associated areas to outline the anthropogenic interventions and the conservation of Chiltan wild goat in Hazarganji Chiltan National Park (HCNP) of Quetta district, Baluchistan. This research was conducted (from March 2022 to August 2023) on the Anthropogenic Interventions and Conservation status of Chiltan Wild Goat in study area. During the Field Surveys, the subsequent four sites of Hazarganji Chiltan National Park were studied in detail.

EASTERN PART

During Field trips Staff Shortage and Poor fencing were observed in Miyan Ghundi Recreational Park, HCNP and Linjho Water Park. Poor fencing around park boundary led outsiders hunting wildlife or violating wildlife acts 2014 of Balochistan (Fig. 2a). Constructions inside or outside at eastern side of the park were found which also retained heavy machinery, vehicles and pipe lines (Fig. 3a). The construction of University Campus and police station with transport on heavy road was observed in HCNP. No management units were there to deal these illegal activities. Beside this, Myan Ghundi Recreational Park at eastern side led outsiders to enter Chiltan Mountains which took part in hunting and poaching of Markhor. Myan Ghundi Recreational Park was established in 2000 but now it was not less than ruins due to anthropogenic interventions and low management units (Fig. 3b). Cage culture was also observed at eastern side where Markhors were kept in cages (Fig. 2c).



Fig. 2. (a) Poor Fencing and Outsiders (b) Destroyed artificial pond inside the park (c) Cage culture (d) Markhor head as decoration piece

WESTERN PART

Throughout western range of Chiltan Mountain heavy Traffic was observed which troubled wildlife fauna of the park. Lack of proper planning in roads construction and Human settlement at Eastern- western side of the park led Anthropogenic interventions through wood fires, hunting and killing, Cutting, overgrazing, disturbing and violating rules and regulations of wildlife. Plastic pollution and burning phenomenon by visitors was observed at karkhasa. Crusher plants were observed in various areas of western side such as Killi Jandad Khilj at kirani road, Killi Khale, Mustafa Abad, Mengal Abad, Akhtar Abad and Haji Meer Mitha Khan Lehri Killi Shamoza of Chiltan Mountain (Fig. 3d). Quetta Development Authority (QDA) housing scheme was also observed in Murri Camp close to Chiltan Mountain.

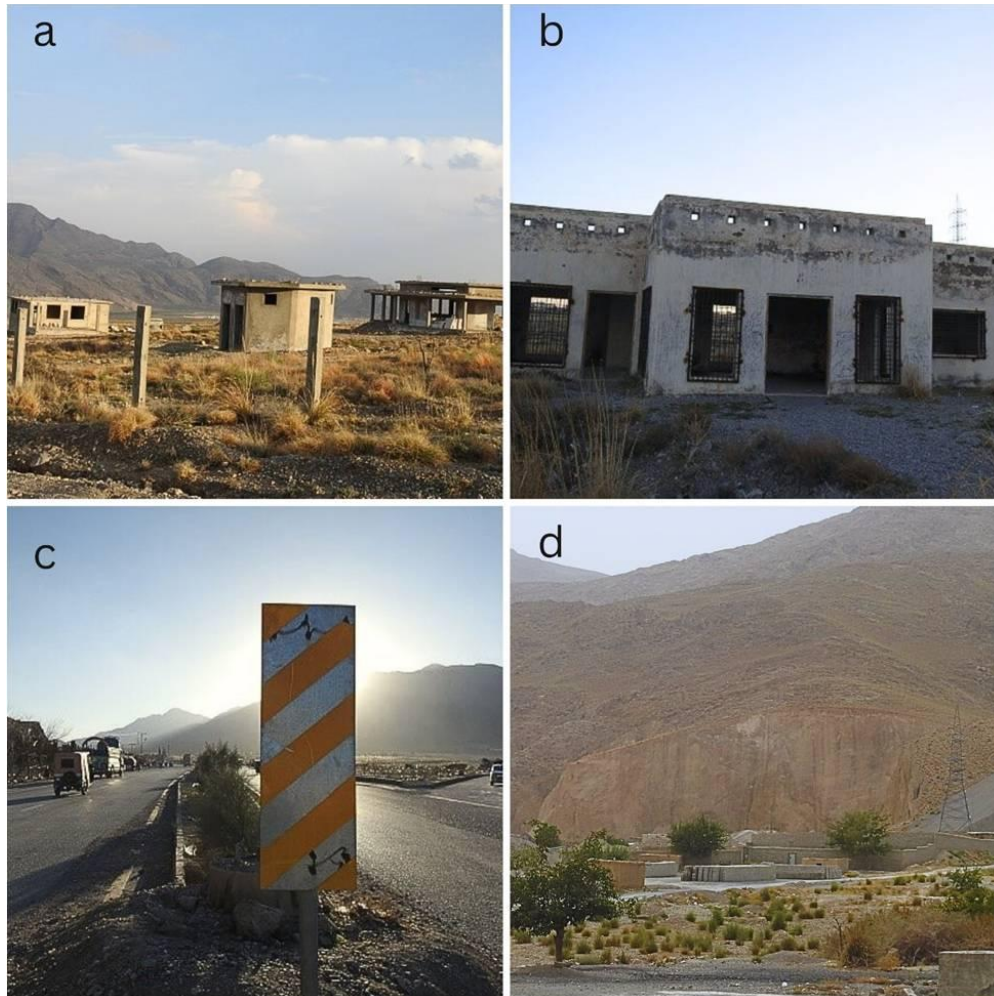


Fig. 3. Anthropogenic intervention (a) Construction inside the park (b) Ruins of Myan Ghundi recreational park (c) Heavy roads at Easterns of the park (d) Crusher plant at Western side

NORTHERN PART

At the Northern side of the park heavy roads were observed at kanak, Basham and Umar Abad that caused disturbance for wild animals including Chiltan Markhor. In addition to Heavy traffic, Pollution was also observed in the Northern region of the HCNP. It was observed that recent floods harshly affected the habitat of Markhor. Artificial ponds for Markhor Inside Park were destroyed due to heavy rainfall last year (Fig. 2b).

SOUTHERN PART

The park is located at south west of Quetta around 20 km. Heavy roads were found in this region which linked the roads at the eastern side of the Park. These roads met at a Junction which was named as Sona khan Chock (Fig. 3c). Southern side of the park was also found with rapid urbanization. In many areas at south-west part of the park, human settlements were there. Markhor dummies were observed as a decoration piece in Guest rooms/ Guest Houses (Fig. 2d).

DISCUSSION

Previously different authors studied the biodiversity, Taxonomy, and abundance status of Chiltan Markhor in the province (19- 22). The Chiltan wild goat (*Capra aegagrus chiltanensis*) one of the important sub-species of Wild goat which is found in Balochistan and this is endemic only to HCNP (9, 19). This park is home to a variety of animals, including the Chiltan Markhor (*Capra falconeri chiltanensis*), Jackal (*Canis aureus*), Sessie (*ammonoperdix griseogalaris*), Cat (*Felis Cheus*), Hare (*Lapus nigicollis*), Porcupine (*Hysrtix indica*), Chukor (*Alectoris chukar*), Snakes, and Afghan tortoises (23).

Markhors are diurnal animals which are generally active in the early morning and late afternoon. They change their diets as per the change in season in the spring and summer they depend on grazing but in winter, they turn to browse, sometimes standing on their hind legs to reach high branches (24). Their mating takes place in winter during which the males fight each other by lunging, locking horns and attempting to push each one to maintain balance. The gestation period lasts 135–170 days. They usually give birth to one or two and rarely three kids. Markhor lives in flocks and that is a major characteristic of Markhors. Threats to the Chiltan Markhor include growing domestic goat and sheep competition heavy hunting pressure, and illegal Grazing of domestic animals inside the boundary of HCNP without any grazing strategy. Due to habitat fragmentation, illegal trade human behavior, poaching, mining, deforestation and other factors. Several species in Pakistan are threatened or critically threatened under the Wildlife Act of 1974. The establishment of protected areas plays an important role in the conservation of threatened species. Across the globe, the number of threatened ungulate species and populations has recovered through PAs and incentive programs that directly benefit the local communities and engage them in the conservation of targeted and non-targeted wildlife species (25). Therefore, Pakistan established protected areas (Game Reserves, Wildlife Sanctuaries and National Parks in order to preserve wildlife). It is imperative to highlight the broader implications of anthropogenic interventions on the Chiltan Markhor and the ecosystems within Hazarganji Chiltan National Park (HCNP) (26). The intricate interplay between human activities and wildlife habitats underscores the delicate balance needed for the coexistence of biodiversity and communities.

The observed threats, including road construction, human settlement, and unchecked hunting, indicate a pressing need for comprehensive conservation strategies (27). Road networks, while essential for connectivity, can pose a substantial threat if not meticulously planned and managed. Heavy vehicles, as noted on the northern side of the park, can lead to habitat fragmentation, disrupting wildlife corridors and hindering the natural movements of species like the Chiltan Markhor (16). The encroachment of human settlements further compounds these challenges, escalating the potential for conflict between wildlife and local communities.

Effective conservation initiatives should not only focus on mitigating direct threats but also emphasize community engagement and awareness. Local populations play a pivotal role in the success of conservation efforts. Establishing sustainable livelihood options for communities surrounding HCNP, coupled with educational programs, can foster a sense of shared responsibility for safeguarding the park's biodiversity (28). Incentivizing conservation practices and incorporating local insights into management plans can lead to more resilient and community-supported conservation outcomes.

Furthermore, the discussion underscores the need for a holistic approach to conservation that addresses both the immediate threats to the Chiltan Markhor and the underlying challenges stemming from human-wildlife interactions (29). By integrating ecological sustainability with community well-being, we can aspire to not only protect endangered species but also cultivate harmony between human activities and the natural world in Hazarganji Chiltan National Park. This approach aligns with global conservation paradigms that recognize the interconnectedness of ecosystems and human societies in fostering a sustainable coexistence.

CONCLUSION

The study's findings highlight that Hazarganji Chiltan National Park (HCNP) boasts a rich and diverse array of wildlife, but this biodiversity is facing significant threats, particularly from road

construction along both sides of the park. On the northern side, the park is endangered by the presence of heavy vehicles. Similarly, the southern side is susceptible to threats such as human settlement, hunting, and poaching. The eastern side is adversely affected by factors like human settlement, extensive road networks, and both internal and external construction activities. Notably, the lack of proper fencing and the presence of local hunters on the eastern side have notably impacted the demographic dynamics of the Markhor population. The western side of the park experiences destruction from a series of crusher plants, extensive road networks, burning activities, overgrazing, pollution, and human settlement, even extending to Chiltan Mountain.

Recommendations:

The study's findings highlight that Hazarganji Chiltan National Park (HCNP) boasts a rich and diverse array of wildlife, but this biodiversity is facing significant threats, particularly from road construction along both sides of the park. On the northern side, the park is endangered by the presence of heavy vehicles. Similarly, the southern side is susceptible to threats such as human settlement, hunting, and poaching. The eastern side is adversely affected by factors like human settlement, extensive road networks, and both internal and external construction activities. Notably, the lack of proper fencing and the presence of local hunters on the eastern side have notably impacted the demographic dynamics of the Markhor population. The Western side of the park experiences destruction from a series of crusher plants, extensive road networks, burning activities, overgrazing, pollution, and human settlement, even extending to Chiltan Mountain. Government must initiate awareness programs regarding Chiltan flora and Fauna in close vicinity to CHNP.

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