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Flora and Fauna of Zhob, Balochistan, Pakistan

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SUMMARY

Pakistan has a diverse range of flora and fauna particularly in its semi-arid and arid regions, which comprise over eighty percent of the country's total geographical area. The purpose of this study was to evaluate the current distribution of fauna and flora of Zhob, Balochistan. The data were collected surveys, and direct and indirect methods were used. The study's findings included observations of a variety of biological diversity, including those of flora and fauna.

Keyword: Biodiversity, Wasta Lake, Zari Dagar

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INTRODUCTION

Pakistan has rich flora (Umair et al., 2013) and fauna (Iqbal et al., 2023; Jahangeer et al., 2023; Rahman et al., 2023; Rahman et al., 2022), especially in the semi-arid and arid areas, which account for more than eighty percent of its entire geographical area. Many animal and plant species are threatened or endangered, owing primarily to excessive utilization and loss of natural habitat. Increasing human population is putting pressure on the country's resources. Poverty growth has led rural communities to exploit ecological diversity at rates that are unsustainable. Factors including deforestation, overgrazing, soil erosion, salinity, and waterlogging pose severe challenges to the existing ecological diversity in the Pakistan (Adil et al., 2022; Baig and Al-Subaiee, 2009; Rahman et al., 2021).

Pakistan is under tremendous ecological stress due to its population explosion, urbanization, deforestation and over exploitation of natural resources (Altaf, 2016; Baig and Al-Subaiee, 2009). The natural forests of Pakistan are rapidly declining at a rate of 4-6% per year, resulting in a decline in population size of both flora and fauna (Altaf et al., 2018; Khan, 2003; Malkani, 2014).

Objective of the study

The main objective of the study to know the distribution of flora and fauna in district Zhob, Balochistan.

MATERIALS AND METHODS

For the purpose of monitoring biodiversity, two survey stations were chosen, Wasta Lake, Zari dagar, Wahab Dam, and Qamar Din Karez in Zhob, Balochistan. These grounds are ideal for a multitude of native flora and fauna. The methods of point count method survey, and questionnaire were used (i.e. direct and indirect methods), and all observers were positioned using binoculars in the morning and evening in case of avian and mammalian species.

Four study areas were selected by three teams consist of two individuals, which gathered the data. The data was collected and recorded on all sites. The survey was conducted in January to December, 2021.

Study area

The Wasta Lake or Wasta Zawar placement located 35 KM south of the hamlet of Qamar Din Karez (Figure 1) at the coordinates 31°35'48"N 68°15'12"E having elevation 6621 feet above sea level. Wasta Dam covers a total area of 40 square kilometres. Wasta Lake is near situated near the border between Afghanistan and Pakistan. Ab-i-Istada (Standing Water), an endorheic salt lake in Nawa District, Ghazni Province, Afghanistan, lies close to the Wasta Lake. Wasta Lake is used as an alternative resting spot for migratory birds in unusual circumstances, such as high or low water levels at Ab-i-Istada or extreme drought conditions (Musakhel, 2005; Sherani, 2020).

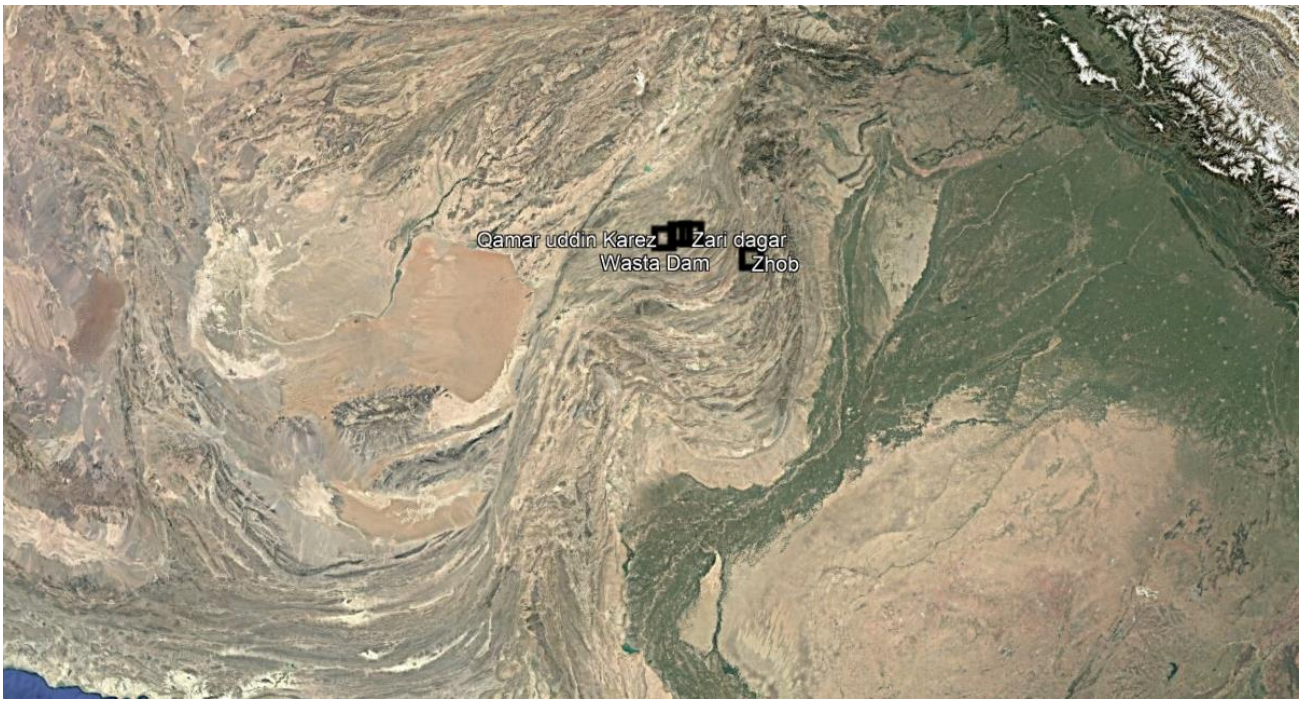

Figure 1: Map Showing study areas in Zhob, Balochistan, Pakistan.

Driving from Zhob to the village of Qamar Din Karez is 180 kilometres to the west and takes around 7 hours on average. The Holdridge Life Zone categorises the area as semi-arid because it has warm temperate dry forest and warm temperate desert shrub. The concatenated mountain ranges that encircle the settlement are Surab Tangi, Sur

Kach or Shin Ghar, Allah Din Pahar, Shighala Toramo, and Khurasan Mountains. The Shina (*Pistacia khinjuk*) vegetation covers the majority of these mountains. The Ghaz trees (*Tamarix aphylla*) that grow on the Qamar Din Karez plane are becoming less in number as a result of local nomads cutting them down.

There are always residents trimming the many other bushes, shrubs, and other plants around (Table 1), and there is never a Forest Guard stationed. These are followed in 2013 and 2014 by arid plains (26% and 40%), rocks/mountains (3% and 9%), and water-bodies (14% and 11%), in that order. Cutting these grasses and bushes utterly ruins the habitat of the Houbara Bustard (*Chlamydotis undulata*).

Table 1: Flora of selected study areas.

Sr.	English Name	Local Name	Scientific Name	Remarks
1.	Wild Petunia	Bukhaar bootai	*Ruellia strepens*	Noted in foothills
2.	Halfa grass	Daab	*Desmostachya bipinnata*	Dry yellow form seen
3.	Afro-Asian Horse-Purslane	Khat Khatai	*Trianthema triquetra*	Noted on saline soil
4.	Grass	Sankanda	*Saccharum griffithii*	Yellow dry form seen
5.	Indian heliotrope	Jati misaak	*Heliotropium indicum*	Seen in open field
6.	Cherry Pie Flower	Jatee misak	*Heliotropium crispum*	Noticed during grazing by livestock in open field
7.	Athel Pine/ Athel Tamarisk	Lawaa	*Tamarix aphylla*	Seen in open fields also in cutting form loaded by single pickup on the way to Zhob from Qamar Din Kareez
8.	*Khinjuk Pistachio*	Sheena	*Pistacia khinjuk*	Seen in Surob tangi, shin ghar etc. They were also noticed in cutting form out of nomad's homes. These are cut for fuel purpose. The number would decline. It is a protected tree.
9.	Indian rennet	Paneer Bandh	*Withania coagulans*	Seen in foothills on the way to Qamar Din Karez
10.	White or Slender Buffel grass	Washa	*Cenchrus pennisetiformis*	Dry form noticed
11.	Bindweed		*Seddera latifolia*	Dried form noticed
12.	Bindweed		*Seddera capensis*	Dried form noticed
13.	Khip Plant	Khipp	*Leptadenia pyrotechnica*	Spread all over barren land
14.	Green Amaranth	Jungli Chanalee	*Amaranthus viridis*	Noticed in open field around barren land near Wasta lake
15.	Kapok Bush	Boh	*Aerva javanica*	Noted in died field around wasta lake
16.	Mediterranean amaranth	Cholai	*Amaranthus graecizans*	Noticed in little quantity in field
17.	Abu Jahl's melon	Indrayaan	*Citrullus colocynthis*	Dry form noticed in small area around Wasta Lake
18.	Common Needle grass	Washa	*Aristida funiculate*	Dry form seen
19.	Nagajihva	Chota Chirayata	*Enicostemma hyssopifolium*	Dry form seen
20.	Desert Golden Daisy	Ranho	*Pulicaria undulata*	Dried form noticed
21.	false fleabane	Ranho	*Pulicaria angustifolia*	Noticed in dried form

The Wasta Lake is located approximately 35 kilometres away from Qamar Din Karez's main settlement. Although the weather is typically the locals claim that in a good rainy year, the lake's depth can reach three to four feet. It has a sizable marshland area that is ideal for migratory waterfowl, including cranes. Locals claim that migratory birds pass through Qamar Din Karez in September through October and in March through April, though the quantity dwindles yearly. The decline in migratory species using Wasta Lake as a resting or refuge could be attributed to illicit hunting or the effects of climate change (Lehikoinen and Sparks, 2010). Greater Flamingos (*Phoenicopterus roseus*) and Demoiselle Cranes (*Grus virgo*)—also known as Eurasian or Common Cranes (*Grus grus*)—once called Wasta Lake home (Umar et al., 2018). It is concerning that fewer migrating birds are visiting Wasta Lake. Long before, Siberian Cranes (*Leucogeranus leucogeranus*) found Wasta Lake to be beautiful. According to information from his brother Raja Muhamaad Zareef, a forestry professor, one of the four Siberian cranes (*Leucogeranus leucogeranus*) reported at Wasta Lake in 1977 was shot by Raja Muhammad Amin, a civil judge, at Band Khushdil Khan Lake, southwest of Wasta Lake, in September or October of that year (Khan, 2004),

Hunter Shafqat Ali killed one Siberian crane in 1987 (showing his head and legs as proof), and the same hunter killed another one in 1989 (this Siberian crane was one of four in a flock of 100 Eurasian Cranes) (Prange, 1995). There hasn't been a single report of Siberian cranes in Wasta Lake since. This could be because of overhunting in the past or for other reasons. Demoiselle cranes (*Grus virgo*) and other migratory birds will soon cease visiting or travelling the Flyway if the current pattern of crane killing persists. Other Fauna reported from local communities and seen by team members are given in Table 2.

Table 2: Fauna of selected study areas.

Sr.	English Name	Local Name	Scientific Name	Remarks
Aves (Migratory Birds)				
1.	Demoiselle Crane	Khoonj	*Grus virgo*	Reported from locals not seen due to off season
2.	Eurasian Crane	Khoonj	*Grus grus*	Reported from locals not seen due to off season
3.	Flamingo	-	*Phoenicopterus roseus*	Reported from locals not seen due to off season
4.	Mallard duck	Batakh	*Anas platyrhynchos*	Reported from locals not seen due to off season
5.	Pelican	Abi Parinda	*Pelecanus onocrotalus*	Reported from locals not seen due to off season
6.	Houbara bustard	Taloor	*Chlamydotis undulata*	Seen three in number near open field while visiting Wasta Lake from Qamar Din Karez
7.	Greater Spotted Eagle	Shaheen	*Clanga clanga*	Seen in the sky
8.	Lesser Kestrel	Baz	*Falco tinnunculus*	Seen in open field
Aves (Local Birds)				
1.	See see partridge	See see	Ammoperdix griseogularis	Flock seen at Shighala Mountain
2.	Partridge	Chakoor	*Alectoris chukar*	Calls heard in shin Ghar area
3.	Rain quail or black-breasted quail	Bateer	*Coturnix coromandelica*	Reported from local community and levies personnel

4.	Rock- Pigeon	Pahari Kaboortar	*Columba livia*	Reported from local community
5.	Common Myna	Mynah	*Acridotheres tristis*	Reported from local community
6.	Sky Lark	-	*Alauda arvensis*	Seen in open field
7.	Meadow pipit	-	*Anthus pratensis*	Seen in open field
Reptiles				
1.	Afghan Tortoise	Kachwa	*Agrionemys horsfieldii*	Seen in field during visit of Wasta Lake
2.	Boa	Do-moi	*Eryx Johnii*	Not seen but during rainy season they are seen by locals near water bodies
3.	Common cat snake	-	*Boiga trigonata*	Not seen but the habitat is same around the Wasta Lake
4.	Cliff racer snake	-	*Coluber rhodorachis*	Found in the same climate and habitat
5.	Dark headed dwarf racer	-	*Pseudo cyclophis persica*	Of the same habitat as cliff racer
6.	Steppe ribbon snake	-	*Psammophis lineolatus*	In mountains around the lakes
7.	Common krait	-	*Bungarus caeruleus*	Existence is possible after inquiring from local communities
8.	Brown cobra	-	*Naja oxiana*	Reported from locals
9.	Bengal monitor	Goh	*Varanus bengalensis*	Seen during visit
10.	Persian spider gecko	Chipkli	*Agamura persica*	Seen
11.	Bronze grass skink	Chipkli	*Eutropis macularia*	Seen
12.	Seistan spiny tailed lizard	Bari chipkli	*Saara asmussi*	Seen
13.	Indian Rat Snake	Saamp	*Ptyas mucosa*	Reported from local community
Mammals				
1.	Red fox	Lomri	*Vulpes vulpes*	A pair was Seen at 11:00 AM during visit from village to Wasta Dam
2.	Stripped hyena	Lagar bagar	*Hyaena hyaena*	Reported by locals while attacking livestock. One was other reported which shot dead by locals.
3.	Gray/Grey wolf	Berya	*Canis lupus*	4 wolf were seen at 01:00 PM a video is also recorded
4.	Indian crested porcupine	Khar pusht	*Hystrix indica*	Quills are seen and also reported by locals
5.	Urial	Gad	*Ovis vignei*	Reported from locals. And presence of Hyena and Wolf also show that their prey may be present.
6.	Asiatic jackal	Gidar	*Canis aureus*	Seen in open field
7.	Brown rat	Choha	*rattus norvegicus*	Seen in field
8.	Black rat	Choha	*rattus rattus*	Seen in barren land around Wasta Lake
9.	Cape hare	Jungli Khargosh	*Lepus capensis*	Seen in barren field
10.	Afghan hedgehog	Khar pusht	*Hemiechinus auritus megalotis*	Seen in field
11.	Greater Horse Shoe Bat	Chimkadar	*Rhinolophus ferrumequinum*	Reported by local people

There is currently insufficient data on the state of biological diversity in Pakistan particularly in Balochistan, making detailed and precise information unavailable (Khan, 2004). Results from this study that emphasise the biodiversity of both plants and animals have been obtained. It is challenging to compare the findings of our study with any earlier research because there is a dearth of accurate, trustworthy, and up-to-date information regarding the vegetation assessment and status of wildlife including migratory species in this region of Balochistan. Nonetheless, these results align with the findings of other researchers as documented.

CONCLUSION

The study region has significant plants and animals. This analysis uncovered the dynamic ecosystem and trophic levels of the studied sites, which ranged from producers to apex consumers. The findings serve as a platform for future research.

RECOMMENDATION

The evaluated area's biological richness should be preserved by implementing the following suggestions and recommendations:

- Incentives for reducing unlawful hunting should be given to the community.
- The Balochistan Wildlife Protection, Preservation, Conservation and Management Act - 2014 should be strictly enforced, and the Wildlife Department should put its resources to use to stop illicit hunting.
- Mass awareness campaigns should be started to highlight the value of biodiversity.
- The Balochistan Wildlife Policy - 2020 ought to be put into effect by the government.
- Wetlands should be protected
- Professional and unskilled staff members should be equipped with the necessary skills for conducting data collection, data analysis, and report writing while conducting surveys of migrating and other important wildlife species.

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