ECOTOURISM IMPACTS ON FOREST LANDSCAPE AND ATTITUDE OF COMMUNITIES IN KHANPUR, KHYBER PAKHTUNKHWA, PAKISTAN

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Abstract

Present research examined three selected villages landscape near Khanpur Dam, District Haripur, that's an offer to visitors the integrated knowledge of native ethos, history and environment. We first evaluated the landscape exploration and documentation of three selected villages i.e., Surraj Galli, Khoi Maira and Darra in Khanpur with a DSLR camera and Landsat 8 images, using the supervised image classification technique, by ArcGIS v10.3 during June 2019-2020. Second, we collected data from local communities and tourists by using two types of questionnaire survey and a total of 300 respondents were served over six months of period. In total 150 respondents from local communities were served questionnaire for documentation of selected communities' profile and their major flora, fauna. The sampling intensity was 2.5%. Most dominant respondents belonged to Raja, Malik and Aawan communities. Flora documentation was carried out by quadratics system taking 60 plots from study area with 0.5% sampling intensity. The tourist preferences and attitudes were surveyed involving 150 visitors. Most visitors belong to Khyber Pakhtunkhwa and prefer to visit with friends more than family and relatives especially in spring and summer holidays. The result also indicated that the declaration of a noble landscape could benefit the local people.

Keywords: Communities profile; Flora diversity; Forest landscape; Tourist preferences

Introduction

Ecotourism being a new concept in the tourism industry developing world, has essentially developed for the past 20 years. However, Pakistan's cultural and natural potential for ecotourism is in budding stages. Over many neighboring countries, Pakistan has great advantages for ecotourism with many scenic attractions and diversified ecology [1]. The Costa Rica country has undoubtedly most associated with ecotourism, this has made a name for itself as a travel destination because of its well-protected natural beauty. The South American country, with coastlines on both the Caribbean and Pacific, is almost one-fourth rainforest, the main draw for visitors. In addition to the rainforests, there are breathtaking volcanoes and pristine beaches, both of which add to the stunning biodiversity in the country [2]. Pakistan is filled with visitor potential and a well right purpose for totally types of tourists, may that be social or natural tourists, having spiritual or exploration related aims, concern in archeology, commercial or supports, Pakistan can develop the choice target [3]. Tourism growth in Pakistan is lagging to behind than the pace of growth at the world level. World Tourist arrivals have moved from 599.6 million in 1996 to 808 million in 2005, thus achieving growth of 208 million in 10 years at the rate of over 20 million a year [4]. The word landscape has multiple meanings in common

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language. It refers to a tract of land as well as its visual appearance. It is used to denote a territory as well as historical and geographical regions and refers to an area shaped characteristically by the people living in it [5].

Landscape ecology is the science of studying and improving relationships between ecological processes in the environment and particular ecosystems. This is done within a variety of landscape scales, development spatial patterns, and organizational levels of research and policy [6]. The continuing loss of forest habitat, with its associated fauna and flora, will have serious implications for the nation's other natural and agricultural ecosystems. The Protected Areas System was established for in-situ conservation of biodiversity and although several laws have been framed to conserve various components of biodiversity, they have not been implemented [7].

This study aims to make local organizations value these three villages and develop community awareness of conservation in order to preserve traditional forest landscapes. Taking into account the recreational value of vegetation and traditional barrier values will help develop a working strategy for rural planning. Estimating the economic value of recreational use provides a universal and concrete basis for policy makers and other stakeholders such as private entrepreneurs, tourism agencies and hotel owners. The indigenous landscape and traditional culture near three select villages and a large water reservoir such as the Khanpur Dam in Khyber Pakhtunkhwa in the Hazara region is a major tourist attraction. "Ecotourism is an important tool to help protect the natural landscape and offers a solution to the poverty problem common in less developed regions. It also creates a structural benefit for the economic development and political advancement of the local population and provides a resource for the education and protection of visitors.

In this study, we demonstrated and analyzed a survey on the attitudes of tourists to traditional preferences of the village landscape in the land approach in the Khanpur region. The present work reports as (i) To identify basic information about the landscape of three selected villages in Khanpur, (ii) To assess the profile of three selected communities' and their flora and fauna, (iii) To Investigate the tourist's frequency, attitude and preferences for vegetation conservation. A supplementary survey of the three selected villages landscape which is Surraj Galli, Khoi Maira and Darra village near to Khanpur Dam and also the biodiversity of flora and fauna was documented and similarly the tourist frequency, attitude and preferences for the vegetation conservation.

Materials & Method

Study area

The Khanpur Valley study area falls into arid deciduous forests, and the valley is also behind the federal capital Islamabad and in the Khyber Pakhtunkhwa (KP) Haripur District of Pakistan. Khanpur is a large and beautiful valley village and one of the 44 administrative subdivisions of District's Haripur Union Council. It is located in the south of the capital Haripur, at 33 ° 48'53N 72 ° 56'22E. The total study area of Surraj Galli, Khoi Maira and Darra village is (490 ha) around about (5sq.Km) of the selected sites (Figure 1). It consists of 2 union council of Khanpur were selected out of total 44 union council in Haripur District. A brief overview of the selected sites is given below.

Surraj Galli village

This village is situated on the northern side of Darra village and western side from Khoi Maira at Kanpur valley. The area is situated at a longitude of 72.911306°E and latitude 33.830552°N with an altitude of 1968.5 feet and the total area of the study site is (144ha) (Fig. 1). The most dominant communities are Raja and Gujar while Pathan and Syed's communities in Surraj Galli are at low proportion.

Khoi Maira village

The village is situated in the north-eastern part of the Khanpur valley (Fig. 1). It comprises of the area located between Bhamala and Surraj Galli up to Karala. The total area of Khoi Maira is (152ha) and dominant communities are Malik, Choudhry and Awan while others are at low proportion i.e. Pathan's and Gujar's were documented. The main restaurant in the study area was Orange lake resort Scenic spot and Canadian resort. Khoi Maira village is located at the longitude of 72.931335°E and latitude 33.832797°N with an altitude is 2624.67 feet (Fig. 1).

Darra village near to Khanpur Dam site

It lies in the middle of the valley, and contains an attractive lake (Khanpur Dam), Sarra reserved forest, downstream Khanpur village and the fruit-gardens, especially citrus fruits. Some prominent places of this site are Khanpur new, Khanpur old, Tarnawa and Bhera. The high dominant communities are Awan, Sayed and Chaudhry are present in Darra village which is located at longitude 72.912080°E and latitude 33.812258°N and the central point of the Dam is located at longitude 72.936445°E and latitude 33.809856°N with an altitude is 1950 feet (Fig. 1). The total area of Darra Village is (192ha).
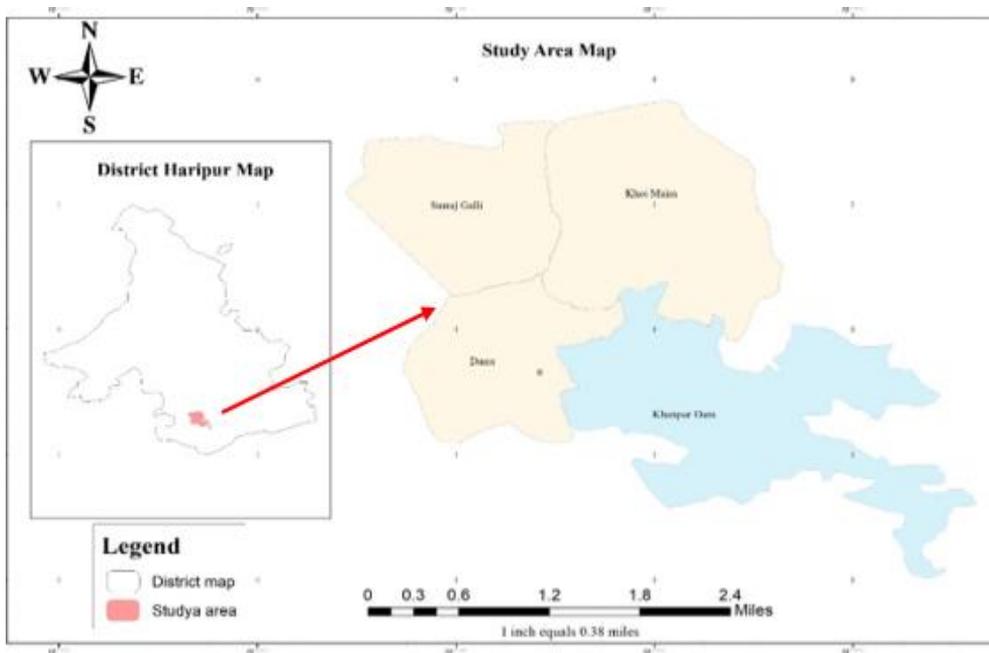

Fig. 1. Map of study area created by Arc GIS v10.3 showing major three villages

Cropping system

As these are farming villages Khanpur, the cultivated system forms a central part of local livelihoods. Agricultural and horticultural harvests in this region include rice, wheat, maize, oilseed, jackfruit, oranges, amlatas and mangoes. There is a clear indication that the cropping areas and production of potatoes are advanced in Khanpur, and well potential for fruit cultivation. Farmers are gradually avoiding expensive seed and labor-intensive crops. The border villages have also instigated growing vegetables and flowers on a viable scale. The vegetation list of the study area is given at (Table 1).

Table 1. The dominant flora (herb, shrub and trees) of study area

Botanical name	Family name	Local name	Type
Achyranthes aspera L.	Amaranthaceae	Pthkanda	Herb
Adiantum pedatum	Pteridaceae	Maidehair fern	Herb
Adiantum venustum	Pteridaceae	Himalayan fern	Herb
Ajuga bravvctiosa	Labiatae	Ajuga	Herb
Allium jaquemontii	Allisceae	Jangle piaz	Herb
Amaranthus gracizans	Amaranthaceae	Chulai	Herb
Amaranthus viridis L.	Amaranthaceae	Shalkhay	Herb
Androsace rotundifolia	Primulaceae	Arrowhead alpine	Herb
Anthemis cotula L.	Asteraceae	Babona	Herb
Artemisia bervifolia	Compositae	Tharkha	Herb
Ayena sativa L.	Poaceae	Jangali jao	Herb
Boerhavia diffusa	Nyctaginaceae	Chalaray	Herb
Boerhavia procumbens	Nyctaginaceae	Wasao	Herb
Calendula arvensis L.	Asteraceae	Field marigold	Herb
Cannabis sativa L.	Cannabaceae	Bhang	Herb
Centaurea iberica	Asteraceae	Star thistle	Herb
Chenopodium murale L.	Chenopodiaceae	Goose foot	Herb
Adhatoda vasita	Acanthaceae	Baikar	Shrub
Berber's lyceum	Berberidaceae	Kashmal	Shrub
Calotropis procera	Asclepidaceae	Akk	Shrub
Dedonea viscosa	Sapindaceae	Sanata	Shrub
Ipomoea carnea	Convolvulaceae	Pink bush	Shrub
Lantana camara L.	Verbenacea	Panchphuli	Shrub
Lycium barbarum	Solanaceae	Berberes	Shrub
Nerium oleander	Apocynaceae	Kaner	Shrub
Otostegia limbata	Lamiaceae	Spiny	Shrub
Recinus communis L.	Euphorbiaceae	Arand	Shrub
Rubus fructicosus	Rosaceae	Gurguray	Shrub
Rumax histatus	Polygonaceae	Gato tharokay	Shrub
Skimmia laurola	Rutaceae	Nazar panrra	Shrub
Botanical name	Family name	Local name	Type
Acacia modesta	Memosaceae	Phulai	Tree
Acacia muricata	Fabaceae	Spneless wattle	Tree
Acacia nilotica	Memosaceae	Kiker	Tree
Acacia victoriae	Fabaceae	Khardar kiker	Tree
Bauhinias variegate	Fabaceae	Kachnar	Tree
Broussoneta papyrfera	Moraceae	Paper mulberry	Tree
Cassia fistula	Fabaceae	Amaltas	Tree
Celtis australis	Canabbaceae	Wild falsa	Tree
Dalbergia sissoo	Fabaceae	Shisham	Tree
Ferula assafoetida	Apiaceaa	Devils dung	Tree
Ficus benghalensis L.	Moraceae	Bargad	Tree
Ficus carica	Moraceae	Injir	Tree
Ficus hispida	Moraceae	Dashti	Tree
Ficus johannis	Moraceae	Lobed fig	Tree
Ficus palmate	Moraceae	Phagwara patguleri	Tree
Ficus variegata	Moraceae	Green fruited fig	Tree
Grewia optiva	Malvaceae	Bihul	Tree
Lagerstroemia speciiosa	Lythraceae	Banaba	Tree
Mallotus philippensis	Euphorbiaceae	Red kamala	Tree
Melia azaderachta L.	Meliaceae	Darech	Tree
Morus alba L.	Moraceae	Chita toot	Tree
Morus nigra L.	Moraceae	Shahtoot	Tree
Olea ferruginea	Oleaceae	Kao, Zaitoon	Tree
Pinus roxbergi	Pine	Peech	Tree
Prunus serotina	Solanaceae	Cherry	Tree
Robinia pseudo-acacia	Papilionaceae	Black locust	Tree
Tecomella undulata	Bihnoniaceae	Desert teak	Tree
Zizyphus vulgaris	Rhamnaceae	Makhranay	Tree

Sites of attraction in Khanpur

Haro river and Khanpur Dam

The Haro River partially flows through the provinces of Punjab and Khyber Pakhtunkhwa. It comes from Changla Gali and Nathia Gali and is dried by Lora Haro and Stora Haro. While Lora Haro flows through the Murree Hills, Stora Haro flows through the Nathia Gali Hills. In Jabri, Lora Haro merges with Stora Haro. The Haro River flows through narrow and deep gorges and is dammed in Khanpur [8]. The dam was built in 1983 to supply drinking water to Islamabad and Rawalpindi, as well as industrial facilities in Taxila. Water resources and streams meet domestic water needs all year round. During the drought, the dissipation of the current is greatly reduced and the leakage through the source maintains the continuous flow [9]. The main source of electricity flow in the region is precipitation.

Bhamala stupa historic place

Bhamala stupa is a ruined Buddhist stupa and national heritage site near Kohi Miria Khanpur, District Haripur, Pakistan that dates to the 2nd century. It is located on the bank of the Haro River, a tributary of a Khanpur Dam, and is a tourist destination. Bhamala Stupa is part of the larger Bhamala Buddhist complex. The site is known for its 1,700year-old statue of the Buddha attaining enlightenment - considered the oldest such statue in the world.

Sarra reserved forest

Sarra Reserved Forest is a forest reserve and lies are in prominent places of the study area Khanpur new, Khanpur old, Tarnawa and Surraj Galli. The estimate terrain elevation above sea level is (956 meters) while its Latitude is 33°49'9.02"N and Longitude is 72°53'26.99"E.

Fruit gardens

Hundreds of citrus lovers can be seen thronging the Taxila-Khanpur Road as the famous seasonal delight of the area the Khanpuri red blood oranges are selling like hotcakes. Spread over 280 hectares, the citrus orchards of Khanpur and Punj Khatta bordering Taxila are famous around the world for the distinct taste of their products, especially the red blood oranges besides other varieties, including Hamlin, ruby red and shakry, oranges, mussammy, fruiters and grapefruit.

Climate summary of Khanpur

The average temperature for the year in Khanpur is 69.0°F (20.6°C). The warmest month, on average, is June with an average temperature of 89.0°F (31.7°C). The coolest month on average in January, with an average temperature of 50.0°F (10°C). The average amount of precipitation for the year in Khanpur is 49.9" (1267.5mm). The month with the most precipitation on average is July with 9.7" (246.4mm) of precipitation. The month with the least precipitation on average is November with an average of 1.2" (30.5mm) [10].

Data Collection

The DSLR camera was used to record the landscape and Its attributes on surveys of this study. The Landsat 8 image of the study area had taken from the earth explorer website with a 0.04% cloud cover average on 10 June 2019. Using the supervised image classification technique, by ArcGIS v10.3. With the help of composite layers of Landsat 8, the satellite images were used for the image analysis tools to allotted specific band numbers which represented a specific color for classification in ArcGIS v10.3. For image classification, multiple samples took to specify our land cover with a layer. After taking samples of multiple raster data sets had merged into a new raster data set by using a geoprocessing tool in the image classification tool. The multiple samples of our layer in a whole image that illuminated the representation of the desired classes are unique from one another with the help of colors. The potential of forest landscape is found by measuring different aspects like a vegetative cover, build cover, and open cover of the selected study area.

The documentation of the profile of three selected communities and their flora and fauna data were collected by questionnaire survey from the three selected sites of 150 respondents with surveying profile sampling intensity was 2.5% to find the demographic information, local community profiles and major flora, fauna in the study area. During the community survey, 52 respondents had selected from Surraj Galli, 39 from Khoi Maira and 59 from Darra village. The fieldwork for flora documentation had also collected by the quadratics system (plotting) in the study area. The 490ha study area had divided into 60 plots from selected three villages. The 18 plots had selected from Surraj Galli, 19 from Khoi Maira and 23 from Darra, then the plotted area had divided into 10x10m and the line transect count method had used for the sampling from each plot and total 58 samples were collected with 0.5% sampling intensity was 20 from Surraj Galli, 14 from Khoi Maira and 24 from Darra village. Also, the spice's scientific names, family names, local or common names were properly documented.

The tourist's frequency, attitude and preferences for vegetation conservation were investigated in the study area by questionnaire survey, tourists had surveyed using different approaches on public-transport, private-car, hire-taxi, and any-other tourists' spots selected in about three villages visited Surraj Galli, Khoi Maira and Darra during our combined three surveys, carried out over six months (May-June, 2019 to September-October, 2019) of tourists' data had collected. For the various research purposes, 100 respondents and interviews have been selected. Visitors did give approximately 15 minutes and walked through a small portion of the village, which made it difficult to obtain information from them by using a questionnaire. Thus, for tourists, we recorded basic information about the age, come from, preferences and in other addition to the Khanpur landscape. The interviews had directly asked from every tourist group/individual to cooperate with the research study and confirmed he/she had looked through the village and was about to leave. The discussions with local policy and administrative staff and the local community were also accompanied to collect other tourist information and information on the infrastructure facilities within the villages.

Questionnaire design and analysis

The two different questionnaires for this survey were designed in 2019. The period chosen was 6 months i.e., 2019 for both spring and summer season. The first questionnaire was designed for the local people to document the profile of communities and major flora, fauna species diversity in selected villages and impact of the ecotourism on the villages, etc., as well as a useful random sample of 150 respondents, were selected. The second questionnaire was designed for the tourist to the targeted population of visitors to Khanpur villages who came for astatic activities of the selected villages side irrespective of country, province, the month of travel, age, gender, income, educational qualification, occupation, preferences among aspects of the landscape, services provided in this region, efforts to promote tourism in these areas, etc. A random and useful sample of 100 respondents of visitors was chosen. All the questionnaires are conservative and to the point. Both open and close done questions are asked depending upon the essentials of data collection. The collected data were analyzed by using SPSS v22 software.

Results and discussion

Land cover classifications of the study area

The pie chart illuminates the different value of aspects which are used to label the landscape features of the three study area (Fig. 3). The total area of Surraj Galli village is 144ha in which 0% (0.0ha) water, 36% (52ha) degraded land, 33% (48ha) build zone, 30% (43ha) vegetation cover and 1% (1.0ha) primary forest were classify. While the total area of Khoi Maira village is 152ha in which 11% (17ha) water, 26% (40ha) degraded land, 38% (42) build zone, 26% (39ha) vegetation cover and 9% (14) primary forest were classified. And the total area of Darra village is 192ha with the Dam area. Similarly, 155ha landscape area were classify

in 10% (20ha) water, 29% (55ha) degraded land, 23% (44ha) build zone, 13% (24ha) vegetation cover and 6% (12ha) primary forest.

Communities profile in selected villages

The communities in these three different villages are shown in (Fig. 4). according to the high value of total area 192ha Darra village and 59 respondents were served. The common 16 respondents from Awan, 12 Chaudhry and the lowest 2 from Raja communities' data were document respectively. Followed by Khoi Maira village was a total area of 152ha and 39 respondents were served. The dominant community in Khoi Maira 15 form Malik, and lowest 1 from Gujar were documented. The lowest value of total area 144ha Surraj Galli and 52 respondents were served. The common communities Surraj Galli data was 19 from Raja 12 Sayed and 7 from Awan were served.

Diversity of flora

Flora: So far, 58 plant species of 36 families from the three study villages have been identified and document (Table 1). Which were 28 tree species of 15 numbers of family, 17 herb species of 11 numbers of family and 13 shrub species of 10 numbers of a family were document (Fig. 5).

Important flora family index

Moraceae was found the most dominant family in the flora of the selected area that contributed 9 spices, followed by Fabaceae (5 spices), Amaranthaceae and Asteraceae were (3 spices), *Euphorbiaceae, Memosaceae, Nyctaginaceae and Pteridaceae was (2 spices), and while Acanthaceae, Allisceae, Apiaceaa, Apocynaceae, Asclepidaceae, Berberidaceae, Bihnoniaceae, Canabbaceae, Cannabaceae, Chenopodiaceae, Compositae, Convolvulaceae, Labiatae, Lamiaceae, Lythraceae, Malvaceae, Meliaceae, Oleaceae, Papilionaceae, Pine, Poaceae, Polygonaceae, Primulaceae, Rhamnaceae, Rosaceae, Rutaceae, Sapindaceae, Solanaceae, Verbenacea*, (1 specie) were identified (Table 1). The dominated flora families in three selected villages, 7 trees family, 3 herbs and 5 shrubs from Surraj Galli, 5 trees, 2 herbs and 4 shrubs from Khoi Maira and 3 trees, 5 herbs and 2 shrubs families from Darra village were documented.

Diversity of fauna

So far, 43 fauna species of 35 families from the study area have been acknowledged. Which were 12 mammal species of 8 families, 10 bird species of 9 families, 9 invertebrate species of 8 families, 5 reptile species of 5 families, 5 fish species of 3 families and 2 amphibian species of 2 families were documented (Fig. 6) The dominated fauna families in three selected villages, 4 Mammals, 2 Birds, 3 Invertebrates and 2 Reptiles from Surraj Galli, 2 Mammals, 4 Birds, 2 Invertebrates, 1 Reptile and 1 Amphibian from Khoi Maira and 2 Mammals, 3 Birds, 3 Invertebrates, 3 Reptiles, 3 Fish and 1 Amphibian family from Darra village was documented.

Tourist preferences and attitude

Survey site of the study area

The (Table 3) shows, some tourists are interested in Surraj Galli, Khoi Maira and Darra villages compared with those who prefer to visit the Khanpur Dam. The path taken by public-transport, private-car, hire-taxi, and any-other tourists was selected in about 3 sightseeing buses visited Surraj Galli, Khoi Maira and Darra villages during our combined three surveys, carried out over six months (May-June, 2019 and September-October, 2019). The high value in 3 and 4 survey numbers of 47 visitors and low value in 5 and 6 survey numbers of 24 visitors were recorded. The visitors stay in selected villages were the high value of 1-day without overnight was 57 visitors number, 1-2 nights was 27 visitors, and more than 1-week visitors was 16 number were recorded. The accommodation mode of visitor's number 36 was not applicable just sightseeing and go back and 30 some number of visitors said were that they stayed here

with friends, relatives, etc. The high visitor's number of 43 from KP and low visitors number 5 from Baluchistan were recorded.

Table 2 Survey result of sightseeing of tourists (May, 2019 – October, 2019)

Survey month	No of surveys	No of visitors	Time duration		Mode of accommodation		Residence	
May-June	1 to 2	29	1 day without night	57	With friends, relatives etc.	30	KP	43
					Camping	13	Punjab	30
July-Aug	3 to 4	47	1-2 nights	27	Hotel/Private resort	17	Baluchistan	5
Sept-Oct	5 to 6	24	<1 week	16	Not applicable	36	AJK	9
					Tourist rest house	4	FATA	13

Demographic background of tourist

Table 3 shows the socio-economic and demographic background of the respondents, such as age, gender, education, occupation, income/month, residence, traveling by and come with. Roundabout 88% of the visitors were 21 to 40 years old. The high value of the age group is among 21 and 30 (52%) which 57.7% of tourists from outside of Khanpur and Haripur area. The value of young visitors was higher than that of in-bound tourists to study area. The fact that many students visited Khanpur valley in great numbers using private/rental cars 43% and 33.76% tourists from outside of the study area and that the survey period during the summer and spring holidays can be due to the high frequency of young people. Most respondents belong to a male group and difficult were female served; (Table 3) The literacy rate was higher of master students because mostly arranged tours from school, college and university. Most of the visitor 36% belong to a private employee out from study area 46.34% were recorded and income/month 54% of the responded category of 30000 > 20000 rupees out from study area category 40000 > 30000 rupees of 43.5%. About one 1/5 (34%) of visitors come from the KP province 26.2% from Panjab, 6.5% from Baluchistan, 13.7% from AJK and 19.6% come from the FATA areas of Pakistan. Most of 79.4% visited Khanpur for the first time and 21.6% of those interviewed had visited Khanpur a second time or more previously. Little more than of those interviewed visited Khanpur valley with their effort 35.2 and nearly to 39.3% from other area traveled with their family (Table 3).

Impact of tourist on landscape

The bar graph shows the main two aspects positive and negative a 3-points (Low, Moderate and High) that respondents evaluate the Impact of tourists on Landscape (Fig. 7). The "positive impact" (Increase in conservation awareness among local communities, Increase tourism economy, Increase conservation and preservation of natural and cultural resources, Improve landscape characteristics and quality both from an environmental and from cultural points of view, Well-preserved water resources, Water bodies and natural habitats, Increase in abundance and diversity of flora and fauna and Increase in the aesthetics value of the areas) respectively from the low positive impact 22%, moderate 31% and high 47% respondents were recorded. Similarly, the "negative impact" (Noise pollution, Distraction of archaeological sites, Destruction of natural habitats i.e. fish and aquatic, reptile, mammal, amphibious and wildlife habitats, etc., Change in fauna behavior and Displacement and change of migration patterns of fauna) respectively the low negative impact 37%, moderate 51% and high 12% responded were recorded (Fig. 7).

Tourists' suggestions

Respondents were asked to give suggestions related to the tourist facilities and tourist-related services from range very high to very low (Fig. 8). On average, 67% of respondents suggested very high improvements in tourist guidelines center while 15%, 14% and 6% suggested high, very low and low improvement in tourist guidelines center respectively. About

49% of respondents suggested for very high improvement in parking place facilities, 18% of respondents suggested that parking places required high improvements meanwhile, 13% suggested very low improvement in parking places, 20% suggested low improvement, 43% of respondents suggested for very high improvement in pipelines track with the dam side, 15% of respondents suggested high improvement while 28% and 17% of respondents suggested very low and low improvements. In the case of forest nursery, 33% of respondents recommended for very high augment while 20%, 30% and 15% of respondents recommended for high, low and very low improvement. On average, 53% of respondents suggested very high improvements in wildlife sanctuary while 20%, 10% and 15% suggested high improvement, very low improvement and low improvement in wildlife sanctuary respectively (Fig. 8).

Table 3. Socio-demographic background of tourists to Khanpur in 2019

Variables	Tourists surveyed	Tourists outside form Khanpur & Haripur area
	Percent (%)	Percentage (%)
Age		
11-20 year	12	17.2
21-30 year	52	57.7
31-40 year	36	25.1
Gender		
Male	76	88
Female	24	22
Education		
Literate	18	15.4
Class 10th	9	6.2
Class 12th	17	12.3
Graduate	56	66.1
Occupation		
None	10	13.2
Former	31	23.64
Private employee	36	46.34
Gov. employee	23	16.82
Income/Month		
20000>10000	12	11
30000>20000	54	33.76
40000>30000	22	43.5
50000>40000	12	11.74
Residence		
KP	34	
Punjab	26.2	
Baluchistan	6.5	
AJK	13.7	
FATA	19.6	
Loyalty		
1st time visitor	79.4	
2ndtime/repeated visitor	21.6	
Come with		
On my own	35	27.65
With family	31	39.3
With friends, Acquaintances etc.	34	66.95

The main reason for water body deficiency in Surraj Galli village as far away from the Dam site and no river pass on it. The area is a semi-arid zone and monsoon rainwater is directly run into Dam due to a steep slope. The principle of water resources begins to be adopted by development, professionals and politicians. The results were in agreement with [11] whose similar findings and observations. The degraded land is more in Surraj Galli then other selected

villages Khoi Maira and Darra due to the high residence of people. More sites of the area were degraded and adapted into advanced land also most of the people depend upon the forested areas and freely grazing results more deforestation and land loss occurred. Urban development was explained as a 'long-term loss of the element and systems of the landscape, induced by disturbances where the system cannot restore. Thus, landscape planners need to be aware of the fact that people are very adaptive to landscape change. The result was similar to [12].
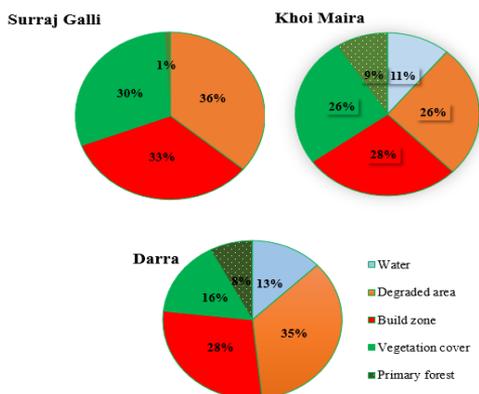
Fig 3. Landscape classification of selected villages in Khanpur
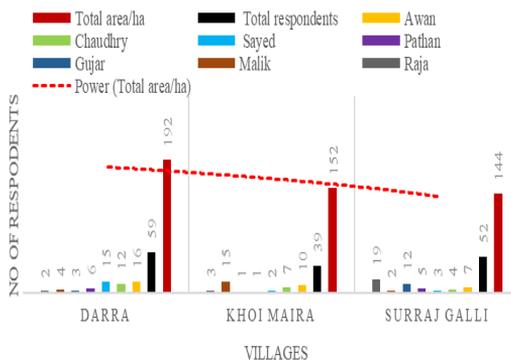
Fig 4. Common communities in villages
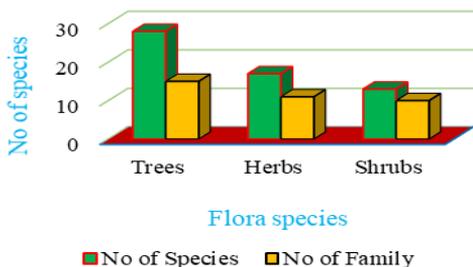
**Fig 5.** Flora diversity of the study area
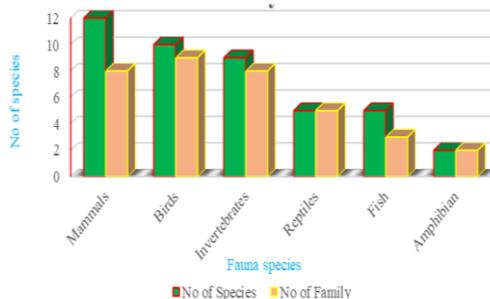
**Fig 6.** Diversity of fauna of the study area
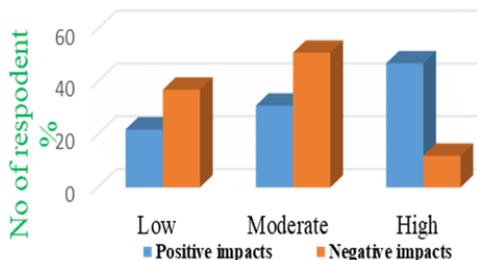
Fig 7. Impact of tourist on landscape of study area.
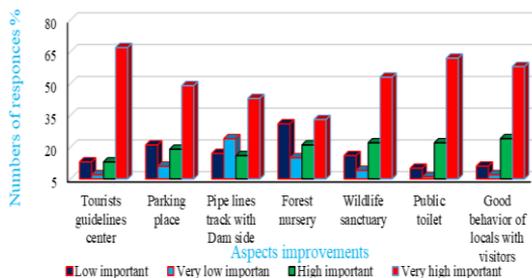

Fig 8. Tourists' suggestions

Surraj Galli, Khoi Maira and Darra village near Khanpur Dam in KP have a high ability to become tourist points. The vegetation of these areas is not only a source of recreation but also provides the leisure experience to the visitors. These areas are rich in wildlife with 43 species belonging to 35 families. The study areas are located near to the Khanpur Dam which is also a source of recreation. These areas are rich with natural beauty that ultimately supports tourism and tourism in return produces a positive impact on the forest landscape. Ecotourism is considered as a tool for landscape conservation [13]. People from all over the country were attracted to the beauty of the study area and visited the recreation site. Most of the respondents visited the place for a short period and preferred to stay with friends and relatives because of fact that the stay in the hotel for more time is not economical as most of the visitors had moderate income. The above findings resemble with results of [14] that low income and high rates of the hotel do not allow the visitors to stay at the hotels. The current study showed that young visitors are more involved in ecotourism especially in spring and summer holidays [15]. Contrariwise, young respondents valued the landscape twofold as much as elder respondents. The findings have resembled with [16] results who found that perceptions of scenery, found a similar association among younger peoples and appreciation of the landscape. A literate young student visited the study area more frequently. The literacy rate was higher of master students because mostly arranged tours from school, college and university. The results of [15] also depicted those literate respondents are involved in ecotourism activities because the demand for recreational activities and awareness for nature conservation among people is determined by education [17, 18]. Present results are agreed with the finding of [19] which highlighted that most visitors are literate and visited the in-spring holidays. The trends of findings also resemble findings of [20]. The results were consistent with [14] findings that education and ecotourism have a strong relationship as educated people are keener to visit new places as contrary to illiterate people. And young people take more interest in tourism than older people and are very keen to explore new places.

The finding showed that males are more indulged in tourism than females and visit the place more frequently than females. In a country like Pakistan, it is more important because due to social traditions and values women travel with family. Results were in agreement with [21] whose finding showed that the men visit the natural sites is contrary to women. Findings highlighted that the people who were visiting the areas had moderate-income and were private employees because in Pakistan mostly peoples belong to middle-class families and worked in private companies due to the unavailability of occupation in government sectors. People come to visit the place from KP and other provinces showing that the locals as well as the people from other provinces were attracted by the beauty of the site. Results resemble the findings of [22] whose results showed that the people with moderate income visited the recreation sites from all over the country and the majority of them were privately employed. People like to visit the place with friends to enjoy the beauty of nature and holidays [17, 18, 20]. The results correlate with the finding of [23] who observed that people preferred to visit the places with friends as they enjoy the company of friends more than family and relatives. The results highlighted that people approach the area in private cars and do not prefer local transport. And the majority of people visited the place first time since survey time fell during spring and summer breaks when many young university students visited the place. The results were in agreement with [24] whose survey had similar findings and observations. The findings of research uncovered that visitor were generally influenced by the quality of the natural traits of the site. People preferred to spend time in natural vegetation and Dam scape. And visited the place to spent time in nature to enjoy the scenic beauty of the forest landscape and to observe

the natural ecosystem. As it was discussed in a case study of Murree Forest recreation, people visited the forest to enjoy the beauty and to observe the natural ecosystem [14]. The current investigation likewise recommended that the visitors turned out to be more concerned about the conservation of Forests. People liked green-landscape, vegetation, dam scape and village landscape but they liked green vegetation most.

Several surveys claim that time spending in the natural ecosystem and vegetation has a positive impact on the mental health of human beings as it helps to reduce the stress and fatigue and divert the mood [16]. The stay of visitors directly linked with the facilities which are provided to them. good accommodation services to the tourists attract them to remain longer to the destination site hence increase the value of site. The absence of quality food, quality rooms, customer care and recreation in hotels discourage tourists to remain at a specific area of a tourism destination. This statement is supported by [25] they concluded that infrastructure and accommodation of site should be properly established [26] gave his opinion that if the site is not properly developed and facilities are not adequate due to its negative impact on visitors. Tourism Facilities are very important to enhance the ecotourism and to support the natural habitat. The attitude and interaction of locals with the visitor is an important factor in flourishing tourism. The current findings showed that people were satisfied with the facilities at retail shops, the behavior of locals and the security of the visitors with bits of help in flourish the tourism in the study area. However basic infrastructure and conditions of historical places proved to be a hurdle in tourism and displeased the tourist.

The basic infrastructure and facilities play a key role in tourism development and ecotourism is greatly affected by the facilities and behavior of locals [17, 27]. These results were also in line with [28] who observed that the positive behavior of resident favors tourism because the way the citizens treat tourists creates a good or bad image of locals. On the other hand, the municipal facilities and equipment including items such as access to housing centers, access to a fuel cell, drinking water and retail shops are a factor signifying the ease and comfort. The tourist demands for improvement in provided facilities have direct liked with the development of tourism. Tourists considered that the guidelines center should be improved. Guideline center is a significant segment for quality traveler administrations [27]. It won't just draw in the traveler to visit the site by helping them in their visits yet additionally produce work for the local peoples. The behavior and attitude of local is also an important factor in the enhancement of tourism. The kind and friendly behavior and attitude attract tourists and ultimately have a positive impact on tourism.

The new tourist is sensitive to local traditions and gives special care to the attitude of local peoples as result the attitude and behavior of locals became the main asset of tourists. When the tourists receive a warm welcome for locals it ultimately encourages the visitors and thus increased tourism [29]. Tourists suggested that some facilities like parking a lot and toilets should be improved. The results were resembling [30]. In which they suggested that to flourish the tourism industry-government should improve parking space and toilet facilities. The respondents also gave recommendations related to the improvement in a wildlife sanctuary and forest nurseries [31]. Argues that the Quality of environment has a directly linked charm for destination and the natural environment depends upon the beauty of destinations. Similarly [32], the finding suggested that the charm and attractiveness of visiting a place can be enhanced by managing the natural ecosystem. Ecotourism plays an important role in the conservation of natural areas. Ecotourism provides support in the conservation of natural forest and wildlife, proposing helpful approaches for good administration and conservation of these natural zones. Sometimes tourism is considered as the last option for the conservation of nature. Tourism is considered the last option for the conservation of forests. Forests enhanced tourism by attracting

them and as a result of the tourism income of the forest owner enhanced that can be used for supporting sustainable forest management. The enhanced information about the land and of forest causes awareness among visitors for the protection of nature alongside the travel industry Ecotourism enhanced the knowledge and information of visitors which ultimately plays a chief role in refining the behaviors of visitors towards conservation of Forest resources. Ecotourism not only a source of recreation for the tourist but it causes awareness in visitors for forest conservation.

The abovementioned findings correlate with the findings of [33]. Forest plays a key role in the ecosystem, and these are an attractive destination for the tourist. The wildlife also fascinates the visitors, and they prefer to spend their holidays with friends in a pleasing environment. These forest landscape and wildlife provide the recreation places for the visitor and eventually enhanced and flourished the ecotourism. The proper management of these places is very important so these places can attract visitors. The tourist resorts, wildlife sanctuaries, forest nurseries, parking lots and sanitary facilities should be improved to enhance eco-tourism which eventually plays a significant role in forest and wildlife conservation [34]. Ecotourism accounts for socio-cultural benefits also as it spread awareness amongst people and encourage them to adopt environment-friendly habits. Destination beauty and availability of facilities at tourist spot directly affect the ecotourism. The role of eco-tourists is very decisive for the development of ecotourism. Their primary factor which is linked with the establishment of ecotourism is the education of visitors and as well as the local communities. Education contributes positively to a healthy and sustainable environment [35]. Policymakers and planners give low priority to forestry programs. This attitude should be changed for the development of the tourist industry and the conservation of nature. The ecotourism has a direct connection with forest landscape with the help of tourism, the conservation of wildlife and could be increased manifold.

Conclusions

This research raises awareness of viable tourism formation and growth policies about the ability to use the traditional community forest landscape as a recently documented tourist destination. This study aimed to display that tourist are interested in traditional village forest landscapes and are willing to help with forest design in villages. This research is beneficial given the importance of the tourism industry's growing interest in alternative vacations and local experiences, as well as the growing maturity and loss of population in local communities. Guessing the economic assessment of leisure use provides a common and real basis for representatives and other participants such as isolated entrepreneurs, tourism assistances, and hotel holders. It also makes it easier to find funding for a tree protection hedge fund. The study expands familiarity of a supportable development and improvement strategy for tourism to maximize the capacity of the village forest landscape as a newly recognized forest tourist. The study helps toward identify visitors' interests, tastes and preferences for the traditional landscapes of the village trees. The research results are valuable because they help to increase the enthusiasm for tourism and preserve the forest landscape.

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