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A Study on the Flora and Fauna of Jim Corbett National Park

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Abstract – The Corbett National Park is well known for its one of kind environments, for example, various sorts of woodlands with wetlands and large meadows which are designated "Chaurs" in neighborhood language. Park has Sal and Anogeissus blended woods and Tiger as a lead animal varieties. Corbett National Park is situated in Uttarakhand, along the eastern edge of the Ramganga River. The vegetation in these western Himalayan lower regions comprises generally of dry and soggy deciduous woodlands, scour savannah and alluvial fields (Kandpal 2006). CNP is rich in faunal variety, with 50 types of vertebrates, 575 types of birds, and critical tiger and elephant populaces The greater part of the occupants of the 92 towns encompassing the timberland region rely upon 'support zone' backwoods regions for fuel wood, feed, and for touching domesticated animals This woods likewise upholds spill-over populaces of natural life from the national park region. Thusly, human-natural life struggle is high around here because of episodes of untamed life harm to harvests, animals and human existence and the ensuing reprisal by locals. Be that as it may, challenges looked by the visit administrators make it amazingly hard for them to satisfy their job in natural life the travel industry. Further, results from the review directed with the agents of the nearby networks were partitioned into two areas – the primary segment gave a clear investigation of the example of the neighborhood networks, though, the subsequent segment portrayed the disposition of local people towards different parts of untamed life the travel industry.

Keywords – Flora, Jim Corbett National Park

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INTRODUCTION

India is among the most populated nations of the world with shifting climatic condition from tropical to elevated environment. The woodland is one of the significant regular assets of the country. Almost multi decade back, the all out woods front of the nation was accounted for to be 63.73 million ha, establishing 19.39% of the topographical space of the country. Out of which 11.48% was thick backwoods and 7.76% was open woods (FSI 1999). All out geological space of nation is 32, 87,263 sq km out of which the current woodland cover is 6, 97,898 sq km. This comprises 21.23 % woods space of the complete topographical space of the country (India Condition of the Backwoods Report, 2013). India is among the 12 super variety communities on the planet containing 7% of the world's biodiversity having around 45000 plant species, 81,000 creature species and 1228 bird species (Singh, 1998). In India, Himalaya is spread more than 5, 94,473 sq. km covering about 19% of the country's topographical region (Dhar, 1997). Himalayan reach runs northwest to southeast in 2400 km long circular segment. Himalayan width fluctuates from 400 km in west to 150 km in east. It spreads in 5 nations India, Nepal, Bhutan, China and Pakistan.

The Himalaya covers 18% of the Indian subcontinent, represents over half of the India's woods and contains 40% of India's endemic species.According to the Evaluation of India report recovered from the workplace of The Recorder General and Statistics Magistrate on 26-11-2008, India possesses 2.8% of the world's territory region and supports more than 17.5% of the total populace (Source: Censusindia.gov.in). According to the 2001 registration, 72.2% of the populace lived in around 638,000 towns and the excess 27.8% lived in excess of 5,100 towns and more than 380 metropolitan agglomerations. The socioeconomics of India are comprehensive of the second most crowded country on the planet, with over 1.21 billion individuals (statistics, 2011), in excess of a 6th of the total populace. Previously containing 17.5% of the total populace, India is projected to be the world's most crowded country by 2025, outperforming China, its populace arriving at 1.6 billion by 2050 (Source :Censusindia.gov.in).

Himalayan woods environment has been the significant supporter of the uber biodiversity of India. In this way, the preservation and logical administration of the biodiversity for over all improvement of nature and regular assets, expects

an extraordinary importance. Different parts of biodiversity of these woodlands has been concentrated Environmental cum floristic living spaces of biodiversity importance are uncommon and threatened The Himalayan vegetation goes from tropical dry deciduous backwoods in the lower regions to high knolls over the tree line.

According to Census report almost 70% Population living in rural areas and tribals are completely dependent on the forest for fuel, fodder, grazing and building materials. has mentioned that since the dawn of civilization flora and fauna have been an integral elment in developing an ideal environment for mankind. This is quite reasonable to assume when projected fuel wood consumption of 262.782 million m3 in 1993 and 302.387 million m3 in 2010. In an assessment (ITTO, 2003) the current level of fuelwood consumption has been assessed to be 280 million m3 which is projected to rise to 400 million m3 in 2020. Himalayan ecosystem has major threat from fire and is highly susceptible to various types of human induced disturbances. With such a huge human and livestock population in the rural areas of the country as mentioned earlier, the pressure is mainly exerted on the nearby forests in form of deforestation, fuel and fodder extraction, over-grazing and diversion of forest land for non-forestry uses etc. As per the report of MOEF, (2013) a network of 668 Protected Areas (PAs) has been established, extending over 1, 61,221.57 sq. kms. (4.90% of total geographic area), comprising 102 National Parks, 515 Wildlife Sanctuaries, 47 Conservation Reserves and 4 Community Reserves. 39 Tiger Reserves and 28 Elephant Reserves have been designated for species specific management of tiger and elephant habitats (www.envfor.nic.in). UNESCO has designated 5 Protected Areas as World Heritage Sites. There are 4 categories of the Protected Areas viz, National Parks, Sanctuaries, Conservation Reserves and Community Reserves.

In uttarakhand, there are 6 Public Parks, 7 Safe-havens and 3 local area reserves and it is practically 40% of absolute woods front of Uttarakhand. Expanding tension on backwoods assets because of expanding human populace has caused territory discontinuity in the greater part of the secured regions. In India, environment obliteration, over abuse, contamination and species presentation are distinguished as significant reasons for biodiversity misfortune (UNEP, 2001).

PROTECTED AREA NETWORKS IN INDIA

India adds to about 8% of the worldwide biodiversity, placing it among the top nations on the planet as far as variety. Its biodiversity gloats of significant types of vertebrates, birds, reptiles, and so forth, which has been by virtue of an exceptionally solid Secured Region (Dad) network in India that has offered these species the chance to endure and raise. The Public Untamed life Action Plan (2017-2031) (2016) characterizes Secured Regions (PAs) as "topographical spaces, perceived, devoted and oversaw through legitimate and other powerful intends to accomplish the drawn out protection of nature with related biological system administrations and social qualities". PAs assist with tackling natural issues and are basic for feasible climate improvement when represented and overseen adequately. In India, there are 870 PAs incorporating a space of 1.65 lakh sq. km. which is practically 5% of India's geological region.

As given by the Ministry of Environment, Forest and Climate Change, Protected Areas can be divided into 4 types.

- **Sanctuary:** It is a protected region with the primary purpose of protecting and developing wildlife and its environment. However, permission can be granted to retain certain rights of indigenous groups living inside the sanctuary.

- **National Park:** It is a protected area that aims at protecting and developing several species of animals and birds along with their environment. However, national parks do not give any rights to the native people living inside the park.

- **Conservation Reserves:** They can be declared (for protecting wildlife and its habitat) by the State Governments in an area that the Government owns, which is adjacent to national parks and sanctuaries or/and which links the two protected areas. The rights of the people living inside a conservation reserve are not affected.

- **Community Reserves:** They can be declared (for protecting wildlife and its habitat) by the State Government in any private or community land. The rights of the people living inside a community reserve are not affected.

There are 555 wildlife sanctuaries, 104 national parks, 88 conservation reserves, and 127 community reserves in India.

JIM CORBETT NATIONAL PARK

Corbett Public Park was set up in 1936 and holds the qualification of being central area Asia's first public park and furthermore India's first public park. On first April 1973, "Venture Tiger" was dispatched at Corbett Public Park, making it the dispatch site of this protection project. Corbett was at first seen as a chasing block; notwithstanding, because of the endeavors taken by Edward James 'Jim' Corbett (tracker turned progressive)

and Sir Malcolm Hailey (then, at that point Lead representative General of Joined Territory), ensuring this region for natural life was proposed. At first, 323.75 sq.km. of this space was proclaimed as a public park and was named 'Hailey's Public Park' to pay tribute to Sir Malcolm Hailey. It was subsequently renamed as 'Ramganga Public Park' in 1955 and in 1956 renamed as 'Corbett Public Park' after the passing of Jim Corbett. With the expansion of regions from contiguous backwoods divisions in 1966, the public park's region expanded to 520.82 sq.km. In 1991, Sonanadi Natural life Asylum was incorporated, and the region expanded to 1288 sq. km. Corbett is situated in Nainital locale and Pauri Garhwal region of Uttarakhand. The park is home to numerous types of trees, vertebrates, birds, and reptiles. Some normally seen untamed life incorporate Elephant, Langur Monkey, Chital, Sambar, Hoard Deer, Yelping Deer, Gharial, Screen Reptile, Wild Pig and Jackal. Corbett likewise has different types of occupant and moving birds dwelling in the park including Peacock, Kaleej Fowl, Earthy colored Fish Owl, Stork-Charged Kingfisher, Woodpeckers, and so on Corbett's principle objective is to ensure the natural life and their environment. Because of the huge preservation and the executives drives attempted at Corbett, it today has the most noteworthy thickness of tigers on the planet and is viewed as one of India's significant Gharial reproducing destinations. Starting at 2008, the tiger populace inside the Corbett Tiger Reserve was assessed to be 164 (151-178) and 214 (190 – 239) in 2010 (Sinha and Sinha, 2013). This load of regular enrichments offer a tremendous span of information for travelers and incredible potential to instruct our people in the future about the significance of a sound and selfsustaining biological system. Also, the travel industry activities at Corbett create critical work openings for the nearby networks, and thusly, these networks offer their help to the assurance and preservation projects.

Human Population and Corbett

On top of the system of public parks, there are no settlements inside the park. Notwithstanding, there are around 80 towns in the support zone of Corbett Public Park, and they rely upon the woods for fuelwood, grain, and other normal items. The towns of Kothirau, Dhara, Jhirna, Birna, Laldhang, and Dhela appreciate rights inside their woods squares of Corbett Public Park. A huge settlement has been set up by the Water system Office at Kalagarh ashore rented out from Corbett Public Park. The Water system Office keeps up with the multipurpose dam at Kalagarh across the Ramganga stream and furthermore guarantees the transmission of power and water for water system (Bhartari, 1999). Also, around 181 Gujjar families dwell in the Sonanadi Safe-haven region. Gujjars are traveling Muslim people who moved from Jammu and Kashmir to the lower regions of the Himalayan mountain ranges and step by step entered western Uttarakhand. Steers raising is their primary occupation, and every family keeps a group of 15-20 wild oxen. Generally, Gujjars used to relocate to the Himalayas throughout the mid-year season and would return in the colder time of year. Be that as it may, of late, the greater part of them have forever gotten comfortable the region, consequently giving no break to backwoods. The quick expansion in the human and domesticated animal's populace of the Gujjars, combined with the end of their occasional relocation, has prompted sped up corruption of the natural surroundings. Since they don't approach fundamental human conveniences like schooling, wellbeing, power, safe drinking water, and so on, the Public authority of India has cleared 160 ha. of woodland land for their resettlement at Chiriyapur Scope of Hardwar Backwoods Division. Nonetheless, the Gujjars rely on the backwoods for feed and subsequently, the gigantic number of dairy cattle rivals wild creatures for water and feed.

OBJECTIVES OF THE STUDY

- To analyse the pattern of forest species composition under varying disturbances.
- To observe the impact of anthropogenic pressure on plant biodiversity/ status of invasive species.

RESEARCH METHODOLOGY

Study Area

Corbett National Park was set up in 1936 as Haily National Park on the name of Sir Melcolm Haily, who was the then Governor of United Provinces. It was subsequently named as Ramganga National Park and again renamed as Corbett National Park to respect the incredible naturalist Jim Edvert James Corbett. Corbett had a place with Nainital, had his property at Kaladhungi and went through the greater part of his time on earth period in and around lower regions of Kumaon. Such countless spots on which names the popular Corbett stories rotated around are dispersed in vicinity of Corbett National Park, as Mohan, Chuka, and Pawalgarh and so on He was naturalist standard amazing, a praised tracker and master on man eating tigers and panthers. He annihilated the danger of so many man-eaters to the absolute help of nearby individuals. He turned into a legendary individual and for all intents and purposes revered and glorified by local people. He later assisted the public authority with fixing the normal limits of Corbett National Park (source: Annoymous report on CNP)

Corbett National Park lies on the lower regions of Kumaon and Garhwal i.e in the areas of Nainital and Pauri Garhwal individually and including a sum of 530.82 sq km. The region lies between 29025' to 29040' North scopes and 7805' to 7905' East longitude. Ramganga River is the help of Corbett

National Park. It is a slope track and the elevation differs generally from 1100 ft. to 4000 ft. Various nallas and alcoholics confound the whole region lastly converge with Ramganga River. The principle feeders of Ramganga River are MandaI, Palain and Sonanadi waterways. They conversion on the right bank of Ramganga The catchment of this load of three waterways in external Corbett National Park and none of them now through the Park.Ramganga essentially structure the limit for an extremely significant piece of the Park (source: Management Plan of CNP) The current investigation site (Fig 2.1) was taken on Southern Boundary of Corbett National Park and lies between 290 24' 26.4" N and 290 26' 52.6" N scopes 780 53'42.9" E and 790 02'23.7" E longitudes. The Southern limit was chosen for the examination in light of the fact that the Southern limit has most extreme number of towns with a tremendous anthropogenic pressing factor. However, there are stray instances of poaching on the southern limit, the whole Park turns out to be extremely delicate during storm. Poachers and against social components are accounted for to have set up camp in the inside spaces of the Park prior. The presence of the plant Cannabis sativa for a huge scope additionally draws in enemy of social components managing in restricted opiate material. During summers, Park draws in illicit nectar gatherers and these exercises keep the recreation center organization on high ready constantly across every one of the seasons. Affectability Analysis/Pressure Analysis on Various boundaries for various secured regions on the planet have been completed with pointers like Extent, Impact and Permanence (life span). On account of every marker, a different worth was alloted to every quality and every one of the three qualities were increased to ascertain the level of each pressing factor (Ervin, 2003). The Southern limit got the most noteworthy scores out of the multitude of four limits of CNP. This demonstrated that the Southern Boundary of the recreation center is truly risky or exceptionally touchy as far as extraction of fuelwood and feed, degree of illegal felling, degree of tiger poaching/mortality, degree of spread of outsider species, degree of yield harm and degree of steers theft and human injury/killing and so on To make it dependable, practical, bona fide and satisfactory, an activity was done with the assistance of Park Administration as it were. The outcome got depends on practice done by Park Officers as it were. Along these lines, this activity sets up the way that Southern Boundary of Corbett National Park is Highly Sensitive as the Southern Boundary scores most elevated among every one of the 4 limits (Table 1.).

Table 1: Values assigned to extent, impact and Permanence of environmental pressures and threats

Indicators	value			
	1	2	3	4
Extent	Localized	Scattered	Widespread	Throughout
Impact	Mild	Moderate	High	Severe
Permanence (logevity)	Short term	Medium term	Long term	Permanent

RESULTS

Assessment of Vegetation Parameters

The high reliance on backwoods regions for touching, fuel-wood assortment and lumber are some different elements which are answerable for the corruption of the timberlands (Bisht, 2012). Ensured regions showing the rich biodiversity that happens along the altitudinal angle while the secured regions situated in the bhabar and lower regions, for example, Corbett Tiger Reserve are renowned for huge well evolved creatures including lead species like Tiger and Elephant (Semwal et al. 2008)In present investigation an endeavor was made to consider the impact of unsettling influence on the floral biodiversity of the timberlands. Locales were chosen inside the center region (Jhirna region) and outside it in support of CNP (Dhela and Babliyadang regions) to evaluate the significance of assurance to woods in rationing the plant variety in explicit.

Highly Disturbed Site 1(HD1)

All out tree thickness was 250 trees/ha and complete basal region was 18.08 sq. m/ha. In exceptionally upset site (HD1) singular species thickness went from 10-100 people/ha, it was greatest for Mallotus philippinensis and least for Dalbergia sissoo, Aegle marmelos and Butea monosperma. A/F proportion went from 0.02-0.10, Mallotus philippinensis, showed standard conveyance, Diospyrostomentosa and Cordia dichotoma showed arbitrary dispersion while Shorea robusta, Cordia dichotoma, Dalbergia sissoo, Aegle marmelos and Butea monosperma showed infectious dissemination. Individual basal region went from 0.10-12.16 m2/ha, it was greatest for Shorea robusta and least for Butea monosperma. Mallotus philippinensis (IVI=94.77) was the prevailing species followed by Shorea robusta (IVI=90.37) and Diospyros tomentosa (IVI=35.50). (Table 4.1a)

Table 2: Vegetational parameters of tree layer (HD1)

(D = Density/ha, F = Frequency (%), A = Abundance/ha, A/F = Abundance Frequency ratio, TBA = Total Basal area in m^2/ha, IVI = Importance Value Index)

Species (Botanical name)	D	F	A	A / F	TBA	IVI
Aegle marmelos	10	10	10.00	0.10	0.20	10.66
Butea monosperma	10	10	10.00	0.10	0.10	10.09
Cordia dichotoma	30	10	30.00	0.30	0.42	19.90
Dalbergia sissoo	10	10	10.00	0.10	0.57	12.73
Diospyros tomentosa	40	30	13.33	0.04	0.51	35.50
Lagerstroemia parviflora	20	20	10.00	0.05	1.24	25.98
Mallotus philippinensis	100	70	14.29	0.02	2.87	94.77
Shorea robusta	30	20	15.00	0.08	12.16	90.37
Total	**250**				**18.08**	**300.00**

CONCLUSION

Any discrete occasion in time that upsets biological system piece, construction or capacity is known as unsettling influence (Barnes et al. 1998). The anthropogenic pressing factors like over brushing, backwoods discharge and numerous others likewise influence the woodlands As per ISFR (2011) and India has been portrayed as a nation presented to huge direct-human instigated deforestation and corruption in recent many years. The Eco framework doesn't get the chance to recuperate from human initiated unsettling influences since this is ceaseless and never stops (Singh and Singh, 1992; Singh, 2002 and Semwal et al., 2008). Because of human actuated pressing factors, per region each year usefulness of Indian Forests is just 0.7 m3/ha/year against world normal of 2.1 m3/ha/year (Indian Forestry Outlook Study, MOEF, 2009). This showed that Indian Forests are under enormous pressing factor as far as fuel wood, grub and NTFA extraction just as fire and animals brushing etc. Collection of these timberland items and its effect brings about debasement of woodland. As indicated by Gulati and Sharma, 2000 the low usefulness of backwoods combined with always expanding interest for woods items because of India's tremendous and expanding populace adds to the debasement of woodland. The always developing economy antagonistically affects timberland and the land use example of the nation.

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