High Time of Pacing Nilgai Antelope (*Boselaphus tragocamelus*) into Mainstream as Community Conservation for Influencing Macroeconomics

ABSTRACT

The *Nilgai* antelope are a large bovid free-ranching in 17 Indian states and 31 districts of Bihar, India. It is endemic to the Indian subcontinent and while there are major populations in northern India. The government of many Indian states have declared this mammal (*Nilgai*) as vermin due to damage of crops and ordered to kill them in favour of farmers. In Bihar only 3228 nilgai were killed by professional shooter during 2017-2019. However, brutality of this elegant species (*Nilgai*) is not a long-term explanation to conquer human-animal battle. All the species on the earth dispense some structure and function to an ecosystem. In the present nearby investigation was execute to commence the availability, efficacy, economic worth, structure, functional and ecological significance of Nilgai. The additionally this study give an idea that how to use the nilgai to converging on long term human resolve to the conflict. Its monetary economic betterment for human in many ways only requirement to reconnoitre their conventions. Silviculture based cropping system, domestication, agricultural husbandry, nilgai ranches, tourism and recreation help manage to the eco-friendly the earth's climate. *Nilgai* antelope may be beneficial in other ways like its by-products, pedigree of food, industry outcome, taming ranches etc. Blue bull or Nilgai meat and alternative non cow milk may provide a source of protein for ever increasing human population. The flesh of *Nilgai* is highly demand in national as well as foreign countries. It may be exported after taming, domestication. The domestication of *Nilgai* corresponds to a pivoted changes in history not only of human but also of the biosphere. *Nilgai* is powerful succeeding economic contender it may prove a driving force in upliftment of socio-economic of farmers & local human communities and eco-friendly, sustainable development of India.

Keywords: Blue-bull, crop damage, wildlife, antelope, Mammalia, taming, ungulates.

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1. INTRODUCTION

The Nilgai antelope *(Boselaphus tragocamelus)* is the largest Asian antelope, reaching size up to 210 cm long 140 cm shoulder, height and 288 kg weight [1]. This bovid endemic to peninsular India, Pakistan and Nepal and also was introduces in to the United states (Taxes), Mexico, south Africa and Italy [1,2]. In Indian ecological scenario, ever growing population of *Nilgai* is due to shrinkage of wildlife natural resources, habitat loss, high reproductive rate and

non-availability of potential predators, they moving & dwelling near the human habitation, crop raiding obsolete broadly described in various parts of our nation [3]. In present time free-ranching nilgai has postured a serious challenge to both for the government and agricultural society of India. In many states governments of India have declared this animal as agricultural pest (vermin) and killing them in favours of farmers [4]. In the human history, first 99% flora and fauna was the limited source of nourishment, fibre and medication and tranquil donates a important amount to the well-being of societies [5,6]. Bihar state is one of the ridiculous bequest of mammalian fauna and have abundance of *Nilgai* and others like an elegant species of Blackbuck, *Antelope cervicapra* home based to a found in outside protected areas [7,8]. Six species of antelope are found in India [20]. Wild mammal *B. tragocamelus* is the biggest Asian antelope, mature males appear like-ox and are also known as blue bulls, protected schedule III Wildlife (Protection) Act, 1972, and categorized as an animal of "Least Concern" under (IUNC), [9]. Complications accompanying with superabundant nilgai and others wild mammalian species bringing up the rear their natural habitat and acclimating themselves to the man-altered state of affairs in India [7,10]. The many wild mammals playing significant role in development of the ecological & biological processes with balancing the environment. Human can increase commercial value from uninhabited mammals in many process like nutritive, productive and indirect non consumptive value like ecotourism etc. [11]. Ecotourism is a developing perception deals with the natural resource conservation through socio-economic development of the local communities. Existence conscious of the commercial value of all limiting assets such as wildlife is of significant in terms of supportable growth [12]. In present context *Nilgai* is a highly adaptive and recorded more than 17 Indian states and estimated more than five lakhs in only six northerly Indian states like Bihar, Uttar Pradesh, Madhya Pradesh, Maharashtra, Rajasthan and Haryana shows that possessions generate a spirited alliance in the determination of the human being [10,17]. Healthy ecosystems operate in turn provides properties and service that are crucial for the endurance of human. Finally, *Nilgai's* are an integral part of the ecosystem it may be longer beneficial and economic important for us.

In this contextual, we evaluated for making an exertion to understanding the *Nilgai* distribution, availability, utility with economic assessment and to make available science-based suggestions for curtailing the up-shot on agrarian society. We will resolve the state of the science and its application prospective in the supervision of free-ranching nilgai may be a major interest for future economic contender of India.

2. MATERIAL AND METHODS

2.1 Study area and data collection

Study area carried out and falls under the agroclimatic Zone, I, II, and III A&B of Bihar state India from January 2018 to December 2021. The number of Kishan Chaupals was attained in Different blocks of the district Buxar and Purnea, Bihar. Many survey were also executed under state non-plan project in different district of Bihar state by the author. During the possession of this visit's *Nilgai* were perceived and come across many times and afterward conferred with agriculturalists regarding accessibility of nilgai in the different districts and ecological zones in Bihar Fig.-1.

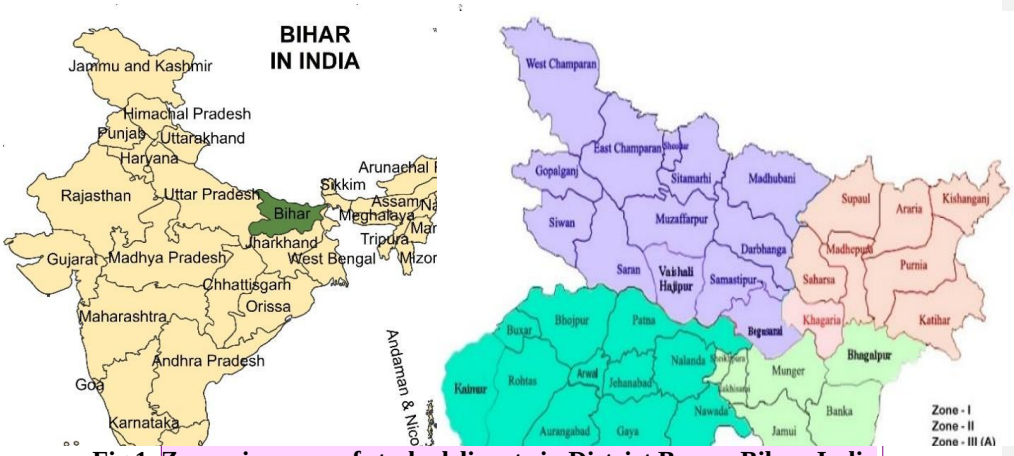

Fig.1. Zone wise area of study delineate in District Buxar, Bihar, India

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The indicator of study area is not clear in this map.

The secondary data were collected with other publications like newspapers etc**.** Some snapshots were took, obligatory and The monitoring of these uninhabited beasts were made very prudently from a short way and behaviour of the brute were detected according to [13,14]. Real-time crop damage by Blue-bull was assessed through direct observation and attitudes of the people towards this stylish antelope subsequently discussed from the villagers/ farmers those living near in the fringe area of Bihar.

3. RESULTS AND DISCUSSION

Nilgai was recorded in 17 Indian states, and out of these 8 states having more than 5 lakhs population of Blue bull reported including Bihar are the severe affected [10]. The matter of facts, the *Nilgai* population have augmented substantially due to sustainable development and a high rate of numerous births and lack of latent pillagers. The population density reported of *Nilgai* in central India is 0.07 animals per square kilometre (The Farm at Walnut Creek, 2018). Whereas, [19,20], reported regarding wild mammals' domestication possible and occurred when humans were faced a specific need and requirement. In this regards nilgai, without we study the longstanding inhabitants changing aspects of uninhabited animals, we cannot agree whether

discarding could solve the problem of battle or not. The delinquent might be something entirely different than inhabitants increase.

3.1 *Availability and Impact*

Our recent study condo-dwelling inhabitants composition and richness of nilgai *Boselaphus tragocamelus*, (Pallas) in Bihar, India [21], the density of nilgai was reported seven herds/groups with total 407 numbers under 431.10 acre area in Haryana Cattle Breeding Farm (HCBF) and its nearby in Dumraon, Buxar only. In present study was find out in Bihar, free-ranching of *Nilgai* found in 31 districts out of 38 whereas, 21 districts of Bihar state are seriously affected and faced heavy crop losses. The distribution and availability of nilgai in different states of India, details presented in (Table-1). Bihar is an agrarian state and agriculture is the main source of occupation and livelihood of the people of Bihar. In a number of districts of south Bihar nilgai have taken to living permanently in crop fields, undulated lands, around canals, banks ravines etc. In present study we observe that the nilgai generally less active during day, however more active during the night. The nilgai causes extensive damage to agrarian crops like, Maize (*Zea mays*), Paddy (*Oryza sativa*), Wheat (*Triticum aestivum*), Gram (*Cicer arietinum*), Mustard (*Brassica juncea*), Moong (*Vigna radiata*) and Sugarcane (*Saccharum officinarum*). The major vegetables crops like Tomato (*Solanum Lycopersicon*), Potato (*Solanum tubersum*), Brinjal (*Solanum melongena*), Cabbage (*Brassica oleracea*) are also damage by this animal. The maximum crop damage has been reported by nilgai in different district namely Kaimur, Buxar, Bhojpur, Rohtas, Vaishali, East Champaran, Supaul, Nalanda and Patna. They have turn out to be in the neighbourhood over abundant in these states, human-nilgai conflict, in that way producing serious problems which involved in damage to crop, economic losses and also rise occurrence incidence like road mishaps due to vehicular collisions etc. Blue bull triggered widespread impairment to furthermost agrarian crops. The table-2 provides a brief summary. The Bihar government declared nilgai as vermin in the year 2015 and 100 nilgai can be killed at the DFO level, and 500 at the level of Conservator. The department of forest has also notified as the amount Rs 2000 for killing one nilgai in Bihar [4]. As per record total 3,228 numbers of *Nilgai* were killed by professional shooter during 2017-2019 in different districts of Bihar. The some Farmers in Haryana and Bihar state also have taken to electrocuting nilgai but by and large the carcass is buried and not consumed [3,4,7].

Table-1. Effect of nilgai on crops in Indian states and different districts of Bihar.

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S. N.	Indian States	Estimated population	Impact	Districts of Bihar	Impact
	(Chauhan 2011)			Present study	
1	Bihar	5,500	***	Bhojpur	***
2	Uttar Pradesh	254,449	***	Buxar	***

3	Rajasthan	20,974	***	Kaimur	***
4	Gujarat	97,004	***	Vaishali	***
5	Haryana	41,434	***	East Champaran	***
6	Punjab	10312	***	Patna	***
7	Madhya Pradesh	60677	***	Supaul	***
8	Uttarakhand	7728	***	Rohtas	***
9	Maharashtra		**	Nalanda	***
10	Orissa		**	Jehanabad	***
11	Himachal Pradesh		**	Arwal	***
12	Jharkhand		**	Aurangabad	***
13	West Bengal		**	Gaya	***
14	Andhra Pradesh		*	West Champaran	***
15	Chhattisgarh		*	Madhubani	***
16	Jammu & Kashmir		*	Gopalganj	***
17	Karnataka		*	Darbhanga	***
18				Samastipur	***
19				Saran	***
20				Siwan	***
21				Muzaffarpur	***
22				Begusarai	**
23				Nawada	**
24				Bhagalpur	**
25				Sitamardhi	**
26				Saharsa	**
27				Jamui	*
28				Banka	*
29				Munger	*
30				Lakhisarai	*
31				Purnea	*

*****=Severe affected, ** moderate affected and *Presence**

As the matter of facts, the human animal conflict, and crop raiding damage by nilgai increases day by day and it created a serious problem in the village development communities which located close to potential nilgai habitat. This herbivores antelope, feed primarily on grasses, leaves, buds and fruits of various agronomic & gardening crops, mustard was occasionally eaten by nilgai but it was damaged by trampling. which cause prodigious economic loss to agrarian crops by means of grazing and trample. However, brutality of nilgai is neither an abiding enlightenment to overcome human-animal conflict. Nilgai appeared a subject of significant desirability, awareness and investigations issues regarding utility and economically all over the Indian subcontinent [15].

Table 2: Human-nilgai conflict and population.

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S.N.	Conflict type	Areas	Population

1	Crop raiding/tramping	All 8 states of India	Five lakhs nilgai reported only in 8 states, however, UP its population was reported to 2.54 lakhs [10].
2	Road mishaps	North Indian states (Bihar)	
3	Hitting by Train accident	Shahabad (Bihar)	
4	Injuries or death to human	different districts of Bihar	
5	Food share with domestic animals	different districts of Bihar	
6	Dwelling near human habitation	Villages areas of Shahabad	

3.2 Nilgai enduring in exciting condition

In Bihar, Nilgai live in dry (hot) and Flood areas with a variety of land types. In India, they occur in the foothills of the Himalayan mountains and south wards to Mysore including the State of Karnatka [10,22]**.** The brush country of South Texas is also well suited to their natural preferences [23] Benton, (2020). *Nilgai* having characteristics as browser and grazer or mixed feeders, it also prefers grasses and herbs, though they commonly eat woody plants during an unfavourable condition surviving long periods without water.

As matter of facts, Nilgai give positive sign, and surviving an extreme ecological condition like, hot, cold & heavy rains (Fig-2. a, b, c & d). and produce regularly more than one offspring in a year with high surviving rate. it may be use as agricultural farm animal transport after domestication. In the present study it is observed that the Shahabad (Bhojpur, Rohtas, Kaimur and Buxar) areas, is characterized by typically hot temperature rises up to 45 ^{0}C during summer and downpour and these areas also distinguish by utmost high and low temperature drip down to 4 ^{0}C during winter [21,24]. They survived in this exciting condition and breed continually. In captivity, nilgai can drink up to 14 L of water per day when temperature reach 40 ^{0}C [25].

a. Summer **b. Winter**

c. Rainy **d. Faecal pellets**

Fig.2. Nilgai herd survive in different seasons and location in Dumraon Buxar

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In Bihar agroclimatic Zone I and II is detected north of the river Ganga and these are flood prone areas. Although the zone III is located southwards of the river Ganga, that is drought prone. Nilgai is also survive and frequently breed in flood prone most vulnerable district like East Champaran, Seohar, Sitamadhi, Katihar, Madhubani, Vaishali, Muzaffarpur, Darbhanga, Samastipur, Madhepura, Supaul, Saharsha, Khagariya, Begusarai, and Bhagalpur. Whereas, is flood vulnerable district like West Champaran, Gopalganj, Siwan, Saran, Buxar, Bhojpur, Patna, Nalanda, Lakhisarai, Sheikhpura, Purnea, Araria and Kishanganj. Nilgai also found in drought vulnerable district like Gaya, Nawada, Jamui, Nalanda and Lakhisarai (Fig-1). As per record the nilgai antelope was the first exotic animal to be stocked on Taxas soil USA from India. These hardy animals quickly developed a self-sustaining free-ranging herd; and at the present period of time, hunters from all over the country come to enjoy the challenge of harvesting a blue-bull [26].

3.3 Significant to Science and Agriculture

All the wildlife species of mammals on the earth have some exclusive ecological niche & function. Nilgai is one of the most important elegant species of antelope groups. The increasing demand of nilgai as food value to their lucrative commercial place put a compelling on the sort and it may prove a driving force in upliftment of socio-economic of local human communities presented (Table-3). The pedigree of food that is easily accessible, diversity in diet and nutrition. Growing demand of veal and juveniles nilgai in national & international market and in humanoid diet; mostly protuberant property that expression its standing for the economy is marketable and a source of employments for rustic society, its influence to tourism and socio-cultural composition and being utilized as low-cost animal feed. *Nilgai* produce an animated alliance in the determination of the humanoid species and be determined by significant magnetism, consideration and investigation of all over the Indian sub-continent. The anthropogenic compression in retort to climate change have brought significant change in fauna

and flora [27]. Nilgai is a highly adaptable eland. They have become locally overabundant in in 31 districts of Bihar bring about serious problems that comprise damage to crops.

Table-3 Significance of Nilgai and Alternative Source of Income

S. N.	Importance	Source of income
1	Additional pedigree of food	Nutritious advantage is increased when human make use of *Nilgai* in a direct utilize process and commercial value.
2	Increase root of medicine	*Nilgai* may be assist as models in biological explore as genetics and in drug testing. Use in conservative medicine, medical assets, in ergonomics & genetic.
3	Alternative non-cow milk	It may be make available as an alternative non-cow milk, it is fact milk is an exclusive of protein and calcium along with nutritive as well as vitamin B12 and iodine.
4	Nilgai by-product and Industrial out come	*Nilgai* may make available dairy by-products and much of the meat eaten by the human community, whether cultivated or hunted. Fruitful use virtually value is gained when untamed *Nilgai* are utilized in undeviating non consumptive process. Its milk can be replaced for other dairy products to secure the same benefits.
5	Domestic nilgai ranches and culinary tourism	Gastronomy tourism or food tourism. France has been strongly associated with culinary tourism with both international visitors also citizen traveling to different part of the country to sample local food and wine[12].
6	Touristry and recreation	If human do not exploit nilgai directly, can still gain indirect non consumptive use value as safari tourism or picnic sports or Eco-tourism.
7	Agriculture husbandry & nilgai breeding farm	Male *Nilgai* is strong, it may be use as nilgai cart, transport, farm animal for agriculture and develop breeding farm, generate new job opportunities.
8	Fecal pallets use as fuel and fertilizer	Nilgai fecal pallets is compact (look as Goat & Blackbuck dung) use as fuel after half burn, it is natural fertilizer, reach nitrogen and assist in agriculture & afforestation and also enhance the quality of the soil
9	Scientific and educational use	Nilgai may be serve a major role in science as experimental animals both in basic, biotic research, such as in the development of new therapeutics which must be tested exhaustively to demonstrate their safety.
10	Help in progress of socio-economic status	Nilgai may be add in agrarian society, it may prove a driving force in upliftment of socio-economic status of local human communities and eco-friendly, supportable development.

Nilgai are adaptable for survival on open agricultural field and prefer areas like short busses and scattered trees, However, now a days they are found and dwelling in human habitation also. The *Nilgai* has even now assessed for their ongoing or future economic reputation. It is therefore

certain to save biodiversity for probable new sources of food, medicine, agriculture husbandry, taming ranches and industry product.

3.4 Pedigree of food & medicine:

Its fact, most of the resident populace (Hindus) did not obtain direct advantage from *Nilgai* because they think from religion point of view that Nilgai (mother) as sister of cow. However, the reality is that the Nilgai is not a cow, it is a member of an antelope group and the facts, it's very closed relative to four horn antelope. Many research workers reported and expected the suitability of the habitat for undomesticated mammals to depend on the habitat type [16,17]. We expected the home-grown population to use uninhabited / taming *Nilgai* as a derivation of meat, milk and other by-products for private consumption and a source of income [7,18]. They depend on the demand of the local population as well as export to other countries and the access to the market to earn money

The matter of facts many Domesticated of mammals helped to provide a source of protein for ever-increasing human population. Around the globe undomesticated mammals are also certain source of meat for human and petition for bushmeat has been identified as one factor that is driving untamed mammals to extinction [28]. For the productive used value of undomesticated mammals are numerous and an important source of revenue for human in global [18]. In USA, Taxes, the popularity of organic meat including game meat is trading up in recent years. Those who appreciate quality red meat will enjoy the dining opportunities associated with nilgai [26]. In the African countries, the utilization of untamed mammalian fauna based on subsistence to purely commercial activities driven by the demand of international trade [29].

Our recent study the nilgai antelope good competitor for taming could add in humanoid society [17], report regarding the body part of nilgai antelope such as skin teeth and meet are sold in the black market in Uttar Pradesh and Bihar. Nilgai produce a high-quality lean meat: its meat consumes a slight flavour with a virtuous quality, considerable like lamb. It is enormously little in fat; be more or less under 1% for most cut [30]. [31] reported regarding characteristics of nilgai antelope carcasses and meet quality, they suggested that the nilgai muscles could be used for roasts or steaks. It becomes pretty clear that nilgais may be as series of several varieties to our diet and excellent source of need for suitable development of human being. They may be cast-off as high nutrient additional forage for domestic carnivores' faunae [7]. The matter of fact, animals assist a most important role in science as experimental animals both in elementary, biotic study, such as in heredities and in the expansion of new medicines. Many uninhabited species were cast-off in the dealing of numerous ailment by several resident persons. They are still in use for a long period. Along with animation cast-off as a raw material for remedies, it is also compactly used in simple dealings in the field of conservative medication [12].

3.5 Industrial outcome & By-Products:

Mammals especially bovine, make available dairy products and considerable meat consumed by humanoid inhabitants, whether cultivated or chased. They also yield raw hide, parchment and wool, coat for wear and tools. Matter of fact generic and specific name of nilgai (*Boselaphus tragocamelus*) having very nearest family to goat, cow, deer and camel also, so its meat and other body parts and by-products are very useful and beneficial for human well-being in future, detail presented in (Table 4).

Table:4 Characteristics of nilgai relatives milk.

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S.N.	Mammals	Features	Benefits
1	Goat	Milk of Goat has a alike content to cow milk. lower in fat rich protein & calcium.	It is uncomplicated on ingestion and decrease swelling, could be a healthier replacement.
2	Buffalo	Milk of buffalo having high fat, and not easy to digest particularly for infants.	Sophisticated in saturated fat and overall calories as well.
3	Camel	Camel milk is saltier in taste having high in protein. It has alike content to cow milk and it's potentially anti-microbial in nature.	Camel milk is 03 times as rich in vitamin C as cow milk and ten times higher in iron, rich in unsaturated fatty acids, vitamins B, and self-protective events that are apparently absent in cow milk.
5	Nilgai	The nilgai generic name is combination of two-word Bos+elaphus 'Bos' means (Cattle) and 'Elaphos' means (Deer), and the specific name of two words tragose+kamelos 'Tragose' mean (he-goat) and 'Kamelos' means (Camel).	It is fact, nilgai nearest family member to these animals, so its milk & meat may be very useful for human well-being after investigation in future.

Source: https://timesofindia.indiatimes.com

The nilgai antelope (female & juveniles) are very prominent and they permit us to provide and put forward its meat at a very gorgeous price and it is very flexible in its requirements and their meat may export due to high demand in other countries. Tamed mammals provide a large part of the power used for wone and transport. Milk is one of the crucial output of dairy subdivision and most of the milk produced by small and marginal farmers with evicted. It is facts, each mammal has its own unique milk but why is it that 97% of us wholly depend on cow for all the dairy needs. Nilgai milk may be very useful and beneficial for human being required deep investigations regarding micro and macro nutrients etc. nilgai milk can be take the

place of for other dairy products to secure the same benefits, others non cow milk very useful for us.

3.6 Taming nilgai ranches &Tourism:

Our recent study reported that docility behavioural development in nilgai sighs of taming towards domestication and put together superior candidate for domestication [3]. habitually share certain characteristics presented in (Table 5).

Table:5. Nilgai share positive traits as an ideal entrant for domestication

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S. N.	Model contender for domestication
1	Nilgai grow and sexually mature quickly (two years) may be its making them efficient to farm.
2	Nilgai having high reproductive rate, breed and produce regularly more than one offspring in a year and may be beneficial for income generations.
3	They eat plants-based diets and it browser and grazer or mixed feeder. It prefers grasses and herbs Which makes them inexpensive to feed
4	They hardy and easily adapt to changing conditions (Fig:2 a, b and c)
5	Nilgai live in herds females and juveniles are always together, the live graze and sit together in a group in gregarious form thus females are docile in temperament and its exhibited social bond. They also graze with domestic animals, so making them easy for human to control.

Uninhabited species are one of the focus of attention of tourism both in term of pictorial trade and nourishment. Tourism make available a foundation of economic wealth for areas, most of untamed fauna including nilgai are cause of beauty, curiosity and enjoyment various persons who come to see them. The matter of facts, untamed aromatic herbs and plant growing according to the topographical feature of the region. The mealtimes finished from these untamed herbs also have an important place in the gastronomic culture of a region [32]. In the stage of development of telecommunication, persons desire for travel guide to having more aware tourists. Gastronomy that differs from one region to another draws the devotion of the visitors and thus food culture tourism that fashioned in this way revenues its place as an element of touristic magnetism among the type of tourism. Development of taming nilgai ranches by the farmers or government. The presence of elegant species like nilgai antelope is a double-edged sword. There is no doubt that this stylish antelope has proceeded as well as economic drivers for ranches across the state. As a result, ranch owners have increased management effects to improve habitat and holistically manage their native species. The domestication of Blue bull (Nilgai) corresponds to a pivotal change in history not only of humanity but also of the biosphere.

3.7. Ecological advantage

No reservation, unmanaged nilgai increases the risk in both agricultural crops and upland plant communities. The abundant of free-ranching nilgai is a broadly documented problematic and limitations to resolving this issue are largely socio-political. “In the present context, the agroclimatic disorder reserved on incompatible and forestry become very thin. The *Nilgai* antelopes working as a soil doctor, they provides ecological advantage and also eco-friendly with soil. The faeces of the *Nilgai* antelope accommodated practically 1.6 percent nitrogen, enhancing the quality of the soil to a depth of 30 cm (10 inches) [33]. Seeds in the dropping could easily germinate and also assist in agricultural farm and afforestation. If *Nilgais* are removed the area of grassland on which grass will increase hugely. A 1994 study dew attention to the ecological value provided by the Nilgai in revines lining the Yamuna river [22]. [34] also reported Nilgai is an essential part of the ecosystem and the property of antelopes as universal can be rehabilitated, It has been the foundation for the deer park in medieval Europe where the king measured all deer as his sequestered good [34]. This supposition is one of the main patterns of modern conservation policy, which has led to the operation of stringently protected areas [35].

4. Recommendation and Conclusion

Nilgai inhabitants have enlarged substantially outstanding to extended reproductive activity and a high rate of numerous births and deficiency of probable predators. Nilgais are densely found more than 17th Indian states including Bihar which is more affected agricultural crops by them. Unmanaged free-ranching nilgai habit can source change in plant community composition, configuration and variety, which can distress both environmental progressions and the excellence and convenience of flora and fauna and domestic environment. Possible extenuation approaches to decrease crop impairment comprise use of terror infuriating stimuli, chemical repellents, fencing agricultural areas apprehension and reproductive management of nilgai population. *Nilgai* antelope is a influential feature and may be prove a powerful force in supportable growth for India. It is obligatory to progress strategies that will safeguard that these graceful mammal (nilgai) is well-maintained and harvested, used up in a bearable manner. There are diverse service in addition contribution of *Nilgai* in the nature. In the present time need for multidisciplinary value chain analysis that can intensification the economic and socio-culture researches and analyse the process from environmental value to consumption value well. The present conditions force us to contemplate about its farming and *Nilgai* may be taming for the purpose of uniqueness of its milk and popularization of nilgai as human food (meat) can also supplement the protein requirement of the people and other bio-molecules for therapeutic use in export-oriented market etc. it is supposed that societal and commercial assistances can be

augmented in this way. *Nilgai* may be a momentous segment in the humanoid nourishment within biodiversity cumulative the wellbeing of the rural people, protecting a stable and healthy diet, agriculture, industrial foodstuffs and expansion of eco-tourism.

References

1 Leslie, D. M. 2008. *Boselaphus tragocamelus'* (Artiodactyla: Bovidae) Mammalian Species 813:1-16.

2 Perez, A. A, and Guerrero, V. S., 2021. Presence of free-ranging Nilgai *Boselaphus tragocamelus* (Artiodactyla: Bovidae) in Nuevo Leon, Mexico. The Southwestern Naturalist. 64 (2):145-149.

3 Prasad, S., and Prabhakar, C.S. 2020. Docility behavioural development in Nilgai (*Boselaphus tragocamelus*), a sign of taming towards domestication, Current Journal of Applied Science and Technology, 39(41): 30-39. DOI: 10.9734/CJAST/2020/v39i413117.

4 Kumar, S. 2020. Farmers in Bihar cry Crop devastation by Asian Antelope nilgai. New click, https://www, news click. In18 January 2020.

5 Prescott-Allen, C and Prescott, PR 1986. The first resources. World wildlife fund, Binghamton, New York, USA.

6 Boesch, L. R, Mundry, H. Kuchl and R. Beger, 2017. Wild mammals as economic goods and implications for their conservation. Ecology and Society 22 (4):36.

7 Prasad S, Sohane RK, Jha A, and Ahmad R. 2021. The Indian Antelope Nilgai (*Boselaphus tragocamelus*) Appropriate Contender for Domestication could add in Human Society. Asian Journal of Environment & Ecology, 14(4):1-10.

8 Prasad, S., and Ahmed, R. 2021. Report of an elegant species *Antelope cervicapra* (Linn.) in non-protected area of Shahabad, Bihar India. Journal on New Biological Report,10(1):31-37.

9 Menon, RK 2008. The quint essential antelope, life of the blackbuck. Resonance: 69-79.

10 Chauhan, N. P. S. 2011. Agricultural crop depredation by nilgai antelope (*Boselephus tragocamelus*) and mitigation strategies: challenges in India. 8th European Vertebrate Pest Management Conference, Julius-Kihn-Archive, 432. 190-191.

11 Chardonnet, PB, Des Clers, J. Fischer, R. Gerhold, F Jori and F. Lamarque 2020. The value of wildlife. Scientific Technical Review the office International Des Epizootics, 21(1):15-51.

12 Karabak, S. 2017. Economic and socio - cultural importance of edible wild species. Anadolu Journal of Aari, 27 (2):26-38.

13 Rodger WA. 1991. Techniques for wildlife census in India; A field manual. Wildlife Institute of India. 82pp.

14 Baranidharan K, Bhuvanesh P, Vijayabhama M and Shetty PP. 2019. Faunal Diversity of Sathya Mangalam Tiger Reserve, Tamil Nadu, India. Journal of Wildlife Research 7(2):29-35.

15 Khanal, S. Aryal, A., Morley, G. C. Wright, W. Singh, B. N. 2017. Challenges of conserving Blue Bull (*Boselephus tragocamelus*) outside the protected areas of Nepal. *Proc. Zool. Soc.* DOI 10.1007/s12595-017-0218-y.

16 Tews, J., U. Bose., V. Grimm, K. Tielborger, M.C. Wichmann, M. Schwager, and F. Jelisch. 2004. Animal species diversity driven by habitat heterogeneity/ diversity: the importance of keystone structures. Journal of Biogeography, 31:79-92.

17 Guisan, A., and W. Thuiller, 2005. Predicting species distribution : offering more than simple habitat models. Ecology Letters 8: 993-1009.

18 Milner-Gulland, EJ. Bennett, E. L. and the SCB 2003. Annual meeting wild meal group 2003. Wild meat: the bigger picture. Trends in ecology and evolution. 18 (7) 351-357.

19 Taberlet, P. Colssac, E. Pansu J. Pompanon, F. 2011. Conservation genetics of cattle, sheep and goats. Comptes Rendus Biologies, 334:247-254.

20 Mallon, D. P. 2008. '*Boselaphus tragocamelus'* IUCN, Red List of Threatened species version 2008. International Union for the Conservation of Nature.

21 Prasad, S., Singh D. K., and Chaudhary S. K., 2020. Residential population Structure and Abundance of Nilgai (*Boselaphus tragocamelus* Pallas) in Bihar India. Current Journal of Applied Science and Technology, 39 (3):110-117.

22 Gandhi, M. S. 2020. Importance of animals in maintaining biodiversity. New Delhi Times, June 22 (NDI): 1-3.

23 Benton, M. 2020. *Boselephus tragocamelus* information, Animal Diversity Web. Accessed March 15, 2021 at https//animaldiversity.org/accounts/ *Boselephus tragocamelus*. U-M Museum of Zoology.

24 Sathi, Planners, 2018. District survey report of minor minerals, Buxar, Ministry of Environment, Forest and Climate Change notification, S.O. 3611 (E):1-70.

25 Sheffield, W. J., 1983. Food habits of nilgai antelope in Taxes. Journal of Range Management. 36:316-322.

26 Simon, G. 2020. Managing nilgai on white tail land: Texas wildlife association. 1-37.

27 Gupta, A. K 2004. Origin of agriculture and domestication of plants and Animals linked to early Holocenc climate amelioration, Review articles, Current Science, 87 (1):54-59.

28 Davies, G., 2002. Bushmeal and International Development Conservation Biology 16 (3):587-589.

29 Brashares, J. S. Golden C. D., Weinbaum, K. Z, Barrett, C. B. and Okell, G. V. 2011. Economic and geographic divers of wildlife consumption in rural Africa. Proceedings of the National Academy of Science of the United States of America 108 (34)13931-13936.

30 Kyle, R. 1990. An antelope for all seasoning: most large herbivores animals are good to eat so why do we stick with cows, sheep and pigs?. New Scientist News Letters, 1-2.

31 Machado, T. J. Albert, C. M. Schnupp, M. J., Hewitt, G. D. 2014. Characteristics of Nilgai Antelope Carcasses and Meat Quality. The Texas Journal of Agriculture and Natural Resources. 27:73-83

32 Comert, M., and Ozkaya, F.D., 2020. Gastronomi turizminde turk mutfagining onemi, Journal of Tourism and Gastronomy Studies 2 (2): 62-66.

33 Prajapati, MC and Singh, SA 1994. A beneficial aspect of nilgai (*Boselephus tragocamelus*) in Scientifically utilized revines- an observation. The Indian Forester 120(10):890-897.

34 Birrell, J 1992. Deerand deer farming in medieval England. *Agricultural History Review* 40 (2); 112-126.

35 Gardnor, T A. Caro, T. Fitzhorbort, F. B. Banda, T and Lalbhai P. 2007. Conservation value of multiple-use areas in East Africa. Conservation Biology. 21 (6)1516-1525.