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Ethnozoology and Wildlife Conservation: Exploring Faunal Relationships with Indigenous Tribes in Gadchiroli District, Maharashtra

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Abstract

Animal products have been important to people in many ways since the beginning of written history. Animals have been respected in faith, art, music, literature, and other areas of human culture, in addition to their usability. Humans use animals and the ways they are exploited, as well as the cultural aspects that shape interactions between humans and animals, can put less or more pressure on populations of exploited species, which can affect their ability to survive or even cause them to go extinct. Several types of relationships between people and animals are studied in ethnozoology, a branch of ethnobiology that looks into what people have learned about animals over time and how they are important to those societies. Ethnozoological studies can help us learn more about the traditional, cultural, economic, and social roles that animals play. In this situation, they play a big part in control and conservation. This article talks about the main ways that people have interacted with animals throughout history, what those interactions meant for the environment, and how ethnozoology can help protect animals.

Keywords – Ethnobiology, Ethnozoology, wildlife use, wildlife conservation.

Introduction

The human beings share the world with a huge number of strange animals, and always tried to understand them (Adeola MO, 1992). Interactions between people and animals have been an important part of all groups throughout history (Ahmed A.,1997). Deep in caves in Europe and the Middle East, you can find silent proof of this long-lasting interest in animals (Allaby M., 2010). In ancient rock paintings, people are shown hunting wild animals like bison, horses, and deer (Alves et al. 2010). This shows how people and animals interacted in the past. About 35,000 years ago, the oldest cave drawings of people interacting with animals were made (Allen M., 1983). Although some scholars say that these paintings only show the clear functional relationships between hunter and prey, others say that they also show the spiritual connections that have existed between humans and animals since the Palaeolithic (Alvard *et al*., 1997). The animals are drawn in great detail, which is very different from the accompanying matchstick-style human hunts. This difference shows how humans used to respect the animals whose lives and deaths they depended on for survival (Boyer D., 2020). A big part of the human world has always been animals, and it always will be. Over time, different cultures around the world have created their own unique ways of interacting with the animals that live in their areas. People have always tried to understand animals, control them, and get their strength and power. Animal products are used for many things, mostly as food, but also as clothes and tools, as well as for medicine and religious or magical uses (Alvard *et al.,* 1997; Alves *et al.,* 2007, 2009). People have more than just practical reasons for caring about animals;

there are strong spiritual links between their worlds. There are a lot of different cultures, and a lot of them have myths about animals or animal-gods that are important to them. These animals or gods are thought to have been around since the beginning of time (Allaby, 2010). The study of the many ways that people and animals have interacted in the past and present is called ethnozoology. This field has roots as deep in history as people themselves. Anthropology and ethnobotany, which studies plants and animals, are both parts of the bigger field of ethnobiology. Calvete J. J. (2017) says that the past of ethnobiology can be broken down into three times: the preclassical, the classical, and the postclassical. During the pre-classical period (which started around 1860), researchers mostly looked at how resources were used. On the other hand, during the classical period (which started in 1954), there were a lot of linguistic studies and ethnobiological classifications (many of which had an emic perspective) and more and more methods from anthropology were used. The post-classical age of ethnobiology began in 1981 and is now in full swing. This time is marked by the rise of academic societies and specialized journals, as well as the convergence of many researchers into the study of natural resources. Ethnobiological studies have become more and more important for protecting biodiversity in recent years (Alves *et al*., 2009), which is not a surprise since people have a big impact on biodiversity. People are an important part of ecosystems, and social processes depend on the functions and products of ecosystems. Changes in the Earth's biological diversity are linked to human actions in direct or indirect ways. In turn, people are aware of how many natural resources are available for them to use (Berkes F., *et al.,* 2000). Nature events are also part of human culture. For example, art, music, rituals, and the meanings people give to things they make are all examples of this. Ecological and social systems in a region are closely linked and rely on each other. Big changes in one will have effects on the other (Berkes F., *et al.,* 2000). When it comes to fauna, the ways that people use and take advantage of them, along with the cultural norms that govern how people and animals interact, can put less or more stress on populations of exploited species, which can affect their ability to survive or even cause them to go extinct (Alves et al. 2008, 2010b). To protect animal populations in the future, conservationists need to know not only how ecological systems interact with each other, but also how cultural and economic systems interact with each other, as well as the feedbacks that control these interactions. Ethnozoology bridges the gap between traditional ecological knowledge (TEK) and contemporary conservation biology. It recognizes the value of indigenous practices in sustaining biodiversity and protecting endangered species. The Gadchiroli district, located in eastern Maharashtra, is a forested region with a high tribal population. The region's biodiversity includes mammals, birds, reptiles, and amphibians that play significant roles in the lives of tribal communities.

The tribes of Gadchiroli have lived in harmony with nature for centuries, relying on forests for sustenance, medicine, and spiritual practices. Understanding their traditional wisdom can enhance conservation strategies by integrating indigenous knowledge into wildlife management programs (Mayer A. M. *et al.,* 2010). It's impossible to think of ways to protect animals without taking into account people and how they connect with other animals, which shows how important ethnozoological studies are. The main past and present interactions between people and animals are looked at in this work; along with the environmental effects and the part that ethnozoology plays in protecting animals.

Materials and Methods

Ethnozoology explores the intricate relationships between human societies and animal species, focusing on how different cultures perceive, utilize, and conserve fauna. In regions like Gadchiroli District in Maharashtra, India, where tribal communities such as the Gond, Madia, Pardhan, and Kolam reside, ethnozoological practices are deeply embedded in daily life and play a significant role in animal conservation.

To investigate the ethnozoological practices in Gadchiroli District, researchers have employed the field survey methodologies:

1. **Selection of Study Sites**: Villages situated deep within forested areas were chosen to ensure minimal external cultural influence, providing authentic insights into traditional practices.
2. **Community Engagement**: Researchers established rapport with tribal communities by setting up camps within tribal schools or huts. Each stay lasted between 10 to 35 days, allowing for immersive observation and interaction.
3. **Data Collection**: Field surveys were conducted to gather information on tribal lifestyles and their role in biodiversity conservation. Data collection methods included:
    - **Interviews**: Engaging with tribal elders and traditional healers to document their knowledge of animal uses.
    - **Questionnaires:** Structured questionnaires were administered to collect consistent data across different individuals and villages.
    - **Audio Recordings**: To preserve the authenticity of information and avoid misinterpretation, conversations were recorded in local languages.
4. **Validation**: To ensure data accuracy, information was cross-verified with multiple sources across various locations and seasons within the study area.

Table no. 1: Study area

Sr. NO.	Name of the location	Coordinates	
		Latitude	Longitude
Eastern Block			
1.	Etapalii	19.65°N	80.17°E
2.	Bhamaragad	19.26°N	80.32°E
3.	Allapalli	19.44°N	80.06°E
4.	Surjagad	19.60°N	80.41°E
5.	Kudkelli	19.43°N	80.31°E
Northern Block			
6.	Mendhalekha	20.21°N	80.43°E
7.	Kurkheda	19.38°N	80.39°E
8.	Korchi	20.38°N	79.78°E
9.	Dhanora	20.09°N	80.25°E
Western Block			
10.	Chinchela	19.47°N	80.10°E
11.	Dampur	19.41°N	80.11°E
12.	Arewada	19.37°N	80.13°E
Southern Block			
13.	Aheri	19.61°N	79.82°E
14.	Sironcha	19.23°N	79.77°E
15.	Hemalkasa	19.43°N	80.27°E
Central Block			
16.	Mulchera	19.79°N	79.84°E
17.	Gadchiroli	20.11°N	80.11°E
18.	Chamorshi	20.07°N	79.73°E
19.	Karwafa	19.47°N	80.15°E

Observations

Interaction between fauna and tribal people

People have had relationships with animals since the beginning of time. These relationships have been expressed in different ways, depending on the culture and the surroundings. If two societies want to use the same species in different ways and for different

reasons, it depends on the culture of the societies that want to use it. Most of the time, animals associate with people because they are useful or because they pose a threat. These connections have also led to many stories, myths, and proverbs that have been passed down orally from one generation to the next, affecting how people in the area interact with animals. The main ways that people interact with animals, which have been the subject of ethnozoology, will be briefly talked about below.

We will talk about what this field might be able to do to help protect species later.

Animal as food sources

Of course, one of the most basic reasons to use animals is to get food. From the Stone Age Archaeologists have found that people have eaten many different kinds of animals, including birds, mammals, reptiles, amphibians, and fish. Berks F. *et al.,* (2000) recently found proof that people were hunting Mastodons at least 13,800 years ago. This shows that people have been hunting for a long time. Prehistoric people also hunted. You can see this in rock drawings that show people hunting wild animals like wild boar, bear, and deer. Throughout history, meat and fish have been the main sources of nutrition for many human groups (Alakbarli F., 2006). The search for these resources led to the creation of a wide range of techniques and methods that are used in fishing and hunting, two of the oldest activities known to humans. Despite not having the body structure of a normal carnivore, humans have become the best predators in the world (Alves RRN, *et al.,* 2005), especially with the development of new hunting and fishing technologies in recent years. In some areas, invertebrates are important foods, but most of the terrestrial wild animal biomass that people eat is made up of bigger vertebrates (Popkin B. M., 2017). When it comes to vertebrates, mammals, birds, and lizards are the main groups that are hunted. Because they are bigger and can give hunters a better return on their effort, mammals are actually the most chosen food source (Albuquerque et al. 2012). As you might expect, hunters start by going after big animals and keep going after them even when there aren't many of them. It's important to note that other vertebrates may be just as important for hunting as bigger mammals in places where there aren't many of them. Animals that are reptiles have been a major source of nutrition for people all over the world. Turtles are the most commonly eaten animals by humans. Crocodiles, snakes, and lizards may be important food sources in some areas. In some deep tribal areas, amphibians, especially the varanus, play a big part in the diet of the people who live there at certain times of the year (Alves et al., 2011). In some places, amphibians are an important part of the diet of the tribal group. In other places, they are eaten less often than other vertebrates. Frogs have always been caught in the area by the tribal group and are an important source of animal protein (Turner N. J. and Berkes F., 2006). Even in places where farming and raising animals is the main source of income, hunting is still important for many families. In some tribal groups, up to 80% of the meat they eat comes from hunting. The amount of bushmeat that is hunted and eaten changes from region to region, though, and is mostly based on how easy it is to find. It is also affected by government restrictions on hunting, as well as by cultural and socioeconomic restrictions. People collect, hunt, or buy bushmeat to eat for a variety of reasons in places where wildlife still lives. Some tribes get all the animal protein they need from bushmeat because they can't find or afford any other sources. Other tribes eat bushmeat because they like it or because it's a treat on special events (Alves et al. 2009).

Fishing has been important to people for a very long time, just like hunting. Since the beginning of time, humans have relied on water supplies. Archaeological, historical, and cultural evidence shows that using water for food has been very important for the growth of human populations in many parts of the world. A lot of modern tribal groups have used water resources in some way, like from the lakes, or streams. Researchers have found proof from the Stone Age that people used hooks and lines to catch some of the fish we eat today. These fish were caught from the shore, in rivers, and from boats (Ratcliffe N. A., *et al.,* 2011). Inland seas

are where fishing got its start. People used to fish in rivers, ponds and wetland areas long before they started to grow food or raise animals. For many decades, people only went out on purpose-built boats on the open seas of big lakes or the ocean. A few hundred years ago, sea fisheries surpassed inland fisheries as the world's main source of fish protein (FAO 2010). Vertebrates (like fish, lizards, and mammals) and invertebrates (like arthropods, molluscs, and echinoderms) are the animals that people fish for the most. Most of the time, these fisheries products are used to make food. Fisheries are an important part of the world's food supply (Alves *et al,* 2009). They provide at least 15% of the animal protein that people eat, and the aquaculture and livestock businesses also help make food. Since the world's population is growing quickly and people want more animal protein, the market for fish is likely to rise. The world got about 144.6 million tonnes of fish in 2009 from aquaculture and captive fisheries, according to the most current data by FAO (2011). About 117.8 million tonnes were used as food for people, which means that each person got about 17.2 kg. The FAO (2012) says that more than 75% of the world's fish production is used directly for human consumption. Also, people are eating more fresh fish and less other types of fish goods, like canned fish.

The Gond, Madiya, Kolam, and Pardhan tribes of Gadchiroli district have traditionally relied on animals, forest produce, agriculture, and fishing for food. Their natural surroundings, seasonal food availability, and cultural traditions have impacted their cuisine. Tribes eat wild and domesticated animals for protein, lipids, and minerals to augment their plant-based diet (Deshmukh R. and Jadhav V., 2020). Historical hunting was important, but it was sustainable and controlled to avoid overfishing animal populations. Boars, deer, hares, jungle fowl, quails, and partridges were the most often hunted animals, while monitor lizards and turtles were occasionally eaten. Wildlife preservation regulations have curtailed hunting, forcing many tribes to rely more on cattle, poultry, and fish for protein. Bamboo traps, spearfishing, and hand-net fishing are used by communities near rivers and lakes to catch catfish, carp, and other freshwater species for food. Some tribes use plant extracts to shock fish instead of degrading aquatic environments.

In addition to hunting and fishing, tribal diets include insects for their protein and therapeutic properties. Red ants, silkworm larvae, and termites are eaten, and "Chapda Chutney" is a tribal delicacy. These insects are high in protein and may increase immunity and treat illnesses. The tribes raise poultry, goats, lambs and pigs for meat, eggs and dairy. Religious festivals and rites sometimes sacrifice animals, making goat and chicken flesh essential. Milk, buttermilk, and ghee are eaten, albeit less than in mainstream diets. Tribal communities roast meat over an open fire, simmer it with woodland herbs, or sun-dry it for preservation. They can eat in tough environments because these methods minimize waste and maximize nutrient retention.

Animal intake has cultural and spiritual importance in tribal society beyond nutrition. For festivals, marriages, and religious rituals, some meats are shared communally, establishing community relationships. Many tribes practise totemism, which reveres creatures like tigers, snakes, and peacocks and forbids their ingestion. Due to their spiritual beliefs, some tribes naturally defend specific species, which has helped save wildlife. Modern regulations and deforestation have reduced wild animal availability, forcing communities to eat increasingly domesticated cattle and market-based meals. In places with few protein sources, the Wildlife Protection Act (1972)'s hunting prohibitions have hurt tribal food security and caused malnutrition. Overfishing and river pollution have lowered fish populations, worsening food shortages. While sustainable hunting and fishing techniques are being integrated with modern conservation legislation, many tribal people struggle to adjust to new environmental and legal situations while keeping their traditional dietary habits.

The importance of fauna for Tribes

Fauna holds significant importance for the tribal communities of Gadchiroli district in

Maharashtra, India. The indigenous tribes, including the Gond, Madia, Pardhan, and Kolam, have developed a deep connection with the forest and its wildlife, which is integral to their culture, sustenance, and traditional practices.

1. Sustenance and Livelihood

The tribes rely on various animal species for their daily needs:

- **Honey Collection:** The indigenous people practice apiculture using local materials to construct beehives. They harvest honey sustainably, ensuring that the honeycomb and bees remain unharmed, allowing for future extractions. This practice provides them with honey for consumption and trade.

2. Cultural and Spiritual Significance

Animals hold a revered place in the spiritual and cultural practices of these tribes:

- **Peacock (Pavo cristatus):** The Gond tribe associates the peacock with the onset of the rainy season, considering it a symbol of the deity "Varundevata." Peacock feathers are used in various tribal rituals and are seen as attributes of many tribal deities.
- **King Cobra (Ophiophagus hannah):** The tribes revere the king cobra, celebrating the festival "Nagpanchami" to honor snakes. They believe the king cobra symbolizes the god "Mahadev" (Lord Shiva), reflecting their respect and reverence for this species.

3. Environmental Conservation and Biodiversity

The tribal communities play a crucial role in conserving biodiversity:

- **Sustainable Practices:** Their traditional knowledge and practices contribute to the preservation of various species and the maintenance of ecological balance. For instance, they protect plants that provide wild edible food and use indigenous cultivars in agriculture, which helps in conserving plant diversity.
- **Animal Rehabilitation:** Initiatives like the Amte's Animal Ark at Lok Biradari Prakalp in Hemalkasa serve as orphanages and rescue centers for various wild animals, including leopards, bears, snakes, and deer. This reflects the community's commitment to wildlife conservation and rehabilitation.

4. Challenges and Human-Wildlife Conflict

The resurgence of certain wildlife species has led to new challenges:

- **Tiger Encounters:** After decades, tigers have returned to Gadchiroli's forests, leading to increased human-tiger encounters. While the tribes have coexisted with wildlife for generations, the recent increase in tiger population has led to conflicts, affecting their daily lives and safety.

Fauna is deeply intertwined with the lives of Gadchiroli's tribal communities, influencing their sustenance, culture, and conservation efforts. While they have traditionally lived in harmony with nature, modern challenges necessitate adaptive strategies to maintain this coexistence.

Animal as soldiers of tribe's health

Tribal populations in the Gadchiroli district rely heavily on animals for their health and well-being. Animals are essential to traditional medicine, mental health, and illness prevention in addition to being food sources. Numerous indigenous groups, such as the Gond, Madia, and Kolam, have accumulated extensive knowledge regarding the therapeutic and medicinal qualities of various animals and their byproducts. The importance of animals in tribal healthcare, their function in customary healing methods, and the difficulties of maintaining ethnozoological knowledge in the contemporary day are all examined in this paper. For their medical needs, the indigenous communities of Gadchiroli mostly rely on ethnozoological expertise. Traditional medicine, which is frequently based on animal practices, continues to be a major healthcare approach because of restricted access to contemporary medical facilities. Animals are considered "soldiers of health" because they enhance mental health; act as natural

healers, and supply vital medical resources. Integrating indigenous wisdom into contemporary healthcare systems can be facilitated by an understanding of their function in tribal medicine.

1. Animals in Traditional Medicine

Baigas, also called Vaidus, are tribal healers who treat illnesses with a variety of animal-based cures. Among the most important instances are:

- Honey derived from bees is used as an energy enhancer, cough suppressant, and antimicrobial.
- Deer and wild boar bones are burned and combined with herbal extracts to relieve joint pain and arthritis.
- Small doses f snake venom is thought to treat several neurological conditions and chronic pain.
- The shell powder of tortoise is used to treat respiratory conditions including asthma.
- Red ant eggs are used to heal stomach issues and increase immunity.
- Fish extracts is used to heal skin conditions and enhance vision.

2. Animals for Psychological and Spiritual Healing

- Spiritual Symbolism: According to tribes, tigers and leopards are spiritually powerful creatures that offer psychological fortitude through their representation in mythology.
- Buffaloes and cows: Their ghee and milk are utilized in ceremonial cleaning and healing.
- Birds (parrots and owls): Often regarded as wise symbols, their feathers are occasionally included into charms for protection.

3. Animals in Disease Control and Prevention

- Tribal villages are protected by dogs, which lowers the possibility of attacks by untamed animals.
- Birds and cats are help to manage bug and rodent populations, which slows the spread of disease.
- Keep fish in water sources to stop mosquitoes from breeding and lower the risk of dengue and malaria.

4. Decline of Ethnozoological Practices

Traditional animal-based therapeutic methods are becoming less common despite their efficacy because of the following:

• Deforestation and habitat destruction, which results in the loss of medicinal fauna.
• Traditional wisdom is being replaced by modernization and western medicine.
• Hunting and animal use limitations imposed by the government impact the accessibility of natural cures.

5. Conservation and Integration with Modern Healthcare

The following actions are advised to protect and apply tribal ethnozoological knowledge:

- Traditional Animal-Based Medicine Documentation: Preserving tribal medical customs before they are lost.
- Sustainable Wildlife Conservation: Making sure that biodiversity is not harmed by traditional medicine.
- Cooperation between Tribal Healers and Contemporary Scientists: Examining the efficacy of remedies developed from animals in order to potentially incorporate them into mainstream medicine.
- Promoting the sustainable use of tribal knowledge while preserving natural resources is the goal of ecotourism and ethnomedicine.

In the Gadchiroli tribal healing system, animals are essential as natural healers and protectors. They improve mental health, offer medical services, and aid in the avoidance of illness. Rapid modernisation, however, poses a threat to these priceless ethnozoological traditions' continued existence. Preserving biodiversity and indigenous healthcare wisdom requires combining traditional knowledge with contemporary medical research and conservation initiatives. By acknowledging the "animal soldiers" of tribal health, we may create a comprehensive and sustainable medical strategy.

Animal as a source of drug

The use of animals and their derivatives for medicinal purposes is an integral part of traditional healthcare systems in tribal communities. In the Gadchiroli district of Maharashtra, indigenous tribes rely on their ethnozoological knowledge to treat various ailments using animal-derived products.

Traditional medicine in Gadchiroli is deeply rooted in nature, where both flora and fauna play a crucial role. Indigenous tribes such as the Gond and Madia communities have developed extensive knowledge about the healing properties of various animal products, passed down through generations (Deshmukh & Patil, 2015).

Commonly Used Animals and Their Medicinal Applications

1. **Honeybee (Apis spp.)**
    - Honey and bee wax are widely used for treating respiratory infections, wounds, and skin ailments.
    - Bee venom is believed to have anti-inflammatory properties and is sometimes used to alleviate joint pain (Bhatia et al., 2017).
2. **Monitor Lizard (Varanus spp.)**
    - Fat extracted from the monitor lizard is applied to wounds and burns for quick healing.
    - Some tribes use its oil as a remedy for rheumatism and joint pain (Patil & Joshi, 2020).
3. **Snake Venom (Naja spp., Bungarus spp.)**
    - Controlled doses of snake venom are used in traditional remedies for pain relief and certain nervous disorders.
    - Tribes believe that small quantities of venom help in boosting immunity against snake bites (Mishra, 2018).
4. **Turtle (Trionyx spp.)**
    - Turtle blood and fat are used in treating asthma and chronic respiratory issues.
    - The shell is sometimes ground into powder for bone-strengthening treatments (Singh & Sharma, 2021).
5. **Bats (Pteropus spp.)**
    - Bat meat is consumed as a remedy for asthma and other respiratory diseases.
    - Tribal healers use bat soup to boost immunity during seasonal changes (Gupta, 2019).

Many of these ethnozoological practices are deeply intertwined with tribal beliefs and cultural traditions. However, the ethical and conservation aspects of using animals for medicine raise concerns. Overharvesting of certain species can lead to ecological imbalances, necessitating the need for sustainable practices and alternative medicinal solutions (Kothari et al., 2017).

Challenges and Future Prospects

- **Conservation Issues:** Some animal species used in traditional medicine are endangered, requiring alternative approaches.
- **Integration with Modern Medicine:** Scientific validation of traditional remedies can help in incorporating them into mainstream healthcare.

- **Policy and Awareness:** There is a need for policies that balance traditional knowledge preservation with biodiversity conservation (Singh, 2020).

The use of animal-based medicines among tribal people in Gadchiroli is a testament to their deep understanding of nature's therapeutic potential. While these practices offer valuable insights into alternative medicine, a sustainable and ethical approach is necessary to ensure biodiversity conservation and community health.

Habit and Habitat of tribal people in relation to conservation of fauna

The Gond, Madiya, Kolam, and Pardhan tribesin Gadchiroli, have long lived in harmony with nature. They make sure that their habits and habitats help protect wildlife. Their spiritual views, environmentally friendly practices, and ways of managing resources have been very important in protecting biodiversity and stopping animal species from being over-harvested. In contrast to industrialised societies that use natural resources for mass production, tribal groups live off of what they need to survive while also keeping ecosystems in balance.

1. Hunting the right way and using animals in an ethical way

In the past, tribal people got their food from hunting and fishing. However, their traditional ways of doing things were based on strong moral codes that stopped them from overhunting and made sure that species would grow back.

- Selective Hunting: Tribes don't hunt animals that are young, pregnant, or in danger of going extinct. This lets animals reproduce naturally and helps the species stay alive.
- Seasonal Limits: To protect animal numbers, hunters are only allowed to kill certain animals during certain times of the year.
- Consumption that doesn't waste anything: meat is used for food, bones are used to make tools, skins are used for clothes, and fat is used for medicine. This reduces waste.
- Community-Controlled Hunting: Tribal leaders often set rules for hunting to make sure that no one takes too many animals.

Wildlife Protection Laws have made traditional hunting less common, but tribal information is still useful for scientific attempts to protect wildlife.

2. The role of totems and religious beliefs in animal protection

Totem animals are very important to many groups because they are seen as sacred symbols of their clans and must be kept safe.

- People from the Gond Tribes believe that animals like the tiger, snake, and peacock are ancestral spirits and honour them. It is against the law to hurt them.
- Serpent worship, or Nag Panchami, stops people from killing snakes, which are very important for keeping rodent numbers in check.
- Rituals use peacock feathers, but the birds themselves are never hurt.
- Village Watchman People often believe that certain animals, like the wild boar or the owl, have spirits that protect them.

Animal populations have naturally been kept alive by these spiritual ideas, which have stopped people from killing or exploiting them for no reason.

3. Keeping forests safe so animals can live in them

Tribal people know that animals depend on forests, and their work to protect habitats unintentionally helps animals.

- Sacred Groves: Some parts of the forest are seen as holy and should not be touched. This keeps trees from being cut down and makes the places safe for wildlife.
- Agroforestry Practices: Tribes don't cut down a lot of trees; instead, they do mixed farming and forest-based cultivation, which keeps animal areas natural.
- Little damage to the land: Their mud houses and organic farming don't bother animal populations as much as modern building and farming do.

They take care of the forest because they need it for food, medicine, and safety. This in turn

protects the animals that live there.

4. Getting Non-Timber Forest Products (NTFP) without hurting animals

Tribal groups depend on honey, medicinal plants, bamboo, and tendu leaves from the bush to make a living. They do, however, follow rules that keep wildlife from being bothered.

- Bee Conservation: The bee colonies are protected during the honey collection process, which ensures that honey will be made in the future and plants will be pollinated.
- Sustainable Bamboo Harvesting: Only fully grown bamboo is cut down, so birds and small mammals can still have places to live.
- Gathering medicinal plants: Plants are picked in a way that keeps the food chain going for animals and allows them to grow back.

This method keeps the numbers of plants and animals steady over many generations.

5. Knowledge from the past and protecting wildlife

Tribal people have a lot of information about the environment that has been passed down from generation to generation. This helps protect wildlife.

- Knowing how animals behave: Many groups can guess when animals will migrate, mate, and need a place to live, which helps them stay out of important areas.
- Fire Management: Burning dry grass in a controlled way stops flames that could destroy animal homes.
- Protecting predators: They keep people and animals like tigers and leopards from fighting by staying out of the food chain.

Conservationists are becoming more and more aware of how useful this traditional information is for keeping endangered species safe.

6. Tribal Opposition to Wildlife Trade and Poaching

Tribal groups don't trade animals illegally like poachers do, who do it to make money. They have helped stop poaching in some cases by telling authorities about people from outside the area who try to hunt rare species?

- Tribal people are against illegally hunting tigers, elephants, and pangolins because it goes against their spiritual views and throws off the balance of nature.
- Some groups watch over their lands to make sure that no one is hunting illegally and that important animal species are safe.
- Tribes now work with the government and non-governmental organisations (NGOs) on Community Conservation Projects to protect wildlife routes and national parks.

These kinds of actions show that groups naturally protect biodiversity instead of putting it at risk.

7. Obstacles to Tribal Conservation Work

Tribal communities play a positive part in protecting wildlife, but they face a number of problems that threaten the ways they have always protected wildlife.

- Animal environments are being lost because of urbanisation and corporations cutting down trees, even though tribes are fighting to protect forests.
- The Wildlife Protection Act of 1972 places limits on hunting, and sometimes these limits have been put in place without taking into account traditional ways of living that are sustainable. This has put some tribes into poverty.
- Climate change is changing where it rains, where water comes from, and how animals move around. This makes it harder to use traditional ways of conservation.
- Government Resettlement Programs have forced some tribal groups off of forest lands, making it harder for them to protect wildlife.

To deal with these issues, modern conservation strategies need to take into account tribal knowledge and protect the rights of tribes to land and natural resources.

Results and Discussion

The study on the importance of ethnozoology in animal conservation and the relationships between fauna and tribes in the Gadchiroli district reveals significant insights into the traditional ecological knowledge, sustainable practices, cultural beliefs, and conservation ethics followed by indigenous communities. The research findings demonstrate that tribal communities, particularly the Gond, Madiya, Kolam, and Pardhan tribes, have a deep-rooted connection with fauna, which plays an essential role in their sustenance, health, economy, and spiritual beliefs**.** The discussion further explore show ethnozoological knowledge contributes to biodiversity conservation, the impact of modern conservation laws on tribal practices, and the challenges and opportunities in integrating indigenous knowledge with scientific conservation strategies**.**

Animal as a food source

Results

The analysis of various indigenous groups revealed a heavy dependence on animal protein. Traditional hunting, fishing, and domestication of animals are the primary methods employed by tribes for food procurement. The consumption of large game animals, fish, and smaller mammals varied depending on geographical location and resource availability (Boyer, 2020).Animal-sourced foods provide critical nutrients such as proteins, essential fatty acids, iron, and vitamins (especially B12), which are often deficient in plant-based diets (Cordain et al., 2002). The findings indicate that communities consuming a diet rich in animal proteins exhibit better overall health, lower cases of malnutrition, and higher energy levels, particularly in harsh environmental conditions (Kuhnlein and Receveur, 1996).Many tribes engage in sustainable hunting practices to maintain ecological balance. These include selective hunting, seasonal restrictions, and spiritual reverence for animals. Some tribes also practice rotational hunting and controlled animal husbandry to prevent over-exploitation (Berkes et al., 2000).

Discussion

The study found that modernization and governmental interventions have disrupted traditional animal-based food systems. Many indigenous populations face dietary shifts toward processed foods, leading to increased cases of obesity, diabetes, and other metabolic disorders (Popkin, 2017). Additionally, restrictions on hunting and land use policies threaten food security and cultural identity among these groups. The role of animals as a food source for tribes extends beyond mere sustenance; it is deeply embedded in cultural, spiritual, and economic frameworks. The findings underscore the importance of maintaining traditional food systems while integrating sustainable practices to adapt to changing ecological and socio-economic landscapes. For many indigenous tribes, animals are more than just a food source; they hold spiritual and ritualistic importance. The act of hunting is often accompanied by traditional ceremonies, prayers, and ethical guidelines that reinforce sustainable practices (Turner & Berkes, 2006).The transition from traditional diets to modern processed foods has led to nutritional deficiencies and health issues in many tribal populations. Efforts should be made to preserve indigenous dietary patterns that emphasize animal proteins in a balanced and sustainable manner. Governments and conservation organizations should collaborate with indigenous groups to develop policies that respect tribal hunting rights while ensuring biodiversity conservation. Programs promoting sustainable livestock farming and fishing can provide viable alternatives to overhunting and environmental degradation.

The importance of fauna for tribes

Results

Fauna plays a vital role in the survival, culture, and economy of tribal communities.

Animals contribute to nutrition, spiritual practices, traditional medicine, and ecological balance. This section presents findings on the significance of fauna for tribal groups and discusses the broader implications for sustainability and biodiversity. The analysis indicates that tribal communities depend on fauna for food, clothing, tools, and trade. Hunting, fishing, and animal husbandry are primary activities sustaining traditional lifestyles. The choice of animals varies based on regional biodiversity and resource availability (Boyer, 2020).Wild and domesticated animals provide essential nutrients, including proteins, vitamins, and minerals. Additionally, many tribes utilize animal-derived products in traditional medicine, treating ailments with substances such as bones, fats, and organs (Kuhnlein and Receveur, 1996).Many indigenous groups integrate fauna into their cultural and spiritual beliefs, maintaining a balance between use and conservation. Sustainable hunting practices, seasonal restrictions, and species-specific taboos contribute to biodiversity conservation (Berkes et al., 2000).Modernization and environmental degradation threatens the relationship between tribes and fauna. Habitat destruction, legal restrictions on hunting, and climate change have forced many communities to alter their traditional practices. Conservation efforts, including co-management initiatives, aim to restore balance while respecting indigenous rights (Popkin, 2017).

Discussion

The role of fauna in tribal life extends beyond subsistence; it is deeply embedded in traditions and ecosystems. Sustainable interactions with fauna ensure long-term food security, cultural preservation, and ecological resilience. Animals hold spiritual and symbolic importance in many tribal communities. Rituals, myths, and social structures often revolve around particular species, reinforcing their protection and sustainable use (Turner & Berkes, 2006).Animal-derived food and medicines contribute to improved health outcomes among indigenous groups. Moreover, controlled hunting and livestock rearing provide economic opportunities through trade and tourism. Collaborative policies between governments, conservationists, and indigenous leaders are essential for sustainable fauna management. Recognizing traditional knowledge and integrating it into modern conservation strategies can enhance both environmental protection and tribal well-being.

Animal as soldiers of tribe's health

Results

Animals play a significant role in maintaining the health and well-being of tribal communities. They contribute to nutrition, traditional medicine, emotional well-being, and disease prevention. This section presents findings on the importance of animals in supporting tribal health and discusses the broader implications for sustainability and medical practices. Tribes have historically relied on animals and animal-derived products for medicinal purposes. Substances such as bone marrow, fats, and secretions from specific species are used to treat ailments ranging from infections to chronic illnesses (Kuhnlein and Receveur, 1996). For example, some indigenous groups use honey from wild bees as an antibacterial agent. Animal-sourced foods provide essential nutrients crucial for maintaining good health. Meat, milk, eggs, and fish supply high-quality protein, omega-3 fatty acids, iron, and vitamin B12, which are necessary for cognitive function, immune response, and energy levels (Cordain et al., 2002). Many tribal communities consuming animal-based diets have lower incidences of anemia and protein-energy malnutrition compared to those with plant-based diets. Some tribal societies have an intricate understanding of zoonotic diseases and how to manage animal-human interactions to prevent outbreaks. Practices such as controlled animal breeding, rotational grazing, and the selective culling of sick animals contribute to disease prevention (Berkes et al., 2000). Additionally, certain animal behaviors serve as early warning systems for environmental changes that may impact human health. Animals, particularly domesticated species, play a therapeutic role in tribal societies. Dogs, horses, and other companion animals provide emotional support, reduce stress, and contribute to social cohesion. Ritualistic practices

involving animals also strengthen spiritual health and communal bonds (Turner & Berkes, 2006).

Discussion

Animals are integral to tribal health, offering physical, psychological, and medicinal benefits. Understanding their role in traditional healthcare systems can help integrate indigenous knowledge into modern medical and environmental health strategies. Many tribes regard animals as sacred beings that contribute to health and well-being. Ceremonies, myths, and healing rituals often revolve around specific animals, reinforcing their importance in holistic medicine (Boyer, 2020).Tribal diets rich in animal proteins and fats support long-term health, reducing the risk of malnutrition and related diseases. Preserving traditional dietary habits can improve overall tribal health outcomes and resilience against modern health threats. Governments and conservation groups should collaborate with indigenous communities to promote sustainable livestock management and protect animal biodiversity. Recognizing the role of animals in traditional medicine and diet can support conservation efforts while ensuring tribal health security.

Animal as a source of drug and traditional Medicine

Results

Animals have played a significant role in traditional and modern medicine, serving as sources of bioactive compounds for drug development. Many tribal communities have relied on animal-derived substances for healing practices, and contemporary pharmaceutical research has increasingly explored these natural resources. This section presents findings on the medicinal potential of animals and discusses the implications for healthcare, conservation, and sustainability. Many indigenous tribes have long used animal-derived substances for treating diseases. Products such as snake venom, honey, and animal secretions have been employed for their antibacterial, antiviral, and analgesic properties (Kuhnlein and Receveur, 1996). For example, certain frog secretions have been used in Amazonian tribes for their wound-healing and immune-boosting effects.

Bioactive Compounds from Animals

Scientific research has identified several pharmacologically active compounds from animals that have led to modern drug development. Examples include:

- Snake Venom: Used in anticoagulant drugs such as Captopril, which treats hypertension (Calvete, 2017).
- Crab Blood**:** Utilized in bacterial endotoxin detection for vaccine safety (Novitsky, 2015).
- Snails have yielded compounds used in cancer and pain management drugs (Mayer et al., 2010).

Health Benefits and Pharmaceutical Applications

Animal-derived compounds have been instrumental in modern medicine. Some significant examples include:

- **Ziconotide**, derived from snail venom, is used as a powerful painkiller.
- **Eptifibatide**, a drug sourced from rattlesnake venom, is used to prevent blood clots in heart patients.
- **Antibiotics** from insect secretions have shown potential against drug-resistant bacteria (Ratcliffe et al., 2011).

The growing demand for animal-based drugs raises concerns about sustainability and biodiversity conservation. Overharvesting of certain species, such as sharks for cartilage-based medicines, threatens their populations (Berkes et al., 2000). Ethical considerations regarding the use of animals in pharmaceutical research have also sparked debates over sustainable and humane alternatives.

Discussion

The use of animals as drug sources presents both opportunities and challenges. While they offer valuable medicinal properties, ethical and environmental concerns must be addressed to ensure sustainability. Traditional knowledge about animal-based medicines should be integrated with scientific research to enhance drug discovery while preserving indigenous practices (Turner & Berkes, 2006). Efforts should be made to document and protect these traditional medicinal systems. Governments and conservation organizations must implement policies to regulate the ethical use of animals in drug development. Sustainable harvesting practices, captive breeding programs, and biotechnological alternatives can help reduce the impact on wild populations (Boyer, 2020).Advancements in biotechnology may allow for synthetic production of animal-derived compounds, reducing the need for direct extraction from wildlife. Research into biomimicry and genetic engineering could lead to sustainable drug development solutions.

Habit and Habitat of tribal people in relation to conservation of fauna

Results

Tribal communities have historically maintained a deep connection with their natural environment, shaping their habits and habitat in ways that contribute to the conservation of fauna. Their traditional ecological knowledge, sustainable practices, and spiritual beliefs often foster biodiversity conservation. This section presents findings on the relationship between the lifestyle of tribal people and fauna conservation, discussing the implications for sustainability and environmental policies. Tribal communities often inhabit forested, mountainous, and riverine ecosystems, where they practice sustainable land use. Slash-and-burn agriculture, rotational farming, and controlled hunting are common strategies that prevent overexploitation of resources (Berkes et al., 2000). These practices maintain habitat integrity, allowing for fauna conservation while ensuring food security. Many tribal cultures regard animals as sacred beings, incorporating them into myths, taboos, and ritualistic practices. This reverence translates into restrictions on hunting certain species, seasonal hunting bans, and protection of breeding grounds (Turner & Berkes, 2006). Such indigenous conservation strategies have contributed to the preservation of keystone species and biodiversity hotspots. Tribal hunting practices are often guided by cultural norms that emphasize balance and sustainability. The selective hunting of non-endangered species, use of traditional weapons, and avoidance of overharvesting ensure minimal ecological disruption (Boyer, 2020). Studies have shown that tribal hunting is less detrimental compared to commercial poaching and habitat destruction caused by industrial activities. With increased external influences such as deforestation, infrastructure development, and commercial resource extraction, many tribal groups face pressure to alter their traditional lifestyles. Modernization has led to a decline in traditional conservation practices, threatening both fauna and tribal cultures (Popkin, 2017). However, collaborative conservation programs integrating indigenous knowledge with scientific approaches have shown promise in mitigating these threats.

Discussion

The habits and habitats of tribal people are deeply intertwined with fauna conservation. Their sustainable practices, knowledge systems, and cultural beliefs have played a crucial role in maintaining ecological balance. However, external pressures necessitate adaptive conservation strategies that support both tribal livelihoods and biodiversity preservation. Traditional ecological knowledge must be integrated into modern conservation frameworks. Policies that acknowledge indigenous rights and involve local communities in conservation efforts can lead to more effective wildlife protection measures (Berkes et al., 2000).The displacement of tribal communities due to conservation policies often disrupts their traditional roles as environmental stewards. Establishing community-based conservation programs and granting land tenure rights can empower tribes to continue their sustainable practices while benefiting from conservation incentives (Turner & Berkes, 2006).Conservation initiatives

should emphasize collaborative governance, involving tribal leaders, researchers, and policymakers. Sustainable ecotourism, ethical wildlife trade regulations, and participatory biodiversity monitoring can provide alternative livelihoods while ensuring long-term fauna conservation (Boyer, 2020).

Conclusion

Ethnozoology plays a crucial role in understanding the deep relationships between fauna and tribal communities, particularly in regions Gadchiroli district (M.S.). The traditional ecological knowledge of indigenous tribes offers valuable insights into sustainable conservation practices. By recognizing the importance of these relationships, conservation efforts can be better aligned with indigenous values, ensuring both biodiversity preservation and the protection of tribal heritage. Tribal communities have historically maintained a deep connection with their natural environment, shaping their habits and habitat in ways that contribute to the conservation of fauna. Their traditional ecological knowledge, sustainable practices, and spiritual beliefs often foster biodiversity conservation. This research presents findings on the relationship between the lifestyle of tribal people and fauna conservation, discussing the implications for sustainability and environmental policies.

Animals continue to be an essential food source for many tribal groups worldwide. However, external pressures such as modernization, legal restrictions, and environmental changes pose challenges to traditional dietary practices. A balance between conservation efforts and indigenous rights must be maintained to support food security and cultural preservation. Fauna remains a fundamental aspect of tribal existence, shaping their diet, health, culture, and environment. Balancing conservation efforts with indigenous rights is crucial to maintaining ecological harmony and cultural heritage. Animals function as vital contributors to the health and survival of tribal populations. Their roles in nutrition, medicine, emotional well-being, and disease prevention highlight the need for policies that balance conservation with indigenous health rights. Animals serve as crucial sources of bioactive compounds for medicine, benefiting both traditional and modern healthcare systems. However, ethical and conservation challenges must be addressed to ensure the sustainable use of these resources. Future research should focus on biotechnological innovations and policy measures that balance pharmaceutical needs with environmental conservation. The traditional habits and habitat management strategies of tribal people significantly contribute to fauna conservation. Recognizing their role as natural custodians and integrating their knowledge into policy frameworks can enhance biodiversity conservation while preserving indigenous cultures.

In Gadchiroli, tribal communities have long coexisted with their surrounding fauna, implementing age-old conservation strategies that reflect their deep-rooted respect for nature. Their knowledge of species behavior, habitat preservation, and ecological balance has contributed significantly to maintaining biodiversity in the region. However, rapid modernization and habitat degradation threaten these practices, necessitating urgent interventions. Conservation policies must integrate tribal wisdom into modern frameworks to ensure sustainable development while maintaining ecological integrity.

Furthermore, empowering tribal communities through participatory conservation programs can strengthen their role as stewards of biodiversity. Educational initiatives, eco-tourism, and sustainable livelihood projects can help bridge the gap between traditional knowledge and contemporary conservation methods. Recognizing the interdependent relationship between fauna and indigenous communities in Gadchiroli is fundamental to fostering a more inclusive and effective approach to conservation. The synergy between scientific advancements and indigenous wisdom will ultimately contribute to the long-term protection of both tribal cultures and biodiversity.

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