



ANIMALS BIODIVERSITY OF TADOBA NATIONAL PARK OF CHANDRAPUR, MAHARASHTRA, INDIA

D. M. Gaidhane¹, M. Subhas¹, S. B. Nikalje² and Pritee M. Dandekar¹

¹Department of Zoology, Janata Mahavidyalaya, Chandrapur, Maharashtra, India

²Department of Zoology, Kasturbai Walchand College, Sangali, Maharashtra.

Corresponding Email: dmgaidhane1969@gmail.com

Communicated : 05.08.2023

Revision : 26.08.2023 & 10.09.2023

Accepted : 20.09.2023

Published : 30.09.2023

ABSTRACT:

The research on 'Animal Biodiversity of Tadoba-Andhari National Park, Chandrapur, Maharashtra' was carried out as an academic project towards the partial fulfillment of degree of M.Sc. in Zoology. The objective of the project was to study the diverse animal fauna existing in Tadoba-Andhari National Park. The method of actual site visit and observing animals and birds in their natural habitat was employed. We took a field visit (Safari) to Tadoba Core Zone twice. Also, few trips were made to buffer zone near Mamla Gate. The density of animals was found to be comparatively high in the core zone. Deers, Bisons, Monkey, Wild boar are ubiquitous in core zone. Tiger, Leopard, Sloth Bear are rare due to their lower count. But, it can be observed with patience. Generally, such animals are spotted near water bodies. Undoubtedly, the biodiversity of Tadoba-Andhari National Park is very rich and is thriving more. Relocation of human villages, availability of water, variety of plant species and minimum human intervention has helped Tadoba to achieve this. Tigers and Leopards, which are considered as main attraction of Tadoba are also in significant number and their count is increasing consistently. Also due to core zones vast area, there is less friction between animals and humans as animals prefer to stay within their habitat. This is a great sign of biodiversity conservation and effective use of National Parks. Tadoba is a real home of many species of animals.

Keywords: - Tadoba National Park, Animals biodiversity.

INTRODUCTION :

The concept of biodiversity (synonyms with biological diversity) has been known to man ever since he began to minutely observe the living being around him. The term biological diversity was used by Robert E. Jenkins and Thomas Lovejoy in 1980. The word 'biodiversity' itself may have been coined by W. G. Rosen in 1985. The term 'biodiversity' was used as the title for a symposium organized by National Research Council in Washington in 1986. At about that time, as people became more aware of the extinction crisis, biodiversity emerged as a significant issue. It was given concrete expression in the World Resources Institute (WRI), World Bank (WB), International Union of Nature and Natural Resources (IUCN) and World Wide Fund for Nature (WWF) publications concerned with conservation of world's biological

diversity. However, biodiversity did not become a familiar term to public until the United Nations Conference on the Environmental and Development (UNCED) held at Rio de Janeiro (Brazil) in 1992. The Conference laid immense stress on the biological diversity of our earth planet and the need to preserve it for posterity. It defined the biodiversity: 'Biodiversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.' This is the single legally accepted definition of biodiversity adopted by the UN convention on Biological diversity (Chandrakar, 2012).

Biodiversity describes the richness and variety of life on earth. It includes the number of different

organisms and their relative frequencies in an ecosystem. A healthy ecosystem can be built when we maintain the balance of nature. The loss of biodiversity may alter the functioning of ecosystems (Cardinale *et al.*, 2012). Flora and fauna are very important for human existence. The flora releases oxygen which is taken by the fauna for respiratory purposes. In return, the fauna releases carbon dioxide required by the flora for photosynthesis. The loss of biological diversity is a global crisis. There is hardly any region on the Earth that is not facing ecological catastrophes. Of the 1.7 million species known to inhabit the Earth (humans are just one of them), one third to one fourth is likely to extinct within the next few decades. Biological extinction has been a natural phenomenon in geological history. But the rate of extinction was perhaps one species every 1000 years. But man's intervention has speeded up extinction rates more between 1600 and 1500, the rate of extinction went up to one species every 10 years. It is estimated that, about 50 species are being driven to extinction every year, bulk of them in tropical forest, due to human interference (Agrawal, 2009).

Biodiversity education is very important to create interest, knowledge and necessary skills in students to solve biodiversity problems (Ramadoss, 2011). Many species are becoming extinct every year due to human interference in forests. Governments and many other organizations are making efforts to preserve forests and all sorts of flora and fauna belonging to forests. Also, the government has formulated schemes to declare forest reserves for specific endangered animals so that they will be specifically protected there. National Parks play a vital role in the conservation of the world's biodiversity, in food security and in human health issues. The values of National Parks range from the protection of natural habitats and associated flora and fauna to the

maintenance of environmental stability of its surrounding regions. It provides opportunities for sustainable food security and better human health apart from environmental conservation. Now-a-days, National Parks and Protected areas are being a unique field that brings different subjective and objective oriented sectors melted like regional economic development, rational use of resources, generating income and creating jobs, research and monitoring, conservation education and, recreation and tourism (Hag, 2017).

Government of India took great efforts to preserve tiger population and other fauna population by creating Forest Reserves. "Project Tiger" is being used by government as a means of conserving forests as well as tiger population. In India, 'Project Tiger' was launched in 1973 with an objective "to ensure maintenance of a viable population of tigers in India for scientific, economic, aesthetic, cultural and ecological values and to preserve for all times areas of biological importance as a national heritage for benefit and enjoyment of the people". The project has been successfully implemented and under this project, 44 Tiger Reserves have been set up in the country till June 2011, covering an area of over 52,653 km² of tiger habitat distributed in 21 states and few more have been proposed. However, due to intense poaching, there is a decline in tiger reserves as well as in the wild. For strengthening tiger conservation measures and ensuring anti-poaching activities, the National Tiger Conservation Authority and Crime Control Bureau were constituted w.e.f. 04.09.2006 and 06.06.2007, respectively. According to an estimate the number of tigers, which was about 4026 in 1989, went down to about 1233 in 2000. Surprisingly no tiger in Sariska is seen since 2004. A survey of numbers of tigers in 2011 revealed that, there are about 1706 tigers in India. Project Tiger is undisputedly the custodian of the major gene

pool of the country and a repository of some of the most valuable ecosystems and habitats for wildlife. (National Tiger Action Plan India – 2011-2022). One of such well protected and maintained forest reserve is Tadoba Andhari Tiger Reserve. Tadoba-Andhari Tiger Reserve is in the Chandrapur district of Maharashtra. The habitat has undulating topography in the North and is rich in biodiversity. Tadoba National Park (116.55 sq. kms.) and Andhari Wildlife Sanctuary (508.85 sq. kms.) together form the Tadoba-Andhari Tiger Reserve (625.40 sq. kms.). The National Park derives its name from the local tribal God 'Taru', whereas the Andhari river flowing through the forests gives the Sanctuary, its name. Its name 'Tadoba' is derived from the name of God 'Tadoba' or 'Taru' which is praised by local tribal people, whereas 'Andhari' is derived from name of Andhari river. It is believed that Taru was the village chief who was killed in a fierce encounter with Tiger and thus a shrine was made in remembrance of God 'Taru'.

Protection of Forests and wildlife in India has a long history. Seldom has any culture been so deeply and consistently associated with animals and trees as can be seen in this part of the country, back from prehistoric times through rulers of different dynasties to present times. The area of Tadoba Andhari Tiger Reserve, as it is known today was notified as the Reserved Forest as early as in 1879 under the Indian Forest Act VII of 1878 by the Central Province Gazette Notification No. 917 (2) dated 4.2.1879. It also contained other areas of the District Chandrapur. The rich wildlife in this reserved forest received attention of wildlife lovers as early as in 1905, when it was declared as a shooting block. To protect the wildlife, restrictions on hunting except by special permits by the then Central Province and Berar Government in 1935, an area of 45 sq.kms around Tadoba lake was constituted as a "Sanctuary" In 1955, this area was declared as a National park and there were

no rights over the Reserved Forests, however, concessions were given to the agriculturists for certain forest produce (like cattle grazing and extraction of bamboo at concessional rates). In Tadoba National Park, all the forest activities were stopped since 1968 except collection of Tendu leaves. There after 1992 onwards, collection of Tendu leaves is also totally stopped. (Fauna of Tadoba-Andhari Tiger Reserve (Mahabal, 2006).

We have undertaken the study of Tadoba's biodiversity to know about the richness of Tadoba's biodiverse habitat. With positive efforts taken by the government, Tadoba has able to maintain a constant pool of different animals in its sanctity. When one visit Tadoba forest reserves, we can observe freely roaming animals ranging from deers, tigers till crocodiles. Even though Tadoba is well known for Tigers, Tadoba has an abundance of other creatures, which include, leopard, cheetal, chinkara, langoor, nilgai, barking deer, blue bull, spotted deer, flying squirrel, sloth bears, gaur, dhole, striped hyena, small Indian civet, jungle cats, sambar, and chausingha. We will take a look at their presence in brief further. The main objective of the project study was to know the animal biodiversity of Tadoba National Park located in Chandrapur District of Maharashtra, India.

Review Of Literature :

The review of literature for the present study was done as follow: Chandrakar (2012) had studied biodiversity, its conservation, various means of conservation and details of National Parks, Reserves, Sanctuaries and other *in-situ* / *ex-situ* conservation methods employed in India. Study emphasized upon changes of human consumption pattern and adoptive approach of administrative personnel involved in forest management. This can foster the co-existence of forests and human effectively. Agrawal (2009) studied the concepts of biodiversity in depth and is conservation processes. The detailed view of

conservation methods outlines importance of National parks, reserves and sanctuaries etc. Pore *et al.* (2020) has stated need of biodiversity education to ensure its preservation. Ramadass (2011) has shown that biodiversity education programs help students to acquaint with the local biodiversity problems, and create an interest, motivation, commitment and action. Cardinale, *et al.*, (2012) had studied the adverse impact of biodiversity loss on humanity. It has given a deep account of endangered species and its impact on ecosystem. Hag (2016) was carried out his study to highlight the need of nation parks and reserve areas to protect forests. It also studies social, economical and cultural benefits of forests which can be achieved through national parks or reserved areas. Mahabal (2006) had published a report by Zoological Survey of India, in depth statistics of Tadoba fauna and structure of Tadoba Tiger reserve has been studied. The study revealed the situation of tiger population as well as population of other animals in Tadoba reserve. Tadoba Andhari Tiger Reserve Report by National Tiger Conservation Authority/ Project Tiger – This report gives key statistics about Tadoba Tiger reserve. It also gives key highlights of Tadoba zones, species of plants and species of animals in it. Tiger Status Report (2011) National Tiger Conservation Authority, MoEF, Govt of India – Study of Statistics of Tigers in India and its progress. National Tiger Action Plan India – 2011-2022 – Creation of tiger reserves and statistics about tiger population.

MATERIALS AND METHODS :

The research was carried out by employing three methods:

1. Actual Visit to Tadoba Core and Buffer Zones to observe the fauna in detail.
2. Interviewing tour guides appointed by Tadoba Andhari Tiger Reserve to collect key information about behavioral patterns of animals in different circumstances.

3. Study of key statistics published by various government authorities.

Map of Tadoba-Andhari Tiger reserve's Core zone map is shown in figure 1.

1. Actual Visit to Tadoba Core and Buffer Zones to observe the fauna in detail:

Two visits were made to Tadoba Core Zone – Moharli Gate on dates – 22nd January, 2023 and 13th March, 2023. Both visits lasted for four hours each. Also few visits were made to Tadoba Buffer Zone near to Mamla Gate.

2. Interviewing tour guides appointed by Tadoba Andhari Tiger Reserve to collect key information about behavioral patterns of animals in different circumstances.

Following are the key points of interview discussions:

- Tadoba has an abundance of not only Tigers but also various types of deer, wild boar, wild buffalo, hyena, nilgai, bear, etc.
- Tigers generally mark the territories. They do so by making claw marks on trees or through excretion which emanates the smell. Each tiger territory is its zone and other tiger won't venture into it for hunting for mating purpose. They showed some territory markings of one of the tigresses.
- They also showed us different types of Deers and explained their specialties such as barking deer, spotted deer, sambar (deer with antlers) which is largest of the deer species in South-Asia.
- They also showed hiding places of owls.
- They explained how to track animals by looking at pugmarks
- They showed the sites of villages which were there in core zone and now have been shifted to other places

3. Study of key statistics published by various government authorities.

Studies the reports published by Project tiger, National Tiger Action Plan, Tiger Status Report (2011), National Tiger Conservation Authority,

MoEF and Special reports on Tadoba Andhari Tiger Reserve Fauna to get latest trends of animal statistics. Following are some photographs captured during visit to Tadoba National Park (Figure 2).

RESULT :

The observation of biodiversity of Tadoba National Park was carried out through actual visits and data from government reports. Following are the key statistics of Biodiversity of Tadoba-Andhari National Park.

Sr. No.	Name of Species	Spotted	Present in Tadoba	Individual density (No. of Animals/Km ²) based on the report of Wildlife Institute of India-2019
1	Sambar	Yes	Yes	6.22
2	Chital	Yes	Yes	8.21
3	Bison (Gaur)	Yes	Yes	2.19
4	Wild Boar (Pig)	Yes	Yes	3.92
5	Langur(Monkey)	Yes	Yes	10.58
6	Nilgai	No	Yes	1.43
7	Barking deer	Yes	Yes	1.19
8	Hare	No	Yes	0.72
9	Peafowl	Yes	Yes	4.18
10	Grey Jungle fowl	Yes	Yes	0.35
11	Chausingha	No	Yes	NA
12	Tiger	Yes	Yes	115 (Approx. Count)
13	Leopard	No	Yes	151 (Approx. Count)
14	Sloth bear	No	Yes	22 (TOI Report)
15	Crocodile	Yes	Yes	20 (Outlook Report – 2017)
16	Hyena	No	Yes	NA
17	Wild dogs	No	Yes	36 (TOI Report)
18	Eagle	Yes	Yes	NA

Beside these figures, Tadoba provides a home to nearly 50 species of small and large mammals, 40 species of reptiles and over 300 species of birds.

DISCUSSION :

The research was carried out with the aim of studying the animal biodiversity of Tadoba-

Andhari National Park. Around 10 species were spotted during the visits of Core Zone and Buffer Zone. Also, this research gave an incredible opportunity to look at the core forest closely. Unlike Zoo or any controlled environment, here animals were observed roaming freely in their natural habitat. Research also uncovered the dimension of biodiversity and need of its conservation. As talked in many forums, biodiversity is a variety of species thriving under the same habitat. This research showed why it is necessary to conserve biodiversity. For example, if in Tadoba, there is no Deer population, the carnivorous animals such as Tigers or Leopard will have to make more efforts to find prey. This may result in disturbed food chain of forest. In the quest for food, hungry animals will venture outside the forest and may encroach on human settlements. This will lead to human-animal conflict and eventually affect the population of such animals.

To ensure balance and coexistence in this case, a dedicated forest area secluded from human interventions is needed. Also, water is a primary ingredient for any species. During summer, adequate water should be made available to all the living beings of the forest.

One more observation was made related to the variety of birds observed in Tadoba. It is that, due to the abundance of green vegetation and water bodies, Tadoba is rich in bird population. Many unique bird species were observed including eagles. Also, one migrated bird was shown by a guide. Bird population plays a key role in the food chain and helps to balance the ecosystem. The purpose of National Park as directed by government is well served in Tadoba-Andhari National Park.

The study carried out for animal biodiversity of Tadoba-Andhari National Park has revealed the following conclusion:

1. Human interference has impacted the lives of all other species even though those are residing

in forests. Due to constant roaming of tourist vehicles, the decorum of forest is disturbed and natural essence is diluted at certain level.

2. Government's measures to preserve the forest in form of nation parks, reserves are playing vital role in rebuilding the adversely impacted food chains of species. Also these efforts are helping to grow the population of endangered species significantly

3. Tiger population has grown with steady pace in Tadoba and in overall India as an outcome of 'Project Tiger'.

4. Curbs and legal action on hunting, illegal merchandising of animal skin or body parts has helped to keep the balance of forests in positive way.

5. Tadoba Core Zone and Buffer Zone are home for many species of animals and birds. The population balance is very good in this National park.

6. Due to the shifting of villages from core zone, a true forest has been restored and animals can be seen roaming freely which has become rare site nowadays. This has also helped to curtail down man-animal conflict and coexistence is ensured.

Acknowledgement

Authors are thankful to Principal of Janata Mahavidyalaya, Chandrapur for his support during the period of Project work.

Conflict of interest

Authors declare no conflict of interest.

REFERENCES:

Agrawal, K. C. Biodiversity: Concept, Book on Conservation and Management, 2009, 5-6.

Cardinale, B.J., Duffy, J. E., Gonzalez, A., Hooper, D.U., Biodiversity loss and its

Impact on humanity, Nature, 2012, 10.1038/Nature11148.

Chandrakar, A.K., Term paper on Biodiversity Conservation in India, Technical Report, November, 2012, 1-27.

Hag, A., Multi-benefits of National Parks and Protected Areas: An Integrative approach for developing countries, Environmental and Socio-economic studies, 2016, 4, 1-11.

Mahabal, A.S., Fauna of Tadoba-Andhari Tiger Reserve (Maharashtra), Conservation Area Series, 25, Zoological Survey of India, Kolkata, 2006, 1-309.

National Tiger Action Plan India-2011-2022 published by Global Tiger Forum.

Pore, S. M., Swami V. S., Shinde S. S., Kandalgaoonkar G. A., Ligade V. M., Diversity and distribution of flora and fauna in V. G. Shivdare Campus, Solapur, India, International Journal of Creative research thoughts, 2020, 8, 1332-1339.

Ramadoss, A., Biodiversity Conservation through Environmental Education for Sustainable Development – A Case Study from Pondicherry, India, International Electronic Journal of Environmental Education, 2011, 1 (2), 97-111.

Tadoba-Andhari Tiger Reserve report by National Tiger Conservation Authority on Project Tiger, 2006.

Tiger Status report by National Tiger Conservation Authority, MoEF, Govt of India, 2011.



Figure 1: Tadoba Core Zone map.



Figure 2. Biodiversity of Tadoba National Park (Selected Photographs).