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Analysis of Wildlife census with special consideration to tiger population Inside Sariska Tiger Reserve, Rajasthan

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Abstract
Wildlife conservation is a pressing global concern, particularly in the context of dwindling populations of endangered species like tigers. Sariska Tiger Reserve, located in the Aravalli range of Rajasthan, India, is one such crucial habitat for the conservation of the Bengal tiger (Panthera tigris tigris). This paper presents an in-depth analysis of wildlife census data, focusing specifically on the tiger population within the Sariska Tiger Reserve. The methodology employed in this study involves a comprehensive review of existing literature on tiger population dynamics, habitat preferences, and conservation strategies. The results of the analysis indicate fluctuations in the tiger population over time, influenced by various factors including habitat loss, poaching, human-wildlife conflict, and conservation interventions. By comparing census data from different years, trends in tiger abundance and distribution are identified, providing insights into the effectiveness of conservation efforts and the need for adaptive management strategies. Furthermore, this research delves into the ecological significance of Sariska Tiger Reserve beyond tigers, highlighting the importance of maintaining biodiversity and ecosystem integrity. It explores the interdependence of species within the reserve and the cascading effects of changes in predator populations on the entire ecosystem. The findings of this study have implications for wildlife management and conservation policy, both within Sariska Tiger Reserve and in similar protected areas worldwide. By understanding the factors influencing tiger populations and their habitats, informed decisions can be made to mitigate threats and enhance conservation measures. In conclusion, this research contributes to the broader understanding of wildlife census methodologies and their application in conservation biology, with a specific focus on the critically endangered Bengal tiger population within Sariska Tiger Reserve. It underscores the urgency of concerted efforts to safeguard these majestic creatures and their habitats for future generations.

Keywords: Endangered species, habitat, biodiversity, conservation

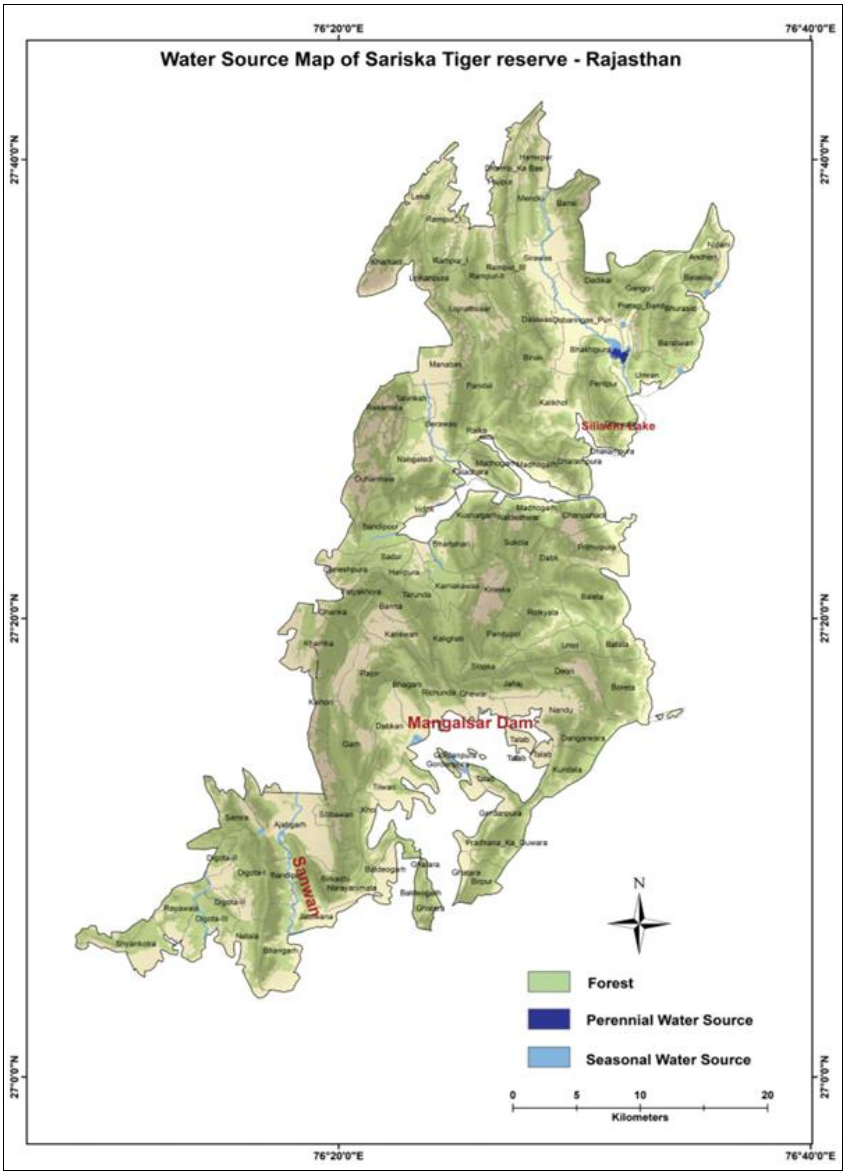
Introduction

Conservation methodologies are anticipated to evolve alongside the progression of scientific understanding. This progression within the domain of monitoring tiger populations in India, specifically evaluating the longstanding use of the 'pugmark census method' by wildlife managers. Within this evaluation, we delineate three pivotal objectives for monitoring tiger populations, delineated in ascending order of complexity: [1] delineating distribution patterns, [2] monitoring relative abundance, and [3] estimating absolute abundance (Karanth *et al*., 2003) [7]. Understanding the abundance and fluctuations in abundance is crucial for the efficient management of endangered species (Gibbs *et al*., 1999) [5]. Without data on abundance, conservation management decisions frequently rely on rough approximations, expert judgments, or informed speculations, leading to potential inaccuracies that could undermine conservation efforts (Blake & Hedges, 2004). Poaching has the potential to rapidly deplete a population and lead to extinctions within a brief timeframe (Chapron *et al*., 2008; Gopal *et al*., 2010) [6]. Despite concerted national and international efforts to conserve the species, the population and habitat range of the Tiger (*Panthera tigris*) persist in declining (*Report on Disappearance of Tigers from Panna Tiger Reserve Special Investigation Team 2009*, n.d.). The decline in Tiger population and habitat range is primarily attributed to habitat loss, fragmentation, prey depletion, and poaching (Dinerstein *et al*., 2007). The Sariska Tiger Reserve boasts a rich array of wild mammals, with the primary predator being the Tiger. Additionally, the reserve is home to various large carnivores such as the leopard (*Panthera pardus*) and hyena (Hyena hyaena), along with smaller carnivores including the caracal (*Caracal caracal*), jungle cat (*Felis chaus*), and ratel (*Mellivora capensis*) (FOREST DEPARTMENT, 2023).

Study Area

Located in the Alwar district of the Indian state of Rajasthan, Sariska Tiger Reserve serves as the focal point for this research paper. Covering an area of 1213.34 km^2, out of which 881.11 km^2 is core area. Latitude 27°05' to 27°38' North and longitude 76°14' to 76°32' East of the STR's core zone respectively. Sariska Tiger Reserve is nestled within the Aravalli Range, characterized by a mix of rugged terrain, dry deciduous forests, rocky landscapes, and water bodies. The reserve is renowned for its diverse wildlife, with the Bengal tiger (*Panthera tigris tigris*) standing as the flagship species. Apart from tigers, Sariska is home to a plethora of fauna including leopards (*Panthera pardus*), hyenas (*Hyena hyaena*), caracals (*Caracal caracal*), jungle cats (*Felis chaus*), ratels (*Mellivora capensis*), and a variety of ungulates and avian species. The reserve's flora comprises predominantly of dry deciduous vegetation, with species such as dhok (*Anogeissus pendula*), tendu (*Diospyros melanoxylon*), and khair (*Acacia catechu*) dominating the landscape. Human settlements in the

periphery of the reserve add another layer of complexity to its ecological dynamics, with issues like habitat encroachment, poaching, and human-wildlife conflict being significant concerns. The historical and cultural significance of Sariska, along with its ecological importance, makes it an ideal subject for comprehensive research aimed at understanding wildlife conservation, habitat management, and sustainable development strategies.



Source: National Tiger Conservation Authority

Methodology

The study is based on the temporal analysis of wildlife census data collected from various secondary sources. The study uses data from Tiger conservation plan, Sariska Tiger reserve, Department of Forest, Rajasthan and National Tiger Conservation Authority, Government of India. With special consideration to Tiger population dividing, it into two sets before and after year 2008.

Table 1: Wild life census data of STR

S.No.	Species	1995	1999	2002	2003
1.	Leopard	46	52-57	58-63	60-64
2.	Caracal	12+	6-8	7-10	7-10
3.	Jungle Cat	120+	115-135	130-145	140-150
4.	Sambhar	4800+	6000-6300	6200-6500	6300-6550
5.	Chital	2900+	3500-3700	3700-3900	3800
6.	Blue bull	4300+	5100-5300	5400-5700	3950
7.	Chowsingha	20+	10-15	10-15	10-15
8.	Wild Boar	2600+	3300-3600	3400-3600	3450-3650
9.	Hyena	100+	110-120	120-135	125-140
10.	Jackal	250+	350-375	400-450	425-475

Source: Tiger Conservation Plan, Department of Forest, Government of Rajasthan.

Table 2: Wild life census data of Tiger

S.No.	Year	Population
1.	1995	25+
2.	1999	25-28
3.	2002	26-28
4.	2003	25-28
5.	2004	00

Source: Tiger Conservation Plan, Department of Forest, Government of Rajasthan.

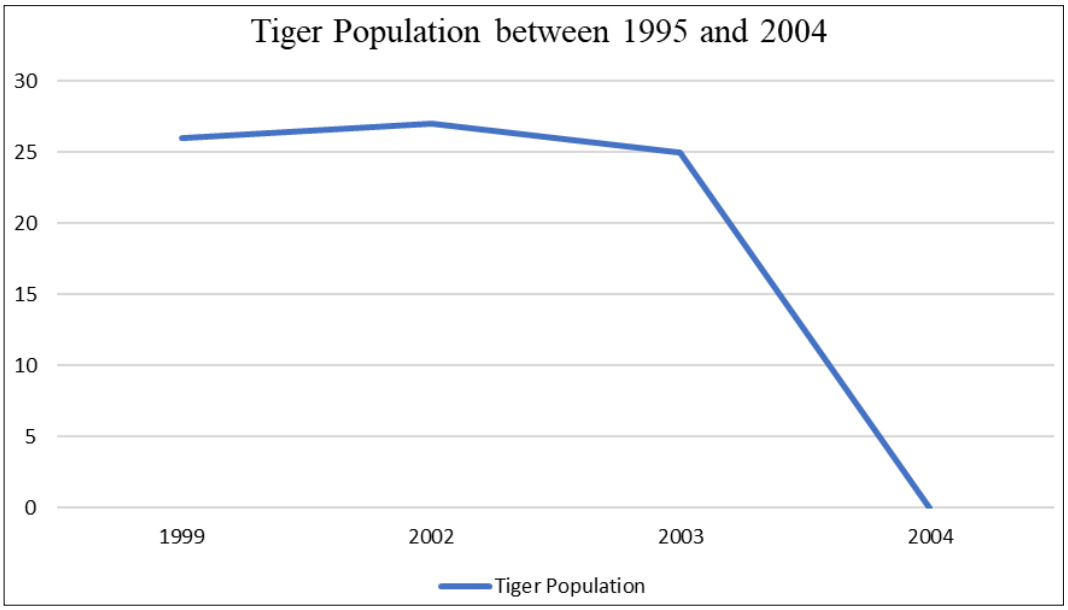
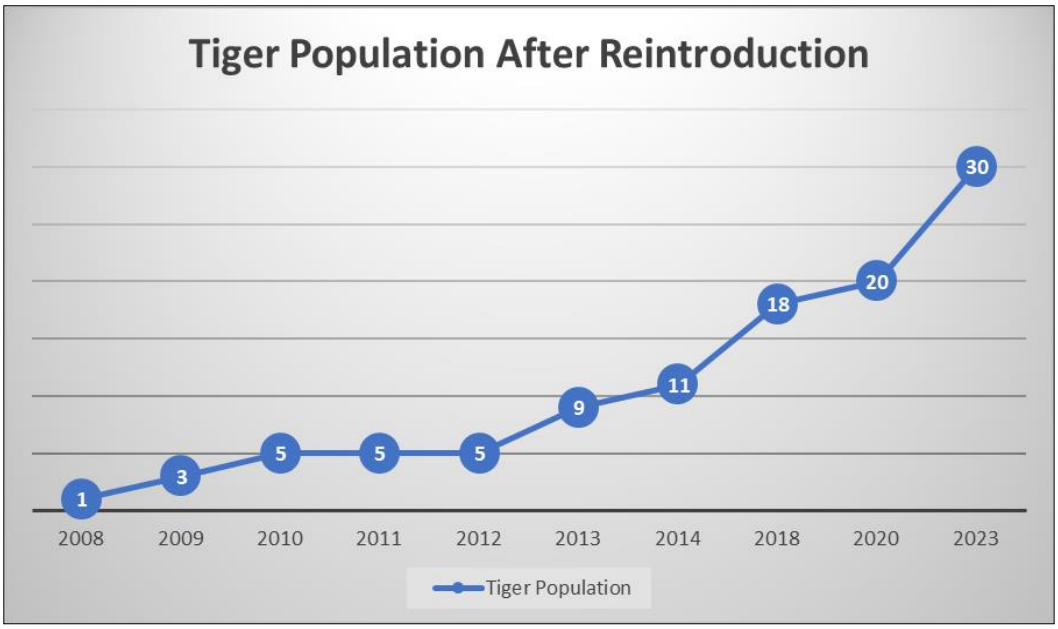


Table 3: Wild life census data of Tiger after its reintroduction

S.No.	Year	Population
1.	2008	01
2.	2009	03
3.	2010	05
4.	2011	05
5.	2012	05
6.	2013	09
7.	2014	11
8.	2018	18
9.	2020	20
10.	2023	30

Source: Tiger Conservation Plan, Department of Forest, Government of Rajasthan.



Result

The analysis of wildlife census data, with a special focus on the tiger population within the Sariska Tiger Reserve in Rajasthan, reveals significant progress and notable findings. In 2004, the tiger population in Sariska Tiger Reserve had reached a critical state, with tigers completely vanished from the reserve. However, through concerted conservation efforts and a proactive management policy, tigers were successfully reintroduced into the reserve in 2008.

Over the subsequent years, the tiger population within the Sariska Tiger Reserve has shown remarkable recovery. According to the latest census data from 2023, the tiger population within the reserve has grown to a commendable count of 30 individuals. This increase in tiger numbers stands as a testament to the effectiveness of the management strategies implemented within the reserve, as well as the dedication of conservationists and wildlife authorities.

Conclusion

The analysis underscores the importance of proactive conservation measures and effective management policies in safeguarding endangered species and restoring dwindling wildlife populations. The successful reintroduction of tigers into the Sariska Tiger Reserve and the subsequent growth of the tiger population to 30 individuals by 2023 signify a significant conservation milestone. The revival of the tiger population within the reserve not only contributes to the ecological balance of the region but also holds immense cultural, ecological, and economic significance for the local communities and the nation at large. It underscores the importance of collaborative efforts among government agencies, conservation organizations, local communities, and other stakeholders in ensuring the long-term survival of endangered species and the preservation of biodiversity.Moving forward, continued vigilance, robust conservation strategies, and community involvement will be crucial in maintaining the upward trajectory of tiger populations within the Sariska Tiger Reserve and ensuring the sustainability of its ecosystem. This success story serves as a beacon of hope and inspiration for ongoing wildlife conservation efforts not only in India but also globally, emphasizing the potential for positive outcomes when conservation becomes a shared priority.

References:

1. Blake S, Hedges S. Sinking the Flagship: the Case of Forest Elephants in Asia and Africa. *Conservation Biology*,2004:18(5):1191–1202. https://doi.org/10.1111/J.1523-1739.2004.01860.X
2. Chapron G, Miquelle DG, Lambert A, Goodrich JM, Legendre S, Clobert J. The impact on tigers of poaching versus prey depletion. Journal of Applied Ecology,2008:45(6):1667–1674. https://doi.org/10.1111/j.1365-2664.2008.01538.x
3. Dinerstein E, Loucks C, Wikramanayake E, Ginsberg J, Sanderson E, Seidensticker J, Forrest J, Bryja G, Heydlauff A, Klenzendorf S, Leimgruber P, Mills J, O'Brien TG, Shrestha M, Simons R, Songer M. The Fate of Wild Tigers. *BioScience*,2007:57(6):508–514. https://doi.org/10.1641/B570608
4. Forest Department, G. O. R. Rajasthan Forest Policy, 2023.
5. Gibbs JP, Snell HL, Causton CE. Effective Monitoring for Adaptive Wildlife Management: Lessons from the Galapagos Islands. *The Journal of Wildlife Management*. 1999:63(4):1055. https://doi.org/10.2307/3802825
6. Gopal R, Qureshi Q, Bhardwaj M, Jagadish Singh RK, Jhala YV. Evaluating the status of the Endangered tiger Panthera tigris and its prey in Panna Tiger Reserve, Madhya Pradesh, India. *ORYX*,2010:44(3):383–389. https://doi.org/10.1017/S0030605310000529
7. Karanth KU, Nichols JD, Seidenstricker J, Dinerstein E, Smith JLD, McDougal C, Johnsingh AJT, Chundawat RS, Thapar V. Science deficiency in conservation practice: the monitoring of tiger populations in India. *Animal Conservation*,2003:6(2):141–146. https://doi.org/10.1017/S1367943003003184
8. Report on Disappearance of Tigers from Panna Tiger Reserve Special Investigation Team 2009. (n.d.).

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