GAUR REINTRODUCTION SANJAY TIGER RESERVE

Final Project Report

ASSESSING THE PHYSIOLOGICAL STRESS IN GAUR (*Bos gaurus gaurus*) DURING TRANSLOCATION

[Component of the MPFD-WII Gaur Reintroduction Plan 2023-28: Establishment of Gaur in Sanjay Tiger Reserve, Madhya Pradesh]

MAY 2024

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

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[Component of the MPFD-WII Gaur Reintroduction Plan 2023-28: Establishment of Gaur in Sanjay Tiger Reserve, Madhya Pradesh**]**

MAY 2024

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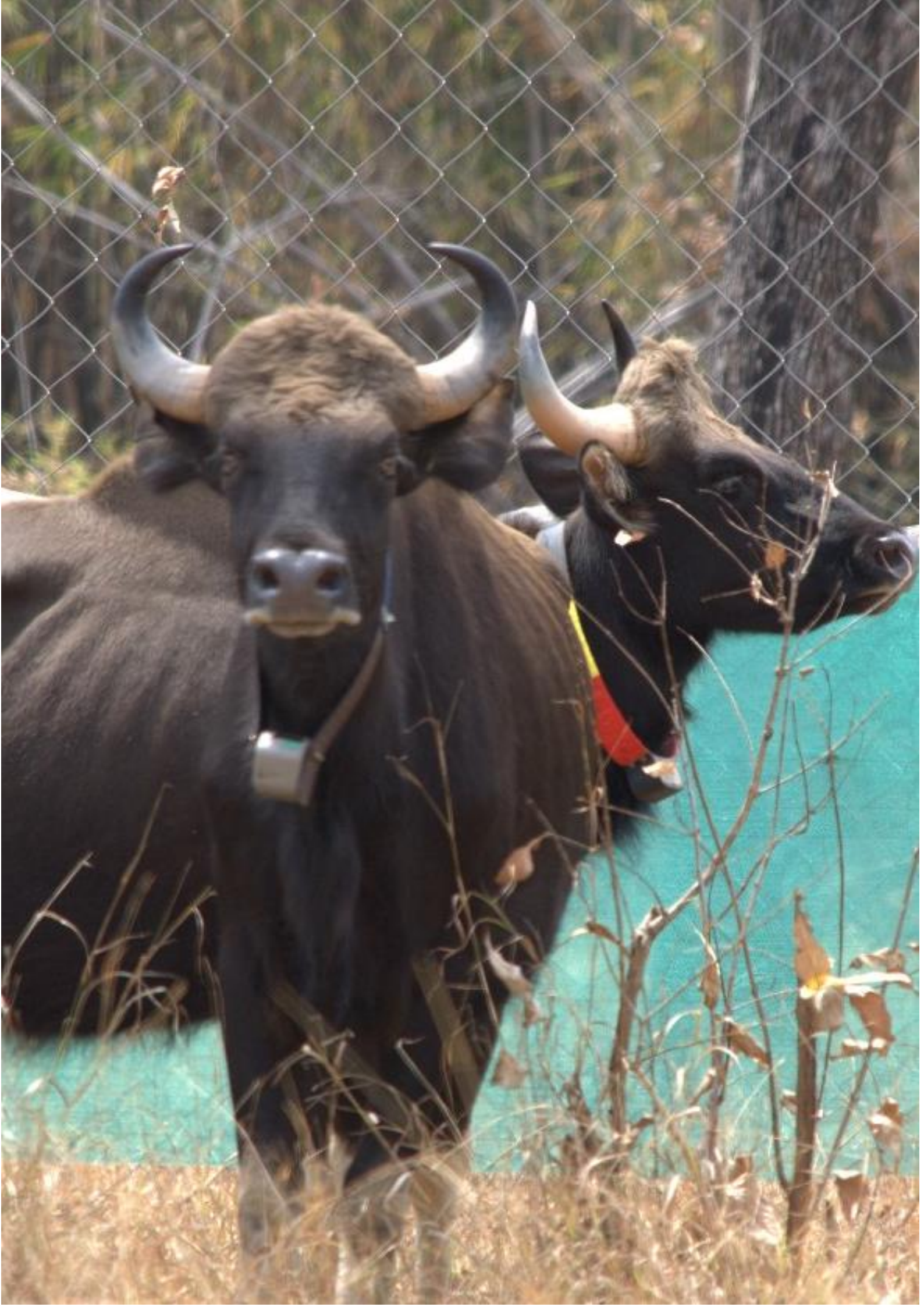

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CONTENT

PROJECT REPORT: ASSESSING THE PHYSIOLOGICAL STRESS IN GAUR (*Bos gaurus gaurus)* DURING TRANSLOCATION

(Component of MPFD-WII Gaur Reintroduction Plan 2023-28: Establishment of Gaur in Sanjay Tiger Reserve, Madhya Pradesh)

INTRODUCTION

To restore ecological balance and enhance biodiversity in Sanjay-Dubri Tiger Reserve (SDTR), Madhya Pradesh, the Madhya Pradesh Forest Department (MPFD) in collaboration with the Wildlife Institute of India (WII) had developed a Gaur Reintroduction Plan (2023-28). This project aimed to re-establish a viable population of gaur (*Bos gaurus gaurus*) in SDTR, where they were historically present but went extinct during 1998. Possible reasons for extinction included habitat loss, infectious diseases, predation, and disruptions to migratory corridors. The present initiative was aimed at establishing the gaur population in SDTR thereby enhancing the biodiversity of the park, improving the health of the ecosystem, potentially promoting tourism, and generating economic benefits for local communities.

The "Gaur Reintroduction Action Plan" was developed in 2023 and outlined a comprehensive, multidisciplinary approach, involving detailed strategies for successful reintroduction including the pre-translocation preparations, the translocation process itself and long-term post-release monitoring (Wildlife Institute of India, 2023).

JUSTIFICATION FOR THE STUDY

Animal translocations have been documented to create some degree of stress in the animals. Short-term stress is usually beneficial for the animal to cope with the situation; however, it may have deleterious effects on the animal's wellbeing if it persists for long period of time (Keay *et al.,* 2006). Studies on hematological and biochemical blood constituents have indicated that capture and immobilization of wild herbivores might be the most stressful events in their lives (Romero, 2004; Casady and Allen, 2013). To assess the impact of capture and translocation on animals, it becomes imperative to study the associated risks and possible negative effects, if any. These effects can be determined by evaluating physical, physiological and behavioural effects on animals at the time of capture, during transport and in the following days.

Understanding Stress

Stress is the body's response to a stimulus that disrupts homeostasis mainly via glucocorticoid metabolism and is regulated by the hypothalamic–pituitary–adrenal axis (Wilkening *et al.,* 2016). Stress is basically a physiological mechanism which is not inherently harmful. An evolved stress response enables animals to successfully respond to changing events such as seasonal variations (Romero, 2002).

Stressors come in many forms including physical (e.g. restraint), immunological (e.g. bacterial infection), or psychological (e.g. isolation), but all with varying degrees of biological responses and consequences (Breen and Karsch, 2006). The duration and magnitude of the stress significantly affects animal physiology and can be reflected in an increase in glucocorticoid levels (Brivio *et al.,* 2015).

Since, glucocorticoids regulate behavioural response in animals (Montane *et al.,* 2003), the impact of any interventions on the physiological and behavioural patterns of the animals can effectively be assessed by estimating the level of glucocorticoids (Romero, 2004; Keay *et al.,* 2006).

When the stress response is prolonged, detrimental effects can occur in areas of immunologic function, reproduction, and growth (Dobson and Smith, 2000; Capiro *et al.,* 2014). Therefore, it becomes imperative to study the stress response when any intervention is made to as it affects the overall health and well-being of animal(s). Monitoring these stress levels is crucial for assessing the welfare of the animals and the success of the translocation project.

Stress can be quantified by measuring the concentrations of glucocorticoids and their metabolites in blood, urine, and faeces. Since plasma glucocorticoid concentrations fluctuate dramatically and frequently, urine and faecal samples, allows to study the stress response as a cumulative assessment of the subject's stress levels rather than the transient levels occasionally observed in blood samples. Faecal glucocorticoids have been extremely useful biometric tests, as they are non-invasive to subjects and, therefore, do not introduce other variables that may alter assay results. This has been especially useful in the zoological and conservation medicine fields, as it makes serial sample collection easier to assess the stress response to variable conditions.

To assess the success of the capture and translocation operation, a study was initiated to assess the physiological stress in gaur during the translocation process. Necessary permissions for the fieldwork were obtained and are provided as **Annexure 1.**

Fecal Cortisol Metabolites (FCM)

Stress levels during animal translocation can be done by measuring Fecal Cortisol Metabolites (FCM). FCM analysis is a non-invasive way to assess stress hormone levels and has been used in variety of wild animal studies (Millspaugh and Washburn, 2004 and Chinnadurai *et al.,* 2009). Since, traditional methods

for monitoring stress in wildlife, such as observing behavior, can be subjective and can miss out underlying physiological changes, the FCM analysis offers several advantages:

- **Non-invasive**: FCM analysis requires only faecal samples, minimizing disturbance to the animals.
- **Integration over Time**: FCM levels in faeces represent cortisol excreted over a period of time, providing a more comprehensive picture of stress exposure compared to single point-in-time measurements like serum cortisol.
- **Objective measure**: FCM analysis provides a quantifiable measure of stress hormone levels, allowing for objective comparisons between individuals and groups (Schwarzenberger, 2007).

FCM levels can be assessed by subjecting feces/ dung samples to laboratory analysis using commercially available enzyme immunoassays (EIAs) specific for cortisol metabolites. By analyzing FCM levels in samples collected before capture, during transport, and after release into the new habitat, the stress response in the whole process can be monitored. This data allows to evaluate the impact of translocation on stress levels and identify areas for improvement in the translocation process to minimize stress on the animals (Mostl and Palme, 2002; Laws *et al.,* 2007).

METHODOLOGY

Free-ranging gaurs from Satpura Tiger Reserve identified/ captured for translocation were selected for the study. The details of sampling strategy are provided in Table 1

Table 1: Sampling strategy

Sr. No.	Phase	Details
1.	**Pre-capture phase**	Samples from identified herds at Satpura Tiger Reserve
2.	**During capture phase**	Samples from immobilized animals at Satpura Tiger Reserve and from the transport truck in which the animals were transported
3.	**Post-capture phase**	Samples collected at Sanjay Dubri Tiger Reserve on days 3, 7, 15, 30, 45 and 60 days after release.

Fresh dung was collected from the study animals during different phases of the translocation process. The samples were collected over filter paper placed on silica gel crystals in Zip locks. The samples were transported under refrigeration and maintained at -20°C till final processing. The details of the samples collected is provided in Table 2.

Plate a & b: Collection of faecal (dung) samples in field

Table 2: Details of samples collected.

Phase	Sample	Location	Date
Pre-capture	1, 2, 3, 4, 5 & 6	Shridhana-Samadhi Road, Churna, Satpura tiger reserve	25/06/2023
During capture (STR)	1	Samadhi Shridhana Tiraha, S.T.R	27/06/2023
	2	Samadhi Shridhana Tiraha, S.T.R	
	3	Samadhi Shridhana Tiraha, S.T.R	
	4	Samadhi Shridhana Tiraha, S.T.R	
	5	Samadhi to watchtower road, S.T.R	28/06/2023
	6	Samadhi to watchtower road, S.T.R	
	7	Compt 99,Kachh Kumbhar, Near Kankri Camp S.T.R	29/06/2023
	8	Compt 99, Kankri Nala, S.T.R	
During Transport (TR)	1	Transport Truck	29/06/2023
	2		
	3		30/06/2023
	4		
Day 3 after release	1, 2, 3, 4, 5 & 6	Enclosure	1/7/2023
Day 7 after release	1	Enclosure	4/7/2023
	2		
	3		
	4		
	5		
	1	Enclosure	7/7/2023
	2		
Day 15 after release	1	Enclosure	13/7/2023
	2		
	3		
	4		14/07/2023
	5		
	6		
Day 30 after release	1, 2, 3, 4, 5 & 6	Enclosure	30/7/2023
Day 45after release	1, 2, 3, 4, 5 & 6	Enclosure	27/8/2023
Day 60after release	1,2,3 & 4	Domarpat (outside enclosure)	29/10/2023
Total	53		

Fecal cortisol metabolite analysis

Faecal samples were processed to extract cortisol metabolites, and their concentrations were quantified using a commercially available Enzyme Immunoassay Kit (DetecX®, Arbor Assays™, Ann Arbor, Michigan, USA).

RESULTS

In the present study, varying levels of faecal cortisol metabolites (FCM) were observed in the samples collected during different phases of translocations. Baseline data were considered from the fresh dung samples collected from free-ranging animals without disturbing the herd and only when the herd moved from the place of capture in Satpura Tiger reserve. The average baseline FCM concentration was observed to be 172.61±64.18 pg/ml obtained from six designated herds during the pre-capture phase,

During the period of capture operations, faecal samples were collected directly from eight immobilized animals. There were differences observed in FCM levels amongst all these individuals, which were expected as monitoring conditions were slightly different in each case. Although, these differences were insignificant, and an average value of FCM was taken as 293.38±91.03 pg/ml to reflect the stress caused by the constant monitoring of these animals on the field.

Following capture, 3-4 animals were transported in each transport container and it took about 22-24 hrs to reach the release site at Sanjay Dubri Tiger Reserve. Faecal samples could only be collected during the end of the journey from the trucks. The marked increase in FCM concentrations (3035.75±383.4 pg/ml) was observed in these samples collected during the transportation phase, which could be directly correlated with the stress experienced by animals during the capture and transportation phase.

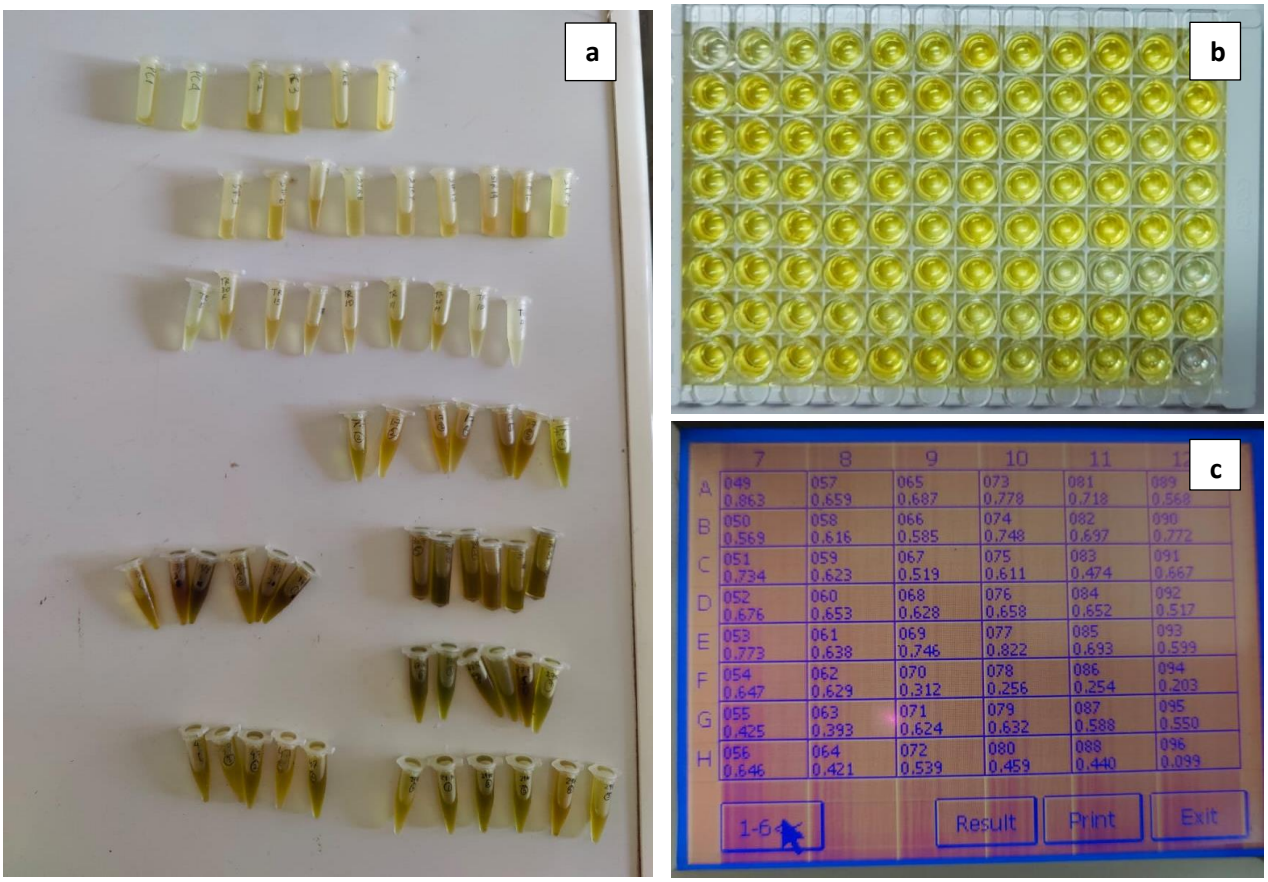


Plate a: Extracted FCM in Vapor-proof vials stored at -20°C; **Plate b**. ELISA plate indicating positive reaction; **Plate c:** ELISA plate reader displaying the readings

The results showed that the FCM levels varied across the translocation phases. The highest level of FCM was observed during the transport phase (3035.75±383.4 pg/ml), which was significantly higher ($p<0.05$) compared to the pre-capture baseline (172.61 ± 64.18 pg/ml). This indicated a significant elevation in stress levels during capture-transportation phase.

The values of FCM observed during the event of capture reflected the stress levels experienced by animals during the pre-capture-monitoring phase, whereas FCM values observed during the event of transportation reflected the stress levels experienced by animals during the capture-transportation phase. This was based on the physiology of FCM excretion which indicates that FCM usually peaks after 10-28 hours of the event, as observed in other wild animals such as elephants (Stead *et al.,* 2000; Ganswindt *et al.,* 2003; Palme, 2019; Pinero, 2023). This estimation was correlated with current findings that clearly indicated that animals did experience stress during the phases of pre-capture monitoring, capture, and transportation, which was reflected in the samples linked to these events.

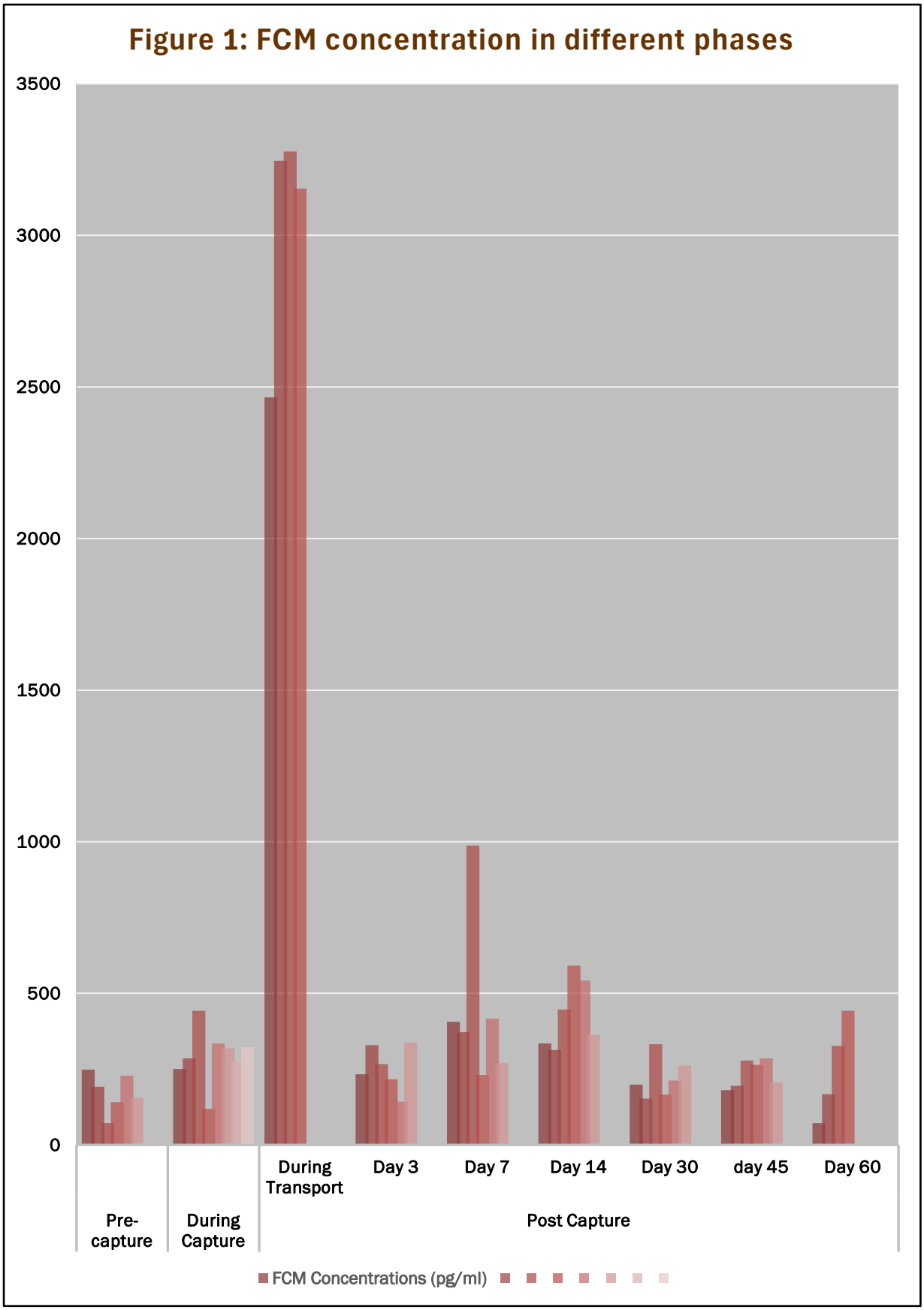
Plate a: Herd prior to capture; **Plate b:** Animals during transport; **Plate c:** Animals in the soft release Boma at SDTR

The FCM levels were evaluated at regular time intervals following release in Sanjay Dubri Tiger Reserve. The results revealed that significantly elevated FCM levels observed during the transport phase (3035.75±383.4 pg/ml) came down nearing baseline levels by the 3rd day post-release (254.1±73.59 pg/ml). This was followed by a non-significant increase in FCM levels by the 7th day (447.15±274.83 pg/ml) and 14th day (431.88±114.99 pg/ml) post-release and gradually tapered by the 30th day (220.58±66.62 pg/ml), 45th day (234.86±45.86 pg/ml) and 60th day (252.15 ± 144.41 pg/ml) post-release. In the post-capture phases (3rd, 7th, 15th, 30th, 45th and 60th), the FCM levels fluctuated, but none were statistically significantly different from the baseline levels. This suggests that the gaur may have begun to recover from the stress of translocation by the post-capture phases.

Table 3: Concentration of faecal cortisol metabolites (FCM) (pg/ml) during different phases of sampling

Phases		FCM Concentrations (pg/ml)								Mean ± SE
Pre-capture		247.9	192	72.1	141	229	155	-	-	172.61±64.18
During Capture		250.1	285	443	119	335	319	275.5	321.1	293.38±91.03
Post Capture	Transport	2466	3246	3277	3154	-	-	-	-	3035.75±383.4
	Day 3 after release	232.8	329	266	216	143	338	-	-	254.1±73.59
	Day 7 after release	406.3	372	987	231	416	271	-	-	447.15±274.83
	Day 14 after release	334.8	313	446	592	542	363	-	-	431.88±114.99
	Day 30 after release	199	153	332	166	212	261	-	-	220.58 ± 66.62
	Day 45 after release	180.9	195	278	264	285	206	-	-	234.86 ± 45.86
	Day 60after release	72.09	167.3	326.5	442.7	-	-	-	-	252.15 ± 144.4

Figure 1: FCM concentration in different phases



It's important to note that the Table 3 also indicates that there were some statistically significant differences ($p<0.05$) between FCM levels in some of the post-capture phases, indicating that the recovery process from translocation stress may not be uniform for all individuals. However, the effects of drugs used during the capture operations worked efficiently and could reduce the level of stress in the initial phases of the post-capture period, as observed on the 3rd day post-release. Although a comparatively non-significant increase in FCM level was observed in the samples collected on the 7th day and the 14th day post-release of the animals, however, after their release into the bigger enclosure, the stress was observed to be decreasing and reached the baseline data by the 30th day. When the animals were released in the natural habitat inside the Sanjay Dubri tiger reserve, the FCM level was observed to be low on the 45th day and 60th day post-release. This indicated that the animals had adjusted well and started to explore the new areas with adequate resources. This also suggested that these translocated gaurs could sustain elevated glucocorticoid concentrations over periods of up to 3-7 days and then return towards baseline levels 6-7 weeks after release. The findings also highlighted the positive impact of neuroleptic drugs, which could reduce translocation stress in animals and allow them to explore and adjust to the new habitat with a balanced approach. In the present study, we could observe that, with the diminishing effect of neuroleptic drugs, the FCM level was observed increasing non-significantly. However, it did not let the animal stop exploring and adjusting to the new place. Overall, a suitable combination of neuroleptic drugs enabled these gaurs to efficiently sustain the translocation stress. Our results indicated that chemical immobilization and use of neuroleptic drugs would be safe and should be a preferred method for translocation in large artiodactyls such as gaur.

CONCLUSION

The present study successfully demonstrated the utility of faecal cortisol metabolite (FCM) analysis as a non-invasive tool for assessing stress response in translocated gaurs. The key findings are as follows:

- During the transport-capture phase, the gaurs exhibited elevated FCM levels, highlighting the need for careful handling and minimizing stress during this critical stage of the translocation process.

- At the time of release in the enclosure at SDTR, the FCM levels were reduced, suggesting that the tranquilizers used during the field capture operation were effective in minimizing the stress of the gaurs during capture and transport.

- The release of the animals was also optimized such that the stress levels were not elevated during the process of release outside the enclosure.

IMPLICATIONS AND RECOMMENDATIONS

These findings provide valuable insights for refining best practices and improving animal welfare considerations in future translocation and reintroduction programs for large herbivores like the gaur. The results underscore the importance of:

- Carefully monitoring and managing stress levels during the critical transport-capture phase of translocation.
- Utilizing appropriate tranquilizer drugs and other interventions to minimize stress during the capture and transport processes.
- Ensuring that the post-release environment and management practices cater to the specific needs of the translocated animals to maintain their well-being.
- Optimizing the release process to avoid additional stress on the animals.

Thus, the insights revealed in the present study are useful in understanding the multifaceted dynamics of stress physiology in translocated individuals and informing conservation and management plans that aim at minimizing stress and enhancing the overall welfare of wild animals

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विषय : **Concept proposal on studying cortisol level in Gaur under the MPFD-WII Collaborative project titled-"Establishment of Gaur (Bos gaurus gaurus) in Sanjay Tiger Reserve, Madhya Pradesh": Reg.**

संदर्भ : Deputy Inspector General (NTCA), Government of India, Ministry of Environment, Forest & Climate Change, National Tiger Conservation Authority, New Delhi का पत्र क्रमांक/F.No.15-30(5)/2023-NTCA दिनांक 17.01.2024, इस कार्यालय का पत्र क्रमांक/मा.चि.-II/रिसर्च/8613 दि. 29.09.2023 एवं आपका पत्र क्रमांक/629/SWFH/Communications/NDVSU/2023 दिनांक 08.08.2023.

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उपरोक्त विषय में अनुसंधान/अध्ययन प्रस्ताव Title -"Assessing the Physiological stress in Gaur During Translocation" हेतु इस कार्यालय के पत्र क्रमांक/मा.चि.-II/रिसर्च/8613 दिनांक 29.09.2023 द्वारा अध्ययन कार्य करने की सशर्त अनुमति प्रदान की गई है। उक्त अनुमति को राष्ट्रीय बाघ संरक्षण प्राधिकरण, भारत सरकार, नई दिल्ली की Technical Committee द्वारा संदर्भित पत्र द्वारा अनुमोदन प्रदान किया गया है। पत्र की छायाप्रति संलग्न है।

संलग्न: उपरोक्तानुसार।

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पृ.क्रमांक/व.त.अ.-II/रिसर्च/ 1426 भोपाल, दिनांक: 15-2-2024

प्रतिलिपि :

1. अति. वन महानिदेशक (बाघ परियोजना) एवं सदस्य सचिव, राष्ट्रीय बाघ संरक्षण प्राधिकरण, भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, बी-1 विंग, सातवां तल, पं. दीनदयाल अंत्योदय भवन, सी.जी.ओ. कॉम्प्लेक्स, लोधी रोड, नई दिल्ली-110003 की ओर सूचनार्थ प्रेषित।

2. प्रधान मुख्य वन संरक्षक (अनुसंधान/विस्तार एवं लोक वानिकी), मध्यप्रदेश, वन भवन, लिंक रोड नम्बर-2, तुलसी नगर, भोपाल की ओर सूचनार्थ प्रेषित।
3. मुख्य वन संरक्षक, वनवृत्त नर्मदापुरम/रीवा, मध्यप्रदेश की ओर सूचनार्थ प्रेषित।
4. क्षेत्र संचालक, सतपुड़ा/संजय टाइगर रिजर्व, मध्यप्रदेश की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
5. Shri Hamza Nadeem Farooqui, (Researcher), School of Wildlife Forensic and Health, Nanaji Deshmukh Veterinary Science University, South Civil Lines, Jabalpur-482001, Madhya Pradesh की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित। (E-mail: hamza.nadeem.h3w@gmail.com)
6. Dr. Parag Nigam, Scientist G & PI, SDTR Gaur Monitoring Project, Wildlife Institute of India, P.O.18, Chandrabani, Dehradun-248001, Uttrakhand की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
(E-mail: nigamp@wii.gov.in)

प्रभारी, प्रधान मुख्य वन संरक्षक (वन्यप्राणी),
मध्यप्रदेश, भोपाल

भारत सरकार
Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण
National Tiger Conservation Authority

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F. No. 15-30(5)/2023-NTCA **New Delhi, the January 17, 2024**

To,

The Chief Wildlife Warden
Madhya Pradesh

Sub.: Concept proposal on studying Cortisol level in Gaur under the MPFD-WII Collaborative project titled "Establishment of Gaur (*Bos gaurus gaurus*) in Sanjay Tiger Reserve, Madhya Pradesh" -reg.

Ref.: Your letter no. Kramank/Ma. Chi. -II/Research/8613 dated 29.09.2023

Sir,

Reference is invited to the subject and correspondence cited above. In this context, I am directed to inform that the proposal submitted vide reference cited has been accorded approval by the Technical Committee of this Authority.

Yours faithfully,

(Dr. Vaibhav C. Mathur)
Deputy Inspector General (NTCA)
E-Mail Id: dig1-ntca@nic.in
Tel. (EPABX): + 91 11 24367837-39

Copy to:

1.The Field Director, Sanjay Dubri Tiger Reserve, Madhya Pradesh

बी–१ विंग, सातवां तल, पं. दीनदयाल अंत्योदय भवन, सी.जी.ओ. कॉम्प्लेक्स, लोधी रोड, नई दिल्ली ११०००३
B-1 Wing, 7th Floor, Pt. Deendayal Antyodaya Bhawan, CGO Complex, Lodhi Road, New Delhi – 110003
Tel. No. +91 11 2436 7837-39, Fax: +91 11 2436 7836

कार्यालय प्रधान मुख्य वन संरक्षक (वन्यप्राणी), मध्यप्रदेश

भू-तल, सी-ब्लॉक, वन विभाग, लिंक रोड नम्बर-2, तुलसी नगर, भोपाल
दूरभाष : 0755-2674318, 2674337, फैक्स : 0755-2766315
E-mail : pccfwl@mp.gov.in

क्रमांक/मा.चि.-II/रिसर्च/ 3613 भोपाल, दिनांक: 29.9.2023

प्रति,

Shri Hamza Nadeem Farooqui,
(Researcher),
School of Wildlife Forensic and Health,
Nanaji Deshmukh Veterinary Science University,
South Civil Lines, Jabalpur-482001,
Madhya Pradesh.
(E-mail: hamza.nadeem.h3w@gmail.com)

विषय : **Concept proposal on studying Cortisol level in Gaur under the MPFD-WII Collaborative project titled- "Establishment of Gaur (Bos gaurus gaurus) in Sanjay Tiger Reserve, Madhya Pradesh": Reg.**

संदर्भ : Dr. Shobha Jawre, Director, School of Wildlife Forensic and Health, Nanaji Deshmukh Veterinary Science University, Jabalpur, M.P. का पत्र क्रमांक/629/ SWFH/Communications/NDVSU/2023 दिनांक 08.08.2023 एवं Dr. Parag Nigam, Scientist G & PI, SDTR Gaur Monitoring Project, Wildlife Institute of India, Dehradun का पत्र क्रमांक/WHIM/VET/401/ Gaur-STR दिनांक 07.08.2023.

—00—

उपरोक्त विषय में प्राप्त अनुसंधान/अध्ययन प्रस्ताव अनुसार मध्यप्रदेश के सतपुड़ा एवं संजय टाइगर रिजर्व के अंतर्गत क्षेत्रों में अनुसंधान प्रस्ताव Title -"Assessing the Physiological stress in Gaur During Translocation" हेतु Gaur (Bos gaurus gaurus) के Faecal Samples एकत्रित कर अध्ययन कार्य की माह सितम्बर-2023 से माह मार्च-2024 तक की अवधि के लिए वन्यजीव (संरक्षण) अधिनियम, 1972 की धारा 28 (1) (a),(c) एवं मध्यप्रदेश-नियम, 1974 के नियम 35 के अंतर्गत निम्नलिखित शर्तों के अधीन अनुमति प्रदान की जाती है।

अनुसंधान/अध्ययन में वन्यप्राणी को किसी भी प्रकार से पकड़ा (Capture) नहीं जावेगा। Gaur (Bos gaurus gaurus) के Faecal Samples आवश्यकतानुसार अल्प मात्रा में केवल Opportunistic Sampling के आधार पर एकत्रित किये जावेगे।

शर्तों का विवरण:

1. शोध परियोजना को समस्त शुल्कों तथा शासकीय सुविधाओं जैसे भवन, वाहन, हाथी आदि का उपयोग करने पर निर्धारित शुल्क का भुगतान करना होगा।
2. शोधार्थी एवं उसके सहायको द्वारा संरक्षित क्षेत्र के भीतर अपनी सारी गतिविधियों को लॉगबुक में संधारित किया जाएगा तथा उसे प्रत्येक माह संरक्षित क्षेत्र प्रबंधन/क्षेत्र संचालक/वनमंडलाधिकारी को प्रस्तुत किया जाएगा।
3. वन अग्नि अथवा अन्य अवैध गतिविधियों की जानकारी मिलने पर शोधार्थी एवं उसके कर्मचारियों द्वारा स्थानीय अधिकारियों को तत्काल सूचित किया जावेगा।
4. शोधार्थी द्वारा संरक्षित क्षेत्र प्रबंधन के मुद्दो को मीडिया अथवा बाहरी संस्थाओं से विचार-विमर्श नहीं किया जाएगा। ऐसे किसी भी विषयों पर अपनी राय वह क्षेत्र संचालक/

वनमंडलाधिकारी अथवा मुख्य वन्यप्राणी अभिरक्षक को व्यक्तिगत रूप से अथवा लिखित में प्रस्तुत करेगा।

5. क्षेत्र संचालक/वनमंडलाधिकारी द्वारा वनक्षेत्रपाल से अनिम्न स्तर के अधिकारी को परियोजना के लिये सम्पर्क अधिकारी नियुक्त किया जाएगा। शोध दल अपनी प्रत्येक गतिविधि/क्रियाकलाप के संबंध में सम्पर्क अधिकारी से चर्चा करेगा एवं सूचना देगा तथा उसे समस्त महत्वपूर्ण घटनाओं एवं प्रगति से अवगत कराएगा।
6. शोध परियोजना हेतु आने वाले समस्त आगंतुक जिसमें अन्य वैज्ञानिक एवं छात्र भी सम्मिलित है, क्षेत्र संचालक/वनमंडलाधिकारी की अनुमति उपरांत ही परियोजना क्षेत्र का भ्रमण कर पाएंगे।
7. क्षेत्र संचालक/वनमंडलाधिकारी किन्ही स्थानीय परिस्थितियों जैसे मौसम, अध्ययनित क्षेत्र में वन्यप्राणी के घायल होने पर, जनसामान्य को खतरा होने पर आदि परिस्थितियों में मुख्य वन्यप्राणी अभिरक्षक को सूचित करते हुये शोधार्थी की गतिविधियो/क्रियाकलापों पर सीमा बंधन लगा सकेंगे।
8. शोध अनुमति की शर्तो का उल्लंघन किये जाने पर अनुमति निरस्त की जा सकेगी। क्षेत्र संचालक/वनमंडलाधिकारी को यह अधिकार होगा कि विशिष्ट परिस्थितियों में पर्याप्त कारण होने पर वह शोध कार्यो को निलंबित कर सके एवं मुख्य वन्यप्राणी अभिरक्षक से तत्संबंध में मार्गदर्शन प्राप्त कर संशोधन उपरांत शोध की निरंतरता बनाये रख सके।
9. जब तक अन्यथा निर्दिष्ट न किया जाए शोध कार्यो के परिणामस्वरूप बने कोई व्यवसायिक उत्पाद विशेषकर वीडियो एवं चलचित्र मध्यप्रदेश वन विभाग एवं संस्थान की संयुक्त संपति होगी।
10. शोध परियोजना हेतु निर्मित कोई भी स्थाई तथा अचल परिसम्पतियां परियोजना समाप्ति उपरांत वन विभाग को बिना कोई शुल्क लिये हस्तांतरित की जाएगी।
11. मध्यप्रदेश वन विभाग तथा संस्थान के द्वारा संयुक्त रूप से शोध कार्य की प्रगति की मध्यावधि समीक्षा यह ज्ञात करने के लिए की जाएगी कि शोध अनुमति की शर्तो का पालन किया जा रहा है अथवा नहीं।
12. परस्पर अनुकूल तिथि पर, शोधार्थी एवं मुख्य अन्वेषणकर्ता द्वारा शोध कार्य की प्रगति, इसकी उपलब्धिया, कठिनाइयां एवं भविष्य की रणनीति पर प्रस्तुतीकरण दिया जाएगा।
13. अनुसंधान/अध्ययन में किसी भी वन्यप्राणी को किसी भी प्रकार से पकड़ा (Capture) नहीं जावेगा।
14. अनुसंधान के दौरान पेड़ पौधों को किसी भी प्रकार से तोड़ा नहीं जाएगा, कोई क्षति नहीं पहुंचायी जाएगी। किसी भी पेड़ पौधों के किसी भी प्रकार के नमूने एकत्रित नहीं किये जावेगे।
15. अनुसंधान/अध्ययन कार्यो में किसी भी विदेशी नागरिक को शामिल नहीं किया जावेगा।
16. अनुसंधान/अध्ययन के परिणामों एवं निष्कर्षो को व्यवसायिक उद्देश्यों (Commercial Purposes) के लिये उपयोग में नहीं लिया जावेगा। अनुसंधान के परिणामों एवं निष्कर्षो को विदेशों में हस्तांतरित नहीं किया जावेगा।

यह अनुसंधान/अध्ययन कार्य Shri Hamza Nadeem Farooqui (Researcher), School of Wildlife Forensic and Health, Nanaji Deshmukh Veterinary Science University,

Jabalpur, Madhya Pradesh के द्वारा Dr. Nidhi Rajput, Assistant Professor, School of Wildlife Forensic and Health, Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh के मार्गदर्शन में किया जावेगा।

अनुसंधान/अध्ययन के दौरान वन्यजीव (संरक्षण) अधिनियम, 1972 एवं संशोधित वन्यजीव (संरक्षण) अधिनियम, 2022 के प्रावधानों एवं शर्तों का कड़ाई से पालन किया जावे। नियमों का उल्लंघन पाये जाने पर अनुमति निरस्त कर दी जावेगी। उक्त अनुसंधान/ अध्ययन अवधि के लिये अध्ययन दल के सदस्यों को क्षेत्र संचालक/वनमंडलाधिकारी परिचय पत्र जारी करेंगे। अध्ययन कार्य समाप्ति के पश्चात् अध्ययन प्रतिवेदन अंतिम रूप से इस कार्यालय को एवं संबंधित क्षेत्र संचालक/वनमंडलाधिकारी को प्रेषित किया जाना सुनिश्चित करें।

(डॉ. अतुल कुमार श्रीवास्तव)
मुख्य वन्यप्राणी अभिरक्षक एवं
प्रधान मुख्य वन संरक्षक (वन्यप्राणी), म.प्र.

पृ.क्रमांक/मा.चि.-II/रिसर्च/ 8614 भोपाल, दिनांक: 29.9.2023

प्रतिलिपि :

1. अति. वन महानिदेशक (बाघ परियोजना) एवं सदस्य सचिव, राष्ट्रीय बाघ संरक्षण प्राधिकरण, भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,बी-1 विंग, सातवां तल, पं. दीनदयाल अंत्योदय भवन, सी.जी.ओ. कॉम्प्लेक्स, लोधी रोड, नई दिल्ली-110003 की ओर सूचनार्थ प्रेषित।
2. प्रधान मुख्य वन संरक्षक (अनुसंधान/विस्तार एवं लोक वानिकी), मध्यप्रदेश, सतपुड़ा भवन, भोपाल की ओर सूचनार्थ प्रेषित।
3. मुख्य वन संरक्षक, वनवृत्त नर्मदापुरम/रीवा, मध्यप्रदेश की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
4. क्षेत्र संचालक, सतपुड़ा/संजय टाइगर रिजर्व, मध्यप्रदेश की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

   कृपया अनुमति में अधिरोपित शर्तों का पालन कराया जाना सुनिश्चित करें। अध्ययनकर्ता को आवश्यक सहयोग प्रदान करें एवं अध्ययन दल में सम्मिलित रिसर्च फेलो को फोटोयुक्त पहचान पत्र जारी करें।

   अनुसंधान/अध्ययन के दौरान वन्यजीव (संरक्षण) अधिनियम, 1972 एवं संशोधित वन्यजीव (संरक्षण) अधिनियम, 2022 के प्रावधानों एवं शर्तों का कड़ाई से पालन कराया जाना सुनिश्चित करें।
5. Dr. Shobha Jawre, Director, School of Wildlife Forensic and Health, Nanaji Deshmukh Veterinary Science University, South Civil Lines, Jabalpur-482001, Madhya Pradesh की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित। (E-mail: directorswfh@gmail.com)
6. Dr. Parag Nigam, Scientist G & PI, SDTR Gaur Monitoring Project, Wildlife Institute of India, P.O.18, Chandrabani, Dehradun-248001, Uttrakhand की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

मुख्य वन्यप्राणी अभिरक्षक एवं
प्रधान मुख्य वन संरक्षक (वन्यप्राणी), म.प्र.

GAUR
REINTRODUCTION
SANJAY TIGER RESERVE

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Principal Chief Conservator of Forest (Wildlife) & Chief Wildlife Warden
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