

# 大学院教育支援機構（DoGS）海外渡航助成金 報告書

## Outcome report

計画名 Plan	Exploring empathy in free-ranging Asian elephants
氏名 Name	Ana Sofia Penteado Vilela
研究科・専攻・学年 Graduate school/Division/Year level	Graduate School of Science, Division of Biological Science, 3 <sup>rd</sup> year Doctoral Course
渡航国 Country	Republic of India
渡航日程 Travel schedule	年 14 月 11 日 2023 ~ 年 16 月 08 日 2024

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### 渡航計画の概要 Outline of the travel plan

The purpose of the travel was to carry out field work for the development of my Doctoral research project at the Wildlife Research Center, Kyoto University, Japan.

During my studies, I am investigating the social behavior of Asian elephants at Bandipur National Park in India (fig.1) under supervision of Professor Shinya Yamamoto from Kyoto University along with Professor Raman Sukumar from the Indian Institute of Science as collaborative advisor.

Are elephants sensitive to others' emotions? Do they show concern for others?

To answer these questions, we most likely think about the spectrum of empathy which is often referred as "putting oneself in others' shoes". I am particularly interested in exploring this in Asian elephants taking into account their socio-ecological contexts. Hence, I intend to assess social patterns during conflicts and examine them in the light of empathy-related phenomena. For this, a sufficient behavioral dataset on free-ranging elephants is a primary requirement for the progress of the project.



**Figure 1** – Iset, Siddharth and Carlota in the field site in Bandipur National Park, South India.

Therefore, this travel had two main goals:

1. To finalize behavioral data collection on free-ranging Asian elephants;
2. To collaborate with Prof. Raman Sukumar and his team at the Indian Institute of Science.

### 成果 Outcome

Globally, the present travel was fruitful on a range of components having a direct and positive impact on the effectiveness to conduct the research project.

#### Field work: data collection

Data collection was carried out through behavioral observations on free-ranging elephants at Gundre range, Bandipur National Park, India. Given that it is a wild population, the first step of every field day is to search for the elephants. After encounters, behavioral data focused on social interactions was recorded using video-recording and hand-written field notes (fig.2) by keeping a safe distance from the observation subjects.

In addition, photographs were taken and used to cross-check among observations in order to perform identification of individuals. For this task, recognizable features such as shape of tails, marks on the ears, depigmentation and any other distinct body characteristics were used to recognize and create identifications for the elephants observed.



**Figure 2** – Behavioral observations focused on social interactions were performed on free-ranging elephants from the jeep.

Overall, during this field season 393h of data was collected over 282 observation occurrences. Additionally, 60 elephants were identified and names were assigned to each individual.

The outcome of this field season will complement the previous field data collection performed in 2023, originating a total of 507h of data collected through 366 observation occurrences and 105 elephants identified. Thus, the foremost goal of my travel was successfully accomplished by gathering data to proceed with my research project.

### Stay at the Indian Institute of Science: scientific guidance and competence development

Being a research scholar at Prof. Raman Sukumar’s lab, Centre for Ecological Sciences, Indian Institute of Science, was a treasured opportunity to gain personal and professional competences. I had the chance to receive guidance on my research and to join insightful scientific discussions with other students and researchers. Specifically, during this period, I worked on my research plan, methodological approaches and databases. This was an enriching experience for significant learnings as well as to improve research skills which are essential aspects for the proper conclusion of my own project at Kyoto University.



**Figure 3** – Indian Institute of Science in Bangalore, India.

### Conference Attendance: learning and social networking

Additionally, I also had the chance to attend the “International Conference on Human-Elephant Conflict Management 2024” on August 12<sup>th</sup> held in Bangalore, India (fig.4). During this event, I gained firsthand insights into the current challenges being faced, particularly concerning human-elephant conflict, as well as the ongoing work and efforts being implemented. I learned not only about elephant behavior and ecology, but also about management and conservation-related matters involving elephant research.

Furthermore, this conference was a valuable opportunity to meet and connect to inspiring researchers in the research area!



**Figure 4** – International Conference on Human-Elephant Conflict Management 2024, Bangalore.

## 今後の展望 Prospects for the future

This research travel was a crucial phase for the development of my Doctoral research project. The next steps involve finishing the processing of the collected data, followed by data analysis in order to obtain the results. I expect to publish the findings in peer-reviewed journals. The short-term milestone is the completion of the Doctoral program at the Kyoto University.

I intend to continue my learning journey, attaining research skills and acquiring knowledge on elephant behavior, cognition and ecology. In the future, it is my great aspiration to follow a scientific path. I would like to explore the depths of non-human minds and emotion sphere from a holistic viewpoint. I hope that, along the way, I will be able to give my contribution to fostering a more harmonious bond with our non-human neighbors in this world.