

Research Activity Report
Supported by “Leading Graduate Program in Primatology and Wildlife Science”
(Please be sure to submit this report after the trip that supported by PWS.)

2024 11, 11	
Affiliation/Position	Wildlife Research Center/M1
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1. Country/location of visit
Chubu University Training Centre (Ena City)
2. Research project
Basic Skills for Field Biology course for M1 students
3. Date (departing from/returning to Japan)
2024. 11. 06 – 2024. 11. 08 (3 days)
4. Main host researcher and affiliation
Prof. Ikki Matsuda, WRC, Kyoto University & Dr. Sugita Satoru, Chubu University
5. Progress and results of your research/activity (You can attach extra pages if needed)
Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description.
Field Trip Report: Basic Skills for Field Biology Training Course
<p>Aim of the Course: This course aimed to introduce students to foundational skills in drone technology and Geographic Information Systems (GIS) with a focus on their applications in field biology.</p> <p>(1) Classroom Lecture Sessions The training began with a comprehensive lecture by Dr. Sugita, who introduced drone technology and reviewed Japan's regulatory framework for drone use. He emphasized the importance of safety, and highlighted the Civil Aviation Law of Japan, which mandates regulations such as flight height restrictions, permit requirements, and safety protocols—especially critical when operating drones near populated or protected areas.</p> <p>A key takeaway for me in this session was the responsibility placed on drone pilots to be well-versed in both their equipment and relevant geographical knowledge to ensure safe operation.</p> <p>On the second day, Dr. Sugita explained the technical aspects of drone functionality and components. He explained the mechanisms behind manual and automated flights, highlighting how drones use various communication systems, including infrared sensors and radio waves, to detect obstacles and avoid collisions. He mentioned that advanced safety features like gimbals and GPS systems helped to maintain smooth flight. He also recommended always working with an assistant to help monitor flights for optimal safety.</p> <p>To make it more practical, we conducted an indoor flight test using lightweight drones (approximately 100 grams), which, due to their low weight, were exempt from strict regulations.</p> <p>The session also introduced us to specialized software such as Agisoft Metashape, a tool which can be used in wildlife research to create 3D models of images from study sites. This software can be instrumental in generating accurate visual representations for habitat assessment, monitoring population densities, and tracking changes in the landscape over time.</p> <p>(2) Drone Piloting Practical Sessions (Outdoor) The afternoon sessions were dedicated to outdoor practical exercises, where we formed teams and operated drones on the designated field. Our team used the Phantom 4 Pro V2.0, allowing us to experience the thrill of flying an actual drone in an outdoor setting. We practiced flying the drone at various altitudes—100m, 120m, and 150m—capturing landscape images at each level.</p>

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Dr. Sugita introduced us to critical safety features in drone operation, such as the "return-to-home" function, which automatically directs the drone back to its point of takeoff or a designated location, a function which is useful in cases of signal loss, low battery, or bad weather. We also learned about common hazards, including strong winds, signal interference, and potential collisions with birds, and discussed measures to prevent such incidents.

An additional focus of the practical session was on designing automated flight plans. Using geofencing software, we set specific flight boundaries and programmed the drone to capture images at designated locations, altitudes, and paths. It was such an interesting experience.



**Fig.1 Aerial view of Chubu university field
by taken drone**



**Fig.2 Students in a photo session
with Dr. Sugita**

Day 3: Applications of Drone Technology in Japan

The final day included a discussion on the broader applications of drone technology especially within Japan. Dr. Sugita outlined various scenarios where drones have proven invaluable, particularly in disaster management and emergency response. For example, drones are deployed to survey disaster-affected areas, assist in search and rescue missions, and create detailed maps for real-time situation assessments.

In wildlife research, drones are being used to monitor species behavior and populations from a variety of angles and distances, providing data that informs conservation and management practices. An added advantage is that drone technology minimizes human disturbance (proximity) and opens new possibilities for studying wildlife in their natural habitats, while offering valuable insights for long-term conservation strategies.



**Fig.3 Students flying indoor drone
(100g drone)**



**Fig.4 Students navigating drone
software- DJI Pro**

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Conclusion:

This training course me offered an in-depth understanding of drone technology and GIS applications in field biology, blending theory with practical experience. There was much emphasis raised about the importance of safety, legal knowledge, and technical skills, while the hands-on sessions provided us with essential piloting skills.

These insights will be instrumental in enhancing my research and personally improving my photography skills.



Fig.5 Final Group photo session

6. Others

Acknowledgement

- I want to extend my gratitude to Professor Ikki Matsuda and Dr. Sugita Satoru for the knowledge imparted during the course of the training.
- I want to appreciation to the PWS team and the WRC team for making this experience a possibility.
- Finally, a big thank you to all my Fellow M1 students who made the experience an unforgettable one.