List of Dissertation Abstract　（Department of Natural Environment）

Name	Supervisor	Title	Abstract
Ohira　Atsuko	Nakamori Taizo	Taxonomic Studies on Neanuridae (Collembola)	The identity of the generic type species *Crossodonthina nipponica* is unclear because the original description lacks detail and the redescriptions from different localities are inconsistent. In this study, *C. nipponica* was redescribed based on specimens collected in the type locality. Also, *Crossodonthina laterisensillata* sp. nov. is described from Iriomote Island, Japan.
Fatema　Umme Kaniz	Matsuda Hiroyuki	Effectiveness of Sustainability Indicators in Shrimp Fisheries with Bycatch and in Aquaculture	We conducted the study focuses on the effectiveness of sustainability indicators in both marine fisheries such as shrimp fisheries with its bycatch and in marine aquaculture such as Coho Salmon, Red Sea Bream, Yellowtail, and Bluefin Tuna aquaculture. To determine the sustainability of marine fisheries, we used productivity susceptibility analysis, which is widely applicable semi-quantitative ecological risk assessment tool for data-limited fisheries based on the available species-specific biological, and fishery-specific characteristics. Concurrently, we used simple indicators to the evaluation of sustainability in data-limited marine aquaculture based on the aquaculture production, nutrient load produced in aquaculture farms, and location of the farms in enclosed bays.

Matsumoto Takumi	Ishikawa Masahiro	A study on the distribution of crustal heat flow in the Japanese Islands and the thermal structure of Northeastern Japan	This study measured crustal heat flow at wells in Japan to obtain a new dataset of high-density crustal heat flow uniformly distributed over the land area. The data shows a low global distribution of crustal heat flow on the frontal arc side and high on the dorsal arc side of the volcanic front. Additionally, the study constructed a higher density and more precise crustal heat flow dataset to clarify the subsurface heat structure in northeastern Japan. The obtained spatial distribution of heat flow shows low heat flow on the forearc side, high heat flow along the Ou Backbone Range, and low heat flow in the plains on the back-arc side. A crustal temperature structure model was also developed, which shows a good correlation with the lower limit of the seismogenic layer.
Akutsu Keiji	Oikawa Hiroki	Toward sustainable conservation of biodiversity on private land: A comparative study on institutional design of conservation agreements with landowners	Although an agreement-based approach seems practical in private land conservation performed by landowners, public bodies and NGOs, in Japan, related programs or institutions are scattered across traditional administrational segments, and besides, areas under some programs have begun to shrink as the participants drop the renewal of agreement. In contrast, a long-standing or recently renovated programs of conservation agreement (covenant) with a variety of support to landowners including economic incentives are seen in New Zealand and New South Wales (Australia). Through the comparative analysis, this research draws insights on the importance of designing sustainability in institutional establishment as well as management.

Iwachido Yuki	Sasaki Takehiro	Local and landscape drivers of plant diversity and composition in urban greenspaces	To mitigate the urbanization effects of landscape factors, such as habitat fragmentation caused by urbanization, and local factors, such as human-induced disturbance, on biodiversity, it is imperative to comprehend the relative importance of these factors and address associated conservation issues. This study investigates plant communities in urban greenspaces within the Tokyo metropolitan area and demonstrates that the relative importance of each factor varies with urbanization, and that developing new green spaces to mitigate landscape factor and new usage of green space to mitigate local factors are effective conservation strategies. These findings highlight the importance of considering both local and landscape in the urban biodiversity conservation.
Suzuki Kureha	Sasaki Takehiro	Reconsidering the role of plantations in ecosystem structure, composition, and dynamics toward ecosystem-based forest restoration	Restoring forests has recently received considerable attention. The potential of simple plantations, which are still one of the major schemes for reforestation activities, in fostering natural regeneration has not yet been well tested. In this study, I evaluated the potential role of existing plantations in contributing to natural forest restoration in Shiretoko, Japan. Specifically, I assessed whether naturally regenerating forests can be sustained in plantations from the perspective of forest structure, composition, and dynamics by combining vegetation inventory, remote sensing, and simulation model. In the short term, a positive relationship between larch monoculture plantations and the growth and regeneration of native trees was found, though larch is an alien species in the study site. The long-term restoration potential of plantations differed among the combinations of planted tree species and planting densities. In sum, the study highlights the importance of evaluating the restoration potential of plantations, including planted tree species and planting densities, as well as species-specific traits. It concludes that managers need to be aware of the context-dependency of plantations of single species or alien species to make restoration more effective, especially in areas where they have already been established.

| Watanabe Akira | Matsuda Hiroyuki | Adaptive management in population ecology: Cases of COVID-19 and Japanese sardine (*Sardinops melanostictus*) | The objective of my dissertation is to use adaptive management to make reasonable decisions and strategies for public issues with uncertainty. In particular, the paper focuses on the control of infectious disease caused by the novel coronavirus and the fishery management of the Pacific stock of Japanese sardine, an important small pelagic fish stock. The key points in common between the two areas are that mathematical models have some power to deal with highly uncertain problems, that there are decision-making systems that can adapt to new knowledge as it becomes available, and that there are systems to monitor trends in the number of people infected with the virus and in the abundance of fish stocks. |