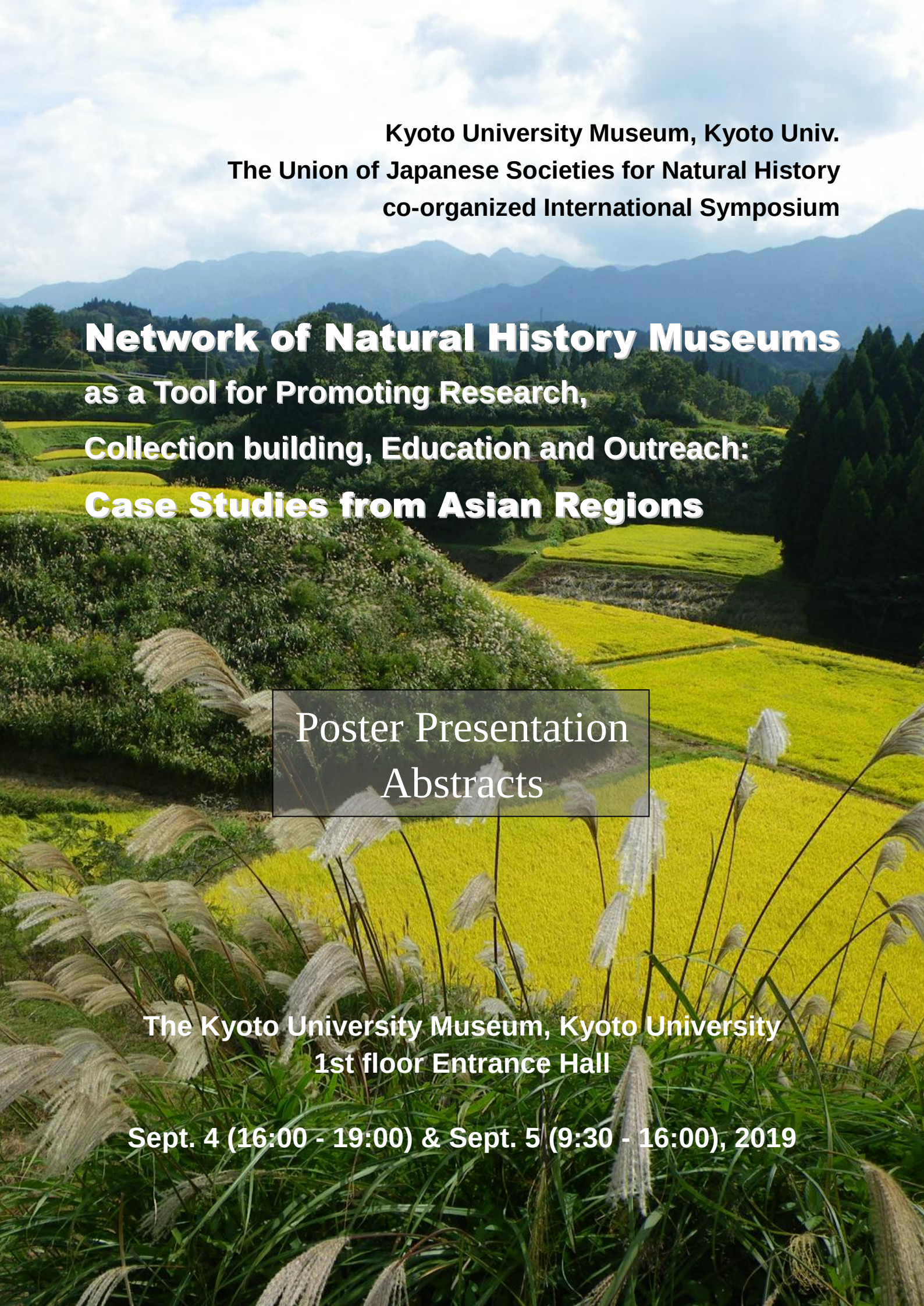

Kyoto University Museum, Kyoto Univ.
The Union of Japanese Societies for Natural History
co-organized International Symposium

Network of Natural History Museums as a Tool for Promoting Research, Collection building, Education and Outreach: Case Studies from Asian Regions

Poster Presentation Abstracts

The Kyoto University Museum, Kyoto University
1st floor Entrance Hall

Sept. 4 (16:00 - 19:00) & Sept. 5 (9:30 - 16:00), 2019

Note: Posters can be posted from 11am, September 4. Please display your posters by 2pm, September 4, and remove them by 4:30pm, September 5.

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P-1

Outreach activities collaborated with young researchers -The significance of sharing uncompleted research output on public

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Key words: outreach activity, incomplete output, young researchers

Eizaburo Nishibori Memorial Explorer Museum locates in Higashi-omi City, Shiga Prefecture. The museum features Eizaburo Nishibori who is known as the leader of the 1st Japanese Antarctic Research Expedition and other Japanese 50 explorers. We consider that exploring is “seeking” and “searching” from meanings of Kanji characters, and this activity is familiar with researchers’ practice. After exploring, explorers as well as researchers should share outputs for the community. However, we can hardly say we have enough opportunity to give research outputs back to a community especially for young incomplete researchers. Then we tried make the museum a place of sharing incomplete results by young researchers and interaction with residents. Last March, 2 young researchers exhibited their incomplete results and research framework on Echi River which flows Higashi-omi City for one month and appeared on chat show for 2 days. We are reporting this experimental collaborative work and the created network.

P-2

Toward building a museum network in East Asia with the theme of Naumann elephant

Yoichi KONDO

Nojiriko Museum

Key words: Naumann elephant, a museum network in East Asia, endemic species

A family of Naumann elephant is an elephant that has evolved into the Japanese archipelago while expanding its distribution to East Asia. There are many fossil materials in natural history museums such as China and Taiwan, but the actual state of the collection materials has not been grasped. From now on, it is expected that by establishing an international museum network and sharing the space-time distribution data of Naumann elephant, it will be possible to elucidate the evolutionary process leading to endemic species.

P-3

An adhesive bonding aquariums, universities, museums and schools together. Aquarium symposiums at Atmosphere and Ocean Research Institute, The University of Tokyo.

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Key words: Aquarium, Research network building, Symposium

Aquarium symposium were held every other year at Atmosphere and Ocean Research Institute(AORI), the University of Tokyo since 2005. The aim of these symposia was to provide an open, multi-disciplinary stage, where researchers from various fields related to aquatic organisms and aquariums get together and interact. Each symposium had a different theme comprised of invited key note presentations, selected oral presentations and poster presentations. 2005: Research at aquariums. 2007: Environmental issues and aquariums. 2009: Research and education on aquatic organisms at aquariums. 2011: Biodiversity and aquariums. 2013: Collaborated research with aquariums. 2015: Animal ethology and aquariums. 2017: Exhibit and research at aquariums. 2019(in preparation): Education and outreach at aquariums.
Each symposium attracted more than 100 participants, from aquariums, universities, museums, related research institutions and schools, making it one of the largest symposia held at AORI. With a long history and large turnout, this series of symposia has met its goal as an adhesive to bond people of different discipline and affiliation together. A prime achievement of the symposia are the two publications. “Work at Aquariums” and “Research Activities at Aquariums”. The next symposium will be in December 2019. We expect your participation.

P-4

The phylogenetic analysis of genus Gekko in China and South East Asia

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Key words: genus Gekko, Phylogeny, China, South East Asia, Molecular

The Gekkonid lizard in China, possessing high diversity and also include the China specific species, is a good material to study the formation of biodiversity. However, must of the research in the past did not explain the relationships of these species between China area and Southeast Asia area separately, neither of them focus on the relationship of Gekko species between China and Southeast Asia. Furthermore, they do not include enough samples and sequences from
China and fail to reveal the relationship between the groups inside Gekko genus. Some of the structure of their phylogenetic tree is problematic. My aim is to conduct the field work in wide area in China, Laos and Vietnam and reconstruct the phylogeny tree. After doing so, we could figure out the divergence time and know the evolution pattern of the genus.

P-5

Interdisciplinary collaboration of 'Japanese Society for DNA Polymorphism Research' in Japan

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Key words: Interdisciplinary interaction, DNA polymorphism, Career support

Japanese Society for DNA Polymorphism Research (JSDPR) was established in 1995. At first, members of JSDPR focused mainly on human identification based on DNA polymorphism, but fields soon expanded to other organisms, such as animals, plants and marine organisms. JSDR has grown into a truly interdisciplinary society, unlike any other.

During the annual meeting, society members enjoy a fruitful and stimulating discussion with DNA as a common language. This is done in an open and friendly interdisciplinary atmosphere, comprised of researchers from various fields. JSDPR has its focus on career support of its members. When you present in an annual meeting of JSDPR, the proceedings of your presentation would be published in an academic journal, 'DNA polymorphism'. In addition, JSDPR presents two academic awards: one is Award for Outstanding Research and the other is Award for Young Scientists. JSDPR also promotes gender equality of scientists as well.

This year the annual meeting will be held in KYOTO! We plan to hold a symposium in Kyoto city zoo on 27th November. We hope you join us and attend the meeting.

P-6

Collection of fish tissue specimens for molecular analysis in museums and examples of utilization

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Key words: Tissue specimen, Molecular analysis, Museum collection

In recent years, molecular analysis has become indispensable for the evolutionary research of various taxa. It is difficult in time and cost to collect fresh samples for molecular analysis at every research. Therefore, each museum is working on the collection and storage of tissue samples for molecular analysis as well as normal samples. In the case of Japanese fishes, tissue samples linked to registered specimens are mainly collected at each University Museum and the National Museum of Nature and Science. Of course, similar activities have been started in foreign museums, and it is possible to utilize the samples for research through a network of researchers.
The Kyoto University Museum has been collecting fish tissue specimens since the late 90's, and approximately 15,000 lots of samples for molecular analysis have been stored. Currently, we are promoting the creation of a database of such sample information and improvement of the storage environment. In this poster session, we introduce this approach along with a research case that actually utilizes them.

P-7

A 'rescue' operation for marine algal herbarium specimens of the Science Museum of Whale and Sea, Yamada Town, Japan, damaged by the 2011 Tohoku Tsunami

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Key words: herbarium specimens, marine algae, museums, rescue, tsunami

The Science Museum of Whale and Sea, Yamada Town, located on the Sanriku Coast of Iwate Prefecture, Japan, suffered serious damage from the gigantic tsunami after the huge earthquake on 11 March 2011. The powerful, muddy torrent destroyed the marine algal herbarium annex building and about 80,000 dried specimens were washed away. Although those specimens were salvaged from heaps of debris by the people of Yamada Town, it was impossible to restore and preserve such large quantities of specimens by themselves in the disaster area. So, the Yamada Town Board of Education requested a 'rescue' operation for algal specimens to the Iwate Prefectural Museum, Morioka. They, in turn, inquired about the method of restoring marine algal specimens to the National Museum of Nature and Science, Tsukuba. After their successful restoration, about 10,000 marine algal specimens have been kept in Morioka for over eight years, while 650 specimens that had been kept in Tsukuba were returned to Yamada Town on 15 June 2019. This 'rescue' operation for specimens gave the relationships between museums as a support network a deeper significance.

P-8

Asian vertebrate species diversity research network as multilateral research base

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Key words: Vertebrates, Netowork, Specimens, Asia

For the well understanding of Asian vertebrate species diversity, international collaboration and multilateral network is very important. As well, the developing the next generation to carry the future species diversity research is indispensable. In this report, we introduce the case activity of Asian vertebrate species diversity research network organized by the Kyoto University Museum, Kyoto University and JSPS Core-to-Core Program during 2011–2019. We conducted research collaboration, cooperative fieldworks, and exchange of museum specimens' information to facilitate the understanding of species diversity of Asian vertebrates, especially small mammals, reptiles, and amphibians. To enhance and develop the young researchers, international symposium and training workshops were organized every year at 9 Asian members' countries, previously held in China, Japan, Vietnam, Malaysia, Thailand, Indonesia, Myanmar, and Laos. In addition, graduate students and young researchers from Asian countries are invited to Kyoto University for at least 2 weeks, and collaborative research and research exchange were carried out since 2011, being provided good results not only for invited young researchers, but also for Japanese students. Along with the activities' introduction, the current achievement, challenges, and future direction will be discussed.

P-9

Insect Pinning Project in collaboration with Museum and University

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[1]Mie Prefectural Museum, [2]Mie University

Key words: collaboration with university, insect, pinning, specimen

Biological specimens are the definitive evidence that the organism was present at the time and place, and is indispensable for biological research. However, preparation of the specimen requires time and cost. Every specimen must be properly processed and must have label information such as when and where the specimen was collected. That's why many specimens are not always in a good condition.

The Shimaji-collection is a huge collection of insects collected in the Field Experimental Forest of Mie University (Commonly known as Hirakura Experimental Forest) during the period from 1966 to 1986, when he was an assistant professor of the Forest. Although the collection date and other information are recorded by Dr. Shimaji himself, the insects are not still pinning.

Mie Prefectural Museum, which owns this collection, has launched the ""Hirakura Insect Pinning Project"" in collaboration with Mie University. Citizens and students are currently working on the collection, and more than 2000 insects were already processed. The project aims to reveal a part of the insects that occurred in the Hirakura Experimental Forest at that time, which will be an invaluable material for estimating the insect fauna around Mie Prefecture of this period.

P-10

The local network of museums facilitating preparation and utilization of bird and mammal specimen

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Kanagawa Prefectural Museum of Natural History

Key words: local network, birds and mammal specimens, preparation and utilization

The mission of natural history museum is to record and store information of currently existing natural property as museum resources such as specimen, photograph and documents, for next generation.
Divisions in local museums managing bird and mammal specimens have faced difficulties in building collections, because of insufficient knowledge, technique and environment (e.g. space and equipment) for specimen preparation. Even in the institutions that have overcome these problems, they are suffering from understaffed condition to deal with accumulated samples.
By analyzing results of a questionnaire survey about collection, preparation and utilization of bird and mammal specimens targeted for 25 museums and related institutions, we summarized problems that these institutions are suffering. To solve problems in these institutions, we called for organizing a network for mutual benefit and held study meetings. In these meetings, we exchanged information that is necessary to activate this network as a place to communicate each other to develop museum collections and human resources. We report some important perspectives that we got in these meetings.

P-11

The "Mushroom Show" linking society and science

Kentaro HOSAKA

National Museum of Nature and Science

Key words: museum, exhibition, inventory, biodiversity, education

The “Mushroom Show” has been held annually at Tsukuba Botanical Garden, National Museum of Nature and Science (Tsukuba City, Japan) since 2009. As a special exhibition held at botanical garden/museum, one of the main aims is to promote mushroom science (mycology) to general public. As a result, during the 10-day period each year, more than 6,000 visitors enjoy diversity of mushrooms with special topics selected each year, e.g., lichens, yeasts, and comics and cartoons focusing on mushrooms. There is no doubt that the show has contributed significantly to understanding the importance and interests of scientific studies of mushrooms, but I would like to further promote scientific activities through outreach from the show. One of the possibilities is to conduct a large-scale monitoring of mushroom diversity by visitors during the show. The potential impact of the citizen-participatory biodiversity monitoring is discussed by comparing with our ongoing mushroom survey in the Tsukuba Botanical Garden, which is being performed by a limited number of participants.

P-12

Salvage and Restoration of Natural History Collections Damaged by the 2011 Tsunami in Japan

Mahoro SUZUKI[1] and 62 others*

[1]Iwate Prefectural Museum

Key words: emergency response, disaster preparedness, collections damaged in tsunami

On 11 March 2011, the Great East Japan Earthquake and the ensuing tsunami destroyed museums on the coasts of Iwate and Miyagi Prefectures in northern Japan. Hundreds of thousands of natural history specimens stored in the museums were washed away or severely damaged by the tsunami and had to be salvaged by museum staff.
Nationwide networks of curators, researchers and volunteers have been involved in salvaging, cleaning and restoring the specimens. We describe the procedures used in the salvage and restoration of the collections, and discuss emergency response and disaster preparedness in museums and museum networks.

*62 others: Y. Kato, H. Fujita, H. Takahashi, M. Mochida, A. Uchida, M. Yamazaki, K. Onimaru, Y. Shirosaka, S. Kawakami, Y. Abe, T. Kurosawa, A. Ebihara, M. Uzawa, Y. Mikanagi, T. Katsuyama, Y. Ohmori, K. Akiyama, S. Fujii, A. Hiruma, E. Hayasaka, M. Nakano, M. Ohta, N. Miura, S. Funato, D. Sakuma, T. Shiga, M. Hasegawa, S. Fuse, A. Naito, S. Kariyama, M. Inoue, S. Kobayashi, A. Kawamata, M. Ogawa, T. Manabe, M. Mishima, T. Arikawa, M. Ohara, S. Yamauchi, T. Nakamura, K. Umetsu, T. Kanasugi, K. Takahashi, Y. Ohshima, T. Kurihara, S. Miyano, M. Hasegawa, K. Shikata, H. Negoro, T. Iwasaki, N. Hibi, I. Kanazawa, S. Okuyama, S. Nagashima, S. Hirata, K. Yahiro, K. Masunaga, K. Ueda, M. Yamamoto, S. Ishida, C. Fujii, and M. Kumagai.

P-13

Why should we need to construct network among natural history museums on a global scale ?

Hiroshi KITAZATO

Tokyo University of Marine Science and Technology

Key words: network, natural history museum, global scale

Natural History is basic science that are observing, describing and understanding ambient natural environments and living creatures on Earth. Through viewpoints of natural histories, we are able to find how we live on Earth sustainably. Natural history museum is a frontal node for thinking about nature together with peoples on Earth. In this context, we need to sustain natural history museums as research, collection building, educational and outreach centers. However, single museum has limit of activities mainly due to human power and/or budget. For overcome these limits, we need to construct museum networks among natural history museums of both universities and communal levels. During the poster session of the UJSNH-Kyoto University Museum International Symposium, I would like to discuss how we are able to establish and manage natural history museums networks with peoples who come to visit our symposium. I welcome everybody who is interested in this topic.

P-14

Revisiting natural-history fish collections in museums from the perspective of parasitology

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Key words: Fish specimen; Parasite; Cymothoidae; Biodiversity

A growing body of knowledge on biodiversity suggests that more than a half of all extant species on the earth may be parasites; this is also easily supposed from the fact that there are no free-living organisms without parasites in the wild. Nevertheless, our understanding of biodiversity and ecology on parasites of various taxa has lagged far behind that of free-living groups.

Natural-history specimens in museums are recognized as important resources for taxonomy and natural-history study of the organisms, providing fundamental knowledge on biodiversity. Here, I introduce my recent attempt to revisit museum fish collections from the perspective of parasitology. I show that fish parasites (parasitic isopods) were often found within museum fish specimens and that these parasite specimens even provided new findings on the parasite taxonomy and ecology such as host specificity. These results suggest that comprehensive surveys beyond individual museums on parasites preserved within host specimens may promote an understanding of parasite biodiversity.

P-15

Difficulties in Multilingual Displays in Humanities Museums: examples of vocabulary used in fishmongers in Japan and South Korea

Riko SHIMADATE

Natural History Museum and Institute, Chiba

Key words: humanities museum multilingual Fish

It is considered difficult to implement multilingual displays in humanities museums. Fish, for instance, often have a scientific name and a common name, which are not necessarily the same. Although Japanese sardines, Japanese anchovies and Round herrings are generically called ‘iwashi’ in the Japanese language, for example, the Korean language has no equivalent word. Here we examine possible problems in implementing multilingual displays in humanities museums taking the labels used in fishmonger stands in Japan and South Korea as examples.

P-16

The Japan Paleobiology Database: A digital network cross-searching for paleontological specimen databases of different museums in Japan

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Key words: paleontology fossil specimen network database

The catalogs and databases are most effective means for conservation and reuse of the specimens in museums. These have been created by each museum in different data format and database system, which is hard to search collectively. One solution is the Japan Paleobiology Database (jPaleoDB; http://jpaleodb.org/), a portal website that cross-searches for paleontological specimens stored in different museums in Japan. In this system, the search results are directly linked to the museum webpage without being limited the format or the system so that users can easily check about each specimen in detail, i.e., the repository, locality, and literatures.
The mission of our project is to build network of paleontological specimens in Japan as a tool for research, education and collection building. In order to achieve the mission, we are promoting to digitize the catalogs and to create the databases for hidden paleontological collections.

P-17

Building natural history collections as a by-product of educational activities in the university

Masakazu ASAHARA

Aichi Gakuin University

Key words: Natural history, skeletal specimen, university, anatomical course

Natural history specimens are usually collected in the course of the research activities. On the other hand, in the course of some educational activities in the universities, wild animals are collected and used. For example, frog specimens are often used for the anatomy course for medical and dental students. These animals have usually been disposed after the use. However, they can be valuable natural history specimens because they are collected in the wild. Our laboratory uses hundreds of American bullfrogs (Rana catesbeiana) for our anatomy course each year. American bullfrog is an alien species introduced to many parts in Japan. Our frogs were caught in Lake Kasumigaura, Ibaraki, Japan, by a dealer of experimental animals. Since 2017, we started to prepare dry skeletal specimens from these animals. Now hundreds of specimens are deposited and started to use for several research projects. Our collection can be a good example of the effective utilization for experimental animals. In addition, such activities can form a collection of a species which naturalists have not been focused on.

P-18

Collaborative activities with a UNESCO Biosphare Reserve and Japanese National Geoparks: the case of the Gunma Museum of Natural History, Japan

Yuji TAKAKUWA, Takehiro OHMORI, Hisanari SUGAWARA, and Makoto MOTEKI

Gunma Museum of Natural History

Key words: Natural History Museum, Biosphare Reserve, Geopark, Collaboration

The Gunma Prefecture is an inland prefecture in Japan. It is located almost at the center of Honshu Island of Japanese archipelago. The prefecture is blessed with diverse natural environment based upon geographical feature. It varies from an alluvial plain to mountain area about 2000 meters in elongation. In 2017, the Minakami Town and three adjacent local governments were admitted to a member of UNESCO Biospere Reserve (Minakami UNESCO BR).

On the other hand, Shimonita National Geopark (Shimonita Town) joined to the Japanese Geoparks Network (JGN: Organization of Japanese National Geoparks and UNESCO Geoparks in Japan) in 2011. And, Asama North National Geopark (Tsumagoi Village and Naganohara Town) also became a member of JGN in 2016. Furthermore, “Arafune Cold Storage (wind cave)”, a geosite of the Shimonita National Geopark, also become a component of the World Heritage “Tomioka Silk Mill and related sites”. Additionally, three wetland areas in the prefecture registered to the Ramsar Convention on Wetlands.

The Gunma Museum of Natural History is established in 1996 in the Tomioka City. The museum is carrying out collaborative activities with various organizations. This presentation shows the outline of collaboration (scientific research, think tank, education and outreach) with BR and national geoparks.

P-19

Cross-reference system between museum specimens and the outcomes based on those specimens promotes open science in the natural history museums.

Wataru OHNISHI

Kanagawa Prefectural Museum of Natural History

Key words: citizen science, voucher specimens, cited references, collection database

Collections in the natural history museums are supporting various outputs. These outputs are brought many outcomes like exhibitions, published findings, educational programs, ...etc. These outcomes are based on museum specimens, the list of exhibits or the list of voucher specimens are usually provided in the exhibitions or the published findings. In contrast, original voucher specimens or their databases are without the list of the outcomes (ex. exhibitions, published findings) based on its specimens. Here, I propose the cross-reference database system between museum specimens and the outcomes based on those specimens. The cross-reference database system reveal the use of the specimens and its circuration. By revealing the use and circulation of the specimen and making this information available for public, scientists (not only professional researcher, but also non-professional citizens) are available to their own scientific use. The most important thing is there is a possibility to be widely visible to anyone, that specimens and those outcomes that were previously only known by experts collected in a particular context. Museum specimens available to study in multiple contexts are expected to promote open science. There are multiple challenges for introducing this system, basal and most important one is the understanding for curators.

P-20

Citizen participation to making outdoor exhibits

Kôzi HAYASI

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Key words: citizen participation outdoor exhibits

The Ecology Park of the Natural History Museum and Institute, Chiba is adjacent to the main museum building and located in Chiba City, Chiba Prefecture, central Japan.
This is a facility that reproduces and displays representative vegetation (forests and grasslands) in Chiba Prefecture, and for investigation and observation of plants and animals lived there.
In the park, we (curators / researchers) attached tree name boards to main trees and installed explanation / interpretation boards with a photograph to some plants or natural special events.
As a new attempt, explanation boards of a picture taken by visitors with their own short explanations were installed together. It is recommended to use 17 characters in Japanese for explanation, following “haiku”. In the case of other languages, they will be asked to make short poems that are divided into three lines according to international haiku conventions.
Regrettably, as one of staff, it seems that for many visitors, the compact explanation board with a picture and short explanations seems more attractive than the redundant explanations produced by staff members.
I hope that activities to lower the hurdles of citizen participation in museum activities will be attempted in museums and related facilities in various regions and countries.

P-21

Discovering Hidden diversity of Megophryid frog genus Megophrys in Sundaland

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Key words: biodiversity, conservation, cryptic taxa, Megophrys

The Megophryid frog genus Megophrys is widely distributed from the northern India, mainland of Southeast Asia, China, to Sunda shelf and the Philippines. This frog is inhabited with the mountain primary forest. Twelve species of Megophrys known occurs in Sunda Shelf, which most of them are endemic to the highland in the Northern of Borneo. We conduct intensive surveys in Sumatra, Java, and Borneo islands. By using a combination of molecular and morphological work, we detected unnamed lineages and possibility of cryptic species of Megophrys from the islands. Those unnamed lineages shown large genetic variations compared to named species. The diversification pattern of the group is complex, those unnamed lineages shown of the micro-endemic species. The history of geological event, paleoclimatic changes, and tectonic movement of this area in the past may appear to have an important role in the diversification of this frog. However, these findings imply to their conservation challenges, since the island of Sumatra, Borneo and Java is facing of the natural habitat destruction and disturbance by the human activities. Further accurate assessment of the diversity and distribution of this frog is needed to mitigate the extinction of these lineages on the islands.

P-22

"Kyoto University Children's Museum" challenges overseas

Chigusa NAKAGAWA and Takayuki SHIOSE

The Kyoto University Museum

Key words: Children's Museum, graduate students, University Museum

"Kyoto University Children's Museum" (hereinafter called "Children's Museum") held in the entrance hall of the Kyoto University museum every Saturday since September 2004. Mainly graduate students play docent role, show interesting specimens or teaching materials and carry out interactive dialog with children to stimulate their learning motivation. In addition to activities at our museum every Saturday, we also hold delivery "children's Museum" several times a year in Kyoto.
On the other hand, there are 14 universities with museums in Kyoto. In order to revitalize the university museum, they launched the 'University Museum Association of Kyoto' project in 2011. This project holds special exhibitions and symposiums all over Japan.
From December 15, 2018 to February 24, 2019, the first overseas special exhibition was held at Museum of national Taipei University of Education in Taiwan (hereinafter called "MoNTUE").
On February 23, 2019, we held the "Children's Museum" as part of a special exhibition event for 4th and 5th graders in Taiwan. Four graduate students and two faculty members from Kyoto University and ten staff members from the MoNTUE participated in this project.
We will introduce our efforts at the "Children's Museum" held for the first time for children overseas.

P-23

The partnership of the Museum and the local governments to protect fossils and outcrops of the layer -The Case of "Paleo-Chichibu-Bay"

Hiromichi KITAGAWA [1], Daiki SUDA[1], Mai SEKIGUCHI[2], Tomoko ISODA[3], Akira MOCHIZUKI[4], and Takahiro KOENUMA[5]

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Key words: National Natural Monument, The board of education, Cultural heritage

Preservation and utilization of fossil specimens and outcrops of the layer are important. One of the ways of that is to be designated as a Natural Monument based on the national legislation and ordinance. However, there are only four examples of National Natural Monument of fossil specimens in Japan. Thus, the preservation and utilization of these cultural heritages have not been discussed enough until now.

A new National Natural Monument was designated in March 2016, the Sedimentary layers and the marine mammal fossils of Paleo-Chichibu-bay contains 9 fossil specimens stored in Saitama Museum of Natural History and 6 areas of outcrops of the layer in Chichibu area.

Specimens and protected areas are sited in Chichibu city, Ogano town, Minano town, Yokoze town and Nagatoro town. Therefore, the municipality and Saitama Prefecture have jointly established a committee to formulate conservation and use plan. Saitama Museum of Natural History has supported widely this committee as the main member.

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