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***ESTABLISHMENT OF THE INTERNATIONAL ACADEMIC EXCHANGE
BETWEEN THE CENTER FOR JEJU STUDIES, KOREA, AND INTERNATIONAL
CENTER FOR ISLAND STUDIES, KAGOSHIMA UNIVERSITY***

Sota YAMAMOTO

International Center for Island Studies, Kagoshima University

Our institution, International Center for Island Studies, Kagoshima University, launched an international academic exchange program with the Center for Jeju Studies, Korea, on June 10th, 2019, at the department level. The Center for Jeju Studies was established in 2011 as one of the research branches within the Jeju Research Institute, which started in 1997 as the think-tank for the policy and other strategies for the special self-governing Jeju Province. The Center for Jeju Studies encompasses four fields: scientific research (mainly humanities), the Jeju language, policy, and archives (data digitalization). Scholars from the Center for Jeju Studies have conducted their research intensively and extensively about the Jeju Island. At the same time, they have actively engaged in revealing their discoveries to the public, for example, publication of books covering topics such as the history of the Jeju Province and the dictionary of the Jeju languages. After the establishment of the international academic exchange, our full-time scholars, as well as concurrent scholars, will cooperate with the members of the Center for Jeju Studies to conduct international research on the Amami Archipelago and the Jeju Island. It is hoped that the cooperation between the two centers will further accelerate international academic exchange in the future.



Signing the contracts (left: professor Hyekyung CHOA from Center for Jeju studies and right: professor Kei Kawai from International Center for Island Studies)



All the participants at the signing ceremony

INTRODUCING MY RESEARCH

PROTECTING OUR MARINE RESOURCES WITHIN OUR WATERS AND BOUNDARIES: THE SOLOMON ISLANDS

Glorisa KERE

Graduate School of Fisheries, Kagoshima University

My name is Glorisa Kere and I came from a beautiful country in the South Pacific called the Solomon Islands (Fig. 1). I graduated from the University of the South Pacific Law School in 2016 with a Bachelor of Law and Bachelors of Arts Program. In 2017 for my Professional Diploma in Legal Practice, I did my placement at the Forum Fisheries Agency Legal Unit. It was during my placement that I realized the

great importance of protecting our marine resources within our waters and boundaries. This then motivated me to continue with my Masters in Fisheries Law and Management. I was then fortunate enough to be awarded a MEXT scholarship in 2018 to continue with my studies here in Japan. This opportunity to me is a dream come true therefore, I would like to thank the Government and the people of Japan for this opportunity.

More than 80% of the Solomon Islands population live along the coastal areas and rely on marine and coastal biodiversity as a source of livelihood and food security. For us Solomon Islanders the ocean has been part of us and it has enriched our lives physically, culturally, spiritually and recreationally in many different ways. The ocean divides our island and Provinces. The most used transportation is by Outboard Motor canoes and Ships. Regardless of the abundant marine resources that we have our people are not deriving the economic benefits fully from our resources and in particular our tuna resources caught by foreign fishing vessels and as well as other marine species. Also today more and more issues are affecting our marine or ocean resources from climate change to human threats everywhere, and this really concerns me because it is affecting my home and my people.

For my Research thesis, I chose to focus more on Marine Protected Areas which is one of the tools of coastal fisheries management. In recent years and from past studies it has been reported that although marine protected areas have been established, sufficient effects have not been obtained (Fig. 2,3). In the Master's program, we will clarify the current status and issues of coastal fishery management in the Solomon Islands and in particular Choiseul Province. Using conditions of fishery management in Japan we are going to empirically clarify the conditions and issues for effective fishery management.

The Managing of the Fisheries Resources is to search for the best method of the utilization of fishery resources, as fisheries resources is a renewal through self- reproduction. The fluctuation of these resources volumes may be the result of the diverse factors, such as through fishing pressure, caught fish before reaching reproduction stage and population increases in the coastal communities as the case in the Solomon Islands. The management of these resources varies greatly depending on the type and species and the management methods that are suited must be applied.

Brief introduction on research site

a) Fisheries in Choiseul Province

I wish to talk on the fisheries itself on the specific Province which I chose for my research, Choiseul Province. Actually I came from Choiseul Province which is situated in the Western part of Solomon Islands. Choiseul is a German name. The Island is named after the explorer's wife. Choiseul Province did have the total population estimated to be 26,000 with sixteen Provincial wards and three electoral constituencies. Its provincial headquarter is at Taro, Northwest region of the Island.

In the northwest part of the Island 12 nautical miles it did have better fishing ground for tuna especially tuna species, particularly skipjack and yellow fin (Fig. 4). Choiseul Province as part of the Solomon Islands has the equal rights and opportunity to tap into and participate into this lucrative fishing industry. To date there are no commercial fishing companies operated and owned by the Province. However, there are growing concerns from the local resource owners of foreign owned vessels fishing illegally in the Provincial water jurisdiction, 3 miles from the shoreline. There is a need for better enforcement to curb such illegal fishing activities as it is depriving the rights of the indigenous coastal communities to benefit from their resources.

The inshore or coastal fishery is predominantly of reef finfish. Apart from finfish resources, Choiseul Province has abundant of valuable marine resources such as shells, sea cucumber, crayfish, and mangrove crab and other value marine resources. The sustainable harvesting of these resources will provide cash opportunity for the coastal communities surrounding the island. Choiseul Province fisheries are mostly subsistence and an artisanal majority of the catch taken from the inshore fisheries.

b) Partnership Work

The Provincial Fisheries division is the core centre of contact any program to do with fisheries related issues in Choiseul Province, this both in marine and fresh water fishery. The Provincial Division did have long history working partnership with Lauru Land Conference for Tribal Community (LLCTC), a local registered NGO, and the Nature Conservancy (TNC). Other regional organizations are also board partnering some work in the Province. With support being rendered through partnership work, awareness program was initiated and conducted in bigger communities within the Province. Biological and scientific assessments were conducted for the inshore resources through the partnership work in some selected sites. Most resources and support for the establishments of the Marine Protected Area comes under the Lauru Marine Network. The work is financially supported

by the Nature Conservancy (TNC), Lauru Land for Tribal Community (LLCTC) and other partners. In support of the work, the Choiseul Provincial Government has enacted its Fisheries and Conservation Ordinance to support the management of these Marine Protected Areas. With support from partners the Fisheries Division deployed 8 fish aggregating devices (Rafters) at some selected sites within the Province. These rafters diverted fishing pressure from the coastal reefs as local fishermen went offshore fishing for pelagic species such as tuna and wahoo and dolphin fish.

c) Resource Management across Choiseul Province

Resource management has been part of our culture from our ancestors until to date (Fig.5). Our ancestors have managed their resources basically for food from generation after generations. However, due to the increases in population and an increase in the cash economy, there is depletion in resources. Since 2003, The Nature Conservancy (TNC) a US based Non-Governmental Organization signed a MOU with our Indigenous Organization, the Lauru Land Conference of Tribal Community (LLCTC) and Choiseul Provincial Government to consider areas of collaboration in managing our natural resources. This partnership has resulted in the establishment of more than twenty Locally Managed Marine areas and more than 10 terrestrial managements. The goals and objectives of LLCTC with regards to Natural Resource Management and Sustainable use of resources have been carried out in Choiseul Province with the support from partners. The environment program under LLCTC has grown over the years and the establishment of Choiseul Province Ridges to Reefs Conservation Plan, a document that guides the management of natural resources (Fig. 6).

The work is linked with the relevant goals and objectives of LLCTC and Choiseul Province Government. The tribal communities manage the areas that they conserve or periodically harvest. Each Conservation serving community have management committees to oversee the development of their managed areas.

Partners support in terms of technical areas and advice. Community-based resource management across Choiseul has formed a network of managed areas known as “Lauru Protected Areas Network” (LPAN) guided by the Choiseul Ridges to Reefs Conservation Plan that was developed in 2009. The network has increased over the years by the tribal community and traditional leaders across Choiseul. Apart from this initiative, there is an intervention through the national Government in support of the existing activities. This

is known as the Choiseul Integrated Climate Change Adaptation Program, that addresses issues of Climate Change.

Arigato gozamasu and I am looking forward to be sharing with you my learning journey!



Fig. 1 View from airplane over an island in the western province, Solomon Islands



Fig. 2 Turtle hatchlings on Arnavon Marine Protected Area in Solomon Islands (Photo credit: Arnavon MPA)



Fig. 3 Turtle breeding season on Arnavon Marine Protected Area (Photo credit: Arnavon MPA)



Fig. 4 Fresh catch for dinner outside one of the Marine Protected Areas in Choiseul Province



Fig.5 A fishing trip on a dug out canoe with my cousin and grandmother



Fig. 6 Boiled seashells picked from the reef by women ready to be served on the dining table.

***UNIQUE ASPECTS OF THE PREHISTORY OF THE AMAMI AND OKINAWA
ARCHIPELAGOS, JAPAN***

Hiroto, TAKAMIYA

International Center for Island Studies Kagoshima University

Introduction

The Amami and Okinawa archipelago, located between Kyushu and Taiwan Islands (Fig. 1), is well known for its numerous endemic species. For example, Amami rabbit (*Pentalagus furnessi*), Amami jay (*Garrulus lidthi*), three species of Tokudaia, and Okinawa rail (*Gallirallus Okinawa*) can now be found only in these islands. Because of the richness of its biodiversity, including the endemic species, the islands have been proposed by the Japanese government to be added to the UNESCO World heritage (inscription) list by this summer.

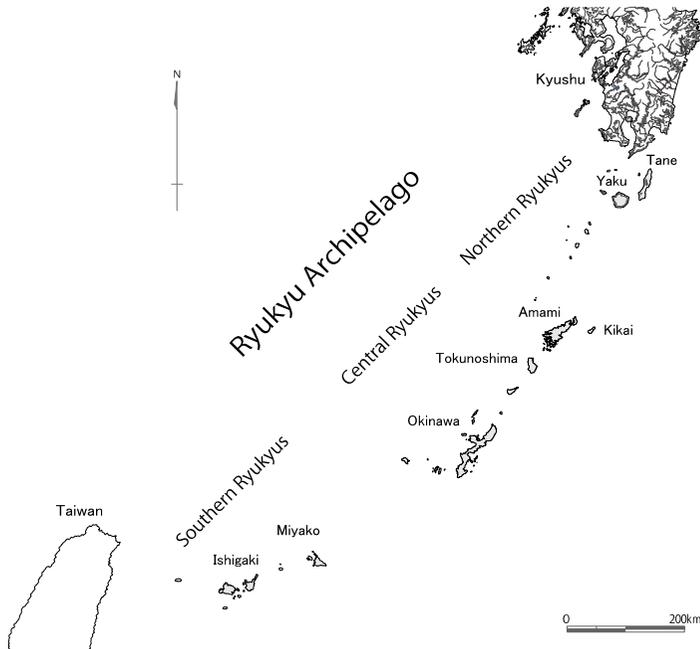


Fig. 1 Map of the Ryukyu Archipelago

While the islands are eminent for their richness of biodiversity, prehistory of this region has not been paid attention to as much. However, recent studies on the Amami and Okinawa archipelago have demonstrated that the prehistory of the islands is equally worth as their biodiversity. In this paper, I would like to introduce the significance of the island's prehistory to the world.

The islands Homo sapiens inhabited before 10,000 years ago

Homo sapiens originated in Africa sometime around 200,000 years ago. From there, they spread to Europe (ca. 40,000 years ago), East Asia (ca. 40,000 years ago), Australia (ca. 50,000 years ago), and North America (ca. 15,000 years ago). The fact that they reached the southernmost part of South America from Alaska 10,000 years ago proves their high adaptability to various environment. Furthermore, they were hunter-gatherers, which also shows their high adaptability as hunter-gatherers in various environments.

While hunter-gatherers were able to conquer different environments in the world 10,000 years ago, only a handful islands witnessed the presence of *Homo sapiens* at the time. These islands include the Channel Islands of California, New Britain, New Ireland, Manus, Buka, Timor, Cyprus, and several others.

Three Paleolithic sites in Amami-Oshima Islands and two in Tokunoshima Island were reported. These sites date back to approximately 30,000 years ago. In Okinawajima Islands, the oldest site is dated ca. 37,000 years ago. In addition, four Paleolithic sites were recorded. Furthermore, two paleolithic sites were noted on the Iejima Island and one in Kumejima Island. In terms of human presence on the islands, the Tanegashima Islands unearthed four paleolithic sites dating more than 30,000 years ago. The Miyakojima Island yielded human fossil bones dating around 25,000 years ago. Recently, the Ishigakijima Island exhibited Paleolithic site dating ca 27,000 years ago.

Thus, in the world, only a handful islands were known to have been occupied by *Homo sapiens*; eight islands (Tanegashima, Amami-Oshima, Tokunoshima, Iejima, Kumejima, Okinawajima, Miyakojima, and Ishigakijima) in the Ryukyu archipelago witnessed the presence of *Homo sapiens*. The prehistory of the Ryukyu archipelago can be compared to the world prehistory in terms of *Homo sapiens* colonization in the islands prior to 10,000 years ago (Takamiya et al. 2019)

The islands where hunter-gatherer-fisher thrived

When Cherry (1981) studied human colonization in the Mediterranean islands, he realized that the colonization took place during the Holocene. His conclusion from the study was that in order to successfully colonize islands, agriculture was indispensable. Indeed, all islands in the Mediterranean were colonized by agriculturalists. Almost all islands in the Oceania and Caribbean were peopled by agriculturalists.

However, there were some exceptions to this. That is, some islands were occupied by hunter-gatherers. The features of these islands are as follows: 1) large islands (e.g., Tasmania), 2) closely located from a continent or large island (e.g., Channel Islands), 3) sea mammals were an important food source (e.g., Chatam Islands), 4) hunter-gatherers translocated edible plants and/or animals (e.g., New Britain), and 5) combination of 1) to 4) was possible (Channel Islands of California 2) and 3)).

None of the above features apply to the islands of the Amami and Okinawa. However, the last two decades of faunal analysis has shown that the only domesticated animal recovered from the islands during the prehistoric times was dog (*Canis lupus familiaris*). The analysis of plant remains have also been intensively conducted with an introduction of flotation method in this region from 1992. In addition, well preserved wet sites were excavated around the year 2000. The only cultigen found from the archaeological site was bottle gourd (*Lagenaria siceraria*) from the Ireibaru site (ca. 5000 years ago). The earliest cultigens recovered from the islands dates between the 8th and 12th centuries AD. Thus, the islands were occupied by hunter-gatherer-fishers at least from 7000 to 1000 years ago (Takamiya et al. 2015).

The islands where the subsistence change from hunting-gathering-fishing to agriculture occurred

As discussed above, the hunter-gatherer-fisher thrived in the Amami and Okinawa archipelago from ca. 7000 years ago to ca. 1000 years ago. The beginning of agriculture was one of the main themes of research among the archaeologists for a long time. However, lack of adequate amount of plant remains in archaeological sites made it difficult to study them. The last three decades, with an application of flotation to the prehistoric sites and excavations of the wet sites, shed light on this research theme. While several hypotheses, suggesting that food production was practiced during the Shellmidden period, have been

proposed, no cultigen except bottle gourd has been unearthed in the last thirty years. Therefore, all Shellmidden period hypotheses should be rejected.

The analysis of plant remains recovered from flotation successfully identified the earliest cultigens in this region. They were mostly foxtail millet (*Setaria italica*), barley (*Hordeum vulgare*), wheat (*Triticum aestivum*), and rice (*Oryza sativa*). These cultigens were also directly dated by carbon 14 dating method. The dates of these cultigens were between the 8th and 12th centuries AD in the Amami-Oshima and between the 10th and 12th centuries AD in Okinawajima. The results indicated that the transition from hunting-gathering-fishing to agriculture took place between the 8th and 12th centuries AD (Takamiya and Chida 2014).

In the context of island archaeology, this transition was an extremely rare phenomenon. As mentioned, almost all islands in the world were colonized by agriculturalists, and there was no period of hunter-gatherers. On the other hand, those few islands occupied by hunter-gatherers had remained as hunter-gatherers' societies until the European or other immigrants "discovered" them. Thus, there was no period of agriculturalists. The fact that the transition from hunter-gatherer-fishers to farmers happened in the island environment is noteworthy, since this transition is one of the most important research topics in archaeology and anthropology.

The islands where the changes of social organization from the band to kingdom happened

The evolution of social complexity is another most important topic in archaeology and anthropology. Because of this, many scholars have discussed and considered how and why the human society evolved from simple hunter-gatherer band society to state society. It is believed that human society evolved from the band society to the tribal society and from the latter to chiefdoms. Stronger chiefdoms conquered weaker ones, and this process led to the establishment of the state society. When anthropology was born as one of the disciplines of social sciences more than 100 years ago, most anthropologists thought that state society was the most advanced form of human social organization. It was thought that human society "progressed" in this sequence. However, once anthropologists started actual field work with human groups of their interests, this Western centered view did not accurately describe human societies.

Intensive and extensive studies on the evolution of social complexity for last four decades have indicated that the emergence of social complexity is not an easy process. Accordingly, numerous hypotheses have been proposed in order to explain the emergence of social complexity.

The islands of Amami and Okinawa will contribute to our understanding of the evolution of social complexity. First of all, on the islands of Okinawa, the state society, known as the Ryukyu Kingdom, emerged during the early 15th century AD. Furthermore, the island witnessed the evolution of social complexity from hunter-gatherer band society to the state. In the context of islands, the islands of Okinawa might be the only region where such evolution of social complexity took place. As mentioned above several times, since most islands in the world were colonized by agriculturalists, they did not possess the stage of band societies. On the other hand, some islands that were colonized by hunter-gatherers witnessed the evolution of social complexity from band to chiefdom level (such as Kodiak Islands) but no stage of the state. Thus, an analysis on the social complexity in the islands will likely shed light on this topic (Takamiya 2005).

Furthermore, the Amami Islands witnessed the evolution of social complexity from the bands to chiefdoms. The emergence of chiefdoms was 100 to 200 years earlier in the Amami as that of the Okinawa. Why did a state society not emerge in Amami but in Okinawa? The comparison between these islands based on the emergence of the state will also provide us significant clues on our understanding of the emergence of state society.

Conclusions

According to island archaeology, the Amami and Okinawa archipelagos exhibit at least four unique aspects: 1) They were colonized during the late Pleistocene; 2) they were successfully occupied by hunter-gatherer-fishers, whose adaptation strategies were previously unknown in archaeology and anthropology; 3) they witnessed the transition from hunter-gatherer-fisher economy to agriculture economy; and lastly 4) they witnessed the evolution of social complexity from the band to the state (especially the Okinawa archipelago). These cultural phenomena are extremely unique in the context of island archaeology. Thus, examination of these cultural phenomena will provide very important clues regarding human adaptation to island environment.

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Research Seminars

No.194, 11 March 2019

“Dental Practice in Remote Islands”

Norihiro TAGUCHI (Graduate School of Medical and Dental Sciences, Kagoshima University)

[ABSTRACT]

In the past, major dental diseases have been caries and periodontitis. In Japan, the rate of suffering caries has been gradually decreasing, and most of Japanese people have got to pay attention to their oral health. However, in Kagoshima Prefecture, an infant’s rate of suffering caries is still high. Kagoshima Prefecture also has a large population in remote islands and a high aging rate, so a unique strategy in a dental practice supply system is needed. One of them should be “Patrol dental practice in remote islands”, which Kagoshima dental association carries out, supported by Kagoshima Prefecture. In this project, a dental professional team visits remote islands that do not have dentists and serves a dental practice for a few days almost two times per year. Kagoshima University Hospital also has been sending dentists and totally support to this project for decades.

In this presentation, I will show dental problems in Kagoshima Prefecture and the dental practice supply system in remote islands. Moreover, I will introduce our activities (related to the curriculum reform of Faculty of Dentistry, Kagoshima University, in 2015) for contributing to the development of the local community.

No.195, 22 April 2019

“The Characteristics of Sakitsu Village in Amakusa as One of the 12 Components of the World Cultural Heritage: Hidden Christian Sites in the Nagasaki Region”

Kei NAKAYAMA (Cultural Division, Tourism and Culture Department, Amakusa City)

[ABSTRACT]

The “Hidden Christian Sites in the Nagasaki Region”, which was registered on July 2018 by United Nations Educational, Scientific and Cultural Organization (UNESCO), is a serial property comprising 12 components, made up of ten villages, one castle remains, and one cathedral dating from between the 17th and 19th centuries. They reflect the era of prohibition of the Christian faith, as well as the revitalization of Christian communities after the official lifting of the prohibition in 1873. Among the 12 components, Hidden Christians in Sakitsu Village in Amakusa continued their religious faith in a unique way, substituting everyday items that were used in their daily life and work in the fishing village for Christian devotional tools during the ban on Christianity, which significantly contributed to demonstrating the property’s exceptional significance (OUV: Outstanding Universal Value) of the heritage.

In this study, after introducing a brief overview of “Hidden Christian Sites in the Nagasaki Region”, I would like to explain 1) the way of conservation based on the Law for the Protection of Cultural Properties, i.e., the characteristics of the Cultural Landscape of Sakitsu-Imatomi as “important cultural landscapes” selected by the Agency for Cultural Affairs and 2) the way to verify the tradition of Hidden Christians for contributing to OUV.

No.196, 27 May 2019

“Introduction of Vegetation in Northern Sumatra, Indonesia”

Eizi SUZUKI (International Center for Island Studies, Kagoshima University)

Northern part of Sumatra Island has still rather wide area of primitive tropical rain forest though most areas of Indonesia have lost forests. The area is also famous for rich fauna, elephant, orang hutan, tiger, etc. I visited Geumpang—Pameu area of Aceh Province, located

at the northern end of Sumatra Island in 2009, and Tangkahan area of Gunung Leuser National Park, North Sumatra Province in 2014 and 2015. I will show you the vegetation in these areas at this seminar.

No.197, 17 June 2019

“The Boat as a Living Space: Lianjiachuan Yumin Who Keep Moving on the Water and Living in Settlement-Oriented Society in Southern Fujian, China”

Miyoko FUJIKAWA (Faculty of Humanities, Nanzan University)

[ABSTRACT]

The nomadic people in the world have been pressured to settle down in a particular place by the emergence of the modern nation-state. In fact, for boat dwellers, what does it mean to acquire a house on land? Does it mean, as many researchers and government officials in modern countries have assumed, a departure from the “harsh world on the water” to salvation on the “enticing world of the land”? Through presenting an ethnographic study of the history of the *lianjiachuan yumin* (連家船漁民) living on the sea or rivers in the southern part of Fujian Province, China, this presentation aims to explore the reasoning behind their way of life, which cannot be simply reduced to a one-sided move away from a nomadic life on water to settlement on land.

No.198, 8 July 2019

“A Research for the Origin of Human Cultures in the Ryukyu Archipelago”

Shinji YAMASAKI (Okinawa Prefectural Museum and Art Museum)

A research about paleolithic human remains in Okinawa well developed through the excavations of Yamashita-cho cave site (Naha City) and Minatogawa site (Yaese Town) carried out from 1960s to 70s. But a big mystery was concerning to a living place and cultural remains of the palaeolithic people, because only human bones without any artificial material were found from those sites.

Our new research project that aimed at the discovery of new human fossil and paleolithic artifact was planned in 2006, and we have conducted continuous excavations of limestone caves in the southern part of Okinawa-jima Island more than ten years. As a part of the project, we started the excavation of Sakitari-do cave site (Nanjo City) in 2009. As a result, well

preserved sediments dated from approximately 40,000 years ago to recent days were discovered. We found shell tools containing the world oldest fishhook, stone artifacts, animal remains, and human bones from the palaeolithic layers of the Sakitari-do cave site. These are important clue to solve the question about the origin of human culture in Okinawa. In this presentation, I report our new findings at Sakitari-do cave site and discuss the palaeolithic life styles and their chronological change in the Ryukyu archipelago.

No.199, 30 September 2019

“Freshwater Crabs in Insular Environments”

Tohru NARUSE (Tropical Biosphere Research Center, University of the Ryukyus)

[ABSTRACT]

A total of 24 species of the freshwater crabs are known from Japan; 24 species from the Ryukyu Islands (Tanegashima to Yonagunijima; 22 spp.), 1 species from Osumi Peninsula, 1 species from the Koshiki Islands, 1 species from Kuroshima/Uji/Kuchierabu islands, and 1 species from Nakanoshima/Osumi-Satsuma peninsulas to Aomori Prefecture. The center of the distribution of the freshwater crabs is from tropical to subtropical climate zones. Number of described species is so far around 1300, and this number is still increasing and accounts for about 18 % of whole known crabs from the world (ca. 7200 species). The freshwater crabs usually inhabit streams, relatively upstream of slow-flowing rivers and around such environments in temperate zone, such as Kyushu and Honshu, but they adapted to various environments in tropical and subtropical zones. Another characteristic feature of the freshwater crabs is that they practice direct development, and their life histories are therefore land-locked, which has promoted their high endemism in insular environments. This presentation overviews the freshwater crabs' possible origin, diversification and endemism and adaptation to insular environments.

No.200, 25 November 2019

“The Charm of the Remote Islands for Environment of the Personnel Training which Support All Residents' Community Lives”

Sayoko NIWA (School of Health Sciences, Faculty of Medicine, Kagoshima University)

Michiyo KANEKO (Education Center for Nurses in Remote Island and Rural Areas, Faculty of Medicine, Kagoshima University, Previous Occupation)

[ABSTRACT]

In our country, in order to cope with advanced age multi-death society and 2025 Problem, structuring community-based integrated care systems are an important subject. Therefore, we have been providing intervention for remote islands and areas based on an education program for human resource development to support all residents' community lives since 2015. This time, we introduce the outline of this educational program and the actual condition of training in remote islands. Moreover, we consider the charm of the remote islands for environment of the personnel training which support all residents' community lives.

No.201, 27 January 2020

“Island Research and Border Studies”

Akihiro IWASHITA

(Slavic-Eurasian Research Center, Hokkaido University / International Center for Island Studies, Kagoshima University)

[ABSTRACT]

Border Studies shares with Political Geography a question of how to analyze space. Island Research is a field that examines the space of islands, defining this space through concepts like “maritime”, “liminality”, and “insularity”. These concepts understand islands as ‘singular’ spaces, but this is often questionable. For example, the Northern Territories are often glossed as four islands, but one of these, Habomai, is in reality a series of islets, rather than a single island. Tsushima, too, is often treated as a unitary space, although this seems unjustified given the historical division between Kami-Tsushima and Izuhara.

From this critical perspective, Border Studies is able to deconstruct and reconstruct Island Research. In this paper, I would like to deploy the three border studies tools of ‘timeline’, ‘permeability’, and ‘social structure’ in order to reconsider the issue of island spatiality.

No.202, 10 February 2020

“Buckwheat Production and Sixth Sector Industrialization in Islands Areas”

Norio SAKAI (Faculty of Agriculture, Kagoshima University)

[ABSTRACT]

Buckwheat grows quickly even on barren soil, does not require much labor, and can be stored for a relatively long time. Therefore, it was once cultivated mainly in mountainous areas in Japan. It was also widely cultivated in Kagoshima Prefecture. After that, buckwheat production declined, but it stopped declining in the 1970s. From around 2000, the buckwheat area increased sharply, mainly in cold regions such as Hokkaido, Tohoku and Hokuriku.

Buckwheat is also produced in island areas where natural conditions and transportation are disadvantaged. This is because the production and distribution of buckwheat reduces the disadvantages of the islands. Under the condition that expansion of cultivation area is restricted, buckwheat is processed and sold (sixth sector industrialization) in some islands.

First, I describe the situation of production and distribution of buckwheat in Japan. Next, I examine the actual conditions and characteristics of buckwheat production, processing, and sales in Tsushima, Tanegashima, Miyakojima, and Ogimi Village, which are buckwheat production areas.

Special Research Seminar, 4 March 2019

“Evolution of *Habu*: Accelerated Evolution of Venom Proteins”

Shosaku HATTORI (Amami Laboratory of Injurious Animals, Institute of Medical Science, University of Tokyo)

[ABSTRACT]

Habu (*Protobothrops flavoviridis*) is a venomous snake belonging to subfamily Crotalinae family Viperidae, and inhabits the south part of the Tokara Islands, Amami-Oshima Island, Tokunoshima Island, Okinawa Island and its surrounding islands. Among snakes of the subfamily inhabiting Asia, *Habu* is the largest species, growing to a length of 2 m and a weight of 2 kg. Because *Habu* has a wide range of action, nearly 50 cases a year of bites of *Habu* are reported in Amami-Oshima and Tokunoshima islands.

Habu releases 1 ml of venom by a bite and it contains various venom proteins. Among the proteins, the accelerated evolution has been confirmed in phospholipase A2 and its isozymes having myonecrotic activities. Three isozymes of them with strong myonecrotic activities are specific in the Tokara Islands, Amami-Oshima Island, and Tokunoshima Island, but not in Okinawa Island. Differences between the islands were also found in body color, external morphology and habits. These differences are due to the earth history of the formation of the

central parts of the Ryukyu Archipelago.

Habu and Sakishimahabu are important as animals characterizing the biodiversity of Amami-Oshima, Tokunoshima, Okinawa, and Iriomote islands, which the government aims to register as a World Natural Heritage Site. *Habu* is a viper that harms residents and is a god, a treasure of biological resources, and a tourism resource in this region. I will introduce *Habu* with its latest research findings.

14 January 2020

“To Be or Not to Be Father: Male Reproductive Skew in Primate Multimale Groups”

Antje ENGELHARDT (School of Biological and Environmental Sciences, Liverpool John Moores University)

[ABSTRACT]

Kin selection is a strong driver of social relationships. Thus, the degree to which individuals of the same group are related to each other can have significant implications for the group's social life. At the same time, the genetic composition of a group or population is also important from a conservation point of view, with inbreeding potential posing potential harm to the population's survival. In female-philopatric groups, genetic diversity is majorly influenced through the migration patterns and reproductive performance of males. In primates living in multimale groups, the degree to which individual males get the opportunity to reproduce and thus keep their genes in the pool varies astonishingly between different species. The reason for this difference in male reproductive skew still remains obscure. Furthermore, primates are special in the degree to which females show non-procreative mating and exhibit sexual signals. There is good reason to assume that these traits play an important role for individual male reproductive success in primates. We have studied the occurrence and function of female sexual signals, and potential causes for the variation of male reproductive skew across a number of macaque species. I will present our results in this talk.

Recent Publications

+++ Journal +++

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Research Papers

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Research Papers

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+++ Occasional Papers +++

Occasional Papers No. 61 (March 2020)

2016-2019 Project Progress Report: Biodiversity and Its Conservation in the Satsunan Islands (SUZUKI, E. and KAWAI, K. eds.)

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