Overseas Practice on （Field Epidemiology・Collaborative Research） report form （For Student）

2016/01/25 (Year/Month/Day)

Name	Tapiwa Lundu Mtonga
Laboratory	Public Health
Year (Grade)	D2
Place of practice	Okinawa
Period of practice	8th to 15th January 2016
Purpose	Rodent trapping, sampling and tick collection

Summary of activities（about 800 words, provide photos, tables and figures that clearly show the activities during the period）

During the period from 8th to 15th January 2016 I carried out epidemiological and collaborative research activities in Okinawa.

Goal of the activities: My goal was to participate in field epidemiology and collaborative research activities between Nansei Environmental Institute, Ryukyu University and Hokkaido University.

Table 1 A summary of the schedule of activities done in Okinawa

Date	Activity
2016 January 8	Departed Sapporo for Naha
2016 January 9-10	Setting up and inspection of rodent traps Collection of ticks by flagging
2016 January 11	Collection of ticks by flagging
2016 January 12	Meeting with collaborators at Ryukyu University
2016 January 13-14	Sample collection from rodents
2016 January 15	Departed Naha for Sapporo

The epidemiology of zoonotic diseases such as severe fever with thrombocytopenia syndrome (SFTS), Hantavirus infection and tick-borne encephalitis (TBE) has not been elucidated in Okinawa. To know the epidemiological information of the above zoonoses, I joined a field survey in Okinawa for rodents and ticks. The survey included rodent trapping,

sample collection from rodents and tick collection.

I will attempt to detect antibodies to SFTS virus, Hantavirus and TBE virus in rodents as well as to amplify the virus gene from rodents and ticks. This collected samples will be analysed for three diseases; severe fever with thrombocytopenia syndrome (SFTS), Hantavirus infection and tick-borne encephalitis. There is currently a knowledge gap on disease epidemiology in Okinawa. Tick-borne encephalitis virus (TBEV) is the causative agent of human TBE, a severe infection that can cause long-lasting neurologic sequelae. A TBEV related virus, which is also closely related to Langat virus, has been isolated in Yamaguchi prefecture. Langat virus, which is closely related to TBEV, has a low virulence for human hosts. This implies that the distribution of TBEV related viruses in Japan is not limited to Hokkaido. I think it is important to know if TBEV or related viruses are circulating in Okinawa.

In recent years, pathogenic phleboviruses have been identified in different parts of the world. These include the emergence of SFTSV in Japan, China and South Korea. Although SFTS virus has not been reported in Okinawa, the virus is prevalent in the western part of Japan. SFTS is now a disease of public health importance and conducting surveillance even in areas that have not reported the disease can provide us useful information on the epidemiology of the disease.

There is little information about Hantavirus infection in Okinawa because of limited surveys. However, *Rattus rattus,* which is one of the host species for Hantavirus is widely distributed in Okinawa. Therefore, it is possible to find Hantavirus infected rodents in Okinawa even though Hantavirus infections in humans have not been reported.

The activities may be categorised as follows:

1. Setting up traps for rodent collection: Sherman traps were set up in the bushes to trap wild rodents.

Preparing to set up the rodent traps

The traps were labeled according to the location of the trap site. Before setting up the traps, the trap number and site were recorded for future follow-up.

Traps ready for trapping rodents

As shown in the picture above, the rodent traps were set up in the bushes in areas that were suspected to have rodent populations. The trapping sites were marked by red tape tied to a tree.

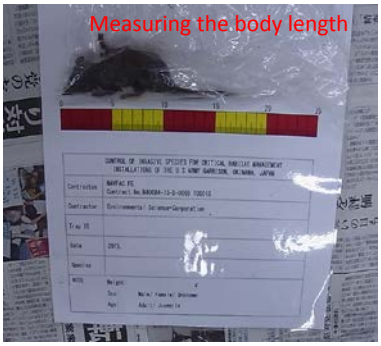
2. Inspection of traps: the traps were inspected on a daily basis to check for any rodents had been captured.

Inpecting traps for captured rodents

3. Rodent preparation: after inspecting all the traps, captured rodents were taken back to Nansei Environmental Institute for further processing. The animals were euthanised using carbon dioxide. The animals were placed in a box to which carbon dioxide was supplied for 5 minutes, after turning off the CO_2 supply; the animals were kept in the box for a further 5 minutes.


Traps containing rodents were placed inside a wooden box to which CO2 was supplied

4. After euthanasia, the animals were processed by taking measurements of body length, sexing, and taking photographs for species identification. The rodents were then wrapped in plastic bags, labeled and stored at -20°C until the day of dissection.



5. Dissection of rodents: the rodents were thawed by putting them at 4°C overnight. This was followed by dissection with scissors and forceps to collect various internal organs. The liver, spleen, kidneys were collected. Blood was also collected by using filter papers. The samples were labelled appropriately and kept at -80°C until transportation to Sapporo.

6. Tick collection: ticks were collected by flagging the bushes with a white piece of cloth.

Results

The ticks collected during the survey were submitted to the Public Health Institute of Okinawa Prefectural Government for species identification.

A total of 44 rodents were trapped.

The table below provides a summary of the species and number of small animals that were trapped.

Animal species captured in Okinawa survey, January 2016

Species	Number captued
Suncus murinus	29
Mus caroli	3
Rattus rattus	12
Total	44

（Field Epidemiology・Collaborative Research）Evaluation by supervisor

Institution・Official title・Name	Laboratory of Public Health, 印 Professor, Hiroaki Kariwa

Describe overall evaluation on the applicant's activity in overseas practice.

Tapiwa Lundu Mtonga joined a survey in Okinawa to capture small animals and ticks from January 8 to 15, 2016. The samples collected in the survey will be tested for infections of SFTS virus, hantavirus and tick-borne encephalitis virus. Ms. Mtonga worked very hard in the field and a laboratory of Nansei Environmental Institute. During the survey, Ms. Mtonga made great human relationship with researchers from different institutions, Ryukyu University, Nansei Environmental Institute, and Public Health Institute of Okinawa Prefectural Government and discussed actively about infectious diseases in Okinawa with the researchers. I believe that Ms. Mtonga has learnt about skills of field survey and the way of collaborative survey. I think this survey would be a great experience for her future career.

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