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

2013 March 12 (Year/Month/Day)

Name	Sarad Paudel
Laboratory	Wildlife Biology and Medicine
Year (Grade)	D2
Place of practice	Chitwan National Park and German Nepal Tuberculosis Project, Nepal
Period of practice	January 22 to February 12, 2013
Purpose	Epidemiological study of tuberculosis in captive elephants of Nepal

Summary of activities

An epidemiological study on tuberculosis in captive elephants of Nepal was conducted from January 22 to February 12, 2013. The study was primarily conducted at Chitwan National Park which has the major population of captive elephants in Nepal. I was accompanied by my supervisor Prof Toshio Tsubota for first few days and by my labmate Mr Jun Moriwaki for the entire study period. Before starting the field work, we had series of meetings in Kathmandu and Chitwan with the experts working in the field of wildlife conservation as well as tuberculosis. On January 22, we met with Dr Bhawana Shrestha and Mr. Bhagwan Maharjan at Tuberculosis lab of German Nepal Tuberculosis Project (GENETUP) in Kathmandu and we discussed my plan of elephant tuberculosis research and use of their lab for the culture. The meeting was fruitful. Similarly, on the same day, we had a meeting with Dr Maheshwar Dhakal, Ecologist and Dr Kamal Prasad Gairhe, Senior Veterinary Officer of Department of National Parks and Wildlife Conservation(DNPWC) in its office at Kahtmandu. We explained the purpose and objectives of my study strip. Both of the senior officials expressed their full support to my field study.

We had an important meeting with Dr Susan Mikota DVM, Director of Veterinary Programs and Research from Elephant Care International (ECI), USA in Chitwan on January 23, 2013. My supervisor Prof Toshio Tsubota was present in the meeting. We had discussion on various aspects of elephant tuberculosis including the joint collaborative work, publication, and future research on elephant tuberculosis. We decided to work together during my field study too. The meeting was very much fruitful.We also had meetings with the chief of Biodiversity Conservation Center, private elephant owners and chief of elephant facilities in Chitwan National Park regarding my field study.

After completion of the series of meetings and organization of the supplies, my field study was started from January 25, 2013. We started to collect the blood samples from the elephants of Chitwan

Hattisar, where most of the bull elephants are kept and recently a bull elephant died at the same place which was later positive on culture for tuberculosis. We performed DPP VetTB Assay at the field lab of Nepal Elephant Healthcare and TB Surveillance Program in Chitwan. The elephants of Elephant Breeding Center and Gaida Wildlife Camp were sampled and tested for tuberculosis on following two days. Regarding the private elephants, as agreed in the meeting, the elephants gathered at a single place for three days in a row. Then the sampling was done in the private elephants. The TB testing on the elephants from the banked serum was also done by pulling the serum of some elephants. The elephants from Parsa Wildlife Reserve and Koshi Tappu Wildlife Reserve were also sampled and TB testing was done. The blood collection and TB testing work was completed on February 5. In total, 147 captive elephants were tested for tuberculosis and 37 were positive on DPP VetTB Assay. The result showed that the increasing numbers of captive elephants are contracting tuberculosis from different sources.

The field work for the collection of trunk discharge was started from February 6 in the elephants which were strong positive on DPP VetTB Assay. The trunk discharge was collected from nine elephants. Trunk discharge was collected one time from three elephants, two times from one elephants and three times from five elephants on separate days. About 30 ml of trunk discharge was collected in a screw top tubes and the samples were placed in a freezer until taken for the laboratory work. The trunk discharge sample was collected from the elephants in the afternoon after they came from the work or pasture. After completion of the field work, we left for Kathmandu on February 9, 2013.

The laboratory work was performed at the tuberculosis lab of German Nepal Tuberculosis Project (GENETUP) in Kathmandu on February 10. All the trunk discharge samples were processed according to USDA, 2008 guidelines and applied for culture in L-J media and Pyruvate media. The tuberculosis bacteria takes eight weeks to grow in the media. So we have to wait until April 10, 2013 to get the final results of culture. After completion of the field and lab work, we returned to Hokkaido University on February 13, 2013.

CONCLUSION

The epidemiological study on tuberculosis in captive elephants of Nepal was done in January/February, 2013. The tuberculosis testing using DPP VetTB Assay was done in 147 elephants and about 25% elephants were positive on this test. The trunk discharge samples were collected from 9 elephants which were strongly positive on DPP VetTB Assay and were subjected to L-J media and pyruvate media. The result of the trunk discharge culture is pending as it takes about eight weeks to get the final results.

Fig.1 Meeting with Dr Bhawana and Mr Bhagwan at TB lab in Kathmandu.

Fig.2 Meeting with Ecologist and Senior Vet Officer at DNPWC, Kathmandu

Fig. 3 Meeting with Dr Susan Mikota DVM(ECI, USA) in Chitwan.

Fig. 4 Blood collection from elephant

Fig. 5 Running DPP VetTB Assay at Elephant TB lab in Chitwan

Fig. 6 Observing the readings on DPP Reader after visualizing results of DPP VetTB Assay

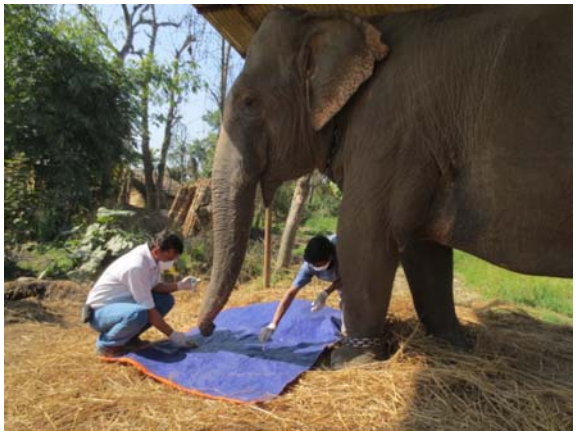

Fig. 7 Trunk discharge collection from DPP VetTB Positive elephants

Fig. 8 Lab work at TB Lab of GENETUP in Kathmandu