



**IDRC-APEIR "Surveillance of Emerging Infectious Diseases in
Wildlife Trade to Increase Awareness for Zoonoses
Prevention and Wildlife Conservation"
Cambodia Component**

**10th APEIR Regional Meeting
"The New Wave of Regional EID
Research Partnership"**

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Introduction

Research Description

The purposes of this project are to:

- Describe the zoonoses situation in the wildlife trade and raise awareness of the prevention of diseases transmitted through wildlife.
- The study uses standard methodologies, including interviews, data collection and analyses, disease investigations, laboratory diagnoses, public awareness activities for disease prevention and wildlife conservation promotion, and the use of scientific evidence to make recommendations to policy makers and decision makers to further develop effective strategies and policies promoting the responsible use of wildlife.

Study Sites

Map on Sample Collection and KAP Study in Districts and Provinces, Cambodia



Methodology

- Samples will be collected from the various wildlife species included in the wildlife trade. Specific zoonotic pathogens will be selected to demonstrate the appropriate use of methodologies according to the guidelines that have been established by the OIE and WHO. Samples from humans who have been exposed through the wildlife trade – including, especially, wildlife disease surveillance officers, wildlife quarantine officers, and wildlife traders – will be collected at the time that positive pathogen testing has been confirmed in samples to demonstrate the transmission of diseases to humans through the wildlife trade.
- The methodology for laboratory testing to detect specific zoonotic pathogens will be conducted according to the OIE Terrestrial Manual 2008 and the experiences of previous studies. The harmonization of testing protocols across countries has been ensured by the organization of a laboratory training program prior to the initiation of fieldwork.

Results

Collection of samples:

- There are 857 samples from oral and rectal swabs and blood samples of 390 wild animals, including 320 bats and 70 rodents, which have been collected in Kampong Chhnang, Battambang, Kampot, and Kandal provinces.
- Those samples are currently stored in the laboratory of the United States Navy Medical Research Unit (NAMRU 2) in Cambodia prior to testing. The scope of that testing, as well as appropriate testing procedures and protocols, are in the process of development in collaboration with NAMRU 2 and the National Veterinary Research Institute (NAVRI) and the application of those procedures and protocols will be used in the testing of those samples.
- There are tentative plans to collect 700 more samples from wild birds, primates, reptiles, and small carnivores for testing to increase the sample for testing to some 1500 animals depending on circumstances and time remaining in the project.

Collecting Field Samples



Collecting Field Samples









Samples Collected

No.	Location	No. of Animals	Number of Samples	Types of Samples
1	Kampong Chhnang Town Kampong Chhnang province	20	40	<u>Oral swabs: 20; Blood: 20</u> <u>Species:</u> Bat (“Horsefield’s Myotis”)
2	Otaki village, Thmor Korl district, Battambang province	25	50	<u>Oral swabs: 25; Blood: 25</u> <u>Species:</u> Mice (“Asian House Mouse” & “Rice Field Mouse”)
3	Bous Trabek village, Teuk Chhou district, Kampot province	19	38	<u>Oral swabs: 19; Blood: 19</u> <u>Species:</u> Bat (“Cantor’s Round Leaf Bat”)
4	Prek Treng village, Kean Svay district, Kandal province	100	100	<u>Oral swabs: 100</u> <u>Species:</u> Bat (“Lesser Asian House Bat”)
5	Por Andeth village, Koh Thom district, Kandal province	45	135	<u>Oral swabs: 45; Blood: 45</u> <u>Serum: 45</u> <u>Species:</u> Rat (“Lesser Rice Field Rat” & “Pacific Rat”)
6	Bous Trabek village, Teuk Chhou district, Kampot province	29	87	<u>Oral swabs: 29; Blood: 29</u> <u>Serum: 29</u> <u>Species:</u> Bat (“Cantor’s Round Leaf Bat”)

Samples Collected

No.	Location	No. of Animals	Number of Samples	Types of Samples
7	Chrok Kley village, Bantey Meas district, Kampot province	30	90	<u>Oral swabs: 30</u> ; <u>Blood: 30</u> <u>Serum: 30</u> <u>Species: Bat</u> (“Asian Wrinkle-Lipped Bat”)
8	Chrok Kley village, Bantey Meas district, Kampot province	39	117	<u>Oral swabs: 39</u> ; <u>Blood: 39</u> <u>Serum: 39</u> <u>Species: Bat</u> (“Asian Wrinkle-Lipped Bat”)
9	La Ang village, Dong Tung district, Kampot province	34	102	<u>Oral swabs: 34</u> ; <u>Blood: 34</u> <u>Serum: 34</u> <u>Species: Bat</u> (“Cantor’s Round Leaf Bat”)
10	Klang Prake, Kampong Chhnang district, Kampong Chhnang province	34	68	<u>Oral swabs: 34</u> ; <u>Rectal swabs: 34</u> <u>Species: Bat</u> (“Horsefield’s Myotis”)
11	Klang Prake, Kampong Chhnang district, Kampong Chhnang province	15	30	<u>Oral swabs: 15</u> <u>Rectal swabs: 15</u> <u>Species: Bat</u> (“Horsefield’s Myotis”)
	Total	390	857	

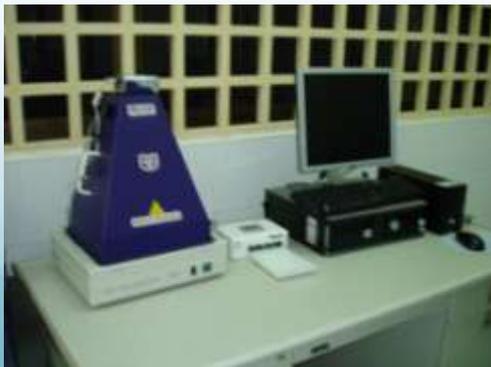
Capacity of AI Laboratory Diagnosis in NaVRI

□ Virus Isolation (Egg Inoculation)



Capacity of AI Laboratory Diagnosis in NaVRI

- Real Time PCR test with 2 types of Primers and Probes (types A and H5)
- Conventional PCR to confirm H5



Related Plans for NaVRI

- Collaboration with the Forestry Administration and the PREDICT 2 project to do surveillance on wildlife with respect to other diseases:
 - Coronavirus
 - Paramyxovirus
 - Influenza Virus

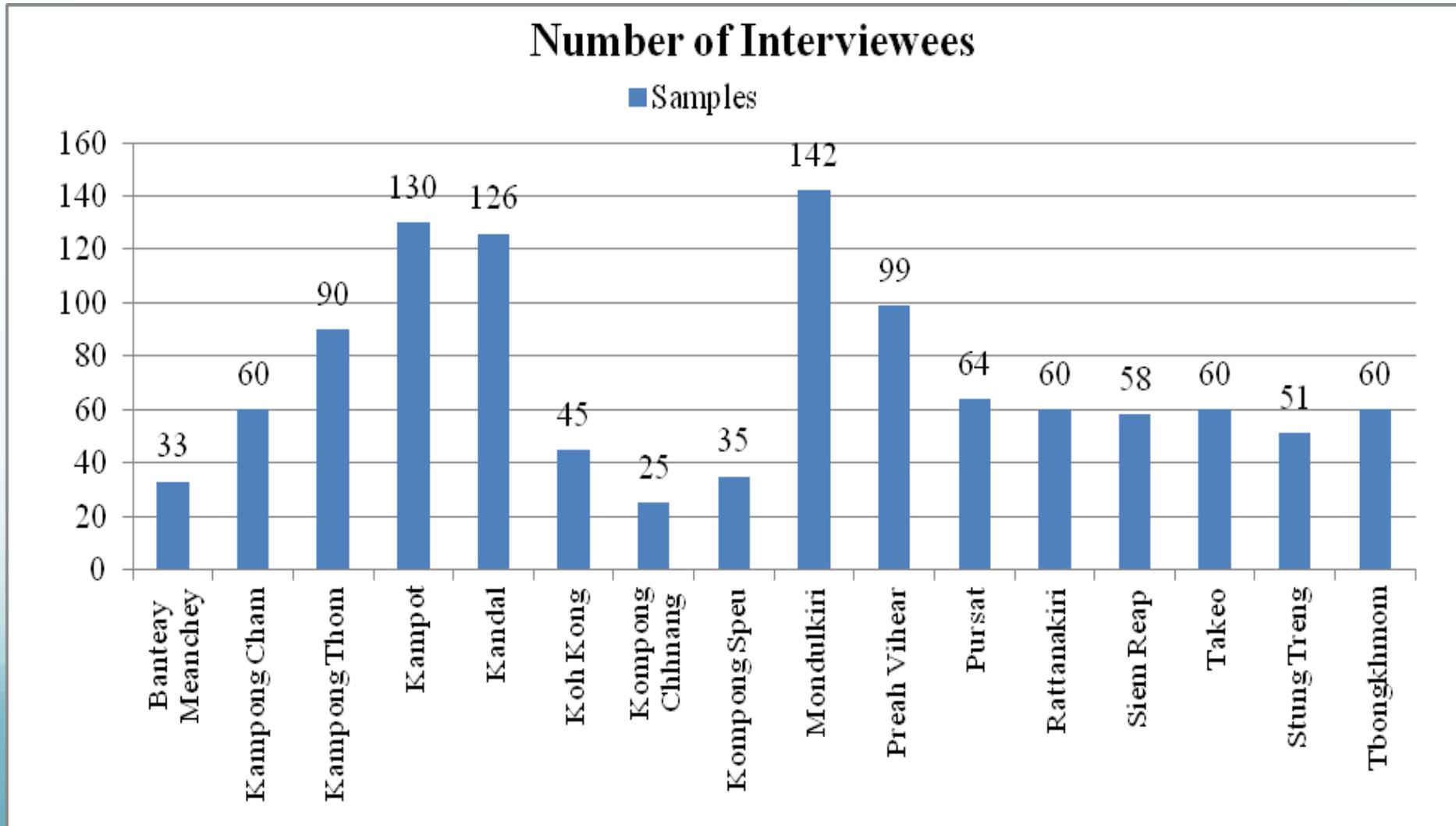
Results

KAP Survey:

- The structured questionnaire on “Knowledge, Attitudes, and Practices’ (KAP) Survey for Zoonoses in the Wildlife Trade was administered by field staff to individuals targeted in Preah Vihear, Kampong Chhnang, Battambang, Kampot, Kandal, Kampong Thom, Steung Treng, Ratanakiri, and Mondulkiri provinces.
- There were 1138 questionnaires distributed to interviewers to be administered in 99 communes of 43 districts in 16 provinces. There were 65% male respondents and 35% female respondents with ages that ranged primarily between 20 to 60 years old (90.9%).

Results

KAP Survey



Results

Conservation and Awareness Raising Information:

- The presence of the project team in the field continues to have significant benefits associated with local community members receiving conservation and awareness raising information regarding zoonoses prevention and wildlife conservation through briefings delivered on potential health-related impacts of wildlife consumption
- Villagers are regularly advised to reduce hunting and the consumption of wildlife, but in those instances in which wildlife continues to be consumed, villagers are counseled that the meat that is eaten should be thoroughly cleaned and cooked.

IMPACTS

- It is expected that the project will lead to improved understanding and awareness of the potential health-related impacts of the wildlife trade and will contribute to the prevention of zoonotic and emerging infectious diseases from wildlife, as well as encourage the safe and wise use of wildlife as an important source of food protein for local people. Such outcomes will broaden the importance of wildlife diversity conservation and mitigate disease transmission associated with the illegal wildlife trade in the region.

Thank you for your attention!



**Collaboration and cooperation for sustainable landscape management,
conservation and diseases free to make world safer habitats for all**

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