Through the cooperative agreement between the Emergency Center for Transboundary Animal Disease (ECTAD) – FAO Viet Nam Programme and the Viet Nam Administration of Forestry (VN Forest) - Ministry of Agriculture and Rural Development (MARD), a wildlife farm census was conducted in 12 pilot provinces by the Provincial Forest Protection Departments (PFPDs) including Ba Ria – Vung Tau, Ben Tre, Binh Duong, Binh Phuoc, Binh Thuan, Dong Nai, Dong Thap, Lam Dong, Long An, Tay Ninh, Tien Giang and Ho Chi Minh City from May - July 2014.

This census documented 4,099 operating wildlife farms and collected updated information on the 1,554,511 farmed animals, including 996,731 individuals of 175 wildlife species, and 335,963 individuals of 15 domestic and pet birds species, and 221,724 individuals of aquatic and other species. Additionally, there were 1,907 non-operational farms recorded holding 158,093 animals belonging to 45 wildlife species. Farmers stated that they have stopped farming wildlife because of the significant price declines for certain farmed wildlife species. However, it is unclear what they will do with the remaining large number of wild animals and this poses an important management issue to address.

Relevant information and distribution maps derived from this census better quantifies and qualifies the wildlife farming systems in the 12 pilot provinces. This in turn can help strengthen management of wildlife farms in general, and provides important insights into aspects of animal husbandry, biosecurity, production practices, food safety, and health issues.

This project also determined that at least 43,000 individuals from higher risk species/families that pose a risk of zoonotic disease transmission are being raised in the 12 Provinces surveyed including primates, civets, rodents, and wild/hybrid boar. Furthermore, there is a significant number of wildlife that dies at farms and there is no veterinary care or oversight provided, including a lack of diagnostics and necropsies to determine the cause of deaths. As many of these animals are raised as a food resource, this is an area of food safety that also has relevance to ensure safe food for consumption.

The census results demonstrate the importance of implementing a census annually to properly document the extent and type of wildlife being farmed. The census results also show that there is variation, not only in the total number of animals, but also in the numbers of wildlife farms, e.g. non-operational farms as recorded or the newly-established ones. Therefore, the wildlife farming database must be annually updated.
KEY FINDINGS

The Census Method
The census tools developed within the project for data collection are simple to train people to use, easy for local Forestry staff to apply in field conditions, produce valuable wildlife farm management information. The information not only helps VN Forest and Department of Forestry Protection (DFP) with management, but the information is valuable to other sectors such as livestock production, animal health, public health and conservationists to improve their understanding of: 1) wildlife farm registration challenges; 2) rare and precious species being farmed; and 3) disease, biosecurity and food safety risks.

Capacity Development
Training and conducting the census has enhanced the technical capacity of the Provincial Forest Protection Departments staff. This, in turn, strengthens the management of wildlife farms in general, and helps address specific issues related to non-operational farms and remaining animals, additional regulations that may need to be implemented, or additional enforcement necessary to address specific issues identified in this survey.

Number of farms and animals
Data was collected from 4,099 active wildlife farms and 1,907 wildlife farms that had recently stopped rearing animals. From active farms, information on 11,009 groups of animals kept on farms consisted of 5,597 wild animal groups and 5,412 domestic animal groups. In total of 1,554,418 animals were being raised at surveyed farms, of which 996,731 wild animals belong to 175 species from 5 orders.

The most common types of farms were for rearing porcupines (1,535 farms/25,385 animals), oriental rat-snake (675 farms/112,023 animals) and deer (524 farms/3,452 animals) while the highest in overall numbers of individuals were crocodile, softshell turtle, and oriental snake accounting for 618,540 individuals or 62.1 % of all animals.

Regulations
Among wildlife documented, 533,091 animals or 53.5% of all animals counted consisted of 82 CITES listed species. From a conservation perspective, this census demonstrated that more than 50% of wildlife being farmed either belonged to a CITES listed species or belong to species listed in the Viet Nam Government regulations. Furthermore, according to Vietnamese government regulations, wildlife documented consisted of 722,789 animals or 72.5 % of all animals counted, and these included 87 managed wildlife species (Circular 47 - List IB, IIB and common wildlife animals).

Farm registration
85.4 % (3,499 farms) of the wildlife farms surveyed are registered with VN Forests and most of the farms underwent registration between 2010 – 2013 (85.5%). 600 unregistered farms keep 7,348 animals belonging to the Circular 47 government list. The most popular unregistered farm species are porcupine, wild-boar and ring-neck pheasants.

Wildlife farms that recently closed
Of the 1,916 wildlife farms that have recently stopped rearing wild animals, most previously kept porcupine (924 farms with 13,062 animals), crocodiles (304 farms with 41,768 animals), rat-snakes (191 farms with 14,142 animals), and wild-boar (188 farms-3,745 animals).

Farming of multiple species
Most wildlife farms (95%) keep 1-2 wild animal species. There are only 17 farms that keep more than 10 species. Seventy percent of the wildlife farms also have domestic animals with dogs (53.7%), chickens (37.1%), cats (9%), pigs (9%) being the most common. Of those farms, 54% keeping 1-2 livestock/domestic species while 14.3% keep 3-4 livestock/domestic species.

Breeding animals
Some species of reptiles such as crocodiles, pythons, and oriental rat-snares are very successfully reproducing in farm conditions with 716,892 animals being born in 2013. Meanwhile, some mammal species (such as tiger, wildcat, bears) also appear to be reproducing well in capacity but details on new born animals was difficult to obtain. Wild-boar (64%), porcupines (51%), Asian palm civets (35%) and crab-eating macaque (19%) also successfully bred at the respective percentage of wildlife farms.

Risk for Zoonotic Disease Transmission
Civet, primate, and wild boar farms which pose a higher risk for transmitting potential zoonotic diseases to people were also documented while attention to food safety issues were also noted as manyfarmed wildlife are raised for consumption.

Farm size
The size of animal flocks or herds is also different among species and depends on the purpose of keeping specific animals and species. Mammals are kept in small flock sizes (10-50 animals) while reptiles are kept in larger flock sizes (100-2000 animals). There are 24 farms that had more than 5000 animals and the biggest crocodile farm of had 53,993 individuals.
Origin of animals
From 5,587 animal groups surveyed, there were only 293 groups (5%) exploited directly from the nature. Of the most commonly farmed species (more than 20 farms), starling farms reported the highest ratio of farms from which animals came directly from nature 57%. Other animals that are not successful breeding in farm conditions also had a high ratio of animals derived from nature such as Dove (51%) and bear (42%). Some uncommon animal farms reported that most animals come from nature including tiger (100%), rabbit (100%), and squirrel (71.4%). Of the high risk of zoonotic disease transmission species, only 1.1% of the porcupines farms, 2.5% of wild-boars farms; 6% of the civet farms and 29% primates farm owners said that their animals originated from nature.

Mapping of Distributions
Large size maps of the types of wildlife farms and their locations and were printed and provided to Provincial authorities for better management of wildlife farming.

**KEY RECOMMENDATIONS FOR A SUSTAINABLE SURVEY MODALITY**

Forestry protection staff at all levels of government need to be made aware of these tools and training materials

It is necessary to decide whether this newly developed census tool should replace the currently used annual reporting forms and if so, this should be announced through official mechanisms

The census should be expanded to other Provinces to ensure that information is collected consistently throughout the country

A wildlife farming national registration database should be developed to facilitate easier monitoring of wildlife farms in Viet Nam and this database should be linked to the census tools developed in this project

Each wildlife farm needs to be assigned a unique identification code / number

Training materials for farmers should be developed including a manual that provides general guidance on wildlife farm housing standards, biosecurity, food safety, and disease prevention

A review of wildlife farming legislation should be undertaken to identify gaps and modifications necessary to address lessons learned from this baseline census

A strategy and approach needs to be developed to engage veterinary services to support better health management of wildlife, production experts to support improved biosecurity and farming practices, and enforcement personnel to address issues at farms where violations of regulations are taking place, including issues surrounding CITES listed species.

Regularly conducting the wildlife farm baseline census to maintain an updated wildlife farm database in the 12 pilot provinces

Conducting a similar wildlife farm baseline census in the 10 remaining provinces in the South of Viet Nam

To develop a software package and database for managing and regularly updating the wildlife farm baseline census information

Use the results from this census to address wildlife farming management issues including but not limited to conservation, production practices, food safety, and zoonotic disease prevention and control