1 Natural distribution

The pre-1980 period, by mean of results of field researches and information from local people, that proved elephant distribution almost of the mountainous and highland regions on the west of Vietnam. Up to 2002, the areas of elephant distribution was reduced, there were remained approximately from 11 to 20 shelter areas for elephant (P.J. Heffernan and Trinh Viet Cuong, 2004). Nowadays, these areas are only around from 8 to 9. With small populations, elephant exists solely in the isolated areas from the North of Central part, along the Laotian – Vietnamese border areas, the Central Highland along the border with Cambodia, the South of Central part and the East of South Vietnam. Daklak is one of provinces in the Central Highland have numerous elephant population.

Figure 1: The maps of elephant distribution areas in Vietnam

2 Wild elephants

2.1 Status

Wild elephants in Vietnam are declining. According to data sources and estimate from animal researchers in Institute of Ecology and Biological Resources (IEBR), Forest Inventory and Planning Institute (FIPI), Forest Protection Department (FPD) and experts of WWF, FFI,
Birdlife, etc. during from 1998 to 2004, it has proven that number of wild elephants reduced by time period.

*Table 1: The estimated declining number of wild elephants in Vietnam*

<table>
<thead>
<tr>
<th>Time</th>
<th>Minimum individual number</th>
<th>Maximum individual number</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975 – 1980</td>
<td>1,500</td>
<td>2,000</td>
<td>Le Vu Khoi and Do Tuoc, 1989</td>
</tr>
<tr>
<td>1990 – 1992</td>
<td>400</td>
<td>600</td>
<td>Dawson et al., 1996</td>
</tr>
<tr>
<td>1993 – 1995</td>
<td>258</td>
<td>305</td>
<td>Trinh Viet Cuong, 1993</td>
</tr>
<tr>
<td>1997</td>
<td>160</td>
<td>170</td>
<td>Do Tuoc, 1997</td>
</tr>
<tr>
<td>1997 – 2000</td>
<td>85</td>
<td>114</td>
<td>Trinh Viet Cuong, 2002</td>
</tr>
<tr>
<td>2004</td>
<td>76</td>
<td>94</td>
<td>IUCN, 2004</td>
</tr>
</tbody>
</table>

*Figure 2: The decline of wild elephant number in Vietnam (from 1980 to 2004)*

From 2004 to now, Vietnam have not been countrywide adequate studies or surveys about wild elephant. Insufficient data are given. Occasionally, there had been information from locals in the North and the South of Central part, the Central Highland and the East of South Vietnam about on appearance of several or some very small populations of the wild elephant.

In Daklak particular province, the result were reported by Department of Forest Resources Environment Management (FREM) belong to Tay Nguyen University in December of 2009. They conducted the survey to follow the elephant track then
establish regression equation to simulate the relationship between age and hind footprint length of elephant. That was base for defining wild elephant appeared frequency and then used biological statistical analysis to estimate the number of wild elephant around of 83 to 110 individuals. They live mainly in natural forest of Yok Don national park (NP) in Buon Don District and forest enterprises locate in Ea Soup and Ea H’Leo districts. The wild elephant number concentrated in Yok Don NP around of 55 to 63 individuals, he remainders ranged in forest areas belong to Ea H’Mo and Ya Lop enterprises around of 24 to 42 individuals and approximately 4 to 5 individuals in forest area of Chu Pa enterprise.

New feet and dungs of elephant in deciduous forest of Yok Don NP và Ea Soup district, Daklak province

Photos: FREM, 2009

Divide elephant’s age into several age levels, based on physiological, biological characteristics and probability for taming, of domestic elephant in Daklak as below:

Table 2: Age level dividing of elephant in Daklak

<table>
<thead>
<tr>
<th>Age level of elephant</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>Babies, probability for taming</td>
</tr>
<tr>
<td>5 – 15</td>
<td>Young, cannot reproductive</td>
</tr>
<tr>
<td>16 – 45</td>
<td>Middle aged, reproductive</td>
</tr>
<tr>
<td>46 – 55</td>
<td>Old, reproductive weakening</td>
</tr>
<tr>
<td>&gt; 55</td>
<td>Very old and weak, over reproductive</td>
</tr>
</tbody>
</table>

Source: FREM, 2009

Photos: FREM, 2009

Beside IUCN data in 2004 for elephant number of countrywide, this estimated data for Daklak province rather more. This is explained by two competences: i) this estimation data is
outcome of the detail and concrete survey in Daklak province scale; ii) the number of wild elephant in Daklak seems increase may be by good natural breeding and elephant transferring in deciduous forest areas between Cambodia and Vietnam. Moreover, Yok Don NP is fairly larger and safe area for viability of some wild elephant herds.

**Figure 3: Number of wild elephant follow age levels in Daklak province, 2009 year**

The number of wild elephant in Daklak, focus on age level from 16 to 45 year old with 39 individuals. Those are potential individuals for breeding and population development in the wild. There are about 7 to 10 babies’ individuals within probability for taming, thus within 5 next years the local people cannot offer to caught for taming as a long tradition, with desire to supplement the domestic elephant number of local ethnic minority people. This is considered issue in conservation both of them.

In natural forest of Daklak province, wild elephant gather up mainly in the deciduous forest. In dry season, there are not enough foods and waters for their life, they have moved to evergreen forest or semi- deciduous forest along rivers or streams. Sites could often encounter elephant or their tracks are forest along rivers or streams, pools, ponds, etc. with many bamboo species around. Therefore, wetlands habitats are critical factors related to wild elephant exist in the deciduous in dry season.

That result also found out the movement trend of wild elephant herds in natural forest areas in Daklak:

- Three herds, including about 15 to 19 individuals, that range around the forest protect station number Ten of Yok Don NP, trend to reciprocal move with Cambodia border between dry and rainy seasons
- Four herds about 39 – 44 individuals, that range around the forest protect station number Four and the Yok Don mountain of Yok Don NP only move inside of NP forest. Because they are segregated by the Serepok river and Chu Minh mountain chain
- Three herds about 28 – 47 individuals, that range in forest areas of Ya Lop, Ea H’Mo and Chu Pa enterprises. Virtually they cannot move outside because the Northern border with cultivated areas of Gia Lai province and the remaining direction also are adjacent to
farming areas. This elephant population in their locations have been isolated, accordingly elephant often moved into the surrounding cultivated areas to seek foods and engendered human elephant conflict (HEC) recent times.

Figure 4: Map of wild elephant distribution in Daklak

2.2 Reasons of decrease in population of wild elephant in Vietnam

According to analyses of P.J.Heffernan and Trinh Viet Cuong 2004, the main reasons leading to the depletion of elephant populations from half a XX century are:

- Almost all natural forest area in countrywide were exploited to collect woods, non timber forest products (NTFPs)
- Forest clearance for agriculture, industrial plant areas and residences
- Forest land use changing for other purposes on social economic development
- Ivory poaching and impacting reproductive competence for wild elephant population
- Poaching and getting elephant’s products, such as tail’s hair, feet, etc.

At once reduction of population number by almost of elephant’s habitats have been degraded, foods were became exhausted, some individuals of wild elephant due to different reasons. During ten years from 1989 to 1999, there were 60 cases wild elephants were dead due to HEC, poaching, transferring, and unknown. That was happened in forest areas belong to 15 districts of 9 provinces in nationwide, comprise: Lai Chau, Nghe An, Quang Nam, Kon Tum, Binh Dinh, Dak Lak, Dong Nai, Binh Thuan, Ba Ria – Vung Tau (Trinh Viet Cuong, 2000)

Status of wild elephant population in Daklak is the same causes mentioned above, namely
- Many of the deciduous forest areas, which were habitats of elephants, were exploited to collect woods, converted to cultivation, coffee plantation, and new residences (residential
areas). Hence, wild elephants had lost habitats, source of diversified foods medicine in nature and large migration corridor

- Poaching elephants for products: ivory, tail hairs, feet, skin, etc. is still occurring not only wild elephants but also with domestic elephants in recently
- Human elephant conflicts are regular frequently occur, more and more seriously
- Some young individuals were dead due to fall into holes, sink into the mud, drowning

2.3 Human Elephant Conflict (HEC)

Human elephant conflict is one of principal threatening to exist of elephant population in Vietnam (P.J.Heffernan and Trinh Viet Cuong, 2004). Human rapid population growth with social economic development have influenced gravely on viability of wild elephant. Deforestation leads to HEC become violently. 2004 year (by 2004), there are approximately 14 elephant living areas. Those have happened HEC with different degrees. Consequently, HEC damaged housing, property, and life of local people. There were 26 dead persons from 1993 to 2004 period (FPD, 2004). HEC inflict heavy impact on the local economy and rural livelihoods.

In Daklak province, not including Yok Don NP, the deciduous forest areas in Ea Soup district are distributed areas of wild elephant. In recent time, HECs have been proportionate to the area of forest converted in the interests of human expansion and development. Wild elephants were isolated in the areas about 18,000 hectares and moved toward surrounding cultivated and farming areas to search for foods, water, and essential minerals for their life. That causes damages for local people. As mentioned, data of substantial damage on crop of inhabitant live in three communities Ya Lop, Ia R’ve and Ia J’loi of Ea Soup district in 2008 over 600 million Vietnam dong and 2009 around 750 million Vietnam dong (Ea Soup district People’s Committee, 2009). Growing tendencies about wild elephant appear and damage crop in above locals from 2005, count of 42 individuals in 2006, and approach as more as residential areas of local people but appeared frequency of wild elephant lessen in 2009. The local people tend to do what they can to protect themselves and drive wild elephant away, but it proved less effectively.

3 Domestic elephant

3.1 Status

Similar to others Asian countries, elephant has an enormous cultural and religious significance in Vietnam. Historically, elephants graced the Royal Courts and were reverred by
some Vietnam’s ethnic minorities. During the War, elephant were employed in transporting. After the War, domestic elephant were still very useful animals in agricultural production and in other daily activities of local people such as transporting, logging, participating in celebrations and festivals. Nowadays, along with the modernization movement of the societies the role of domestic elephants has changed to serve the tourism industry, circus, to be bring up in the zoo, and participating in celebrations and festivals.

In Vietnam, domestic elephants are mainly concentrated in Daklak province. The highest numbers were in Buon Don and Ea Soup districts where the ethnic minorities such as Laos, M’Nong, J’rai have long held the tradition of catching and taming wild elephants. Now some of them are sold to other locals inside Daklak for example Lak district for tourism. Moreover, domestic elephants also are bringing up in some zoos, circuses, and tourist areas nationwide.

In Daklak, According to Daklak FPD, numbers of domestic elephants lessen along times as mentioned, 1980 year there were 502 individuals, 1990 that numbers were 298 individuals, declined to 96 individual in 2000, 64 individuals in 2006. In 2009, there were 61 individuals with 23 male and 38 female. However, they are only 54 individuals up to now with 19 male and 34 female.

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual number</td>
<td>502</td>
<td>115</td>
<td>84</td>
<td>64</td>
<td>61</td>
<td>54</td>
</tr>
</tbody>
</table>

Source: FPD in Daklak, 2011
As a result, currently there are 82 individuals with 21 male and 61 female of domestic elephants in Vietnam. In comparison with 2000 year, there were 165 individuals in countrywide, numbers of domestic elephant reduced 80 individuals, make up 48.5% within ten years. Actually, elephants are bringing up in the zoos, circuses only grow old follow times, but they are sustainable. The decline of captive elephant in countrywide is focus dependent on reducing of domestic elephants in Daklak province.

3.2 Reasons of decrease in population of domestic elephant in Vietnam

Reasons of decrease of both quantity and quality in domestic elephant population in Vietnam

- Natural forest areas, where graze elephants, have reduced so not enough foods and essential demands for elephants
- Before 1997, the owners are local people sold many elephant because they met with serious with difficulty to care elephant. During the time from 2000 to now, tourism development in locals elephants were sold to tourist companies
- Most of domestic elephant attend to tourist companies. They are active during day and are exhausted after works. There are not enough time for restoring their health, not enough foods and necessary conditions for their life
- Some individuals died because they were very old and weak
- Others were attacked and killed to collect ivory, tall hairs
- Lack of special veterinary and health services care for elephant
- Elephant belong to private owners or companies. They have been taking care dispersed correspondingly, their reproduction are decline and lost
- The law prohibits catching for taming wild elephant to supplement domestic elephant herd

4 Elephant management and conservation

4.1 Status of elephant conservation in Vietnam

Both of wild and domestic elephants are threatened with extinction in Vietnam. A long with times, numbers of elephants is inversely proportional to social economic development. This decline is consequence of reasons as above present

Elephant conservation in Vietnam depends essentially on international and national laws. The Vietnam Government with supported of International conservation organizations have efforted to conduct activities to conservation this large species.

- October of 1992, the first wild elephant survey project was implemented in Thanh Hoa province. From 1993 – 1994, the same surveys were implemented continuously in locals belong to Nghe An province.
- In 1996, The action plan with title: “Rescue of elephant species threatened with extinction in Vietnam” was established by The Forest Protection Department (FPD) and cooperation with the FFI in Indochina (Dawson, 1996). Objectives of this plan are help remain wild elephant populations exist and development, and reduce HECs. The plan chose three priority sites that was considered practicable areas for elephant conservation, include Nghe An, Quang Nam and Daklak provinces.

- In decrees such as No.18/HDBT, 1992; No.48/CP, 2002 and No.32/ND-CP, 2006 as for determining the list of rare and precious fauna and flora, and regulation for their management and protection, elephant species is listed in IB group, which means that all of exploitation hunting, killing, selling, etc. are strictly prohibited.

- In April 1994, Vietnam became a signatory to the Convention on International Trade of Endangered Species (CITES). Since then, elephant species has been included in Annex I. All means of exporting and importing elephants and their products for commercial purposes are prohibited.

- The Government has already established a protected area (PA) network, and there are 7 national parks and natural reserves from Son La province (in the North) to Dong Nai province (in the South). The most important PAs are Pu Mat nature reserve in Nghe An provinces, Yok Don national park in Daklak province and Cat Tien national park in Dong Nai province.

   In particular, the elephant conservation project was proposed in the end of 2009 in Daklak province, which links natural conservation with traditional culture related to elephant. This project has been initiated in 2011. The hopefulness here is the starting point for detailed activities of elephant conservation in Vietnam

4.2 **Detail information about proposal the elephant conservation project in Daklak**

   The elephant conservation in Daklak was proposed base on actual analyses and evaluations. This result achieve from two steps of analyses, those are cause and effect analysis and target analysis.

   Problems were found out related to wild elephant conservation, domestic elephant management, and traditional culture related to catching and taming elephant

   **i) As regard with wild elephant**

   - Lack of systematic management, such as mechanisms for protection and management in forest areas belong to different owners, organizing to protection, surveying, monitoring, etc.
   - Lack of systematic databases about wild lephant such as distributed sites, rule of their move, where are their transfer, behavior, etc.
   - Lack of international cooperation for experience sharing and apply technical scientific advances in elephant conservation
   - Human elephant conflicts increase cutthroatly, but lack of effective solutions
   - Landscape, habitat planning for elephant conservation did not mention
   - Deforestation and changing some deciduous forest, where elephant live, to cultivation land, industrial plantation,
   - Lack of knowledges about elephant conservation of conservation staffs and managers
Figure 6: Problems in elephant conservation and management in Daklak

ii) As regard with domestic elephant

- Elephant reproduction is limit because domestic elephants are bring up individually, lack of number of reproductive elephants
- Lack of mechanisms for benefit sharing among elephant owners and between tourist companies with the local owners
- Could not catching and taming wild elephant to supplement domestic elephant population
- All of elephants are used to serve tourists. Their works are continuously consequently their health and breeding decline
- Some part of elephant, such as ivory, tall hairs, skin, etc. become products for trading
- Lack of contributions from related tourism for domestic elephant conservation
- Lack of veterinary, health and breeding care for elephant
- Lack of foots and essential needs for their existing and development

iii) The traditional culture related to elephant catching and taming is lost in oblivion

- Most of craftsmen is very old
- The experienced local people and mahouts have not elephant. This is one of proplem for training and preserve tradition for posterity
- Changing and selling domestic elephant. Several tourist companies have accumulated remained elephant. That is reasons made elephant traditional cuture and symbol are fading away now in life of ethnic minority communities

On the basis result of the problem tree analysis, the target tree was set to solve the system of causes. The elephant conservation was proposaled. This is necessary and impotant solution in this times for conservation this endangered species. Through establishing an elephant conservation center enough competences to respon needs for conservation management, also to supply services for elephant health and breeding care
The project components are designed. Aim of project is sustainable management of wild elephant populations, domestic elephants, and historical and cultural traditions of ethnic minority communities contribute to development of economy, culture, society, and sustainable environment in Daklak province.

**Figure 7: Targets for elephant conservation and management in Daklak**

Project’s objectives will form the three main project components, mainly:

**Component 1:** Sustainable management of the conservation of wild elephant populations

The herds of wild elephant with about 83 to 110 elephants per flock will be monitored and conservable managed in the stable habitats in the Yok Don National Park and the forest stands belonging to forestry enterprises of Ya Lop, Ea H’Mo and Chu Pa in the northern part of Ea Soup district and Ea H’Leo district. The wild elephant herds will be guaranteed with their habitats and food. They will be protected and be able to develop into herbs in nature.

**Component 2:** Development of the domestic elephant herds in Daklak Province

The 61 remaining individuals of domestic elephant are now managed and applied techniques of health care and nutrition. The studies of natural or artificial reproduction have been conducted. The specific policies should be implemented to ensure income for all owners of domestic elephants and elephant artists who participate in conservation programs and the development of the elephants. The domestic elephants have good health and fertility to maintain number of individuals in long-term.

**Component 3:** Maintenance and development of traditional culture in the management and use of elephant by ethnic minorities in Daklak

The experience and indigenous knowledge of elephant craftsman in the health care program, reproductive elephants should be promoted; traditional cultural values should be passed on to the next generation through education and training.
Semi-deciduous forest mix bamboo

Wild elephant habitats in Daklak

Photo: FREM, 2009

References