



On the back of an Asian elephant (*Elephas maximus*) – the backside of the elephant tourism with focus on welfare

*På ryggen av en asiatisk elefant (*Elephas maximus*) – baksidan av elefantturismen med fokus på välfärd*

Veronica Turesson

Skara 2014

Etologi och djurskyddsprogrammet



Fig.1Elephant-back riding in Thailand (Turesson, 2007).

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Studentarbete 587, Skara 2014

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I denna serie publiceras olika typer av studentarbeten, bl.a. examensarbeten, vanligtvis omfattande 7,5-30 hp. Studentarbeten ingår som en obligatorisk del i olika program och syftar till att under handledning ge den studerande träning i att självständigt och på ett vetenskapligt sätt lösa en uppgift. Arbetenas innehåll, resultat och slutsatser bör således bedömas mot denna bakgrund.

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Abstract

Thailand had well over 26 million international visitors in 2013 and the demand after elephant-related activities are on many people's to do list when visiting Thailand.

The population of the Asian elephant in Thailand today consists of roughly 6000 individuals and about 3000 of these are privately owned and held in captivity. Almost all of the captive elephants are used for tourism purposes but many of the owners lack the resources needed to provide sufficiently for these large animals. This leads to that the elephants may suffer from medical problems, injuries, malnutrition and develop stereotypic behaviors. Thus the welfare of these captive elephants can be seriously questioned.

The Asian elephant is listed as endangered by the IUCN and even though it's illegal to harvest elephants from the wild, scientists estimates that 150 – 200 elephant calves are taken each year. This affects the wild population since for every elephant calf that's taken an average of four grown elephants are killed in the process. After being captured the calves undergo a breaking process called Phajaan. This process includes restraining the animal and then starvation and heavily abuse until the elephant becomes apathetic. This is known as “breaking the elephant's spirit”. For most elephants the beating continues every day for the rest of their life so tourists can ride, cuddle and feed them – all for this “unique wildlife experience”.

The laws concerning elephants in Thailand are few and those existing are not up to date. Therefore an amendment is crucial for the elephant's future welfare. Also education of both tourists and mahouts are important if we are to improve the elephant's welfare. The best solution for tourists is to see elephants in natural preserves than to go elephant back-riding, watch elephant shows or support street elephants, because there their needs can be better fulfilled.

Introduction

The story of a baby elephant that's been captured by humans usually go like this: In a village in Thailand there is an elephant calf in a wooden cage. She is about four years old and has just watched her mother been killed when she tried to protect her baby from the people that now has her. She was illegally taken with brutality from the wild. Now she's immobilized in this small cage and there are people stabbing her with sharp tools over and over again. This beating goes on for days, with no food or water, because this people are using an old Asian ritual to break the elephant's spirit. *They want to make it fear humans so it will obey them.* This is the reality for most of the elephants living in captivity in Asia, not just in Thailand (King, 2005; Kontogeorgopoulos, 2009; Duffy & Moore, 2011; Thongma & Guntor, 2011).

Use of elephants in Thailand

Suter *et al.* (2013) states that elephants have been used by humans for at least 4000 years and that there is an old culture with owning and working with elephants in Southeast Asia. A person that has the right knowledge and skills for handling elephants is called a mahout (Hart, 1994). According to the same author the mahouts traditionally used their elephants in the logging industry and for transport. In the 1840s until the 1970s there were a lot of elephants taken from the wild to be used for logging (Suter *et al.*, 2013). In 1989 when the Royal Thai Government banned logging there were a lot of unemployed mahouts and elephants, so they started to go on the streets and beg (Niskanen, 1998). This was a totally new setting for the elephants since cities are full of noise and people and far from their natural environment (Hart, 1994. Chatkupt & Sollod (1999) conducted a study to investigate working elephants in Thailand. They studied a total of 81 elephants from different places around Thailand and it showed that 45 % was former loggers, 43 % had never worked in the logging industry and 14 % were of unknown status.

Today elephants play a big and important part of the tourism industry in Thailand (Chatkupt & Sollod, 1999; Kontogeorgopoulos, 2009). The same articles says that nearly every elephant that's kept in captivity is used for tourism purposes and that most of these elephants are held in so called elephant camps which are a semi-captive setting.

The Asian elephant

The Asian elephant (*Elephas maximus*) is the largest living land animal in Asia and is distributed in thirteen countries across East and South East Asia (Ortega & Eggert, 2004). They live in the forests and are most active at night between dusk and dawn, but they also lay down to sleep a few hours every night (Fickel *et al.*, 2007). During the day they prefer to be in the shade and it is also in the daytime that elephants get most of their rest (Ortega & Egget, 2004; Fickel *et al.*, 2007; Joshi, 2009).

According to an article by Rosmain *et al.* (2014) Asian elephants require about 200 kilos of vegetation and they drink up to 190 liters of water every day. To get sufficient nutrients they spend between 12-20 hours foraging each day and just four hours sleeping (Ortega & Eggert, 2004; Joshi, 2009).

The birthrate in captivity is low and not adequate to fulfill the needs for new animals, which leads to illegal harvest of young animals from the wild (Goderey & Kongmaung, 2009). It's also easier to keep females and calves than bulls so the demand after new young animals is very high (Hart, 1994).

Welfare problems

Godfrey & Kongmaung (2009) declares that big welfare problems for captive elephants are the lack of inadequate fodder, both the amount and diversity. Chatkupt & Sollod (1999) saw that access to adequate shade was the most significant factor for the elephants if they were to be in good condition or not. The same study also showed that elephants located near places with a lot of tourists worked longer hours.

Phajaan as mentioned above is the term for the method that's being used to "break down" the elephant (King, 2005). Phajaan involves separating the calf from its mother and restraining it with ropes or put it in a small wooden cage (Kontogeorgopoulos, 2009; Duffy & Moore, 2011).

They are picketed for days while undergoing this "breaking process" and the mahouts use different techniques for this but it usually involves being hit, poked, starved and sometimes burned (Duffy & Moore, 2011).

In 2002, the people for ethical treatment of animals (PETA) did a huge campaign about Phajaan and released pictures and films that showed baby elephants being abused in this so called ritual (Laohachaiboon, 2010). The same writer says the government in Thailand said that this was necessary and part of the culture in Thailand and they defended it by saying that beating the elephants was not always required - sometimes it worked just to restrain them.

When the elephants are not put to work they are restrained via leg chains (Fig.2) (Kontogeorgopoulos, 2009). The same article also states that bulls often are shackled with chains on two legs, often between the front legs. Gruber *et al.* (2000) says that shackled elephants have a reduced welfare and he observed that elephants in circuses showed more stereotypic behaviors when picketed than being held in groups in paddocks.

Asian elephants have an average lifespan of 70 years in the wild, but in captivity they have a reduced lifespan due to the harsh condition (Clubb *et al.*, 2008). The same study investigated the lifespan of elephants that was kept in zoos, and they saw that captive-born Asian elephants had an average lifespan of 41.7 years. The same authors mean that the reduced lifespan in captivity is a clear indicator of a defective welfare for the elephants.

Animal legislation in Thailand

In 1900 there was only one law in Thailand concerning wildlife, 119 RE Elephant Act (1900), and it only included Elephants (TSCWA, 2014). In 1960 the government engrafted the Wildlife Protection Act, and it was updated the last time in 1992 (TSCWA, 2014). This protection act only concern wild populations of elephants and not the elephants in captivity since in Thailand captive elephants are considered as working animals and not as wildlife (Thai laws, 2014). The Department of livestock is the ones that are in control of the captive elephants (Godfrey & Kongmuang, 2009). The Draught Animal Act of 1939 holds the regulations for the elephants that are held in captivity (Godfrey & Kongmuang, 2009). The authors indicate that the Draught animal act is not up to date and that it needs to be modernized to fulfil elephant's current needs.



Fig.2 Elephant calf shackled by chains in Kanchanaburi (Turesson, 2009).

The Asian elephant is listed as endangered (EN) on the IUCN Red list (IUCN, 2013). They are also protected by CITES under appendix I, which means that all international trade is forbidden (CITES, 2013). Since the captive elephants are considered as livestock they are not covered by CITES which is a big problem (Godfrey & Kongmuang, 2009).

Regulation, laws and registration for elephants are three very important key factors when it comes to changing the welfare for the animals to the better. I believe that if these factors work properly and are kept up to date this can contribute to improve the welfare of the captive elephants.

Purpose and question formulation

The Asian elephant is a big animal with big needs (Rosmain *et al.*, 2014). They require a large amount of food and water and they need to live in very specific conditions to ensure a good welfare (Ortega & Eggert, 2004). This includes inter alia a well functional social group, right sort- and amount of food and water, and the ability to rest during the hottest hours (Ortega & Egget, 2004; Fickel *et al.*, 2007; Godfrey & Kongmuang, 2009). So the question is if this can be fulfilled for the elephants in the tourism industry?

The purpose of this literature review is to investigate how the captive Asian elephants are being affected by working within tourism and to see what's required to change the welfare to the better for the animals concerned.

- How is the welfare status of the elephants that are working within tourism today?
- What are the major threats to the Asian elephant population? Is tourism one of them?
- What type of legislation is there for elephants in Thailand?
- What changes within the elephant tourism industry are required to improve the welfare of the elephants?

Materials and methods

I chose to do a literature study over the Asian elephant's situation in the tourism industry in Thailand.

My search words were:

- Asian elephant
- Asian elephant Thailand
- Conservation Asian elephant
- Legislation animals Thailand
- *Elephas maximus*
- Elephant human conflict
- Animal welfare Thailand
- Legislation Thailand
- Tourism animals Asia
- Social behavior
- Habitat

- Stereotypic behavior
- Stress

I mostly used Web of science when I was searching for articles, but I also used specific journals that I found to be extra relevant such as Ecological economics, Journal of sustainable tourism, Nature, Applied Animal Behavior Science and Animal conservation.

I found 55 articles, reports and papers some of which haven't been scientifically reviewed. I have chosen to use some of them anyway because the scientific papers all used them as references so I consider that these are reliable sources of information. I used 45 out of those 55, I didn't use all because some were of similar sorts so I selected the latest one. There was also some article about elephants in zoos that I opted out because I didn't find them to be relevant.

I chose to use articles and reports from R.C. Lair because he is a well acknowledged person when it comes to Asian elephants. He works for the Thai elephant conservation center and he is also a very used reference in scientific papers.

The Thai legislation is unfortunately only available in Thai so the references regarding laws and rules are from different articles and similar sources written in English.

Some of the articles I found I chose not to use because I found the methods of the studies to be deficient with low number of animals observed and also in the wrong type of settings than was relevant for my study.

Results

The Asian elephant in the wild and elephant behaviour

The populations of the wild Asian elephant in Thailand mainly occur alongside the border to Myanmar (Burma), and there are also some fragmented populations in some forests (Leimgruber *et al.*, 2003). Kitamura *et al.* (2007) says that the elephant's homerange varies depending on the food sources, but for females it's usually between 34 - 800 km², and 200 - 235 km² for males.

They are social animals although the adult males are solitary, females and their calves live in groups (Fickel *et al.*, 2007; Joshi, 2009). The group consists of five up to twenty individuals and the group is led by an older female - the matriarch (Joshi, 2009). Elephants use infrasound for communication and the males use this to communicate with the female groups over long distance (Payne *et al.*, 1986). Studies have discovered that elephants, much like humans, dolphins and apes, have the ability of empathy, altruistic behavior and self-recognition (Plotnik *et al.*, 2006).

Elephants are very intelligent animals and in the wild they get use for this in their everyday life (Joshi, 2009). The same article states that they need to reflect where they can get the best forage, remember where to find water, navigate, finding a mate and to know the ranking within the group. Clubb *et al.* (2009) declare that social learning is very important for elephants for example juvenile female elephants learn to be good mothers by practicing on calves in the herd. The skills and lessons that she learns by doing this are vital for her to become a successful mother (Clubb *et al.*, 2009).

Joshi (2009) saw that wild elephants rest during the hottest hours of the day and that they used the same resting places every day. The same study revealed that during the summer months when the temperature was higher the elephants rested more than during the monsoon- and winter periods. Elephants are in the move for most part of their day (Joshi, 2009). The same article claims that the elephants always use the same pathways when

traveling to waterholes and feeding grounds. Joshi (2009) studied the Asian elephants feeding behavior and concluded that elephants` main food source consisted of about 50 different species of plants but that they eat from a total of 150 different sorts of vegetation. The same author saw that the use of these plants differed through the year and that the elephants had a diet dominated by browse the whole year except in the beginning of the dry season when the main food source was grass. The same study also concluded that the elephants fed on different parts of the plants on different times throughout the season.

When the bulls reach sexual maturity at the age of 20 - 30 years they starts to have musth periods (Joshi, 2009). During these periods the bull is aggressive towards other bulls and starts to wander to look for a mate (Jainudeen *et al.*, 1972). Joshi (2009) states that a bull in musth eats more, rest less, interact with other elephants more and that they move more and over greater distances than bulls that are not undergoing musth.

The Asian elephant in captivity

There's a very strong culture of keeping Asian elephants for human purposes in Thailand (Suter *et al.*, 2013).

Kontogeorgopoulos (2009) says that 95 % of the 3000 that today exists in Thailand are privately owned or are owned by companies that are involved in the tourism industry. In 2013

Thailand had well over 26 million international visitors and the Ministry of tourism estimates that the number of visitors during 2014 will be about 28 million (Department of tourism, 2014). Today tourism is the only way for mahouts and their elephants to earn money legally (Kontogeorgopoulos, 2009).

The price for a broken-in baby elephant is \$25000 to \$35000 (Chatkupt & Sollod, 1999), and as the number of tourists in Thailand increases every year, the demand after elephants continues to grow (Department of tourism, 2014). Chatkupt & Sollod (1999) say that it's usually rich businessmen who own the elephants and then rents them out to mahouts for a cost of about \$350 a month. The elephants are often shared between two, sometimes three owners and this obviously increases the workload for the elephants since each owner wants to get the maximum of it (Kontogeorgopoulos, 2009).

Phajaan is the traditional Asian way of breaking- in an elephant calf (King, 2005). The same article declares that the calf is taken from its mother usually around the age of three to four years. Even though it's forbidden to capture elephants from the wild it still occurs and if the calf is taken from the wild, it's not uncommon for the whole family to be killed before the people can take the calf (Kontogeorgopoulos, 2009). This because the herd protects the young elephants, so instead of depriving nature of one elephant it's maybe four individuals that disappear every time the mahouts need another baby for tourist purposes (Duffy & Moore, 2011). The same authors estimates that approximately 150 – 200 baby elephants are captured in Myanmar and smuggled to Thailand every year.

Duffy & Moore (2011) affirms that the baby elephant then get restrained often with ropes or put in a cage with no ability to move. The mahouts then begins the process of breaking the elephant by stabbing it repeatedly with the ankus, by starvation, water deprivation, sleep deprivation and sometimes they even burn the elephant (King, 2005;



Fig.3 The mahouts controls the elephants by stabbing it with the ankus and when wounds appear they are usually covered with paint (Turesson, 2007).

Kontogeorgopoulos, 2009; Duffy & Moore, 2011). According to the authors this is all to make the elephant fear their owner so that it will obey humans.

The mahouts then controls the elephants in three different ways: with the ankus, with voice command and by applying pressure with the feet behind the elephant's ears (Thongma & Guntor, 2011). Kontogeorgopoulos (2009) says that one big welfare problem for elephants in camps all around Asia is injuries caused by being beaten. The same article also says that the mahouts cover up the wounds by spraying paint on top and they use the same method to cover up old scars (Fig.3).

When elephants are kept in captivity they often develop abnormal behaviors that can't be found among wild-living animals (Rees, 2000). Mason *et al.* (2007) claims that stereotypic behavior is: "repetitive behaviors induced by frustration, repeated attempts to cope, and/or central nervous system dysfunction" and that this is common among elephants in captivity. Some of the abnormal behaviors elephants in captivity do are: head-nodding, weaving, moving their trunk in a repetitive way, rubbing their tusks



against trees and pacing (Rees, 2000; Stoinski *et al.*, 2000).

Fig.4 Working elephants at a camp in Phuket (Turesson, 2007).

Rees (2009) conducted a study to see if it was a connection between the time that the elephants were allowed to forage and the amount of stereotypic behaviors being expressed. They determined that the stereotypic behavior was negatively correlated with the feeding behavior. Their results showed that the frequency of stereotypic behavior was grander in the winter then in the summer, and they also saw that the elephants expressed more stereotypic behaviors late in the day when they were expecting food.

Elephants that are housed in camps barely have any control over their lives which often leads to stress, this because the mahouts can't provide the right conditions for them (Plotnik *et al.*, 2006; Club *et al.*, 2008). They have no possibility to travel, can't interact socially, have no saying in who they mate with, which type of food to eat, witch group they want to belong to and so on (Fig.4), everything is chosen for them (Plotnik *et al.*, 2006). Elephants from all over Asia are mixed in groups, which give the elephants no chance of bonding naturally (Kontogeorgopoulos, 2009). Elephants in captivity suffer from both physical and physiological problems that the wild population doesn't suffer from (Club *et al.*, 2009). Same article claims that common problems are: low fertility, weight problems, foot problems, birth difficulties, low fertility, hyper-aggression and stereotypic behaviors. The same study also showed that the mortality rate of newborn calves is 20 % in captivity, which according to the authors is a high number. Females in captivity show minimal breeding after the age of 30, but in the wild it's not unusual for them to breed up to the age of 60 (Club *et al.*, 2009).

Mar *et al.* (2012) performed a study on 975 captive-born Asian elephants from Myanmar who were all involved in the logging industry. The results showed that 25.6 % of all the

newborn calves died before they reached the age of five. 42.4% of the calves that died before the age of five did it in an accident. In this study the lack of milk from the mother killed 26.3 % of the calves within a year. Death from diseases was another common cause of death with a percentage of 22.8. The deaths that were related to the taming process stood for 4.5 %. Club *et al.* (2008) also saw that wild-born elephants that were captured for logging in Burma, died shortly after the capture, and he stated that it was due to the great stress and the hard work they were put through.

A lot of these problems discussed above are due to the stress of not being able to get their needs fulfilled (Club *et al.*, 2009). It's a known fact that humans and other animals get a reduced lifespan if they suffer from chronic stress (Kiecolt-Glaser *et al.*, 2002; Vitetta *et al.*, 2005). Vitetta *et al.* (2005) states that stress affects fertility negatively and it also gives a higher number of stillbirths. Elephants in elephant-camps and other settings in captivity are regularly exposed to situations that lead to stress (Mason & Veasey, 2010).

Kontogeorgopoulos (2009) did a study in the northern Thailand on 556 tourists in three different elephant camps. It showed that the average age was 39.5 years and that more males (65.2 %) than females (34.8) visited elephant camps. The results also showed that for 63.4 % visited Thailand for the first time and 75.9 % had planned to visit an elephant camp before arriving in Thailand. When asked if they thought that the elephants would be better off in the wild 65.9 % said yes.

Elephant welfare

Mason & Veasey (2010) carried out a study in which they investigated how to best estimate welfare for captive elephants. They stated that cortisol levels and stereotypic behavior were good measurements when establishing elephant's welfare. Chatkupt & Sollod (1999) claims that there are some key factors that must be implemented before we can say that an elephant have a good welfare. These are: adequate shade, right sort and amount of fodder and water, medical care and foot care. The same study showed that elephants that got adequate shade were in better condition than those who didn't and that sufficient amount of shade was the most important factor of all.

The lack of adequate fodder and the absence of diversity in forage are a big welfare problem for elephants in captivity (Kontogeorgopoulos, 2009). They don't get enough nutrients and it also affect them mentally because it deprives the elephants from the mental stimulation that foraging gives them (Godfrey & Kongmaung, 2009). In the wild the elephants usually forage for 12 – 20 hours each day, and not being able to do this creates a stress for the animals (Ortega & Eggert, 2004; Godfrey & Kongmaung, 2009; Joshi, 2009; Kontogeorgopoulos, 2009).

Mason & Veasey (2010) noted that after a trauma and social separation, elephants can become depressed and they express that by being inactive and quiet. Bradshaw *et al.* (2005) presented evidence that many young African elephants suffer from post-traumatic stress disorder (PTSD) due to the trauma of losing their social stability when their families were killed by poachers. Symptoms were depression, hyperaggression and abnormal social behaviors. They also saw that males that had experienced their mothers being killed went into their musth cycles much earlier than normal. Studies in Asian elephants show similar results and they could also detect infant rejection and elevated hormone levels that were stress related (Mason & Veasey, 2010). One study showed that elephants that belonged to a group often expressed stereotypic behaviors when being forced to be apart from their group and it's therefore important for elephants to be able to be social with each other (Gruber *et al.*, 2000).

The five freedoms are often used as guidelines when evaluating animal's welfare (Botreua *et al.*, 2007).

1. freedom from hunger and thirst
2. freedom from discomfort
3. freedom from pain, injury and disease
4. freedom to express normal behaviour
5. freedom from fear and distress

These criteria are often not fulfilled for elephants in captivity according to the literature.

Chatkupt & Sollod (1999) showed that elephants in Chiang Mai had a better welfare than the elephants that lived in Bangkok and Phuket. They saw a significant statistic value that this was due to the shorter work hours. The same study also showed that elephants that lived and worked in Bangkok were in the poorest condition due to long work hours, lack of food and living in a dangerous environment. In 1999 the Metropolitan administration banned street elephants in Bangkok (Laohachaiboon, 2010). According to the same author this was due to a series of bad accidents involving elephants. Hart (1994) says that a mean of 15 elephants are involved in traffic accidents every month and that they often are badly injured. After this ban many mahouts moved with their elephants to other places with tourists such as Phuket (Chatkupt & Sollod, 1999).

The Thai Elephant Conservation Center (TECC) and the National Elephant Institute (NEI) are two state-based organizations and they are dealing with issues concerning the Asian elephant's welfare, health and conservation (Laohachaiboon, 2010). The same author says that the TECC was founded to spread knowledge about elephants, maintaining logging techniques, training young elephants and also evolve eco-tourism. This was the plan when it was founded in 1991, but in 1998 the government of Thailand decided to declare the elephant as the symbol of Thailand. They began to marketing Thailand with the help of elephants to attract tourists, with the phrase "Amazing Thailand". The TECC saw the potential and began to use the elephants as a tourist attraction. This lead to that many mahouts and their elephants got employment and elephant-back riding became a big part of TECC occupation (Laohachaiboon, 2010).

Legislation regarding elephants in Thailand

In Thailand there isn't any legislation concerning animal welfare and animal cruelty except from two sections in the criminal law, section 381 says that it's illegal to be cruel to animals (Thai laws, 2012). The same source states that this can get you a maximum of a fine consisting of \$30 or one month in prison, or both. In the same chapter there is a section, number 382 that states that it's not allowed to overwork animals or to use it to do unsuitable work and that the punishment for this is the same as for section 381 (Thai laws, 2012).

The only real law concerning elephants in captivity is the Draught Animal Act of 1939, this same law also regards farm animals such as oxen and buffalo (Godfrey & Kongmuang, 2009). In Thailand elephants in captivity are considered to be commercial animals and this means that the elephant's owner can use and sell the elephants as he want and this also includes any products from the animals such as meat and tusks (Thai laws, 2012). The same source states that the Draught Animal Act doesn't mention anything about treatment or care for these animals. The Department of livestock development is responsible for the elephants and it's the Ministry of Interior that handles the law (Bucknell, 2012). The same

author says that it's the Ministry of Interior who also takes care of the registration of elephants in captivity and today you have to register your newborn elephant within the first three years.

Conservation status

Ever since 1986 the Asian elephant has been listed as endangered (EN) on the IUCN redlist (IUCN, 2013). In 2003 the IUCN estimated that the global population of Asian elephants consisted of 41 410–52 345 individuals in total. Leimgruber *et al.* (2008) valued that the captive population consisted of 11 000 animals globally which makes it an important part in the conservation of the species.

Prasob (2001) states that 100 years ago there was over a 100 000 wild Asian elephants in Thailand alone and last they made a calculation in 2001 there were only 3000 left. These figures are greatly debated because it's hard to estimate a fair number due to the problems of counting elephants in dense vegetation and that the different techniques being used are not validated to each other (IUCN, 2013). The Asian elephant is an endangered species and the population is decreasing with an estimated rate of 3 % per year (IUCN, 2013).

In Thailand there are an estimated number of 3000 elephants in captivity (Kontogeorgopoulos, 2009). Since this is half the population in Thailand the captive elephants could be used in the work of conserving the Thai elephant population (Leimgruber *et al.*, 2008).

Threats to the wild population

The major threats to the wild population of Asian elephants are habitat loss, degradation, and fragmentation, and this is all caused by human pressure such as farming, logging and deforesting (Daniel, 1996; Kemf & Santiapillai, 2000).

Crops are high on the elephants list of favorite foods, but the crops are also the economical income for many people in Thailand and this causes problems (Kempf & Santiapillai, 2000; Bandara & Tisell, 2004). The same authors declare that farmers try to scare the elephants off, but the success rate is not that high so it usually ends with them killing the elephants to protect the crops.

The absence of normal socialization is a big problem in both *ex situ* and *in situ* conservation (Bradshaw *et al.*, 2005). This abnormal socialization is due to human interference and disturbance and this can lead to a selection for an asocial trait when these animals mate, which only makes the problem worse (Bradshaw *et al.*, 2005).

Tourism also is a threat for the wild population of elephants because when calves are taken from the wild it often means that the whole elephant family is killed in the process (Kontogeorgopoulos, 2009; Duffy & Moore, 2011).

Discussion

How is the welfare status of the elephant's that are working within tourism today?

To elucidate this I will use the five freedoms which is a good way to investigate animal welfare (Botreua *et al.*, 2007).

Freedom from hunger and thirst: The lack of correct and adequate food and water is a big welfare concern for captive elephants (Godfrey & Kongmuang, 2009; Kontogeorgopoulos, 2009). This leads to stereotypic behaviors and malnutrition but can easily be resolved by giving a greater variety of fodder and by increasing the feeding time (Rees, 2009). This

study was done on eight elephants in zoo environment which is different to the environment in elephant camps in Thailand but I don't think that the results would be much different if the study had been on elephants in camps, but some differences could have been more stereotypic behavior and worse malnutrition in camp elephants. This because the elephants that are housed in camps are being shackled for a longer period of time, than elephants in zoos. The zoo elephants are often given better variety and quality of fodder comparing with elephants that lives in camps. The study was carried out throughout the year so the seasonal variations of elephant behavior wouldn't affect the results. I thought this was well thought through study as most other articles about this subject were performed in just one part of the year which obviously affects the results.

Freedom from discomfort: I believe that most captive elephants live in constant discomfort due to their lack of shade, lack of fodder and water, foot problems, being shackled and long working hours. This is supported by the findings by Chatkupt & Sollod (1999) that the lack of these attributes leads to poor welfare.

Freedom from pain, injury and disease: Elephants are still used in the illegal logging industry and to make them work longer hours the mahouts use drugs (Chatkupt & Sollod, 1999). The same author claims that it's common with broken legs and other injuries due to the harsh terrain.

Captive elephants are all put through the tradition of Phajaan which include stabbing, strangling, burning and beating the elephant (King, 2005). This evidently leads to both pain and injuries. Thongma & Guntor (2011) states that the beating with the ankus and kicking behind the ears goes on their entire life and that it often leads to injuries.

Not many captive elephants get treated when being sick or injured, foot problems, eye problems and stabbing wounds are the most common problems (Kontogeorgopoulos, 2009).

Freedom to express normal behaviour: One of the biggest welfare problems for the captive elephants in South-east Asia is that they are being chained when not used (Kontogeorgopoulos, 2009). Because of this, the animals can't be social which is very important for elephants (Fickel *et al.*, 2007). Elephants have a high cognitive capacity (Plotnik *et al.*, 2006) which I think can be why they are having such a hard time to deal with being in captivity.

Elephant bulls that undergo musth are often restrained with chains between at least two legs (Joshi, 2009). This is a huge welfare problem for bulls in captivity for they have bigger needs when they are in musth, they require more food, they need to move more and they don't have the same need to rest as much as other elephants. And instead of fulfilling these needs they are instead picketed which I think only leads to more stress and frustration which leads to aggressive behavior.

Freedom from fear and distress: To make elephants obey the mahouts they make the elephants fear them by abusing them (King, 2005). I think that to live in constant fear leads to great stress for the animals and this is a big welfare problem.

So if we look at the five freedoms we can clearly see that the elephants don't have a good welfare in the tourist industry.

What are the major threats to the Asian elephant population? Is tourism one of them?

“If you travel to Thailand you have to go on an elephant-back safari otherwise you haven't experienced the country to the fullest”, I think this is the general view of people that travel

to south Asia. Sadly I don't think that many people take in consideration that animals suffer just so the tourists can have a unique experience.

One of four Asian elephants exists in captivity today worldwide (Leimgruber *et al.*, 2008). In Thailand there are a total of around 6000 animals in which about half are kept in captivity (IUCN, 2013; Kontogeorgopoulos, 2009). The numbers are unsure due to the lack of a good inventory system for the wild population and a proper registration system for the captive population. The tourism in Thailand has blossomed and it's still increasing which means that the demand for elephants is just increasing. This leads to that more calves are being captured from the wild. I think this old number of the wild population size gives a false impression and it needs to be updated. Hedge *et al.* (2013) have developed a new way to determine the population number for Asian elephants in dens areas. According to the same study you can by using DNA-based CMR methods to monitor the population size, this method also provides information about the population structure which I think is a big plus.

The wild elephant population continues to decline whereas the captive population grows (Lohanan, 2001; Leimgruber *et al.*, 2003). When the logging ban was instated in 1989, 70 % of the forest area in Thailand had vanished and the logging still occurs because mahouts have no other options if they want to provide for their families (Lohanan, 2001). The deforesting affects all elephants – both wild and captive, the wild loses their habitat which forces them to move through farmers lands which often leads to them being killed (Leimgruber *et al.*, 2003). The captive elephants need up to 200 kilos of fodder every day, the mahouts can't supply this which leads to malnutrition and an incorrect ration (Rosmain *et al.*, 2014). The fact that elephants are still being used in the illegal logging industry is also a big welfare problem due to the dangerous working environment. I think that many people reason that the deforesting only affects the wild population but here we can clearly see that by destroying the forests we also impinge on the captive elephant's welfare. Ironical the captive elephants that are involved in logging are being forced by humans to destroy their own habitat.

Since the elephant's habitat is so fragmented the animals can't move freely in the forests in their search for food and water, this is a problem because they are in the move for most part of their day (Joshi, 2009). The same article claims that the elephants always use the same pathways when traveling to different places such as waterholes, this could be a big problem when humans begins to cut down the forests and starts using the land to grow crops. This can lead to crop raiding which is a big human-animal conflict (Bandara & Tisell, 2004). To try to solve this problem the Wildlife conservation society (WCS) has an ongoing project to inspect the human – elephant conflicts and to see how they could be resolved (WCS, 2014). They have found

that electric fences, ditches, prohibitively factors in form of odors and sounds are efficient ways to keep elephants from raiding the crops. A study conducted by Bandara & Tisell (2004) showed that some of the crop raiding problems can be resolved by offering the farmers compensation for the crops that the elephants consume.



Fig.5 The majority of tourists feels that the elephants are better off in the wild after a visit in an elephant camp (Turesson, 2007).

Clubb *et al.* (2008) showed that a wild Asian elephant had an average lifespan of 70 years but a captive-born elephant that had spent its whole life in a zoo, just had an average lifespan of 41.7 years. I think that this figures speaks for them self. The age nearly dimidiates if the elephant lives its life in a zoo compared to if it was to live in the wild. Same study showed that females in protected populations in the wild live longer than females that had been kept in zoos. I think this clearly shows that elephant's welfare is insufficient in captivity and it would be better to have them in protected areas in the wild.

Kontogeorgopoulos (2009) investigated how tourists looked at elephant camps and the elephant's welfare and when asked if they thought that the elephants would be better off in the wild and 65.9 % said yes (Fig.5). Here there was a difference between people that was just visiting the camp over a day and volunteers. In the same camp, of the one day visitors 69.8 % thought that the elephants would be better off to live in freedom. Volunteers that had spent more time with the elephants, 82.9 % answered that they thought the elephants would be better off in the wild. I think this clearly shows that elephants don't have a good welfare in the camps because if 69.8 % of the day visitors that spent two hours with the animals could see that the elephants would be better off in the wild, the welfare can't be that good. And an astonishing 82.9 % of the volunteers think that the elephants would have a better life in the wild. I think that the numbers speaks for themselves. Although you should have in mind that this study was conducted on only three out of Thailand's 50 elephant camps and that the camps was located in the same geographical area. These numbers say more about the elephant's situation in Chiang Mai, than in Thailand in total. A big plus though was that many aspects were taken under consideration such as age, number of visits to Thailand, experience of previous elephant camps etcetera. If this research was done on all elephant camps in Thailand you could use the results to come up with the typical person who visits an elephant camp and maybe adapt education and campaigns to fit these people.

The welfare for street elephants is far from sufficient (Hart, 1994; Niskanen, 1998; Chatkupt & Sollod, 1999) and I strongly believe that this type of elephant tourism must come to an end. The streets are no good environment for an elephant, the hot asphalt burns their delicate feet, the combustion gases gives them respiratory problems (Chatkupt & Sollod, 1999), the diet is insufficient as it mostly consists of sugar canes and bananas which isn't a good ration for an elephant as elephants in the wild eats from 150 different plants (Joshi, 2009). The long working hours and the lack of shade are also big problems for street elephants (Chatkupt & Sollod, 1999; Ortega & Egget, 2004; Fickel *et al.*, 2007; Godfrey & Kongmuang, 2009). I think that since this is big welfare problem that the only thing to do is prohibit elephants to roaming the streets in all Thailand not just in Bangkok. I don't see any other solution because these are all factors that can't be changed and therefore the welfare for the elephants never can be fulfilled.

According to DTAEF (2014) many mahouts knows that it's illegal with street elephants but they don't know why. I think the lack of education of mahouts is a big problem and I strongly believe that providing them with the right knowledge about elephants and their welfare would make a big difference.

The Mahout and Thai Elephant training college was founded in 2003 by NEI and is a school for mahouts (TECC, 2013). The same source says that here they are taught the correct way to perform the Phajaan and how to take care of their elephants. The school was free of charge and when completed the mahout received a certification (TECC, 2013). I definitively think that this is a good idea that is beneficial for the animals as well for the mahouts. Unfortunately this school is not mandatory (TECC, 2013) I think that if that been

the case the elephants welfare would increase and to be a mahout would be a more acknowledged profession.

What type of legislation is there for elephants in Thailand?

The Draught Animal Act of 1939 is the only law that concerns elephants in captivity and here they are listed as a commercial animal along with other working animals (Godfrey & Kongmuang, 2009). I would say that this is the biggest problem for the elephants because it hasn't been updated since 1939 and then the elephant were still a mean of transportation (Godfrey & Kongmuang, 2009).

I think that elephants today have nothing in common with the rest of the animals in the Draught Animal Act of 1939 like buffalos and oxen since these animals work in farming and the elephants are in the entertainment industry. My opinion is that a specific law concerning elephants in Thailand is required due to their changed role. In today's Draught Animal Act there are no requirements on husbandry or how to take proper care for an elephant (Godfrey & Kongmuang, 2009), which I think only strengthens the urgent need for a special law for elephants.

According to Laohachaiboon (2010) in 2002 there was put together a draft: the Protection and Conservation of Elephants as the National Symbolic Animal Act to better protect all elephants from all forms of cruelty and making this illegal. The same article said that this law never was instated due to the big opposition from the elephant owners.

I think that the best solution would be to change the captive elephant's status from a commercial animal to wildlife so they would be covered by The Wildlife Protection Act and thereby also be protected by CITES (CITES, 2013). By instate this no elephants would be regarded as private property and the trade with elephants and products from them would be prohibited (TSCWA, 2014).

What changes within the elephant tourism industry are required to improve the welfare of the elephants?

According to Lorimer (2010) the captivity of elephants has a strong resistance worldwide, but still people want to experience animals up close when they travel. A person that goes elephant-back riding (Fig.1) and take pictures together with elephants, do it because they like the animals and want to be near them. I believe that the solution to this problem is to inform the tourists about how elephants actually are being treated and suggest an optional way to see the animals and show them how their choices actually make a difference. If they refuse to go elephant-back riding or visit shows and instead go to an elephant sanctuary and see how elephants behave naturally they make a huge difference to the animal's welfare and they make a clear standpoint that animals shouldn't be used for human entertainment.

I think that to put the elephants in nature preserves with space to roam freely would be the ideal solution for all the elephants that are held in captivity today. I think that it would be good to divide the preserve into different areas. One area where the public has access to see the elephants – if they freely choose to be there, and another area that would be closed for people. This would be a good solution for both tourists and for the elephants. These sanctuaries should be focused on education for tourists on how they can help the conservation of the species. Sukumar *et al.* (1997) says that female elephants that are kept in India all have the benefit to interact with wild males. The same article states that the elephants in India are kept in groups that come as close to the natural group structure as possible that includes hierarchy and young males in the group.

My opinion is that if elephants are to be held in captivity the intention should always be to release potential offsprings back to the wild. By doing this you contribute to the conservation of the wild population (Lorimer, 2010). The elephants that today lives in captivity should be used in the conservation work because they are an important part of genetic material that's available within the total population (Leimgruber *et al.*, 2008). But since most captive elephants are privately owned (Kontogeorgopoulos, 2009), I think this could be difficult concerning the ownership but this might be solved with some type of payment to the mahouts. I think this form of work would be of great value for the wild population.

I think that travel agencies should not provide elephant-back rides for their clients because this supports the industry. Kontogeorgopoulos (2009) showed that 75.9 % of the tourists that visited elephant camps had decided to do so before arriving to Thailand. Travel agencies could influence their clients by making a standpoint against animals that are being used for tourism purposes. Maybe by establish a form of certificate for the ones that don't support this industry.

We can stop elephants from being taken from the wild by establish a proper registration for all elephants (Bucknell, 2012) and I think that this includes micro chipping and DNA sample and a more detailed registration form, which should contain information about the animals history, ownership and physical traits and microchip number. I also think that it should include a photo so it's easy to identify the animal. It should be mandatory to register newborns within the first days and this should also apply for deaths of animals. All of these actions would make it harder to keep an illegal elephant, this because today mahouts try to cover up a wild caught elephant calf by using a deceased elephant's identification paper (Bucknell, 2012). By developing the identification system this wouldn't be possible.

I strongly believe that finding alternative jobs for the mahout is one solution to ending the elephant tourism, this combined with developing new ways for people to experience wildlife. One way could be to offer good mahouts and their elephant employment in a sanctuary to get them off the streets (GTAEF, 2014). My opinion is that this is a good solution for the elephants so they can live in an environment that is more suitable for them and that they could get the proper type of food and sufficient amount of rest. This is also good for the mahout since this gives him a more stable and legal employment. If you would buy the elephant from him you would just put him back on the street with the money to buy a new elephant. Instead of helping, you would just have supported the industry and maybe contributed to a wild elephant being taken from the wild.

Good places to visit

So if you are a tourist in Thailand and want to see elephants there are some better places to go than to elephant shows, elephant-back riding and feeding elephants on the streets.

- *WFFT (Wild friends foundation Thailand)* – Rescue- and education center for street-elephants, here they have a space of 40 000 m² where they can roam free. They have an ongoing campaign to get elephants off the streets in the big cities such as Bangkok. They have also started a new project in April 2014 where they go around to camps and elephants who live on the streets and give them medical care as the mahout don't have the money to treat their animals and this is a big welfare problem (WFFT, 2014).
- *The Golden Triangle Asian Elephant Foundation* – An organization that rescues abused elephants and also elephants that can't work. They also offer good mahouts the chance to work with the elephants (GTAEF, 2014).

- *Elephant Nature Park* - This is a sanctuary for former working elephants located in Chiang Mai. This park runs on donations and they think that education is the most important thing if to change the elephant's current situation, this because Thai people in generally have little knowledge about animal cruelty and welfare (ENP, 2014). They use positive reinforcement such as food when they train their elephants and they say that you don't have to break the elephant's spirit trough Phajaan (Laohachaiboon, 2010).
- *Thai elephant conservation center* – Located in Lampang and houses 100 elephants and provides them with medical care, food and work. They are allowed to roam free and the calves that's being born are reintroduced to the wild (TECC, 2014).

Conclusions

My purpose with this study was to see how elephants were affected by tourism and to see what was needed to change their welfare to the better.

- The biggest threats for elephants in Thailand and the entire South-Asia are the lack of laws, habitat destruction and fragmentation, culture and the bad economy.
- Today none of the five freedoms are fulfilled for elephants used in the most common field of applications such as rides, shows and logging.
- The biggest welfare problems for the captive elephants in Thailand are: Phajaan, injuries due to the use of the ankus, not be able to be social, unnatural groups, being shackled, not enough/ right sort of fodder and water and long work hours.
- Tourism is a big problem for the welfare and conservation for the whole Asian elephant population due to that this supports calves being harvest from the wild.
- To improve the elephants current conditions the law has to change and the mahouts need better working conditions so they can take proper care of their animals.
- I think we should use scientific knowledge to eliminate cruelty from elephant training and handling. And most people in Thailand sympathies with elephants as they are an important part of their culture and religion. This should be taken advantage of when formulating conservation strategies.
- If you are to keep elephants for tourist purposes you should keep them in sanctuaries in natural groups, use the population for conservation purposes and train them exclusively with positive reinforcement.
- By using my findings the welfare for elephants can be greatly improved. By improving the feeding times and giving them a correct fodder ration, moving them to a more suitable environment, not overworking them and to train them with positive reinforcement. By not chaining the elephants and let them be social with each other the stereotypic behaviors would be reduced. Tourists would still have the opportunity to see elephants and the animal's welfare would be improved.

More research is required:

It should be of high priority to get a precise population number on both the wild and captive population. Today we lack important information about ownership, population numbers and distribution (Godfrey & Kongmuang, 2009), which I think results in that we can't formulate neither a good conservation plan, or develop a proper plan for management.

More studies are needed on the Asian elephants in Thailand. Most of the literature on Asian elephants is from India, it's not that peculiar because 60 % of the total population

can be found in India (Sukumar *et al.*, 1997). But the elephants that exist in India differ from those that can be found in Thailand, habitat size and food sources are some of the things that stand them apart (Sukumar *et al.*, 1997).

Much of the existing literature on the Asian elephant is about conservation of wild elephants and the research on captive elephants is mostly focused on medical care. This data is not so applicable on captive elephants in Thailand because people that work with the elephants are often poor and can't afford medical care for their animals. The situation for the elephants in Thailand today is complicated due to the lack of legislation and private ownership. If there was more research on captive elephant's situation in Thailand that displays the welfare problems I think it would be easier to get better legislation which would be beneficial for the animals. It would also be good to do some research to compare the welfare between the government owned elephants and the privately owned ones, to see if the ownership has an influence on the welfare. If the results showed that the governmentally owned ones have a better welfare then maybe the government can instate that it's forbidden to privately own an elephant. The mahouts concerned would also be better off as they can get an employment by the government instead of a business man and would probably make more money.

The illegal logging that goes on in Thailand and the rest of Asia needs to be further investigated. This because illegal logging is a big concern when it comes to elephant's welfare on account of the long working hours and the dangerous working environment. I think it should be examined how this illegal business can be stopped and also to analyze how to offer mahouts new jobs which is beneficial for both the elephant and the mahout since the logging industry is a very dangerous occupation and contributes to the deforesting.

Method analyses

The benefits with doing a literature study are that you have easy access to the material through different databases, you also get a lot of data to use for your analyses. It's also a good way if you want to get a better overlook over the latest research in one specific subject.

The disadvantages in my case is that it's not many relevant studies that have been conducted and those that exist are old, executed in the wrong country or the incorrect environment. If I had the chance I think that it would have been better to go to Thailand and visit some of the elephants and do a behavioral study on both street – camp- and elephants in the logging industry and compare the welfare between these since no such study never been conducted.

A need for a change

I strongly believe that the industry that's using elephants for human entertainment is in need of a change. The millions of tourists that each year travels to the affected countries have the power to influence change. Because it's our demand for this “unique experience” that's causing the problem and the elephants are the ones paying the price. The Asian elephant are fighting a losing battle against mankind, the big question is if we can stop it before it's too late. Thailand - the land of smiles, but not for elephants.

Populärvetenskaplig sammanfattning

En fjärdedel av alla Asiatiska elefanter lever idag i fångenskap världen över. I Thailand finns det uppskattningsvis 6000 individer varav hälften lever i fångenskap och är involverade i turistindustrin. År 2013 hade Thailand drygt 26 miljoner internationella besökare och den siffran beräknas öka till 28 miljoner under 2014. Idag är turism den enda lagliga sysselsättningen för elefantskötaren – även kallad mahout, detta sedan skogsavverkning förbjöds 1989. Tusentals elefanter blev då arbetslösa och med den ökande turismen i Thailand såg mahoutsen sin chans att tjäna pengar och började gå på gatorna med sina elefanter. Dessa så kallade gatuefanter drar in pengar till sin ägare genom att låta sig bli klappad, fotograferad eller matad av turister. Miljön för dessa elefanter är otillräcklig med skador, avgasförgiftning, undernäring och problembeteende som följd.

Andra elefanter hålls i läger och tvingas bära omkring på turister största delen av sin dag. När de inte arbetar hålls de fastkedjade och separerade ifrån varandra. Elefanter är mycket sociala djur och lever i starka grupper i det vilda, de ägnar även största delen av dagen åt att leta föda. Att de behandlas så här i fångenskap leder till stress, reproduktionsproblem, undernäring och olika problembeteenden.

På grund av dessa reproduktionsproblem så finns det inte tillräckligt med elefanter i fångenskap för att täcka det växande behovet. Man uppskattar att ca 200 kalvar tas ifrån det vilda varje år trots att detta är olagligt. Eftersom elefantfloeken skyddar sina kalvar leder denna process oftast till att vuxna individer dödas.

För att elefanterna ska kunna användas i turistindustrin så måste de lyda sin mahout och denna process börjar redan när elefanten är liten, genom en ritual känd som phajaan. Djuret spänns fast och sedan börjar en flera dagar lång tortyr. Kalven får genomlida slag, knivhugg, strypning, svält och uttorkning – allt för att den ska vara rädd för sig skötare så att den lyder. En elefantkalv som har genomgått phajaan är värd mellan \$25,000 - \$35,000, vilket är otroligt stora summor för en thailändare. Turismen har alltså en stor påverkan på både den vilda populationens antal men även på välfärden för de elefanter som lever i fångenskap.

Idag finns endast en lag gällande elefanter i fångenskap som inte uppdaterats sedan 1939 och då räknades elefanter fortfarande som ett transportmedel. Det finns i dagsläget inga lagar eller regler som säger hur elefanter ska hållas eller behandlas. Detta är ett stort välfärdsproblem och en lagändring måste till för att förbättra situationen.

Om man som turist vill se elefanter när man reser till Thailand kan man åka till ett elefantreservat där man kan se elefanter i deras naturliga miljö. Här finns oftast elefanter som har räddats från ett liv på gatan eller som har varit för skadade för att kunna bära turister på sin rygg. Dessa center är även oftast fokuserade på utbildning så att du som turist får ut något mer av ditt besök. Du som turist kan påverka och förbättra elefanternas välfärd. Stöd inte elefantshower, elefantridning eller gatuefanter. Som sagt, 26 miljoner människor besöker Thailand varje år och det är vi som skapar efterfrågan på elefanter och därmed kan vi även få den att försvinna.

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Pictures

Fig.1 Turesson, V. 2007.

Fig.2 Turesson, V. 2009.

Fig.3 Turesson, V. 2007.

Fig.4 Turesson, V. 2007.

Fig.5 Turesson, V. 2007.

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