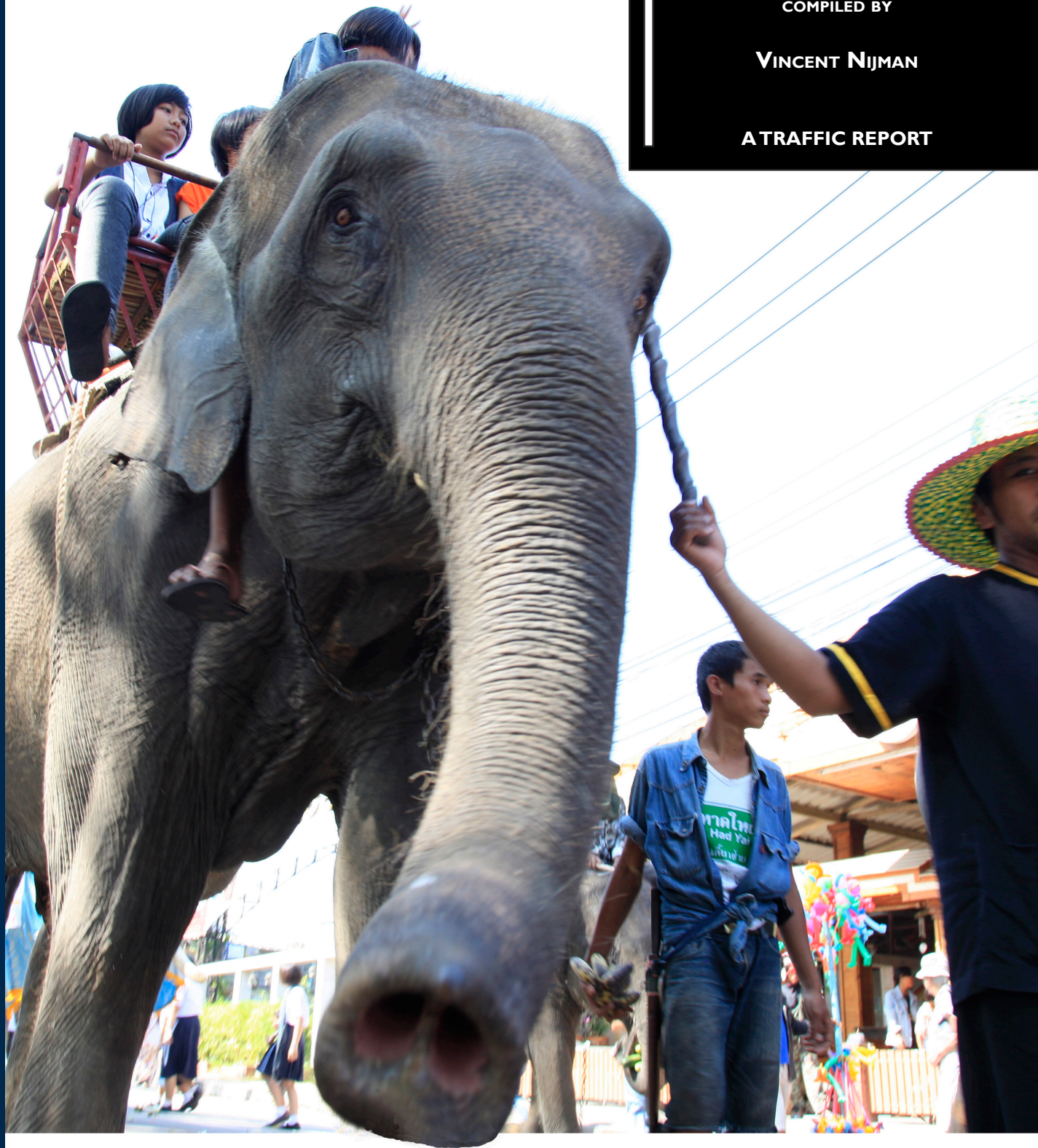
AN ASSESSMENT OF THE LIVE ELEPHANT TRADE IN THAILAND

COMPILED BY

VINCENT NIJMAN

A TRAFFIC REPORT



ELEPHANT FAMILY
Protecting Asian elephants and their habitat

TRAFFIC
the wildlife trade monitoring network

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Cover photograph: Elephant rides are popular with tourists in Thailand.

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AN ASSESSMENT OF THE LIVE ELEPHANT TRADE IN THAILAND

A Report by TRAFFIC

Juvenile Asian Elephant *Elephas Maximus* confiscated from the illegal trade in Thailand and purported to have come from Myanmar. © Sulma Warne / TRAFFIC

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ACRONYMS

ASEAN-WEN	Association of Southeast Asian Nations - Wildlife Enforcement Network
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoP 16	16th meeting of the Conference of the Parties to CITES
DLD	Department of Livestock Development
DNP	Department of National Parks
DoR	Department of Registration
ETIS	Elephant Trade Information System
HEC	Human Elephant Conflict
LAD	Local Administration Department
MIKE	Monitoring the Illegal Killing of Elephants
MoI	Ministry of the Interior
MNRE	Ministry of Natural Resources and Environment
MoAC	Ministry of Agriculture and Cooperatives
MTE	Myanmar Timber Enterprise
NEI	National Elephant Institute
TAT	Tourism Authority of Thailand
TECC	Thai Elephant Conservation Centre
THB	Thailand Baht
USD	United States Dollar
WARPA	Wild Animal Reservation and Protection Act
WCO	World Customs Organisation
WIFOS	Wildlife Forensic Science Unit

EXECUTIVE SUMMARY

The Asian Elephant *Elephas maximus* is the largest living land mammal in Asia and has held an unrivalled prominence in Asian culture, religion and society for millennia. Over the past century wild Asian Elephant populations have declined dramatically with the IUCN Red List of Threatened Species suggesting that losses could be up to 50% over the last three generations or approximately 75 years. Historically the main causes of this decline have been habitat loss and forest fragmentation, but poaching for the trade in live elephants and their ivory is recognized as another important factor driving wild population declines.

Asian Elephants are present in 13 countries in Asia, including Thailand where between 2500 to 3200 wild elephants are found out of a total population that is crudely estimated between 40 000 and 50 000. The country is also home to an equally large domestic[1] elephant population of between 3000 and 4000 animals most of which are used in the tourism industry. Previous work by TRAFFIC and others has demonstrated clear links between the live elephant trade in Thailand and neighbouring Myanmar, with Thailand believed to be the main destination for illegally sourced elephants from Myanmar. In response to concerns about the illegal live elephant trade, in February 2012 the Thai government instigated a clampdown on live elephant ownership and proof of origin. While the Thai government has articulated their intent to revise Thai legislation in their CITES Ivory Trade Action Plan to the CITES Secretariat, as of the end of 2013, the relevant laws have yet to be amended so that captive elephants are removed from coverage under the Draught Animals Act of 1939 and consolidated under the Wild Animal Reservation and Protection Act (WARPA) of 1992. The draft legislation is currently stalled in an ongoing public review process and little progress is being made during a period of internal political turmoil.

TRAFFIC investigated the trade in elephants in Thailand to document the extent to which elephants are being illegally captured in the wild to supply the tourism industry in the country, and to quantify the links between the trade in live elephants between Myanmar and Thailand. The first part of this investigation took place from April 2011 through November 2011 before the Thai government's action against illegal live elephant trade commenced. Further research transpired between April 2012 and March 2013 following the clampdown period which began in February 2012.

For this study, research along the Thai/ Myanmar border was undertaken to obtain information on the illegal trafficking of elephants. A total of 108 elephant tourist camps, government elephant facilities and hotels that keep elephants around the country were surveyed, and informal interviews were held with mahouts and elephant owners to collect information on the trade in live elephants. Similar information was collected when visits were made in November 2011 and November 2012 to the Surin Elephant Festival in eastern Thailand where elephants are typically bought and sold within the country.

[1] It is important to note that the word "domestic" used as an adjective meaning "tamed and kept by humans" is distinctly different from "domesticated" in which an animal, through a process of selective breeding, has been adapted to life in a human environment. This is explained in more detailed in the introduction section below.

Confiscations of elephants in Thailand increased from zero to one individual in 2009, 2010 and 2011 to 34 in 2012 as a direct result of the government clampdown on the trade and possession of live elephants. In the first nine months of 2013, 22 more individuals were confiscated. Between April 2011 and June 2012, a total of 26 elephants were recorded in holding camps, most of which were on the Thai side of the Thai / Myanmar border and thus subject to Thai law.

Wild elephants are often caught in Myanmar using pit-traps where they are corralled into pits with the aid of domestic elephants. As the value of live young elephants is higher than that of adults, according to researchers, it was reported that automatic weapons are increasingly being used to kill protective members of the herd, although it was not possible in the context of this study to verify such statements. The young are then transported to Thai / Myanmar border areas and then mentally broken and prepared for training. Based on research, field visits, and reports from individuals and organizations working in key border areas, no indications was received of elephant trade along the border after June 2012 following the Thai government's clampdown on the domestic market.

Twenty-seven illegally caught wild elephants were observed in seven elephant tourist camps in various parts of Thailand between August 2011 and March 2013. An additional 24 illegally caught wild elephants were observed at the Surin Elephant Festival in 2011 and another two, and possibly four, in 2012. Further explanation about how wild elephants are distinguished from those that are captive bred is provided in the methods section and in Appendix 2.

Altogether, based on information collected during research and surveys that transpired from April 2011 through March 2013, a minimum of 79 and possibly 81 wild elephants are believed to have been illegally captured for sale into the tourism industry in Thailand, with 65 to 69 of these transactions occurring prior to the government's clampdown on live elephant trade in February 2012. Of the 53 cases for which the origin of the elephants is known, 92% were captured in Myanmar. The predominant source areas in Myanmar are Kachin State in the west, Rakhine State and Sagaing Division in the north, and the Dawna-Tenasserim landscape in the east. This latter source area extends into Thailand and encompasses the Kaeng Krachan Forest Complex in Thailand where a significant population of wild elephants resides. Chiang Mai Province, Phuket and Surin are the main destinations for live elephants smuggled from Myanmar into Thailand. Following the clampdown, illegal trade of live elephants appears to have halted, however, it is impossible to rule out the possibility that some trafficking may still be occurring.

Significant weaknesses are present in the Thai legislation covering elephants, in part because domestic and wild elephants are treated differently. Domestic elephants, 95% of which are privately-owned, are primarily governed by the *Draught Animal Act 1939*. The registration policy of this Act allows animals not to be registered with the appropriate government department until eight years of age, creating a major loophole through which wild-caught juveniles and infants can be laundered into the domestic elephant population.

Wild elephants, in contrast, are governed under the *Wild Animal Reservation and Protection Act 1992* (WARPA). Under WARPA anyone caught hunting, killing or trading in wild elephants or parts thereof is liable to a fine of USD 1330 and/or up to four years in prison. Given that the current value of live elephants on the market is at least 25 times greater, it is believed that the stipulated penalties are woefully insufficient to act as a deterrent to elephant traffickers. Calls for amendment to current Thai legislation, so that captive and wild elephants are treated under the same legislation have been made, but no such changes to Thailand's laws have yet been tabled for consideration in the country's National Assembly. Comprehensive legal reform, however, will be a critical element in the future conservation of the Asian Elephant in Thailand.

In the past 15 years, the value of elephants has increased by more than fivefold. The current market value for a healthy baby elephant is more than USD 33 000. This increase is considerable and reflects the high demand for elephants in the tourism trade. In addition to concerns over the origin of elephants in tourist camps across the country, there is also considerable apprehension about the welfare of captive elephants in terms of their living conditions and quality of care within Thailand.

The capture of wild elephants in Myanmar for Thailand's tourism industry poses a serious threat to the future survival of the country's wild population. Recent enforcement efforts in Thailand appear to have significantly reduced cross-border illegal trade however considerable challenges remain, especially with regard to current legislation and law enforcement capacity in Thailand. With this in mind, TRAFFIC recommends the following:

- The heightened enforcement efforts to combat illegal trade in live elephants by the Thai authorities since February 2012 are welcomed and demonstrate enhanced political will and enforcement action. These efforts were largely stimulated by the government's public loss of face in the context of several elephant poaching incidents, as well as sustained international pressure over Thailand's role in the global ivory trade and the looming spectre of the 16th meeting of the CITES Conference of the Parties (CoP16). Current enforcement efforts need to be enhanced and sustained in-country and buttressed regionally with the Association of Southeast Asian Nations Wildlife Enforcement Network (ASEAN-WEN), other international bodies such as INTERPOL and the World Customs Organization (WCO) playing important collaborative and supportive roles especially where transnational illegal trafficking is concerned. Specifically, this could include facilitating the sharing of information, joint programmes of action, and assistance with capacity building of enforcement personnel particularly at trade hotspots along the border.

- Myanmar and Thailand should enhance collaborative mechanisms aimed at more effectively combating cross-border trafficking in wild elephants and other wildlife from Myanmar into Thailand. As part of this process, relevant enforcement agencies from both countries should meet regularly, share intelligence information and co-ordinate targeted action against poachers and traders.

- Legal reform needs to proceed with urgency so that the *Wild Animal Reservation and Protection Act* functions as the primary piece of legislation covering both captive and wild elephant populations with an emphasis on clarifying and simplifying responsibilities for management, enforcement, co-ordination

and oversight. Amendments to existing laws should address and integrate registration and identification issues to ensure that elephants are registered at birth, or within several weeks of birth, to prevent the laundering of wild-caught individuals into the domestic population. The use of microchips and DNA registration should also be made compulsory and subject to stringent implementation practices in order to avoid cases whereby chips are removed from one animal and placed into another. Such a system will help to identify, track and manage the domestic elephant population in Thailand more effectively. Furthermore, penalties for illegal killing, hunting, capturing, trading or possessing wild elephants, or any parts thereof, should be increased to reflect the retail value of the commodity so that punishment acts as an effective deterrent.

- Relevant Thai authorities at national, provincial and district levels should co-ordinate and police the Surin Elephant Festival so that it is not used as a venue for trading in wild-caught elephants or illegal elephant parts and derivatives, especially ivory.

- Myanmar should expedite the process of upgrading its legislation in order to meet the requirements for the effective implementation of CITES throughout the country.

- The Department of National Parks (DNP) under the Ministry of Natural Resources and Environment (MNRE) currently houses the Wildlife Forensic Science Unit (WIFOS). This facility can undertake DNA analysis which has been crucial in several law enforcement cases pertaining to the provenance of elephants in the tourism industry in Thailand. Resources need to be provided for this group to support rigorous and comprehensive DNA registration and cataloguing of all Thailand's domestic elephants, and to help establish a transparent and openly accessible database to support conservation and enforcement efforts.

- Relevant government agencies, including the Department of Livestock Development, the Department of National Parks, Wildlife and Plant Conservation, the Local Administration Department and selected veterinary experts, together with key non-governmental organizations, should review and revise the guidelines developed in 2002 by the Livestock Department for the proper care of domestic elephants. Once revised, implementation of these guidelines should be made mandatory for anyone in legal possession of a domestic elephant in Thailand, especially tourist camps. Regulatory monitoring should be undertaken by a designated authority (or authorities) with a system of initial warnings for non-compliance eventually leading to licences being revoked and animals confiscated and placed in facilities that can offer proper care.

  This system could be supported by the Tourism Authority of Thailand, national and international travel forums, and other such bodies encouraging tourists to report poor conditions, treatment and/or care of elephants used in the tourism industry of Thailand. A hotline or email address could be provided to tourists to facilitate reporting of bad practice. Legitimate complaints should then be followed-up by the relevant designated authority with NGOs providing support as necessary.

INTRODUCTION

The illegal international wildlife trade remains a leading threat to biodiversity conservation (Sutherland *et al.* 2009), and is a common vector for infectious diseases (Smith *et al*. 2009) and invasive species (Vitousek *et al.* 1996) that also affect agriculture, livestock and public health (Phelps *et al.* 2010). Animal welfare is also a serious issue associated with the illegal wildlife trade and can also facilitate the spread of disease and risks to public health (Baker *et al*., 2013)[2]. While there are literally hundreds, if not thousands, of species smuggled daily across international borders, to the general public and many policy makers most of the illegal trade in wildlife tends to be associated with a limited number of high-profile species (Smith *et al.* 2009; Nijman 2010), with elephants and their ivory falling at the top-end of this category. Elephant ivory has been traded for millennia but at present the numbers of elephants killed to supply this market are beyond what is biologically sustainable (Anon., 2013). In recent years, there has been a highly publicized surge in elephant poaching for ivory, mostly targeting the large-tusked African Elephants *Loxodonta africana*. This is substantiated in the report submitted by the CITES Monitoring of Illegal Killing of Elephants (MIKE) Programme to CITES CoP16 held in Bangkok, Thailand 2013 which suggests that poaching levels have steadily increased since 2002 (CITES Secretariat-MIKE, 2013).

Thailand, a range country for the Asian Elephant, has a long established domestic ivory carving industry which is complicated by legislative loopholes that facilitate the laundering of illegally sourced ivory from abroad. As such, Thailand plays a prominent role in the transnational illegal ivory trade (Stiles, 2009). While ivory markets exist across many Asian countries, in the most recent global analysis of illegal ivory trade, Thailand, together with China, were singled out as having "the most important end-use markets driving illegal ivory trade today" (Milliken *et al.* 2013). Whilst the illegal ivory trade disproportionally impacts African Elephants, Asian Elephants are also negatively affected by the trade.

Through its long history across Asia, the Asian Elephant has been closely connected to and highly valued by various cultures for use in religious and spiritual contexts, as war and work animals, and more recently, as a tourist attraction (WSPA, 2011). Over thousands of years, the use of Asian Elephants as work animals has led to large populations of "domesticated" or "domestic" elephants today. These domestic elephants are distinctly different from other truly domesticated animals in that very limited selective breeding in controlled captive environments is taking place. As such, in this report, the term "domestic" elephant is used as an adjective meaning "tame and kept by humans" and is distinctly different from the term "domesticated" that connotes animals subjected to long-term, selective breeding processes that leave them adapted to live in a human environment. The level of "tameness" can be very different between domestic and domesticated animals, with many domestic elephants displaying only a limited degree of tameness (WSPA, 2011). While domestic elephants were used in large numbers in the logging industry and forestry management in many Asian countries (Figure 1), the use of elephants for this purpose has diminished and in several countries, including Thailand and Lao PDR. In the absence of other work, domestic elephants have increasingly found employment in tourism.

[2] While the welfare of elephants in tourist camps across Thailand is not the focus of this report and is as such not covered in depth, TRAFFIC recognizes that it is a serious issue that needs to be urgently investigated and addressed.

The population of Asian Elephants in the wild is only a fraction of the overall number of elephants left in Africa. Although the literature varies, African Elephants are thought to number between about 436 000 and 686 000 (IUCN African Elephant Specialist Group, 2014), while the Asian Elephant population is much lower at around 45 000 (Blake and Hedges, 2004; Fernando and Pastorini 2011). The wild Asian Elephant population is of particular concern as it estimated to have declined drastically by over 50% in the last three generations (IUCN, 2013). This decline has been exacerbated as a result of Human Elephant Conflict (HEC) which is thought to constitute a greater threat to Asian Elephants than poaching for ivory (Choudury *et al*., 2012). HEC is precipitated by a growing human population that is encroaching, degrading and fragmenting natural elephant habitat, and forcing elephants into contact with people.

Figure 1: An elephant in a tourist camp in Northern Thailand. The right foot was lost when it stepped on a landmine during an illegal logging operation on the Thai/ Myanmar border.

Live capture of wild elephants, previously for logging but now increasingly for tourism, has played a key role in population declines: it is now considered a major threat to wild elephants (WSPA, 2011). Given Thailand's prominence in the elephant tourism industry, and with a history of these animals being smuggled from neighbouring Myanmar into Thailand (Shepherd and Nijman 2008), live capture is of particular concern for the Asian Elephant population in Myanmar particularly as this one of the last stronghold's for the species in South-East Asia (Leimgruber *et al*., 2008; Choudury *et al*., 2012).

In January 2012, there were two highly publicized poaching incidents in the Kaeng Krachan forest complex in central Thailand. The first occurred in Kaeng Krachan National Park where the burnt carcasses of five elephants were discovered (Anon, 2012 b). That same month, in the nearby Pachi River Wildlife Sanctuary in Ratchaburi Province, park rangers intercepted a group of Karen poachers attempting to smuggle a juvenile female elephant out of the area. The elephant was rescued, however, it later emerged that a local politician, as well as other local authorities, were behind the smuggling attempt (Anon, 2012 c). While the size of the elephant population in the Pachi River Wildlife Sanctuary is unclear, there are an estimated 200 elephants surviving in Kaeng Krachan National Park (WWF, 2013). Given the small size of this population, the removal of five individuals is significant. In addition to directly reducing numbers in the wild, these poaching incidents are also likely to be detrimental to the social structure of the herds living in the park.

These two incidents, in particular the Kaeng Krachan killings, amounted to a considerable loss of face for the Thai government. They also occurred at an inopportune moment, about one year before Thailand was due to host the CITES Conference of the Parties, and when the country was already under considerable international scrutiny because of its role in the global illegal ivory trade. In fact, the government responded in a commendable manner with a nationwide crackdown on illegal elephant trade, including systematic inspections of elephant camps throughout the country.

Aims of the Study

Few species face as many challenges in addressing their conservation as the Asian Elephant, mired as it is within a nexus of confounding social, cultural, political, administrative, legislative and ecological variables. These issues have been discussed at length in various publications over the years (see Lair, 1997; Shepherd, 2002; Bandara and Tisdell 2005; Sukumar 2006; Shepherd and Nijman, 2008; Stiles, 2009, 2010; Nijman and Shepherd, 2012a). The aim of this study, conducted between April 2011 and February 2013 was to document the extent of the trade in wild-caught elephants in Thailand, specifically for use in Thailand's tourist industry, and to gather information on trade routes, source areas, individuals involved, and the market value of live elephants. Midway through this investigation, the Thai government initiated a clamp-down on the illegal trade in live Asian Elephants in the country and, to identify illegally possessed animals, checked the provenance of a large number of captive elephants. This series of developments has allowed for a comparison of the trade in wild-caught Asian Elephants into and within Thailand prior to and after these interventions. The information collated is also considered within the overall context of conservation of Asian Elephants in Thailand and has been used to provide realistic and actionable recommendations.

METHODS

Data were collected from April to November 2011 and from April 2012 to March 2013. Information was obtained through research along the Thai/ Myanmar border, and visits to the annual Surin Elephant Festival and to elephant tourist camps throughout the country. An analysis was also undertaken of government documentation, news reports and international trade studies. The conversion from Thai and Myanmar currencies to USD have been done at March 2014 exchange rates

Research Network

Figure 2: Border crossings known for illegal trade in wild-caught elephants

Researchers were deployed along Thailand's north and western border with Myanmar in locations close to known border crossing points for illegal trade in wild-caught elephants (Figure 2). Locations included border crossings and holding camps at various points along the border. These locations were chosen following previous publications on the illegal trade in elephants (e.g. Shepherd and Nijman 2008), as well as information gathered from local NGOs and media reports on the subject. Sites included border crossings and holding camps close to the border. Researchers obtained information on the source of elephants in trade, trade routes, individuals involved and prices. The clandestine nature of the illegal live elephant trade often made access to data very difficult. The border areas were visited regularly throughout the project period, and where possible, any reports of illegal trade in elephants from these areas were followed-up with on-site visits to substantiate the claims.

Surin Elephant Festival

The Surin Elephant Festival, near the town of Surin in eastern Thailand, first began in 1955 and has since been held annually in November. It serves as Thailand's main event for traders to buy and sell elephants and also as a spectacle for Thai and foreign tourists (Vortkamp, 2006; Cohen 2008). It also presents an opportunity for traders to sell illegally captured wild elephants which are masqueraded as domestic animals. Previously, as many as 600 elephants could be seen at this elephant festival (Vortkamp, 2006). Researchers attended this festival in both 2011 and 2012, in order to look for signs of wild-caught elephants and to gather information from traders and mahouts. During the period of the festival, the local army base serves as the holding area for elephants and the place where mahouts set-up camp. Although prohibited to outsiders, the camp is accessible and visiting provides an opportunity to observe the elephants, and to gather information about their origins and legality. Researchers, however, were not able to differentiate between the wild-caught individuals observed at

the Surin Elephant Festival with wild-caught elephants previously identified at holding facilities along the Thai/Myanmar border. As a result, it is possible that some double counting of individual elephants may have occurred.

Elephant Tourist Camps

Given the reported involvement of elephant tourist camps in the illegal trade of wild elephants, between August 2011 and March 2013, a total of 108 facilities were visited. These included elephant tourist camps (both privately-owned and those run by NGOs), government elephant centres, and hotels using elephants as a tourist attraction (Appendix 1). These facilities are concentrated primarily in the north and south of Thailand. Some locations were visited more than once. As was done at the Surin Elephant Festivals, while visiting the tourist camps, researchers looked for signs that elephants had been wild-caught (Appendix 2). Video footage and photographs were taken to document elephants that exhibited signs of wild behaviour or unease in captive circumstances. Informal interviews were held with staff at these camps in order to gather information on the elephants in their possession, and in particular efforts were made to ascertain the origin of the animals in question. Information on the number of elephants in each of these camps and their age class and sex was also collected. Data from camps not visited were obtained from trusted researchers and contacts in the field. The elephant populations in camps and other enterprises are highly mobile and transitory, often being rented out on a monthly/seasonal basis and often moving between areas depending on availability of employment. This may have led to an over- or under-estimation of actual numbers of elephants in the Thai tourist facilities to some extent.

Confiscations and International Trade

Information on trade was additionally gathered from local NGOs working to conserve elephants, most of which are based in the northern province of Chiang Mai. Data on the international trade in elephants from and to Myanmar and Thailand were obtained from the CITES Trade Database in December 2013. Parties to CITES are required to submit an annual report on all transactions (imports, exports and re-exports) involving CITES-listed species to the CITES Secretariat within a year of the transaction. CITES annual report data were only available up to 2012, but not for 2013 as these records have yet to be submitted. Finally, a full literature review was carried out, including a review of media and online sources, to provide background information on the elephant situation in Thailand over the period April 2011 to September 2013.

BACKGROUND

Status of Asian Elephants

The range of the Asian Elephant previously encompassed 9 000 000 km^2 and stretched from western Asia through southern China and mainland South-East Asia to parts of the Malay Archipelago (Sukumar, 2003). Today this species's range covers less than 500 000 km^2 and is comprised of small, highly fragmented populations distributed in 13 countries (Blake and Hedges, 2004; Choudury *et al*., 2012) (Figure 3). As with the extent of the species's range, the size of wild populations has also declined precipitously during this period; reliable estimates are unavailable but it is thought that 40 000 to 50 000 Asian Elephants survive in the wild today (Blake and Hedges, 2004; Fernando and Pastorini, 2011). In terms of the reliability of these data, it is important to note that about a decade ago Blake and Hedges (2004) highlighted that, apart from where they are located, little is known about the status and actual size of many of the Asian Elephants populations. In some cases, and especially the larger geographical areas of their range, accurate information on location is limited, or even whether some of these populations are still extant (cf. Fernando and Pastorini 2011). The fact, however, that the overall population continues to decline has led the Asian Elephant to be listed as globally Endangered according to the IUCN Red List criteria (Choudury *et al*. 2012).

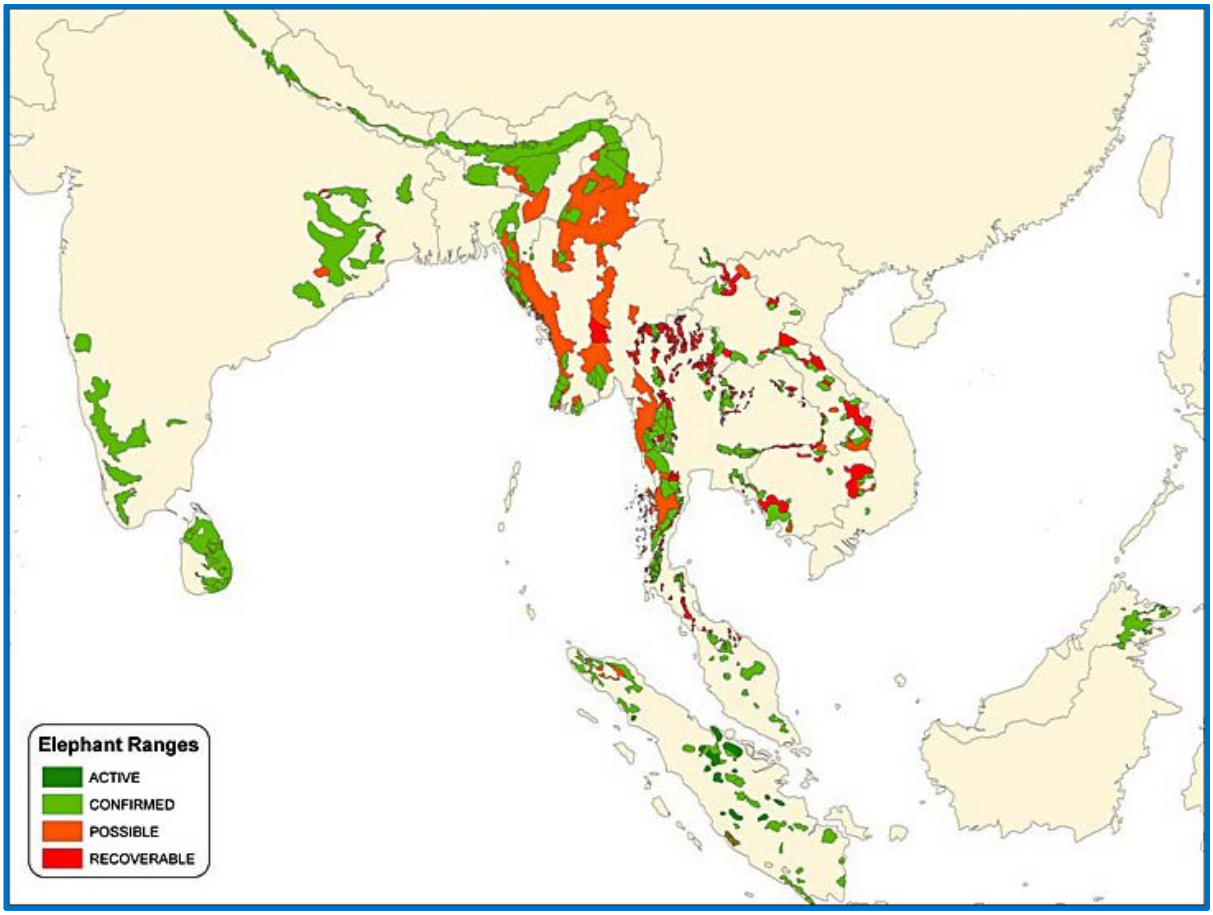

Figure 3: Best estimate of the distribution of the Asian Elephant as of 2008 (Reproduced with permission from Fernando and Pastorini, 2011)

After India, Myanmar holds the largest number of remaining wild Asian Elephants estimated at over 2000 individuals (Leimgruber *et al*., 2011).[3] In Myanmar, elephants are widely but patchily distributed throughout the country (Figure 3). The largest populations are found in Kachin State and Sagaing Division in the north, Shan State in the east, Tennasserim Division in the South, Rakhine State in the west and Bago Division in central Myanmar (Choudery *et al*., 2012). The population of wild Asian Elephants in Thailand is estimated at between 2500 and 3200 (Blake and Hedges, 2004; and the Thai Elephant Conservation Centre, 2014). They are found in eight protected areas, predominantly along the mountainous border with Myanmar in the northwest of the country, which encompasses the Western Forest Complex conservation area (Pimmanrojnagool and Wanghongsa, 2002). Smaller, highly fragmented populations are also found in the south and northeast of Thailand (Choudery *et al*., 2012).

Asian Elephants are highly intelligent and form complex fission-fusion, polygynous matriarchal groups (Sukumar 2003). They have naturally low rates of mortality and individuals can survive to 70 years of age (Shoshani and Eisenberg, 1982). They are relatively slow to procreate with males reaching sexual maturity between 10-15 years old and females first producing young at 15 years old (Shoshani and Eisenberg, 1982). The gestation period lasts for up to 22 months (Shoshani and Eisenberg, 1982) and in the wild the young are typically weaned between four and five years old (Sukumar, 2003), leading to an inter-birth interval of at least five years. Calves weigh ~100 kg at birth (Shoshani and Eisenberg, 1982). In a lifetime, a healthy female can produce three to five calves.

Threats to Asian Elephants

Over the past 50 years, human populations in South-East Asia have been growing at an unprecedented rate; today, for every elephant there are 70 000 people living in the region (Fernando and Pastorini, 2011). Rates of deforestation in South-East Asia are also the highest globally (Sodhi *et al*., 2004). With agricultural expansion, wild areas are increasingly converted into farmland. In order to satiate global demand and support national economies, forests are also being felled and other natural resources extracted, often with little heed of the sustainability of these industries or their impact upon wildlife. The direct effects on elephants are clear: the destruction of habitat and reduction in the available areas where they can survive (Choudury *et al*., 2012).

Typically, the conversion of natural forest has progressed in a haphazard spatial pattern, leading to a mosaic of highly fragmented parcels of elephant habitat surrounded by degraded, human dominated landscapes (Leimgruber *et al*., 2003). The net effect of habitat fragmentation is to obstruct elephant migration and reduce the availability of resources, forcing elephants to raid nearby farms and leading to conflict with humans (Choudury *et al*., 2012). It also renders isolated populations more susceptible to stochastic events, for example, disease outbreak (Dublin *et al*., 2006). HEC is the second major threat to Asian Elephants after habitat loss and degradation and, as outlined, the two are intimately connected and as deforestation increases so does the occurrence of HEC (Fernando and Pastorini, 2006; Choudury *et al*., 2012). As a result of HEC, elephants may be killed, forced to relocate or taken into captivity, reducing their numbers in the wild. Human fatalities are also

[3] IUCN (2008) estimated the wild Asian Elephant population in Myanmar to be 4,000-5,000 animals (http://www.iucnredlist.org/details/full/7140/0)

common, for example, in India elephants kill over 400 people every year (Baskaran *et al*., 2011), an outcome that can understandably breed contempt among local people for the species and initiatives trying to conserve them.

Asian Elephants are also poached for a variety of products including skin, hair, feet, teeth, meat and ivory posing a considerable threat to some populations (Anon, 2002; Kemf and Santiapillai, 2002; Shepherd and Nijman 2008; Stiles, 2010; Nijman and Shepherd 2012ab). In terms of impact, poaching (particularly for ivory) contrasts to habitat loss in that particular individuals are targeted, namely larger males[4]. This can skew the sex ratio of a population toward a female bias and reduce genetic variability, fecundity and recruitment (Sukumar, 2003). Several studies have also found that such targeted extraction interferes with the herd's complex social structure and can cause long lasting psychological effects on individuals (e.g. Bradshaw *et al*., 2005; Ishengoma *et al*., 2008; Archie and Chiyo, 2012).

Increasingly, the capture of wild elephants from Myanmar to supply the tourist trade in Thailand is being recognised as a potentially significant threat to the species (Shepherd and Nijman, 2008). However, given the clandestine nature and high value of live elephant trade, there is very little published information on the subject. Today, some authors suggest between 50-100 wild elephants are smuggled from Myanmar to Thailand every year (Lair, 1997; Anon, 2008), while another study found records indicating that 240 elephants were trafficked through a single border crossing in the west of Thailand over an 18-month period (Shepherd and Nijman, 2008). Historically, large captive populations of elephants in Thailand and Myanmar have been sustained through supplementation with wild-caught animals (Lair, 1997) (Figure 4).

Figure 4: Baby Asian Elephant *Elephas maximus* caught in a pit trap in Myanmar

[4] In Asian Elephant populations only males carry tusks unlike their African counterparts where both males and females carry tusks.

Given elephants' long gestation period, low birth rates in captivity and the previously widespread availability of elephants in the wild, the capture of wild-caught individuals to maintain captive populations has long been preferred to breeding in captivity (Lair, 1997; Leimgruber *et al*., 2011). In the early 1900s, it was estimated that over 400 wild elephants were captured annually in Myanmar (Toke Gale, 1974). Between 2004 and 2011, 335 elephants were taken from the wild in Myanmar to work in logging camps (Leimgruber *et al*., 2011). Traditionally, adult or sub-adult elephants were targeted for capture as they could be trained and put to work while calves were of little value (Lair, 1997). Today, in a reversal of trends, demand for adults has reduced as elephant logging has widely ceased while calves are more sought after as they have greater appeal to tourists and, hence, are more valuable (Godfrey and Kongmuang, 2009) (Figure 5).

Figure 5: Baby elephants and other wildlife are more attractive to tourists

Most of the attention on live elephant trade surrounds the welfare implications of the different capture methods as well as the *phajaan* ritual, a traditional technique used to break the spirit of wild elephants before they are trained. Ethical concerns aside, live capture is believed to be a major contributing factor in the decline of wild Asian Elephant populations in the past century (Lair, 1997; Leimgruber *et al*., 2008). According to Leimgruber *et al.* (2008), a capture rate of 100 elephants annually would lead to the extinction of Myanmar's wild elephant population in less than 30 years.

Culture, religion and domestic elephants

Asian Elephants have been tamed and kept by humans for more than 2000 years and are deeply ingrained in the culture and religion of the region, (Aung and Nyunt, 2001; Laohachaiboon, 2010). In Hinduism, elephants represent the physical manifestation of Ganesh, the Lord of Beginnings and God of Protection, and according to Ramanathapillai (1999) elephants are central to Buddhist iconography and spiritual teaching.

Through the ages, Asian Elephants have been used to wage war, transport people and goods, and harvest South-East Asia's vast and highly valuable forests, particularly in the pre-mechanized age (Lair, 1997; Aung and Nyunt, 2001). They have played, and continue to play, an important role in the economies of several countries in the region. As a result of this long association with humans, today Myanmar and Thailand harbour two of the largest domestic populations of Asian Elephants globally (Lair, 1997; Mar, 2002; Leimgruber *et al*., 2011).

In Thailand, logging was banned in 1989 following massive deforestation and persistent flash floods in the south of the country (Laohachaiboon, 2010). As a result of the ban, over 2000 elephants and their mahouts were left without work and were forced to beg on city streets or seek employment in the illegal logging industry, occupations which had considerable implications for the animals' welfare (Laohachaiboon, 2010). Shortly thereafter, the Thai Elephant Conservation Centre (TECC) (now the National Elephant Institute (NEI)) launched an initiative to promote the use of elephants in tourism as a means to provide sustainable employment for elephants and mahouts alike (Laohachaiboon, 2010).

According to Wallmark (2008) and Godfrey and Kongmuang (2009), there are at least 73 elephant tourist camps ("*Baan Chaang*") in Thailand, most of which are located in the north of the country. However, a more recent, but as yet unpublished report based on data collected in 2010, suggests a significantly higher figure of at least 106 venues holding a total of 1688 elephants (Schmidt-Burbach *et al*., 2014). These offer a variety of services to tourists, the most popular being elephant-back jungle trekking and mahout training courses, as well as other spectacles such as elephant shows (Figure 6). Due to problems with the registration system (see legislation below), it is unclear exactly how many domestic Asian Elephants there are in Thailand, though recent estimates suggest there are between 3000 and 4000 individuals (Mattana, 2003; Angkawanish *et al*., 2009) which is higher than the estimate of 2700 individuals provided by the National Elephant Institute (Thai Elephant Conservation Centre, 2014) a "think tank" of the Thai Elephant Conservation Centre under the Forest Industry Organisation. A vast majority of elephant tourist camps and other venues housing elephants are said to be privately-owned (Mattana, 2003).

Figure 6: A flyer advertising tourist activities with elephants in Thailand

Myanmar is the only remaining country where elephants are still widely used in the logging industry (Zaw Min, 2010). Elephants are also used for logging in Lao PDR, but to a lesser extent (Khounboline, 2011). There are approximately 4750 domestic elephants in Myanmar, 2850 of which are owned by the government and run by the Myanmar Timber Enterprise (MTE) while the remaining 1900 elephants are privately-owned (Leimgruber *et al*., 2011). In the past decade several elephant tourist camps have been established in Myanmar, however, the majority of Myanmar's elephants are still employed in logging (Leimgruber *et al*., 2011). The number of young produced by these elephants annually is not known, or whether any of them are exported to Thailand.

Mahouts (known as "*oozies*" in Myanmar) have historically played a central role in the taming and training of elephants for war, transport, logging and tourism (Lair, 1997). Traditionally, mahouts were respected within society and endured years of apprenticeship, economic hardship and physical toil before becoming qualified (Lair, 1997). Young boys often following in the footsteps of their fathers, by being paired with juvenile elephants, forming a partnership that would last a lifetime (Lair, 1997). The mutual trust borne out of this was crucial in the control of the elephant and the safety of the mahout. Today, the science and culture of the mahout way of life is being lost. The occupation remains as physically demanding and economically unrewarding as it has in the past, but today mahouts are not held in the same esteem.

In Myanmar each year, a number of wild Asian Elephants are caught to supply the demand for domestic elephants (Leimgruber *et al.* 2011). While this is illegal in Thailand, current Thai legislation allows relatively easy flaunting of the regulations so that wild-caught elephants are easily registered as domestic animals (see Legislation section below), putting strain on wild populations. In this way, the management of the domestic

population is closely linked with the conservation of the species in the wild. The relationship between both populations is interdependent and synergistic (Lair, 1997); to safeguard the survival of this species this axiom needs to be considered and management approaches directed accordingly.

National Legislation

Thailand

Thailand's long history of captive elephants has created something of a legislative quagmire whereby the species is legislated by 18 different acts, and administered by five government ministries (Laohachaiboon, 2003). The most relevant laws are the *Wild Animal Reservation and Protection Act of 1992* (WARPA), which deals with wild elephants and the *Draught Animal Act of 1939*, which is concerned with domestic elephants.

In 2002, the Department of National Parks, Wildlife and Plant Conservation (DNP) under the Ministry of Natural Resources and Environment (MNRE) was established and charged with management and implementation of WARPA (Stiles, 2009). Where appropriate, the Royal Thai Customs and the Natural Resources and Environmental Crimes Suppression Division of the Royal Thai Police (under the Ministry of Interior) also enforce laws relevant to elephants (Stiles, 2009).

Thailand's wild elephants are listed as protected under WARPA. Capturing or killing a wild elephant without written approval from the Director General of the DNP is prohibited and doing so can incur a fine of up to USD 1330 and/or up to four years in prison. Since the 1970s, no permits have been issued to hunt wild elephants (Pimmanrojnagool and Wanghongsa, 2001). There are additional provisions within WARPA which permit the breeding, hunting, possession and transport of wild elephants for scientific or conservation purposes, with approval of the DNP. Over the past decade the government has attempted to update WARPA to better protect wild elephants, however, to date, no progress has been made.

Wild elephants are also protected under the *Wild Elephant Protection Act of 1921* which states that all wild specimens are the property of the government. The Ministry of Interior (MoI) administers this law, which also states that any "white" elephants discovered are the property of the King.

Domestic elephants in Thailand are included under the *Draught Animal Act 1939* alongside more familiar livestock species, a reflection of the previously large number of elephants held in captivity and their traditional use as domestic animals. This law was implemented to "define the rights and obligations of ownership" and has no applications pertaining to the welfare or ethical treatment of the animals (Lair, 1997). Under this law, owners are required to register their elephant(s) at eight years old with the District Office of the Local Administration Department (LAD), at which stage they will be issued with an ID card for the animal (Stiles, 2009). Unfortunately, this "deferred registration" creates a loophole that facilitates illegally caught wild elephants, younger than eight years old, being laundered into the domestic population (Lair, 1997), with proof of origin easily to manipulate and hard to verify. With DNA testing capabilities through the DNP's Wildlife Forensics Science Unit (WIFOS) currently possible, such laundering is now much more difficult. If an elephant

is moved, the owner is required to re-register it with the local District Office of the LAD. Under the *Animal Epidemics Act of 1956*, elephant owners must also obtain written permission prior to transporting and/or trading any individuals (Stiles, 2009).

In 2002, the Livestock Department issued guidelines for elephant tourist camps aimed at improving the welfare of working elephants, for example, providing standards for housing, food quality and personnel management (Department of Livestock Development, 2002). However, according to Kontogeorgopoulous (2009), due to a lack of governmental will and the higher costs incurred by camps, these standards have not been enforced.

Two separate ministries are tasked with the management of Thailand's domestic elephants. The Department of Livestock Development (DLD) under the Ministry of Agriculture and Cooperatives (MoAC) is concerned with the health and care of the animals, while the Division of Registration (DoR) under the MoI manages their registration and transport (Stiles, 2009). Both ministries collect data on elephants in Thailand but their motivations differ. Although not strictly for registration purposes, the DLD implants ID microchips in all elephants documented with the Department. However, communication between the DLD and DoR is limited, meaning that records of documented elephants between the two authorities often do not match (Lair, 1997). In early 2012, the Natural Resources and Environment Minister pledged to establish a DNA database to catalogue all domestic elephants in Thailand. The aim of this was to remedy the management issues arising from faulty registration procedures, but at the time of writing it unclear as to how much progress has been made.

Although many of these laws have been updated periodically since their inception, they are clearly inadequate to support effectively the conservation of wild Asian Elephants not only in Thailand, but also in neighbouring countries (Stiles, 2009). The number of different government agencies involved provides a platform for corruption and inefficient bureaucracy that allows exploitation of existing loopholes to facilitate the laundering of illegally caught wild elephants into the domestic population. In 2002, the National Elephant Institute (NEI) drafted the *Protection and Conservation of Elephants as the National Symbolic Animal Act* with the aim of improving management of the domestic population. Due to disagreement among stakeholders, however, this law is yet to be enacted (Laohachaiboon, 2003). Finally, in her opening address to CITES CoP16 in March 2013 held in Bangkok, Thailand, the Thai Prime Minister, Yingluck Shinawatra, outlined her government's strategy for tackling the illegal ivory trade and elephant conservation as follows:

> *The government [is] strictly enforcing the current legal frameworks [ ] by enforcing comprehensive and system-wide registration of both the domestic elephants and ivory products and thereby further exposing illegal ivory trade and products. As a next step we will work towards amending the national legislation with the goal of putting an end to ivory trade and to be in line with international norms. This will help protect all forms of elephants including Thailand's wild and domestic elephants and those from Africa.*

Prime Minister Shinawatra did not give a timeline for amending the legislation, but her government subsequently stated their intention to bring domestic elephants under the purview of WARPA, treating them the same as wild elephants, as a component of the Ivory Trade Action Plan for Thailand submitted to the CITES Secretariat in May 2013. This legislative development was later slated by the government to be achieved by May 2016 (Anon., 2013c; Anon., 2013d). Acknowledging that the previous system was inadequate, the Thai government also pledged in the Action Plan to introduce a new domestic elephant identification system by 2015. This new system for registering domestic elephants is aimed at recording greater levels of details in order to track and manage domestic populations more effectively (Anon., 2013d).

Myanmar

Elephants have been protected in Myanmar since 1879, originally under the *Elephant Preservation Act*. Today, they are listed as a "Totally Protected Species" under the *Protection of Wildlife and Wild Plants and Conservation of Natural Areas Law* (State Law and Order Restoration Council Law No.583/94.1994), which is implemented by Myanmar's Forest Department under the Ministry of Forestry. Following this law, hunting, killing or possessing an elephant without written permission from the Forest Department is illegal. Trading and transporting elephants, or any part thereof, without appropriate permission are also prohibited. Contravention of this law can lead to fine of up to MMK 50 000 (USD 52) and/or a prison sentence of no more than seven years.

Myanmar's captive elephants are also afforded protection under the *Elephant Registration Act, 1951* which requires elephant owners to register their animals with the Forest Department at three months of age. This requires the completion of an application form and submission of photos of the animal in question (Aung and Nyunt, 2001). Should a privately-owned elephant die, the owner must report to the Forest Department so that the registration can be cancelled (Shepherd and Nijman, 2008). The purpose of this law is to prevent illegal trade and capture of elephants (Myint Aung, 1994). However, according to Lair (1997), due to a lack of resources the Forestry Department have been unable to register all domestic elephants in Myanmar systematically.

The State-run Myanmar Timber Enterprise (MTE) owns a large proportion of Myanmar's domestic elephants. The MTE reportedly keeps meticulous records of nearly all aspects of the elephants in their possession (Lair, 1997). MTE elephants must be registered with the Forest Department at five years of age, the age at which they begin training, and the registration is renewed every three years. New born MTE elephants must be registered with the local Forest Department office within three months of birth, and deaths must also be reported to the same authorities (Aung and Nyunt, 2001).

A brief comparison between legislation associated with the protection and conservation of elephants in both countries would suggest that Myanmar has the stronger legal framework especially with regards to the registration of elephants. However, it is worth noting that even strong legislation means little if it not effectively enforced.

International Protection

CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a multi-national agreement to which countries voluntarily join. The aim of CITES is to ensure that legal international trade does not endanger the survival of wild plants or animals. A permit system is the primary mechanism by which wildlife trade is regulated through CITES. Asian Elephants have been listed in Appendix I of CITES since its inception in 1975, effectively prohibiting all international trade in wild individuals and their derivatives except in exceptional circumstances.

While the focus on much of the debate concerning elephants and CITES centres around the trade in ivory and the killing of elephants to obtain it, it is of note that at the most recent Conference of Parties (CoP16, Bangkok, 2013), an amendment to Resolution Conf. 10.10 (Rev. CoP16) on "Trade in Elephant Specimens" addresses and recognizes the importance of trade of live elephants. Specifically, it "recommends that all elephant range States have in place legislative, regulatory, enforcement, or other measures to prevent illegal trade in live elephants" (CITES, 2013).

While Thailand has been a member of CITES since 1983, Myanmar only acceded to the Convention more recently in 1997. It should be noted that while CITES establishes a broad legislative framework for regulating wildlife trade, the ultimate responsibility for the implementation of the Convention rests with Parties. In joining CITES, Parties are legally bound to implement the provisions of the Convention, which needs to be supported through the enactment of adequate legislation and the establishment of national authorities to enforce it. In Myanmar the Forest Department enforces CITES, while in Thailand the Department of National Parks is charged with this task.

In 1992, the CITES National Legislation Project (NLP) was initiated to categorize the effectiveness of national legislation in implementing CITES and to provide legislative support to member parties (CITES, 2010). Under the NLP, Parties are categorized as follows:

- Category 1: legislation that is believed generally to meet the requirements for implementation of CITES;
- Category 2: legislation that is believed generally not to meet all of the requirements for the implementation of CITES; or
- Category 3: legislation that is believed generally not to meet the requirements for the implementation of CITES.

Myanmar is ranked in Category 3, while Thailand's legislation has been assessed as Category 1. However, as outlined above, Myanmar's elephant laws are in certain ways stronger than Thailand's legislation. While Thailand's wildlife laws may generally meet the requirements of CITES, they are undermined by serious loopholes that do not support the effective protection and conservation of elephants.

In 2009, Thailand's Natural Resources and Environment Ministry suspended all exports of Asian Elephants from Thailand for scientific research or other exceptional circumstances (Anon, 2009). According to the Natural Resources and Environment Minister, the suspension will be in place until an improved registration process is in place and when the authorities can be assured that animals being exported are captive-bred, and not wild-caught.

MIKE

In 1997, the CITES Parties mandated the establishment of two monitoring systems to track the illegal killing of elephants and the illegal trade in elephant ivory (CITES, 2013). The first of these, the Elephant Trade Information System (ETIS) tracks and analyses the illegal trade in ivory and other elephant products worldwide. The second, which is more relevant to this study, is the Monitoring of Illegal Killing of Elephants (MIKE) system (CITES, 2013). The goal of MIKE is to track the illegal killing of elephants through a site-based system in both African and Asian elephant range States. The data from MIKE helps elephant range states to make appropriate management and enforcement decisions at these sites and to build institutional capacity for the long-term management and conservation of their elephant populations (CITES (b), 2013). Specifically, MIKE aims to:

a) Measure levels and trends in the illegal hunting of elephants;
b) Determine changes in these trends over time; and
c) Determine the factors causing or associated with such changes, and to try and assess in particular to what extent observed trends are a result of any decisions taken by the Conference of the Parties to CITES.

In Asia, MIKE currently monitors 20 sites in the region including one in Myanmar (Alangdaw Katapa National Park) and two in Thailand (Khuiburi and Selakphra) (SC55 Doc. 10.2 (Rev.1)). Local authorities and NGOs within these sites help to collect data in a standardized manner on elephant populations, mortality rates and measures of law enforcement and protection effort. The data are then entered into a database that generates summary reports and statistics as well as analytical outputs on the illegal killing of elephants which are then used to support management decisions (CITES (b), 2013). However, due to logistical and organizational difficulties and problems in measuring law enforcement/protection effort, the inflow of data from MIKE sites has been slow (Burn *et al*., 2011).

RESULTS AND DISCUSSION

Legal International Trade

There are two records of live Asian Elephants (four individuals in total) being exported by Thailand in 2009, but following the implementation of an export suspension that same year, no further exports from Thailand or imports by other countries of Thai elephants have been reported to CITES[5]. In 2011 and 2012, Myanmar's export data indicated two incidents of two captive-bred Asian Elephants being sent to China. There have been no CITES-recorded exports of elephants from Myanmar to Thailand, or from Thailand to Myanmar, in over a decade.

At the time of writing, CITES records for 2013 were not available. While several live elephants are believed to have been exported from Myanmar to countries other than Thailand in 2013, and presumably will be reported as such by Myanmar and/or the importing Parties who received the animals, it is unlikely that any of the elephant exports from Myanmar to Thailand that are detailed below were officially recorded and represent legally sanctioned trade under CITES.

Seizures of Elephants in Thailand

In the three year period, 2009, 2010 and 2011, only a single elephant was confiscated by the Thai authorities (a baby elephant by the Krom Luang Chumporn Wildlife Sanctuary authorities in March 2010), 2012 saw a dramatic increase in the number of seizures with 34 recorded across at least six different provinces. 76% of the seizures (26 individuals) were recorded in Kanchanaburi Province, with other provinces recording only one or two seizures each. In the first nine months of 2013, another 22 individuals were seized by the DNP authorities, bringing the total number of confiscated elephants over the five-year period (2009-2013) to 57, or approximately eleven per year (Table 1). The elephants seized by DNP authorities were mostly from elephant camps and other tourist sites where appropriate documentation for the animals could not be provided (Anon, 2013). The seizures, which took place across at least 10 provinces in the country, do not demonstrate any particular or noteworthy pattern except that about half of the total confiscations took place in Kanchanaburi Province. As there is no prevalence of elephant tourist camps in this particular province, one reason behind the high number of seizures in this location could be its proximity to the Myanmar border, suggesting that this could be a key border area through which wild-caught elephants are frequently smuggled from Myanmar into Thailand.

In July 2012, the Ecologist Film Unit released a short documentary looking at the illegal trade in live elephants from Myanmar to Thailand. The Deputy Director General of DNP was interviewed for the documentary and asserted that within the previous six months the Thai government had succeeded in stopping all illegal elephant trade along international borders. However, the seizure of these elephants highlighted a massive problem faced by the Thai government, namely the severe lack of resources to house and care for confiscated animals (Anon 2013 b). Seized animals are considered as evidence for legal cases which may take years to conclude and in

[5] At the time of writing, data available on import and export of live Asian Elephants through the CITES Trade Database were only up to the end of 2012.

cases where no arrests are made these animals must be kept for five years. The lack of adequate facilities raises concerns for the welfare of seized elephants (and other wildlife) while they are being held in government facilities. Given that it is expensive to care for confiscated wildlife properly, there is also concern that some of these animals may be laundered back into the illegal trade.

Table 1: Live elephants confiscated by Thai authorities up to and including September 2013

Year	Province	No. of Individuals
2009	N/A	0
2010	Ratchaburi Province, Thailand	1
2011	N/A	0
2012	Kanchanaburi Province, Thailand	26
	Sisaket Province, Thailand	2
	Phatthalung Province, Thailand	1
	Tak Province, Thailand	2
	Chonburi Province, Thailand	1
	Singburi Province, Thailand	1
	Unknown, Thailand	1
2013	Chaiyaphum Province, Thailand	1
	Surin Province, Thailand	5
	Kanchanaburi Province, Thailand	2
	Phang Nga Province, Thailand	7
	Phuket Province, Thailand	7
	Total	**57**

Illegal Trade in Wild Elephants from Myanmar to Thailand

The network of researchers at strategic locations along the Thai/Myanmar border documented the minimum scale of the illegal trade in wild elephants from Myanmar into Thailand. The results are presented in Table 2 and the source areas and trade routes are depicted in Figure 10.

Table 2: Wild-caught elephants observed at holding sites along the Thai/ Myanmar Border[6]

Date	Location/ Description	No. of Individuals
Apr 2011	Mae Ramat, Mae Sariang, Mae Hong Son Province, Thailand	2
Jun 2011	Suan Phung District Ratchaburi Province, Thailand	3
Jul 2011	Baan Huay Mak, Mae Sariang, Mae Hong Son Province, Thailand	4
Jul 2011	Suan Phung District Ratchaburi Province, Thailand	1
Oct 2011	Mae Ramat, Mae Sariang, Mae Hong Son Province, Thailand	4
Jan 2012	Suan Phung District Ratchaburi Province, Thailand	2
Mar 2012	Wan Pu Hpya Mau, Shan State, Myanmar	5
Mar 2012	Wan Pu Hpya Mau, Shan State, Myanmar	3
Jun 2012	Baan Sao Hin, Mae Hong Son Province, Thailand	2
	Total	**26**

From April 2011 until June 2012, a total of 26 wild elephants from Myanmar were recorded at holding camps along the Thai/Myanmar border (Table 2, Figure 7). The majority of these illegally captured elephants were located in the Northern Province of Mae Hong Son on the Thai side (12 individuals), and in the adjacent Wan Pu Hpya Mau, Shan State to the north on the Myanmar side (eight individuals). The remainder (six individuals) were found in Ratchaburi Province located southeast of Bangkok. According to traders, mahouts and/or owners present during visits to these camps, all elephants originated from Myanmar. The fact that these animals were wild-caught was also indicated by a number of other factors such as head injuries sustained during *phajaan*, the brutal process by which a wild-caught elephant is tamed (Appendix 2). Because these elephants do not exhibit tame behaviour, it is reasoned that they were not sourced from domestic populations in Myanmar, otherwise there would be no need for them to be subjected to the *phajaan* process.

Between June 2012 and March 2013, no new reports of wild elephants being held along the border were received from researchers. The apparent abrupt halt in trade is most likely a reflection of the increased enforcement effort by Thai authorities. According to traders and researchers, the elephant holding points and border crossing locations have shifted from those mentioned above. Given the previous extent of the trade, as well as the large sums of money involved, it is unlikely that the trade has ceased completely. The current state of affairs is more likely characterised by a combination of the trade being forced underground, regular shifting of trafficking locations, some level of corruption among border officials, as well as lapses in enforcement effort allowing traders to smuggle elephants without being caught. This, however, is only suspected and has not been substantiated.

[6] Most holding sites are on the Thai side of the border but all elephants originate from Myanmar.

Figure 7: Baby wild elephant at a holding camp on the Thai/Myanmar border

According to researchers, baby elephants were reportedly being sold for between THB 700 000 and THB 1 000 000 (USD 21 500 and USD 30 500), depending on the health of the individual. In 1997, Lair reported that baby elephants, illegally captured in Myanmar, were sold at the Thai border for THB 125 000 and 150 000 (USD 3800 and USD 4500) and were then sold in Thailand for THB 200 000 (USD 6150) after having being trained to perform tricks for shows. By the second half of 2013, the price is reported to have risen above THB 1 000 000 (USD 30 500) (Lair, pers. comm.). Taking into account inflation, (USD 6150 in 1997 is worth almost USD 9000 in 2013 according to the US Inflation Calculator website: http://www.usinflationcalculator.com), but discounting the rising food costs, this represents more than a threefold increase in the value of wild-caught elephants over a 15-year period.

In Myanmar, wild elephants have been sourced in the north of the country in Kachin State and Sagaing Division with some of the elephants captured by the MTE (Leimgruber *et al*., 2011). The Dawna-Tenasserim forest complex in the south of the country has also been an important source location for elephants in trade, especially considering its location on Thailand's western border. More recently, according to researchers, elephants are now being sourced in Rakhine State in Western Myanmar near the Bangladeshi border as well. From here they are transported via Pyay and Bago to the Thai border where they are held while traffickers wait for "official" documents to be received whereupon the elephants may be moved into Thailand. According to one informant, forged elephant registration papers can be bought from a senior official in Kanchanaburi Province for THB 60 000 (USD 1840) each.

The change in source areas of elephants in Myanmar to the west of the country could be of note. Population declines have been reported in other source areas, for example in the north (Burma Environmental Working Group, 2009), and this shift may reflect the targeting of other, more robust populations in order to meet demand. However, given the sparse information available this observation should be treated with caution.

Capture and Transport Methods

Several methods are traditionally used to capture wild elephants, for example the "pit-trap" method (Figure 8), whereby a herd is corralled using domestic elephants (Figure 9) into a corridor where a pit has been dug. However, these methods result in high elephant injury and mortality rates. Recently, with the change in market demand for infants and juvenile elephants, as well the greater availability of firearms, poachers in Myanmar are reportedly increasingly using automatic weapons as part of the "pit-trap" approach. Mothers and female minders are often extremely protective of wild infants they are guarding, making it difficult for the poachers to capture them. Using automatic weapons, the protective members of the herd can be easily killed and the infants removed. The body parts from the slain individuals can then also be sold for profit.

Figure 8: Elephant pit trap used to capture live elephants in Myanmar

Figure 9: Adult elephant being prepared for a trip to catch wild elephants in Myanmar

Trapped elephants are hauled out of the pit using ropes. They are then transported to remote locations on the Myanmar side of the Thai border where they are subjected to the *phajaan* process designed to "break" their spirits and prepare them for training. From here, individuals may be walked across to holding camps on the Thai side of the border where they are paired with surrogate mothers who are forced to accept the calf. The female may refuse to accept the calf, or vice versa, requiring the animals to be tethered together using a rope or chain. Elephants are also transported into Thailand by truck and border officials are bribed to allow entry of the undocumented animals (Shepherd and Nijman, 2008).

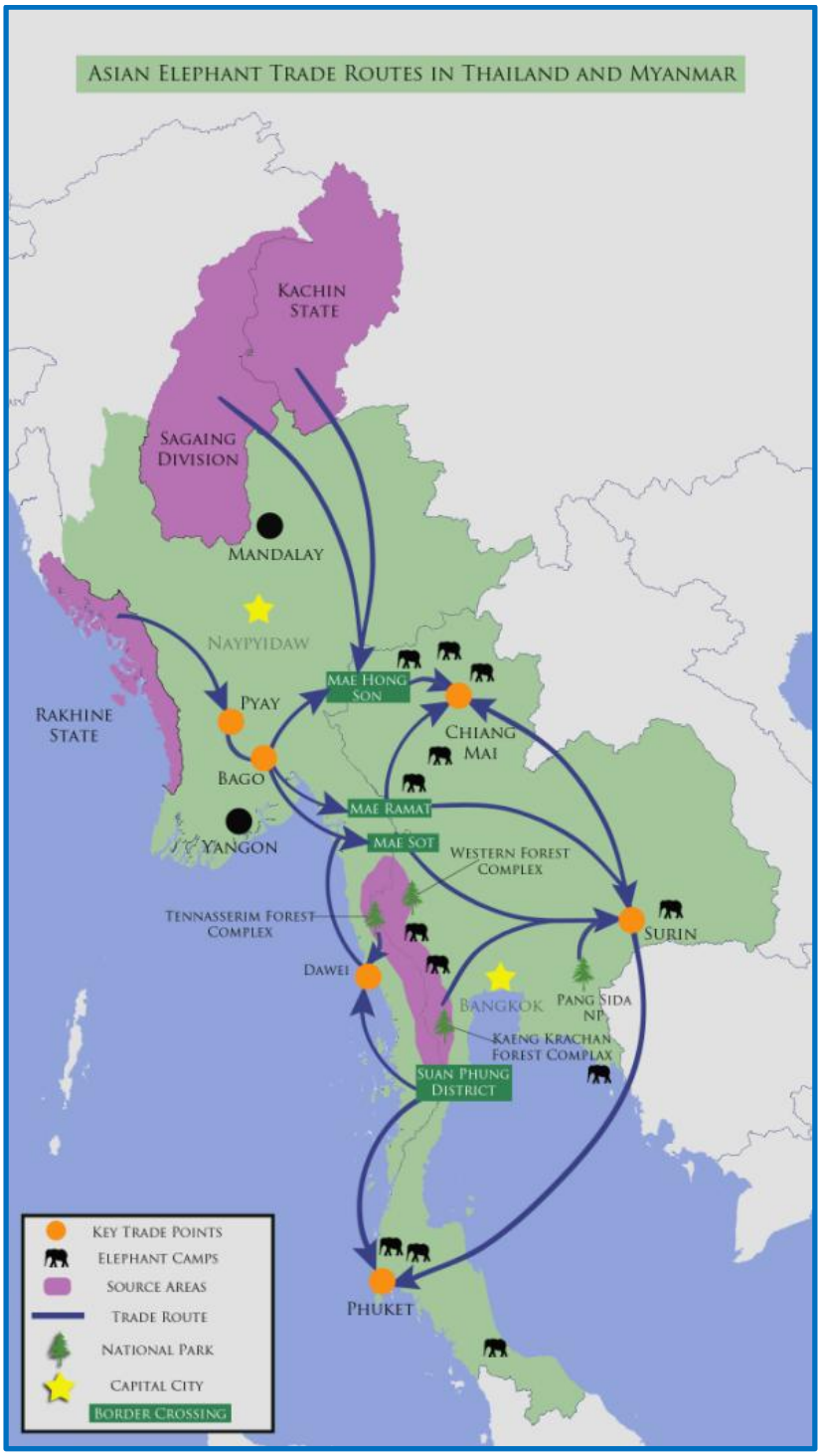

Figure 10: Trade route map for wild elephants trafficked in Thailand and Myanmar

The Surin Elephant Festival

The number of elephants present at the festival was estimated at 300 in November 2011 and 200 in November 2012. Mahouts/elephant owners are paid THB 1200 (USD 37) by the government to participate in the Festival. However, according to mahouts this sum is insufficient to cover the increasing costs of attending the event leading to the reduction in numbers of elephants.

Based on information acquired by the researchers involved in this report, 24 elephants present at the 2011 festival were wild-caught (Appendix 2 provides details of some of the signs used to distinguish wild-caught elephants). According to traders, two bull elephants present were captured in the nearby Khao Ang Rue Nai Wildlife Sanctuary in Thailand, while the remainder (22 individuals) originated in Myanmar. Although it is not clear where in Myanmar these animals originated from, it is believed the similar trafficking routes were used as those depicted in Figure 10.

In 2012, two calves observed at the festival had reportedly been captured in Pang Sida National Park in Thailand (Figure 10), which is in the same general areas as Khao Ang Rue Nai Wildlife Sanctuary where elephant bulls were sourced in 2011. According to traders, the mother of one of these elephants as well as two minders had been killed during the capture, representing a total of five individuals removed from Thailand's population of wild elephants. Based on a number of behavioural and physical signs, it is believed that an additional two calves observed at the army camp in Surin were recently wild-caught. However, TRAFFIC was unable to confirm these suspicions with mahouts/owners.

These results show a substantial drop in the numbers of wild-caught elephants at the Surin Festival between 2011 and 2012. The demand for and value of elephants is increasing across Thailand and South-East Asia (see below). As such, this reduction in numbers of wild-caught animals at Surin is unlikely to be due to a drop in demand. At the moment it is unlikely that the numbers of wild elephants present in source areas (i.e. parts of Thailand and Myanmar) is cause for this decline; instead, the authors believe that these trends are most likely due to improved enforcement in Thailand and the resulting reduction in supply of wild elephants, particularly from Myanmar.

The presence of wild elephants sourced from within Thailand in both 2011 and 2012 is an indication that local populations are also being targeted to supply the trade. It is unclear how much of this trend is related to the decrease in supply from Myanmar and the effects of improved cross-border enforcement; nonetheless, it reflects the adaptability of poachers and traders to supply the market. Perhaps more importantly, it also reflects the need to protect wild populations of elephants in both Myanmar and Thailand better.

The Surin Festival also appears to be a centre for the trade in elephant parts. In 2011 and 2012, considerable amounts of ivory, both raw and carved, as well as elephant bones, feet, hair, skin, tails, teeth and trunks were observed for sale. It was not possible to identify the source of the ivory and hence whether it was being legally sold, but Stiles (2009) reports that a significant amount of ivory available for sale in Thailand is likely to be illegal. The open availability of illegally captured wild elephants (not to mention the large amounts of

potentially illegal elephant ivory and elephant parts) at the Surin Festival is cause for concern and suggests a lack of proper enforcement where the sale of elephants and their parts is concerned. The reduction in numbers of wild-caught elephants between 2011 and 2012, however, demonstrates how effective enforcement can lead to a reduction in cross-border illegal live elephant trade and supply. Still, the issue remains that after being smuggled into Thailand, corruption and inadequate legislation, lax enforcement, and registration policies facilitate the laundering of wild elephants into the domestic population. Once this has happened, enforcement authorities have little recourse, as the animals are officially documented and technically legal. In the absence of a tighter registration system, including the establishment of a DNA database of all animals in domesticity and a system of regular monitoring, this situation will continue.

Elephant Tourist Camps

In the 108 elephant tourist camps, government elephant facilities and hotels with elephants that were surveyed, a total of 1565 elephants were observed. At all but three of these facilities, representing 90% of the individual elephants present, the number of males and females and the number of adults and sub-adults was established. Of the sexed individuals, 80% were female and some 12% of the males and females were sub-adults. Several facilities showed highly skewed age ratios with many more sub-adults than expected or, conversely, facilities with very low numbers of sub-adults. Likewise there were facilities with highly skewed sex ratios, including ones that only displayed females, but few that had a clear preponderance of males (Table 3).

Table 3: Elephant Tourist Camps with highly skewed age or sex ratios

Preponderance of Sub-adults	**Sub-adults**	**Adults**
A	4	0
B	3	2
C	9	8
D	10	14
Preponderance of Adults	**Sub-adults**	**Adults**
E	1	28
F	1	21
G	2	30
Preponderance of Females	**Males**	**Females**
H	0	44
I	0	30
J	0	20
K	1	29
L	1	25
Preponderance of Males	**Males**	**Females**
M	8	4
N	10	6

The number of elephants in each facility varied considerably; the median number of elephants per facility was 8. The largest number of elephants in any one facility was 160 at the government owned Camp Y followed by 71 at Camp O and 65 at Camp P. Seven facilities had only one or two elephants.

Camp Y and the Thai Elephant Conservation Centre, with a combined total of 210 elephants are the largest government owned facilities. In addition to these, at the time of writing, the government was taking care of an additional 30 recently confiscated elephants (R. Lair, pers. comm.). Camp P (65 individuals), Camp O (71 individuals) and Camp Q (60 individuals) in Chiang Mai Province were the largest privately-owned facilities observed.

Based on the evidence provided in Appendix 2 and through discussion with mahouts, a total of 27 recently caught wild elephants were recorded at seven elephant tourist camps spread throughout Thailand (Table 4). Camp Q in Chiang Mai Province (Figure 11) had the largest number of illegally-caught wild elephants observed during the study while the largest numbers of facilities (3) with wild-caught elephants were located in Phuket Province.

Table 4: Number of observed illegally wild elephants in elephant tourist camps (2011- 2012)

Date	Location/ Description	No. of Individuals
Jun 2011	Camp Q, Chiang Mai Province, Thailand	7
Oct 2011	Camp R, Koh Chang Trad Province, Thailand	2
Nov 2011	Camp S, Phuket Province, Thailand	4
Jan 2012	Camp T, Phuket Province, Thailand	3
Feb 2012	Camp U, Kanchanaburi Province, Thailand	6
Feb 2012	Camp M, Phuket Province, Thailand	3
Apr 2012	Camp V, Loei Province, Thailand	2
	Total	**27**

In February 2012, Camp T and Camp M, two of the facilities that displayed illegally-caught wild elephants were raided by the DNP during the crackdown on illegal trade. Two infant males were confiscated during the raids by authorities after DNA tests found that they were the offspring of two wild females from Camp W and Camp X, respectively, in Kanchanaburi province and, hence, had been illegally obtained (Anon, 2012 e,f). Investigations of Camp U found that 19 elephants at this facility lacked appropriate documentation (Anon, 2012 f). Camp S was also investigated by the DNP at the same time, however; the final outcome of these investigations is not known (Anon 2012 f).

According to a statement issued by Camp T's Deputy Managing Director, the organization had followed due diligence in acquiring the seized elephant and had obtained written confirmation that the animal was legally registered and obtained (Anon, 2012 g). However, it is not clear who had issued this written confirmation (i.e. MoI, the elephant owner, or someone else). An additional baby elephant was also seized at the Phuthai Souvenir Market in Phuket but was later returned when DNA testing showed that it was the offspring of a legally registered domestic elephant (Anon 2012 f).

Figure 11: Elephant in Camp Q in Chiang Mai Province, Thailand. This facility proved to be home to seven illegally caught wild elephants

These situations exemplify the importance of DNA testing to identify the true origins of elephants in Thailand, particularly given the aforementioned weaknesses in the domestic elephant registration system. Without DNA evidence, the DNP would not have been able to prove that the two confiscated elephants were illegally obtained or, equally, that the elephant from the Phuthai Souvenir Market was legally acquired. As such, this technology, and the DNA profiling of all of Thailand's elephants, will be paramount in fighting illegal trade in this species and conserving them in the wild.

CONCLUSION

Based on information collected during surveys (April 2011-March 2013), as many as 79 to 81 wild elephants had been illegally captured for sale into the tourism industry in Thailand, with 65 to 69 of these cases transpiring prior to the government clampdown starting in February 2012. For some 53 of these, their origin is known, and all but four were captured in Myanmar. If these data are representative for all wild-caught elephants, it strongly suggests that prior to the clampdown at least 60 to 64 elephants were taken from Myanmar and trafficked into Thailand during the survey period, supporting previous estimates (Lair, 1997; Shepherd and Nijman, 2008).

Acknowledging the aforementioned possibility of double counting, this number represents the known trade. The *actual* trade could very well be higher than this, especially considering the clandestine nature of this business. Furthermore, the fact that this number does not include those elephants that may have been killed during the capturing process suggests that the true impact of the live elephant trade is much greater.

Leimgruber *et al*. (2008) estimated that an off-take of 100 elephants annually from the wild could lead to the extinction of Myanmar's wild elephants in less than 30 years. Although the number recently being harvested may be fewer than 100 individuals, this off-take could still have significant implications for the survival of Myanmar's wild elephants. By extension, given the singular importance of Myanmar for the species, this could also prove disastrous to the future conservation of Asian Elephants across South-East Asia. This is especially true when considered alongside the concomitant threats of habitat loss and fragmentation, and deaths due to HEC. Given the unique role that elephants play in ecosystem structure and function, this could also have detrimental knock-on effects on the wider landscape. Although proportionally fewer wild elephants appear to have been illegally captured or killed in Thailand, the potentially negative effects on wild populations there cannot be disregarded either.

The extent of the live elephant trade reflects the current high demand for and value of elephants in Thailand. The number of tourists visiting Thailand, and those going to elephant tourist camps, is increasing annually and consequently driving up the demand for elephants (Tourism Authority of Thailand 2013). In the last 15 years, the value of elephants, in particular infants, has increased substantially above levels of inflation. The price increase is largely attributable to escalating demand and greater enforcement, especially on the Thai side of the border, and, perhaps, greater difficulty in sourcing due to declining populations in the wild, a suggestion which is supported by shifting source areas in both Myanmar and Thailand.

The elephant-tourism industry has long been a target for animal activists and welfare groups over concerns for the treatment of elephants used in the industry. While the welfare of elephants used in tourism stands to be improved, it should also be acknowledged that tourism provides the only means of employment for domestic elephants in Thailand and that without this industry these elephants would certainly be in a worse position than they are today. However, given the findings of this report, it should also be noted that the poaching of wild elephants from both Myanmar and Thailand is almost exclusively due to the elephant tourism industry. As such, there is a strong argument to consider either developing robust systems that prevent poaching and illegal trade,

or phasing out elephant tourism in Thailand altogether as a mechanism for safeguarding the wild populations of an already endangered species.

Aside from two reportedly wild-caught elephants at the Surin Festival in 2012, no reports of illegal trade were received from researchers in the latter half of this study. This coincided with a countrywide crackdown following a series of highly publicized poaching incidents involving DNP and government officials. Based on information gathered during this study and trade trends observed, it appears that the increased enforcement effort has considerably reduced illegal trade and provides some scope for optimism. However, it is suspected that it has also pushed the trade further underground; that border trafficking locations and elephant holding spots have moved; and that poachers are waiting for attention to fade, and for enforcement efforts to weaken whereupon the trade can resume. For this reason, it is critical that the current levels of enforcement are sustained, especially in light of an elephant legislation framework in Thailand that has some serious loopholes.

Eighteen separate laws implemented by five different government ministries govern Thailand's elephants. This structure, due to the sheer number of different parties and laws involved, invites complicated bureaucracy, confusion and corruption and hinders effective management of Thailand's elephants. In addition, it also separates domestic and wild populations when it is increasingly being appreciated that the two populations are interconnected and interdependent and should be managed together (Lair, 1997).

The most important laws are WARPA and the *Draught Animal Act 1939*, both of which require urgent updating to protect Asian Elephants more effectively. With regard to WARPA, given the current high value of elephants, the punishment for killing or capturing a wild elephant (USD 1330 fine and/or up to four years in prison) is insufficient as a deterrent to poachers. The *Draught Animal Act* is deficient in two main areas. Firstly, the deferred registration policy for animals at eight years of age facilitates the laundering of illegally caught wild elephants into the domestic population. Secondly, it does not ensure the welfare of domestic elephants, which, given that wild elephants are fed into the domestic population, in itself has a direct effect on the persistence of populations in the wild.

In its National Ivory Action Plan (2013- 2017) submitted to the CITES Secretariat in May 2013, the Thai government proposed a number of steps that have bearing on the illegal trade in wild caught elephants (Anon 2013d). Specifically in response to the loophole highlighted in the paragraph above, it includes the need to revise and update both the *Draught Animal Act* of 1939 and WARPA (1992) and to move domestic elephants solely under the purview of WARPA by 2016. Although a revision of the WARPA has been drafted, the government has been unable to get it endorsed and approved. According to their recent progress report submitted to the CITES Secretariat, discussions are still underway (Anon., 2014).

The National Ivory Action Plan also highlights the need to introduce a new elephant identification book system claiming that the old system has flaws (Anon 2013d). The proposal is to develop a new system for the registration of domestic elephants by 2015 that is more comprehensive and thus better able to track and manage

the population in Thailand. No update on progress appears to have been provided in the government's progress report to the CITES Secretariat on this particular item (Anon., 2014).

The deadline on both these matters, however, is fast looming, and without sign of significant progress, there is concern that these reforms will be delayed in much the same way that previous legislative reform attempts have been. As such considerable challenges remain, especially with regard to current legislation in Thailand, and how to maintain a high level of enforcement. With this in mind, TRAFFIC recommends the following:

RECOMMENDATIONS

- The heightened enforcement efforts to combat illegal trade in live elephants by the Thai authorities since February 2012 are welcomed and demonstrate enhanced political will and enforcement action. These efforts were largely stimulated by the government's public loss of face in the context of several elephant poaching incidents, as well as sustained international pressure over Thailand's role in the global ivory trade and the looming spectre of the 16th meeting of the CITES Conference of the Parties (CoP16). Current enforcement efforts need to be enhanced and sustained in-country and buttressed regionally with the Association of South-East Asian Nations Wildlife Enforcement Network (ASEAN-WEN), other international bodies such as INTERPOL and the World Customs Organization (WCO) playing important collaborative and supportive roles especially where transnational illegal trafficking is concerned. Specifically, this could include facilitating the sharing of information, joint programmes of action, and assistance with capacity building of enforcement personnel particularly at trade hotspots along the border.

- Myanmar and Thailand should enhance collaborative mechanisms aimed at more effectively combating cross-border trafficking in wild elephants and other wildlife from Myanmar into Thailand. As part of this process, relevant enforcement agencies from both countries should meet regularly, share intelligence information and co-ordinate targeted action against poachers and traders.

- Legal reform needs to proceed with urgency so that the *Wild Animal Reservation and Protection Act* functions as the primary piece of legislation covering both captive and wild elephant populations with an emphasis on clarifying and simplifying responsibilities for management, enforcement, co-ordination and oversight. Amendments to existing laws should address and integrate registration and identification issues to ensure that elephants are registered at birth, or within several weeks of birth, to prevent the laundering of wild-caught individuals into the domestic population. The use of microchips and DNA registration should also be made compulsory and subject to stringent implementation practices in order to avoid cases whereby chips are removed from one animal and placed into another. Such a system will help to identify, track and manage the domestic elephant population in Thailand more effectively. Furthermore, penalties for illegal killing, hunting, capturing, trading or possessing wild elephants, or any parts thereof, should be increased to reflect the retail value of the commodity so that punishment acts as an effective deterrent.

- Relevant Thai authorities at national, provincial and district levels should co-ordinate and police the Surin Elephant Festival so that it is not used as a venue for trading in wild-caught elephants or illegal elephant parts and derivatives, especially ivory.

- Myanmar should expedite the process of upgrading its legislation in order to meet the requirements for the effective implementation of CITES throughout the country.

- The Department of National Parks (DNP) under the Ministry of Natural Resources and Environment (MNRE) currently houses the Wildlife Forensic Science Unit (WIFOS). This facility can undertake DNA analysis which has been crucial in several law enforcement cases pertaining to the provenance of elephants in the tourism industry in Thailand. Resources need to be provided for this group to support rigorous and comprehensive DNA registration and cataloguing of all Thailand's domestic elephants, and to help establish a transparent and openly accessible database to support conservation and enforcement efforts.

- Relevant government agencies, including the Department of Livestock Development, the Department of National Parks, Wildlife and Plant Conservation, the Local Administration Department and selected veterinary experts, together with key non-governmental organizations, should review and revise the guidelines developed in 2002 by the Livestock Department for the proper care of domestic elephants. Once revised, implementation of these guidelines should be made mandatory for anyone in legal possession of a domestic elephant in Thailand, especially tourist camps. Regulatory monitoring should be undertaken by a designated authority (or authorities) with a system of initial warnings for non-compliance eventually leading to licences being revoked and animals confiscated and placed in facilities that can offer proper care.

    This system could be supported by the Tourism Authority of Thailand, national and international travel forums, and other such bodies encouraging tourists to report poor conditions, treatment and/or care of elephants used in the tourism industry of Thailand. A hotline or email address could be provided to tourists to facilitate reporting of bad practice. Legitimate complaints should then be followed-up by the relevant designated authority with NGOs providing support as necessary.

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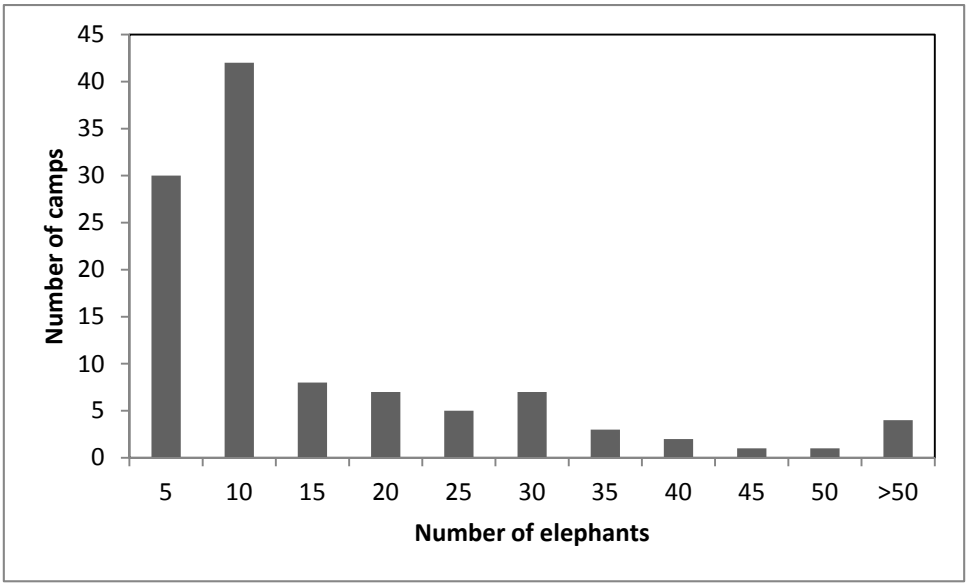
APPENDIX I

Number of Asian Elephants in 108 Elephant Camps in Thailand, showing that while most have fewer than 10 individuals several have much larger numbers in their care.



APPENDIX 2

Indications to suggest that elephants may be of wild caught origin:

There are a number of physical and behavioural attributes of elephants in trade that researchers have used as signs that individuals may be wild caught. The signs are context specific and are used as a proxy but are by no means exhaustive. It is important to note that the reasoning supporting these "indications" is clearly fraught with caveats which would serve to undermine them. Researchers are aware of this and these signs are only used to support testimonies from informants, mahouts and elephant owners. "Indications" are not used independently as evidence that an elephant has been wild caught. In instances where an elephant is observed exhibiting one or more of these wild caught indicators, it is suggested that the individual may be wild caught but no assertions beyond that are made.

	Indication	Reasoning
Physical	• Severe injuries/ scars to the head • Lesions and/or chain burns around legs • Female with young calf but no milk/ swollen teats	Severe injuries may be sustained during the *phajaan.* In particular, mahouts will target the head using the *ankus* to inflict pain and force the elephant into submission. Wild elephants (both infants and adults) may be more difficult to control than domesticated individuals and require the use of greater force to control them. A lack of familiarity with domesticity, for example, being chained up, may result in wild elephants being more prone to injuries from ropes or chains. Females will generally have swollen teats and produce milk for up to 18 months after birth (Shoshani and Eisenberg, 1982). As such, the observation of a female with a young calf but no milk may indicate a forced surrogacy.
Behavioural	• Calves observed in isolation • Calves refusing to stay with mother, or vice versa • Females with twins	Both in the wild and domesticity, elephant calves form a close bond with the mother and rarely if ever stray far from her side. For this reason, an elephant calf observed in isolation or a calf trying to escape from its "mother" (or vice versa) may indicate forced surrogacy. Twin births in elephants are rare, occurring in only 1% of births (Sukumar, 1997). Females with a calf, and hence milk, maybe be forced to surrogate an additional wild-caught calf, giving the impression of a twin birth and facilitating registration of the wild-caught individual.

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

TRAFFIC is a strategic alliance between WWF and IUCN, leading the delivery of key components of their missions and programmes through a unique partnership that combines the considerable strengths of each of these two major global conservation organizations.

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