

Elephant care manual  
for  
mahouts and camp managers

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# Elephant care manual for mahouts and camp managers

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FOREST INDUSTRY ORGANIZATION  
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
REGIONAL OFFICE FOR ASIA AND THE PACIFIC  
Bangkok, 2005

## FAO Foreword

For the last twenty years, improving the conservation, management and welfare of the Asian elephant has been a goal of both the FAO Forestry Department in Rome, Italy, and the Forestry Department Group of the Regional Office for Asia and the Pacific in Bangkok, Thailand.

The book *Gone astray: The care and management of the Asian elephant in domesticity*, authored by Mr Richard Lair and published in 1997, was a landmark publication which drew the attention of the international community to the plight of Asian elephants. In this study, Mr Lair made two recommendations: to organize an international workshop on domesticated Asian elephants and to prepare an elephant care manual for mahouts and managers. The first goal was realized in February 2001 and the proceedings, *Giants on our hands*, were published in 2002. The second goal was pursued through the elephant care manual project, funded by the International Fund for Animal Welfare (IFAW) and carried out by the Forest Industry Organization (FIO) of Thailand. I am pleased to announce its completion by releasing the *Elephant care manual for mahouts and camp managers* as a publication of the FAO Regional Office for Asia and the Pacific. As mentioned in the authors' preface to the English edition, this publication also has a Thai language edition.

FAO acknowledges with thanks the work done by all three authors, Dr Preecha Phuankum, Mr Richard Lair, and Dr Taweepoke Angkawanith. The two Thai veterinarians brought to the book their superb academic training enhanced by long years of treating elephants on the ground. Mr Lair contributed his editorial skills, vast expertise in the subject and excellent knowledge of the Thai language. Only such balanced team work could have produced such a genuinely useful book.

I would also like to acknowledge the contributions of Mr Masakazu Kashio, Forest Resources Officer, and Mr Ronald van Nijnanten, Coordinator, Regional Operations Branch, in our regional office and to the project coordinators, Mr Suntud Sangkul (FIO) and Ms Sarah Scarth (IFAW), whose work was essential to the completion of this book. My gratitude also goes to all those people who contributed to this publication, whose names are too numerous to list here. Finally, I would like to thank IFAW, which funded this project in its entirety, for its great generosity.

I hope that this publication will be a useful tool to improve the care and welfare of the Asian elephant, not only in Thailand but also in other Asian countries.



He Changchui  
Assistant Director-General and Regional Representative  
for Asia and the Pacific  
Food and Agriculture Organization of the United Nations

## FIO Foreword

The number of wild elephants in Thailand has declined steadily over the last three decades, mostly because of relentless habitat destruction, and experts estimate that at present only about 1500 wild elephants remain. Today, better management by state agencies and increased public awareness are helping the wild elephant population to stabilize.

In the middle of the nineteenth century, Thailand had as many as 100 000 domesticated elephants. The number of domesticated elephants started to decline about fifty years ago, as rapidly improving roads eroded the use of elephants in transportation — the most common work in the old days. Since its establishment in 1947, FIO acquired working elephants and for decades operated over 200 logging elephants.

FIO's first welfare effort, the establishment of the Young Elephant Training Center in 1969, evolved into the Thai Elephant Conservation Center (TECC) as a response to the nation-wide logging ban in 1989. There, FIO started a full-time mobile veterinary clinic and a hospital. In 2002, FIO established the National Elephant Institute of Thailand (NEI) to promote the overall welfare of elephants and keepers' communities, for example, by helping to revise laws and develop self-sustaining, eco-friendly business models for the tourism industry.

In this evolution, the publication of the *Elephant care manual for mahouts and camp managers* adds another page of history in elephant welfare. The original idea for this care manual goes back to the 1997 FAO publication *Gone astray: The care and management of the Asian elephant in domesticity* by Richard Lair, who now serves at FIO as the special advisor to NEI. This manual represents the latest collaboration in a long and fruitful relationship between FIO and FAO.

FIO would like to express its appreciation to Mr Richard Lair and Mr Masakazu Kashio, Forest Resources Officer at the FAO Regional Office for Asia and the Pacific in Bangkok, who formulated the Elephant Care Manual project. The International Fund for Animal Welfare (IFAW) provided the funding for the project, for which FIO extends its heartfelt thanks. FIO is proud of Dr Preecha Phuangkum, eminent elephant veterinarian and director of NEI, and Dr Taweepoke Angkawanith, elephant veterinarian serving at the TECC.

We hope that the Thai mahouts and elephant camp managers will find this manual useful in their daily work. Its application will contribute to improving the welfare of all of the domesticated elephants in Thailand.



Manoonsak Tuntiwiwat  
Deputy Managing Director  
Forest Industry Organization

## **Authors' preface to the English edition**

Readers will necessarily wonder about the relation between the primary output of this book — the Thai language edition — and the English edition. The English is in effect a mirror translation of the Thai because through many drafts the two language versions have fused with different languages alternating the lead through different passages and subjects. The mirror translation was mandatory because since its inception the English edition of this manual was required to serve as a potential model for other country-specific manuals in the region. The second reason for a complete correspondance was that once asides and elaborate explanations are allowed, a flood is likely to follow, leading to an entirely different book. International readers deserve to know exactly what information is being imparted to the Thai reader.

### **The target audience**

The target reader of this manual is the average Thai mahout. He is a fascinating character which the authors, with over 50 years of “bush time” between them, know well. These men have many wonderful qualities but an affinity for abstract learning is usually not one of them. Nearly all Thai mahouts, probably a higher percentage than in most regional neighbors, are able to read and write, at least to the level of four years of formal education and in terms of general vocabulary probably higher than that. (Thailand has a very long history of male literacy, as in the old days boys learned to read at temples in order to study Buddhism.) Unfortunately, the mahouts' comprehension of modern science and biology is extremely rudimentary. Most will have had no formal instruction whatsoever and almost certainly none beyond fourth grade level.

Consequently, an editorial decision was made to keep the vocabulary and the science very simple; even the use of words and phrases such as “anaerobic”, “incubation period”, “virus”, etc., were considered very carefully, in some cases rejected and in some cases used only if they could be made succinctly understandable in text. We feared that mahouts might reject this manual entirely if confronted with too much material beyond their comprehension. (Another argument for scientific simplicity is that many of these men retain a very Thai, animistic cosmology which precludes any possibility of viewing the world solely in a rationalistic, western way.) Having pointed out the mahouts' limitations, we must also-

stress that we strongly feel that many mahouts are naturally very bright and capable of more complex procedures than those presented herein. We felt, however, that instructions for more advanced methods should come from veterinarians in the field. Five minutes of interactive, vocal instruction by a good veterinarian on an actual case are worth far more than several pages in this book.

Over the past ten years veterinary care for elephants in Thailand has improved astronomically to become excellent, both in quality and availability. Thailand's "old hand" veterinarians have joined with universities, NGOs, and government agencies (particularly FIO and the Livestock Department) to build a solid cadre of good "elephant vets." As for availability, public donations and government funding have ensured that most Thai elephants, and certainly all complex or critical cases, are treated for free. Thailand's ubiquitous and inexpensive cellular phone network means that veterinarians are now easily contacted, and the excellent road network makes travel easy in most cases. In short, probably over 90 per cent of Thai elephants are within an hour or two's drive of a good "elephant vet."

### **The level of care presented in this book**

This manual will be of some use to veterinary students and even to veterinarians with no elephant experience, but there is nothing new and startling for the experienced elephant veterinarian. As for generalist veterinarians, the very few parts of the main text directed to them are a few tips where treating elephants differs from other animals.

The aim of this book has been to enable mahouts to better support the work of veterinarians, not to do the veterinarian's job. The three primary goals are to help mahouts come to quicker diagnoses, to better communicate symptoms to veterinarians over the phone, and to improve care in follow up. An underlying goal has been to encourage prevention of diseases and conditions occurring through paying more attention to food, appropriate work, and hygiene.

The danger for experts writing an elementary book in their specialty is to get bored with simple presentation and to succumb to the temptation to include overly sophisticated content, thus alienating the original target audience. During the writing of this book much overly technical material

was discarded, for example, how to differentiate a cyst from a haematoma, complex diagnostic charts, formulae for determining weights through elaborate measurements of the elephant's body, etc.

Veterinarian readers are asked to suspend judgment on some care techniques presented which are contrary to modern Western professional norms. Veterinarians will wonder, for example, why there is no recommendation for tetanus vaccinations, why the use of cotton wool is so promoted, why the manual in extreme cases recommends cauterizing wounds, and why the use of hydrogen peroxide is suggested. Local conditions mean there are very good reasons for such seeming errors or outdated practice.

### **Camp managers**

Besides mahouts, the second important audience for this book is camp managers, including elephant owners who run their own camps. Some camp managers are quite knowledgeable about elephants while others are simply administrators who act no differently than if they were managing a fleet of cars or trucks. Given the managers' control over food, budgets, hiring and firing of mahouts, determining work assignments and schedules, etc., camp managers often have more influence over elephants' health, for better or for worse, than do the mahouts themselves. The section on "Food", for example, was written primarily with camp managers in mind. The section on equipment and techniques used to control elephants was written largely as background for inexperienced managers. (Neophyte mahouts will, after all, get most of their instruction on equipment orally from older mahouts.)

The inclusion of camp managers has also hopefully opened the door sufficiently that the book will be useful to other people working for the welfare of elephants: government officials, NGO staff, scientists, etc.

### **Editor's notes**

If the English text does not occasionally seem awkward, this book is not doing its job, simply because there is no natural audience for which this book would ever have been written in English. The information and language is far too basic for veterinarians, veterinary technicians, or even for readers with a secondary education. Further, the Thai language sometimes takes a conversational tone which would be inappropriate in English.



Every effort has been made to keep the two languages in parallel. There has been no slavish devotion to internal sentence order (indeed, that would be counterproductive), but from sentence level upwards the two languages mirror each other. Layout follows the same principle; the same page numbers apply in each edition. This synchronization has been for two reasons. First, it should help readers who wish to work in both languages, primarily Thais trying to improve their technical vocabulary in English but also to support foreign veterinarians, conservationists, and scientists who read some Thai or are working in Thailand. Second, the parallel structure will keep readers reminded that what they are reading was not written with them as the primary recipient.

Many readers of the English edition, particularly hands-on keepers and veterinarians, will acutely feel a paucity of information on traditional technique, such as training and herbal medicines. For four compelling reasons, much traditional knowledge has been kept to a minimum. First, mahouts can best learn such techniques not from a few lines in books but rather from long hours of actually doing the job alongside older mahouts. Second, in Thailand customary technique varies greatly both between regions and the ethnicity (or culture) of the keepers. Third, traditional technique is often so complex that an adequate book would be larger than the one you hold in your hands. Fourth, traditional technique is often impracticable in modern times. This care manual was written to convey modern thinking to mahouts, not to document old Asian ways for academics and professionals

### **The Thai language**

The Thai language used is a careful mix of the formal and the colloquial. As with many Asian languages, the written word requires a degree of formality and if this courtesy were not extended to mahouts, they might feel patronized. Every effort has been made, however, to avoid technical terms and to use the simplest word which is sufficiently clear, for example “throat” rather than “esophagus” or “in heat” rather than the more accurate “in oestrus.” Nearly always the word employed is the word that would be used in everyday speech.

Each language has its shortcomings. Thai, for example, has no short, single, everyday word for “sterile”, forcing the use of “clean” (*sa-ard*); in daily life this is no disadvantage because context virtually always clarifies that “sterile” is meant — but the lack does pose problems in translation. English, conversely, lacks certain concise words which are commonplace in Thai; for example, the everyday mahouts’ vocabulary has a lovely

word for “perineum” (*fii yeb* or “sewed seam”) and every Thai person understands “dyspepsia” (*thong eut*).

### **The English language**

For some words and phrases, anomalies have been allowed — indeed unavoidable. When listing indications for diseases, for example, the Thai word *akarn* means “conditions” or “signs”. Neither of these words are perfectly apt in English, however, and because “symptoms” is a bit too specific, the somewhat awkward technical term “clinical signs” has been used because it perfectly captures the Thai meaning.

The extremely basic level of the Thai has meant that some sweeping generalities and oversimplifications have necessarily carried over into the English, for example, “natural food” or “untreated soil.” The meaning is abundantly clear at the level of the Thai target reader and it is hoped that readers in English will make the mental leap and not castigate the authors for their perceived ignorance. Because they reflect the circumstances and the Thai language so perfectly, some words are freely employed which would never be used in scientific or technical writing: “aggressive”, “naughty”, “nasty sores”, etc.

A similar divergence from accepted scientific writing is the extensive use of feet and inches instead relying solely on the metric system. This deviation is because, perhaps surprisingly, “feet” (*fut*) and “inches” (*niw*) are the units used in the Thai text because those words would be used by the mahouts in speech. Any spoken approximation of an elephant's height will be in feet, and chains are sized by the *hun*, which is 1/8”. Even pieces of cloth and such are usually described in feet. One reason for the use of “feet” might be that in the old days elephants were sold, because of influence from Burma (now Myanmar), “by the foot” (*khaai pen fut*) of height. Another reason might be that feet and inches are more 'organic' units than metres and centimetres in describing an elephant's dimensions.

In a few instances, brief additions have been made in English within brackets. Usually these are more precise technical terms, e.g., “heat [oestrus]” or Thai concepts, objects, brand names, etc., which have no counterpart in English.

Dr Preecha Phuangkum  
Richard C. Lair  
Dr Taweepoke Angkwanith

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## CONTENTS

|   |           |
|---|-----------|
| FAO Foreword.....                             | <i>iv</i> |
| FIO Foreword.....                             | <i>v</i>  |
| Authors' preface to the English edition.....  | <i>vi</i> |
| Acknowledgements.....                         | <i>xi</i> |
| INTRODUCTION.....                             | 1         |
| LEGAL OBLIGATIONS.....                        | 2         |
| Registration and law.....                     | 2         |
| Registration Certificate.....                 | 3         |
| Microchips.....                               | 5         |
| Transporting elephants.....                   | 7         |
| Stall in truck.....                           | 9         |
| SHELTER AND FOOD.....                         | 11        |
| Shelter.....                                  | 11        |
| Water.....                                    | 13        |
| Food.....                                     | 14        |
| Social and economic factors in food.....      | 15        |
| Natural food.....                             | 16        |
| Cultivated foods in tourist camps.....        | 16        |
| Cultivated foods, practical aspects.....      | 19        |
| Fodder.....                                   | 19        |
| Vegetables and fruits.....                    | 21        |
| Supplements.....                              | 22        |
| High energy foods.....                        | 22        |
| Tonics.....                                   | 23        |
| CONTROLLING ELEPHANTS.....                    | 24        |
| Tools.....                                    | 25        |
| Hook.....                                     | 25        |
| Bush knife.....                               | 26        |
| Ear halter.....                               | 26        |
| Hobbles.....                                  | 27        |
| Tethering chains.....                         | 28        |
| Rope and wire rope.....                       | 31        |
| Elephants that fight their chains.....        | 33        |
| Special equipment for problem situations..... | 34        |
| Spiked hobble.....                            | 34        |

|   |    |
|---|----|
| Spiked collar.....                                  | 34 |
| Spiked grappling pole.....                          | 35 |
| Spear.....  | 36 |
| Guidelines for tethering elephants.....             | 36 |
| Absolute prohibitions in controlling elephants..... | 37 |
| Dragging gear.....                                  | 38 |
| LIFE-CYCLE EVENTS.....                              | 39 |
| Determining age.....                                | 39 |
| Determining heat (Oestrus).....                     | 40 |
| Predicting heat.....                                | 40 |
| Pairing.....  | 41 |
| Mating.....   | 42 |
| Pregnancy.....                                      | 43 |
| Birth.....  | 44 |
| Weaning.....  | 46 |
| Food for calves.....                                | 46 |
| Musth.....  | 52 |
| Disposal of elephant carcasses.....                 | 55 |
| Methods of disposal.....                            | 56 |
| Diseases requiring caution during disposal.....     | 57 |
| PRIMARY MEDICAL CARE.....                           | 59 |
| Medicines and drugs to have at hand.....            | 59 |
| Tools and equipment.....                            | 63 |
| Equipment at an elephant camp.....                  | 63 |
| Equipment for a small camp and traveling.....       | 65 |
| Hygiene.....  | 66 |
| Collecting samples for analysis.....                | 68 |
| Determining health.....                             | 69 |
| Using a thermometer.....                            | 71 |
| Medicating orally .....                             | 72 |
| Medicating rectally.....                            | 73 |
| Mahouts giving injections.....                      | 74 |
| Caring for sick elephants on the ground.....        | 76 |
| Health conditions caused by humans.....             | 77 |
| Overwork (Exhaustion).....                          | 77 |
| Malnutrition.....                                   | 77 |
| Stress.....   | 80 |

|                                  |     |
|----------------------------------|-----|
| Heat stroke.....                 | 80  |
| Collapse from cold.....          | 81  |
| Wounds.....                      | 82  |
| Treating wounds.....             | 82  |
| Stanching bleeding.....          | 83  |
| Wound cleaning materials.....    | 83  |
| Hot and cold applications.....   | 85  |
| Types of wounds.....             | 85  |
| Abrasions.....                   | 85  |
| Blunt-edge wounds.....           | 86  |
| Slice wounds.....                | 86  |
| Puncture wounds.....             | 86  |
| Gunshot wounds.....              | 87  |
| Bites.....                       | 87  |
| Pressure wounds.....             | 87  |
| Burns.....                       | 88  |
| Impact wounds.....               | 90  |
| Wounds from explosives.....      | 90  |
| Abscesses.....                   | 90  |
| Acute abscesses.....             | 90  |
| Chronic abscesses.....           | 91  |
| Toxins.....                      | 92  |
| THE OUTSIDE OF THE ELEPHANT..... | 94  |
| Skin.....                        | 94  |
| Papilloma.....                   | 95  |
| Fungus on the skin.....          | 96  |
| Ventral oedema.....              | 97  |
| External parasites.....          | 98  |
| Gad flies.....                   | 98  |
| Fleas and mites on the tail..... | 99  |
| Hair lice.....                   | 99  |
| Tabanus flies.....               | 100 |
| Head.....                        | 101 |
| Eyes.....                        | 101 |
| Medicating eyes.....             | 103 |
| Ear infections.....              | 103 |
| Trunk.....                       | 104 |

|  |     |
|--|-----|
| Tusks.....                                     | 105 |
| Feet and nails.....                            | 107 |
| THE INSIDE OF THE ELEPHANT.....                | 110 |
| Muscles.....                                   | 110 |
| Bones.....                                     | 111 |
| Arthritis.....                                 | 112 |
| Alimentary tract.....                          | 112 |
| Parasites in the alimentary tract.....         | 113 |
| Liver flukes.....                              | 113 |
| Cestode worms.....                             | 114 |
| Round worms.....                               | 114 |
| Recommendations on using Ivermectin.....       | 116 |
| Dyspepsia.....                                 | 117 |
| Constipation.....                              | 117 |
| Diarrhoea.....                                 | 118 |
| Diarrhoea without germs.....                   | 118 |
| Diarrhoea caused by germs.....                 | 119 |
| Enterotoxemia.....                             | 120 |
| Salmonellosis.....                             | 120 |
| Colibacillosis.....                            | 121 |
| Disease.....                                   | 122 |
| Pneumonia.....                                 | 122 |
| Anthrax.....                                   | 123 |
| Haemorrhagic septicaemia (Pasteurellosis)..... | 125 |
| Tetanus.....                                   | 127 |
| Tuberculosis.....                              | 128 |
| Herpes virus.....                              | 130 |
| Foot and mouth disease.....                    | 130 |
| Elephant pox.....                              | 132 |
| Rabies.....                                    | 133 |
| Trypanomiasis (Surra).....                     | 134 |
| PHOTOGRAPHS.....                               | 136 |
| APPENDIXES.....                                | 141 |
| Recommendations for veterinarians.....         | 142 |
| Table 1: Elephant food.....                    | 146 |
| Table 2: Medicinal plants.....                 | 148 |
| REFERENCES.....                                | 150 |

## INTRODUCTION

For people who make their living from elephants in Thailand in 2005, the world is a very strange place. Older mahouts can easily remember when as young men 30 years ago, keeping elephants was not that different than it had been since ancient times. In the north, people logged for teak. In Surin and the northeast, many people captured wild elephants, especially in Cambodia, but the last wild elephant was caught in Surin as late as 1963. In much of Thailand, especially in the rainy season, people still used elephants for everyday transportation. Life for elephant people was, as always, very difficult — but it was also very simple and very easy to understand.

Only half a lifetime later it is as if the world has been turned upside down. The number of domesticated elephants has fallen from about 100 000 a century ago down to about 2 500, or a loss of 97 percent. Capturing wild elephants is illegal, whether in Thailand or going into Cambodia. The Thai government banned logging in forest concessions in 1989, and in 2005 even illegal logging has gone way down. The thought of using an elephant to regularly transport goods or people — apart from tourists — is laughable. A two-year old calf, nearly worthless in the old days, is now more valuable than many big, strong bulls — apart from those rare beautiful tuskers that are so sweet-natured they are safe around people.

Presently most of the work for Thailand's remaining elephants and virtually all of the work not against the law is in entertaining tourists, sometimes Thais but mostly foreigners. Since 2001 Thailand has received over ten million visitors a year. Without these people who board an airplane in Paris or London or New York and less than a day later reach Thailand, there would be little or no work in Thailand, certainly not enough to employ all of the country's 2 500 domesticated elephants. But the same globalisation that has brought a replacement for the loss of traditional work has also brought new problems. Modern westerners, and even Thai city people, can be very critical of the way elephants are treated in Thailand. In 2003, a traditional elephant-breaking videotaped in Mae Hong Son was broadcast on television all around the world, becoming an international scandal when an animal rights group demanded that tourists boycott Thailand. This incident was seen by the Tourism Authority,





of Thailand and the Ministry of Foreign Affairs as a major problem in international relations.

In 2003 SARS, a viral disease of wild animals in southern China, suddenly entered the human population in several places around the world including Thailand. Nothing to do with our elephants, you would think, but the epidemic caused a fall in tourists visiting to Asia that so lowered the number of people coming to Thailand that some elephant camps were forced out of business and even the price of elephants was forced lower.

The point of all this is that times have changed and that mahouts (and elephant owners and managers) must change with the times. This need for change is true in the area of health care. Veterinary medicine has greatly improved over the last 100 years, but Thailand's mahouts and elephant camp managers must constantly strive to learn more about how those scientific advances can be used to improve the well-being of elephants.

## LEGAL OBLIGATIONS

### Registration and law

Many laws apply to owners of domesticated elephants but undoubtedly the most important one is the Draught Animal Act of 1939 [*phrarachbanyat sat pahana*, B.E. 2482], that empowers officials of the Registration Offices of the Local Administration Department (Ministry of Interior) with jurisdiction over elephants. (Unless otherwise mentioned, all of the obligations of elephant owners mentioned below are from this law.) In addition to the Draught Animal Act itself, various ministerial regulations [*kot grasuang*] issued by the Ministry also affect owners.

The Draft Animal Act is an outdated law written over 60 years ago and modified only slightly since promulgation. Its purpose at the time was to, through identifying individual elephants and their owners, establish the rights and obligations of ownership, largely to control thefts, as is shown by the fact that elephants are lumped together with cattle, water buffalo, horses, donkeys, and mules. In 1939 there were tens of thousands of domesticated elephants and they were clearly seen as private property, as they still are in Thai law. This law was geared, as was correct, to a



traditional agrarian society where the elephant had great value as a draft animal. At the time there was very little concern for the welfare of individual animals.

Many organizations, including both government agencies and NGOs, are proposing new laws that will better suit modern times in regulating the use and management of elephants in Thailand.

The two most important ways to avoid problems with the law are to: (1) keep all of your registration and travel documents in perfect order, and (2) do not take elephants to urban areas where it is clear that trouble is likely to arise.

## Registration Certificate

ตั๋วพิมพ์รูปพรรณ

You are required to have a valid Registration [and ownership] Certificate [*dtua pim ruuphaphan*] for every elephant you own. If you own or keep an elephant that has no Registration Certificate (or has a Certificate that belongs to another elephant), that animal is liable to confiscation unless you are able to prove ownership and to prove that the elephant was honestly acquired. This document is legally required to be in your possession when you are with the elephant, particularly when travelling.

Acquiring or changing Registration Certificates always takes place at the Registration Office in your home district. Registration Certificates are valid for life, and only three circumstances legally require changes to the actual document: (1) calves reaching eight years, (2) a change of owners, and (3) the elephant's death.

When calves reach the **age of eight years** (or within 90 days thereafter), the owner is required to attain a Registration Certificate. Owners who wish can at an earlier age acquire an alternative document called the “stable offspring certificate” (*bai luuk khawk*) that also indicates ownership. Until recently, at least, this document has been of questionable usefulness because government officials usually do not question the ownership of a calf younger than eight or so when the calf is with a mature female presumed to be its mother. Another problem posed by the “stable offspring certificate” is that elephants under eight years of age change very quickly and thus have few distinct defining characteristics.



When there is a **change of owners** (or within 90 days thereafter), the new owner(s), accompanied by the old owner(s), must modify the Registration Certificate. Reporting and registering a change is required with all sales, purchases, and even inheritances within a family. An official will record the change and write the details of the new owner(s) on the back of the document. Both the old and new owner (s) should bring their Identity Cards and Household Registration Certificates.

The **death of an elephant** requires the owner to report within 15 days. The Registration Certificate must be surrendered at the Registration Office.

Before **moving the carcass of an elephant** to another province, you must take the elephant's Registration Certificate and the Certificate Allowing Transportation (see page 8) and first report to the District Veterinarian in the new location in order to request his permission to make the move and to specify the route. Violators are subject to punishment, either a fine not exceeding 1 000 baht or more than two months in jail or both (Animal Epidemic Disease Law, 1956, Livestock Department).

### *Epidemic diseases*

In cases of elephants having **contracted or died from an epidemic disease**, you must report the case to the District Veterinarian within 24 hours. If alive, it is forbidden to move the elephant out of the immediate area. The law has several other requirements but the wisest thing to do is if you simply follow the orders of the District Veterinarian (Animal Epidemic Disease Law, 1956, Livestock Department).

### *Urban areas*

Whenever you take an elephant into an urban area which is subject to municipal regulation, such as Bangkok, Chiang Mai, Pattaya, etc., you potentially face many different legal problems from many different laws. If the police or municipal officials wish to make things difficult for you, you can be charged with violations of traffic laws, laws on public order, laws on cleanliness, laws on destruction of property (such as destroying a tree), etc.



## ***Keep copies***

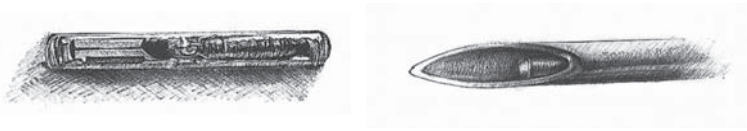
Keep at least two certified copies of the Registration Certificate in different places, in case one should be lost or destroyed. When at the Registration Office acquiring a Registration Certificate you can request additional copies, which if signed by the Registrar to be correct copies have equal validity as legal documents. Extra copies cost only a few baht each and they can save you much money and hassle by avoiding the expenses and problems caused by lost and damaged documents. It is not clever to have a perfectly legal elephant confiscated, even if only temporarily, because a single piece of paper has been lost or misplaced.

Keep the original document (with fee stamps on the back) in a safe place at home. When travelling, carry a certified copy with you; in fact, on the road, where accidents are more likely to happen, it is safest and easiest to have two copies with two different people in the party.

In your copy of the *Mahout's Handbook* do write down the date, location, and serial number (including receipt book number) of the Registration Certificate of your elephants. In the case of a lost certificate, this information will speed up the process of getting a replacement.

It is a good idea to buy strong plastic sleeves or envelopes to store these fragile documents. Try not to fold them.

## **Microchips**



A microchip is a device inserted into the body of the elephant in order to identify it as an individual. The microchip system has two components, the microchip itself and a reader, a device that can determine the unique code number of a microchip.

A **microchip** is a device that is very small, about the diameter of a grain of rice and about 1 cm long. Inside a glass pellet is a unique code number which is never duplicated. The microchip is injected under the elephant's skin. Veterinarians usually implant the chip in the back of the left ear.



A **microchip reader** has the ability to read the chip's individual number from a distance of about 10 centimetres. The code usually consists of nine digits or otherwise, as below.

TN 123-456-789 or 123-456-789 A or 4D 123-456-789

### *The usefulness of microchips*

Microchips are useful because presently there is only the Registration Certificate which can determine ownership of an elephant, and that document has insufficient details. Consequently, it is possible for illegally captured wild elephants or illegally imported elephants, or for stolen elephants, to be issued a Registration Certificate. Implanting a microchip can prevent such fraudulent registration. A microchip also makes it very easy for an official to know the animal's registration history when an elephant is being transported or its medical history when receiving veterinary treatment.

### *The current situation*

Presently both NGOs and government agencies are for free implanting microchips in elephants all over the country.

Many people are afraid of microchips but to a law abiding owner, microchips are just like the registration papers for a vehicle, which include that vehicle's unique numbers on its engine and chassis, numbers that are hard to change or destroy. If you have registered an elephant and it is stolen and then found, you will get it back. If you are registered, you will never have to prove it is not an elephant illegally brought in from Myanmar.

In any case, microchips do not presently play any significant role legally because microchips are not required by law and, further, because although many elephants have been microchipped by many different government agencies and NGOs, there is yet no central database that compiles all of the numbers in one central place. Further, the place where chips have been implanted has not been standardized; chips have been placed both behind the ears and in the shoulders on both the right and left sides. Further, the readers are expensive and thus inaccessible to many officials.



## Transporting elephants

Before transporting elephants, make the following preparations:

1. Plan the journey
2. Prepare the elephant
3. Prepare the vehicle and the necessary equipment
4. Prepare the required documents

### *1. Plan the journey*

Before travelling, the mahout should know following the essential details: the route to be taken, the approximate time of travel, and the destination point. This information is essential so that the elephant is assured of having sufficient food and water while on the road. The easiest thing is to prepare banana tree stalks and other food with high moisture content, as this is more convenient to carry than ordinary food and water. Also the mahout or manager should ensure that there is a suitable and easy place for the elephant to board the truck and to disembark from the truck at the destination, especially if the elephant is hard to unload. If the elephant must travel far (more than one day), the mahout should know places to buy or find food and water.

**Warning:** It is essential to avoid travelling in strong sunlight because the elephant can suffer from such exposure even to the point of death. Travelling at night is best.

### *2. Prepare the elephant*

Before transporting an elephant, the animal should be given time, at least two or three days, to rest and to eat and drink to its satisfaction. For cow elephants and calves, it is not good for them to travel alone; it is best if they have an elephant they are familiar with as a travel companion. (The mother will not be apprehensive and will be easier to control.) Most importantly, in moving elephants to a location with which they are unfamiliar, it is essential that the mahout should always stay very near the elephant and should never desert the elephant.

When transportation involves a vehicle, the mahout should know whether the elephant is familiar with climbing on and off a truck. If the



elephant is difficult to load or the animal is fearful, other people must be called in to help in the loading. It is best if the elephant has been practiced and is comfortable getting on and off a vehicle, because if not the loading can be difficult: wasting a lot of time, putting the animal in great stress and possibly even wounding it with spears or elephant hooks.

### ***3. Prepare the vehicle and equipment***

If transportation is by motor vehicle, the mahout or manager must be satisfied as to the size and the condition of the vehicle, in order to assure a safe and punctual arrival. The mahout or manager should determine that the vehicle is legally registered and properly insured. The driver should have a valid commercial driver's license, either Class 2 or Class 3. The mahout should determine that the driver is even-tempered and, preferably, has experience transporting elephants.

### ***4. Prepare the required documents***

The manager, owner, or mahout should make sure they have in their possession the original Registration Certificate when they apply for travel papers. When travelling, a copy is sufficient and the mahout should be ready to at any time present a copy of the Registration Certificate to any inspecting official.

Before travel, the manager, owner, or mahout must prepare the four following documents:

1. A guarantee of the suitability of the destination as an appropriate place for the elephant. This guarantee is issued by the Livestock Department. Before travel, the owner or manager must contact responsible officials of the Livestock Department at the destination.

2. The original Registration Certificate and a copy of the same.

3. A certificate guaranteeing that the elephant has been vaccinated in the elephant's home district. The owner, manager or mahout must get this certificate from the district Livestock Department.

4. A copy of the elephant owner's National Identity Card and the Household Registration Certificate. If the owner is not the person in charge while transporting the elephant, then he must prepare a Power of Attorney designating the person who will have responsibility, and that



person must have copies of their National Identity Card and their Household Registration Certificate and of the Power of Attorney when they apply for travel papers.

The person applying for travel papers must supply the street number, district, and province of the destination. Also, he must supply the registration number of the vehicle to be used.

With all of these documents, the responsible person wanting to transport an elephant (or the carcass thereof) should go to the office of either the district or provincial Livestock Department in the elephant's home and request a Certificate Allowing Transportation, official form *R. 4. Rachanajakr*. When returning home, the same procedure is to be followed at the district Livestock Department of the work place.

Once having acquired the Certificate Allowing Transportation at the departure point, the person named in the Certificate must move the elephant via the route described. The vehicle must stop and present for inspection both the documents and the elephant to responsible officials at all of the Livestock Department checkpoints on the route.

After having reached the destination, the elephant must be kept in the place designated by the Livestock Department veterinarian in for no less than ten days before it can be moved to another place.

If an elephant is moved without permission or moved by a route or to a destination other than the one described in the Certificate Allowing Transportation, the responsible person is liable to punishment of not more than six months in jail or a fine of no more than 10 000 baht, or both.

After the elephant has reached its destination, it is important to inspect to see if it has wounds of the mouth, feet, legs, trunk, tail, or body that come from being jostled about. Any wounds must be treated immediately. Especially important is to inspect the eyes for any irritation or infection from the wind or wind-blown foreign objects during travel. If so, wash the eyes and administer eye drops immediately; then have a veterinarian inspect the problem and provide further treatment.

### **Stall in truck**

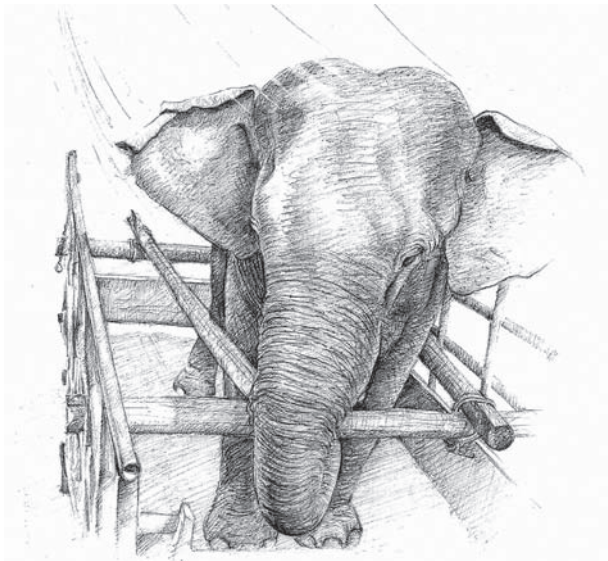
If an elephant is travelling by truck, it is best if a stall is built for it. (That stall can easily be dismantled and used again for the same type of truck: ten-wheel, six-wheel, etc.) To the mahout who has never seen or





used one, the stall must look like it is meant to keep the elephant from running away, or milling around, or attacking the mahout. Once in a long while it does serve all of these purposes.

The real purpose of the corral, however, is to provide the elephant with some support and, even more, to help the elephant easily find balance. When a fast moving truck goes up or down hill, or into a turn, or when the truck brakes quickly, an elephant that has no support must constantly use its muscles to correct for the “pull” exerted. It looks like the elephant is doing nothing but in fact it is hard at work physically and even mentally, because the elephant must remain constantly alert. Such an elephant will arrive at the destination physically exhausted.



The situation is no different for a man and an elephant. Imagine yourself standing in the middle of a ten-wheel truck with no support for a twelve hour journey. Then imagine how much easier it would be if you could put a hand on a rail on the side of the truck. It is true the elephant has four legs, which makes it easier, but it is also harder for the elephant because it cannot react so quickly as a human can.

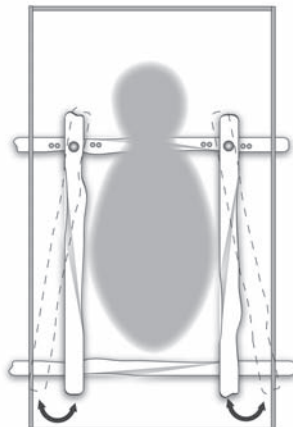
With a stall, the elephant can lean a modest percentage of its weight against a rail. Going uphill, the elephant will lean its rump slightly against



the rear rail. Going downhill (or when the truck brakes), the elephant will lean its chest slightly against the front rail. In curves, it will lean part of its shoulder or body into the side rails. The rails provide some support, taking the load off of muscles, but more importantly they help the elephant find balance. The elephant reaches its destination in good condition, not having wasted a lot of strength and mental energy for lack of support.

Another advantage of the stall is fewer behavioural problems, such as panic or ‘aggression’, which often arise when an elephant feels itself unsafe and in danger.

Corrals like this are quite common throughout the north but rarely used in the northeast. Making and using a stall is especially appropriate when moving elephants on highways that are steep and have many



curves, particularly when shipping over long distances. The cost is very cheap, using only four poles, which must be strong and resilient, and only two bolts. As for the rope used, most mahouts will have it at hand already.

## **SHELTER AND FOOD**

### **Shelter**

Shelter is a critical element in any elephant facility or camp. Shelter falls into two major types according to use:



- In tourist facilities where elephants are normally kept outside feeding on natural food at night, to provide elephants with daytime protection from sun and rain during working hours.
- In facilities where the elephants must be kept in the same space day and night because there is not enough space to do otherwise or because sick elephants that must not be moved for health reasons are being treated.

The characteristics of good housing should have the following properties:

- Able to protect the elephants from sun and rain, which depends on the material used for the roof. The material most often used is grass or banana tree leaves. The advantage of such materials is that they are cheap and they do offer proper protection from the sun's rays, but the disadvantage is that the roof must be changed every two to three years and that grass roofs catch fire easily.

As for other materials, such as tile, they are likely to be used in situations where the purpose is to regularly treat sick elephants because they offer good protection from heat and because they are long lasting. The disadvantage of other materials is that they are expensive. Some sites that want to filter out sun use "sun layer" [*saleen*: A plastic screening used in plant nurseries.]

**Warning:** The use of galvanized tin for roofs is not recommended as it collects heat.

- Have good ventilation. Ideally housing should be open on all four sides and the roof should be at least six metres tall. (A mature bull elephant is nearly 3 metres tall and the trunk is about 1.5-2 metres long.)

**Warning:** Some elephants should not be left unattended at night because they will attempt to damage the housing.

- Have space sufficient for the number of elephants and not be cramped. A standing elephant requires about 16 square metres of space (although this varies with the nature of the elephant). Therefore, shelter for ten elephants during the day should be a shelter of 4 x 40 metres, with the elephants all in a row. (Sleeping elephants require about 19-20 square metres.)

**Warning:** It is best to avoid putting elephants that are unfamiliar with each other in the same housing.



- Have a floor that is easy to clean, not humid, and not slippery. Floors are of two types, tightly packed earth and concrete, and each has advantages and disadvantages. Elephants are likely to have fewer problems with footpads and nails on packed dirt floors, but concrete floors are easier to clean.
- Have a system where excretions and refuse are easily cleaned and which has channels for draining water. The best system for cleanliness is the mahout himself, for he has to clean up after his own animal. There should be a drainage system for water and the floor should be smooth without any depressions which can collect excretions and refuse. The floor should also have a slight slope towards the drain.
- Have strong anchoring points for chains. Such points should have bases that are buried 1 to 2 metres deep in the ground. The posts supporting the roof should not be used as chaining points.

Be sited in an appropriate location. The location should be chosen being aware that:

- The site should not be near the water source, or rather so near that there can be any drainage from the housing reaching the source, especially if the water is used for drinking. The site should not be located at a higher elevation than any natural water channel.
- The site should be located far from any thoroughfare. Traffic can cause elephants stress and prevent them from resting.
- The housing is best built on an east-west axis to minimize exposure to the sun.
- The housing should be built on a level area with very little incline.

## **Water**

The elephant is an animal that is very susceptible to overheating, and consequently it is very fond of bathing and covering itself in mud. A mature elephant drinks approximately 120 litres of water daily, by sucking up water in its trunk (about 10-15 litres at a time) and then spraying it into its mouth. It is thus essential to always have clean water available for both drinking and bathing. Elephants usually drink at the same time they bathe, enabled by the mahout, usually twice a day (morning and late afternoon). Besides drinking, elephants also need water to be sprayed over their bodies to help dissipate heat.



Because elephants will often urinate and, more particularly, defecate in the water in which they bathe, this can pose health problems in transmitting infectious diseases. If at all possible the mahout should use different water sources for drinking and bathing. The mahout should also encourage the elephant to drink before bathing, so as to lessen chances for contracting a disease. If possible, elephants should not be allowed to drink from ponds or tanks used by domestic cattle or water buffalo. If the water is a moving natural source, such as a river or a stream, the elephants should be encouraged to drink first from an area upstream from the bathing area.

- The natural water sources used for elephants include streams, swamps, marshes, and canals. The mahout must know the preferences and prejudices of his elephant, for some animals will not drink from water tainted by the urine or dung of other elephants or other domestic animals.
- Human engineered sources for water include wells, ponds, canals, and piped tap water, for example, and these do not normally present any problems with contamination or contagious diseases. Even elephants that are unaccustomed to drinking from a rubber garden hose soon become adept at it.

***Warning:***

- Allowing elephants to drink freely immediately after hard work when the animal is overheated is likely to cause the elephant to choke and even to cause some animals to die.
- You should select a watering vessel that is totally uncontaminated, for example by petroleum products, because the elephant might not drink such water or spray with it.

## **Food**

Food has incredible impact on the health of elephants. Proper nutrition, ensuring that appropriate foods are offered and in the right quantities, makes for healthy elephants resistant to disease. If a veterinarian inspects an elephant camp and sees the animals are generally in poor condition, the very first suspicion for a cause is not disease but rather bad food or insufficient food or both.



The subject of food is divided into two main sections, first, the social and economic aspects of food today in Thailand, and, second, the practicalities of the available food, particularly cultivated foods. The first section, social and economic aspects, should be of particular interest to caring and responsible camp owners and managers and should also be of interest to animal welfarists, conservationists and scientists. Hopefully the more thoughtful mahouts and foremen in tourist camps will see the subject of proper food as an accurate description of the problems they face.

The second section, practical aspects of food, should be of interest to all “elephant folk” including all working mahouts and, even more, camp managers.

A third section on food supplements for sick and out of condition elephants applies to elephants everywhere, whether a tourist camp or a more natural environment.

### **Social and economic factors in food**

Since ancient times until maybe 20 to 30 years ago, domesticated elephants ate almost only natural, wild foods. Since then, the 1989 ban on logging has caused the loss of many jobs in the forest and there has been a steadily increasing number of jobs at tourist camps near cities and away from natural areas. In 2004 probably more than 1 000 domesticated elephants were spending all or most of their year eating cultivated foods.

The division between natural foods and cultivated foods is not always absolute. Some elephants working in suburban areas eat a mix which includes cultivated foods and natural grass. Some elephants living in rural areas eat a mix of both natural foods and agricultural foods. Further, some elephants spend part of the year in tourist camps and part of the year at home. Still, because natural food is rarely dangerous and cultivated food often is, and because a massive but still growing tourist industry ensures that ever higher numbers of elephants will be eating cultivated foods, any discussion of food and elephants’ health must deal with this recent change.



## Natural food

Natural food is the best food for elephants, because it is what they have eaten through millions of years of evolution. Wild elephants will eat as many as 200 plant species during the course of a year, but their preferred staple food is grass and bamboo (which is a kind of grass). Elephants also eat lianas, wild palms, wild bananas, various shrubs, the leaves and bark of certain trees, and even plants that serve as herbs.

Natural food has three great advantages. First, it is cheap – usually free but sometimes costing modest grazing fees. Second, in most natural environments the elephant eating natural foods will get a full range of nutritional ingredients. Third, natural food is free from chemical contaminants, most importantly insecticides, pesticides and fertilizer residues.

There is nothing that this book or any book can teach mahouts about natural food. The older mahouts are past masters of natural elephant foods, expert amateur botanists who can without exception nimbly identify hundreds of species of grasses and other plants. The young mahouts might know little, but their proper teachers are not books but rather the older mahouts. Sadly, much of the older mahouts' knowledge about food plants found in the wild will surely die out unrecorded in the next few decades.

## Cultivated foods in tourist camps

Times have changed, however, and with the coming of mass tourism, more and more elephants are dependent on foods grown by man. Cultivated foods frequently pose health problems associated with contaminants and nutrition, and these problems are discussed on page 19.

Cultivated foods must be bought, and they are almost always expensive. (Elephants need a great deal of food every day, on average about 100 kilograms a day.) High costs often lead to other problems. Elephants will often be fed insufficient food or poor quality food or both. Sometimes they are fed only one or two kinds of food, leading to nutritional imbalances and ultimately malnutrition. For example, in order to save money on food many elephants in the central region, Pattaya in particular,



are fed mostly on rejected pineapples and pineapple tops bought very cheaply from canneries.

### ***Economics of food***

Running a commercial tourist camp is a highly competitive, even cut-throat, business with low profit margins. Elephant food is just one expense to be budgeted along with salaries, running vehicles, site rental, etc. Scrimping on elephant food to spend on something else or to keep as profit can be very tempting to unscrupulous personnel. Another problem is that because most elephant camps for tourism have at least ten elephants, the food gets usually bought in bulk and it is hard to cater to individual elephant's needs. At certain times of year good and cheap food might be unavailable.

### ***Food and camp owners and managers***

Quite a few camp owners are very active in caring for their elephants, most particularly if they actually own them. Other camp owners will have entrusted all management to a manager. If that manager is both knowledgeable about elephant food and honest (spending all of the money given to him to purchase food for that purpose), the camp owner's lack of involvement poses no problem. If the manager is dishonest, however, or if he knows little about elephants' food needs, disaster can result.

### ***Food and elephant ownership***

Every elephant in a tourist camp falls into one of four categories:

- Owned by the camp owner.
- Owned by the mahout (or his family)
- Rented by camp owner, mahout supplied by the owner
- Rented by camp owner, who also hires the mahout

Often the quality of the food given the elephants is reflected in this relationship. Camp owners who own the elephants and mahout-owners almost always provide good food, if only because it is protecting a valuable asset. Rented elephants can end up in unfortunate situations where





owners or managers do not want to pour a lot of money into somebody else's elephant. In some cases mahout-owners work for a salary (and tips) and the camp owner is obligated to supply the elephants' food; if he provides bad food this can cause great tension between him and mahout-owners and mahouts who are responsible for their boss's elephant.

### ***Food and the mahout***

In nearly all tourist camps the mahouts have very little control over the major part of their elephant's diet. The camp owner selects the food and the mahout's duty is to make sure that his elephant gets its fair share, and to be there to give it. A conscientious mahout will also see that his elephant gets as much local grass as possible, whether cutting it and bringing it to the elephant or taking the elephant to the grass. Mahouts caring for an elephant that does not belong to them can be lazy or even downright neglectful.

### ***Conclusions***

The food situation in any camp is very complicated and a microcosm unto itself. Before any elephant is properly fed there must be a conscientious camp owner, a conscientious manager, and a conscientious mahout. Any weak link in this chain is bad for the elephant, and the higher up the fault, the worse it is for elephants. Even if the camp owner, manager, and mahouts are all well-intentioned, the camp must be making enough of a profit that the camp owner has sufficient funds to buy good food.

For people concerned with elephants' health, bad or insufficient food in a camp is a particularly frustrating issue because it is so difficult to address the problem. Veterinarians are forced to treat cases that should never have occurred in the first place. Because tourist camps are private businesses, concerned NGOs and civil servants have little power to implement improvements or force changes. In the end, all that can be said is that the thorny issue of food will require much attention in the future



## Cultivated foods, practical aspects

The good part about cultivated foods compared to natural food is that most grown foods have very high nutritional value, but grown foods also have many drawbacks. First, cultivated foods must be bought and they are most often expensive. Second, cultivated foods are often contaminated with man-made chemicals, mostly insecticides and herbicides that are highly toxic to elephants. Third, in many situations, particularly tourist camps where elephants are fed largely with cultivated foods, the elephants will often be fed insufficient food, poor quality food, or fed only one or two kinds of food. Unbalanced food can lead to nutritional imbalances and ultimately malnutrition. Many elephants in Phuket or Pattaya, for example, are fed too many pineapples.

### Fodder

Cultivated **fresh grass** is very palatable and comes in great variety. The grasses generally given to elephants are the same as given to other draft animals: Bana Grass, Pangola grass, Napier (or Elephant) grass, Para grass, Guinea grass, and Ruzi grass. (See Table 1, page 146, for Thai and scientific names.) These grasses are available in great quantity. Many other grasses do not have the same nutritional value but are still acceptable. Besides these, there are still other grasses found in nature that the mahout can gather or to which the elephant can be taken and tethered. There are more grasses used to feed elephants in Thailand than those mentioned above. Mahouts should observe which grasses their elephant likes and which it does not like.

What is critically important is to try to not feed the elephant with only a single species of grass because not only will the elephant not eat fully but eating only one kind of grass can cause malnutrition from lack of some essential food component or trace element.

**Warning to camp managers:** You should be very careful if you buy grass from outside sources. Have a highly experienced mahout inspect all deliveries for freshness, absence of dirt, etc. Inspecting for contamination by herbicides and insecticides is difficult so it is best if you have a serious discussion with your supplier, and best of all is if you inspect the growing site yourself. Many veterinarians feel that some



fertilizers have played a role in elephants made ill, even to the point of death, so you might insist that all grass comes from untreated soil.

***Recommendation:***

- For grasses that have been cultivated, whether by yourself or bought from someone else, all grass should be carefully inspected to make sure that is neither too young nor too old, because that can lead to dyspepsia or constipation (see page 117).
- Grass should not be kept longer than one week.

**Dried grass** fed in Thailand is most often Pangola grass or Cavalcade. Dried grasses can be stored for a long time and easily transported. Dried grass is appropriate for elephants in musth because it has high fibre but little nutritional value. (The elephant has the satisfaction of eating but without getting the high calories which, it is believed, will cause a very long musth period.). Some mahouts enhance the palatability of dry grass by sprinkling it with salt water.

**Warning:** Dried grass scatters easily when the elephant gathers its food with its trunk, and many elephants like to play with the grass by throwing it over their bodies. Thus, dried grass should be given in small quantities at a time and replenished only after the elephant has eaten the last batch, otherwise much grass will be wasted.

**Coconut fronds** are good food for healthy elephants from growing calves to mature elephants. Coconut fronds are easily found over the whole country, and have the great advantage of being totally uncontaminated by chemicals.

**Warning:** Before giving fronds, they should be cut into pieces as long as the hand. Otherwise, the elephant will likely become constipated.

**Banana tree stalks** are appropriate for elephants in musth, elephants kept where water is scarce, and for all elephants when the weather is hot. Banana tree stalks have a high water and fibre content but very little nutritional value. Banana tree stalks are good when transporting elephants because they can supply much of the water the elephant needs, and because they provide the satisfaction of chewing or eating; banana stalks do all this in a “package” that is much easier and cleaner to carry than buckets of water and sheaves of grass.

***Warning:***

- Feeding an elephant too many banana tree stalks can cause ventral oedema. (See page 97.)



- Stalks should be cut into pieces about one hand's length because long lengths are likely to bind or obstruct the intestines.

## **Vegetables and fruits**

Vegetables and fruits are given as regular food only to elephants working in tourist venues in or near commercial agricultural areas. Fruits and vegetables, while excellent supplements, are usually not, and should not be, staple foods because in too great a quantity they provide neither the roughage nor the combination of nutrients that elephants require.

In tourist camps the frequently met problem is that when fruits and vegetables (apart from sugarcane and bananas) grown for human consumption are bought, they are most often bought because they are being sold very cheaply because they are not saleable on the open market, being too old or too ripe or too green, etc. Consequently great care must be given when buying and feeding with fruits and vegetables.

Another problem is that fruits and vegetables are often contaminated with chemicals (herbicides, fertilizer residues, etc.).

**Sugarcane** and **bananas** are probably the two most common 'treats' sold or given to tourists to feed to elephants. This frequency is partly because sugarcane and bananas are what tourists expect to give, and partly because they are easy to store and clean and easy to hold in the hand. Coincidentally, both sugarcane and bananas have very high nutritional value and can be considered high energy foods.

**Pineapples** have a very high sugar content. Elephants can eat all parts of the pineapple plant. Pineapples are good for exhausted elephants and elephants at hard work.

### ***Warning:***

- If you give too many pineapples, or give them too often, pineapples can lead to diarrhoea and a sore mouth.
- Eating too much pineapple makes elephants look fat and robust, but in fact they have little strength because of the high sugar content. Camp managers should supplement pineapples with other food.

**Cucumbers and water melon** are sometimes fed to elephants, such as elephants in musth and, especially, elephants in cities.

***Warning:*** Cucumbers and water melon are good food but the problem is with contaminants, which the mahout must be aware of. Soak



cucumbers and water melons in a solution of clean water and potassium permanganate for 15-20 minutes before feeding.

**Other fruits and vegetables** are sometimes given, such as oranges, carrots, papayas, lettuce, cabbage, etc. These are not staple foods because they are quite expensive and are likely to be chemically contaminated. The mahout should give only a little bit first and then wait for 6-12 hours. If no ill effects are observed, more can be given.

**Warning:** Fruits and vegetable should be soaked in a solution of clean water and potassium permanganate for 15-20 minutes.

### *Potassium permanganate*

ต่างทับทิม

Potassium permanganate is a chemical that comes in dark purple granules and is easy to dissolve in water. It is effective in killing some disease germs. Dissolve a little bit in clean water until the water turns pink. Use for cleaning vegetables and fruit and also for cleaning wounds. It can be bought in any pharmacy; it is cheap and easy to store.

## **Supplements**

Supplements are foods and substances that are normally given only to elephants which are out of condition, whether through illness, old age, being put to overly hard work, malnourishment, etc. Supplements can be divided into two groups, high energy foods and ‘tonics’.

### **High energy foods**

High energy foods are rarely given to healthy elephants, and never as a staple food, partly because they are expensive and partly because in large quantities they are very difficult to digest, owing to the elephant’s alimentary tract, which is designed for large quantities of coarse food with very low nutrient levels. In smaller amounts, however, these foods are excellent for sick elephants, overworked elephants, old elephants, etc. The reason is that all of these foods are very high in carbohydrates and calories, and some of them have good protein as well.

**Unhusked rice** has extremely high nutritional value and is appropriate for elephants at hard work and fattening up elephants



underweight from insufficient food. No more than five kilograms should be given at a time because it is difficult to efficiently digest more.

**Warning:**

- Do not feed unhusked rice immediately after finishing work because the elephant will eat too hurriedly and the rice might get stuck in its throat.
- Unhusked rice should never be given to old elephants.

**Fresh maize [corn]** is good food for elephants, especially for sick elephants, recuperating elephants, old elephants, nursing cows, etc., because it has very high nutritional value.

**Warning:** Maize [corn] is a crop often contaminated by agricultural chemicals, as also are cucumbers and water melons. Therefore, the mahouts and managers must take counter measures, such as selecting maize [corn] from a trustworthy source and soaking the maize [corn] in a solution of clean water and potassium permanganate before feeding it to the elephant.

**Pellet food** for elephants in the past was the formula made for horses, but now some feed manufacturers are making mixes for elephants, normally with high nutritional value and thus suitable for exhausted and overworked elephants. Pellet food has not become a preferred food because it is expensive compared to other foods.

**Bananas**, so long as they are ripe, are easily digestible and have high nutritional value and are thus suitable for sick elephants, calves, pregnant elephants, elephants at hard work, and old elephants.

**Warning:** Too many bananas cause smelly and watery dung.

**Sugarcane** has very high nutritional value and is thus suitable for elephants at hard work and for nursing mothers. Sugarcane should not be given to old elephants because it can cause teeth to break or even to fall out.

**Warning:** If fed too much or fed too often, sugarcane is likely to cause pain or even sores in the mouth.

## Tonics

Tonics are small quantities of some substance intended to have a specific effect, such as administering medicine, freeing bowels, stimulating thirst or appetite, etc.



**Steamed sticky rice** is not a tonic but is often used to administer drugs or food supplements. Give only .5-1 kilogram.

**Warning:** You should never give an elephant steamed sticky rice that is not fully cooked. Husked rice should never be given to elephants because it can cause constipation, even to the point of death.

**Sticky tamarind** is a good laxative and appetite stimulant. It makes elephants stronger and is appropriate for elephants that are suffering exhaustion after hard work. Usually it is mixed with salt.

**Warning:** If too much sticky tamarind is given it can cause diarrhoea. Do not give more than one kilogram.

**Rock salt** brings an increase in appetite if a salty solution is sprinkled over grass or if rock salt is mixed with sticky tamarind.

**Warning:** In the right amount, salt increases appetite but if too much is given it will make the elephant very thirsty and will cause intense salivation, glazed looking eyes, and staggering and unsure walking.

**Mineral salts** are the same as given to cattle and water buffalos. Before giving mineral salts to elephants it should be broken into small pieces or soaked in water. Give about once a month on average.

**Herbal concoctions** like Mong Pho Seng [brand name of a folk medicine] are often given to logging elephants in Northern Thailand. Such medicines are a good stimulant of appetite.

**Warning:** Giving too much can cause diarrhoea.

## CONTROLLING ELEPHANTS

Maintaining full control over elephants is a key part of the mahout's job. Beyond ensuring that work will be done properly and efficiently, full control ensures the safety of the mahout, the safety of other humans nearby, and even the safety of the elephant itself.

Controlling elephants divides into two categories, normal circumstances and when an elephant has gone out of control, whether from aggression (usually but not always when in musth), having escaped, or just out of panic. For regaining control of elephants, the normal tools are used but these are often supplemented with special equipment which is described at the end of the section.

Controlling elephants depends on three interrelated factors: (1) the level of training of the mahout, (2) the tools or equipment used, and (3)



the best ways of using the tools. A weakness in any of these areas means that both safety and the elephant's health are likely to be affected.

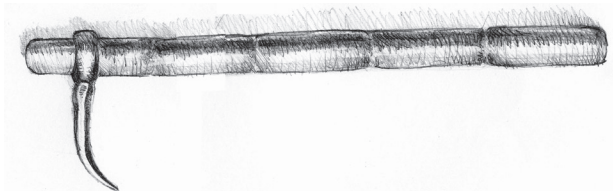
As for the quality of training of mahouts, there are disturbing signs that contemporary mahouts are losing many of the skills of the old days. This lack of skills is very likely to in the near future show up as poorer control of bull elephants, most of which are dangerous, at least part of the time. Training is, however, beyond the scope of this book.

## Tools

All elephant tools are traditional, with an evolution of many centuries. The last big technological change was when chains were finally practical to use in place of rattan and ropes made from plants.

### Hook

ขอช้าง



The hook [ankus, bull hook] is the mahout's most important tool. It should be with him at all times when he is with the elephant, and he should know how to use it in such a way as to not injure the elephant. Beginning mahouts should be repeatedly told that the real purpose of the hook is not to cause pain but rather to apply strong, clear pressure to very particular control points that the elephant has been trained to react to (stop, turn left, turn right, kneel, stand still, etc.). The hook also extends the mahout's reach — like doubling the length of his arm.

The hook should be of a suitable size and design for the mahout's hand and for the size and nature of the elephant. The head should be on tight, and the handle should be neither broken nor slippery. The point should not be so sharp as to easily pierce the skin of the elephant.

#### ***Warning:***

- Never strike the elephant, especially its head, with the hook's point.





- Never, except for the most extreme emergencies, use the shaft of the hook to strike around the eyes or eyebrows, as this can cause injuries and even blindness.
- Never use the point of the hook in the ear [auditory canal].

## Bush knife

มีดโต้

Like the hook, the mahout's bush knife should be with him at all times, except perhaps when riding very safe elephants in tourist camps (the knife can frighten spectators). When logging, the bush knife is essential because in emergencies (such as a log sliding downhill) it can be used to slash the ropes holding the harness to the elephant.

The bush knife should never be used to control the elephant except when the hook is dropped or lost or in emergencies where human life is in danger. The primary purpose of the bush knife is to cut food for the elephant, clear pathways, cut firewood for the mahout, etc.

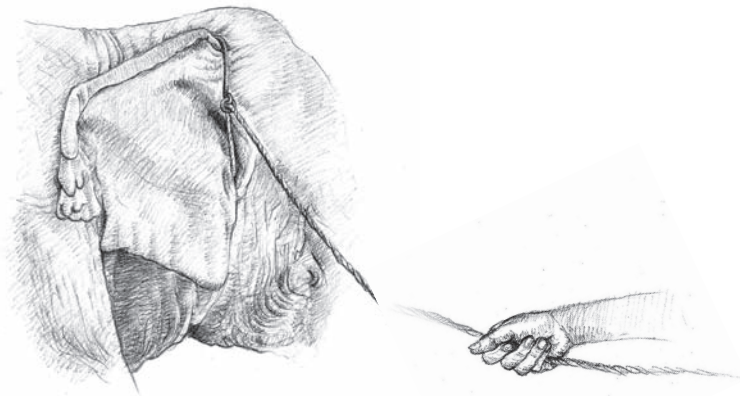
The bush knife should be in a sturdy sheath that will hold it snugly but still allow easy withdrawal. The knife should be of an appropriate size and have a handle that can be grasped firmly.

### **Warning:**

- The bush knife should not be used to replace the hook.
- The knife should never be used to stab or slash the elephant.

## Ear halter

สายหู



The ear halter is a piece of iron shaped like a fish hook, affixed over the base of the ear with light rope. It is used to lead elephants and also, for very short periods of time, to tether them. When a lead rope 1 to 3 metres long attached to the halter is gently tugged, the point of the ‘fish hook’ softly pokes behind the ear, signalling the elephant to move forward (or to stop when the halter is used for tethering).

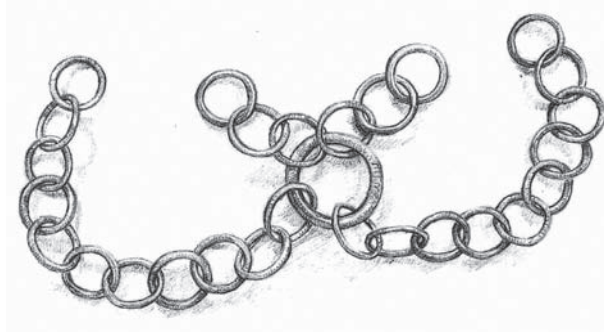
The ear halter is particularly useful in training inattentive calves to follow the mahout at exactly his walking pace; once this has been learned, the halter can often be dispensed with. The ear halter is perfectly safe and harmless when properly used but can cause injuries when carelessly used by incompetent mahouts; camp managers should keep its use under very careful supervision.

***Warning:***

- Never tug hard on an ear halter lead.
- Never use the ear halter to tether an elephant for long periods of time or when the elephant is absolutely unattended; if the elephant panics it might tear or wound its ear.

## **Hobbles**

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Hobbles are much like handcuffs, with two “bracelets” joined by a ring that holds them together. Hobbles go on the elephant’s front feet to make it stay still, to slow it down, or to ensure that it cannot cross over broad objects or obstacles. Sometimes hobbles are used to prevent elephants from mating. Hobbles can be used on their own or they can be attached to tethering chains.



The elephant's feet should be checked carefully each day to ensure that its hobbles are causing no injury.

**Warning:**

- Hobbles must be free of any sharp edges or points that might hurt the elephant's feet.
- Hobbles must be neither too tight (that can injure the elephant) nor too loose (the elephant might get free).

## Tethering chains

โซ่มัดหรือโซ่ล่ามช้าง

Tethering chains are affixed to one front foot (usually the right) with the other end secured to an anchoring point, in the country almost always a tree. In rural environments, tethering in a different place is normally done every night, allowing feeding on plants within the circle described by the chain, allowing feeding much like wild elephants.

The elephant's tethering chain must be with or near it at all times. Chains are the only piece of equipment that allows a mahout to leave the elephant with the certainty that it will not escape and cause trouble.

Three different technical qualities must be considered when buying chains: (1) length, (2) heaviness/size, and (3) quality.

The **length** used for mature elephants in natural or open environments is between 20 to 30 metres; for calves it is usually about 12 to 15 metres. When the elephant is in confined areas, the chain can be shorter to suit. A long chain can, of course, be used as a short chain simply by attaching it to the anchoring point at whatever length is desired.

The heaviness or **size** is described by the diameter of the metal links. The unit of measure is the *hun*, or 1/8 inch [3.2 mm]. The normal size used for mature elephants is 4 *hun* or 1/2 inch [1.3 cm], though heavier chains are used with animals that struggle with their chains. Lighter chains can be used with animals that never fight their chains. For calves, the usual chain size is 2 *hun* or 1/4 inch [6 mm]. The lighter the chain is, the better for the elephant as it will use less strength in moving the chain and is less likely to suffer injury to the foot and ankle.

The **quality** of chains is determined largely by cost. The best chains are manufactured in Western countries and are made of excellent metal and the weld which closes each link is done to a very high standard. Quality chains are quite expensive. Local and regionally made chains



are much cheaper but the metal is of poor quality, as is the weld. These conflicting aspects lead to a complex set of trade-offs. Low quality chains are much cheaper in the short term but they wear out much faster than quality chains, leaving the cost over a lifetime's use in question. High quality chains, being stronger, can be bought in a smaller size, meaning less physical wear on the elephant. High quality chains are much less likely to break and thus can possibly save the elephant's owner from having to pay compensation for crops raided or the loss of human life.

Factors that must be considered when buying or deciding which chains to use include the size of the elephant, whether it attempts to break its chains (see page 33), and the environment in which the elephant is to be chained, especially in regard to food. A chained elephant that has access to plenty of good food and water is far less likely to try to break its chains than a hungry or thirsty elephant with little food or water inside its chaining area. Questions such as these should be left to highly experienced mahouts, not to newcomers.

The **advantages of chains** over other means of tethering are overwhelming. Chains do not stretch or shrink with changes in heat or moisture. Chains, so long as properly selected, are stronger than the alternatives. Chains, unlike rope or wire, are very unlikely to cause wounds and to get twisted up in knots or caught up in trees or rocks. Chains are very durable and last longer than the alternatives.

The **disadvantages of chains** are that the cost is more than wire or rope. Chains are heavier than the alternatives. Chains conduct electricity, leading to possible electrocution. Should chains get knotted or wrapped around an elephant's body they are harder to cut than rope.

Despite these disadvantages, chains are clearly the best form of restraint available, both for the humans and for the elephant itself.

***Warning:***

- Whenever the elephant must transport the chains between two places, usually the night time tethering site and the work site, never make it drag the chain when it is attached to the foot. The massive weight of 20 to 30 metres of chain can cause the elephant to sprain or dislocate its ankle. (If frequently done, it also causes the chains to wear out prematurely.) If the ground is slippery, foot-dragged chains can cause accidents. The only exception to the 'foot dragging' prohibition is as



a safety measure with elephants so dangerous they are likely to try to attack the mahout walking nearby; the chains will slow them down greatly.

- Chains should be carried on the neck, neatly draped in equal lengths that descend to just a little bit below the shoulder.

Two pieces of equipment need to be used with chains, U-bolts and swivels. Additionally, **bolt cutters** and a **metal saw** should be kept at all facilities with sizeable groups of elephants; inevitably an elephant will end up knotting itself up in chains (the same applies to wire rope) and if it is not freed immediately injury or even death can follow.

### ***U-bolts***

สะเก็นต่อโซ่

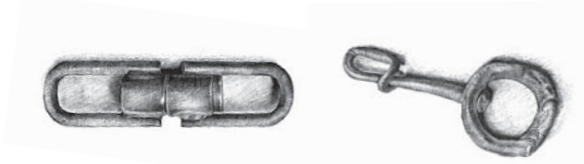
Two U-bolts are used when tethering, one to close the loop around the elephant's foot and the other to close the loop around the tree or anchoring point. U-bolts must be at least the size and strength as the chain; the strongest chain is only as strong as the weakest U-bolt used in it. (U-bolts, like chains, are sold sized in *hun* but because the quality of the metal used is highly variable, mahouts must be very careful here.)

U-bolts have a threaded post that screws into a threaded hole. This is the weakest part of the U-bolt and when the threads get loose or show signs of wear, they should be discarded and replaced with a new one immediately, particularly because U-bolts are not very expensive. Good mahouts always have 10 to 15 U-bolts available for use.

*Warning:* Some elephants are very skilful at using their trunks (with a foot holding the U-bolt firm) to unscrew the post; with such elephants, the mahout should carry lengths of wire to fasten the post, which has a hole on top, securely to the 'U' itself.

### ***Swivels***

กะหลั่น



Swivels are a metal device that fits into the middle of a length of chain. A swivel is like a chain link where the ends of the link are able to



freely revolve around each other full circle. Swivels, like U-bolts, must be as strong or stronger than the chain links or they weaken the chain. Swivels are not needed in all chains but they are essential when the elephant is unaccustomed to chains and very often when the elephant is in musth and/or aggressive, because the mahout cannot work near the elephant. The purpose of swivels is to prevent an elephant from breaking its chains by getting them all tangled up and thus easy to break.

The weakest point in a link of chain is on the side with the weld made to join two links. Normally the greatest strain is the round ends which connect with other links, but when chains get kinked, a strong round end can press against a weak weld, making it easy to break.

Swivels for elephants must be custom made because they are not made commercially. They are exactly the same as those used with buffalo and cattle, so borrow one of those to use as a model. Swivels are simple and inexpensive to have made at a machine shop or blacksmiths. Two examples are shown, one modern and one old-fashioned style.

**Warning:** A swivel must be strong and smooth, with no sharp edges. It must rotate freely and easily and thus the mahout should inspect it daily and oil it when necessary, certainly before and after every use.

## Rope and wire rope

เชือกและลวดสลิง

Rope comes in many types. Rope is sometimes used to tether elephants or otherwise control their movements, but its use is limited mainly to calves. Some types of rope are traditional but two others, wire rope and nylon rope, are modern inventions that require very careful, short-time use because they are capable of causing horrendous injuries.

Rope has various advantages and disadvantages when compared to chains, but these vary with the type of rope.

**Manila rope** is made from coconut shell fibre [coir] so when new it is quite stiff. The sizes used with elephants normally range from 2 to 4 *hun* [1/4 to 1/2 inches or .6 to 1.3 cm]. Manila rope is mostly used to tie body parts — such as the legs, tail, and trunk — during training.

**Good properties:** After some breaking in, manila rope becomes soft and pliable and thus it does not cause as many injuries as do other types of rope. So long as it is dry, manila rope does not shrink or stretch.



**Bad properties:** Manila rope is expensive and hard to find for sale. It wears out quickly and requires work to maintain properly. When wet manila rope stretches and then when drying, it shrinks; this can cause injuries.

**Nylon rope** is made of synthetic fibre and available in sizes from one *hun* (1/8 inch or 3.2 mm) up. Nylon rope is useful for securing hardware but should not be used to tether elephants, as it can cause horrible injuries. Unfortunately, many bad and inexperienced mahouts now use it in training and restraint, resulting in wounds. If circumstances require the temporary use of nylon rope for restraint, the elephant should be inspected frequently for wounds and the rope for possible breakage.

**Good properties:** Nylon rope has a long working life and is easy to care for. It is cheap and easy to find. When wet, it neither stretches nor shrinks.

**Bad properties:** Nylon is abrasive and irritating and easily causes wounds. It becomes harder and loses suppleness with age. Once past the expiry date, it breaks easily.

**Wire rope**, made of twisted wire strands, is stronger than chains. It is excellent for emergencies, such as where a dangerous elephant must be restrained but when chains are broken or not present. Wire rope should never be used for more than a day, and when used on feet, wire rope should be checked often and carefully. Frequently switch the wire rope between the two front feet to lessen the chance of injury.

Wire rope also has some use, under careful supervision, when leading elephants into spaces they do not want to enter or out of spaces they do not wish to leave.

**Good properties:** Wire rope is incredibly strong and it is very inexpensive and easily available.

**Bad properties:** Wire rope can easily tear into flesh. When used to tether or tie elephants, it can twist and coil, making it difficult for the elephant to walk. It can cause accidents. Wire rope shreds easily, leaving individual wires to pierce the elephant's skin.

**Hemp rope**, made from the fibre of the hemp plant [in fact, *paw saw*], shares some the characteristics of manila rope. It is never thicker than 4 *hun* [1/2 inch or 1.3 cm] and never longer than 6 feet [1.8 metres]. It is used for tying legs and for securing bits of equipment, such as breast bands, rattan hobbles, etc.



**Rattan** is smooth and non-irritating and thus is used for girths and hobbles because it has good properties of expansion. Rattan of too small a diameter can dig into flesh and cause deep wounds. Thus, rattan used to tether or tie elephants should be plaited together to make it thicker.

### **Elephants that fight their chains**

Many elephants like to repeatedly try to break their chains in an attempt to get free. Some elephants which fight their chains are harmless but a sizeable majority, not surprisingly, are aggressive and dangerous.

Such attempts are an understandable try for freedom, but all mahouts will try to stop them because a loose elephant can cause huge damage to property, to crops, and to human beings.

Beyond being a danger to human beings should they get free, elephants fighting chains also often bring serious injuries upon themselves. Some elephants will, holding a section of chain in their trunk, flail the chains against a hard object. The usual technique is to wrap the chains around a body part — the tusks, trunk, head, or even the torso — and then pull against the chains. Sometimes elephants will back off and charge away from the anchor, greatly amplifying the force which they could apply by simply tugging. Wounds, bruises, dislocated ankles, etc., are common, as are split, chipped, and broken tusks. Fatal falls are not unknown. Some elephants will try to bite the chains, chipping their teeth.

The best way to deal with chain-inflicted injuries is to do your best to ensure that they do not occur in the first place:

- Be especially careful with elephants that have a **history of fighting** their chains; many logging elephants are true experts.
- Never use **inadequate chains** (or U-bolts and swivels) that are too small or too worn; many elephants will sense the weakness and be tempted to struggle whereas they would be quiet with stronger chains.
- If the **anchor point** is too fragile, such as a tree that is too small, many elephants will sense the weakness and be tempted to struggle.
- Do not tether elephants at rest near **disturbances** that might irritate them such as loud noises, strangers, unfamiliar elephants, etc.
- Always ensure that a tethered elephant has sufficient **food and water**; a hungry or thirsty elephant is far more likely to fight chains than an elephant contentedly chewing or with a full belly.

