

PLAINTIFFS' EXHIBIT II
To Plaintiffs' Opposition to Defendants' Motion
For Summary Judgment
Civ. No. 03-2006 (EGS/JMF)



FOREWORD

This study forms part of a series initiated by the Forest Harvesting and Transport Branch, FAO, Rome, to assist developing countries in promoting forest harvesting systems, techniques and methods that are simultaneously user- and environmentally-friendly _ enhancing productivity, reducing wood waste and looking at the totality of forest-related activities in a holistic manner. The aim is to encourage systems that reflect local realities and make best use of local available technology, with emphasis on the importance of harmony in the inter-relationships of the people, the forests and the environment. Systems that favour local people's participation in a sustainable, sensible use of the forest and all its potential benefits are of great significance in attempts to improve local employment potentials, and hence incomes and quality of life. Helping the local communities in rural areas to develop self reliance and hence self respect is of vital importance in the overall development scenario.

The Forest Harvesting and Transport Branch wishes to express thanks to the authors of the Case Study, Mr. **Palitha Jayasekera**, Add; General Manager, State Timber Corporation of Sri Lanka and **Dr. Shelton Atapattu** who has prepared the annex on veterinary case of the elephant.

The Case Studies already published are listed on the back cover. They may be obtained from the FAO Forest Harvesting and Transport Branch, Viale delle Terme di Caracalla, I-00100 ROMA, Italy.

Rudolf Heinrich

Chief

Forest Harvesting and Transport Branch

FAO, Rome



Plaintiffs' Supplemental
Exhibit G
Civ. No. 03-2006 (EGS)



CLINICAL BIOLOGY AND CARE OF THE ELEPHANT

Based on the work of Dr Shelton Atapattu

A-1. NATURAL HISTORY

Elephants are in the order Proboscidae, with two species: *Elephas maximus*, the Asian elephant; and *Loxodonta africana*, the African elephant.

In Sri Lanka the elephant in the wild is now mainly confined to areas of dry deciduous forests, where vegetation is mainly thick, thorny, impenetrable acacia species. The wild population was estimated to be 1 800 to 2 000 animals in 1990. The Asian bull elephant can reach 3.3 m in height at the withers (shoulder), and a body weight of 5 500 kg. The females can reach 2.7 m at the withers, and a body weight of 4 000 kg. In Sri Lanka, the average adult male elephant reaches a height of 3 m at the withers, with a weight of 4 000 kg. Females vary between 2.0 and 2.5 m at the withers, with a weight of 2 500 to 3 500 kg.

The Asian elephant has a convex-shaped back, a trunk with one finger, ears much smaller than those of the African elephant, and does not have a smooth skin. No females have tusks, and only about 5-7% of bulls have tusks, depending on the sub-species. Some Sri Lankan bulls and cows have rudiments of tusks, called tushes.

Thermoregulation is a problem for elephants, and they need adequate shade during the greater part of the day, and live in areas where there is a plentiful and perennial supply of food and water. They prefer to have large foraging areas, and keep on expanding their foraging space by pushing down, breaking or debarking trees, which ultimately degrades wooded areas. Elephants spend about 70% of their time foraging, consuming about 150 kg daily of a mixture of foliage and grasses. Typical sources of fodder and forage are tamarind (*Tamarindus indicus*), jak or jackfruit (*Artocarpus hetero-phyllus*), pota (*Pothos scandeus*), dadep (*Erythina variegata*, [syn. *E. indica*]), sugar cane (*Saccharum officinarum*), wood apple (*Limonia acidissima* [syn. *L. elephantum*]), banana and plantain (*Musa spp.*), coconut (*Cocos nucifera*), and breadfruit (*Artocarpus altilis*), but grasses form the bulk of their food. Their feeding rate varies with the type of foliage available. Thus succulent, luscious sugar cane is consumed faster than any other type of vegetation.

An adult elephant drinks an average of 180 to 270 l/day of water (40 to 60 gallons), but this is more in higher ambient temperatures. Twice daily watering is ideal for an elephant.

In Sri Lanka, owners of elephants do not give any concentrates to their elephants. They are fed mainly with tree foliage and grasses.

Wild elephants invade the naturally occurring salterns in the Southern Province of Sri Lanka from time to time to obtain salt.

A-2. REPRODUCTION AND LIFE CYCLE

Wild cow elephants attain puberty between the ages of 14 and 17 years, but domesticated elephants with good nutritional status could attain puberty at the comparatively early age of 8-10 years. Males mature more slowly, becoming sexually mature in domestication by the

of the mouth is coated with thick saliva. The palate may be dark and with mulberry spots. Urine is very off-coloured, and scanty. Where domesticated elephants are in contact with diseased cattle or buffaloes, it is strongly advised that the elephants be immunized.

A-5.4 TUBERCULOSIS

Elephants are susceptible to the human type of *Mycobacterium tuberculosis* and therefore attendants should be TB-free. There is no evidence that elephants are susceptible to bovine or avian types of TB.

Tuberculosis is predisposed in elephants by stress resulting from factors such as severe punishment; heavy work without adequate rest, i.e., continuous timber logging; bleeding from wounds; being subjected to regular bouts of thermoregulatory imbalance; drinking polluted water; or undernutrition.

A-5.5 OTHER INFECTIOUS DISEASES

The foot-and-mouth disease virus is said to be recorded in elephants in full living condition. Mortality is nil and no symptoms appear.

Clostridial enterotoxaemia has killed several elephants and baby elephants. Clinically the patient suffers from acute diarrhoea, lack of appetite and a mildly elevated temperature, in the region of 99_ -100_ F (37.2_ -37.8_ C). Therapy is based on fluid replacement by administering normal saline drips, coupled with high doses of antibiotics and supportive therapy for full-grown adult elephants.

A-5.6 RESPIRATORY TRACT INFECTIONS

Typical clinical signs, especially in the case of pneumonia, tracheitis and bronchitis, are that the patient develops a copious flow of purulent exudate dripping from the trunk; coughing; laboured breathing; pain; fever; copious lacrimal secretion; and increased respiratory rate.

Treatment of infections of the respiratory tract involves parenteral administration of broad-based antibiotics and supportive therapy.

A-5.7 DISEASES OF THE FEET

Foot rot is common in domesticated and wild elephants, where the sole of the foot gets worn and bacterial infection sets in. Treatment consists of keeping the elephant under clean conditions, washing the soles of the feet daily with a 5% copper sulphate solution, a 10% formalin solution and finally painting the affected area with Stockholm Tar. This is reinforced by a broad-based antibiotic administered parenterally.

Other precipitating factors for foot rot are overgrown soles, cracked soles, cracked heels, overgrown nails and split nails.

A-5.8 DISORDERS OF THE DIGESTIVE SYSTEM

These include colics, diarrhoea, dental abscess, caries, constipation, foreign body ingestion, intussusception and hepatitis.

If there is improper development of the molars, mastication of food is impaired and the general physical condition of the elephant deteriorates. Therefore measures have to be taken