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### Research Notes

## Some Parasites from Sumatran Elephants in Indonesia

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**ABSTRACT:** Three Sumatran elephants (*Elephas maximus sumatranus*) in Way Kambas National Park, Indonesia, that died of clostridiosis were infected with 1 species of nematode (*Murshida falcifera* (Cobbold, 1882)), 2 trematodes (*Hawkesius hawkesi* (Cobbold, 1875), *Pfenderius papillatus* (Cobbold, 1882)), and 1 larval botfly (*Cobboldia elephantis* (Steel, 1878)) species in the gastrointestinal tract. This is the first report of *Hawkesius hawkesi*, *P. papillatus*, and *C. elephantis* infection in Sumatran elephants in Indonesia.

**KEY WORDS:** Sumatran elephant (*Elephas maximus sumatranus*), Indonesia, nematode, trematode, botfly.

The Sumatran elephant (*Elephas maximus sumatranus*) is the smallest of the 4 subspecies of Asian elephants and is distributed only in the island of Sumatra. The genus *Elephas* is considered to have appeared in the Pliocene; however, it is not clear when the Sumatran elephant was isolated from other Asian elephants. At present, the Sumatran elephant is an endangered species, and their number is estimated to be between 2,800 and 4,800 (Santiapillai and Jackson, 1990).

The Way Kambas National Park is located in Lampung Province, on the southeast tip of Su-

matra (4°37'S–5°16'S, 105°55'E). This national park has abundant wildlife species, including the Sumatran elephant, tiger (*Panthera tigris sumatrae*), and rhinoceros (*Dicerorhinus sumatrensis*). The elephant training center in the national park keeps more than 120 elephants, which were caught in various parts of Sumatra.

In a previous study, strongylid eggs were found in fecal samples from 40 (34%) of 118 elephants in this elephant training center (Hayani, 1994); however, other reports of parasites recovered from Sumatran elephants have not been published to date.

In February 1995, 17 elephants were transported to West Lampung Prefecture; 3 male elephants, ranging from 10 to 13 yr old, died suddenly of a clostridial infection. All animals were necropsied in the field and the gastrointestinal tract was removed from the abdominal cavity. Each part (stomach, small intestine, and large intestine) was opened and visible worms collected. No attempt was made to recover all parasite specimens.

One botfly species was collected from the stomach and fixed in 70% ethanol, the 1 species of nematode from the large intestine was fixed in glycerol–alcohol, and 2 trematode species from the large intestine were fixed in 10% formalin. Several trematode specimens were flattened between glass slides and placed in 70% ethanol for Schneider's acetocarmine staining.

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One species of botfly larvae (*Cobboldia elephantis* (Steel, 1878)), 1 nematode species (*Murshida falcifera* (Cobbold, 1882)), and 2 trematodes (*Hawkesius hawkesi* (Cobbold, 1875) and *Pfenderius papillatus* (Cobbold, 1882)) were obtained from all 3 animals. Voucher specimens were deposited in the Laboratory of Parasitology, Department of Disease Control, Graduate School Veterinary Medicine, Hokkaido University, Sapporo, Japan (Helm. Coll. Nos. 2968–2971).

*Murshida falcifera* was previously reported from other subspecies of Asian elephants in India (Baylis, 1936), Sri Lanka (Fernando and Fernando, 1961c), Malaysia (Fernando and Fernando, 1961b), Burma (Bhalerao, 1932), and Indonesia (Yamaguti, 1961). Although *H. hawkesi*, *P. papillatus*, and *C. elephantis* were reported from Asian elephants in India (Baylis, 1936), Sri Lanka (Fernando and Fernando, 1961c), Burma (Bhalerao, 1932), Cambodia (Fernando and Fernando, 1961a), and Malaysia (Fernando and Fernando, 1961b), this is the first report from the Sumatran elephants in Indonesia.

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