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## Handling of Pangolins Infested with *Rhipicephalus sanguineus* in Kinantan Bukittinggi Wildlife and Cultural Park

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### Abstract

Pangolin (*Manis javanica* D) is one of the unique and exciting mammals with a body covered with hard scales like a reptile, has no teeth (toothless) like a bird, the tongue can stick out long and roll up when threatened. There is only one pangolin population in the Kinantan Bukittinggi Wildlife and Cultural Park, and it is attacked by *Rhipicephalus sanguineus*; the action is taken to prevent transmission to other animals is treated. Treatment was carried out for three days until there was no *Rhipicephalus sanguineus*, but the wound was increasing because pangolins could not be injected; then, the wound was treated the next day with Doxycycline Hyclate orally. The treatment results on pangolins orally with vitamin B12, Ivomec, Vetadryl, Doxycycline Hyclate can heal wounds and *Rhipicephalus sanguineus* in 14 days.

**Keywords:** Pangolin, *Rhipicephalus sanguineus*, vitamin B12, Ivomec, Vetadryl, Doxycycline Hyclate.

### 1. Introduction

*Manis javanica* is the only remaining order *Pholidota* in Indonesia with distribution on Sumatra, Java, and Kalimantan islands after *Manis palaeojavanica* was declared extinct in the wild<sup>1-2</sup>. The population decline rate in the genus *Manis* has reached 9.12% over the last 45 years<sup>3</sup> caused by four main factors: illegal trade<sup>4</sup>, limited and specific feed, low reproductive capacity, and low anti-predator ability<sup>5-6</sup>.

Pangolin (*Manis javanica* D) is one of the unique and exciting mammals because it has a body covered with hard scales like a reptile, has no teeth (toothless), the tongue can stick out long and roll up the body if threatened<sup>7-8</sup>. It feeds on ants and termites, and the Pangolin's sense of smell is better than its sight<sup>9-10</sup>. This species is listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and in Indonesia, the Pangolin is a protected animal based on Government Regulation Number 7 of 1999. Pangolins in Indonesia are under threat of extinction due to excessive use hunting and illegal trade for consumption and traditional medicine<sup>11</sup>.

*Rhipicephalus sanguineus* is a blood-sucking ectoparasite that has an essential role in animal health. The tick of the species *Rhipicephalus sanguineus* is also called "the brown dog tick" and is the most common type of tick in dogs<sup>12</sup>. *Rhipicephalus sanguineus* is a parasite that can be the leading cause of systemic disease in addition to necrosis at the bite site and an inflammatory reaction in the host it attacks<sup>13</sup>. *Rhipicephalus sanguineus* is easily recognized by its reddish-brown color, elongated body shape, and hexagonal base capitula (flat surface on which the mouth attaches). Adults are 2.28 to 3.18 mm long and 1.11 to 1.68 mm wide<sup>14</sup>. *Rhipicephalus sanguineus* is a species of tick found worldwide but is more common in warmer climates<sup>15</sup>. This species is unusual among ticks because its entire life cycle can be completed indoors.

*Rhipicephalus sanguineus*, commonly called the brown dog tick, kennel tick, or pantropical dog tick is a species of tick found worldwide but is more common in warmer climates. *Rhipicephalus sanguineus* is a three-host tick<sup>16-17</sup>. *Rhipicephalus sanguineus* (Acarina: Ixodidae) is a type of tick widely distributed in tropical and subtropical areas. In Indonesia,

local people call it dog tick or pig tick, while it is called brown dog tick abroad. In general, these ticks are found in dogs but are often found in other mammals<sup>18</sup>, even found from a more diverse animal, namely the Pangolin<sup>19</sup>. This paper will discuss the handling of pangolins infested with *Rhipicephalus sanguineus* in the Bukittinggi Wildlife Park.

**2. Materials and methods**

**Kinantan Cultural and Wildlife Park**

This research was conducted at Kinantan Bukitting Wildlife and Culture Park, located on Jl. Cindua Mato, Pasar Atas Fort, Guguk Panjang District, Bukittinggi City, West Sumatra, Indonesia at coordinates 0°18'02.7"S 100°22'10.4"E. This zoo is one of the oldest zoos in Indonesia and the only one in West Sumatra, with a complete collection of animals on the island of Sumatra.

The Kinantan Cultural and Wildlife Park was built by the Dutch East Indies government in the 1900s in a flower garden with the name "Strompark" (Flower Garden). On July 3, 1929, Strompark was made a zoo under the name Fort De Kocksche Dieren Park or Bukittinggi Zoo by Dr. J. Hock. In 1935, a replica of the Rumah Gadang was built in the zoo area known as the Baanjuang Traditional House Museum. After the independence of Indonesia, there was a change of name from Fort De Kocksche Dieren Park to Taman Puti Bungsu. In 1955 through regional regulation no. 2 of 1955, there was a change of name from Taman Puti Bungsu to Taman Marga Animal and Kinantan Culture.

**Handling procedure**

**a. Inspection stage**

1. Cleaning *Rhipicephalus sanguineus* using tweezers.
2. Clean the wound from the sand with a cotton swab that has been moistened with alcohol.
3. Betadine is given to the wound
4. The Pangolin is injected

**b. Treatment Stage**

The treatment given to Pangolin is by giving injection and oral drugs. The injection drug uses Ivomec (Ivermectin), Vetadryl, and vitamin B12 drugs, while the oral drug uses Doxycycline Cyclate. Ivomec (Ivermectin) is a drug that belongs to the macrolide avermectin class. This drug is used to eradicate parasites, ectoparasites (fleas, fleas, ticks,

mites), or endoparasites (worms). Ivomec has a long half-life, meaning it stays in the body for a long time.

Cleaning the wound on Pangolin is done every day using cotton, tweezers, and alcohol. After the wound is cleaned and then given, Betadine. After three days of injections, it was found that the pangolins were getting more and more injured. Three days after the injection, the pangolins back wound had holes, and there was surrounded by flies. Therefore, GusaneX was sprayed after cleaning the wound to see if there were maggots; then Betadine is given to the Pangolin's back.

**3. Results & Discussion**

The results showed that pangolins given injection drugs were not good because pangolins cannot be injected; the more they are injected, the more wounds there are. The age of the Pangolin that *Rhipicephalus sanguineus* attacks is approximately one year. The danger of *Rhipicephalus sanguineus* in pangolins causes wounds to ooze pus and holes. The *Rhipicephalus sanguineus* tick follows the normal developmental stages of egg, larva, nymph, and adult. It is called the triple host tick because it feeds on a different host during each larval, nymph, and adult stage. However, the host tends to be of a single species. Larvae feed for 5–15 days, are dropped from the host, and develop into nymphs after 1–2 weeks. The nymph then attaches to the previous host or another host and feeds for 3–13 days before leaving the host. After two weeks, they develop into adults and attach to another host, where they continue to ingest blood, followed by a mating period<sup>14</sup>.

Treatment is done using drugs by injection, orally, and directly—drugs by injection using Ivomec, Vetadryl, and B12 vitamin. The drugs and other toxins are broken down in the liver and excreted through the kidneys or feces. Vitamin B12 is a vitamin helpful in forming proteins, blood cells, and tissues<sup>20</sup>. Daily vitamin B12 needs can be obtained through food or additional supplements.

In addition, orally using the drug Doxycycline Hyclate and directly using Betadine was carried out for 14 days. This Pangolin treatment is carried out every day until 14 days of healing. After the pangolins recovered, the conservation team released them back into the forest because Pangolins are better released in the wild<sup>21</sup>.



Early attack *Rhipicephalus sanguineus*



Cleansing *Rhipicephalus sanguineus*



Progress After three days of Invomec, Vetadryl, and vitamin B12 injections



Cleaning the wound until it oozes pus mixed with blood



Spraying GusaneX to protect against swarms of flies



Cleaning the wound from the attached soil and given Betadine every morning



Doxycycline Hyclate administration orally (mixed with food)



Wounds dry up after 14 days.

**Fig. 1:** Treatment of Pangolin *Rhipicephalus sanguineus*.

#### 4. Conclusions

*Rhipicephalus sanguineus* is a brown tick and is often found on animals. Treatment is carried out first by cleaning *Rhipicephalus sanguineus* from infected animals. Then administer drugs by injection invomec, Vetadryl, and vitamin B12, while orally Doxycycline Hyclate. The wound was examined and cleaned every day using cotton, alcohol, and Betadine.

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