

## *Psoroptes* sp. Infestation in Sulawesi Bear Cuscus (*Ailurops ursinus*) in Indonesia

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Received: May 13, 2014 Accepted: June 25, 2014 Online Published: July 2, 2014

doi:10.5539/ijb.v6n4p20

URL: <http://dx.doi.org/10.5539/ijb.v6n4p20>

### Abstract

One male and two female sulawesi bear cuscus (*Ailurops ursinus*), weighing 4.4, 5.1 and 4.6 kg was admitted to the Animal Health Center of the Gowa Agriculture Extension College. Upon physical examination auricular skin lesions, and erythematous and pruritic skin lesions, both on the ventral abdomen and on extremities were detected. Microscopic examination of skin scrapings taken from pinnae and hair plucked from the medial extremities region revealed the presence of *Psoroptes* sp. The ventral abdominal and extremities localization of *Psoroptes* sp. was evaluated as an ectopic infestation. To our knowledge, this is the first report of *Psoroptes* sp. in Sulawesi Bear Cuscus (*Ailurops ursinus*) in Indonesia. The Sulawesi bears cuscus were injected subcutaneously with ivermectin at 0.1 mg/kg of bodyweight, as well as with injected intramuscularly a ADE combination to supportive therapy. Three Sulawesi Bears Cuscus became negative for mites after third treatments of ivermectin at seven days interval, and clinical mange did not recur.

**Keywords:** *Psoroptes* sp., infestation, Sulawesi bear cuscus (*Ailurops ursinus*)

### 1. Introduction

Diseases of the sulawesi bear cuscus (*Ailurops ursinus*) rare published. The disease is one threat to the survival of possum if not handled properly and wildlife (Pederson et al., 2007). Sulawesi bear cuscus (*Ailurops ursinus*) is one of the animal species endemic to the island of Sulawesi, which is protected by Indonesian Government Regulation Number. 7/1999. These animals included in the red list of threatened species IUCN 2008 (Salas et al., 2008). Sulawesi bear cuscus is an animal *marsupial* and from family *Phalangeridae*.

Report cases of disease caused *Psoroptes* sp. the possum has not been published, one of a kind *Psoroptes* is *Psoroptes cuniculi* generally attacks on domesticated livestock such as rabbits (Acar et al., 2007; Kyung-Yeon & Oh-Deog, 2010), *Psoroptes* is the causative agent of dermatitis in cattle, sheep, goats, rabbits and turkey (Kurtdele et al., 2007; Lekimme et al., 2008). Type *P. cuniculi* attack on wildlife group *Artiodactyls* reported by Pederson et al. (2007), whereas the incidence of deer in the United States reported by Schmith et al. (1982).

This mite has a host of high specification. *Psoroptes* species that normally live on the host will not infest other host with different species. *Psoroptes* do not dig a tunnel under the skin and only live on the surface, under the scab, and under the accumulated pile of scaly skin, outer ear, *auditory* canal, and obtain food by piercing the skin (Bowman, 1999).

### 2. Case History and clinical examination

One male and two female sulawesi bear cuscus (*Ailurops ursinus*), weighing 4.4, 5.1 and 4.6 kg was admitted to the Animal Health Center of the Agriculture Extension College, Gowa from Gowa Discovery Park (GDP). Cuscus presented pruritis, alopecic and weight loss. Clinical examination revealed severe bilateral lesions in both pinnae, and erythematous, and alopecic skin lesions with pruritis on the ventral abdomen, perianal and extremities (Figure 1).



Figure 1. Infection showing spread in extremitas, ventral abdomen and tail

### 3. Diagnosis

Diagnosis was performed by clinical signs, dermatological and microscopic examination of the skin lesions. Microscopic examination of skin scrapings taken from pinnae and hair plucked from the medial extremities region revealed the presence of Mange. Many mites were detected on microscopic examination of material scraped from the external ventral abdominal and extremitas. Skin scrapings from each region then included in a separate vial containing a solution KOH 10%. Identification is done under a microscope. Results identification diagnosed as *Psoroptes sp.* (Figure 2).



Figure 2. Microscopic examination of skin sample from ventral abdomen of cuscus observes the mite *Psoroptes sp.*

*Psoroptes sp.* has an oval body shape and length of the section conical front. *Psoroptes* has a long pedicle connected to the caranacula. Mites large female with a body length of about 750  $\mu\text{m}$ . Tarsi I and II culminate in karankula while the tarsi III with the same limb size led to long setae (Wall & Shearer, 1997).

### 4. Treatment

The cuscuses were injected subcutaneously with ivermectin at 0.1 mg/kg of body weight, as well as with injected intramuscularly a ADE combination to supportive therapy. Three cuscus became negative for mites after third treatments of ivermectin at seven days interval, and clinical mange did not recur.

## 5. Discussion

Based on the results of a physical examination on cuscus, there is a dominant lesions include alopecia and purities at the ventral abdominal, extremity, lightly hooked around the eyes and the base of the ear. This is in contrast to the infestation *P. caniculi* on a change in the dominant rabbit ears, however, in many cases *Psoroptes* affected mainly in area of ear, head, neck, abdomen, legs and perianal region of farm rabbits reported severe itching, infections, lesions and swelling. In older or sick animals, or if not treated properly, the parasite can spread to other regions on the body. The mite *P. cuniculi* is a worldwide obligatory ectoparasite, mainly of rabbits, goats, horses, and sheep (Perrucci et al., 2005). Diagnosis of mange is achieved through observation of clinical signs e.g. itching, pruritis, and wool loss and ultimately through the detection of mites in skin scrapings. Early stages of infestation are often difficult to diagnose and subclinical animals can be a major factor in disease spread (Burgess et al., 2012).

The mites puncture the epidermis of ear, suck lymph and give rise to local inflammatory swelling from which serum exude, coagulates and forms enormous encrustation inside the ear. The mite causes intense pruritus with formation of crusts and scabs, which can completely fill the external ear canal and internal surface of the pinnae in untreated animals (Perrucci et al., 2005). In the rabbit, it is important to mention that in present study, lesions in the experimental infestation with the mite werw detected after 21 day post infestation (Hallal-Calleros et al., 2013) However, this study, Cuscus presented pruritis, alopecic and weight loss. Clinical examination revealed severe bilateral lesions in both pinnae, and erythematous, and alopecic skin lesions with pruritis on the ventral abdomen, perianal and extremities (Figure 1). Many cases *Psoroptes* affected mainly in area of ear, head, neck, abdomen, legs and perianal region of farm rabbits reported severe itching, infections, lesions and swelling (Swarnakar et al., 2014).

According to Jeessup and Boyce (2008), ivermectin administered SC 0.2 mg/kg effective controlling *Psoroptes* infestations in cattle, but this formulation has been ineffective in infested big-horn sheep. Our preliminary studies with both domestic and big-horn sheep have indicated that higher doses of ivermectin (from 0.8 to 1 mg/kg) are required to achive serum levels comparable to those that are miticidal in cattle. In this case report, the dose used 0.1 mg/kg, with consideration has not been reported on the use of ivermectin cuscus, contraindications arise feared or other side effects adverse. Giving the injection of vitamin ADE as supportive therapy to improve growth, enhance immunity against the disease, especially in young animals, help recovering from illness, and cope with hair loss. Treatment is quite effective in controlling infestations *Psoroptes sp.* after 3 repetitions with 1-week intervals, characterized by microscopic examination of skin scrapings not found *Psoroptes sp.*, healing is also characterized by the growth of the region experiencing hair loss (Figure 3). This is in accordance with Hillyer (1994) recommended the administration of 3 doses.



Figure 3. Cuscus after treatment with ivermectin and vitamin ADE injections every week for 3 weeks

## Acknowledgement

Authors are grateful to the Operational Manager Sheila Ishak, Gowa Discovery Park (GDP) Makassar South Sulawesi-Indonesia for providing the facilities for the sample collection.

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