

## 2 Summary

Considering health issues in rhinos globally, the skin is one of the most affected organs. Most literature about rhinos has been written about black African rhinos (*Diceros bicornis*). This species appears to be more susceptible to disease than others. The white African rhino (*Ceratotherium simum*) and the Indian rhino (*Rhinoceros unicornis*) are reported to have lower disease prevalence, which is also valid for skin problems. Nevertheless, the literature covering skin problems in rhinos is unsatisfactory.

In the first part of the study we evaluate the skin problems in rhinos and in particular the skin lesions in the greater one-horned rhinos of Basel Zoo. These animals have been having skin problems for several years. All three adult rhinos and the juvenile female have all been affected and some are still affected by skin problems. A retrospective analysis every anamnesis reports from 1996 until today from these animals support this fact.

Three types of dermatitis occurring in Indian rhinos can be differentiated: exsudative, ulcerative and pustular dermatitis. The latter has never been diagnosed in the rhinos in Basel. The worst affected animal in 2013 is the male named "Jaffna". He has been suffering from exsudative and ulcerative dermatitis on several areas of the body (mostly on the head, neck, caudal abdomen, inner thighs and anus). The lesions are recurrent and no therapy has resolved the problem yet. We examined several angles using different diagnostic methods: swabs for bacteriology and mycology, impression smears for microscopy, blood sampling to find a possible infection or deficiency of some skin relevant nutrient or an allergy, and skin biopsies.

The second part of the thesis includes the design and evaluation of a questionnaire intended for all zoos keeping Indian rhinoceroses in Europe. While evaluating the answers, we observed that the skin problem in this rhino species is not limited to Basel. Some of the affected zoos found a cause for the dermatitis but some still have not found any aetiology.

A small part of the thesis compares the two different Indian rhino husbandries of Basel and Vienna. The aim of this part of the study is to try to find some indication that could explain why the animals have skin problems in Basel but have never had any of them in Vienna.

Based on this study, we conclude that skin disease in rhinos is a very interesting and wide spread topic, which needs further investigations in order to get a better understanding of the aetiology currently found in captive Indian rhinos. The discovery of a common international cause for the skin problems could lead to the development of new husbandry guidelines and maybe a treatment to reduce the incidence or to even prevent the disease. In both cases it would lead to an improvement of the keeping conditions of the greater one-horned rhinoceros.