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ON IDENTIFYING SNOW LEOPARDS, Panthera uncia, BY THEIR FACIAL MARKINGS

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Introduction

At the IUDZG Studbook Symposium in Copenhagen 19-20 October 1979, it was decided that owners of studbook animals should, whenever possible, mark or otherwise identify all of their studbook animals. The details of this identification system would then be sent to the studbook keeper.

The importance of a quick and reliable system for identification of studbook-kept and rare animals is clear :

1. To avoid inbreeding

All studbook-kept animals are rare in the wild. Although many have bred well in captivity, and among some there is even an over-reproduction in captivity today, most of these animals are very rare in captivity as well. The main task for all serious breeders is, and should be, to breed such animals and distribute them to as many zoos as possible ; in other words, to create a healthy stock of the endangered species in captivity. The final aim is, of course, to reintroduce them into the wild, but not before safe sanctuaries are found. As is well known, the reintroduction of some species to the wild has been successful.

In order to create a healthy stock of a species, we have to start with the pedigree. We are working

blind unless we have a thorough knowledge of the genetic background of an animal. A point in fact is the case where animals arrive to a zoo via one or many dealers. The final recipient might not know where and when the animal was born, and perhaps knows even less about its pedigree. The fact that closely related animals should not be bred, cannot be overemphasised. Littermates should therefore never be sold unless the buyer has other unrelated animals with which he will cross the littermates. For zoos keeping larger collections of studbook-kept animals, it is especially important that each individual be identified.

2. To identify each animal in field work and when studying their social behaviour.

A good system to recognise different individuals is important for people doing field work. It aids as well in studying the social behaviour of a species.

Earlier identification methods

In the wild, as well as in captivity, people working with animals, learn very quickly to identify each individual in a group. J. A. Rudnai has used a method based on the pattern of dark spots accompanying the vibrissae on the lion's (Panthera leo) muzzle (1). The number and position of these spots in the uppermost row of the complete pattern vary from individual to individual. The lion's face differs as well from side to side thus providing sufficient variation for identification purposes.

In spectacled bears (Tremarctus ornatus), as well as in tigers (Panthera tigris), the face markings are helpful. The specific strip and patch pattern above the right eye in tigers, lends itself to excellent identification (2).

Besides the above mentioned methods, ear tags and tattooing have also been used in captivity. Ear tags have often been used in hoofed animals, but are not very successful in cats. Many zoos use tattooing for their herds of Przewalski horses, but it can also be used in the inner lip of a carnivore. Recent studies in Przewalski horses have also revealed that each specimen in a studied group of 40, was identified by using individual genetically determined markers (3).

Blood samples and tattooing can be used for the snow leopard as well, the only disadvantage being that the animal has to be put to sleep for identification. These systems are in our opinion excellent keys to identification. What is also needed, is however, a system through which each individual can be identified without stressing or disturbing them. In general zoo keepers have no difficulty in identifying their "own" animals, but this facility of identification should be possible for others as well.

Material and methods

During the last four years the studbook keeper of snow leopards has collected photographs in black and white as well as slides of snow leopards kept in captivity. Many of the photos of these animals have been taken by the studbook keeper, but zoo-staff all over the world have also been most helpful in supplying such photos. The present collection is rather good, though more photos are most wellcome. The prime photos would be those of both a habitus as well as a picture of the head, taken en face (Figure 1) of each animal.

As identification material we have used the

easily distinguished dark dots in the forehead (Figure 1). Although photos of almost one hundred animals were available, many of these pictures could not be used for this project.

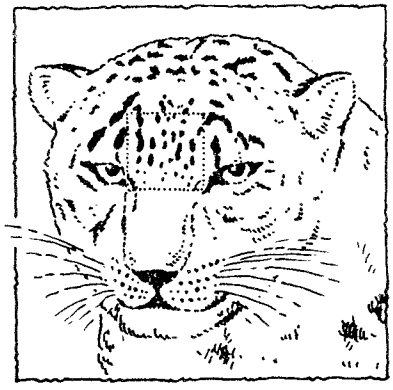
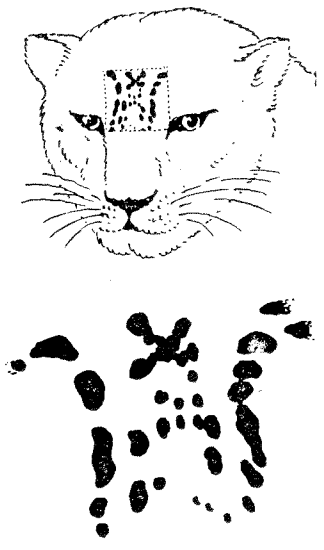


Figure 1. Drawing of the head of a snow leopard. The identification area is that within the dotted square.
Drawing by Viking Nyström

As the photos are taken by different persons, they are often shot from different angles and the perspective distortions can thus influence the drawn figure. It should also be noted that as all photos are not totally accurate some of the drawn dots, which on the photos float together, can as a matter of fact, be separate. Still, we feel that this is of minor importance for an otherwise highly useful identification method. The method can be used as a very simple and quick identification method in the wild as well as in captivity. The following six animals which were chosen for close examination here, are examples only. Thus far no two animals in any of the photos have been found to have identical spots on the head.

The male Pamir, LPZ 14 (Figure 2a,b) has a very typical cross on the forehead while Mushkin, San Antonio 8 (Figure 3a,b) and Rose, Bronx 23 (Figure 4a,b) have very few dots in this area.



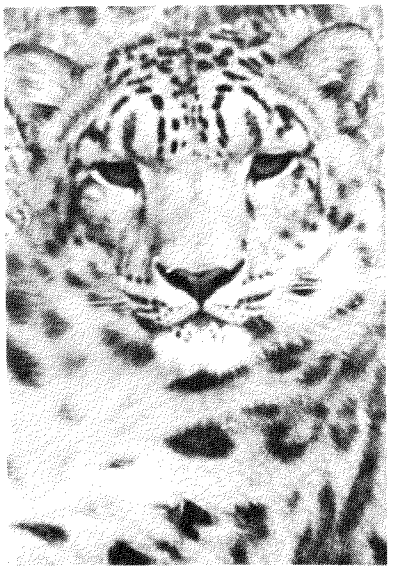
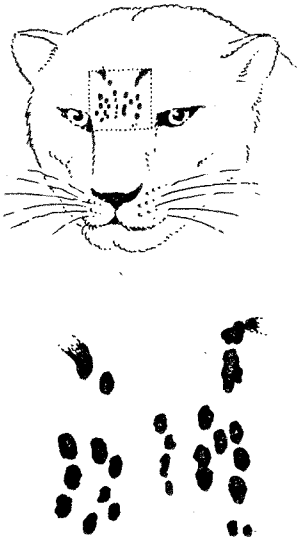


Figure 2a,b. Male Pamir,LPZ 14 with the typical cross in the identification area. This male is kept in Howletts Zoo, Great Britain.
Drawing by Viking Nyström and photo by Leif Blomqvist



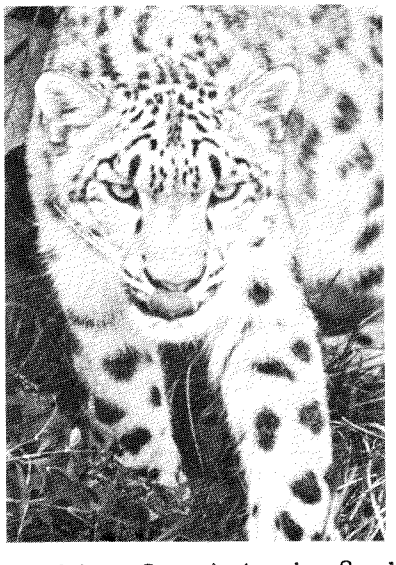
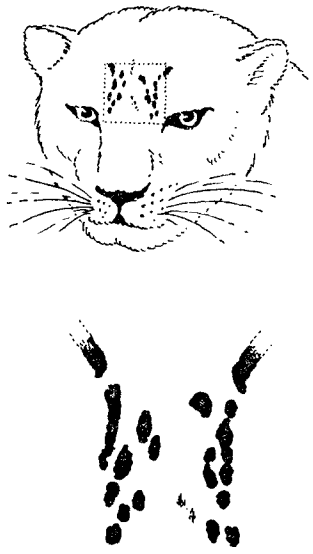


Figure 3a,b. Male Mushkin, San Antonio 8, kept in the Denver Zoo.
Drawing : Viking Nyström and photo : P. Linger



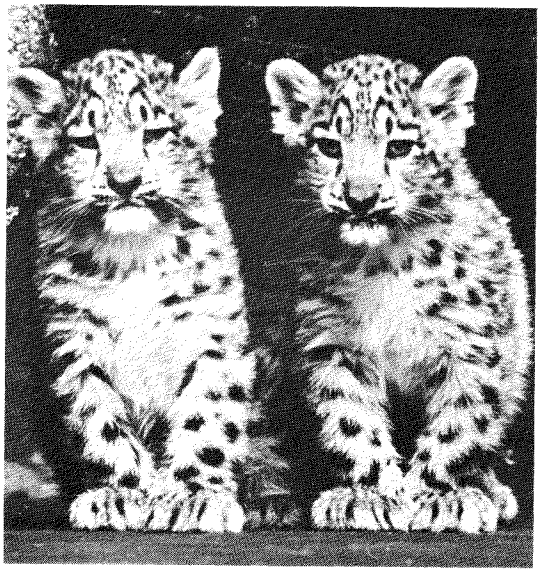


Figure 4a,b. Female Rose, Bronx 23 (left) with her littermate Pete, Bronx 22 (right). Compare Rose's and Pete's spots : Pete has a lyre-shaped pattern on the head.
Drawing : Viking Nyström

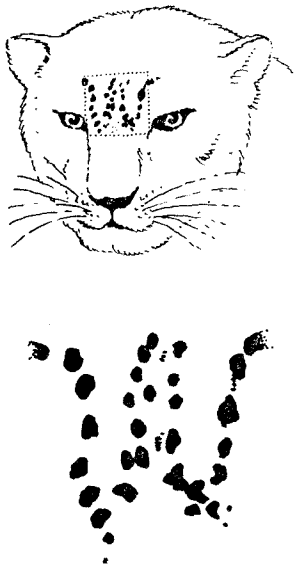


Figure 5a,b. Male Tamerline,Omaha 1, kept in the Omaha Zoo, Nebraska. Notice Tamerline's W-pattern in the identification area.
Drawing : Viking Nyström, photo : P. Covey

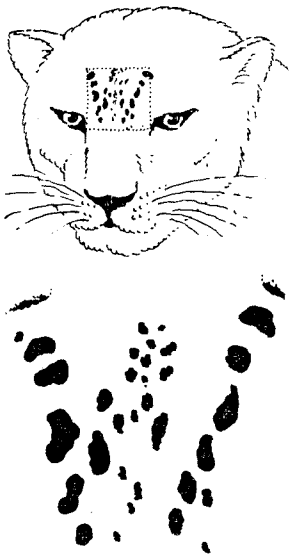


Figure 6a,b. Male Ville Jr, Helsinki 18, born and kept in the Helsinki Zoo.
Drawing : Viking Nyström, photo : Leif Blomqvist

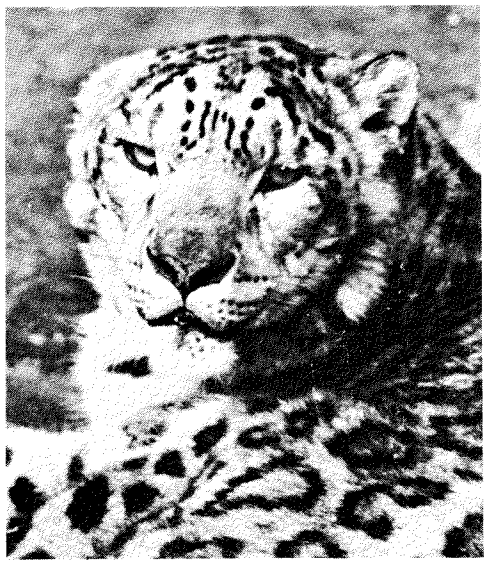


Figure 7a,b. Male Chumbi, St. Louis 6, born in St. Louis Zoo and kept in the Oklahoma City Zoo. Notice the long stripes in the studied square.
Drawing : Viking Nyström and photo : George Walters

Mushkin can be distinguished from Rose by the two strong black dots on the left side of the forehead (Figures 3a,b). Both of the males Tamerline, Omaha 1 and Ville Jr, Helsinki 18, have a complicated pattern in the studied area, but Tamerline's (Figures 5a,b) is formed as a "W", while Ville Jr has a "V" with numerous spots in the center (Figures 6a,b). Chumbi, St. Louis 6 (Figures 7a,b), has three longer stripes in the middle and one shorter stripe.

The above mentioned animals are used only as examples. It is important to note that the forehead in these animals is not especially clear, and that there are many animals which have far more striking marks in the forehead region than these animals. These photos were chosen for their accuracy for the purpose of this brief introduction.

We feel that the collecting of en-face photos should be continued in the future. We are hopeful that each zoo shall send us photos of new snow leopards, captive- or wild-born. The enlargening collection could play an important role in the future not only for identification, but also for following a possible hereditance of the dots in the forehead.

References

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