

14. Ich bin der Meinung, dass der Junghengst "**Peterle**" (m,00, Nr. 364) im Tiergarten Nürnberg am Leben erhalten bleiben soll. Umso mehr, als es keinen ernsthaften tiermedizinischen Grund gibt, das Tier zu töten. Es kann bestimmt ein Zoo/Tierpark gefunden werden, der das Tier aufnimmt.
15. Neben weiteren Anstrengungen in Zoos müssen aber vor allem die Wildpopulationen geschützt werden. Die Bildung neuer Reservate in Eritrea auf der Buri-Halbinsel, der angrenzenden Denkelia Wüste und im Nugaal-Tal in Somalia sind wichtig für die Erhaltung der Art. Diese neuen Reservate müssten aber auch die einheimische Bevölkerung profitieren lassen; durch Anstellung in den Parks und durch Ausbildung. Ein Modell, das nicht nur MOEHLMANN (2000) beschreibt, sondern auch von PRIMACK (1995) für andere Reservate Afrikas beschrieben wird. Der Hintergrund ist der, dass die Bevölkerung im gesamten Verbreitungsgebiet der Somali-Wildesel mehr oder weniger in Not ist. Ohne Zusammenarbeit mit ihr wird die Erhaltung der Tiere nicht möglich sein.

*Nachtrag: Im November 2001 ist im Zoo Basel die Stute **Tana** (f,93, Nr. 302) vom neu importierten Hengst **Lucas** (m,96, Nr. 330) trächtig. Nach 8 Jahren scheint im Jahr 2002 erstmals wieder ein Geburtserfolg möglich.*

2.3. Summary / Zusammenfassung (English)

The Somali-Wild-Ass (*Equus africanus somelicus* Sclater), the last representative of the African-Wild-Asses, is very much endangered to die out in the wilderness. People are still hunting it and its living-space gets more and more reduced by human activities. Since 1970 the animals are kept and bred in zoos/parks. In January 2001 there have been 107 animals worldwide in zoos/parks. The breeding-successes are not bad, but still often limited by problems.

The subject of this study is the keeping and sexual behaviour of those animals under human management. Four zoos/parks have been visited by the author, the 'Stamm-Stiftung, Oberwil' (Switzerland), the 'Basel Zoo' (Switzerland), the 'Tiergarten Nürnberg' (Germany) and the 'Wilhelma - Zoologisch-botanischer Garten', Stuttgart (Germany).

The behaviour of the animals were recorded and evaluated in eight observation-phases, during 184.25 hrs.: About 7200 social interactions between the animals have been recorded. Also activities like feeding (feed grazing and feed browsing), standing, etc. have been evaluated. In addition information out of questionnaires from seven zoos/parks could be used for this work. Here are the most important points:

1. The stallions of the Somali-Wild-Asses (*Equus africanus somalicus* Sclater) chase/drive mares in different context. The occurrence of partly aggressive stallions made sorrows in some zoos/parks. Based on my observations the stallions can be divided into two groups:
 - '**gently stallions**', they copulate with mares more or less without problems.
 - '**intensive stallions**', they copulate with mares, often with problems.

The first group behaves - based on studies in the literature - more naturally. 'Ethiopia-Hai-Bar-' and 'Somalia-Basel-line'-Portions as well as inbreeding-coefficients of the animals were investigated for that behaviour, but no satisfying solutions could be found. Individual reasons are probably responsible for the different behaviors of the animals.
2. Between adult and between adult and subadult stallions, aggressions often occur. Based on this fact (in the 11 recorded zoos/parks) adult stallions can actually only be kept in the same fence in the 'Tiergarten Kleve' (Germany) and partly in the 'Wilhelma Stuttgart' (Germany). In addition some facts about the territory of the stallions in the wilderness: It has been described by KLINGEL (1977, 1998) as being 23 km² on an average. This could be a reason for the aggressions between the stallions. They are possibly much to close together.
3. Mares are partly selective with regard to stallions at the sexual behavior. Up to now, this couldn't been explained (like the aggressions between the stallions). The mares with the "more positive" and the "more negative" behaviour were compared. There is possibly a tendency, in mares of the 'Somalia-Basel-line' behaving more positive than the mares of the 'Ethiopia-Hai-Bar-line'. The inbreeding-coefficients of this group are a little bit better too. But the number of datas is very small. Like for the stallions, individual reasons could be responsible for the behaviour of the mares.
4. If there are breeding-problems, we should take into consideration - as the 'Wilhelma-Stuttgart' (Germany) example shows - that the animals could have organic disorders.
5. Long-term relations between adult animals occur in the 'Basel Zoo' (Switzerland) and in the 'Tiergarten Nürnberg' (Germany). In the wilderness, KLINGEL (1977) has only observed long-term relations between mother and foal (However the observation-time was not very long). Further he says: "No hints have been found for the occurrence of long-term relations between adult animals." (Translation German - English by the author). RADEMACHER and WINKLER (2000) however mention in the 'African Equids Husbandry Guidelines' that this behavior exists for the Grevy's zebra (*Equus grevi*) in captivity. Since the social behaviour of the Somali-Wild-Asses is usually set equal to the one of these zebras, one could in fact suppose, that adult-adult-relations can occur for Somali-Wild-Asses as well. But in my opinion that conclusion has to be used with skepticism, because no literature has ever described this behaviour in the wilderness.
6. The distances between mares-stallions are always distinctly larger, and between mares-mares usually a little bit larger in zoos/parks with larger enclosures, as they are in zoos/parks with smaller enclosures. Whether chasing/driving and therefore reproduction-success is - as partly supposed - enhanced by a larger enclosure, can not be answered finally. As we have seen, chasing/driving does not necessarily have to be connected with copulation and reproduction-success.
7. The distances between the observed animals have been divided into categories and statistically compared with the same data-categories of four wild-locations of 'Feral asses' (*Equus africanus 'familiaris'*), the nearest relatives of the investigated animals (there are no quantitative data of the Somali-Wild-Ass existing). The result of all comparisons of all

investigated zoos/parks is: The hypothesis, that the animals in the zoos/parks behave differently during the observation-phases from the animals (feral asses) in the wilderness - relative to the distribution of the distances - can not be rejected.

This result is disillusioning, but is strongly relativated by the following fact: Also the distribution of the distances between the wild-locations has been compared with the same Chi-test. With the same result: Also the distribution of the distances of the animals among the wild-locations does not correspond. In other words: there are no 'correct' distances between the animals at the four wild-locations, therefore only little can be said about the quality of keeping and behaviour of those animals in zoos/parks.

8. There are more social interactions between the animals appearing with a stallion in the herd in all the observation-phases: tolerant behaviour, olfactory communication, acoustical communication, agonistic behaviour, female and - logically - male sexual behaviour and copulation-behaviour increase. Play however decreases. For 'contact-avoidance' and 'mutual grooming' (= two animals grooming each other) no statements can be made.
9. From the 12 recorded activities the most observed were: 1. Walk: 75 % (always: occurrence in % of all observed 15 minute-time-units); 2. Feeding (Feed-Grazing and Feed-Browsing): 71 %; 3. Social Interactions: 61 %; 4. Standing: 55 %; 5. Self Grooming: 25 %. Further activities are: Trot, Canter, Nursing, Elimination (Defecation/Urination), Drinking, Resting-Standing, Resting-Lying.
10. Activities and social interactions have been compared with literature: As a rule the activities of the animals in the observed zoos/parks correspond with the observations in the wilderness. The same goes for the social interactions.
11. The mare **Umbu** (f,72, Nr. 206) of the 'Zoo Basel' (Switzerland), has had 13 times after-growth. It has been put to sleep in February 2001 because of infirmity. It isn't unobjectionable clear, who it's father is. Either **Gumburi** (m,ca.69, Nr. 202) Or **Johnny** (m,ca.69, Nr. 203). Both stallions are in a museum in Bern, Switzerland; the Basel-Zoo stores up parts of the death mare **Umbu** (f,72, Nr. 206). As **Umbu** (f,72, Nr. 206) with its great offspring significantly participates at the living zoo-gene-pool today, I would recommend to make sure through genetic tests who it's (**Umbu** (f,72, Nr. 206)) real father is because of the interest in further breeding of the animals.
12. The 'International Studbook of the African Wild Asses' is an indispensable device for the keeping and breeding of Somali-Wild-Asses (*Equus africanus somalicus* Sclater). I think, it's absolutely important and I would support it, if the next studbook would contain the inbreeding coefficients, the mean-kinship and - if possible - the portion of 'Somalia-Basel-' and 'Ethiopia-Hai-Bar-line' of the animals.
13. From the point of view of conservation biology and genetics (genetic bottle neck, minimum viable population, etc.) it would be wise if the population in zoos/parks and of course the wild populations would grow as fast as possible.
14. In my opinion the young stallion "**Peterle**" (m, 00, Nr. 364) in the 'Tiergarten Nürnberg' (Germany) should be kept alive. In addition, there is no veterinary-medicine reason, to kill the animal. There sure can be found a zoo/park which will take the animal.
15. Apart from other efforts in zoos/parks, especially the wild populations should be protected. The formation of new reservations in Eritrea on the Buri-peninsula, in the adjacent Denkelia-desert and in the Nugaal-valley in Somalia are important for the conservation of

this species. Those new reservations should also be a profit for the native human population, for example through employment and education in the parks. A model, that has not only been described by MOEHLMANN (2000), but also by PRIMACK (1995) concerning other reservations in Africa. The background is, that the human population in the whole spreading-area of the Somali-Wild-Ass (*Equus africanus somalicus* Sclater) is more or less in need. The preservation of the animals will only be possible through cooperation with the local population.

Supplement: In november 2001 in the Basel Zoo (Switzerland) the mare Tana (f,93, Nr. 302) is gravid from the imported stallion Lucas (m,96, Nr. 330). After 8 years, in the year 2002 seems to be a successfull brood possible again.